UWI

ST. AUGUSTINE CAMPUS

UNDER GRADUATE

Science & Technology

REGULATIONS & SYLLABUSES

2015 2016

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HOW TO USE THIS HANDBOOK

Faculty Handbooks are available in both a printed format and an electronic format.

The *printed version* of the Faculty Handbook is an abridged version which contains only the relevant Faculty regulations as well as select extracts of University regulations. It also contains full programme descriptions.

The *electronic version* of the Faculty Handbook which is found online, also includes specific programme regulations and course prospectus showing the requirements for progression and graduation in specific programmes of study.

To find out more about the contents of a specific course or programme of study, please refer to the full, online version of the Faculty Handbook, which is available for download at **www.sta.uwi.edu/facultybooklets.asp**

Students should note that their progress through a programme of study at the University is governed by Faculty regulations and University regulations. Should there be a conflict between Faculty Regulations and University regulations, University regulations shall prevail.

Notwithstanding the contents of Faculty Handbooks, the University reserves the right to modify, add or altogether remove from a programme of study, certain aspects of any course offered by the University, as described in either or both the electronic and printed versions of the relevant Faculty Handbooks.

PRINTED VS ONLINE FACULTY HANDBOOKS:

	Printed Handbook	Online Handbook
Staff Listing	✓	✓
Relevant Faculty Regulations – eg. Admission Criteria, Exemptions, Progression, GPA, Leave of Absence, etc.	✓	✓
Relevant University Regulations including Plagiarism Regulations and Declaration Forms	✓	✓
Other Information on Co-Curricular courses, Language courses and Assistance for Students with Disabilities.	✓	✓
Programme Descriptions and Course Listings – includes list of courses to be pursued in each programme (degrees, diplomas and certificates), sorted by level and semester; course credits and credits to be completed for each programme – majors, minors and specials.	✓	✓
Course Descriptions including details on prerequisites and methods of assessment		✓

ACADEMIC CALENDAR 2015-2016

ACTIVITY	SEMESTER 1 AUGUST - DECEMBER 2015	SEMESTER 2 JANUARY - MAY 2016	SUMMER MAY - JULY 2016
Semester **BEGINS**	August 23, 2015	January 17, 2016	May 15, 2016
Registration	August 17 – September 11, 2015	January 11 – February 05, 2016	May 09 – June 04, 2016
Teaching **BEGINS**	September 01, 2015	January 18, 2016	May 16, 2016
Orientation and Ice Breaker (UWILIFE)	**August 28, 2015**		
Late registration / Late Payment Fee of TT$200.00 **APPLIES**	September 07, 2015	February 01, 2016	May 31, 2016
Application to Carry forward Coursework **ENDS**	September 11, 2015	February 05, 2016	June 03, 2016
Change in Registration (ADD/DROP) **ENDS**	September 11, 2015	February 05, 2016	June 03, 2016
Application for Leave of Absence **ENDS**	September 11, 2015	February 05, 2016	June 03, 2016
Application for Exemptions **ENDS**	September 11, 2015	February 05, 2016	June 03, 2016
Teaching **ENDS**	November 28, 2014	April 17, 2015	July 11, 2015
Semester II Break	**April 19 – 26, 2015**		
Examinations **BEGIN**	December 02, 2015	April 25, 2016	July 12, 2016
Examinations **END**	December 18, 2015	May 13, 2016	July 22, 2016
Semester **ENDS**	December 18, 2015	May 13, 2016	July 22, 2016
ELPT TEST: Scheduled for the following dates	August 17, 2015 and October 15, 2015	February 18, 2016	-
SPECIALLY-ADMITTED 2015/2016	**SEMESTER I**	**SEMESTER 2**	**ENTIRE ACADEMIC YEAR**
Application for Specially Admitted OPENS	November 10, 2014	November 10, 2014	November 10, 2014
Application for Specially Admitted ENDS	June 30, 2015	December 18, 2015	June 30, 2015

CEREMONIES	
Matriculation Ceremony	September 17, 2015
Graduation Dates	October 10, 2015 (Open Campus) October 22 - 24, 2015 (St. Augustine)

MESSAGE FROM THE DEAN

Welcome to the Faculty of Science & Technology (FST), The University of the West Indies, St. Augustine. We are extremely proud and delighted that you have chosen the FST for your tertiary education. This Faculty which partially replaces the former Faculty of Science & Agriculture, will continue to focus on traditional and important disciplines in science such as Mathematics, Physics, Chemistry, Computer Science and Biological Sciences. We have also begun new programmes in exciting and important areas of technology such as, Environmental Technology, Information Technology, and Renewable Energy Technology and have developed new programmes in Biotechnology, Electronics, Computer Science & Technology, Environmental Science, Biomedical Technology and Biomedical Physics.

The FST is the second largest faculty at the St Augustine Campus and also the most diverse in terms of academic programmes offered. At the FST there are highly qualified and competent academic, administrative, technical and support staff, and many state-of-the-art laboratories. We promise to offer you an educational experience that is second to none.

This booklet contains important information on Faculty Regulations as well as details on our various programmes and courses. We encourage you to become very familiar with it. We have put in place several support systems in order to facilitate your success in your chosen field of study. We encourage you to visit your academic advisor on a regular basis to seek assistance in planning your academic programme of study. We also have a Student Services Unit and a dedicated Deputy Dean (Student Matters) who is readily available to assist in addressing problems that you may encounter from time to time.

On behalf of the staff of the FST, I wish you a warm welcome as well as an enjoyable and successful stay in our Faculty.

Professor Indar Ramnarine
DEAN

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SECTION II – INTRODUCTION

A. PROGRAMME OFFERING IN THE FACULTY OF SCIENCE AND TECHNOLOGY

1. The Faculty of Science and Technology (FST) offers the following undergraduate programmes leading to the award of BSc degrees:

BSc IN THE FOLLOWING SPECIAL OPTIONS:

i. Actuarial Science
ii. Biology with specialisations in:
   a) Plant Biology
   b) Zoology
   c) Ecology & Environmental Biology
   d) Biotechnology
   e) Marine Biology
   f) Microbiology
iii. Biomedical Technology
iv. Chemistry
v. Chemistry and Management
vi. Computer Science
vii. Computer Science and Management
viii. Environmental Science & Sustainable Technology
ix. Information Technology
x. Mathematics
xi. Statistics and Economics

The Faculty also offers a **BSc (General)** degree with major(s) and minor(s) in various disciplines as shown in **TABLE 1**.

2. The degree of Bachelor of Science is awarded on thebasis of a programme of studies selected from courses in the Science disciplines together with certain Foundation courses and in some cases a number of approved courses from other Faculties.

3. The FST offers the following BSc degrees (the terms Major, Minor, and Special Option are defined in the Glossary):

   (a) **A BSc (General) degree with:**
      i. a single major in a FST discipline.
      ii. a joint major in two disciplines only, one of which may be from a Faculty other than the FST.
      iii. a single major in a FST discipline PLUS one or two minors from FST and/or other Faculties.

   (b) **BSc Special Option** comprising a prescribed set of departmental, inter-departmental FST or out-of-faculty courses.

   (c) All students admitted to the FST to read the BSc Special Options listed hereunder are required to register for courses in the Faculty of Social Sciences and must be familiar with the list of cross faculty pre-requisites and equivalencies listed in **SECTION VIII**.
      i. BSc Actuarial Science
      ii. BSc Chemistry and Management

TABLE 1 - FACULTY OF SCIENCE AND TECHNOLOGY: MAJORS AND MINORS

DISCIPLINE	MAJORS	MINORS
Biochemistry	Biochemistry	Biochemistry
Biology	Biology	Biology
Chemistry	Chemistry Industrial Chemistry	Chemistry Analytical Chemistry Industrial Chemistry Chemical Biology Materials Chemistry
Computer Science	Computer Science	Computer Science
(Multidisciplinary)	Environmental Science	
Information Technology	Information Technology	
Mathematics	Mathematics	Mathematics
Physics	Electronics Physics	Electronics (Not available to students pursuing the Major in Electronics) Environmental Physics Materials Science Medical Physics & Bioengineering

NOTE: For detailed information on special options/ majors/ minors, please refer to the relevant Departmental sections of this booklet.

iii. BSc Computer Science and Management
iv BSc Statistics and Economics

B. COURSES OFFERED AND THEIR WEIGHTING

4. The following courses which may consist of both theoretical and/or practical components are offered by the University:

(a) **FST FACULTY COURSES:**
These are courses offered by the FST (in-faculty courses). These include Level 0 (or Preliminary) courses in Physics, Chemistry, Mathematics and Biology), Level I (or Introductory) and Levels II & III (or Advanced) courses. Preliminary courses may be used to satisfy matriculation requirements or pre-requisites for Level I, II or III courses**.**
Preliminary courses, however, do not contribute towards the credit requirements for the award of the BSc degree but contribute towards a semester credit loading (6 credits each).

(b) **SERVICE COURSES**:
These provide students with basic technical and analytical skills.

(c) **OUT-OF-FACULTY COURSES**:
These are courses offered by Faculties other than FST which may contribute towards the requirements for the award of a degree. Approval must be granted by the Dean before a student can pursue an out-of-Faculty course if such course is not part of the candidate's degree programme.

(d) **FOUNDATION COURSES:**
i. In order to qualify for the award of a BSc degree in the FST, all students must pass a minimum of nine (9) credits of Foundation Courses. These courses are Level I courses and are designed to augment the general education of students.
ii. The three Foundation Courses (3 credits each) required to be taken by the FST students are:
- FOUN 1101 - Caribbean Civilisation
- FOUN 1105 -Scientific and Technical Writing
- FOUN 1301 - Law, Governance, Economy and Society

iii. The Foundation Course, FOUN 1210 (Science, Medicine and Technology in Society) will NOT count for credit towards programmes in FST.
iv. On entry into the FST a student may be required to pass the English Language Proficiency Test (ELPT) before s/he can register for FOUN 1105. However, students with the following qualifications can register directly for FOUN 1105.
- Grade I in CSEC English Language, or
- Grade I or II in CAPE Communication Studies, or
- Grade A or B in General Paper in the GCE A-Level Examination.

5. Courses normally extend over one (1) semester, but in special cases may extend over two (2) semesters (year-lomg courses).

6. The weight of a course is expressed in terms of credit hours, and the credit-weighting of a course is determined by the Faculty which administers the courses. In general, a course with one contact hour per week for one semester has a weighting of one credit.

C. CO-CURRICULAR CREDITS

7. Courses involving independent, supervised activities which would earn the student co-curricular credits may be pursued upon approval by the Campus Academic Board. The co-curricular programme allows you to choose from a range of non-academic courses that help you to acquire characteristics to excel in life in the 21st century. These courses are practical in nature and help you to develop attributes which are critical for your success.

i. Students are eligible to register for co-curricular credits after their first semester of studies.
ii. Each student is eligible to count no more than three (3) credits towards his/her degree for involvement in co-curricular activities.
iii. The programme of co-curricular activities must have the approval of the Faculty and Academic Board before it is undertaken by the student.
iv. The Deputy Dean with responsibility for Outreach (Dr. Donna Comissiong) is the Faculty's Coordinator for the co-curricular programme. Please consult with the Coordinator if you are interested in pursuing co-curricular activities.
v. Co-curricular credits will be awarded on the following basis:
- students must be involved in the activity for at least one (1) semester
- explicit learning outcomes must be identified for each activity
- there must be clearly defined mode(s) of assessment for each activity

vi. The grading of co-curricular activities will be on a pass/fail basis and will not contribute to a student's GPA

vii. The three Level I credits earned for involvement in co-curricular activities may be included as part of the overall general credit requirement for the award of the BSc General Degree. However, such credits earned shall NOT be used in the computation of a student's Weighted Grade Point Average for determining the Class of Honours.

viii. For further details on co-curricular offerings, please consult the Deputy Dean (Outreach) or visit the website at **http://sta.uwi.edu/cocurricular/**

The following co-curricular courses are available*:

LEVEL 1

Course Code	Course Title	Credits
COCR 1001	Minding SPEC: Exploring Sports, Physical Education and Health & Wellness	3
COCR 1012	Workplace Protocol for Students	3
COCR 1013	Financial Literacy and Training	3
COCR 1030	Technology Literacy	3
COCR 1031	Managing My High (MY High): Alcohol, Drugs and Addictive Behaviours	2
COCR 1032	Living and Learning: Professional development through community service	2
COCR 1033	Mind the Gap: Towards Psychological Health & Wellness	1
COCR 1034	Public Speaking and Voice Training: Towards a More Confident You	3
COCR 1036	Ethics And Integrity: Building Moral Competencies	3
Microsoft Office 2013		
COCR1025	Microsoft Word	2
COCR1026	Microsoft Excel	2
COCR1027	Microsoft PowerPoint	2
COCR1028	Microsoft Outlook	2
COCR1029	Microsoft Access	2

***NOTE**: All co-curricular course codes begin with COCR. Visit **http://sta.uwi.edu/cocurricular/** for course descriptions , availability and registration instructions. New courses are to be introduced so keep checking the website for updates during the academic year.

D. EVENING UNIVERSITY

8. Currently, the FST offers only the BSc in Information Technology through the Evening University. Please consult the section under the Department of Computing and Information Technology in this booklet for specific details of the programme offered. No new students are being accepted into this programme.

9. Students in the Evening University Programme will normally be required to register for a maximum of 9 credits of courses per semester. There will be three semesters per year in the Evening University. Classes will normally be held during the hours of 5:00-10:00 p.m. on weekdays and also on Saturdays. For further general information about the Evening University Programmes, please contact the Office of the Evening University or visit the website **http://sta.uwi.edu/evening/introduction.asp**

E. DEAN'S HONOUR ROLL

10. **Eligibility for inclusion on the Dean's Honour Roll**
The following guidelines are applicable:

(a) Inclusion on the Dean's Honour Roll will be on a Semester basis. The Summer School will not be considered.

(b) Students must obtain a Semester GPA of 3.60 and above in any semester

(c) Full-time students must have passed a minimum of 15 credits in the semester. Part-time and Evening University students must have passed a minimum of 9 credits in the semester.

Credits gained for the following will NOT be taken into consideration in computing the Dean's Honour Roll:

- Co-curricular offerings
- Internship programmes
- Audited courses
- Summer courses
- Not-for-credit courses

(d) Repeat courses will be included in the computation of the Semester GPA towards the Dean's Honour Roll

(e) Special consideration will be given to students who are differently-abled and who have obtained a semester GPA of 3.60 and above but who have registered for less than 15 credits.

Such students must declare and provide supporting documents as evidence of their disability at the start of the semester. Decisions for inclusion of such differently-abled students in the Dean's Honour Roll will be taken at the Faculty's Board of Examiners Meeting. In addition, such students must be registered with the Academic Support/Disabilities Liaison Unit (ASDLU).

F. ACADEMIC SUPPORT/DISABILITIES LIAISON UNIT (ASDLU)

11. The Unit provides support for the diverse population of students throughout the University including full-time, part-time and evening students, international students, student athletes and students with special needs.

(a) **Support Services for STUDENTS WITH SPECIAL NEEDS (Temporary and Permanent)**

- Provision of aids and devices such as laptops, USB drives, tape recorders and special software
- Special accommodation for examinations
- Classroom accommodations
- Academic support
- Liaison with faculties and departments

Students with special needs should make contact before or during registration. Every effort will be made to facilitate your on-campus requirements in terms of mobility, accommodation, coursework, examinations, and other areas.

No student of The UWI will be discriminated against on the basis on having special needs. Sharing your needs before registration will enable us to serve you better as a part of the Campus community.

(b) **Academic Support Services for ALL STUDENTS**

- Educational Assessment – LADS (dyslexia) – LASSI (Study Skills)
- Examination Strategies
- Workload Management
- Career Planning
- Study Skills
- Peer Tutoring

(c) **How do I register at ASDLU?**

- Visit ASDLU to make an appointment to meet the Co-ordinator.
- Complete the required registration form
- Students with disabilities must submit a medical report from a qualified medical professional
- An assessment of the student's needs will be conducted
- The required assistance will be provided

All Students experiencing academic challenges should communicate with **Ms. Jacqueline Huggin**s, Coordinator, Academic Support/Disabilities Liaison Unit, south of The Alma Jordan Library.

Tel: 662-2002 Exts 83921, 83923, 83866, 84254.
Hours: 8: 30 am- 4:30 pm
Monday, Wednesday & Friday
8:30 am – 6:00 pm
Tuesday & Thursday to accommodate
Part-time and Evening students.
Email: **ASDLU.Office@sta.uwi.edu**

Registration forms are available at the office or from the website at **www.sta.uwi.edu/asdlu**

**** In 2015/2016 look out for changes and improvements to the ASDLU and our entire network of student support and development services! ****

G. INFORMATION RESOURCES AT THE ALMA JORDAN LIBRARY

A crucial part of your undergraduate training is learning when you need information, what kind of information you need, what information is available as well as how to search for, select and obtain relevant information. Such information literacy skills will equip you well for your assignments, examinations and career.

Our wide-ranging collection spans several subject areas relevant to the Faculty of Science and Technology, including Actuarial Science, Agricultural Sciences, Astronomy, Biomedical Technology, Chemistry, Computer Science, Information Technology, Life Sciences, Mathematics, Physics and Statistics.

Aside from holding over 430,000 books, 800 print journal titles, and 55,300 bound journal issues. We offer access to more than 67,000 electronic journals, 35,200 e-books and 252 databases—much of this material is not available freely on the Internet. Online resources can be accessed on and off-campus. Moreover, a sizeable body of regional research may be accessed from maps, newspapers, theses and other materials in the West Indiana and Special Collections Division.

In addition to providing resources you may consult and borrow, the Library offers audio-visual, computing, photocopying and printing facilities, as well as areas for quiet study and seminars. Our Reference Service can assist you with your research questions.

You may attend specialist information literacy training and arrange for consultation sessions that will help you to improve your research and citation skills. Do attend our Library orientation session and tour to ensure, from the start, that you have access to essential support for your studies.

For further information, please visit the second floor of the Alma Jordan Library or contact:

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SECTION III - GLOSSARY

TERM	DEFINITION
Anti-requisite	Two mutually exclusive courses of which credit may be granted for only one.
Co-requisite	A course which must be taken along with another specified course, in order to ensure the attainment of the complementary and/or independent competencies.
Course	A body of knowledge circumscribed by a syllabus to be imparted to students by sundry teaching methods and usually followed by an examination. A course may be either compulsory or elective.
Credit	A measure of the workload required of students. 1 Credit Hour is equivalent to 1 hour lecture/tutorial/problem class per week OR 2 hours of laboratory session per week for a semester.
Cumulative GPA	Grade point average obtained by dividing the total grade points earned by the total quality hours for which the student has registered for any period of time excluding courses taken on a Pass/Fail basis, audited courses, courses taken for Preliminary credit, incomplete and in-progress courses.
Discipline	A body of knowledge distinguishable from other such bodies on the basis of criteria such as method of enquiry, axioms, area of application.
Elective	A course within a programme taken by choice of the student.
Faculty courses	All courses except Foundation and Co-curricular courses
In-faculty courses	All faculty courses originating in the Science Faculties
Level	A state in a programme for which courses are designed (at UWI it is denoted by the first digit in a course code). For example BIOL 2062 is a Level II course whereas BIOL 3864 is a Level III course.
Major	A specified number of credits (normally 30) including prescribed courses from Level II & III from a single discipline (see Departmental course listing).
Marginal failure	45% to 49% in the overall examination.
Minor	A specified number of credits (normally 15) including prescribed courses from Levels II & III from a single discipline
Option	A prescribed combination of Levels I, II and III courses, within the Faculty or across Faculties, leading to a degree.
Out-of-faculty courses	All faculty courses originating in faculties other than the Faculty of Science and Technology
Part	Portion of a programme defined by the regulations governing the programme.
Plagiarism	The unauthorized and/or unacknowledged use of another person's intellectual efforts and creations howsoever recorded, without proper and unequivocal attribution of such source(s), using the conventions for attributions or citing used in this University.
Pre-requisite	A course which must be passed before the course for which it is required may be pursued.

Programme A selection of courses (designed to achieve pedagogical goals) the taking of which is governed by certain regulations and the satisfactory completion of which (determined by such regulation) makes a candidate eligible for the award of a degree/ diploma/ certificate.

Preliminary Course A Level 0 course used to satisfy entry requirements but does not contribute towards the requirements for the award of the degree.

Remedial Course A course that is offered in Summer School only for students who have failed this course during the semester.

Science Faculties The Faculties of Science and Technology.

Semester GPA GPA computed on the basis of all courses done in a semester, without reference to weighting except in terms of credits. (The terms Grade Point, GPA, Quality Hours, Honours GPA, Cumulative GPA and Quality Points are defined in the UWI Grade Point Average Regulations Booklet).

Subject An area of study traditionally assigned to the purview of a department.

Students:

Part-Time Student A part-time student will normally be expected to register for 6 to 9 credits of courses per semester. These courses may be scheduled at any time of the day on the timetable.

Full-time Student A full-time student will normally be expected to register for 12 to 15 credits per semester.

Evening Student A student registered in an Evening University Programme will be required to attend classes on weekdays between the hours of 5:00pm - 10:00pm and on Saturdays between the hours of 8:00am - 8:00pm.

Specially Admitted Student Students admitted to pursue a limited number of courses.

Study Abroad/ Student An exchange programme which allows students to spend one or two semesters at universities Exchange abroad in order to broaden their experience, understanding and perception of science in a different environment where a wider range of courses is available including independent study projects.

Supplemental Oral An oral examination, offered on recommendation of Departments and Faculty, to students who have registered a marginal failure in an advanced course.

Weighted GPA Weighted grade point average used to determine the class of degree. This GPA is computed on the basis of all courses done in the Advanced Part (Levels 2 & 3) of the Degree programme.

SECTION IV - FACULTY REGULATIONS

All students of the University are subject to University Regulations approved by the Senate of the UWI. Where there is conflict between the regulations of any Faculty and the University Regulations, the University Regulations shall prevail.

H. QUALIFICATIONS FOR ADMISSION INTO THE FACULTY

11. In order to be admitted to the three-year degree programme, candidates must satisfy the University requirements for Matriculation (see the University Regulations for Undergraduate Students) and have passed the CSEC General Proficiency Level examination at Grades I, II or, since 1998, Grade III (or equivalent qualifications) in Mathematics, English Language and three additional subjects listed in SECTION VII.

12. Candidates must also:
    (a) have obtained passes in a minimum of two two-unit subjects at CAPE (or GCE A-Level or equivalent qualification), **OR**
    (b) have an approved Associate Degree or equivalent certification with a minimum GPA of 2.5 in a relevant programme from a tertiary level institution recognised by UWI, **OR**
    (c) have any other appropriate qualifications acceptable to the FST**.**

13. **In addition to the above general qualifications for admission, candidates must also satisfy the specific subject requirements for entry into the various FST programmes they wish to pursue.** These are listed in **TABLE 2**:

TABLE 2 : CAPE (GCE A-LEVEL OR EQUIVALENT) QUALIFICATION FOR ENTRY INTO VARIOUS FST PROGRAMMES*

PROGRAMME	CAPE SUBJECT(S) (GCE A-LEVEL OR EQUIVALENT) REQUIREMENT
BSc General with majors in:	
• Biochemistry	Chemistry and Biology
• Biology	Two (2) subjects including Biology
• Chemistry	Two (2) subjects including Chemistry
• Industrial Chemistry	Two (2) subjects including Chemistry
• Computer Science	Two (2) subjects including Mathematics
• Electronics	Two (2) subjects including Physics and Mathematics
• Environmental Science	Two (2) subjects including Biology, Geography or Environmental Science
• Information Technology	Two (2) subjects including one (1) science subject
• Mathematics	Two (2) subjects including Mathematics
• Physics	Two (2) subjects including Physics OR Mathematics with CSEC Physics or equivalent
BSc Special Options:	
• BSc Actuarial Science	Two (2) subjects including Mathematics (Minimum Grade II)
• BSc Biology with specialisations	Two (2) subjects including Biology
• BSc Biomedical Technology	Two (2) subjects including Physics OR Mathematics with CSEC Physics or equivalent
• BSc Chemistry	Two (2) subjects including Chemistry
• BSc Chemistry and Management	Two (2) subjects including Chemistry – (Minimum Average Grade III or equivalent)
• BSc Computer Science	Two (2) subjects including Mathematics
• BSc Computer Science and Management	Two (2) subjects including Mathematics
• BSc Environmental Science & Sustainable Technology	Two (2) science subjects – (Minimum Average Grade III or C) including Biology, Geography or Environmental Science
• BSc Information Technology	Two (2) subjects including one (1) science subject
• BSc Mathematics	Two (2) subjects including Mathematics
• BSc Statistics and Economics	Two (2) subjects including Mathematics (Minimum Average Grade III)

For a list of approved science CAPE/GCE A-Level subjects, see SECTION VII.

I. APPLICATION PROCEDURE

14. Applications for entry to the FST must be received by the Admissions Section of the Registry by March 31st of the year in which the applicant wishes to enter and shall be accompanied by certified evidence of all relevant examinations passed. Students are encouraged to apply online at **http://www.uwi.edu/students/admissions.aspx**.

J. LIST OF EXEMPTIONS

15. Provided that requirements to Statute 47 are fulfilled, students admitted to the FST may be exempted **with or without credits** from Level I and/or Level II or Level III courses if they:
    - are holders of degrees from approved universities; or
    - have partially fulfilled the requirements of such degrees; or
    - are holders of Associate Degrees from approved tertiary level institutions; or
    - have transferred from different BSc degree programmes or from other programmes of study within the University.

    Application for **EXEMPTIONS** must be made upon entry to the Registry (Admissions Section).

16. Where **EXEMPTIONS WITHOUT CREDITS** are granted, students will be required to pursue alternative courses as approved by the Head of Department. The following is a list of exemptions with/without credits currently offered by the FST:

    (a) COSTAATT Associate in Science Degree in BIOLOGY:
    Students entering the Faculty with a GPA of 2.75 and above in the COSTAATT Associate in Science Degree in Biology will be exempted **WITH CREDIT** from the following:
    - CHEM 1062, BIOL 1262, BIOL 1263, BIOL 1362, BIOL 1364

    (b) COSTAATT Associate in Science Degree in CHEMISTRY:
    Students entering the Faculty with a GPA of 2.75 and above in the COSTAATT Associate in Science Degree in Chemistry will be exempted **WITH CREDIT** from the following:
    - CHEM 1065, CHEM 1066, CHEM 1067, CHEM 1068 and CHEM 1070

    (c) COSTAATT Associate in Science Degree in PHYSICS:
    Students entering the Faculty with a GPA of 2.75 and above in the COSTAATT Associate in Science Degree in Physics will be exempted **WITH CREDIT** from the following:
    - PHYS 1221, PHYS 1222, PHYS 1223 and PHYS 1224.

    (d) Students who have The UWI ROYTEC Associate Degree in Information Systems Management (ADISM) **with a minimum GPA of 2.50** will be accepted for entry **without exemption/credits** into the following programmes:
    - BSc General Major/Minor (Computer Science)
    - BSc Computer Science
    - BSc Computer Science and Management
    - BSc General Major (Information Technology)
    - BSc Information Technology

    (e) UWI ROYTEC Associate Degree in Information Systems Management (ADISM).
    Students with a **GPA of 2.75 or better** admitted into the BSc INFORMATION TECHNOLOGY programme will be exempted **with credits** from the following courses:
    - INFO 1500, INFO 1501, INFO 1502, INFO 1503, INFO 1504, INFO 1505, INFO 1506, INFO 1507.

    and **will be permitted to register for Level II courses.**

K. REGISTRATION

17. (a) A student pursuing a degree in the FST may register as a full-time student, a part-time student or as an Evening University student. A student may apply to change his/her status during the tenure of the degree.

    (b) A student who is in full-time employment must pursue the degree as a part-time student or as an Evening University student only.

    (c) Full-time students may take up employment for not more than 12-hours per week without losing their full-time status. A student who is employed for more than 12-hours per week shall be registered as a part-time or an Evening University student.

    (d) A **full-time** student is normally expected to register for **12 to 15 credits** per semester at Level I and 12 to 16 credits per semester at Levels II/III.

    (e) A **part-time** student is normally expected to register for **6 to 9 credits** per semester offered under the day programme.

    (f) An Evening University student is normally expected to register for **6 to 9 credits** per semester at Level I and **6 to12 credits** per semester at Levels II/III.

18. (a) Students must register for courses that they wish to pursue by the dates prescribed by the Campus Registrar.

(b) Changes to registration (add/drop courses) will be permitted only within the prescribed periods at the start of Semesters I and II. (Refer to the Campus Web Site and Notice Boards for actual dates)

(c) A student's registration for a course is complete only after his/her financial obligations to the University have been fulfilled.

19. (a) A student who has passed a course will not be permitted to re-register for that course except for preliminary courses.

(b) A student may not be allowed to register for a course on the grounds of repeated failure or poor performance in that course.

Medicals

20. (a) Registration for any course constitutes registration for the associated examination. A student will therefore have failed the course if s/he does not attend the examination without having previously been allowed to withdraw from the course or without having tendered evidence of illness at the time of the examination, certified by a medical practitioner recognised by the University. **In the latter case, the medical report must reach the Campus Health Service Unit (HSU) no later than seven days after the date of the relevant examination.**

(b) Medical Certificate/Report forms are available online at **http://sta.uwi.edu/onlineForms.asp**

(d) In cases where the medical submitted for a missed coursework examination is approved by the Campus HSU, the candidate shall be granted a substitute coursework examination at a date prescribed by the relevant Department.

(c) In cases where the medical submitted for a missed final examination is approved by the Campus HSU, the grade designation of AM (Absent Medical) will apply provided that the student has passed the coursework in that particular course. The designation AM carries no penalty.

L. PROGRESS THROUGH THE PROGRAMME

21. (a) Students admitted to the three-year programme, may not register for preliminary courses.

(b) In order to satisfy the minimum requirement for entry to the advanced part of the programme (Level II and III), a student must normally record passes in Level I courses equivalent to a minimum of twenty-four (24) credits of Faculty courses.

(c) A student who has obtained passes in Level I Faculty courses equivalent to twelve (12) credits in the first two (2) semesters of full-time study may, on the approval of the Dean, be allowed to register for a **limited number of Level II courses in addition to those courses required to complete Level I requirements. However, the total credit loading per semester must not be exceeded.**

(d) Full-time students who require **NOT MORE THAN TWENTY (20) CREDITS** in order to graduate, who have satisfied all Foundation course requirements, and are exempted from laboratory coursework in at least one course, may be allowed to register for twenty (20) credits of Faculty courses with the permission of the Dean.

M. STUDY ABROAD/EXCHANGE PROGRAMMES

22. UWI students, while ***at exchange Universities***, will continue as regular full-time students of the University of the West Indies. Such students will pay UWI tuition fees and pursue matching and/or approved courses for credit. Credits earned abroad will be transferred to UWI and applied to regular Faculty degree requirements in accordance with Regulations 47.

23 (a) FST students who wish to participate in an exchange programme at an approved institution and desire to have the credits obtained used toward a UWI degree, must obtain written approval in advance from the Dean and register for equivalent courses offered by FST. **Failure to do so may preclude the acceptance of the credits earned at the exchange institution.**

(b) Students must normally have a minimum Cumulative GPA of 3.0 and have spent at least two semesters of full-time study at UWI to qualify for the Exchange Programme.

(c) Where the course to be taken is to be substituted for a UWI course, the content of the course must be certified in advance by the relevant Department as being equivalent to the UWI course. Course outlines and syllabuses must be provided by the student in order to facilitate the evaluation process.

(d) **Only grades earned at the exchange institution and not the marks shall be used in the computation of the student's GPA.**

Students are advised to visit the website of the Office of Institutional Advancement and Internationalization (International Office) for a current list of Universities with which UWI has entered into cooperative arrangements for study exchanges at **http://sta.uwi.edu/international** or contact:

The Director
Office of Institutional Advancement and Internationalization
The University of the West Indies
St. Augustine Campus
Trinidad and Tobago, W.I.
Tel: 663-3348 Exts. 84184, 84151
Fax: (868) 662- 6930
Skype: uwi-sta-Io
Email: **internationaloffice@sta.uwi.edu**

N. EXAMINATIONS

24. In order to pass a course, a student must have satisfied the examiners in the associated examinations and must have attended at least 75% of classes associated with that course.

25. The Academic Board on the recommendation of the Faculty Board concerned, may debar a student from writing the examination associated with a course, based on attendance of less than 75% of lectures /laboratory classes/tutorials. The designation recorded for such a candidate in that course will be DB (debarred).

26. The examination associated with each course shall be conducted mainly by means of written and/or practical papers, normally taken at the end of the semester. However, oral examinations as well as performance in coursework in the form of essays, in-course tests, research papers, projects, or continuous assessment of theoretical and/or practical work may contribute towards the final grade awarded in a course. (Refer to individual course outlines and the departments for the specific modes of assessment and their weightings)

27. (a) A student may be granted two supplemental oral examinations in failed Level II/III courses provided that the student has completed all level I requirements and passed a minimum of 30 levels II/III credits. However, a maximum of **three oral examinations** may be granted to final year students in circumstances when passing a single course is all that is required.

(b) Students passing such oral examinations will be awarded the minimum pass mark of 50% (Grade C, Quality Point 2.0) and will not have any right of appeal or review of the outcome.

(c) Students offered oral examinations may choose to decline the offer.

28. A student who fails the examination associated with a course may be given permission to repeat the course and the examination on subsequent occasions.

29. In the event that such a student has satisfied the examiners in the practical coursework component of the failed course, the candidate may, on the recommendation of the relevant Department, be exempted from the laboratory coursework

30. A **Remedial course** in FST offered as part of the Summer School Programme is considered a repeat of the course.

31. A student who writes an examination without being registered, will not be granted credit for this examination.

O. PLAGIARISM DECLARATION

32. A declaration must be made In accordance with the University Regulations on Plagiarism (First Degrees, Diplomas and Certificate) and must be attached to all work submitted by a student to be assessed as part of, or the entire requirement of the course, other than work submitted in an invigilated examination. By signing this declaration, a student is declaring that the work submitted is original and that it does not contain any plagiarised material. See **SECTION X** for the Plagiarism Declaration and the University's Regulations regarding Plagiarism.

P. GENERAL REQUIREMENTS FOR THE AWARD OF THE DEGREE

33. In order to be eligible for the award of the BSc degree in FST, students must have:

i. been in satisfactory attendance for a period equivalent to at least six (6) semesters of full-time study from entry at Level I

ii. obtained passes in Levels I, II and III and Foundation Courses amounting to the number of credits shown in **TABLE 3**

iii. a minimum Weighted Grade Point Average of 2.00

iv. the minimum 93 credits required for the award of a BSc General Degree, a MINIMUM of 24 Level I credits of which 12 must be FST

credits, a minimum of 60 advanced credits and at least a major from FST, or

v. a minimum of two years of full-time study and 60 advanced credits provided that they possess qualifications from another recognised tertiary level institution.

PLEASE NOTE CAREFULLY THAT THE CREDIT REQUIREMENT FOR THE AWARD OF THE BSc DEGREES VARIES DEPENDING UPON THE PROGRAMME YOU ARE PURSUING

TABLE 3: CREDIT REQUIREMENT FOR THE VARIOUS DEGREES

DEGREE	LEVEL I CREDITS	LEVEL II - III CREDITS	FOUNDATION COURSES CREDITS	TOTAL
BSc (General) with majors/minors	24	60	9	93*
BSc (Special Options):				
BSc Actuarial Science	29	64	9	102
BSc Biology with Specialisations	24	60	9	93
BSc Biomedical Technology	24	60	9	93
BSc Chemistry	24	60	9	93
BSc Chemistry and Management	24	60	9	93
BSc Computer Science	24	60	9	93
BSc Computer Science and Management	30	60	9	99
BSc Environmental Science & Sustainable Technology	24	60	9	93
BSc Information Technology	24	60	9	93
BSc Mathematics	27	60	9	96
BSc Statistics and Economics	28	62	9	99
** NB: This is the MINIMUM REQUIREMENT and may vary depending upon the credit requirements for the major/minor you are pursuing*				

3. Students will be granted credits only once for the same course offered under different majors/minors. In such cases students will be required to pursue alternative courses which must be approved by the Dean.

35. Exemptions from specific parts of the degree programme may be obtained under the provision of Regulations 15 and 16.

Q. DECLARATION OF MAJORS, MINORS AND SPECIAL OPTIONS

36. (a) Students are required to register for a major/special option upon initial entry into the Faculty. However, students may request a change in major/minor/option as they progress along their degree. Students desirous of pursuing majors in a Faculty other than FST must apply for and obtain official approval from that Faculty before pursuing such majors.
(b) Students must make a final declaration of their proposed majors/minors/special options by the end of the registration period of the semester in which they intend to graduate.
(c) Students who have met the requirements for the degree for which they have registered/declared may not register for further courses in pursuit of that degree.

R. TIME LIMITS FOR COMPLETION AND ENFORCED WITHDRAWALS

37. (a) A Semester grade point average (GPA) based on grades earned on all approved courses for which the student is registered in a semester, will be used as the basis for the determination of his/her academic standing.
(b) A student whose GPA in any Semester is less than 2.00 will be placed on warning.
(c) A Dean's Hold will be placed on a student on warning. Such a student will have to seek academic advising from the Dean before the Dean's hold can be removed. This MUST be done within the prescribed registration period at the start of the Semester. A reduced academic load will be recommended.
(d) A STUDENT WHO IS **ON WARNING** AND WHO FAILS TO OBTAIN A SEMESTER GPA OF **AT LEAST 2.00 IN THE SUCCEEDING SEMESTER** WILL BE **REQUIRED TO WITHDRAW** FROM THE FACULTY.

38. For the purposes of Regulation 39 below, any semester in which a student is registered part-time, will be counted as half of a semester of full-time study.

39 (a) Full-time students will normally be required to complete the requirements for the degree in a minimum of six or a maximum of ten semesters of full-time study.

(b) Students who do not complete the programme within the maximum period stated In Regulation 39 (a) above will normally be required to withdraw from the Faculty at the end of the academic year in which the maximum time limit is reached.

40. In the event that a student has exhausted the maximum period stated in Regulation 39(a), but still requires for the completion of the degree programme:
(a) passes in courses totaling no more than eight (8) credits, **AND/OR**
(b) passes in Foundation courses only,

approval may be sought from the Board for Undergraduate Studies for an extension of the period of study by one or two consecutive semesters.

41. For the purposes of Regulation 39(a) any semester for which a student has obtained Leave of Absence from the Faculty shall not be counted.

42. A student who was required to withdraw for reasons of failure to progress may be re-admitted to the Faculty on the following conditions:
(a) A minimum of two consecutive semesters has elapsed since the date of withdrawal.

(b) The FST is satisfied that the contributing circumstances for the withdrawal have altered substantially.

(c) All grades previously obtained, (except those for courses that have been deemed outdated), shall continue to apply for the purpose of determining the student's GPA.

(d) Courses pursued in the UWI Summer School during the period of withdrawal shall be included in all relevant grade point average calculations if the student re-enters the Faculty.

43. (a) **A student who was required to withdraw from the Faculty MUST APPLY for re-entry by the date prescribed by the Campus Registrar. A student will not be admitted before a year has elapsed. Application for re-entry must be done prior to the deadline for applications as follows:**

(b) A student who is required to withdraw at the end of Semester I of an academic year must reapply **by 15th December of the following academic year** for readmission in Semester II of that academic year.

(c) A student who is required to withdraw at the end of Semester II or Summer Session of an academic year must reapply **by 30th January of the following academic year** for readmission in Semester I of that academic year.

(d) A student who was required to withdraw and was re-admitted and then required to withdraw for a second time, will not normally be considered for re-admission again until a minimum period of five years has elapsed.

S. LEAVE OF ABSENCE AND VOLUNTARY WITHDRAWAL

4. (a) A student who wishes to be absent from the Faculty for a semester or more may apply for Leave of Absence.

(b) Leave of Absence will not be granted for more than two consecutive semesters in the first instance. However, students may apply for an extension of Leave of Absence.

(c) Leave of Absence will not be granted for more than two consecutive years.

(d) Applications for Leave of Absence should normally be submitted no later than the end of the prescribed change in registration period in the relevant semester.

45. A student who does not register for any course during a semester without having obtained Leave of Absence will be deemed to have withdrawn from the University and will have to re-apply for entry to the University if s/he so desires.

46. A student who voluntarily withdraws from the University and then applies for re-admission within five (5) years shall be granted exemption and credit for all courses previously passed unless the Department concerned declares that the material covered in a course has become outdated. All grades previously obtained except those for courses declared outdated shall be used in the determination of the GPA of such a student.

T. GPA AND CLASS OF DEGREE AWARDED

47. (a) All students in the FST, irrespective of their date of entry into the FST, are subject to the current GPA regulations.

(b) A Cumulative Grade Point Average based on all courses completed for which grades have been obtained (excluding Preliminary courses, those taken on a Pass/Fail basis, audited courses and courses designated I or IP), will be calculated and recorded on the student's transcript.

(c) A Weighted Grade Point Average based on grades obtained on **ALL LEVEL II AND III COURSES** registered for, including all courses in the declared major(s)/minor(s)/option whether passed or failed, will be used in the calculation for determination of the class of the degree. (See Regulations 48 and 49 for the relationship between marks, Grade Point Average and Class of Honours).

(d) First Class Honours, Second Class Honours (Upper and Lower Division), or a Pass degree will be awarded on the basis of the Weighted Grade Point Average (GPA) of all Level II/III courses taken (passed and failed).

U. GRADING SCHEME

48. The Grading Scheme used in the FST is shown in **TABLE 4**:

TABLE 4 – GRADING SCHEME

GRADE	MARK	GRADE DESCRIPTOR	QUALITY POINT
A+	90-100	Exceptional	4.3
A	80-89	Outstanding	4
A-	75-79	Excellent	3.7
B+	70-74	Very Good	3.3
B	65-69	Good	3
B-	60-64	Satisfactory	2.7
C+	55-59	Fair	2.3
C	50-54	Acceptable	2
F1	45-49	Unsatisfactory	1.7
F2	40-44	Weak	1.3
F3	0-39	Poor	0

V. CLASS OF HONOURS

49. A student's class of degree will be based on his/her Weighted Grade Point Average (GPA) of all Level II/III courses as follows:

Honours	Weighted GPA
First	3.60 – 4.30
Upper Second	3.00 – 3.59
Lower Second	2.50 – 2.99
Pass	2.00 – 2.49

W. AEGROTAT DEGREE

50. (a) A candidate who, by virtue of illness, was prevented from attending examinations or part of the examinations associated with one or more Level II/III courses in the year of anticipated graduation may apply to the Board for Undergraduate Studies through the University Registrar for an Aegrotat pass in the course. Such an application will only be granted if all the following conditions are satisfied:

i. The relevant Head of Department reports that, on the basis of the candidate's performance during the period preceding the examinations, the candidate was expected to pass the examinations concerned and has satisfactorily completed any associated coursework.

ii. The application reaches The University Registrar not later than thirty (30) days after the date of the last paper in the examination concerned.

iii. The application is accompanied by a medical certificate attesting to the illness and issued by a medical practitioner recognised for this purpose by The University.

(b) No grade will be awarded in respect of an Aegrotat pass, and a candidate, having been awarded an Aegrotat pass, will not be allowed to re-enter the examination for the course concerned on a subsequent occasion. An Aegrotat pass may not be used to satisfy a Prerequisite for other Level II/III courses.

(c) A candidate, having satisfactorily completed the degree programme, who includes Aegrotat passes in courses counted for the degree programme, will be eligible for the award of an Aegrotat degree, provided that both of the following conditions are satisfied:

i. the courses in which the Aegrotat passes have been granted (and which need to be counted towards the award of the degree) are equivalent to no more than twenty-four (24) credits.

ii. no more than sixteen (16) credits mentioned in c (i) above arise from courses making up the candidate's major.

(f) The Aegrotat degree will be awarded without Honours.

SECTION V - REGULATIONS GOVERNING THE FST SUMMER SCHOOL PROGRAMME

The FST generally offers **remedial course**s for students who are repeating laboratory-based and/or non laboratory-based courses during the Summer School. The FST may also offer a limited number of full courses that are non-laboratory based in the Summer School. The maximum number of credits for which a student may register in Summer School is normallytwelve (12).

1. **ELIGIBILITY FOR ADMISSION TO THE SUMMER SCHOOL PROGRAMME**
The following categories of students are eligible for admission to the Summer School Programme:
a. Registered students of the University who have to repeat any of the course(s) offered.

b. Registered students of the University who have not taken the course(s) previously but fall into one of the following categories:-

- Students of the University **who have not yet completed the requirements for the degree, diploma or certificate programme** for which they are registered.

- Registered **UWI** students **from other campuses.**

c. Students of the University who have been granted (a) leave of absence for Semester 1 and / or 2 preceding the Summer School Programmes, or (b) permission to Write "Examinations Only", or (c) who have been asked to withdraw and are desirous of continuing with their programme of study

d. Other persons, not students of the University, who are eligible to matriculate at either the normal or lower level or as a mature student

2. **APPLICATIONS**
Please visit the Campus Website **http://sta.uwi.edu/admissions/undergrad/summer_programme.asp** for further information.

3. **FEE PAYMENT**
Students will be required to pay a fee for each course registered for in the Summer School Programme. This fee is subject to change. Please visit the university website for current fees

3. **ATTENDANCE**
MINIMUM ATTENDANCE of 75% of Lectures / Tutorials / laboratory classes/field trips is required.

4. **COURSE SELECTION AND REGISTRATION**
Persons desirous of pursuing courses in the Faculty's summer programme are required to visit the website at **http://www.sta.uwi.edu/** or consult the Faculty Notice Boards and timetables for a list of courses being offered in the Summer School Programme before registering.

5. **LATE REGISTRATION**
a. Students may be permitted to register up to the end of the 2nd week of the start of the Summer School Session on payment of an additional late registration fee of TT$150.

b. In cases where examination results for Semester II are declared after May 31, students may be permitted to register up to the end of the 2nd week of the start of the Summer School session.

c. Summer School students may apply for a change of registration by no later than the end of the 2nd week of the start of the Summer School session.

6. **EXAMINATIONS & COURSE LOADS**
a. Examinations for courses taught in the Summer School shall be conducted in accordance with the University Examination Regulations.

b. Summer School students shall write the University Examinations appropriate to the course(s) for which they are registered.

c. Students shall not normally be permitted to register for more than FOUR courses (usually 12 credits) in any given Summer School Session. Students are advised to check the timetable before registering.

d. Finalising students may apply, to the Faculty Dean to pursue up to a maximum of 15 credits.

e. A student is deemed as finalising if that student has only a maximum of 15 credits left to complete the degree/certificate/diploma requirement.

f Students may request permission to carry forward coursework marks for courses pursued in Semester I and/or II to the Summer Programme.

g. All such requests must be submitted, through the Faculty Dean, to the Assistant Registrar, Student Affairs (Admissions) before the student is allowed to register.

NOTE: Registration for a course offered in the Summer School implies registration for the examination of that course.

7. **AWARD OF CREDITS**

a. Credits for courses successfully completed in the Summer School shall be granted to registered students of the University including those on approved leave of absence.

b. Persons wishing to pursue a course(s) to be considered as 'Not for Credit" (NFC) must seek approval prior to registering for the course. All such requests must be made, in writing, or on the required form, to the Dean of the Faculty. Students will not subsequently have such credit altered.

c. Summer School students who have not been offered a place at the University have no automatic right of acceptance into any Faculty of the University.

d. Persons who are accepted into the University may be granted credit/exemption for courses successfully completed in the Summer School provided that five (5) yeas have not elapsed since the completion of the relevant course(s).

e. Students who do not satisfy normal matriculation may not use the credits gained in the Summer School for both matriculation and degree purposes.

8. **APPLICATION FOR WITHDRAWAL**

a. Students may withdraw from a course by applying to the Senior Assistant Registrar (Admissions) in writing and copying the Faculty Dean or Summer School Coordinator. The student should clearly state the reasons for the withdrawal and complete the required application form for refund where applicable.

b. Applications for withdrawal from a course must reach the Senior Assistant Registrar (Admissions) no later than two (2) weeks after teaching has begun. Students, who wish to withdraw from a course after the deadline date, must apply to Academic Board, through their respective Faculty Office.

9. **REFUND POLICY**

a. A refund penalty is charged as follows:
   i. No penalty before May 30th
   ii. 25% of tuition fees up to June 2nd (up to the end the 1st week of teaching)
   iii. 30% of tuition fees up to June 9nd (up to the end of the 2nd week of teaching)

10. **PAYMENT OF FEES**

a. Part payment of fees is NOT allowed

b. Fees must be paid at any Branch of Republic Bank Ltd. using the bank deposit slip provided

c. Registration in the summer session will carry a non-refundable registration fee

d. Courses not dropped by the deadline date will be counted and the student would be billed accordingly.

e. Late registration fee/late payment penalty includes the registration fee PLUS the Late Registration fee/late payment penalty.

SECTION VI – GENERAL REGULATIONS GOVERNING THE PRE-SCIENCE PROGRAMME

The FST offers one year of full-time study (including Saturdays) in the following subjects:

- Biology
- Chemistry
- Mathematics
- Physics

Successful completion of this programme may permit students to apply for a full degree in the Faculty of Science & Technology, the Faculty of Engineering, the Faculty of Medical Sciences, the Faculty of Food & Agriculture or the Faculty of Law.

1. **QUALIFICATIONS FOR ADMISSION INTO THE PRE-SCIENCE PROGRAMME**
   A minimum of five (5) CXC (CSEC) General Proficiency subjects at Grades I to II or, since 1998, Grade III or five (5) GCE O-Level subjects which must include Mathematics and English Language, and any of the following: Chemistry, Biology and Physics OR two (2) CAPE subjects including Chemistry, Biology, Physics or Mathematics.

2. **FEE PAYMENT**
   Students are required to pay the compulsory fee once per academic year at the start of Semester I. Tuition fees are to be paid per semester.

3. **ATTENDANCE**
   MINIMUM ATTENDANCE of 75% of Lectures/Tutorials is required. Attendance at laboratory classes/field trips is required.

4. **CHANGES IN REGISTRATION**
   Students must apply for permission from the Dean, Faculty of Science & Technology to add or drop a course in the Pre-Science Programme.
   Requests for changes to registration (Add/Drop) should be submitted by the deadline date of the registration period per semester or no later than two (2) weeks after teaching has begun.

5. **EXAMINATIONS & COURSE LOADS**
   a. Examinations for courses taught in the Pre-Science Programme shall be conducted in accordance with the University Examination Regulations.

   b. Registration for a Pre-Science course constitutes registration for the associated examination.

   c. Students shall be permitted to register for a MAXIMUM of three courses or a MINIMUM of one course per semester.

   d. Students must request permission from the Dean to carry forward coursework marks for courses pursued in Semester I and/or II.

6. **MEDICALS**
   a. A student who has missed an examination as a result of illness must tender evidence of illness certified by a medical practitioner recognised by the University. **The medical report must reach the Campus Health Service Unit (HSU) no later than seven days after the date of the relevant examination.**

   b. Medical Certificates/Report forms are available online at **hhtp://sta.uwi.edu/onlineForms.asp**

7. **WITHDRAWAL FROM THE PRE-SCIENCE PROGRAMME**
   a. Students who are withdrawing from the Pre-Science Programme are expected to inform the staff in the Dean's Office, Faculty of Science & Technology in writing of their intention to do so.

   b. For further queries or information please contact the Dean's Office, Faculty of Science & Technology:

   ADMINISTRATIVE ASSISTANT
   Ms. Afiya Jules
   BSc (UWI)
   Ext. 84474
   Email: afiya.jules@sta.uwi.edu

   CLERICAL ASSISTANT
   Ms. Sabrina Ragoo
   BSc (UWI)
   Ext. 84505
   Email: sabrina.ragoo@sta.uwi.edu

SECTION VII – APPROVED SCIENCE CAPE/GCE A-LEVEL SUBJECTS

- Applied Mathematics
- Biology
- Botany
- Chemistry
- Computer Science
- Environmental Science
- Further Mathematics
- Geography
- Geology
- Information Technology
- Mathematics
- Pure Mathematics
- Physics
- Zoology

SECTION VIII - PRE-REQUISITES FOR CROSS FACULTY COURSES

BANNER CODE	TITLE	FSS PREREQUISITES	FST B.SC. ACTUARIAL SCIENCE PREREQUISITES	FST B.SC. CHEMISTRY & MANAGEMENT PREREQUISITES	FST B.SC. COMPUTER SCIENCE & MANAGEMENT PREREQUISITES
ACCT 1002	Introduction to Financial Accounting	**NONE**	**NONE**	**NONE**	**NONE**
ACCT 1003	Introduction to Cost and Managerial Accounting	**NONE**	**NONE**	**NONE**	**NONE**
ACCT 2017	Management Accounting	ACCT 1002 and ACCT 1003		This course is NOT offered to these students	ACCT 1002 and ACCT 1003
ECON 1001	Introduction to Economics I	**NONE**	**NONE**	**NONE**	**NONE**
ECON 1002	Introduction to Economics II	**NONE**	**NONE**	This course is Not offered to these students	**NONE**
ECON 1005	Introduction to Statistics	**NONE**	This course is NOT offered to these students	**NONE**	This course is NOT offered to these students
MGMT 2006	Management Information Systems I	**NONE**	This course is NOT offered to these students	**NONE**	This course is NOT offered to these students
MGMT 2008	Organisational Behaviour	SOCI 1002 or MGMT 1001	This course is NOT offered to these students	CHEM 1060, OR CHEM 1065, OR CHEM 1070 AND CHEM 1066	MGMT 1001 OR SOCI 1002 OR AGEX 1000 OR COMP 1100 OR COMP1400 and COMP1401
MGMT 2012	Quantitative Methods	ECON 1002 and ECON 1003	This course is NOT offered to these students	ECON 1001 and CHEM 1060, OR CHEM 1065, OR CHEM 1070 and CHEM 1066	ECON 1002 and MATH 1140 OR MATH 1141 and MATH 1152
MGMT 2021	Business Law I	**NONE**	This course is NOT offered to these students	**NONE**	**NONE**
MGMT 2023	Financial Management I	ACCT 1002 and ECON 1003	ACCT 1002 and MATH 1140	ACCT 1002 and CHEM 1060, OR CHEM 1065, OR CHEM 1070 AND CHEM 1066	ACCT 1002 and MATH 1140 OR MATH 1141 and MATH 1152 OR COMP 1402 and COMP 1406

BANNER CODE	TITLE	FSS PREREQUISITES	FST B.SC. ACTUARIAL SCIENCE PREREQUISITES	FST B.SC. CHEMISTRY & MANAGEMENT PREREQUISITES	FST B.SC. COMPUTER SCIENCE & MANAGEMENT PREREQUISITES
MGMT 2032	Managerial Economics	ECON 1001 and ECON 1003	This course is NOT offered to these students	ECON 1001 and CHEM 1060, OR CHEM 1065, OR CHEM 1070 AND CHEM 1066	ECON 1001 and MATH 1140 OR MATH 1141 and MATH 1152 OR COMP 1402 and COMP 1406
MGMT 3017	Human Resource Managementl	MGMT 2008	This course is NOT offered to these students	MGMT 2008	This course is NOT offered to these students
MKTG 2001	Principles of Marketing	ACCT 1002 and ECON 1001	ACCT 1002 and ECON 1001	ACCT 1002 and ECON 1001	ACCT 1002 and ECON 1001
MGMT 3048	Financial Management II	MGMT 2023 and MGMT 2032 OR ECON 2000 OR ECON 2001	MATH 2210	This course is NOT offered to these students	This course is NOT offered to these students
MGMT 2026	Production and Operation	MGMT 2012	This course is NOT offered to these students	MGMT 2012	This course is NOT offered to these students
MGMT 3060	Operations, Planning and Control	MGMT 3057	This course is NOT offered to these students	MGMT 3057 (OLD) OR MGMT 2026	This course is NOT offered to these students
MKTG 3000	Marketing Management	MKTG 2001	This course is NOT offered to these students	MGMT 2003	MKTG 2001
MKTG 3007	Marketing Planning	MKTG 2001/MGMT 2012 and MGMT 2023	This course is NOT offered to these students	MGMT 2003 (OLD) or MKTG 2001. MGMT 2012 and MGMT 2023	This course is NOT offered to these students
SOCI 1002	Introduction to Sociology	**NONE**	This course is NOT offered to these students	This course is NOT offered to these students	This course is NOT offered to these students

SECTION IX – LIST OF ANTI-REQUISITES

COURSE CODE	ANTI-REQUISITES
BIOC2061	BIOL2361 or BIOL2360 or BIOL2365
BIOC2161	BIOL2363
BIOC2162	BIOL2364
BIOC2262	BIOL2362
BIOC3062	BIOL3361
BIOC3069	BIOL3069
BIOC3162	BIOL3061 or BIOL2164
BIOC3262	BIOL3364
BIOC3364	BIOL3362
BIOL1061	BIOL 1362 or BIOL 1364 or AGRI 1011 or AGRI 1013
BIOL1065	BIOL 1262 or BIOL 1263
BIOL1261	BIOL 1065 or BIOL 1262 or BIOL 1263 or AGRI 1012
BIOL1362	AGRI 1013 OR BIOL1061
BIOL1364	AGRI 1011 OR BIOL1061
BIOL2164	BIOL3061
BIOL2165	BIOL2162
BIOL2262	BIOL3662
BIOL2265	BIOL2263 OR BIOL2261
BIOL2360	BIOL2365
BIOL2363	HUEC 2000 OR BIOL 2361
BIOL2764	BIOL2761
BIOL2867	BIOL2862
BIOL3063	BIOL2063
BIOL3162	BIOL3262
BIOL3164	BIOL 3264
BIOL3264	BIOL 2861
BIOL3366	BIOL 3762
BIOL3462	BIOL2062
BIOL3465	BIOL3464
BIOL3466	BIOL3461
BIOL3468	BIOL3062
BIOL3761	BIOL 3765
BIOL3770	BIOL 3767
BIOL3771	BIOL3766
BIOL3869	BIOL 3069
BIOL3870	BIOL 2866
CHEM 1062	CHEM 1060 or CHEM 1061 or CHEM 0060 or CHEM 0061
CHEM 1060	CHEM 1065 or CHEM 1066 or CHEM 1067 or CHEM 1068
CHEM 1061	CHEM 1065 or CHEM 1066 or CHEM 1067 or CHEM 1068

COURSE CODE	ANTI-REQUISITES
COMP 1100	INFO 1420
COMP 1200	INFO 2420
COMP 1400	COMP 1100
COMP 1401	INFO 1425
COMP 1402	COMP 1300 or MATH 1140
COMP 1403	INFO 1405
COMP 1404	COMP 1200
COMP 1405	COMP 1200
COMP 1406	COMP 1350 or MATH 1150
COMP 2000	INFO 2410
COMP 2100	INFO 2405
COMP 2200	INFO 2425
COMP 2300	INFO 2430
COMP 2400	INFO 2400
COMP 2700	INFO 2415
COMP 3750	INFO 3430
COMP 3990	INFO 3490
INFO 1500	INFO 1400
INFO 1501	INFO 1405
INFO 1503	INFO 1415
INFO 1504	INFO 1420 or COMP 1100
INFO 1505	INFO 1410
MATH 1160	MATH 1201
MATH 1170	MATH 1202
MATH 2100	MATH 2272
MATH 2110	ECON 2015 or MATH 2273
MATH 2120	ECON 2016 or MATH 2270 or MATH 2277
MATH 2140	ECON 2006 or MATH 2190 or MATH 2274
MATH 2150	ECON 2006, MATH 2190 or MATH 3120 or MATH 2275
MATH 2160	MATH 2271
MATH 2170	MATH 2276
MATH 2190	ECON 2006 or MATH 2140 or MATH 2150
MATH 2210	MATH 2211 or MATH 2212
MATH 2220	MATH 2115
MATH 3240	MATH 3277
MATH 3320	ACTS 3003
MATH 3321	MATH 3279
MATH 3354	ACTS 3000
MATH 3430	MATH 3272
MATH 3440	MATH 3273
MATH 3450	MATH 3278
MATH 3460	MATH 3465
MATH 3470	STAT 3001
MATH 3351	STAT 3000
PHYS 1110	PHYS 1211 or PHYS 1213 or PHYS 1216
PHYS 1111	PHYS 1211 or PHYS 1212
PHYS 2165	CHNG 1003
PHYS 2294	CHNG 1003
BMET 2001	PHYS 2160
BMET 2002	PHYS 2159

SECTION X - UNIVERSITY REGULATIONS ON PLAGIARISM

Application of these Regulations

1 These Regulations apply to the presentation of work by a student for evaluation, whether or not for credit, but do not apply to invigilated written examinations.

Definition of plagiarism

2 In these Regulations, "plagiarism" means the unacknowledged and unjustified use of the words, ideas or creations of another, including unjustified unacknowledged quotation and unjustified unattributed borrowing;

"Level 1 plagiarism" means plagiarism which does not meet the definition of Level 2 plagiarism;

"Level 2 plagiarism" means plagiarism undertaken with the intention of passing off as original work by the plagiariser work done by another person or persons.

3 What may otherwise meet the definition of plagiarism may be justified for the purposes of Regulation 2 where the particular unacknowledged use of the words, ideas and creations of another is by the standards of the relevant academic discipline a function of part or all of the object of the work for evaluation whether or not for credit, for example:

a. The unacknowledged use is required for conformity with presentation standards;
b. The task set or undertaken is one of translation of the work of another into a different language or format;
c. The task set or undertaken requires producing a result by teamwork for joint credit regardless of the level of individual contribution;
d. The task set or undertaken requires extensive adaptation of models within a time period of such brevity as to exclude extensive attribution;
e. The task set or undertaken requires the use of an artificial language, such as is the case with computer programming, where the use of unoriginal verbal formulae is essential.

4 It is not a justification under Regulations 2 and 3 for the unacknowledged use of the words, ideas and creations of another that the user enjoys the right of use of those words, ideas and creations as a matter of intellectual property.

Other definitions

5 In these Regulations,
"Chairman" means the Chairman of the relevant Campus Committee on Examinations;
"Examination Regulations" means the Examination and other forms of Assessment Regulations for First Degrees Associate Degrees Diplomas and Certificates of the University;
"set of facts" means a fact or combination of facts.

Evidence of plagiarism

6 In order to constitute evidence of plagiarism under these Regulations, there shall be identified as a minimum the passage or passages in the student's work which are considered to have been plagiarised and the passage or passages from which the passages in the student's work are considered to have been taken.

Student Statement on Plagiarism

7 When a student submits for examination work under Regulation 1, the student shall sign a statement, in such form as the Campus Registrar may prescribe, that as far as possible the work submitted is free of plagiarism including unattributed quotation or paraphrase of the work of another except where justified under Regulation 3.

8 Quotation or paraphrase is attributed for the purpose of Regulation 7 if the writer has indicated using conventions appropriate to the discipline that the work is not the writer's own.

9 The University is not prohibited from proceeding with a charge of plagiarism where there is no statement as prescribed under Regulation 7.

Electronic vetting for plagiarism

10 The results of any electronic vetting although capable, where the requirements of Regulation 7 are satisfied, of constituting evidence under these Regulations, are not thereby conclusive of any question as to whether or not plagiarism exists.

Level 1 plagiarism

11 In work submitted for examination where the Examiner is satisfied that Level 1 plagiarism has been committed, he/she shall penalise the student by reducing the mark which would have otherwise been awarded taking into account any relevant Faculty regulations.

Level 2 plagiarism

12 Where an examiner has evidence of Level 2 plagiarism in the material being examined, that examiner shall report it to the Head of Department or the Dean and may at any time provide the Registrar with a copy of that report. In cases where the examiner and the Dean are one and the same, the report shall be referred to the Head of the Department and also to the Campus Registrar.

13 Where any other person who in the course of duty sees material being examined which he or she believes is evidence of Level 2 plagiarism that other person may report it to the Head of Department or the Dean and may at any time report it to the Campus Registrar who shall take such action as may be appropriate.

14 Where a Dean or Head of Department receives a report either under Regulation 12 or 13, the Dean or Head of Department, as the case may be, shall

a. where in concurrence with the report's identification of evidence of Level 2 plagiarism, report the matter to the Campus Registrar; or
b. where not concurring in the identification of evidence of plagiarism, reply to the examiner declining to proceed further on the report; or
c. where concluding that there is evidence of Level 1 plagiarism, reply to the examiner indicating that conclusion and the Examiner shall proceed as under Regulation 11.

15 Where a report is made to the Campus Registrar under Regulation 14a or 16, the Campus Registrar shall lay a charge and refer the matter to the Campus Committee on Examinations.

16 Where the Campus Registrar receives a report alleging Level 2 plagiarism from the Examiner or any other person except the Dean or Head of Department, the Campus Registrar shall refer the matter to a senior academic to determine whether there is sufficient evidence to ground a charge of plagiarism and where such evidence is found, the Campus Registrar shall proceed as under Regulation 15.

17 Where the matter has been referred to the Campus Committee on Examinations pursuant to Regulation 15, the proceedings under these Regulations prevail, over any other disciplinary proceedings within the University initiated against the student based on the same facts and, without prejudice to Regulation 21, any other such disciplinary proceedings shall be stayed, subject to being reopened.

18 If the Campus Committee on Examinations is satisfied, after holding a hearing, that the student has committed Level 2 plagiarism, it shall in making a determination on the severity of the penalty take into consideration:

a. the circumstances of the particular case;
b. the seniority of the student; and
c. whether this is the first or a repeated incidence of Level 2 plagiarism.

19 Where the Campus Committee is of the view that the appropriate penalty for an offence of Level 2 plagiarism is for the student to be:

(i) awarded a fail mark;
(ii) excluded from some or all further examinations of the University for such period as it may determine;
(iii) be dismissed from the University,
it shall make such recommendation to the Academic Board.

Clearance on a charge of Level 2 plagiarism

20 A determination of the Campus Committee on Examinations that Level 2 plagiarism has not been found will be reported to the Campus Registrar who shall refer it to the Examiner and notify the student. Where the Committee has not identified Level 2 but has identified Level 1, it shall be reported to the Campus Registrar who shall refer it to the examiner.

Level 2 plagiarism: Appeal to the Senate

21 A student may appeal to the Senate from any decision against him or her on a charge of plagiarism made by Academic Board.

Delegation by Dean or Head of Department

22 The Dean or Head of Department, as the case may be, may generally or in a particular instance delegate that officer's functions under these Regulations.

Conflict of interest disqualification

23 Any person who has at any time been an examiner of work or been involved in procedures for laying charges in relation to which an issue of plagiarism is being considered under these Regulations shall withdraw from performing any functions under these Regulations other than those of supervisor and examiner.

PLAGIARISM DECLARATION

THE UNIVERSITY OF THE WEST INDIES
The Office of the Board for Undergraduate Studies
INDIVIDUAL PLAGIARISM DECLARATION

STUDENT ID:

COURSE TITLE:

COURSE CODE:

TITLE OF ASSIGNMENT:

This declaration is being made in accordance with the **University Regulations on Plagiarism (First Degrees, Diplomas and Certificates**) and must be attached to all work, submitted by a student to be assessed in partial or complete fulfilment of the course requirement(s), other than work submitted in an invigilated examination.

STATEMENT

1. I have read the Plagiarism Regulations as set out in the Faculty or Open Campus Student Handbook and on University websites related to the submission of coursework for assessment.

2. I declare that I understand that plagiarism is a serious academic offence for which the University may impose severe penalties.

3. I declare that the submitted work indicated above is my own work, except where duly acknowledged and referenced and does not contain any plagiarized material.

4. I also declare that this work has not been previously submitted for credit either in its entirety or in part within the UWI or elsewhere. Where work was previously submitted, permission has been granted by my Supervisor/Lecturer/Instructor as reflected by the attached Accountability Statement.

5. I understand that I may be required to submit the work In electronic form and accept that the University may subject the work to a computer-based similarity detention service.

NAME _____

SIGNATURE _____

DATE _____

GROUP PLAGIARISM DECLARATION

COURSE TITLE:

COURSE CODE:

TITLE OF ASSIGNMENT:

When submitting a group assignment for assessment each member of the group will be required to sign the following declaration of ownership which will appear on the coursework submission sheet.

We the undersigned declare that:

1. We have read the Plagiarism Regulations as set out in the Faculty or Open Campus Student Handbook and on University websites related to the submission of coursework for assessment.

2. We declare that I understand that plagiarism is a serious academic offence for which the University may impose severe penalties.

3. The submitted work indicated above is our own work, except where duly acknowledged and referenced.

4. This work has not been previously submitted for credit either in its entirety or in part within the UWI or elsewhere. Where work was previously submitted, permission has been granted by our Supervisor/Lecturer/Instructor as reflected by the attached Accountability Statement.

5. We understand that we may be required to submit the work In electronic form and accept that the University may check the originality of the work using a computer-based similarity detention service.

NAME _____

SIGNATURE _____

NAME _____

SIGNATURE _____

NAME _____

SIGNATURE _____

DATE _____

ADDITIONAL ACCOUNTABILITY STATEMENT WHERE WORK HAS BEEN PREVIOUSLY SUBMITTED

1. I/We have set out in an attached statement the details regarding the circumstances under which this paper or parts thereof has been previously submitted.

2. I/We have received written permission from my Supervisor/Lecturer/Instructor regarding the submission of this paper and I have attached a copy of that written permission to this statement.

3. I/We hereby declare that the submission of this paper is in keeping with the permission granted.

NAME _____

SIGNATURE _____

DATE _____

SECTION XI - PRIZES

A number of prizes are offered on an annual basis to students in the Faculty based on outstanding academic performance. The following is a list of such prizes. Note that this list is subject to alteration.

FACULTY PRIZES

These prizes are awarded to all First Class Honours students within the Faculty by the Office of the Dean.

DEPARTMENT OF CHEMISTRY

THE WESTERN SCIENTIFIC PRIZE
Awarded for the best Year I performance in Chemistry

THE BERGER PAINTS TRINIDAD LTD. PRIZE
Awarded for the best Year II performance in Chemistry

THE CHROMASPEC LTD. PRIZE
Awarded for the best Year II performance in Chemistry & Management

THE MASSY GAS PRODUCTS TRINIDAD LTD. PRIZE
Awarded for the best Year III performance in Chemistry

THE SOUTHERN SYSTEMS LTD. PRIZE
Awarded for the best graduating student in Chemistry

THE PERKIN ELMER/SCALAR SCIENTIFIC PRIZE
Awarded for the best performance in Analytical Chemistry

THE WESTERN SCIENTIFIC PRIZE
Awarded for the best Year III performance in Chemistry & Management

THE CHERYL BOWLES CHALLENGE TROPHY PRIZE
Awarded for the best Final Year Analytical Chemistry Project

THE ANIL DEISINGH PRIZE
Awarded for the best Graduating Student entering the Chemistry Postgraduate Programme

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

THE IBM WORLD TRADE CORPORATION PRIZE
Awarded for the best Year I performance in Computer Science

MINDBASE CONSULTING LTD. PRIZE
Awarded for the best Year I performance in Information Technology

THE TUCKER ENERGY SERVICES HOLDINGS LTD. PRIZE
Awarded for the best Year II performance in Computer Science

THE RBC ROYAL BANK OF TRINIDAD & TOBAGO LTD. PRIZE
Awarded for the best Year II performance in Information Technology

THE FUJITSU TRANSACTION SOLUTION LIMITED PRIZE
Awarded for the best Year III performance in Computer Science

THE DIGI DATA SYSTEMS LTD. PRIZE
Awarded for the best Year III performance in Information Technology

ATLANTIC CO. OF TRINIDAD AND TOBAGO PRIZE
Awarded to the most outstanding graduate: B.Sc. General (Major in Computer Science)

DR MARGARET BERNARD MEDULLAN AWARD
Awarded to the graduate in Computer Science with the highest GPA

THE TRINIDAD AND TOBAGO NETWORK INFORMATION CENTRE (TTNIC) PRIZE
Awarded to the M.Sc. (Computer Science & Technology) Graduate with the Highest Overall Examination Average

DEPARTMENT OF LIFE SCIENCES

PLANT SCIENCE

THE PROFESSOR E.J. DUNCAN PRIZE
Awarded for the best Research Project in Plant Science

BIOCHEMISTRY

THE BRYDEN PI CARIBBEAN PRIZE
Awarded for the best Year II performance by a student majoring in Biochemistry

THE ANGOSTURA LIMITED PRIZE
Awarded for the best Year III performance by a student majoring in Biochemistry

BIOLOGY

THE REPUBLIC BANK LTD. PRIZE
Awarded for the best Year I performance in Biology

THE NEAL AND MASSY PRIZE
Awarded for the best Year II performance in Biology

THE NEAL AND MASSY PRIZE
Awarded for the best Year III performance in Biology

THE SEETERRAM BOOK CENTRE PRIZE
Awarded for the best overall performance in Biology – Book Voucher Prize

ENVIRONMENTAL SCIENCE

THE ASA WRIGHT NATURE CENTRE-JULIAN DUNCAN PRIZE
Awarded for the best Year I performance in Environmental Science

THE ASA WRIGHT NATURE CENTRE - THOMAS CARR PRIZE
Awarded for the best Year II performance in Environmental Science

THE ASA WRIGHT NATURE CENTRE – IAN LAMBIE PRIZE
Awarded for the best Year III performance in Environmental Science

THE ENVIRONMENTAL MANAGEMENT AUTHORITY (EMA) PRIZE
Awarded for the Best Research Project

SPECIAL PRIZE:
THE JULIAN KENNY PRIZE IN NATURAL HISTORY
Awarded to the final year undergraduate student majoring in a Life Science discipline and displaying a strong interest in Natural History

DEPARTMENT OF MATHEMATICS & STATISTICS

THE POWERGEN PRIZE
Awarded for the best Year I performance in Mathematics

THE GUARDIAN LIFE OF TRINIDAD & TOBAGO PRIZE
Awarded for the best Year II performance in Mathematics

THE TATIL GROUP PRIZE
Awarded for the best Year III performance in Mathematics

THE WINSTON A. RICHARDS PRIZE IN STATISTICS
Awarded for the best Year II and Year III performance in Statistics

HEAD OF DEPARTMENT PRIZE
Awarded for the best Year II performance in Actuarial Science

HEAD OF DEPARTMENT PRIZE
Awarded for the best Year II performance in Actuarial Mathematics Courses

THE HAROLD RAMKISSOON PRIZE
Awarded for the best Year II and Year III performance in Mathematics

DEPARTMENT OF PHYSICS

THE RUSSELL BARROW MEMORIAL PRIZE IN ASTRONOMY
Awarded to the student showing the most initiative and effort in Astronomy outside the formal classroom

THE VICAR ENTERPRISES LIMITED PRIZE
Awarded for the best overall Year I performance in ALL Level 1 Physics CORE courses

THE AZAD W. HARRIPAUL PRIZE
Awarded to the student with the highest marks for the course Bioengineering

THE BERGER PAINTS TRINIDAD LTD. PRIZE
Awarded for the best Year II performance in Physics Physics Level II courses (PHYS 2150, PHYS 2151, PHYS 2152, PHYS 2153, and PHYS 2155)

THE DEVA SHARMA PRIZE
Awarded for the best performance by a female student graduating with a major in Physics

THE P.C.S. NITROGEN PRIZE
Awarded for the best Year II performance in Materials Science (PHYS 2165)

THE ANTHONY CAMPBELL MEMORIAL AWARD
Awarded for the best performance in the Physics Major Research Project

THE TRINIDAD AGGREGATE PRODUCTS PRIZE
Awarded for the best performance in Ceramics Science

THE BRUNO MITCHELL PRIZE
Awarded for the best performance in Astrophysics Course

DIAGNOSTIC NUCLEAR MEDICINE LTD. PRIZE
Awarded to the most outstanding student in Introduction to Medical Physics

THE FREDERICK IGNATIUS CAMPAYNE PRIZE
Awarded for best performance in Quantum Mechanics

SECTION XII - PROGRAMME OUTLINES

OFFICE OF THE DEAN

PRE-SCIENCE PROGRAMME

COURSE LISTING

SEMESTER 1

Course Code	Course Title	Credits
BIOL 0061	Preliminary Biology I	6
CHEM 0060	Preliminary Chemistry I	6
FSTF 1000**	Study Skills for the Sciences	1
MATH 0100	Pre- Calculus	6
PHYS 0070	Preliminary Physics I	6

**** This course is highly recommended for students transitioning from high school to the tertiary education system**

SEMESTER 2

Course Code	Course Title	Credits
BIOL 0062	Preliminary Biology II	6
CHEM 0061	Preliminary Chemistry II	6
MATH 0110	Calculus and Analytical Geometry	6
PHYS 0071	Preliminary Physics II	6

DEPARTMENT OF CHEMISTRY

List of Courses offered in the Department of Chemistry for the 2015/2016 academic year.

COURSE LISTING

SEMESTER 1

Course Code	Course Title	Credits
CHEM 0060	Preliminary Chemistry I	0
CHEM 1062	Basic Chemistry for Life Sciences	3
CHEM 1066	Introduction to Chemistry I	3
CHEM 1070	Introductory Chemistry Laboratory *(Yearlong – credits applied in Semester 2)*	
CHEM 2170	Fundamentals of Inorganic Chemistry I	3
CHEM 2270	Organic Chemistry I	3
CHEM 2370	Physical Chemistry I	3
CHEM 2470	Introduction to Analytical Chemistry	3
CHEM 2672	Core Chemistry Laboratory I	3
CHEM 2770	Introduction into Research in Chemistry Learning *(Elective) – will not be offered in 2015/2016*	3
CHEM 3162	Chemistry of Metal-Catalyzed Transformations *(Elective)*	3
CHEM 3268	Chemistry of Natural Products *(Elective)*	3
CHEM 3273	Synthesis of Blockbuster Drugs#	3
CHEM 3470	Analytical Methods in Chemistry II *(Elective)*	3
CHEM 3560	Environmental Chemistry* *(Elective)*	4
CHEM 3561	Introduction to Polymer Chemistry* *(Elective)*	4
CHEM 3564	Principles of Polymer Chemistry *(Elective)*	3
CHEM 3570	Chemistry of the Environment *(Elective)*	3
CHEM 3573	Contemporary Chemistry#	
CHEM 3575	Chemistry and Industry I *(Elective)*	3
CHEM 3577	Green Chemistry *(Elective)*	3
CHEM 3660	Research Project	4
CHEM 3670	Research Project for Chemistry Majors	3
CHEM 3671	Research Project for BSc Chemistry *(Year-long)*	
CHEM 3870	Principles of Chemical Biology *(Elective)*	3

(# This is a core course for the BSc. Chemistry degree but can also be used as an Elective for other programmes)
(These courses will no longer be taught in 2015/2016; however, only in special circumstances will students be granted examinations only.)*

CHEM 3660 may be offered only for the last time in Semester I, 2015/2016 for those completing the 'old' Chemistry major.

SEMESTER 2

Course Code	Course Title	Credits
CHEM 0061	Preliminary Chemistry II	0
CHEM 1067	Introduction to Chemistry II	3
CHEM 1068	Introduction to Chemistry III	3
CHEM 1070	Introductory Chemistry Laboratory *(Yearlong)*	3
CHEM 2471	Analytical Methods in Chemistry *(Elective)*	3
CHEM 2472	Analytical Chemistry Laboratory *(Elective)*	3
CHEM2673	Core Chemistry Laboratory II	3
CHEM 3163	Chemistry of Technologically Important Materials *(Elective)*	3
CHEM 3170	Fundamentals of Inorganic Chemistry II	3
CHEM 3172	Advanced Inorganic Chemistry#	3
CHEM 3270	Organic Chemistry II	3
CHEM 3370	Physical Chemistry II	3
CHEM 3373	Advanced Topics in Physical Chemistry#	3
CHEM 3562	Corrosion Science* *(Elective)*	4
CHEM 3563	Environmental Degradation of Materials *(Elective)*	3
CHEM 3569	Industrial Chemistry I* *(Elective)*	4
CHEM 3576	Chemistry of Medicines *(Elective)*	3
CHEM 3578	Energy for a Sustainable Future *(Elective)*	3
CHEM 3579	Chemistry and Industry II *(Elective)*	3
CHEM 3670	Research Project for Chemistry Majors	3
CHEM 3671	Research Project for BSc Chemistry *(Yearlong)*	6
CHEM 3871	Methods in Chemical Biology *(Elective)*	3

(# This is a core course for the BSc. Chemistry degree but can also be used as an Elective for other programmes)

*(*These courses will no longer be taught in 2015/2016; however, only in special circumstances will students be granted examinations only.)*

PLEASE NOTE:

I. Preliminary Chemistry I (CHEM 0060) and II (CHEM 0061) are offered by the Faculty of Science and Technology. These courses are not counted towards a student's credit requirements for the BSc degree. However they can be used as pre-requisites for other courses/ programmes.

II. a. Basic Chemistry for Life Sciences (CHEM 1062) is offered for students who have little exposure to Chemistry and intend to pursue studies in Agriculture, Human Ecology or the Life Sciences.

b. **CHEM 1062 cannot be done in conjunction with CHEM 1066, CHEM 1067, CHEM 1068 and CHEM 1070 or CHEM 0060 and CHEM 0061.**

III. Students who have already passed Chemistry at CAPE (Units 1 and 2), GCE A-Level or Preliminary Chemistry (CHEM 0060 and CHEM 0061) or equivalent at UWI will be exempted from CHEM 1062 (Basic Chemistry for Life Sciences).

IV. For all Preliminarycourses, practical work will be assessed throughout the semester and will contribute to the candidate's final mark. Students will be debarred from writing the final examination if they have not attended, completed and handed in lab reports for at least 75% of the laboratory experiments.

Students will be debarred from writing the final examination if they have not attended, completed and handed in lab reports for at least 75% of the laboratory experiments.

V The following courses have restricted enrollment. Entry into these courses is highly competitive and selection will be based on students' academic records. Students interested in pursuing these courses are required to complete an **application form**, available from the Chemistry General Office, the semester before the course is due to be run.

- CHEM 3570 (Chemistry of the Environment)and
- CHEM3579 (Chemistry of the Industry II) and

VI. Students wishing to pursue the **Analytical Chemistry Minor** OR the **Major in Industrial Chemistry** will be required to complete an **application form** available from the Chemistry General Office. Only successful applicants will be able to register for either of these programmes.

VII. Students who have already passed the 'old' courses will not receive credit for the new **equivalent courses. See list below:**

'NEW	**'OLD'**
CHEM 2170 (Fundamentals of Inorganic Chemistry)	CHEM 2160 (Main Group Chemistry)
CHEM 2270 (Organic Chemistry I)	CHEM 2260 (Basic Organic Chemistry)
CHEM 2470 (Introduction to Analytical Chemistry)	CHEM 2460 (Principles of Chemical Analysis)
CHEM 3170 (Fundamentals of Inorganic Chemistry II)	CHEM 3167 (Advanced Inorganic Chemistry)
CHEM 3270 (Organic Chemistry II)	CHEM 3267 Basic Organic Chemistry II)
CHEM 3370 (Physical Chemistry II)	CHEM 2360 (Basic Physical Chemistry)
CHEM 3563 (Environmental Degradation of Materials)	CHEM3562 (Corrosion Science)
CHEM3564 (Principles of Polymer Chemistry	CHEM3561 (Introduction to Polymer Chemistry).
CHEM 3570 (Chemistry of the Environment)	CHEM3560 (Environmental Chemistry).
CHEM 3579 (Chemistry and Industry II)	CHEM3569 (Industrial Chemistry)

MAJORS, MINORS, and SPECIAL OPTIONS

The following programmes are offered by the Department of Chemistry:

MAJORS:
Chemistry
Industrial Chemistry

MINORS:
Chemistry
Analytical Chemistry
Industrial Chemistry
Chemical Biology
Materials Chemistry

SPECIAL OPTIONS:
BSc Chemistry
BSc Chemistry and Management

The Table below shows the courses that students should take if they wish to follow the under-mentioned programes:

If you wish to take this minor….	**Then in Level II, Semester 1, you should take…**
Analytical Chemistry	CHEM 2370, CHEM 2470 and CHEM 2672
Chemical Biology	CHEM 2270, CHEM 2370, CHEM 2470 and CHEM 2672
Industrial Chemistry	CHEM 2370, CHEM 2470, CHEM 2672 and ONE of CHEM 2170 or CHEM 2270
Materials Chemistry	CHEM 2170, CHEM 2270, CHEM 2370 and CHEM 2672

If you wish to take this major….	**Then in Level II, Semester 1, you should take…**
Industrial Chemistry	CHEM 2170, CHEM 2270, CHEM 2370, CHEM 2470 and CHEM 2672
Chemistry alone, with no Chemistry minors	CHEM 2370, CHEM 2672 and any one of CHEM 2170, CHEM 2270 or CHEM 2470. Which of the three you choose will depend on what, if any, Level III Chemistry courses you would like to take.

Major in Chemistry

(30 Credits)

The major will require the following courses amounting to 30 credits over Level II and Level III as follows:

COURSE LISTING

LEVEL I
SEMESTER 1

Course Code	Course Title	Credits
CHEM 1066	Introduction to Chemistry I	3
CHEM 1070	Introductory Chemistry Laboratory *(Yearlong – credits applied in Semester 2)*	

LEVEL I
SEMESTER 2

Course Code	Course Title	Credits
CHEM 1067	Introduction to Chemistry II	3
CHEM 1068	Introduction to Chemistry III	3
CHEM1070	Introductory Chemistry Laboratory (*Yearlong*)	3

CORE COURSES

LEVEL II
SEMESTER 1

Course Code	Course Title	Credits
CHEM 2370	Physical Chemistry I	3
CHEM 2470	Introduction to Analytical Chemistry	3
CHEM 2672	Core Chemistry Laboratory I	3

LEVEL II
SEMESTER 2

Course Code	Course Title	Credits
CHEM 2673	Core Chemistry Laboratory II	3
CHEM 3370	Physical Chemistry II	3

LEVEL III
SEMESTER 1

Course Code	Course Title	Credits
CHEM 2170	Fundamentals of Inorganic Chemistry I	3
CHEM 2270	Organic Chemistry I	3

LEVEL III
SEMESTER 2

Course Code	Course Title	Credits
CHEM 3170	Fundamentals of Inorganic Chemistry II	3
CHEM 3270	Organic Chemistry II	3

LEVEL III
SEMESTER 1 OR 2

Course Code	Course Title	Credits
CHEM 3670	Research Project for Chemistry Majors	3

***Research Project*:**
Those reading for the Major in Chemistry are required to do a Research Project and should complete an **application form**, also available in the Chemistry General Office. This application should be made at least at the end of the academic year preceding the one in which you intend to pursue the Research Project which will allow time for the Department to assign a supervisor.

NOTE CAREFULLY: Those students who began the new Chemistry Major in 2013/2014 and have already passed CHEM 2670 and CHEM 2671, the Advanced Chemistry Laboratory courses at 1.5 credits each, will need to do one Chemistry Elective in order to satisfy the 30 advanced credits for the Chemistry Major.

Major in Industrial Chemistry

(30 CREDITS)

PLEASE NOTE THAT **THE MAJOR IN INDUSTRIAL CHEMISTRY** CAN ONLY BE PURSUED IN CONJUNCTION WITH **THE MAJOR IN CHEMISTRY**

STUDENTS WOULD NEED TO COMPLETE AN **APPLICATION FORM** IN SEMESTER 2 LEVEL I AVAILABLE FROM THE CHEMISTRY GENERAL OFFICE.

COURSE LISTING

LEVEL II/III
SEMESTER 1

Course Code	Course Title	Credits
CHEM 3564	Principles of Polymer Chemistry	3
CHEM 3575	Chemistry and Industry I	3
CHEM 3577	Green Chemistry	3

LEVEL II/III
SEMESTER 2

Course Code	Course Title	Credits
CHEM 3163	Chemistry of Technologically Important Materials	3
CHEM 3563	Environmental Degradation of Materials	3
CHEM 3579	Chemistry and Industry II	3

PLUS
LEVEL III
INDUSTRIAL INTERNSHIP

Course Code	Course Title	Credits
CHEM 3671	Research Project for BSc Chemistry	6

PLUS
TWO (2) LEVEL II/III ELECTIVES from Chemistry or approved courses from outside of Chemistry
(Total of 6 credits)

***Research Project*:** Those reading for the Major in Industrial Chemistry are required to do a Research Project and should complete an **application form**, also available in the Chemistry General Office, This application should be made at least at the end of the academic year preceding the one in which you intend to pursue the Research Project which will allow time for the Department to assign a supervisor.

NB: Students pursuing joint majors in **Industrial Chemistry and Chemistry** must read only one research project - CHEM 3671 and one (1) approved chemistry elective to complete the Major in Chemistry.

Minor in Chemistry

(15 CREDITS)

COURSE LISTING

LEVEL II/ III
SEMESTER 1

Course Code	Course Title	Credits
CHEM 2470	Introduction to Analytical Chemistry	3
CHEM 2672	Core Chemistry Laboratory I	3
CHEM 2370	Physical Chemistry I	3

LEVEL II/ III
SEMESTER 1

Course Code	Course Title	Credits
CHEM 2170	Fundamentals of Inorganic Chemistry I	3
CHEM 2270	Organic Chemistry I	3

Minor in Analytical Chemistry

(15 CREDITS)

Students pursuing the Minor or Major or BSc in Chemistry can register for this Analytical Chemistry Minor and will complete 15 credits of courses as outlined below.

Students wishing to pursue the new Analytical Chemistry Minor will be required to complete an **application form** available from the Chemistry General Office.

COURSE LISTING

LEVEL II/III
SEMESTER 1 OR 2

Course Code	Course Title	Credits
	Elective ***	3

CORE COURSES

LEVEL II
SEMESTER 2

Course Code	Course Title	Credits
CHEM 2471	Analytical Methods in Chemistry	3
CHEM 2472	Advanced Analytical Laboratory	3

LEVEL II/III
SEMESTER 2

Course Code	Course Title	Credits
	Elective ***	3

CORE COURSE

LEVEL III
SEMESTER 1

Course Code	Course Title	Credits
CHEM 3470	Analytical Methods in Chemistry II	3

***** These electives must be chosen from the following: CHEM 3570, CHEM 3564, CHEM 3563, CHEM 3575, CHEM 3579, CHEM 3870, CHEM 3871, MATH 2190, AGBU 2003 and AGRI 3000.**

Minor in Industrial Chemistry

(15 CREDITS)

PLEASE NOTE THAT THE **MINOR IN INDUSTRIAL CHEMISTRY** CAN ONLY BE PURSUED IN CONJUNCTION WITH THE **MAJOR OR MINOR IN CHEMISTRY**.

COURSE LISTING

LEVEL II/III

SEMESTER 1

Course Code	Course Title	Credits
CHEM 3564	Principles of Polymer Chemistry //	3
CHEM 3575	Chemistry and Industry I	3
CHEM 3577	Green Chemistry	3

SEMESTER 2

Course Code	Course Title	Credits
CHEM 3563	Environmental Degradation of Materials //	3
CHEM 3579	Chemistry and Industry II //	3

Please refer to the equivalent courses below. If any two equivalent pairs of courses are done, credit will only be given for one.

// **CHEM 3563** (Environmental Degradation of Materials) and CHEM 3562 (Corrosion Science)

// **CHEM 3564** (Principles of Polymer Chemistry) and CHEM 3561 (Introduction to Polymer Chemistry)

// **CHEM 3579** (Chemistry and Industry II) and CHEM 3569 (Industrial Chemistry)

Minor in Chemical Biology

(15 CREDITS)

PLEASE NOTE THAT A MINOR IN **CHEMICAL BIOLOGY** CAN ONLY BE PURSUED IN CONJUNCTION WITH THE **MAJOR OR MINOR IN CHEMISTRY**.

COURSE LISTING

LEVEL II/III

SEMESTER 1

Course Code	Course Title	Credits
CHEM 3268	Natural Products Chemistry	3
CHEM 3870	Principles of Chemical Biology	3

SEMESTER 2

Course Code	Course Title	Credits
CHEM 3576	Chemistry of Medicines	3
CHEM 3871	Methods of Chemical Biology	3

PLUS

ONE (1) Approved Elective (Chemistry OR Biology **OR** Biochemistry OR Other Suitable Elective) 3
(See Head of Department)

Minor in Materials Chemistry

(15 CREDITS)

PLEASE NOTE THAT **A MINOR IN MATERIALS CHEMISTRY** CAN ONLY BE PURSUED IN CONJUNCTION WITH THE **MAJOR OR MINOR IN CHEMISTRY**.

COURSE LISTING

LEVEL II/III

SEMESTER 1

Course Code	Course Title	Credits
CHEM 3162	Chemistry of Metal Catalysed Transformations	3
CHEM 3564	Principles of Polymer Chemistry	3
PHYS 2165	Materials Science ++	3

SEMESTER 2

Course Code	Course Title	Credits
CHEM3163	Chemistry of Technologically Important Materials	3

PLUS

ONE (1) Approved Chemistry Elective: Either CHEM 3578 (Energy for a Sustainable Future) or CHEM 3563 (Environmental Degradation of Materials).

Note: ++ Students having completed all the Level I Chemistry courses can request an override in order to register for PHYS 2165.

BSc CHEMISTRY

(93 CREDITS)

In addition to the Level I Chemistry courses (12 credits), students pursuing the BSc in Chemistry will require passes in CAPE Mathematics Units 1 and 2 or MATH 1115 and MATH 1125 or equivalent. Students who have the required passes in CAPE Mathematics Units 1 and 2 will then need to pursue any other four (4) Level I Faculty courses (at least 3 credits each) in order to satisfy the minimum Level I requirements of 24 credits. Also note carefully, the students who need to read MATH 1115 and MATH 1125 (3 credits each) will be required to complete any other two (2) Level I Faculty courses (at least 3 credits each) in order to fulfil the minimum Level I requirements.

At Level II students registered for the B.Sc. Chemistry will complete the courses required for a major in Chemistry and at Level III will pursue eighteen (18) credits of required advanced core courses in Chemistry and a further twelve credits of approved electives thus completing a total of sixty (60) credits of advanced courses. The full programme is outlined below.

Those reading for the BSc Chemistry Degree are required to do a Research Project and should complete an **application form**, available in the Chemistry General Office, This application should be made at least at the end of the academic year preceding the one in which you intend to pursue the Research Project which will allow time for the Department to assign a supervisor.

COURSE LISTING

LEVEL I
SEMESTER 1 (12 credits)

Course Code	Course Title	Credits
CHEM 1066	Introduction to Chemistry I	3
CHEM 1070	Introductory Chemistry Laboratory *(Year-long – credits applied in Semester 2)*	

SEMESTERS 1, 2

Course Code	Course Title	Credits
MATH 1115	Fundamental Mathematics for the General Sciences I	3

PLUS
ONE (1) other Level I, 3-credit course chosen from allowed Faculty courses.

LEVEL I
SEMESTER 2 (12 credits)

Course Code	Course Title	Credits
CHEM 1067	Introduction to Chemistry II	3
CHEM 1068	Introduction to Chemistry III	3
CHEM 1070	Introductory Chemistry Laboratory *(Yearlong)*	3

SEMESTER 2

Course Code	Course Title	Credits
MATH 1125	Fundamental Mathematics for General Science II	3

PLUS
ONE (1) other Level I, 3-credit course chosen from allowed Faculty courses.
NB: *MATH 1115 and MATH 1125 must be taken by students who do not have a pass in Pure Mathematics at CAPE Units I & II or GCE A'Level or equivalent.*

LEVEL II
SEMESTER 1 (15 Credits)

Course Code	Course Title	Credits
CHEM 2170	Fundamentals of Inorganic Chemistry I	3
CHEM 2270	Organic Chemistry I	3
CHEM 2370	Physical Chemistry I	3
CHEM 2470	Introduction to Analytical Chemistry	3
CHEM 2672	Core Chemistry Laboratory I	3

LEVEL II
SEMESTER 2 (15 Credits)

Course Code	Course Title	Credits
CHEM 2673	Core Chemistry Laboratory II	3
CHEM 3170	Fundamentals of Inorganic Chemistry II	3
CHEM 3270	Organic Chemistry II	3
CHEM 3370	Physical Chemistry II	3

PLUS
ONE (1) Chemistry Elective 3

LEVEL III
SEMESTER 1

Course Code	Course Title	Credits
CHEM3273	Synthesis of Blockbuster Drugs	3
CHEM3573	Contemporary Chemistry	3
CHEM 3671	Research Project for BSc Chemistry *(Year-long – Credits applied in Semester 2)*	

PLUS
TWO (2) Electives### - 3 credits each 6

LEVEL III
SEMESTER 2

Course Code	Course Title	Credits
CHEM 3373	Advanced Topics in Physical Chemistry	3
CHEM 3172	Advanced Inorganic Chemistry	3
CHEM 3671	Research Project for BSc Chemistry *(Yearlong)*	6

PLUS
TWO (2) Electives ### - 3 credits each 6
NOTE: ### At least **two (2) of the four (4) Electives** must be from **Chemistry**. For those **courses outside the Faculty of Science and Technology**, students **must seek approval from the Head of Departmen**t.

BSc CHEMISTRY AND MANAGEMENT

(Please see SECTION VIII which outlines the specific prerequisites for the Management courses pursued by Chemistry and Management students.)

COURSE LISTING

(A) LEVEL I
SEMESTER 1

Course Code	Course Title	Credits
ACCT 1002	Introduction to Financial Accounting	3
CHEM 1066	Introduction to Chemistry I	3
CHEM 1070	Introductory Chemistry Laboratory *(Yearlong – credits applied in Semester 2)*	
ECON 1001	Introduction to Economics I	3
ECON 1005	Introduction to Statistics	3

SEMESTER 2

Course Code	Course Title	Credits
ACCT 1003	Introduction to Cost and Management Accounting	3
CHEM 1067	Introduction to Chemistry II	3
CHEM 1068	Introduction to Chemistry III	3
CHEM 1070	Introductory Chemistry Laboratory *(Yearlong)*	3

TOTAL LEVEL I CREDITS: 24

(B) CHEMISTRY ADVANCED COURSES (30 Credits)
LEVEL II
SEMESTER 1

Course Code	Course Title	Credits
CHEM 2370	Physical Chemistry I	3
CHEM 2470	Introduction to Analytical Chemistry	3
CHEM 2672	Core Chemistry Laboratory I	3

LEVEL II
SEMESTER 2

Course Code	Course Title	Credits
CHEM 3370	Physical Chemistry II	3
Chem 2673	Core Chemistry Laboratory II	3

LEVEL III
SEMESTER 1

Course Code	Course Title	Credits
CHEM 2170	Fundamentals of Inorganic Chemistry I	3
CHEM 2270	Organic Chemistry I	3

LEVEL III
SEMESTER 2

Course Code	Course Title	Credits
CHEM 3170	Fundamentals of Inorganic Chemistry II	3
CHEM 3270	Organic Chemistry II	3

LEVEL III
SEMESTER 1 OR 2

Course Code	Course Title	Credits
CHEM 3670	Research Project for Chemistry Majors	3

***Research Project*:** Those reading for the Major in Chemistry are required to do a Research Project and should complete an **application form** available in the Chemistry General Office, This application should be made at least at the end of the academic year preceding the one in which you intend to pursue the Research Project which will allow time for the Department to assign a supervisor.

(C) MANAGEMENT ADVANCED COURSES

LEVEL II/III
SEMESTER 1

Course Code	Course Title	Credits
MGMT 2012	Quantitative Methods	3
MGMT 2021	Business Law I ***	3
MGMT 2023	Financial Management	3

SEMESTER 2

Course Code	Course Title	Credits
MKTG 2001	Principles of Marketing	3
MGMT 2008	Organisational Behaviour	3
MGMT 2032	Managerial Economics	3

LEVEL III
SEMESTER 1

Course Code	Course Title	Credits
MGMT 2026	Production and Operations Management	3

SEMESTER 2

Course Code	Course Title	Credits
MGMT 3060	Operations Planning and Control	3

***** MGMT 2021 – Business Law can be done in Level II or III – this is dependent on a student's course loading.**

(D) IN ADDITION
Six (6) credits of Level II/III Management courses selected from the following:

MANAGEMENT ELECTIVES:
SEMESTER 1

Course Code	Course Title	Credits
MKTG 3000	Marketing Management	3
MGMT 3017	Human Resource Management	3
MGMT 2006	Management Information Systems I	3

SEMESTER 2

Course Code	Course Title	Credits
MKTG 3007	Marketing Planning	3

Alternatively, students may select **six (6) credits** of Management courses from any Level II/III Management courses offered in the Summer.

TOTAL LEVEL II/III Chemistry and Management CREDITS: 60

(E) NINE (9) CREDITS OF FOUNDATION COURSES:
SEMESTER 1 OR 2

Course Code	Course Title	Credits
FOUN 1101	Caribbean Civilisation	3
FOUN 1301	Law, Governance, Economy and Society	3

SEMESTER 2

Course Code	Course Title	Credits
FOUN 1105	Scientific and Technical Writing	3

TOTAL DEGREE CREDITS REQUIREMENTS: 93

The following information applies ONLY to students who commenced these programmes PRIOR to the 2013/2014 academic year.

The advanced Chemistry courses have been replaced over the 2013/2014 and 2014/2015 academic years.

Major in Chemistry (OLD)

(33 CREDITS)

COURSE LISTING

PREREQUISITE LEVEL I COURSES
LEVEL I
SEMESTER 1

Course Code	Course Title	Credits
CHEM 1060	Introductory Chemistry I ##	6
CHEM 1061	Introductory Chemistry II ##	6
OR		
CHEM 1065	Introduction to Chemistry Laboratory	3
CHEM 1066	Introduction to Chemistry I	3

Discontinued w.e.f. 2012/2013

LEVEL I
SEMESTER 2

Course Code	Course Title	Credits
CHEM 1067	Introduction to Chemistry II	3
CHEM 1068	Introduction to Chemistry III	3

CORE COURSES

LEVEL II
SEMESTER 1

Course Code	Course Title	Credits
CHEM 2025	Kinetics & Mechanism	4
CHEM 2160	Main Group Chemistry	4
CHEM 2360	Basic Physical Chemistry	4

LEVEL II
SEMESTER 2

Course Code	Course Title	Credits
CHEM 2015	Spectroscopy	4
CHEM 2260	Basic Organic Chemistry I	4

LEVEL III
SEMESTER 1 OR 2

Course Code	Course Title	Credits
CHEM 3660	Research Project	4

PLUS
(i) **EITHER** nine (9) credits of Level III courses from List 1

LIST 1
SEMESTER 1

Course Code	Course Title	Credits
CHEM 3267	Basic Organic Chemistry II	3

SEMESTER 2

Course Code	Course Title	Credits
CHEM 3167	Advanced Inorganic Chemistry	3
CHEM 3367	Thermodynamics & Statistical Thermodynamics	3

(ii) **OR** any six (6) credits from List 1 above AND at least three (3) credits from Level III Chemistry Electives.

Minor in Chemistry (OLD)

(16 CREDITS)

COURSE LISTING

CORE COURSES (12 CREDITS)
LEVEL II
SEMESTER 1

Course Code	Course Title	Credits
CHEM 2160	Main Group Chemistry	4
CHEM 2360	Basic Physical Chemistry	4

LEVEL II
SEMESTER 2

Course Code	Course Title	Credits
CHEM 2260	Basic Organic Chemistry I	4

ELECTIVES (4 CREDITS)
One course from the following:
LEVEL II
SEMESTER 1

Course Code	Course Title	Credits
CHEM 2025	Kinetics & Mechanism	4

LEVEL II
SEMESTER 2

Course Code	Course Title	Credits
CHEM 2015	Spectroscopy	4

Minor in Analytical Chemistry (OLD)

(16 CREDITS)

Chemistry Majors can also pursue a minor in Analytical Chemistry by taking the following additional courses. For these students, only one Research Project CHEM 3660 will be required (see MAJOR IN CHEMISTRY). **PLEASE NOTE THAT A MINOR IN ANALYTICAL CHEMISTRY CAN ONLY BE PURSUED IN CONJUCTION WITH THE MAJOR IN CHEMISTRY.**

COURSE LISTING

LEVEL II
SEMESTER 2

Course Code	Course Title	Credits
CHEM 2460	Principles of Chemical Analysis	4

LEVEL III
SEMESTER 1

Course Code	Course Title	Credits
CHEM 3467	Basic Analytical Chemistry	6

LEVEL III
SEMESTER 2

Course Code	Course Title	Credits
CHEM 3468	Advanced Analytical Chemistry	6

Minor in Applied Chemistry (OLD)

(16 CREDITS)

THIS MINOR WAS OFFERED FOR THE FINAL TIME IN THE 2014/2015 ACADEMIC YEAR. Please seek academic advising from the Head of Department if you did not successfully complete the required courses by end of 2014/2015.

PLEASE NOTE THAT A **MINOR IN APPLIED CHEMISTRY** CAN ONLY BE PURSUED IN CONJUNCTION WITH THE **MAJOR IN CHEMISTRY.**

COURSE LISTING

LEVEL III
SEMESTER 1

Course Code	Course Title	Credits
CHEM 3560	Environmental Chemistry	4
CHEM 3561	Introduction to Polymer Chemistry	4

SEMESTER 2

Course Code	Course Title	Credits
CHEM 3562	Corrosion Science	4
CHEM 3569	Industrial Chemistry I	4

BSc CHEMISTRY AND MANAGEMENT (OLD)

The course requirements for the BSc Chemistry and Management are as follows:

COURSE LISTING

(A) LEVEL I
SEMESTER 1

Course Code	Course Title	Credits
ACCT 1002	Introduction to Financial Accounting	3
CHEM 1060	Introductory Chemistry I ##	6
CHEM 1061	Introductory Chemistry II ##	6
OR		
CHEM 1065	Introduction to Chemistry Laboratory	3
CHEM 1066	Introduction to Chemistry I	3
ECON 1001	Introduction to Economics I	3
ECON 1005	Introduction to Statistics	3

##Discontinued w.e.f. 2012/2013

SEMESTER 2

Course Code	Course Title	Credits
ACCT 1003	Introduction to Cost and Management Accounting	3
CHEM 1067	Introduction to Chemistry II	3
CHEM 1068	Introduction to Chemistry III	3

TOTAL LEVEL I CREDITS (30)/24

(B) LEVEL II
SEMESTER 1

Course Code	Course Title	Credits
CHEM 2160	Main Group Chemistry	4
CHEM 2360	Physical Chemistry	4
CHEM 2025	Kinetics & Mechanism	4
MGMT 2012	Quantitative Methods	3
MGMT 2021	Business Law I	3
MGMT 2023	Financial Management	3

SEMESTER 2

Course Code	Course Title	Credits
CHEM 2260	Organic Chemistry	4
CHEM 2015	Spectroscopy	4
MKTG 2001	Principles of Marketing	3
MGMT 2008	Organisational Behaviour	3
MGMT 2032	Managerial Economics	3

(C) LEVEL III - MANAGEMENT COURSES
SEMESTER 1

Course Code	Course Title	Credits
MGMT 2026	Production and Operations	3

SEMESTER 2

Course Code	Course Title	Credits
MGMT 3060	Operations Planning and Control	3

(D) LEVEL III - CHEMISTRY COURSES
SEMESTER 1 OR 2

Course Code	Course Title	Credits
CHEM 3660	Research Project	4

PLUS
(i) **EITHER** nine (9) credits of Level III courses from List 1
LIST 1
SEMESTER 1

Course Code	Course Title	Credits
CHEM 3267	Basic Organic Chemistry II	3

SEMESTER 2

Course Code	Course Title	Credits
CHEM 3167	Advanced Inorganic Chemistry	3
CHEM 3367	Thermodynamics & Statistical Thermodynamics	3

(ii) Alternatively any six (6) credits from List 1 above AND at least three (3) credits from Level III Chemistry Electives.

(E) IN ADDITION
Six (6) credits of level II/III Management courses selected from the following:
MANAGEMENT ELECTIVES:
SEMESTER 1

Course Code	Course Title	Credits
MKTG 3000	Marketing Management	3
MGMT 3017	Human Resource Management	3
MGMT 2006	Management Information Systems I	3

SEMESTER 2

Course Code	Course Title	Credits
MKTG 3007	Marketing Planning	3

Alternatively, students may select 6 credits of Management courses from any level II/III management courses offered in the Summer.

F) NINE (9) CREDITS OF FOUNDATION COURSES:
SEMESTER 1 AND 2

Course Code	Course Title	Credits
FOUN 1101	Caribbean Civilisation	3
FOUN 1301	Law, Governance, Economy and Society	3

SEMESTER 2

Course Code	Course Title	Credits
FOUN 1105	Scientific and Technical Writing	3

TOTAL DEGREE CREDITS REQUIREMENTS: 96

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

For further Information please visit the DCIT website:
http://sta.uwi.edu/fst/dcit/

Please note:

i. Students majoring in Computer Science and those registered in the BSc Computer Science and Management/BSc Information Technology and BSc Computer Science (Special) must seek the approval of the Department to read Computing, Information Technology/Systems courses outside of the FST.

Course Equivalencies **:** There is substantial overlap in the courses listed hereunder. However, **students pursuing Computer Science courses WOULD NOT BE GIVEN credits for the equivalent Information Technology courses and vice versa**.

Transfer students who pursued the equivalent Computer Science course would be exempted WITHOUT credits from the relevant Information Technology course as listed hereunder.

COMP COURSES		***INFO COURSES***	
Course Code	**Credits**	**Course Code**	**Credits**
MATH 1152 or		INFO 1503	3
COMP 1402	3	INFO 1504	3
COMP 1400	3	INFO 1501	3
COMP 1403	3	INFO 2420	4
COMP 1404 &		INFO2420	4
COMP 1405	6	INFO 2410	4
COMP 2000	4	INFO 2405	4
COMP 2100	4	INFO 2425	4
COMP 2200	4	INFO 2430	4
COMP 2300	4	INFO 2400	4
COMP 2400	4	INFO 2415	4
COMP 2700	4	INFO 3440	4
COMP 3250	4	INFO 3410	4
COMP 3550	4	INFO 3430	4
COMP 3750	4	INFO 3490	4
COMP 3990	4		

ii. **INTERNSHIP PROGRAMME FOR UNDERGRADUATE STUDENTS IN COMPUTER SCIENCE/INFORMATION TECHNOLOGY**

The Department offers an optional internship programme for second year students majoring in Computer Science or pursuing the BSc Computer Science and Management, BSc Information Technology and BSc Computer Science (Special) degrees. This programme will be helpful in:

- Providing practical training to students during their degree programme;
- Providing experience in the working environment, and
- Preparing for future jobs.

iii **TRANSFER OF COURSEWORK MARKS**
The Department does NOT carry forward coursework marks for the courses offered. (COMP or INFO).

COURSE LISTING

List of courses offered for the 2015/2016 academic year.

KEY:

Students Majoring in Computer Science or Information Technology will not be credited for COMP 1011.

***** INFO courses also offered to students in the Evening University (EU) Programme.

N.B. The Evening University (EU) Programme is no longer offered to new students w.e.f. 2013/2014 academic year

SEMESTER 1

Course Code	**Course Title**	**Credits**
COMP 1011	Introduction to Information Technology #	3
COMP 1400	Programming I	3
COMP 1401	Introduction to Computer Science Concepts I	3
COMP 1402	Computer Science Mathematics I	3
COMP 1403	Introduction to Web Programming	3
COMP 2000	Data Structures	4
COMP 2200	Computer Architecture	4
COMP 2600	Theory of Computing 1	4
COMP 2700	Database Management Systems I	4
COMP 3100	Operating Systems	4
COMP 3150	Computer Networks	4
COMP 3550	Internet Technologies II	4
COMP 3850	Intelligent Systems	4
COMP3900	Special Topics in Computer Science (Game Programming)	4
INFO 1500	Introduction to Information Technology Fundamentals	3
INFO 1501	Introduction to WWW Programming	3
INFO 1502	Introduction to Problem Solving	3
INFO 1503	Introduction to Mathematics for Critical Thinking	3
INFO 2415	Enterprise Database Systems *	4
INFO 2420	Programming Fundamentals II *	4
INFO 2425	Computer Architecture *	4
INFO 2430	Business Information Systems	4
INFO 2500	Networking Technologies Fundamentals*	4
INFO 3400	Fundamentals of Operating Systems *	4
INFO 3415	Information Assurance and Security *	4

INFO 3435	E-Commerce	4
INFO 3440	Software Engineering	4
INFO 3500	User Interface Design & Development	4

SEMESTER 2

Course Code	Course Title	Credits
COMP 1011	Introduction to Information Technology #	3
COMP1400	Programming I	3
COMP 1404	Programming II	3
COMP 1405	Programming III	3
COMP 1406	Computer Science Mathematics II	3
COMP 1407	Introduction to Computer Science Concepts II	3
COMP 2000	Data Structures	4
COMP 2100	Discrete Mathematics for Computer Science	4
COMP 2300	Programming for Business Applications	4
COMP 2500	Object-Oriented Programming	4
COMP 3000	Design and Analysis of Algorithms	4
COMP 3220	Human-Computer Interaction	4
COMP 3250	Software Engineering	4
COMP 3275	Wireless and Mobile Computing	4
COMP 3950	Modelling and Simulation	4
COMP 3990	Project	4
INFO 1504	Introduction to Programming Fundamentals I	3
INFO 1505	Introduction to Computer Systems	3
INFO 1506	Introduction to Information and Data Management	3
INFO 1507	Introduction to Business Principles	3
INFO 2400	Information Systems Development *	4
INFO 2405	Discrete Mathematics *	4
INFO 2410	Fundamental Data Structures *	4
INFO 3410	Web Systems and Technologies *	4
INFO 3425	Professional Ethics and Law	4
INFO 3490	Project *	4
INFO 3520	Database Administration for Professionals	4

SEMESTER 3 (EVENING UNIVERSITY PROGRAMME)

Course Code	Course Title	Credits
INFO 2405	Discrete Mathematics	4
INFO 2410	Fundamental Data Structures	4
INFO 2500	Networking Technologies Fundamentals	4
INFO 2415	Enterprise Database Systems	4
INFO 2425	Computer Architecture	4
INFO 2500	Networking Technologies Fundamentals	4
INFO 3410	Web Systems and Technologies	4
INFO 3425	Professional Ethics and Law	4
INFO 3440	Software Engineering	4
INFO 3520	Database Administration for Professionals	4

COURSES NOT OFFERED IN 2015/2016

Course Code	Course Title	Credits
COMP 2400	Information Systems	4
COMP 3300	Programming Languages I	4
COMP3400	Artificial Intelligence	4
COMP 3500	Internet Technologies I	4
COMP 3600	Theory of Computing II	4
COMP 3700	Database Management Systems II	4
COMP3750	Numerical Computing	4
COMP 3800	Cryptography and Security	4
INFO 3420	Programming Languages	4
INFO 3430	Scientific Computing	4
INFO 3510	Networking for Professionals	4
INFO 3530	Geographic Information Systems for Business	4

Major in Computer Science

(32 ADVANCED CREDITS)

COURSE LISTING

PREREQUISITE COURSES
LEVEL I
SEMESTER 1

Course Code	Course Title	Credits
COMP 1400	Programming I	3
COMP 1401	Introduction to Computer Science Concepts I	3
COMP 1402*	Computer Science Mathematics 1	3

SEMESTER 2

Course Code	Course Title	Credits
COMP 1400	Programming I	3
COMP 1404	Programming II	3
COMP 1405	Programming III	3
COMP 1406*	Computer Science Mathematics II	3

(* Students pursuing the joint majors in Computer Science and Mathematics are not required to do these courses)

CORE COURSES (24 credits):
LEVELS II/III
SEMESTER 1

Course Code	Course Title	Credits
COMP 2000	Data Structures	4
COMP 2200	Computer Architecture	4
COMP 3100	Operating Systems	4

SEMESTER 2

Course Code	Course Title	Credits
COMP 2000	Data Structures	4
COMP 2100	Discrete Mathematics for Computer Science	4
COMP 2500	Object-Oriented Programming	4
COMP 3000	Design and Analysis of Algorithms	4

ELECTIVES (any 8 credits must be selected from the following Computer Science courses):

LEVELS II/III
SEMESTER 1

Course Code	Course Title	Credits
COMP 2600	Theory of Computing 1	4
COMP 2700	Database Management Systems I	4
COMP 3150	Computer Networks	4
COMP 3550	Internet Technologies II	4
COMP 3850	Intelligent Systems	4
COMP 3900	Special Topics in Computer Science (Game Programming)	4

LEVELS II/III
SEMESTER 2

Course Code	Course Title	Credits
COMP 2300	Programming for Business Applications	4
COMP 3220	Human Computer Interaction	4
COMP 3250	Software Engineering	4
COMP 3275	Wireless and Mobile Computing	4
COMP 3950	Modelling and Simulation	4
COMP 3990	Project	4

Minor in Computer Science

(16 CREDITS)

PREREQUISITE COURSES
LEVEL I
SEMESTER 1

Course Code	Course Title	Credits
COMP 1400	Programming I	3
COMP 1401	Introduction to Computer Science Concepts I	3

SEMESTER 2

Course Code	Course Title	Credits
COMP 1400	Programming I	3
COMP 1404	Programming II	3
COMP 1405	Programming III	3

CORE COURSES: - (8 CREDITS)
LEVEL II
SEMESTER 1

Course Code	Course Title	Credits
COMP 2000	Data Structures	4

SEMESTER 2

Course Code	Course Title	Credits
COMP 2000	Data Structures	4
COMP 2500	Object-Oriented Programming	4

LEVELS II/III COURSES (8 CREDITS)
Any 8 credits from the following:

LEVELS II/III
SEMESTER 1

Course Code	Course Title	Credits
COMP 2200	Computer Architecture	4
COMP 2700	Database Management Systems I	4
COMP 3100	Operating Systems	4
COMP 3150	Computer Networks	4

LEVELS II/III
SEMESTER 2

Course Code	Course Title	Credits
COMP 3000	Design and Analysis of Algorithms	4
COMP 3250	Software Engineering	4

Major in Information Technology

(32 ADVANCED CREDITS)

COURSE LISTING

PREREQUISITE COURSES
LEVEL I
SEMESTER 1

Course Code	Course Title	Credits
INFO 1500	Introduction to Information Technology Fundamentals	3
INFO 1502	Introduction to Problem Solving	3

SEMESTER 2

Course Code	Course Title	Credits
INFO 1504	Introduction to Programming Fundamentals I	3
INFO 1505	Introduction to Computer Systems	3

CORE COURSES 24 CREDITS)
LEVELS II & III
SEMESTER 1

Course Code	Course Title	Credits
INFO 2415	Enterprise Database Systems	4
INFO 2420	Programming Fundamentals II	4
INFO 2500	Networking Technologies Fundamentals	4
INFO 3400	Fundamentals of Operating Systems	4

SEMESTER 2

Course Code	Course Title	Credits
INFO 2410	Fundamental Data Structures	4
INFO 3410	Web Systems and Technologies	4

ELECTIVES
(any **8 credits** must be selected from the following Information Technology courses):

SEMESTER 1

Course Code	Course Title	Credits
INFO 2425	Computer Architecture	4
INFO 2430	Business Information Systems	4
INFO 3415	Information Assurance and Security	4
INFO 3435	E-Commerce	4
INFO 3440	Software Engineering	4
INFO 3500	User Interface Design & Development	4

SEMESTER 2

Course Code	Course Title	Credits
INFO 2400	Information Systems Development	4
INFO 2405	Disrete Mathemaics	
INFO 3425	Professional Ethics and Law	4
INFO 3490	Project	4
INFO 3520	Database Administration for Professionals	4

BSc INFORMATION TECHNOLOGY

(ALSO OFFERED UNDER THE EVENING UNIVERSITY PROGRAMME – ONLY FOR RETURNING STUDENTS w.e.f. 2013/2014)
(93 CREDITS)

PLEASE NOTE THE COURSE EQUIVALENCIES LISTED AT THE BEGINNING OF THE DEPARTMENTAL INFORMATION.

KEY:
***** INFO courses also offered to students in the Evening University (EU) Programme.

COURSE LISTING

LEVEL I (24 CREDITS)
SEMESTER 1
CORE COURSES

Course Code	Course Title	Credits
INFO 1500	Introduction to Information Technology Fundamentals	3
INFO 1501	Introduction to WWW Programming	3
INFO 1502	Introduction to Problem Solving	3
INFO 1503	Introduction to Mathematics for Critical Thinking	3

LEVEL I
SEMESTER 2
CORE COURSES

Course Code	Course Title	Credits
INFO 1504	Introduction to Programming Fundamentals I	3
INFO 1505	Introduction to Computer Systems	3
INFO 1506	Introduction to Information and Data Management	3
INFO 1507	Introduction to Business Principles	3

LEVEL II/III (60 CREDITS)
Comprising of CORE courses (48 credits) and ELECTIVE courses (12 credits)

SEMESTER 1
CORE COURSES

Course Code	Course Title	Credits
INFO 2415	Enterprise Database Systems *	4
INFO 2420	Programming Fundamentals II *	4
INFO 2425	Computer Architecture *	4
INFO 2500	Networking Technologies Fundamentals*	4
INFO 3400	Fundamentals of Operating Systems *	4
INFO 3415	Information Assurance and Security *	4
INFO 3440	Software Engineering	4

ELECTIVE COURSES

Course Code	Course Title	Credits
INFO 2430	Business Information Systems	4
INFO 3435	E-Commerce	4
INFO 3500	User Interface Design and Development	4

LEVEL II/III
SEMESTER 2
CORE COURSES

Course Code	Course Title	Credits
INFO 2400	Information Systems Development*	4
INFO 2405	Discrete Mathematics*	4
INFO 2410	Fundamental Data Structures*	4
INFO 3410	Web Systems & Technologies*	4
INFO 3490	Project	4

ELECTIVE COURSES

Course Code	Course Title	Credits
INFO 3425	Professional Ethics and Law	4
INFO 3520	Database Administration for Professionals	4

SEMESTER 3 (EVENING UNIVERSITY PROGRAMME)
CORE COURSES

Course Code	Course Title	Credits
INFO 2405	Discrete Mathematics	4
INFO 2410	Fundamental Data Structures	4
INFO 2415	Enterprise Database Systems	4
INFO 2425	Computer Architecture	4
INFO 2500	Networking Technologies Fundamentals	4
INFO 3410	Web Systems and Technologies	4
INFO 3440	Software Engineering	4

ELECTIVE COURSES

Course Code	Course Title	Credits
INFO 3425	Professional Ethics and Law	4
INFO 3520	Database Administration for Professionals	4

FOUNDATION COURSES (9 CREDITS)
SEMESTERS 1 & 2

Course Code	Course Title	Credits
FOUN 1101	Caribbean Civilization	3
FOUN 1301	Law, Governance, Economy and Society	3

SEMESTER 2

Course Code	Course Title	Credits
FOUN 1105	Scientific and Technical Writing	3

BSc COMPUTER SCIENCE (SPECIAL)

(93 CREDITS)

PLEASE NOTE THE COURSE EQUIVALENCIES LISTED AT THE BEGINNING OF THE DEPARTMENTAL INFORMATION.

COURSE LISTING

LEVEL I (24 CREDITS)
CORE COURSES
SEMESTER 1

Course Code	Course Title	Credits
COMP 1400	Programming I	3
COMP 1401	Introduction to Computer Science Concepts I	3
COMP 1402	Computer Science Mathematics I	3
COMP 1403	Introduction to Web Programming	3

SEMESTER 2

Course Code	Course Title	Credits
COMP 1400	Programming I	3
COMP 1404	Programming II	3
COMP 1405	Programming III	3
COMP 1406	Computer Science Mathematics II	3
COMP 1407	Introduction to Computer Science Concepts II	3

LEVEL II/III (60 CREDITS) comprising of: CORE courses (52 credits) and ELECTIVE courses (8 credits) from any *other Level II/III courses*.

CORE COURSES
SEMESTER 1

Course Code	Course Title	Credits
COMP 2000	Data Structures	4
COMP 2200	Computer Architecture	4
COMP 2700	Database Management Systems I	4
COMP 3100	Operating Systems	4
COMP 3150	Computer Networks	4
COMP 3550	Internet Technologies II	4
COMP 3850	Intelligent Systems	4

ELECTIVE COURSES

Course Code	Course Title	Credits
COMP 2600	Theory of Computing I	4
COMP 3900	Special Topics (Game Programming)	4
INFO 3415	Information Assurance and Security	4
INFO 3500	User Interface Design and Development	4

SEMESTER 2

Course Code	Course Title	Credits
COMP 2000	Data Structures	4
COMP 2100	Discrete Mathematics for Computer Science	4
COMP 2500	Object-Oriented Programming	4
COMP 3000	Design and Analysis of Algorithms	4
COMP 3250	Software Engineering	4
COMP 3950	Modelling and Simulation	4
COMP3990	Project	4

ELECTIVE COURSES

Course Code	Course Title	Credits
COMP 2300	Programming for Business Applications	4
COMP 3220	Human-Computer Interaction	4
COMP 3275	Wireless and Mobile Computing	4
INFO 2400	Information Systems Development	4
INFO 3520	Database Administration for Professionals	4

FOUNDATION COURSES (9 CREDITS)
SEMESTERS 1 & 2

Course Code	Course Title	Credits
FOUN 1101	Caribbean Civilization	3
FOUN 1301	Law, Governance, Economy and Society	3

SEMESTER 2

Course Code	Course Title	Credits
FOUN 1105	Scientific and Technical Writing	3

BSc COMPUTER SCIENCE AND MANAGEMENT

(99 CREDITS)

Please note:

(1) Acceptance for the BSc Computer Science and Management does not guarantee acceptance for courses in the Faculty of Social Sciences other than those specified below.

(2) Students are advised that, in choosing courses from the Faculty of Social Sciences, the regulations from that Faculty will apply. In particular, credit will not be given for two courses which the Faculty of Social Sciences designates as having substantial overlap e.g. ECON 2001 and MGMT 2032.

(3) Students pursuing the BSc Computer Science & Management (Special Option) must seek the approval of the Programme Coordinator/Head of Department to read courses outside FST in Computing, Information Technology and Information Systems.

COURSE LISTING

CORE COURSES:
LEVEL 1 (30 CREDITS)
SEMESTER 1

Course Code	Course Title	Credits
ACCT 1002	Introduction to Financial Accounting	3
COMP 1400	Programming I	3
COMP 1401	Introduction to Computer Science Concepts I	3
COMP1402	Computer Science Mathematics I	3
ECON 1001	Introduction to Economics I	3

SEMESTER 2

Course Code	Course Title	Credits
ACCT 1003	Introduction to Cost & Managerial Accounting	3
COMP 1400	Programming I	3
COMP 1404	Programming II	3
COMP 1405	Programming III	3
COMP 1406	Computer Science Mathematics II	3
ECON 1002	Introduction to Economics II	3

LEVELS II / III (60 CREDITS)
COMPUTER SCIENCE CORE COURSES (32 CREDITS)
SEMESTER 1

Course Code	Course Title	Credits
COMP 2000	Data Structures	4
COMP 2200	Computer Architecture	4
COMP 2700	Database Management Systems I	4
COMP 3100	Operating Systems	4

SEMESTER 2

Course Code	Course Title	Credits
COMP 2100	Discrete Mathematics for Computer Science	4
COMP 2300	Programming for Business Applications	4
COMP 2500	Object-Oriented Programming	4
COMP 3000	Design and Analysis of Algorithms	4

LEVELS II / III
MANAGEMENT CORE COURSES
(15 CREDITS)
SEMESTER 1

Course Code	Course Title	Credits
MGMT 2021	Business Law I	3

SEMESTER 2

Course Code	Course Title	Credits
MKTG 2001	Principles of Marketing	3
MGMT 2008	Organisational Behaviour	3
MGMT 2032	Managerial Economics	3

AND any 3 credits of electives from the following**:**

SEMESTER 1

Course Code	Course Title	Credits
ACCT 2017	Management Accounting	3
MGMT 2012	Quantitative Methods	3
MKTG 3000	Marketing Management	3
MGMT 2023	Financial Management	3

ELECTIVE COURSES (13 CREDITS)
A minimum of thirteen (13) credits chosen from Levels II/III Computer Science, Mathematics, Economics or Management courses.

FOUNDATION COURSES (9 CREDITS)
SEMESTERS 1 & 2

Course Code	Course Title	Credits
FOUN 1101	Caribbean Civilization	3
FOUN 1301	Law, Governance, Economy and Society	3

SEMESTER 2

Course Code	Course Title	Credits
FOUN 1105	Scientific and Technical Writing	3

DEPARTMENT OF LIFE SCIENCES

COURSE LISTING

List of Courses Offered in the Department of Life Sciences for the 20515/2016 academic year.

NOTE: Students who entered in 2012/2013 must meet a minimum 93-credit requirement to graduate; those entering before must meet the previous 101-credit requirement unless approval is granted from the Dean's Office.

KEY

** Not counted towards a student's credit requirements for the award of the BSc Degree

*** Students must consult with course coordinator prior to registering for BIOL 3068 or BIOL 3069

SEMESTER 1

Course Code	Course Title	Credits
BIOC 2061	Bioenergetics	3
BIOC 2069	Practical Skills in Biochemistry I	1.5
BIOC 2161	Primary Metabolism	3
BIOC 3062	Cellular and Molecular Defence Systems	3
BIOC 3069	Biochemistry Research Project	3
BIOC 3162	Experimental Biochemistry and Molecular Biology	3
BIOL 0061	Preliminary Biology I**	0
BIOL 1262	Living Organisms I	3
BIOL 1263	Living Organisms II	3
BIOL 2061	Cell and Developmental Biology	3
BIOL 2163	Biostatistics	3
BIOL 2165	Genetics II	3
BIOL 2262	Evolutionary Biology	3
BIOL 2360	Biochemistry IIA	3
BIOL 2462	Caribbean Island Ecology	4
BIOL 3063	Marine Ecology and Oceanography	3
BIOL 3069	Research Project***	4
BIOL 3263	Introduction to Bioinformatics	3
BIOL3363	Medical Biotechnology	3
BIOL 3369	Laboratory Skills in Biotechnology (Year-long *-credits applied in Semester 2*)	
BIOL 3469	Research and Practical Skills in Environmental Biology	3
BIOL 3769	Plant Genetic Improvement	3
BIOL 3770	Plant Pathogens	3
BIOL 3771	Environmental Plant Physiology	3
BIOL 3773	Plant Anatomy	3
BIOL3774	Research and Practical Skills in Plant Biology	3
BIOL 3867	Biology of Animal Behaviour	3
BIOL 3868	The Ecology of Humans	3
BIOL 3869	Zoology Project	3
BIOL 3960	Environmental Microbiology	3
BIOL 3961	Principles of Medical Microbiology	3
BIOL 3970	Aquaculture	3
ESST 1001	Biology for Environmental Sciences	3
ESST 1002	Chemistry for Environmental Sciences	3
ESST 1004	Science Communication	3
ESST 2001	Principles of Environmental Chemistry	3
ESST 2002	Environmental Technology	3
ESST 2003	Data Management for Environmental Science	3
ESST 2006	Pollution Biology	3
ESST 3001	Environmental Fate and Transport	3
ESST 3002	Environmental Modeling	3
ESST 3003	Environmental Monitoring and Assessment	3
ESST 3006	Fundamentals of Geographic Information Systems	3
ESST 3103	Environmental Health	3
ESST 3104	Climate Change and Abatement Technology	3

SEMESTER 2

Course Code	Course Title	Credits
BIOC 2162	Circulatory and Secretory Systems	3
BIOC 2169	Practical Skills in Biochemistry II	1.5
BIOC 2262	Gene Expression	3
BIOC 3069	Biochemistry Research Project	3
BIOC 3262	Medical Biochemistry	3
BIOC 3364	Biochemical Basis of Disease	3
BIOC 3500	Molecular Virology	3
BIOL 0062	Preliminary Biology II**	0
BIOL 1362	Biochemistry I	3
BIOL 1364	Genetics I	3
BIOL 2164	Principles of Molecular Biology	3
BIOL 2265	Fundamentals of Microbiology	3
BIOL 2464	Fundamentals of Ecology	3
BIOL 2764	Physiology of Plants	3
BIOL 2867	Physiology of Animals	3
BIOL 3069	Research Project***	4
BIOL 3162	Principles of Microbial Biotechnology	3
BIOL 3409	Caribbean Coral Reefs	3
BIOL 3164	Function & Design in Biology	3
BIOL 3366	Plant Biotechnology and Genetic Engineering	3
BIOL 3369	Laboratory Skills in Biotechnology (Year-long)	3
BIOL 3462	The Ecology of Freshwaters	3
BIOL 3465	Tropical Forest Ecology and Use	3
BIOL 3466	Coastal Ecosystems & Resource Management	3
BIOL 3468	Biodiversity and Conservation	3
BIOL 3768	Plant Diversity & Systematics	3
BIOL 3772	Plant Development	3

BIOL 3774	Research and Practical Skills in Plant Biology	3
BIOL 3866	Parasite Biology	3
BIOL 3869	Zoology Project	3
BIOL 3870	Insect Biology	3
BIOL 3971	Fisheries Management	3
ESST1000	Physics for Environmental Sciences	3
ESST 1005	Information Technology Fundamentals	3
ESST 1006	Human Impact on the Environment	3
ESST 2004	Physics for Environmental Sciences II	3
ESST 2005	Pollution Management and Abatement Technologies	3
ESST 3000	Environmental Toxicology	3
ESST 3004	Capstone Project	3
ESST 3007	Environmental Management Information Systems	3
ESST 3101	Environmental Ergonomics	3
ESST 3102	Environmental Impact Assessment	3

SEMESTER 3 (SUMMER)

Course Code	Course Title	Credits
BIOL 3068	Field Course in Neotropical Ecology***	4

MAJORS & MINORS

The following programmes are offered by the Department of Life Sciences

MAJORS
Biochemistry
Biology
Environmental Science

MINORS
Biochemistry
Biology

SPECIAL OPTIONS
BSc Biology with Specialisations
BSc Environmental Science and Sustainable Technology

Students pursuing joint Majors in **Biology and Biochemistry MUST NOT READ** BIOL 2360 - Biochemistry IIA and BIOL 2164 - Principles of Molecular Biology. **Such students must choose an additional 6 credits of Biology electives to complete the Biology Major.**

Students reading the BSc Biology with Specialisations must select two specialisations from a total of the 6 listed below:

- Biotechnology
- Ecology and Environmental Biology
- Marine Biology
- Microbiology
- Plant Biology
- Zoology

In order to **minimize timetabling clashes**, it is recommended that students **pair the Specialisations** as follows:

- Biotechnology *and* Microbiology
- Ecology *and* Environmental Biology and Marine Biology
- Plant Biology *and* Zoology

NOTE: Students will be **debarred from writing the final examination** if they have not **attended, completed and handed in laboratory reports for at least 75%** of laboratory or field exercises.

Major in Biochemistry

(30 ADVANCED CREDITS)

COURSE LISTING

PREREQUISITE COURSES

(STUDENTS MUST COMPLETE AT LEAST 24 LEVEL I CREDITS)

LEVEL I
SEMESTER 1

Course Code	Course Title	Credits
BIOL 1262	Living Organisms I	3
BIOL 1263	Living Organisms II	3
CHEM 1066	Introduction to Chemistry I	3

PLUS three (3) additional Level I credits from anywhere.

LEVEL I
SEMESTER 2

Course Code	Course Title	Credits
BIOL 1362	Biochemistry I	3
BIOL 1364	Genetics I	3
CHEM 1067	Introduction to Chemistry II	3

PLUS three (3) additional Level I credits from anywhere.
It is recommended that students reading the major in Biochemistry should read CHEM1070 Introduction to Chemistry Laboratory (Yearlong) and CHEM1068 Introduction to Chemistry III

SEMESTERS 1, 2

Course Code	Course Title	Credits
MATH 1115	Fundamental Mathematics for the General Sciences I	3

SEMESTER 2

Course Code	Course Title	Credits
MATH 1125	Fundamental Mathematics for General Science II	3

MATH 1115 or *MATH 1125* should be taken by students who *do not have a pass in Pure Mathematics at CAPE Units I & II or GCE A'Level* or equivalent.

CORE COURSES (24 CREDITS)
LEVEL II/III
SEMESTER 1

Course Code	Course Title	Credits
BIOC 2061	Bioenergetics	3
BIOC 2069	Practical Skills in Biochemistry I	1.5
BIOC 2161	Primary Metabolism	3
BIOC 3062	Cellular and Molecular Defence Systems	3
BIOC 3162	Experimental Biochemistry and Molecular Biology	3

SEMESTER 2

Course Code	Course Title	Credits
BIOC 2162	Circulatory and Secretory Systems	3
BIOC 2169	Practical Skills in Biochemistry II	1.5
BIOC 2262	Gene Expression	3
BIOC 3364	Biochemical Basis of Disease	3

PLUS two (2) electives from the following courses**:**
SEMESTER 1

Course Code	Course Title	Credits
BIOC 3069	Biochemistry Research Project	3
CHEM 2470	Introduction to Analytical Chemistry	3

SEMESTER 2

Course Code	Course Title	Credits
BIOC 3069	Biochemistry Research Project	3
BIOC 3262	Medical Biochemistry	3
BIOL 3162	Principles of Microbial Biotechnology	3
BIOC 3500	Molecular Virology	3

Major in Biology

(30 ADVANCED CREDITS)

COURSE LISTING

PREREQUISITE COURSES

(Students must complete at least 24 Level I credits)

LEVEL I
SEMESTER 1

Course Code	Course Title	Credits
BIOL 1262	Living Organisms I	3
BIOL 1263	Living Organisms II	3
CHEM 1062**	Basic Chemistry for Life Sciences	3

**** For students without a pass in CAPE Units I & II or GCE A' Level Chemistry or equivalent.**

LEVEL I
SEMESTER 2

Course Code	Course Title	Credits
BIOL 1362	Biochemistry I	3
BIOL 1364	Genetics I	3

SEMESTERS 1, 2

Course Code	Course Title	Credits
MATH 1115	Fundamental Mathematics for the General Sciences I	3

SEMESTER 2

Course Code	Course Title	Credits
MATH 1125	Fundamental Mathematics for General Science II	3

MATH 1115 or MATH 1125 should be taken by students who do not have a pass in Pure Mathematics at CAPE Units I & II or GCE A'Level or equivalent.

CORE COURSES (30 credits)
(Students doing the **major** must **complete all 30 credits of core courses** below divided between their **2nd and 3rd year**)
LEVEL II
SEMESTER 1

Course Code	Course Title	Credits
BIOL 2061	Cell and Developmental Biology	3
BIOL 2163	Biostatistics	3
BIOL 2165	Genetics II	3
BIOL 2262	Evolutionary Biology	3
BIOL 2360	Biochemistry IIA*	3

SEMESTER 2

Course Code	Course Title	Credits
BIOL 2164	Principles of Molecular Biology	3
BIOL 2265	Fundamentals of Microbiology	3
BIOL 2464	Fundamentals of Ecology	3
BIOL 2764	Physiology of Plants	3
BIOL 2867	Physiology of Animals	3

Students pursuing **joint Majors in Biochemisty and Biology** should **not read BIOL 2164 and BIOL 2360**. Such students must **choose 6 additonal credits** from the **Biology electives for the Major in Biology**.

+Students pursuing **joint Majors in Biochemisty and Biology** should **read BIOL 2265** Fundamentals of Microbiology during **Year III.**

BIOLOGY ELECTIVES:
SEMESTER 1

Course Code	Course Title	Credits
BIOL 2462	Caribbean Island Ecology	4
BIOL 3063	Marine Ecology and Oceanography	3
BIOL 3069	Research Project***	4
BIOL 3469	Research and Practical Skills in Environmental Biology	3
BIOL 3769	Plant Genetic Improvement	3
BIOL 3770	Plant Pathogens	3
BIOL 3771	Environmental Plant Physiology	3
BIOL 3773	Plant Anatomy	3
BIOL 3774	Research and Practical Skills in Plant Biology	3
BIOL 3867	Biology of Animal Behaviour	3
BIOL 3868	The Ecology of Humans	3
BIOL 3970	Aquaculture	3

SEMESTER 2

Course Code	Course Title	Credits
BIOL 3162	Principles of Microbial Biotechnology	3
BIOL 3164	Function & Design in Biology	3
BIOL 3462	The Ecology of Freshwaters	3
BIOL 3465	Tropical Forest Ecology and use	3
BIOL 3466	Coastal Ecosystems & Resource Management	3
BIOL 3468	Biodiversity and Conservation	3
BIOL 3768	Plant Diversity & Systematics	3
BIOL 3772	Plant Development	3
BIOL 3774	Research and Practical Skills in Plant Biology	3
BIOL 3866	Parasite Biology	3
BIOL 3870	Insect Biology	3
BIOL 3971	Fisheries Management	3

SEMESTER 3 (SUMMER)

Course Code	Course Title	Credits
BIOL 3068	Field Course in Neotropical Ecology	

Major in Environmental Science

(30 ADVANCED CREDITS)

COURSE LISTING

PREREQUISITE COURSES
Students pursuing **joint Majors** in Biology and Environmental Science should not read ESST1001

(Students must complete at least 24 level I credits)

LEVEL I
SEMESTER 1

Course Code	Course Title	Credits
ESST 1001	Biology for Environmental Sciences	3
ESST 1002	Chemistry for Environmental Sciences	3

LEVEL I
SEMESTER 2

Course Code	Course Title	Credits
ESST 1000	Physics for Environmental Sciences	3
ESST 1006	Human Impact on the Environment	3

SEMESTERS 1, 2

Course Code	Course Title	Credits
MATH 1115	Fundamental Mathematics for the General Sciences I	3

SEMESTER 2

Course Code	Course Title	Credits
MATH 1125	Fundamental Mathematics for General Science II	3

MATH 1115 or *MATH 1125* should be taken by students who *do not have a pass in Pure Mathematics at CAPE Units I & II or GCE A'Level* or equivalent.

CORE COURSES (30 CREDITS)
LEVEL II/III
SEMESTER 1

Course Code	Course Title	Credits
BIOL 2163	Biostatistics*	3
ESST 2001	Principles of Environmental Chemistry	3
ESST 2006	Pollution Biology	
ESST 3001	Environmental Fate and Transport	3
ESST 3002	Environmental Modeling	3
ESST 3003	Environmental Monitoring and Assessment	3
ESST 3103	Environmental Health	3

SEMESTER 2

Course Code	Course Title	Credits
ESST 2004	Physics for Environmental Science II	3
BIOL 2464	Fundamentals of Ecology**	3
ESST 3000	Environmental Toxicology	3
ESST 3102	Environmental Impact Assessment	3

*Students pursuing **joint Majors** in Biology and Environmental Science should choose a course from the Biology electives to replace BIOL 2163

** Students pursuing **joint Majors** in Biology and Environmental Science should read BIOL 2464 and ESST 3000. Students who are not reading the joint Majors should read BIOL 2464 for Environmental Science instead of ESST 3000.

BSc BIOLOGY WITH SPECIALISATIONS

(60 ADVANCED CREDITS)

Students reading the B.Sc. Degree in Biology are required to do two specialisations each comprising of five 3-credit courses

COURSE LISTING

PREREQUISITE COURSES

(Students must complete at least 24 Level I credits)

LEVEL I
SEMESTER 1

Course Code	Course Title	Credits
BIOL 1262	Living Organisms I	3
BIOL 1263	Living Organisms II	3
CHEM 1062**	Basic Chemistry for Life Sciences	3

**** For students without a pass in CAPE Units I & II or GCE A' Level Chemistry or equivalent)**

LEVEL I
SEMESTER 2

Course Code	Course Title	Credits
BIOL 1362	Biochemistry I	3
BIOL 1364	Genetics I	3

SEMESTERS I, II

Course Code	Course Title	Credits
MATH 1115	Fundamental Mathematics for the General Sciences I	3

SEMESTER 2

Course Code	Course Title	Credits
MATH 1125	Fundamental Mathematics for General Science II	3

MATH 1115 or MATH 1125 should be taken by students who do not have a pass in Pure Mathematics at CAPE Units I & II or GCE A'Level or equivalent

LEVEL II (30 Advanced Credits)
SEMESTER I

Course Code	Course Title	Credits
BIOL 2061	Cell and Developmental Biology	3
BIOL 2163	Biostatistics	3
BIOL 2165	Genetics II	3
BIOL 2262	Evolutionary Biology	3
BIOL 2360	Biochemistry II A	3

SEMESTER 2

Course Code	Course Title	Credits
BIOL 2164	Principles of Molecular Biology	3
BIOL 2265	Fundamentals of Microbiology	3
BIOL 2464	Fundamentals of Ecology	3
BIOL 2764	Physiology of Plants	3
BIOL 2867	Physiology of Animals	3

SPECIALISATIONS

Students reading the BSc Biology with Specialisations must select two specialisations from the following:

SPECIALISATION – BIOTECHNOLOGY
SEMESTER 1

Course Code	Course Title	Credits
BIOL 3263	Introduction to Bioinformatics	3
BIOL 3363	Medical Biotechnology	3
BIOL 3369	Laboratory Skills in Biotechnology (Year-long)	3

SEMESTER 2

Course Code	Course Title	Credits
BIOL 3162	Principles of Microbial Biotechnology	3
BIOL 3366	Plant Biotechnology and Genetic Engineering	3

SPECIALISATION - ECOLOGY & ENVIRONMENTAL BIOLOGY
SEMESTER 1

Course Code	Course Title	Credits
BIOL 3469	Research and Practical Skills in Environmental Biology	3
ESST 2006	Pollution Biology	3

SEMESTER 2

Course Code	Course Title	Credits
BIOL 3462	The Ecology of Freshwaters	3
BIOL 3465	Tropical Forest Ecology and Use	3
BIOL 3468	Biodiversity and Consevation	3

SPECIALISATION – MARINE BIOLOGY
SEMESTER 1

Course Code	Course Title	Credits
BIOL 3063	Marine Ecology and Oceanography	3
BIOL 3970	Aquaculture	3

SEMESTER 2

Course Code	Course Title	Credits
BIOL 3466	Costal Ecosystem Management	3
BIOL 3971	Fisheries Management	3
BIOL 3409	Caribbean Coral Reefs	3

SPECIALISATION – MICROBIOLOGY
SEMESTER 1

Course Code	Course Title	Credits
BIOL 3960	Environmental Microbiology	3
BIOL 3961	Principles of Medical Biotechnology	3
BIOL 3770	Plant Pathogens	3

SEMESTER 2

Course Code	Course Title	Credits
AGRI 3020	Food Microbiology	3
BIOC 3500	Molecular Virology	3

SPECIALISATION - PLANT BIOLOGY
SEMESTER 1

Course Code	Course Title	Credits
BIOL 3771	Environmental Plan Physiology	3
BIOL 3773	Plant Anatomy	3
BIOL 3774	Research and Practical Skills in Plant Biology	3

SEMESTER 2

Course Code	Course Title	Credits
BIOL 3772	Plant Development	3
BIOL 3774	Research and Practical Skills in Plant Biology	3
BIOL 3768	Plant Diversity and Systematics	3

SPECIALISATION - ZOOLOGY
SEMESTER 1

Course Code	Course Title	Credits
BIOL 3867	Biology of Animal Behaviour	3
BIOL 3868	The Ecology of Humans	3
BIOL 3869	Zoology Project	3

SEMESTER 2

Course Code	Course Title	Credits
BIOL 3866	Parasite Biology	3
BIOL 3869	Zoology Project	3
BIOL 3870	Insect Biology	3

BSc ENVIRONMENTAL SCIENCE AND SUSTAINABLE TECHNOLOGY

LEVEL I
CORE COURSES (24 credits)
SEMESTER 1

Course Code	Course Title	Credits
ESST 1001	Biology for Environmental Sciences	3
ESST 1002	Chemistry for Environmental Sciences	3
ESST 1004	Science Communication	3
MATH 1115	Fundamental Mathematics for the General Sciences I	3

SEMESTER 2

Course Code	Course Title	Credits
ESST 1000	Physics for Environmental Sciences	3
ESST 1005	Information Technology Fundamentals	3
ESST 1006	Human Impact on the Environment	3
MATH 1125	Fundamental Mathematics for the General Sciences II	3

LEVEL II/III
CORE COURSES (24 credits)
SEMESTER 1

Course Code	Course Title	Credits
ESST 2001	Principles of Environmental Chemistry	3
ESST 2002	Environmental Technology	3
ESST 2003	Data Management for Environmental Science	3
BIOL 2163	Biostatistics	3
ESST 3001	Environmental Fate and Transport	3
ESST 3002	Environmental Modeling	3
ESST 3003	Environmental Monitoring and Assessment	3

SEMESTER 2

Course Code	Course Title	Credits
BIOL 2265	Fundamentals of Microbiology	3
BIOL 2464	Fundamentals of Ecology	3
ESST 2004	Physics for Environmental Science II	3
ESST 2005	Pollution Management and Abatement Technologies	3
ESST 3004	Capstone Project	3
ESST 3006	Fundamentals of Geographic Information Systems	3
ESST 3007	Environmental Management Information Systems	3
PHYS 3158	Fundamentals of Renewable Energy	3

PLUS Five (5) electives from the following courses:

SEMESTER 1

Course Code	Course Title	Credits
CHEM 2470	introduction to Analytical Chemistry	3
ESST 2006	Pollution Biology	3
ESST 3103	Environmental Health	3
ESST 3104	Climate Change and Abatement Technology	3

SEMESTER 2

Course Code	Course Title	Credits
BIOL 3468	Biodiversity and Conservation	3
ESST 3000	Environmental Toxicology	3
ESST 3101	Environmental Ergonomics	3
ESST 3102	Environmental Impact Assessment	3

MINORS

NOTE:

(i) Core courses must be credited towards the chosen major and cannot be credited towards the minor.

(ii) Students reading the major in Biology with the minor in Biochemistry must **NOT** read BIOL 2360 Biochemistry IIA. Such students must choose an additional 3 credits of Biology electives to complete the Biology Major.

Minor in Biochemistry

(15 CREDITS)

COURSE LISTING

CORE COURSES (9 credits)

SEMESTER 1

Course Code	Course Title	Credits
BIOC 2061	Bioenergetics	3
BIOC 2069	Practical Skills in Biochemistry I	1.5
BIOC 2161	Primary Metabolism	3

SEMESTER 2

Course Code	Course Title	Credits
BIOC 2169	Practical Skills in Biochemistry II	1.5

PLUS Two (2) additional courses taken from the following:

SEMESTER 1

Course Code	Course Title	Credits
BIOC 3062	Cellular and Molecular Defence Systems	3

SEMESTER 2

Course Code	Course Title	Credits
BIOC 2262	Gene Expression	3
BIOC 2162	Circulatory and Secretory Systems	3
BIOC 3364	Biochemical Basis of Disease	3
BIOC 3262	Medical Biochemistry	3

Minor in Biology

(15 ADVANCED CREDITS)

COURSE LISTING

LEVEL I (PREREQUISITES)

SEMESTER 1

Course Code	Course Title	Credits
BIOL 1262	Living Organisms I	3
BIOL 1263	Living Organisms II	3

SEMESTER 2

Course Code	Course Title	Credits
BIOL 1362	Biochemistry I	3
BIOL 1364	Genetics I	3

AND 15 credits of Level II/III courses as follows:

CORE COURSES (6 CREDITS)

SEMESTER I

Course Code	Course Title	Credits
BIOL2262	Evolutionary Biology	3

SEMESTER 2

Course Code	Course Title	Credits
BIOL3164	Function and Design in Biology	3

PLUS Three (3) additional courses (9 credits) taken from the following:

SEMESTER 1

Course Code	Course Title	Credits
BIOL 2165	Genetics II	3
BIOL 2360	Biochemistry IIA*	3
BIOL 3770	Plant Pathogens	3

SEMESTER 2

Course Code	Course Title	Credits
BIOL 2464	Fundamentals of Ecology	3
BIOL 2764	Physiology of Plants	3
BIOL 2867	Physiology of Animals	3

* Students pursuing a Major in Biochemistry should **NOT** select BIOL 2360 Biochemistry IIA as an elective for the minor in Biology

DEPARTMENT OF MATHEMATICS & STATISTICS

NOTE: Students reading courses in **Mathematics** in the Faculty of Science and Technology are advised to consult with the Head, Department of Mathematics & Statistics, **before registering for any course in the Faculty of Social Sciences that involves Mathematics or Statistics.**

FOR MINORS STUDENTS SHOULD CONSULT THE HEAD OF DEPARTMENT

COURSE LISTING

List of courses offered in the Department of Mathematics & Statistics for the 2015/2016 academic year.

KEY:

** Not counted towards a student's credit requirements for the award of the BSc Degree.

NOTE: Where course codes were not available at the time of publication, please check your faculty / department office/ the online Banner database for the relevant information.

SEMESTER 1

Course Code	Course Title	Credits
ACTS 3001	Life Contingencies II	3
MATH 0100	Pre-Calculus**	0
MATH 1115	Fundamental Mathematics for the General Sciences I	3
MATH1142	Calculus I	3
MATH 1152	Sets and Number Systems	3
MATH 1192	Mathematical Software I – Excel	1
MATH 1194	Mathematical Software III – Matlab	1
MATH 1201	Applied Mathematics I	3
MATH 2211	Mathematics of Finance I	3
MATH 2270	Multivariable Calculus	3
MATH 2272	Abstract Algebra I	3
MATH 2273	Linear Algebra I	3
MATH 2274	Probability Theory I	3
MATH 2276	Discrete Mathematics	3
MATH 3272	Abstract Algebra II	3
MATH 3274	Set Theory	3
MATH 3275	Introduction to Complex Analysis	3
MATH 3278	Probability Theory II	3
STAT 3000	Regression with Time Series	3

New courses available in Semester 1

Course Code	Course Title	Credits
ACTS 3001	Life Contingencies II	3
MATH 2211	Mathematics of Finance I	3
MATH 3278	Probability Theory II	3
STAT 3000	Regression with Time Series	3

SEMESTER 2

Course Code	Course Title	Credits
ACTS 3000	Actuarial Science Project	3
ACTS 3003	Loss Models I	3
MATH 0110	Calculus & Analytical Geometry**	0
MATH 1115	Fundamental Mathematics for the General Sciences I	3
MATH 1125	Fundamental Mathematics for the General Sciences II	3
MATH 1141	Introductory Linear Algebra & Analytical Geometry	3
MATH 1151	Calculus II	3
MATH 1193	Mathematical Software II – Maple	1
MATH 1194	Mathematical Software III – Matlab	1
MATH 1202	Applied Mathematics II	3
MATH 2115	Life Contingencies I	3
MATH 2212	Mathematics of Finance II	3
MATH 2271	Ordinary Differential Equations	3
MATH 2272	Abstract Algebra I	3
MATH 2275	Statistics I	3
MATH 2277	Introduction to Real Analysis I	3
MATH 3277	Introduction to Real Analysis II	3
ACTS 3004	Asset & Liabiltiy Management I	3
MATH 3465	Statistical Inference	3
STAT 3001	Experimental Design and Sampling Theory	3

New courses available in Semeser 2

Course Code	Course Title	Credits
ACTS 3000	Actuarial Science Project	3
ACTS 3003	Loss Models I	3
MATH 2115	Life Contingenceis I	3
MATH 2212	Mathematics of Finance II	3
MATH 3273	Linear Algebra II	3
ACTS 3004	Asset & Liability Management I	3
MATH 3465	Statistical Inference	3
STAT 3001	Experimental Design and Sampling Theory	3

MAJORS and SPECIAL OPTIONS

The following programmes are offered by the Department of Mathematics and Statistics:

MAJOR:
Mathematics

SPECIAL OPTIONS:
BSc Actuarial Science
BSc Mathematics
BSc Statistics and Economics

Major in Mathematics

COURSE LISTING

LEVEL I
SEMESTER 1

Course Code	Course Title	Credits
MATH 1142	Calculus I	3
MATH 1152	Sets & Number Systems	3

SEMESTER 2

Course Code	Course Title	Credits
MATH 1141	Introductory Linear Algebra & Analytical Geometry	3
MATH 1151	Calculus II	3
MATH 1194	Mathematical Software III (Matlab)	1

LEVEL II / III (30 CREDITS)
SEMESTER I

Course Code	Course Title	Credits
MATH 2270	Multivariable Calculus	3
MATH 2273	Linear Algebra I	3
MATH 2274	Probability Theory I	3
MATH 2276	Discrete Mathematics	3
MATH 3277	Introduction to Real Analysis II	3
OR		
MATH 3272	Abstract Algebra II	3

LEVEL II/III
SEMESTER II

Course Code	Course Title	Credits
MATH 2271	Ordinary Differential Equations	3
MATH 2272	Abstract Algebra I	3
MATH 2275	Statistics I	3
MATH 2277	Introduction to Real Analysis I	3

PLUS Three (3) additional LEVEL III credits (ie. One additional LEVEL III course)

NOTE: Students planning to proceed to graduate work in Statistics should do Analysis II. Those planning to do graduate work in Mathematics need to do **BOTH** Introduction to Real Analysis II and Abstract Algebra II.

BSc MATHEMATICS

(96 CREDITS)

COURSE LISTING

LEVEL I (27 Credits)
SEMESTER I

Course Code	Course Title	Credits
COMP 1400	Programming I	3
MATH 1142	Calculus I	3
MATH 1152	Sets and Number Systems	3
MATH 1192	Mathematical Software I - Excel	1
MATH 1201	Applied Mathematics I	3

PLUS One (1) Foundation (FOUN) Course 3

LEVEL I
SEMESTER II

Course Code	Course Title	Credits
COMP 1404	Programming II	3
MATH 1141	Introductory Linear Algebra and Analytical Geometry	3
MATH 1151	Calculus II	3
MATH 1193	Mathematical Software II - Maple	1
MATH 1194	Mathematical Software III- Matlab	1
MATH 1202	Applied Mathematics II	3

PLUS One (1) Foundation (FOUN) Course 3

LEVELS II/III LEVEL II
SEMESTER I

Course Code	Course Title	Credits
MATH 2270	Multivariable Calculus	3
MATH 2273	Linear Algebra I	3
MATH 2274	Probability Theory I	3
MATH 2276	Discrete Mathematics	3

PLUS: One (1) Mathematics (MATH) elective course drawn from Level II or III - 3 credits

LEVEL II
SEMESTER II

Course Code	Course Title	Credits
MATH 2271	Ordinary Differential Equations	3
MATH 2272	Abstract Algebra I	3
MATH 2275	Statistics I	3
MATH 2277	Introduction to Real Analysis I	3

PLUS: One (1) Mathematics (MATH) elective course drawn from Level II or III - 3 credits

PLUS: One (1) Foundation (FOUN) Course - 3 credits

LEVEL III
SEMESTER I

Course Code	Course Title	Credits
MATH 3272	Abstract Algebra II	3
MATH 3277	Introduction to Real Analysis II	3

PLUS: One (1) Mathematics (MATH) elective course drawn from Level III - 3 credits

PLUS: One (1) Mathematics (MATH) course drawn from Level II or III - 3 credits

PLUS: One (1) Level II/III elective course drawn from any discipline - 3 credits

LEVEL III
SEMESTER III

Course Code	Course Title	Credits
MATH 3274	Set Theory	3
MATH 3275	Introduction to Complex Analysis	3

PLUS: One (1) Mathematics (MATH) elective course drawn from Level III - 3 credits

PLUS: One (1) Mathematics (MATH) course drawn from Level II or III - 3 credits

PLUS: One (1) Level II/III elective course drawn from any discipline - 3 credits

BSc ACTUARIAL SCIENCE

(FOR STUDENTS ENTERING LEVEL II IN 2014/2015 AND 2015/2016)
(104 CREDITS)

COURSE LISTING

LEVEL I (30 CREDITS)
SEMESTER 1

Course Code	Course Title	Credits
ACCT 1002	Introduction to Financial Accounting	3
COMP 1400	Programming I	3
ECON 1001	Introduction to Economics I	3
MATH 1142	Calculus I	3
MATH 1152	Sets and Number Systems	3

LEVEL I
SEMESTER 2

Course Code	Course Title	Credits
ACCT 1003	Introduction to cost & Managerial Accounting	3
ECON 1002	Introduction to Economics II	3
COMP 1404	Programming II	3
MATH1141	Introductory Linear Algebra & Analytical Geometry	3
MATH 1151	Calculus II	3

LEVEL II
SEMESTER 1
CORE COURSES

Course Code	Course Title	Credits
MATH 1194	Mathematical Software III (Matlab)	1
MATH 2270	Multivariable Calculus	3
MATH2273	Linear Algebra I	3
MATH 2274	Probability Theory I	3
EITHER		
MATH 2210	Mathematics of Finance I	4
OR BOTH		
MATH 2211	Mathematics of Finance I	3
AND		
MATH 2212	Mathematics of Finance II	3
MGMT 2023	Financial Management I	3

SEMESTER 2

Course Code	Course Title	Credits
MATH 2272	Abstract Algebra I	3
MATH 2275	Statistics I	3
MATH 2277	Introduction to Real Analysis I	3
EITHER		
MATH 2220	Introduction to Actuarial Mathematics	4
OR		
MATH 2115	Life Contingencies I	3
MATH 2271	Ordinary Differential Equations	3

LEVEL III
SEMESTER 1

Course Code	Course Title	Credits
ACTS 3001	Life Contingencies II	3
MATH 3278	Probability Theory II	3
MGMT 3023	Financial Management II	3
STAT 3000	Regression with Time Series	3

PLUS: One (1) elective freely chosen 3

SEMESTER 2

Course Code	Course Title	Credits
ACTS 3000	Actuarial Science Project	3
ACTS 3003	Loss Models I	3
ACTS 3004	Asset & Liability Management I	3

PLUS: One (1) Level III elective 3

PLUS: One (1) elective freely chosen 3

BSc ACTUARIAL SCIENCE

(FOR STUDENTS ENTERING IN 2015/2016)

(102 CREDITS)

COURSE LISTING

LEVEL I (35 CREDITS)

SEMESTER 1

Course Code	Course Title	Credits
ACCT 1002	Introduction to Financial Accounting	3
COMP 1400	Programming I	3
ECON 1001	Introduction to Economics I	3
MATH 1142	Calculus I	3
MATH 1152	Sets and Number Systems	3

PLUS: One (1) Foundation (FOUN) course 3

SEMESTER 2

Course Code	Course Title	Credits
MATH 1141	Introductory Linear Algebra & Analytical Geometry	3
MATH 1151	Calculus II	3
MATH 1192	Introduction to Mathematical Software I	1
MATH 1194	Introduction to Mathematical Software III (Matlab)	1
COMP 1404	Programming II	3
ECON 1002	Introduction to Economics II	3

PLUS: One (1) Foundation (FOUN) course 3

LEVEL II (35 CREDITS)

SEMESTER 1

Course Code	Course Title	Credits
MATH 2270	Multivariable Calculus	3
MATH 2273	Linear Algebra I	3
MATH 2211	Mathematics of Finance I	3
MATH 2274	Probability Theory I	3
MGMT 2023	Financial Management I	3

PLUS: One (1) Foundation (FOUN) course 3

SEMESTER 2

Course Code	Course Title	Credits
MATH 2115	Life Contingencies I	3
MATH 2212	Mathematics of Finance II	3
MATH 2272	Abstract Algebra I	3
MATH 2275	Statistics I	3
MATH 2277	Introduction to Real Analysis I	3

PLUS: Spanish (SPAN) or other approved Foreign Language from CLL. 2

LEVEL III (32 CREDITS)

SEMESTER 1

Course Code	Course Title	Credits
ACTS 3001	Life Contingencies II	3
STAT 3000	Regression with Time Series	3
MATH 3278	Probability Theory II	3
MGMT 3023	Financial Management II	3

PLUS: One (1) elective freely chosen 3

PLUS: Spanish (SPAN) or other approved Foreign Language from CLL. (Level 2A or above) 2

SEMESTER 2

Course Code	Course Title	Credits
ACTS 3000	Actuarial Science Project	3
ACTS 3003	Loss Models I	3
ACTS 3004	Asset & Liability Management I	3

PLUS: One (1) Level III elective 3

PLUS: One (1) elective freely chosen 3

BSc STATISTICS AND ECONOMICS

(99 CREDITS)

COURSE LISTING

LEVEL I SEMESTER 1

Course Code	Course Title	Credits
ACCT 1002	Financial Accounting	3
ECON 1001	Introduction to Economics I	3
MATH 1142	Calculus I	3
MATH 1152	Sets & Numbers Systems	3
EITHER		
SOCI 1002	Introduction to Sociology	3
OR		
PSYC 1001	Introduction to Psychology	3

PLUS: One (1) Foundation (FOUN) course 3

LEVEL I

SEMESTER 2

Course Code	Course Title	Credits
COMP 1400	Programming I	3
ECON 1002	Introduction to Economics II	3
MATH 1141	Introduction to Linear Algebra Analytical Geometry	3
MATH 1151	Calculus II	3
MATH 1192	Introduction to Mathematical Software	1

PLUS: One (1) Foundation (FOUN) course 3

LEVEL II
SEMESTER 1

Course Code	Course Title	Credits
ECON 2000	Intermediate Microeconomics I	3
ECON 2002	Intermediate Macroeconomics I	3
MATH 1194	Mathematical Software III(Matlab)	1
MATH 2270	Multivariable Calculus	3
MATH 2273	Linear Algebra I	3
MATH 2274	Probability Theory I	3

SEMESTER 2

Course Code	Course Title	Credits
ECON 2001	Intermediate Microeconomics II	3
ECON 2003	Intermediate Macroeconomics II	3
ECON 2005	Social and Economic Accounting	3
MATH 2275	Statistics I	3
MATH 2277	Introduction to Real Analysis I	3
PLUS:	One (1) Foundation (FOUN) course	3

LEVEL III
SEMESTER 1

Course Code	Course Title	Credits
ECON 3049	Econometrics I	3
MATH 3278	Probability Theory II	3
EITHER		
ECON 2020	Caribbean Economy	3
OR		
ECON 3051	Developmental Economics	3
MATH 3278	Probability Theory II	3
PLUS:	One elective from MATH, STAT, ECON or COMP	3
PLUS:	One elective drawn from any discipline	3

SEMESTER 2

Course Code	Course Title	Credits
ECON 3050	Econometrics II	3
ECON 3073	Internship in Statistics	3
MATH 3465	Statistical Inference	3
STAT 3001	Experimental Design and Sampling Theory	3
PLUS:	One elective drawn from any discipline	3

BSc STATISTICS AND ECONOMICS

(CHANGES TO YEAR III FOR CANDIDATES WHO ENTERED IN 2012/2013 AND 2013/2014)

LEVEL III (30 CREDITS)
SEMESTER 1

Course Code	Course Title	Credits
MATH 3278	Probability Theory II	3
ECON 3049	Econometrics I	3
EITHER		
ECON 2020	Caribbean Economy	3
OR		
ECON 3051	Developmental Economics	3
PLUS:	One elective from MATH, STAT, ECON or COMP	3
PLUS:	One elective drawn from any discipline	3

SEMESTER 2

Course Code	Course Title	Credits
MATH 3465	Statistical Inference	3
STAT 3001	Experimental Design and Sampling Theory	3
ECON 3050	Econometrics II	3
ECON 3073	Internship in Statistics	3
PLUS:	One elective drawn from any discipline	3

BSc MATHEMATICS AND APPLIED STATISTICS

(93 CREDITS)

Available from the academic year 2016/2017

BSc STATISTICS

(93 CREDITS)

Available from the academic year 2016/2017

DEPARTMENT OF PHYSICS

List of courses offered in the Department of Physics for the 20515/2016 academic year.

SEMESTER 1

Course Code	Course Title	Credits
BMET 1004	Introductory Human Anatomy & Physiology I	3
BMET 2001	Bioengineering	3
BMET 2002	Introduction to Medical Physics	3
BMET 3000	Biomedical Technology Project *(Year-long)*	6
BMET 3001	Laboratory Management and Practice	3
BMET 3002	Light & Optics in Medicine	3
PHYS 0070	Preliminary Physics I*	0
PHYS 1001	Introduction to Astronomy	3
PHYS 1221	Introduction to Mechanics	3
PHYS 1222	Introduction to Optics, Oscillations & Waves	3
PHYS 2150	Mathematics for Physicists	3
PHYS 2152	Vibrations, Waves and Optics	3
PHYS 2155	Physics Major Laboratory Level II *(Year-long)*	3
PHYS 2156	Meteorology and Climatology	3
PHYS 2165	Materials Science I	3
PHYS 2401	Optoelectronics	3
PHYS 3150	Electromagnetism	3
PHYS 3153	Physics Major Research Project	3
PHYS 3155	Physics Major Laboratory Level III *(Year long)*	3
PHYS 3156	Principles of Physical Oceanography and Geohydrology *(Offered in 2016/2017)*	3
PHYS 3159	Environmental Physics Laboratory *(Year-long)*	3
PHYS 3160	Medical Physics & Bioengineering Laboratory *(Year-long)*	3
PHYS 3163	*Electronics Laboratory (Year Long)*	3
PHYS 3164	Ceramics Science	3
PHYS 3166	Materials Science Laboratory *(Year-long)*	3
PHYS 3201	Advance Electronics and Control Theory	3
PHYS 3202	Practical Electronics I *(Year-long)*	3

SEMESTER 2

Course Code	Course Title	Credits
BMET 1005	Introductory Human Anatomy & Physiology II	3
BMET 3003	Biomedical Laboratory	3
BMET 3004	Metrology & Regulation Standards	3
PHYS 0071	Preliminary Physics II*	0
PHYS 1223	Introduction to Eelectricity & Magnetism	3
PHYS 1224	Introduction to Thermodynamics & Modern Physics	3
PHYS 2151	Classical and Statistical Mechanics	3
PHYS 2153	Astrophysics	3
PHYS 2157	Solid Earth Geophysics	3
PHYS 2166	Technological Materials *(Offered in 2016/2017)*	3
PHYS 2402	Digital Circuits and Logic Design	3
PHYS 3151	Quantum Mechanics	3
PHYS 3152	Advanced Thermodynamics and Solid State Physics	3
PHYS 3153	Physics Major Research Project	3
PHYS 3157	Earth Science *(Offered in 2016/2017)*	3
PHYS 3158	Fundamentals of Renewable Energy	3
PHYS 3165	Materials Science II	3
PHYS 3167	Radiation Biophysics and Medicine	3
PHYS 3168	Medical Instrumentation	3
PHYS 3203	Microprocessor and Modern Digital Design	3
PHYS 3204	Practical Electronics II	3

* **Not counted towards the credit requirements for the award of the BSc Degree.**

1. Students reading PHYS 2165 Materials Science I cannot read CHNG 1003 Science of Materials (Chemical and Process Engineering course).
2. BMET students with CAPE Mathematics passes in both Units I and II are to request exemption with credits for MATH 1115 and MATH 1125.
3. Students repeating a course may carry over the practical coursework mark for a maximum of two (2) years. However the theory coursework must be repeated. Please consult with the Head of Department.
4. Laboratory courses (year long): Students are required to register for each year long laboratory course in **Semester 1** of the Academic year. However, since these are year long courses credits will be assigned only in **Semester 2.**
5. PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 and PHYS 1216 have been replaced by four three (3) credit courses (see **TABLE 5**). Students are required to register for the new courses. Please refer to Table 5.
6. PHYS 2162, PHYS 2163, PHYS 3161 and PHYS 3162 have been replaced. Students are required to register for the new courses . Please refer to **TABLE 6.**
7. PHYS 2160 and PHYS 2159 have been replaced by BMET 2001 and BMET 2002 (**TABLE 7**). Students are to register for the new courses.

TABLE 5

OLD COURSES		
COURSE CODE	**COURSE NAME**	**CREDITS**
PHYS 1211	Introduction to Mechanics and Heat	3
PHYS 1212	Introduction to Electricity & Magnetism & Modern Physics	3
PHYS 1213	Introduction to Oscillations & Waves	1.5
PHYS 1214	Introductory Physics Laboratory I	1.5
PHYS 1215	Introductory Physics Laboratory II	1.5
PHYS 1216	Introduction to Optics	1.5

NEW COURSES NOTE: These courses have practical components		
COURSE CODE	**COURSE NAME**	**CREDITS**
PHYS 1221	Introduction to Mechanics	3
PHYS 1222	Introduction to Optics Oscillations & Waves	3
PHYS 1223	Introduction to Electricity & Magnetism	3
PHYS 1224	Introduction to Thermodynamics & Modern Physics	3

TABLE 6

OLD COURSES		
COURSE CODE	**COURSE NAME**	**CREDITS**
PHYS 2162	Digital Electronics I	3
PHYS 2163	Analog Electronics I	3
PHYS 3161	Analog Electronics II	3
PHYS 3162	Digital Electronics II	3
PHYS 3163	Electronics Laboratory	3

NEW COURSES			
COURSE CODE	**COURSE NAME**	**CREDITS**	**SEMESTER**
PHYS 2402	Digital Circuits and Logic Design	3	II
PHYS 2401	Optoelectronics	3	I
PHYS 3201	Advance Electronics and Control Theory	3	I
PHYS 3203	Microprocessor and Modern Digital Design	3	II
PHYS 3202	Practical Electronics I	3	YEAR-LONG
PHYS 3204	Practical Electronics II	3	II

TABLE 7

OLD COURSES		
COURSE CODE	**COURSE NAME**	**CREDITS**
PHYS 2160	Advanced Medical Physics & Bioengineering	3
PHYS 2159	Introduction to Medical Phyiscs & Bioengineering	3

NEW COURSES			
COURSE CODE	**COURSE NAME**	**CREDITS**	**SEMESTER**
BMET 2001	Bioengineering	3	I
BMET 2002	Introduction to Medical Physics	3	I

MAJORS, MINORS, AND SPECIAL OPTION

The following programmes are offered by the Department of Physics:

MAJORS:
Electronics
Physics

MINORS:
Electronics
Environmental Physics
Materials Science
Medical Physics & Bioengineering

SPECIAL OPTION:
BSc Biomedical Technology

Major in Physics

(30 CREDITS)

COURSE LISTING

NOTE: Students must complete at least 12 Level I credits.

PREREQUISITES
LEVEL I
SEMESTER 1

Course Code	Course Title	Credits
PHYS 1221	Introduction to Mechanics	3
PHYS 1222	Introduction to Optics, Oscillations and Waves	3

LEVEL I
SEMESTER 2

Course Code	Course Title	Credits
PHYS 1223	Introduction to Electricity & Magnetism	3
PHYS 1224	Introduction to Thermodynamics and Modern Physics	3

CORE COURSES (30 CREDITS)
LEVEL II/III
SEMESTER 1

Course Code	Course Title	Credits
PHYS 2150	Mathematics for Physicists	3
PHYS 2152	Vibrations, Waves and Optics	3
PHYS 2155	Major Laboratory Level II (*Year-long)*	3
PHYS 3150	Electromagnetism	3
PHYS 3153	Physics Major Research Project *(Offered in both semesters)*	3
PHYS 3155	Major Laboratory Level III *(Year-long)*	3

SEMESTER 2

Course Code	Course Title	Credits
PHYS 2151	Classical and Statistical Mechanics	3
PHYS 2153	Astrophysics	3
PHYS 3151	Quantum Mechanics	3
PHYS 3152	Advanced Thermodynamics and Solid State Physics	3
PHYS 3153	Physics Major Research Project *(Offered in both semesters)*	3

Major in Electronics

(30 CREDITS)

COURSE LISTING

PREREQUISITES *
LEVEL I
SEMESTER 1

Course Code	Course Title	Credits
MATH 1142	Calculus I	3
COMP 1400	Programming I	3

LEVEL I
SEMESTER 2

Course Code	Course Title	Credits
PHYS 1223	Introduction to Electricity & Magnetism	3
MATH 1141	Introductory Linear Algebra & Analytical Geometry	3

*** Students must secure 12 more level I credits in order to proceed to Level II**

CORE COURSES (27 CREDITS)
LEVEL II
SEMESTER 1

Course Code	Course Title	Credits
PHYS 2401	Optoelectronics	3
PHYS 2150	Mathematics for Physicists	3

SEMESTER 2

Course Code	Course Title	Credits
ECNG 2001	Communication Systems I	3
PHYS 2402	Digital Circuits and Logic Design	3

LEVEL III
SEMESTER 1

Course Code	Course Title	Credits
PHYS 3201	Advance Electronics and Control Theory	3
ENG 3001	Communication Systems II	3
PHYS 3202	Practical Electronics I *(Year- long)*	3

SEMESTER 2

Course Code	Course Title	Credits
PHYS 3203	Microprocessor and Modern Digital design	3
PHYS 3204	Practical Electronics II	3

ELECTIVES (Choose one(1) three credit course)
LEVEL III
SEMESTER I

Course Code	Course Title	Credits
PHYS 3168	Medical Instrumentation	3
ECNG 3002	Data Communication Systems	3
ECNG 3025	Discrete Signal Processing	3

SEMESTER 2

Course Code	Course Title	Credit
ECNG 3003	Telecommunication Networks	3
ECNG 3019	Advanced Control Systems Design	3

NB:
Students seeking admission into the Master of Applied Science in Electrical and Computer Engineering (M.A.Sc.), with a major in Communication Systems are advised to choose electives ECNG 3002 and ECNG 3003 as these two courses are prerequisites.

Students seeking admission into M.A.Sc. programme with a major in Control Systems are advised to choose elective ECNG 3019 as this course is prerequisite.

Students pursuing the Major in Physics and the Major in Electronics must complete PHYS 2150 to meet the stipulated requirements for matriculation for both Majors. Since the course cannot be credited twice, students must do an advanced course to satisfy the credit requirements.

Minor in Electronics

(15 CREDITS)

LEVEL II/III
SEMESTER 1

Course Code	Course Title	Credits
PHYS 2401	Optoelectronics	3
PHYS 3201	Advance Electronics and Control Theory	3
PHYS 3202	Practical Electronics I *(Year-long)*	3
OR		
PHYS 3163	Electronics Laboratory *(Year-long)*	3

SEMESTER 2

Course Code	Course Title	Credits
PHYS 2402	Digital Circuits and Logic Design	3
PHYS 3203	Microprocessor and Modern Digital Design	3

PHYS 3163 is the equivalent of the new course PHYS 3202 and as such, students who have successfully completed PHYS 3163 need not pursue PHYS 3202 to obtain the Minor in Electronics.

Minor in Environmental Physics

(15 CREDITS)

CORE COURSE (3 CREDITS)

Course Code	Course Title	Credits
PHYS 3159	Environmental Physics Laboratory *(Year-long)*	3

PLUS any other **four (4) courses** from the five (5) listed below

LEVEL II/III
SEMESTER 1

Course Code	Course Title	Credits
PHYS 2156	Meteorology and Climatology	3
PHYS 3156	Principles of Physical Oceanography and Geohydrology *(Offered in 2016/2017)*	3

SEMESTER 2

Course Code	Course Title	Credits
PHYS 2157	Solid Earth Geophysics	3
PHYS 3157	Earth Science *(To be offered in2015/2016)*	3
PHYS 3158	Fundamentals of Renewable Energy	3

Minor in Materials Science

15 CREDITS) LEVEL II/III

SEMESTER 1

Course Code	Course Title	Credits
PHYS 2165	Materials Science I	3
PHYS 3164	Ceramics Science	3
PHYS 3166	Materials Science Laboratory *(Year-long)*	3

SEMESTER 2

Course Code	Course Title	Credits
PHYS 2166	Technological Materials *(Offered in 2016 / 2017)*	3
PHYS 3165	Materials Science 11	3

Minor in Medical Physics & Bioengineering

(15 CREDITS)

LEVEL II/III
SEMESTER 1

Course Code	Course Title	Credits
BMET 2001	Bioengineering	3
BMET 2002	Introduction to Medical Physics	3
PHYS 3160	Medical Physics & Bioengineering Laboratory *(Year-long)*	3

SEMESTER 2

Course Code	Course Title	Credits
PHYS 3167	Radiation Biophysics and Medicine	3
PHYS 3168	Medical Instrumentation	3

BSc BIOMEDICAL TECHNOLOGY

(93 CREDITS)

LEVEL I (ALL ARE CORE COURSES)
SEMESTER 1

Course Code	Course Title	Credits
BMET 1004	Introductory Human Anatomy & Physiology I	3
MATH 1115	Fundamental Mathematics for the General Sciences I	3
PHYS 1221	Introduction to Mechanics	3
PHYS 1222	Introduction to Optics, Oscillations and Waves	3

LEVEL I
SEMESTER 2

Course Code	Course Title	Credits
BMET 1005	Introductory Human Anatomy & Physiology II	3
MATH 1125	Fundamental Mathematics for the General Sciences II	3
PHYS 1223	Introduction to Electricity and Magnetism	3
PHYS 1224	Introduction to Thermodynamics & Modern Physics	3

LEVEL II / III
SEMESTER 1

Course Code	Course Title	Credits
BIOL 2163	Biostatistics	3
BMET 2001	Bioengineering	3
BMET 2002	Introduction to Medical Physics	3
BMET 3000	Biomedical Technology Project *(Year-long)*	6
BMET 3001	Laboratory Management and Practice	3
BMET 3002	Light and Optics in Medicine	3
PHYS 2150	Mathematics for Physicists	3
PHYS 2401	Optoelectronics	3
PHYS 3201	Advance Electronics and Control Theory	3
PHYS 3160	Medical Physics & Bioengineering Laboratory *(Year-long)*	3
PHYS 3163	Electronics Laboratory *(Year-long)*	3

SEMESTER 2

Course Code	Course Title	Credits
BMET 3003	Biomedical Technology Laboratory	3
BMET 3004	Metrology and Regulatory Standards	3
PHYS 2402	Digital Circuits and Logic Design	3
PHYS 3167	Radiation Biophysics and Medicine	3
PHYS 3168	Medical Instrumentation	3
PHYS 3203	Microprocessor and Modern Digital Design	3

ELECTIVE COURSES * (CHOOSE any 6 credits)**

*** Students may pursue any 6 credits at Level II/III preferable from other Departments provided that they have the necessary pre-requisites and with the Head of Department's approval.

Note:

BMET students with CAPE Mathematics passes in both Units I and II are to request exemption with credits for MATH 1115 and MATH 1125.

LANGUAGE COURSES

The Centre for Language Learning (CLL) offers courses in 10 foreign languages: Arabic, Chinese, French, German, Hindi, Italian, Japanese, Portuguese, Spanish and Yoruba.

Its aim is to empower students to use the target language in order to understand information, to express themselves orally and in writing, to communicate with native and non-native speakers of the language and engage with the culture of the language.

Students can register at the CLL and attend classes in any language, upon payment of a small registration fee. Students can also pursue credit courses in Chinese, French, Japanese and Spanish. Registration is online using BANNER. **Students must complete a paper-based registration at the CLL before their online registration.** The normal per credit fee applies.

CHINESE (MANDARIN)

Course Code	Course Title	Credits
CHIN 1003	Level 1A Chinese (Mandarin) I	2
CHIN 1004	Level 1B Chinese (Mandarin) II	2

FRENCH

Course Code	Course Title	Credits
FREN 1001	Level 1A French I & II	2
FREN 1002	Level 1B French I & II	2

JAPANESE

Course Code	Course Title	Credits
JAPA 1003	Level 1A Japanese I	2
JAPA 1004	Level 1B Japanese II	2

SPANISH

Course Code	Course Title	Credits
SPAN 1101	Level 1A Spanish I & II	2
SPAN 1102	Level 1B Spanish I & II	2

SECTION XIII: COURSE DESCRIPTIONS – ONLINE ONLY

ALPHABETICAL LISTING BY COURSE CODES

ACCOUNTING: ACCT

LEVEL: I
SEMESTERS: 1
COURSE CODE: ACCT 1002
COURSE TITLE: INTRODUCTION TO FINANCIAL ACCOUNTING
NUMBER OF CREDITS: 3
PREREQUISITES: NONE
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: An introductory course designed for students of accounting and those in other areas of study. It aims at producing a practical and a theoretical understanding of the principles and concepts involved in the preparation of financial statements. Students are exposed to conceptual analytical approach with the aim of improving their critical thinking and communicative skills.
ASSESSMENT:

Coursework	25%
Final Examination	75%

LEVEL: I
SEMESTERS: 2
COURSE CODE: ACCT 1003
COURSE TITLE: INTRODUCTION TO COST & MANAGERIAL ACCOUNTING
NUMBER OF CREDITS: 3
PREREQUISITES: NONE
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: This is an introductory course for students of accounting as well as other areas of study. It aims to acquaint them with the uses of accounting information and techniques useful to the manager in planning, decision-making and controlling organisational activities.
ASSESSMENT:

Coursework	25%
Examination	75%

LEVEL: II
SEMESTER: 1
COURSE CODE: ACCT 2017
COURSE TITLE: MANAGEMENT ACCOUNTING 1
NUMBER OF CREDITS: 3
PREREQUISITES: ACCT 1002 AND ACCT 1003
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: The course explains how managerial accounting information is used by managers in manufacturing, retail, service and not-for-profit organisations to anticipate the future and monitor the activities of the business.
ASSESSMENT:

Coursework	25%
Final Examination	75%

ACTUARIAL: ACTS

LEVEL: III
SEMESTER: 2
COURSE CODE: ACTS 3000
COURSE TITLE: ACTUARIAL SCIENCE PROJECT
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2211, MATH 2212, MATH 2115 AND ACTS 3001
COURSE DESCRIPTION: This course requires the student to develop an actuarial solution to a problem of an appropriate scope. The project may be application oriented where the student builds a business solution similar to what is required to solve actuarial problems. The project should require the student to draw on the skills developed across several Actuarial Science courses.
ASSESSMENT:

Project report	80%
Presentation	20%

LEVEL: III
SEMESTER: 1
COURSE CODE: ACTS 3001
COURSE TITLE: LIFE CONTINGENCIES II
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2270 AND MATH 2115
COURSE DESCRIPTION: This course is the second part of the Life Contingencies course. The contents of this course will introduce students to application of multiple life functions and multiple decrement models in the actuarial context. Students will learn steps involved in modeling life insurance portfolios to determine the probability of survival and death in a multiple decrement basis. In addition, students will gain practical application of the course content through a software based assignment required for the valuation of the reserves for an individual life insurance policyholder. A software used in the actuarial field will be incorporated in the course so that students develop practical skills.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: 2
COURSE CODE: **ACTS 3003**
COURSE TITLE: LOSS MODELS I
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2270, MATH 2274 and MATH 2275
COURSE DESCRIPTION: The contents of this course will introduce students to the construction and evaluation of actuarial models. Students will learn the steps involved in the modeling process and how to carry out these steps in solving business problems. That is, analyze data from an application in a business context, determine a suitable model including parameter values and provide measures of confidence for decisions based on the model. In addition, the
student will be introduced to a variety of tools for the calibration and evaluation of the survival, severity, frequency and aggregate models, and use statistical methods to estimate parameters of such models given sample data.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: ACTS 3004
COURSE TITLE: ASSET AND LIABILITY MANAGEMENT I
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2275 AND MATH 2212 OR MGMT 3048
COURSE DESCRIPTION: This course covers topics in modern corporate portfolio theory. Topics include cost of capital, economic capital, sources of capital, bond pricing, derivatives pricing, interest rate models, and efficient markets. The course builds on the material in Financial Mathematics II, introducing further tools and techniques of asset/liability management, general product design, as well as issues of pricing, valuation and asset management and investments in financial security programmes.
ASSESSMENT:

Coursework	50%
Final Examination - One 2-hour written paper	50%

AGRICULTURE: AGRI

LEVEL: III
SEMESTER: 11
COURSE CODE: AGRI 3020
COURSE TITLE: FOOD MICROBIOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: AGRI 1012; BIOL 2265
DEPARTMENT RESPONSIBLE: FOOD PRODUCTION
COURSE DESCRIPTION: In this course, the history and development of food microbiology, characteristics of predominant microorganisms in food and their significance, extrinsic and intrinsic factors influencing microbial growth in foods, harmful aspects of microorganisms, beneficial applications of microorganisms in fermentation, methods of food preservation and predictive food microbiology. The course also addresses various food safety management systems such as by ISO 22000 and Hazard Analysis and Critical Control Point (HACCP). Teaching methods involve lectures, video presentation, and laboratory practical.
ASSESSMENT:

Coursework	40%
Final Examination	60%

BIOCHEMISTRY: BIOC

LEVEL: II
SEMESTER: 1
COURSE CODE: BIOC 2061
COURSE TITLE: BIOENERGETICS
NUMBER OF CREDITS: 3
ANTI-REQUISITES: BIOL 2361 BIOMOLECULES AND ENERGY METABOLISM OR BIOL 2360 BIOCHEMISTRY IIA
PREREQUISITES: BIOL 1362 OR BIOL 1061 AND EITHER (CHEM 1066 AND CHEM 1067) OR CHEM 1060
COURSE DESCRIPTION: pH and buffers; Bioenergetics, Membrane structure ; Introduction to membrane transport; TCA cycle; Oxidative phosphorylation; Plant and fungal respiratory chains; Transporters of the mitochondrial inner membrane; Photosynthetic light reactions of plants and bacteria; Calvin cycle; C3, C4 and CAM metabolism; GS-GOGAT and photorespiration; Mitochondria-plastid interactions in higher plants; Chlororespiration; Mitochondrial dysfunction
ASSESSMENT:

Coursework	50%
Final Exam	50%

LEVEL: II
SEMESTER: 1
COURSE CODE: BIOC 2069
COURSE TITLE: PRACTICAL SKILLS IN BIOCHEMISTRY I
NUMBER OF CREDITS: 1.5
ANTI-REQUISITES: BIOL 3069 RESEARCH PROJECT
PREREQUISITES: BIOL 1362 OR BIOL 1061 AND EITHER (CHEM 1066 AND CHEM 1067) OR CHEM 1060
COURSE DESCRIPTION: This course is composed primarily of laboratory exercises which assist students to understand concepts taught in the classroom as well as introduce techniques necessary to function efficiently in a biochemistry lab. Topics covered include: Instrumentation and safety in the biochemistry laboratory; pH and buffers; proteins and amino acids; the Hill Reaction; measurement of arginase activity; assay of tissue glycogen.
ASSESSMENT:

Coursework	100%

LEVEL: II
SEMESTER: 1
COURSE CODE: BIOC 2161
COURSE TITLE: PRIMARY METABOLISM
NUMBER OF CREDITS: 3
ANTI-REQUISITES: BIOL 2363 METABOLISM
PREREQUISITES: BIOL 1362, CHEM 1066 AND CHEM 1067
COURSE DESCRIPTION: Regulation mechanisms of enzymes in biological systems; Enzyme mechanisms; Carbohydrate metabolism; Nitrogen metabolism; Amino Acids; Lipid metabolism Integrated Metabolism; Regulation of Metabolism
ASSESSMENT:

Coursework	50%
Final Exam	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: BIOC 2162
COURSE TITLE: CIRCULATORY AND SECRETORY SYSTEMS
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 2364 ADVANCED GENERAL BIOCHEMISTRY
PREREQUISITES: BIOL 1362 OR BIOL 1061 AND EITHER (CHEM 1066 AND CHEM 1067) OR CHEM 1060
COURSE DESCRIPTION: Protein stability and folding; Protein trafficking (mitochondria, chloroplast, nucleus and E.R.); Intracellular vesicular traffic; Cytoskeleton; Hormones; Plant hormones; Biochemical effectors of the mammalian respiratory and circulatory systems
ASSESSMENT:

Coursework	50%
Final Exam	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: BIOC 2169
COURSE TITLE: PRACTICAL SKILLS IN BIOCHEMISTRY II
NUMBER OF CREDITS: 1.5
PREREQUISITES: BIOL 1362 OR BIOL 1061 AND EITHER (CHEM 1066 AND CHEM 1067) OR CHEM 1060
COURSE DESCRIPTION: This course is composed primarily of laboratory exercises which assist students to understand concepts taught in the classroom as well as introduce techniques necessary to function efficiently in a biochemistry lab. As this course builds upon those techniques studied in Practical skills in Biochemistry I students must first have taken that course. Topics covered include are DNA and RNA isolation from animal tissues and a project where the students isolate and characterize invertase from yeast.
ASSESSMENT:

Coursework	100%

LEVEL: II
SEMESTER: 2
COURSE CODE: BIOC 2262
COURSE TITLE: GENE EXPRESSION
NUMBER OF CREDITS: 3
ANTI-REQUISITES: BIOL 2362 FURTHER METABOLISM & GENE EXPRESSION
PREREQUISITES: BIOL 1362, BIOL1364 AND CHEM 1066
COURSE DESCRIPTION: Chemistry of nucleic acids, gene expression events and regulation, DNA surveillance and repair mechanisms; nucleotide biosynthesis, gene expression and developmental biology.
ASSESSMENT:

Coursework	50%
Final Exam	50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOC 3062
COURSE TITLE: CELLULAR AND MOLECULAR DEFENCE SYSTEMS
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOC 3061 MOLECULAR BIOLOGY
PREREQUISITES: EITHER BIOC 2262 OR BIOL 2362 AND EITHER BIOC 2161 OR BIOL 2363
COURSE DESCRIPTION:
Course Description: The course covers: introduction to virology, effect of viruses on host cells; immunology: natural and acquired immunity both humoral and cellular; antibody structure and function; B cells-generation of antibody diversity; function of T cells; complement-activation, control and biological effects. HLA-nomenclature, typing and its uses, autoimmunity; animal detoxification-absorption and distribution of xenobiotics, toxic effects and metabolism. The course will be delivered using a number of pedagogical tools and will be myelearning supported.
ASSESSMENT:

ASSESSMENT: Coursework:	50%
Final Examination:	50%

LEVEL: III
SEMESTERS: 1, 2 AND 3
COURSE CODE: BIOC 3069
COURSE TITLE: BIOCHEMISTRY RESEARCH PROJECT
NUMBER OF CREDITS: 3
PREREQUISITES: BIOC 2061, BIOC 2161, BIOC 2262, BIOC 2162, BIOC 2069 AND BIOC 2169 AND HAVE A GPA OF 3 OR ABOVE (OR PERMISSION OF THE HEADOF DEPARTMENT)
COURSE DESCRIPTION: An approved investigation of a problem in biochemistry and a written report thereon. Students must consult with the course coordinator before registering for this course
ASSESSMENT:

In-course assessment	30%
Literature Review	10%
Oral Presentation	20%
Project Report	70%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOC 3162
COURSE TITLE: EXPERIMENTAL BIOCHEMISTRY AND MOLECULAR BIOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITES: BIOL 2164 PRINCIPLES OF MOLECULAR BIOLOGY, BIOL 3061 MOLECULAR BIOLOGY
PREREQUISITES: EITHER BIOC 2262 OR BIOL 2362 AND EITHER BIOC 2169 OR BIOL2364 OR BIOC 2162
COURSE DESCRIPTION: Course Description: This course covers key advanced techniques in Biochemistry and Molecular Biology including mammalian cell culture, immunological techniques, analysis of lipids and carbohydrates, analysis of DNA, RNA and proteins, recombinant DNA technology and genetic engineering, protein expression, ethics of synthetic biology and computational methods in biochemistry and molecular biology.
Course materials will include class handouts e.g. illustrations and diagrams and the course will be fully myeLearning-supported. The course is primarily a theoretical course but computer-assisted approaches to experimental design and data analysis will be practiced by students.
ASSESSMENT:

Coursework:	50%
Final Examination:	50%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOC 3262
COURSE TITLE: MEDICAL BIOCHEMISTRY
NUMBER OF CREDITS: 3
PREREQUISITES: BIOC 2162 OR BIOL 2364
COURSE DESCRIPTION: The formation, composition and analysis of urine, stool and blood. Clinical significance and laboratory handling. Mechanisms for the release of cellular enzymes into circulation. Criteria for selection of plasma enzyme tests. Examples of clinically important enzymes. A brief outline of the structure and function of the kidney – the nephron. The role of the kidney in maintaining water balance, ionic equilibria and acid-base balance. Acute and chronic diseases of the kidney. Effect of diabetes on renal function. The buffer systems in blood. The roles of the kidney and lung in regulating blood pH. Symptoms and compensatory mechanisms of the various disorders. The anion gap. Procedures for assessing acid-base status. Treatment of acid-base disturbances. Outline of the anatomy and excretory/secretory functions of the liver. Review of the major synthetic activities and the roles of the liver in detoxification and drug metabolism. Clinical and biochemical features of acute liver disease. Chronic liver disease cirrhosis, clinical and biochemical features, major complications. Laboratory tests for assessment of liver function and for differential diagnosis of liver disease. Relationship of plasma lipids to the pathogenesis of arterial disease. Laboratory investigation of plasma lipid abnormalities. Thyroid hormone metabolism. Mechanism of thyroid hormone action and regulation of secretion. Disorders of the thyroid –Laboratory investigation of thyroid function. Pathways of catecholamine biosynthesis and metabolism. Regulation of steroidogenesis. Mechanism of action of steroid hormones and their physiologic effects. Secretion, metabolism and excretion of steroids. Biochemical and clinical features of disorders of the adrenal cortex, testis, ovary.
ASSESSMENT:

Coursework:	50%
Final Examination:	50%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOC 3364
COURSE TITLE: BIOCHEMICAL BASIS OF DISEASE
NUMBER OF CREDITS: 3
PREREQUISITES: BIOC 2161 OR BIOL 2363 AND EITHER BIOC 2262 OR BIOL 2362
COURSE DESCRIPTION:
Course Description: The course covers applied aspects of cancer metabolism, gene expression, diabetes and obesity, signal transduction/apoptosis, sensory systems and neurochemistry. The course will be delivered using a number of pedagogical tools and will be myeLearning supported
ASSESSMENT:

Coursework:	50%
Final Examination:	50%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOC 3500
COURSE TITLE: MOLECULAR VIROLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: EITHER BIOC 2262, BIOC 3162 AND BIOC 3062 OR GRADE B- OR BETTER IN BIOL 2265, BIOL 2164 AND BIOL 2165
COURSE DESCRIPTION: Changing climates and environmental conditions, increased human traffic, altered human behavior and intensified agricultural practices are only a few factors that have led to the emergence of multiple viruses that occupy expanded ecologic niches, producing diseases in parts of the world where they had never before existed. Importantly, most emerging viral diseases in humans in the 21st century have been zoonotic and plant viruses continue to disrupt food supply. This course will detail the main mechanisms engaged by most viruses for successful reproduction within a host cell and for survival and spread within a host population. The molecular basis of alternative reproductive cycles and the genetic plasticity of viral genomes and the role in virus evolution are important aspects that will be covered. The course will address both sides of the dynamic interplay between pathogen and host including pathogenesis, oncogenic involvement, detection and control of viruses using vaccines and new antiviral strategies and finally, the potential and real applications of manipulating viruses for use in bioengineering and gene therapy. The course directly contributes to the thematic understanding of immunology and biochemical/molecular methods taught in Semester I as pre-requisite courses. The course will be fully myeLearning-supported and a combination of pedagogical approaches will be used; assessments will be based on in-course exams, group assignments and individual student reports.
ASSESSMENT:

Coursework	50%
Final Examination	50%

BIOLOGY: BIOL

LEVEL: 0 (PRELIMINARY)
SEMESTER: 1
COURSE CODE: BIOL 0061
COURSE TITLE: PRELIMINARY BIOLOGY I
NUMBER OF CREDITS: 0
PREREQUISITES: CSEC OR EQUIVALENT PASS IN BIOLOGY
COURSE DESCRIPTION: An introduction to Cell and Plant Biology including the ultra -structure of plant and animal cells; comparison between prokaryotic and eukaryotic cells; structure and function of micro- and macro-molecules; enzymes; respiration and photosynthesis. Introduction of the Plant Kingdom, plant anatomy, morphology and physiology to include water relations, ion uptake, mineral nutrition; regulation of growth and development by hormonal and environmental factors.
ASSESSMENT:

Coursework	50%
Theory 20%	
Practical 30%	
Final Examination	50%

LEVEL: 0 (PRELIMINARY)
SEMESTER: 2
COURSE CODE: BIOL 0062
COURSE TITLE: PRELIMINARY BIOLOGY II
NUMBER OF CREDITS: 0
PREREQUISITES: CSEC OR EQUIVALENT PASS IN BIOLOGY
COURSE DESCRIPTION: Introduction to the Animal Kingdom; relationships between structure and function of the mammalian body including the gross anatomy and tissue structure of the various organ systems. Basic principles of Mendelian and Molecular genetics including the physical and chemical basis of inheritance; DNA replication, recombinant DNA and DNA fingerprinting. Introduction to Ecology including ecosystems, energy flow and trophic levels, nutrient cycling and environmental issues.
ASSESSMENT:

Coursework	50%
Theory 20%	
Practical 30%	
Final Examination	50%

LEVEL: I
SEMESTER: 1
COURSE CODE: BIOL 1262
COURSE TITLE: LIVING ORGANISMS I
NUMBER OF CREDITS: 3
PREREQUISITES: (CAPE BIOLOGY (UNITS I AND II) OR (BIOL 0061 & BIOL 0062) OR GCE A-LEVEL BIOLOGY
COURSE DESCRIPTION: An introduction to the major groups of prokaryotes, autotrophic protists and plants, their evolutionary associations, and adaptive radiation. Explores ideas about the origin of the prokaryotes and the evolution and diversity of photosynthetic organisms. It is a prerequisite for advanced biology courses in the Department of Life Sciences.
ASSESSMENT:

Coursework	50%
Theory 30%	
Practical 20%	
Final Examination	50%

LEVEL: I
SEMESTER: 1
COURSE CODE: BIOL 1263
COURSE TITLE: LIVING ORGANISMS II
NUMBER OF CREDITS: 3
PREREQUISITES: (CAPE BIOLOGY (UNITS I AND II) OR (BIOL 0061 & BIOL 0062) OR GCE A-LEVEL BIOLOGY
COURSE DESCRIPTION: An introduction to the diversity of animals and fungi. Students are introduced to animals, their evolutionary associations, and adaptive radiation; and fungi as decomposers, symbionts, and pathogens. It is a prerequisite for advanced biology courses in the Department of Life Sciences
ASSESSMENT:

Coursework	50%
Theory 30%	
Practical 20%	
Final Examination	50%

LEVEL: I
SEMESTER: 2
COURSE CODE: BIOL 1362
COURSE TITLE: BIOCHEMISTRY I
NUMBER OF CREDITS: 3
ANTI-REQUISITE: AGRI 1013 INTRODUCTION TO BIOCHEMISTRY
PREREQUISITES: (CAPE BIOLOGY (UNITS I AND II) OR (BIOL 0061 & BIOL 0062) OR GCE A-LEVEL BIOLOGY
COURSE DESCRIPTION: This course provides an introductory treatment of concepts in Biochemistry. In many regards, students will be learning a vast new language as well as new insight into the molecular logic of life - how the structure/form of molecules is related to their diverse functions.
ASSESSMENT:

Coursework	40%
Final Examination	60%

LEVEL: I
SEMESTER: 2
COURSE CODE: BIOL 1364
COURSE TITLE: GENETICS I
NUMBER OF CREDITS: 3
ANTI-REQUISITE: AGRI 1011 INTRODUCTION TO GENERAL GENETICS
PREREQUISITES: (CAPE BIOLOGY (UNITS I AND II) OR (BIOL 0061 & BIOL 0062) OR GCE A-LEVEL BIOLOGY
COURSE DESCRIPTION: This course aims to present an introduction to the basic principles of genetics and will equip students with the necessary foundation for advanced level courses in biology and biochemistry.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: II
SEMESTER: 1
COURSE CODE: BIOL 2061
COURSE TITLE: CELL & DEVELOPMENTAL BIOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 1263 OR BIOL 1261 OR (BIOL 1065 AND AGRI 1012) AND EITHER BIOL 1362 AND BIOL 1364 OR BIOL 1061
COURSE DESCRIPTION: The course covers the basic principles of developmental biology with a review of the structure and function of cellular organelles and the role of the cytoskeleton in cell shape and motility. The principles of development, including an understanding of developmental terminology will be examined and its application to organismal, cellular and molecular levels demonstrated for a complete understanding of developmental processes. Students will be introduced to important experiments that have led to an understanding of the basic principles of development. The application of stem cells in research and associated ethical considerations will form the basis of class discussions and online debates.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: II
SEMESTER: 1
COURSE CODE: BIOL 2163
COURSE TITLE: BIOSTATISTICS
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 1115 OR MATH 1125 OR AGRI 1003 OR CAPE UNITS I & II PURE MATHEMATICS OR APPLIED MATHEMATICS OR CAMBRIDGE GCE A'LEVEL MATHEMATICS OR A/O' LEVEL ADDITIONAL MATHEMATICS OR EQUIVALENT
AND
9 CREDITS FROM THE FOLLOWING: BIOL 1262, BIOL 1263, BIOL 1364, BIOL 1362, BIOL1261, BIOL 1061, ESST1000, ESST1001, EST1002, ESST1004, ESST1005, ESST1006, BMET 1004, BMET 1005, PHYS 1221, PHYS 1222, PHYS 1223 AND PHY 1224
COURSE DESCRIPTION: This course introduces statistical concepts and analytical methods that can be applied to data in the biological, life sciences and environmental sciences. It will teach the basic concepts of experimental design, quantitative analysis of data, and statistical inferences. This course emphasises applications and will help students to statistically evaluate data from biological experiments. Assessment is designed to make students work continuously with the course materials, exploring and critically analysing research and real world data. Assessment will be continuous through assigned problem sheets allowing continuous feedback and guidance on problem solving techniques.
ASSESSMENT:

Coursework	50%
Final Exam	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: BIOL 2164
COURSE TITLE: PRINCIPLES OF MOLECULAR BIOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3061 MOLECULAR BIOLOGY
PREREQUISITES: EITHER BIOL 1362 AND BIOL 1364 OR BIOL 1061
COURSE DESCRIPTION: This course provides an introduction to recombinant DNA technology, R-DNA cloning, and applications of R-DNA technology. It examines the importance of restriction endonucleases in gene cloning, methods of construction of vectors and their applications in developing gene libraries. The methods of screening and enrichment of libraries are also examined. The principles of the Polymerase Chain Reaction (PCR) and its applications including paternity testing and fingerprinting, are also discussed. The principles of sequencing and the expansion of next-generation sequencing techniques are examined. Approaches to locating genes, including map-based gene isolation, and methods of gene silencing including RNAi and co-suppression are discussed using detailed examples. All techniques are further examined under general and holistic approaches to studying the genome, through forward and reverse genetics approaches, functional genomics, transcriptomics, proteomics and metabolomics. The theoretical principles discussed during the lectures are reinforced by practical exercises and assessment involving quizzes, in-lab assessments and discussions.
ASSESSMENT:

Coursework	50%
Final Exam	50%

LEVEL: II
SEMESTER: 1
COURSE CODE: BIOL 2165
COURSE TITLE: GENETICS II
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 2162 ADVANCED GENETICS
PREREQUISITES: BIOL 1364 OR BIOL 1061 AND 6 CREDITS FROM AMONG THE FOLLOWING COURSES: BIOL 1262, BIOL 1263, BIOL 1362 OR BIOL 1261.
COURSE DESCRIPTION: The major topics of the course are cytogenetics (including epigenetics and developmental genetics), prokaryotic/ viral genetics, and molecular genetics (including genomics). Cytogenetics explores chromosomal macromutations (chromosomal deletions, duplications, inversions and translocations) and their associated cytogenetic effects on plants and animals. Epigenetics and developmental genetics is a new area of study that explains the environmental influence on chromatin dynamics, DNA methylation, development and ultimately on inheritance. An introductory treatment of developmental genetics is also given to understand master control genes (homeotic genes) that regulate a cascade of genes that control development. Prokaryotic/ viral genetics provides insights into prokaryotic/ viral reproduction, recombination; genetic complementation, mapping; and genetic regulation. Molecular genetics provides the fundamental basis for the understanding of Molecular Biology and as such deals with DNA replication, transcription, translation and controls. Genomics provides an insight into where genetics is evolving (including an introduction to applications).
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: II
SEMESTER: 1
COURSE CODE: BIOL 2262
COURSE TITLE: EVOLUTIONARY BIOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3662 EVOLUTION AND BIOSYSTEMATICS
PREREQUISITES: BIOL 1364 OR BIOL 1061 AND 6 CREDITS FROM AMONG THE FOLLOWING COURSES: BIOL 1262, BIOL 1263, BIOL 1362 OR BIOL 1261
COURSE DESCRIPTION: After a historical introduction, about one-quarter of the course is devoted to population genetics and the workings of natural selection as the basis for understanding evolutionary mechanisms and patterns. This leads to treatment of the nature of species, the roles of fossils in understanding past evolutionary patterns, special forms of evolution and phylogenetic analysis.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: BIOL 2265
COURSE TITLE: FUNDAMENTALS OF MICROBIOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITES: BIOL 2263 GENERAL MICROBIOLOGY
PREREQUISITES: ESST 1001 OR EITHER (BIOL 1262 AND BIOL 1263) OR BIOL1261 OR (BIOL 1065 AND AGRI 1012) AND EITHER (BIOL1362 AND BIOL 1364) OR BIOL 1061
COURSE DESCRIPTION: An overview of the biology, taxonomy and phylogeny of bacteria, fungi and viruses. Topics covered include bacterial carbon and energy metabolism, as well as genetic recombination, growth and nutrition. The course covers the principles of classical and molecular-based methods used in the identification and enumeration of microorganisms.
ASSESSMENT:

Coursework	50%
Final Exam	50%

LEVEL: II
SEMESTER: 1
COURSE CODE: BIOL 2360
COURSE TITLE: BIOCHEMISTRY IIA
NUMBER OF CREDITS: 3
ANTI-REQUISITES: BIOL 2361 BIOMOLECULES & ENERGY METABOLISM; BIOL 2365 COMPARATIVE BIOCHEMISTRY; BIOC 2061 BIOENERGETICS
PREREQUISITES: EITHER BIOL 1362 OR BIOL 1061 AND EITHER CHEM 1062 OR CAPE CHEMISTRY OR CHEM 0060 AND CHEM 0061 AND EITHER BIOL 1262 OR BIOL 1263 OR BIOL 1261
COURSE DESCRIPTION: This course builds on the material covered in BIOL1362 Biochemistry I. The course is intended for those students who are majoring in biology or perusing the B.Sc. Biology programme and who **are not** reading a major or minor in biochemistry. The course covers core areas of biochemistry including bioenergetics; membranes and membrane transport; enzyme action and regulation; carbohydrate, nitrogen and lipid metabolism; and the integration of metabolism via hormonal control.
ASSESSMENT:

Coursework	50%
Final Exam	50%

LEVEL: II
SEMESTER: 1
COURSE CODE: BIOL 2462
COURSE TITLE: CARIBBEAN ISLAND ECOLOGY
NUMBER OF CREDITS: 4
PREREQUISITES: BIOL 1462 (AT LEAST A GRADE B) OR EQUIVALENT
COURSE DESCRIPTION: This advanced course treats the islands of the Caribbean within a global perspective. Its subject matter is the special nature of island environments and their biotas, and its aim is an understanding of the distributions and ecological relationships of island plants and animals through an analysis of their origins, evolutionary past population biology and community structure. The course is expected to integrate much of the knowledge that advanced undergraduates have amassed.
ASSESSMENT:

Coursework	40%
Final Examination	60%

LEVEL: II
SEMESTER: 2
COURSE CODE: BIOL 2464
COURSE TITLE: FUNDAMENTALS OF ECOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 1462 GENERAL ECOLOGY AND BIOMETRY
PREREQUISITES: (BIOL 1262 AND 6 CREDITS FROM (BIOL 1263 OR BIOL 1362 OR BIOL 1364) OR (ESST 1001 AND 6 CREDITS FROM ESST 1000 OR ESST 1002 OR ESST 1006)
COURSE DESCRIPTION: An introduction to the science of ecology and its domain. Geographic range, habitat, and niche; influences of the abiotic and biotic environment. Estimating the abundance and pattern of populations. Population structure and demography; growth models, life tables and resource allocation patterns. Species interactions; competition, predation, commensalism and mutualism. The ecological community; concepts, classification, and attributes, ecological succession. Primary and secondary production, trophic levels, and ecological efficiencies. Nutrient cycles and energy flow.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: BIOL 2764
COURSE TITLE: PHYSIOLOGY OF PLANTS
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 2761 PLANT PHYSIOLOGY
PREREQUISITES: BIOL 1262 OR BIOL 1261 OR (BIOL 1065 AND AGRI 1012) AND EITHER BIOL 1364 AND BIOL 1362 OR BIOL 1061
COURSE DESCRIPTION: This course deals with how plants gather the resources they need to grow and survive. The first part provides the essential concepts of plant physiology with comprehensive coverage of water relations, mineral uptake, and photosynthesis. The second part explores how these resources are translated into plant growth and provides an introduction to how plants respond to environmental signals at the whole plant level. Each topic is covered by lectures and supported by online material and by recommended reading. The Practicals complement the lecture topics and provide an opportunity gain valuable practical skills in the life sciences.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: BIOL 2867
COURSE TITLE: PHYSIOLOGY OF ANIMALS
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 2862 ANIMAL PHYSIOLOGY
PREREQUISITES: BIOL 1263 AND BIOL 1362 AND EITHER BIOL 1364 OR ESST 1001
COURSE DESCRIPTION: Physiology of Animals is the study of how animals' function. The course provides an introduction to molecular and cellular physiology and the principal physiological systems in animals, and how these systems function to maintain homeostasis in various environments. It covers fundamental concepts in osmoregulation and excretion, neurophysiology, muscle physiology, respiration, thermo-physiology, circulation and gas transport, endocrinology, and cardiovascular physiology. It also looks at some of the major stressors on physiological processes and how animals have been able to deal them. Typical stressors that are covered include osmotic pressures, water limitation, hypoxia, altitude, depth, temperature extremes and exercise. While animal physiology examines systems and processes common to all animal species, this course will focus on vertebrates, with a special emphasis on mammalian systems.
ASSESSMENT:

Coursework	50%
Final Exam	50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3063
COURSE TITLE: MARINE ECOLOGY AND OCEANOGRAPHY
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 2063 MARINE ECOLOGY
PREREQUISITES: EITHER BIOL 1262 AND BIOL 1263 OR BIOL 1261 OR (BIOL 1065 AND AGRI 1012) AND EITHER BIOL 2464 OR BIOL 1462
COURSE DESCRIPTION: After having completed the Fundamentals of Ecology this course focuses now on marine ecology and related aspects of oceanography and marine biology. Ecological processes and adaptations that act to structure marine associations are emphasised. Lectures provide an overview of characteristics, biodiversity and ecology of these marine ecosystems. They will also highlight concepts, ideas and hypotheses of how marine ecosystems function. These principles are examined on a global oceanographic scale and include relevant examples from both tropical (including local to Trinidad and Tobago and the Caribbean) and temperate systems.

ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: 3 (SUMMER)
COURSE CODE: BIOL 3068
COURSE TITLE: FIELD COURSE IN NEOTROPICAL ECOLOGY
NUMBER OF CREDITS: 4
PREREQUISITES: BIOL 1462 OR BIOL 2464 AND 8 CREDITS OF ADVANCED LEVEL LIFE SCIENCES COURSES, OR PERMISSION OF THE HEAD OF DEPARTMENT
COURSE DESCRIPTION: Introduction to focal group, ecological principles illustrated by focal group, specialised features of focal group, field research projects (aquatic or terrestrial). Students must consult with the course coordinator before registering for this course.
ASSESSMENT:

Coursework	100%
• Oral Report	10%
• Written Work	90%

LEVEL: III
SEMESTERS: 1 & 2
COURSE CODE: BIOL 3069
COURSE TITLE: RESEARCH PROJECT
NUMBER OF CREDITS: 4
PREREQUISITES: AT LEAST A "B" AVERAGE IN LEVEL II LIFE SCIENCES COURSES OR PERMISSION OF THE HEAD OF DEPARTMENT. STUDENTS WISHING TO DO THIS COURSE ARE STRONGLY ENCOURAGED TO READ AN ELEMENTARY STATISTICS COURSE
COURSE DESCRIPTION: Short lecture course (6-8 hours): Aims and means of assessing project feasibility; Methods of investigation; Experimental design; Project reporting and presentation. An approved investigation of a problem in biology and a written report thereon.
Students must consult with the course coordinator before registering for this course
ASSESSMENT:

In-course assessment		40%
Project Proposal	10%	
Literature Review	10%	
Oral Presentation	20%	
Project Report		60%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3162
COURSE TITLE: PRINCIPLES OF MICROBIAL BIOTECHNOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3262 MICROBIAL BIOTECHNOLOGY
PREREQUISITES: BIOL 2265 AND BIOL 2164 (minimum grade "B-") AND BIOL 3369 (co-requisite) OR BIOL 2165 AND BIOL 2164 OR BIOC 2262 AND BIOC 3162 (co- requisite)
COURSE DESCRIPTION: This course focuses on the applications of microorganisms in a range of processes that are beneficial for humans and the environment. The topics covered include isolation, screening, genetic manipulation and culturing of microorganisms for selected biotechnological applications related to industries, health, agriculture and the environment. The course is organized into face-to-face lectures, tutorials and practical exercises. General and specific concepts would be covered in lectures while tutorials would be interactive, with students expected to prepare and fully participate in discussions and other class activities. Students will be continuously assessed via in-course tests, activities during lectures and tutorials, and attendance and participation in tutorials. Students' practical exercises will be assessed and there is also a final end-of-semester theory examination.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: BIOL 3164
COURSE TITLE: FUNCTION AND DESIGN IN BIOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3264 FUNCTIONAL DESIGN IN BIOLOGY
PREREQUISITES: BIOL 1262 OR BIOL 1261 OR (BIOL 1065 AND AGRI 1012); AND EITHER OR BIOL 2764 OR BIOL 2761) AND EITHER BIOL 2867 OR BIOL 2862 AND BIOL 3773
COURSE DESCRIPTION: This course offers a fresh approach to the study of the structure and function of living things. It does not follow the traditional approach based on phylogeny, processes, or organ systems, but looks at how organisms are designed to best make use of the physical characteristics of the environment in which they live. The course goes further than presentation of didactic lectures. For example, students are asked to critique the commonly held belief that cells are the building blocks of living things, and instead consider that cells are incomplete subunits of the organism, so that morphology is not related to anatomy. In the same vein, the concept of Bernoulli's Principle is shown to be inadequate to explain flight. Analogies are used wherever possible to explain concepts, such as comparing the anatomy of stems and bones to beams and girders, using the Forth Rail Bridge as an engineered analogue of stems. Lectures, tutorials, and practicals are designed to encourage thinking about concepts rather than remembering details.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3263
COURSE TITLE: INTRODUCTION TO BIOINFORMATICS
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2165 AND BIOL 2164 (minimum grade "B-") AND BIOL 3369 (co-requisite)
COURSE DESCRIPTION: This course introduces students to bioinformatics tools and methods. It provides the conceptual background for using bioinformatics tools and application methods and offers skills and training on computational molecular biology and related fields. It gives an understanding about major advances in the analysis of genomes, sequences and their structures and also critically discusses the strength and limitations of the methods. The lecture component of this course provides the necessary conceptual backing and the practical component provides assignments for utilizing bioinformatics tools. Problem-based learning methods would be employed to teach the utility of bioinformatics tools. Teaching approaches include lectures, tutorials and lab sessions. Topics include (but not limited to) bioinformatics databases, sequence and structure alignment, protein structure prediction, protein folding, protein-protein interaction, simulation, and molecular dynamics.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: 1
COURSE COURSE CODE: BIOL 3363
COURSE TITLE: MEDICAL BIOTECHNOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2165 AND BIOL 2164 OR BIOC 2262 AND BIOC 3162 (co- requisite
COURSE DESCRIPTION: Biotechnology as a field has very high relevance and application to human and animal medicine. With the advent of research we are at a stage to unravel the molecular mechanisms of several diseases and disorders. These studies have opened up a new era for the management of several problems facing human health and longevity. Biotechnology innovation is in a large part driven by the requirement for improvements in medical diagnosis and therapy for a range of diseases including autoimmune diseases, diseases of inflammation and cancer. This course gives students a detailed insight into the principles and techniques of biotechnology applied to human medicine. Topics include (but not limited to) biopharmaceuticals, stem cell technologies, tissue engineering and regenerative medicine, proteomics, antibody technologies, nanomedicine and molecular diagnostics. The teaching and learning methods include lectures/tutorials, and field trips to medical facilities (within Trinidad).
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3366
COURSE TITLE: PLANT BIOTECHNOLOGY AND GENETIC ENGINEERING
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3762 PLANT BIOTECHNOLOGY
PREREQUISITES: BIOL 2165 AND BIOL 2164 (minimum grade "B-") AND BIOL 3369 (co-requisite)
COURSE DESCRIPTION: This course introduces students to plant transformation technologies and genetic engineering methodologies for the introduction of beneficial traits into economically important plants. It also introduces students to plant tissue culture techniques and the impact of this technology on preservation of plant species and plant tissue based production of proteins and secondary metabolites. Topics include, Tissue culture applications in plant biotechnology; Advanced study of Gene sources and Gene expression; Promoters, selectable markers and reporter genes; Plant Transformation systems; Biology of *Agrobacterium* - mediated transformation; *Agrobacterium* – mediated gene transformation – methodology; Direct gene-transfer methods, Particle bombardment; Transgene Integration; Evaluation of Transgenics; Management of Gene silencing; Genetic engineering of plants for novel traits; herbicide tolerance, enhancing pest resistance, disease resistance; resistance to plant viruses, enhanced product qualities; Marker aided selection and gene pyramiding; Biofarming and plant expression systems; Phytoremediation, Genetic engineering of biofuel crops; Genetically modified crops - ethical, social biosafety and environmental issues. The teaching and learning methods include lectures/tutorials, group discussion, journal paper discussion and lab sessions. The teaching and learning methods include lectures/tutorials, and lab sessions.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: YEAR-LONG
COURSE CODE: BIOL 3369
COURSE TITLE: LABORATORY SKILLS IN BIOTECHNOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: BIOC 2262 (minimum grade "B-") AND BIOC 3162 (co-requisite)
COURSE DESCRIPTION: This course provides necessary practical skills on recombinant DNA technology and molecular biology and biotechnology techniques. This course will be taught through lab sessions, lab discussions/lectures. Course will be assessed for 100% course work. Lab experiments and lectures will comprehensively cover the experiments and methods involved in gene cloning, necessary instrumentation and Preparation of reagents; Extraction of DNA and RNA; Restriction digestion of plasmid and genomic DNA and fragment analysis; Extraction of plant proteins and SDS-PAGE analysis; DNA-PCR, RT-PCR, qPCR; Preparation of tissue culture media; Tissue culture of tobacco leaf explants; Cell culture techniques; DNA-sequencing and DNA finger printing
ASSESSMENT:

Coursework	100%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3462
COURSE TITLE: THE ECOLOGY OF FRESHWATERS
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 2062 FRESHWATER BIOLOGY
PREREQUISITES: EITHER (BIOL 1262 AND BIOL 1263) OR BIOL1261 OR (BIOL 1065 AND AGRI 1012) AND (BIOL 2464 OR BIOL 1462)
COURSE DESCRIPTION: This course provides an overview of characteristics, biodiversity and ecology of freshwater systems, e.g. rivers, lakes, wetlands, and other low salinity inland aquatic environments. The course will cover the characteristics and variety of freshwater systems; the diversity, biology and ecology of living organisms found associated with these systems; the structure and function of freshwater communities and ecosystems; threats to freshwater systems and management strategies to provide sustainable benefits for ecosystems and human wellbeing. Students are expected to have a basic foundation in ecology and biodiversity. In addition to providing a foundation of theoretical knowledge, this course will emphasise practical skills and expose students to field and laboratory approaches for studying freshwater systems. It is an interactive 'hands-on' course where students are expected to prepare, participate and perform in an active way to engage with the content in a variety of ways. Assessment is designed to encourage students to work continuously with the course materials, explore and critically analyse research in this rapidly developing field.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3463 (TO BE DISCONTINUED WITH EFFECT FROM 2016/2017)
COURSE TITLE: POLLUTION & ENVIRONMENTAL MANAGEMENT
NUMBER OF CREDITS: 4
PREREQUISITE: BIOL 2461
COURSE DESCRIPTION: Ecotoxicology. Ecotoxicity testing. Epidemiology and public health. Introduction to environmental law. Environmental regulations. Ecological crime. Environmental sampling and testing methods for water, air, sediment, noise, radioactivity. Environmental engineering background. Physiochemical and biological treatment methods for sewage and industrial waste.
ASSESSMENT:

Coursework	40%
Final Examination	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3465
COURSE TITLE: TROPICAL FOREST ECOLOGY AND USE
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3464 TROPICAL FORESTRY ECOLOGY AND MANAGEMENT
PREREQUISITES: BIOL 2163 AND EITHER BIOL 1462 OR BIOL 2464
COURSE DESCRIPTION: This course is designed to expose students to the tropical forest ecology and how it influences the human use of tropical forests such as timber production and conservation. The course is organised into background lectures and tutorials covering general and specific concepts in tropical forest ecology and management. In tutorials students are expected to prepare, participate and perform in an active way in order to engage with the content. Assessment will be based largely on in course tests and a final theory exam.
ASSESSMENT:

Coursework	60%
Final Examination	40%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3466
COURSE TITLE: COASTAL ECOSYSTEMS AND RESOURCE MANAGEMENT
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 3063
COURSE DESCRIPTION: This course will provide students with an understanding of the characteristics of the major coastal ecosystems of the Caribbean and adjacent regions. It emphasises the ecological processes that determine resource values and functions and highlights the reasons for habitat and resource degradation. The course examines the principles and practices of coastal ecosystem management and reviews the major coastal management initiatives in the region. It includes field surveys which cover many of the issues covered in the lectures. Students are introduced to ecosystems as resources and some basic management principles are also introduced. For each ecosystem the goods, services and attributes are described. Students are additionally exposed to a number of management tools and applications using relevant Caribbean examples.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3468
COURSE TITLE: BIODIVERSITY AND CONSERVATION
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3062 CONSERVATION BIOLOGY
PREREQUISITES: BIOL 2464 AND EITHER BIOL 2163 OR BIOL 1462
COURSE DESCRIPTION: This course introduces students to one of the most important issues facing biologists and society at large today and in the coming decades: the enormous loss of biological diversity that accompanies the expansion of human populations. The objectives of this course are to provide students with an understanding of biodiversity, the threats to it and methods for preventing its loss. The perspective will be primarily biological, but social and economic aspects will be covered also. Because of the complexity of the issues involved, the course tries to foster interdisciplinary thinking and problem solving
ASSESSMENT:

Coursework	60%
Final Examination	40%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3469
COURSE TITLE: RESEARCH AND PRACTICAL SKILLS IN ENVIRONMENTAL BIOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3069 RESEARCH PROJECT
PREREQUISITES: PERMISSION OF THE HEAD OF DEPARTMENT. ONLY AVAILABLE TO STUDENTS TAKING THE ECOLOGY & ENVIRONMENTAL BIOLOGY SPECIALISATION WITH 24 LEVEL II BIOLOGY CREDITS
COURSE DESCRIPTION: This course is designed to expose students to the general approaches and techniques used for research in Environmental Biology by conducting research in a selected area of Environmental Biology. The course is organised into background lectures and tutorials, field and laboratory sessions covering general practical skills and a short group research project. It is a 'hands-on' course where students are expected to prepare, participate and perform in an active way in order to engage with the content. Assessment will be based entirely on practical activities, skills and reporting.
ASSESSMENT:

Coursework	100%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3768
COURSE TITLE: PLANT DIVERSITY AND SYSTEMATICS
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 1262 OR BIOL 1261 AND EITHER BIOL 2764 OR BIOL 2761
COURSE DESCRIPTION: This course provides an overview of plant diversity and systematics and explores the origin and diversity of vascular land plants emphasizing flowering plants in the flora of Trinidad and Tobago. The course covers taxonomy (identification, nomenclature, and classification), diversity, morphology and evolution of vascular plant groups, as well as phylogenetics (phenetics, cladistics, morphology and molecules). Practicals focus on skills and activities necessary for indentifying vascular plants in Trinidad and Tobago and the tools necessary for the understanding of the study of systematics. The course would be taught using interactive lectures, tutorials and hands on practical sessions. Assessment would consist of a final written examination and in course, online and practical assignments
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3769
COURSE TITLE: PLANT GENETIC IMPROVEMENT
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3763 Crop Improvement
PREREQUISITES: BIOL 2162 OR BIOL 2165 OR AGCP 2001
COURSE DESCRIPTION: Objectives of plant breeding; Crop evolution and genetic variability; genetic erosion and germplasm conservation. Creating genetic variability - mutagenesis genetic engineering, inter- and intra-specific hybridisation. Reproductive isolation systems and their manipulation; Principles of selection-factors affecting genetic gain, selection methods, molecular marker assisted selection and response to selection. Principles and methods of breeding self-pollinated cross-pollinated and vegetatively propagated crops. Case studies. . Impact of biotechnology on plant breeding.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3770
COURSE TITLE: PLANT PATHOGENS
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3767 BIOLOGY OF PLANT PATHOGENS
PREREQUISITE: BIOL 2265
COURSE DESCRIPTION: This course introduces the learner to the field of plant pathology and provides basic information on the biology and epidemiology and disease cycle of important plant pathogens affecting plants of this region. This course provides comprehensive knowledge about plant pathogens and their interactions with the host. Topics include: Biology of plant pathogens; Classification of plant pathogens; their cellular organization, structure; Examples of pathogens; Pathogen-life cycles, disease cycle; Symptomology; epidemiology, spread, survival; Host-pathogen interactions, mechanism of infection, physiological and biochemical processes of infection; Host resistance and defense mechanisms; Principles of disease management; Molecular-based pathogen detection and disease diagnosis. This course will be taught through lectures/tutorials, lab sessions, field trips. Students are expected to complete a group project.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3771
COURSE TITLE: ENVIRONMENTAL PLANT PHYSIOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3766 PLANT ECOPHYSIOLOGY
PREREQUISITES: BIOL 2764 OR BIOL 2761
COURSE DESCRIPTION: Environmental Plant Physiology focuses on the interaction between plants and their environment, exploring the diverse ways in which plants adapt to and influence their surroundings. This course will equip students with knowledge of how plants can be used to conserve land, restore ecosystem services, and provide sustainable food and energy. The first part of the course introduces the essential concepts of Environmental Plant Physiology and looks in detail at three important abiotic factors: light, water and temperature. The second part of the course examines the application of concepts through a series of case studies looking at different habitats and applied scenarios. In addition to case studies developed by the instructor, students will have the opportunity to develop their own case studies that explore the role of plant research in meeting the challenge of global climate change.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3772
COURSE TITLE: PLANT DEVELOPMENT
NUMBER OF CREDITS: 3
PREREQUISITE(S): BIOL 2061 AND EITHER BIOL 2764 OR BIOL 2761
COURSE DESCRIPTION: This course provides an advanced level focus on the molecular genetic, biochemical and physiological bases of plant development. Concepts of signal perception and transduction are initially reviewed. Students will be introduced to important experiments that have led to understanding many basic principles of plant development. Of particular importance is the use of mutation genetics as a tool to study development. Students in dissecting these experiments would be required to perform planned experiments and present their results and analysis in a group presentation format.
ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3773
COURSE TITLE: PLANT ANATOMY
NUMBER OF CREDITS: 3
PREREQUISITES: EITHER BIOL 1262 OR BIOL 1261 OR (BIOL 1065 AND AGRI 1012); AND EITHER BIOL 2764 OR BIOL 2761
COURSE DESCRIPTION: The course integrates developmental and functional aspects to explain the internal structure and external form of seed plants. The cells, tissues and organs, as well as their modifications, of representative plants are described. The roles of meristematic activity in primary and secondary growth and in determinate and indeterminate growth patterns are explained. Practical exercises are integrated with lectures as much as possible and emphasis is placed on hands-on specimen preparation and on effective use of the light microscope.
ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: III
SEMESTER: 1 OR 2
COURSE CODE: BIOL 3774
COURSE TITLE: RESEARCH AND PRACTICAL SKILLS IN PLANT BIOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3069 RESEARCH PROJECT
PREREQUISITES: AT LEAST 24 ADVANCED LEVEL BIOL COURSES
COURSE DESCRIPTION: This course affords students taking the Plant Biology option in the Biology Degree, the opportunity to work independently or in groups under the supervision of a member of staff on a research question in plant biology of local or regional interest. The project is compulsory for students taking the Plant Biology Option, but may be done in any of three forms: individual research project, small group research project, or individual library project. Students develop research and/or evaluation and reporting skills as they design and conduct experiments, collect and analyse data and report and discuss the results of their own research or of the scientific literature pertaining to a research question, in an oral and written format.
ASSESSMENT:
Coursework 100%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3409
COURSE TITLE: CARIBBEAN CORAL REEFS
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 3063
COURSE DESCRIPTION: This course develops student competence in the biology of reef-building corals, the ecology of coral communities, and the impact of natural and anthropogenic factors on coral reefs in the context of the Caribbean region. In addition students are introduced to the ecosystem-based approach to reef management and to the economic valuation of reefs. Throughout the course the emphasis will be on the Caribbean and the interconnectedness of reefs throughout the region, however, comparisons will be made to reefs from other regions.
ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3866
COURSE TITLE: PARASITE BIOLOGY
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 2864 PARASITISM
PREREQUISITES:
BIOL 1263 OR BIOL 1261 OR (BIOL 1065 AND AGRI 1012) AND EITHER BIOL 2867 2867 OR BIOL 2862
ANTI-REQUISITE: BIOL 2864 - PARASITISM
COURSE DESCRIPTION: The course Parasite Biology is divided as follows:

- **The study of individual parasites**: It is only through the study of a parasite's biology and functions that steps can be taken to fight it.
- **The study of host-parasite relationships:** Disciplines which investigate how the host and parasite(s) interact include Physiology, Biochemistry, Cell Biology, and Pharmacology.
- **Immunology:** This deals with the immunological response that is triggered in the host and the ways in which the parasite attempts to evade it. Disciplines include Cellular and Molecular Immunology.
- **Chemotherapy:** This area investigates the effect of drugs on both the parasite and the host, as well effective treatments to ensure the death of the parasite and the recuperation of the host. Disciplines include Organic Chemistry, Pharmacology, Biochemistry and Medicine.
- **Epidemiology:** This field looks at the spread of parasitic diseases through study of the host, parasite and vectors. Disciplines include Tropical Hygiene, Entomology and Geographical distribution.

This course will be taught using a mixture of lectures, seminars and projects, team oral presentations, individual essays, reading materials and seminar-style classes, laboratory session to reinforce lectures and for hands on experience identifying, understanding form and function, and evolutionary processes. Course assessment will be based on a student seminar and an essay on current topics in parasitism together with lab exercises on form and function, and evolutionary processes. A final examination will be used to ensure student learning objectives are achieved.

ASSESSMENT:

Coursework	40%
Final Examination	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3867
COURSE TITLE: BIOLOGY OF ANIMAL BEHAVIOUR
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL3861 ANIMAL BEHAVIOUR
PREREQUISITES: (BIOL 1263 OR BIOL 1261 OR BIOL1065) AND EITHER BIOL 2867 OR BIOL 2862
COURSE DESCRIPTION: Approaches to animal behaviour. The description and measurement of behaviour, and the design of experiments. The evolution of behaviour. Physiological behaviour; stimulus perception, processing, and the organization of behaviour. Instinct and learning, and the development of behaviour in the individual. Signals, communication, and language in animals. Behavioural ecology of feeding, defence, territory and social behaviour, reproduction, and parental care.

ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3868
COURSE TITLE: THE ECOLOGY OF HUMANS
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL2461 HUMANS & THE ENVIRONMENT
PREREQUISITES: EITHER BIOL 1263 OR BIOL1261 OR (BIOL 1065 AND AGRI 1012) AND EITHER BIOL 2464 OR BIOL 1462
COURSE DESCRIPTION: This course focuses on one of the most important animals on Earth today, Homo sapiens, considering the species from a broad biological and ecological perspective. The course introduces the evolution and origin of modern humans, the extent of their uniqueness in comparison with other animals and Primates, and the characteristics that contribute to their unprecedented success and dominance of their environment. We also explore selected aspects of human biology and ecology including genetic and cultural diversity and adaptation; technological and lifestyle changes and their relationship with health and disease patterns; human populations, resources and wellbeing; resource depletion, environmental degradation and global climate change. In conclusion we discuss the future of the human animal. Students are expected to have a basic foundation in ecology and biodiversity. In addition to providing a foundation of theoretical knowledge, this course take a 'hands-on' approach where students are expected to prepare, participate and perform in an active way in order to engage with the content in a variety of ways. Assessment is designed to encourage students to work continuously with the course materials, explore and critically analyse research in this complex and rapidly developing field. Students are expected to have a basic foundation in animal biology.
ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: III
SEMESTER: 1 AND 2
COURSE CODE: BIOL 3869
COURSE TITLE: ZOOLOGY PROJECT
NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 3069 RESEARCH PROJECT
PREREQUISITES: PERMISSION OF THE HEAD OF DEPARTMENT. ONLY AVAILABLE TO STUDENTS TAKING THE ZOOLOGY SPECIALISATION, WITH 24 LEVEL II BIOLOGY CREDITS.
COURSE DESCRIPTION: This course gives students taking the Zoology Specialisation the opportunity to work independently or in a small group under the supervision of a member of staff on a research or study question in zoology of local and regional interest. Students develop research and/or evaluation and reporting skills as they design and conduct experiments, collect and analyse data and report and discuss the results of their own research or of the scientific literature, in an oral and written format.
ASSESSMENT:
Coursework 100%

LEVEL III
SEMESTER: 2
COURSE CODE: BIOL 3870
COURSE TITLE: INSECT BIOLOGY NUMBER OF CREDITS: 3
ANTI-REQUISITE: BIOL 2866 ENTOMOLOGY
PREREQUISITE: BIOL 2867 OR BIOL 2862
COURSE DESCRIPTION: The first half of the course treats the unity of insects, i.e. those features that are common to all or many orders. The second half is an evolutionary survey of the insects, with some attention to arachnids, treating major orders and some families or superfamilies. In addition, one lecture is devoted to a more in-depth treatment of a selected group of insects or arachnids or a particular theme in arthropod biology.
The basic teaching/learning approach is a traditional one of practical exercises followed by lectures and reading. Assessment is by means of reports on practical exercises, tests and an individualized species account.
ASSESSMENT:
Coursework 50%
Final Examination 50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3960
COURSE TITLE: ENVIRONMENTAL MICROBIOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2265 (AT LEAST B-), BIOL 2164, BIOL 2165 AND BIOL 2360
COURSE DESCRIPTION: This course explores the diversity and function of microorganisms in the environment. Emphasis is placed on metabolic processes employed by microbes to transform organic and inorganic substances as part of bio-geochemical cycles. The role of microorganisms in pollution of water, soil and air is considered in addition to microbial processes used in environmental remediation and conservation. Conventional and molecular-based tools used for detecting, characterizing and monitoring microbes in the environment are also covered. The teaching and learning methods include lectures/tutorials, discussion sessions and labs.
ASSESSMENT

Coursework	50%
Final Examination	50%)

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3961
COURSE TITLE: PRINCIPLES OF MEDICAL MICROBIOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2265 (AT LEAST B-), BIOL 2164, BIOL 2165 AND BIOL 2360
COURSE DESCRIPTION: Principles Medical Microbiology gives students a detailed insight into the principles and techniques of microbiology applied to human medicine. It covers medically important bacteria, viruses, fungi and parasites. Emphasis is placed on classification, detection and diagnosis of microbial pathogens and parasites in addition to their mechanisms and clinical manifestation. Students would also gain an understanding of epidemiological factors that contribute to human infectious disease and be introduced to the uses and challenges of antimicrobial and anti-parasitic agents for managing microbial diseases. The teaching and learning methods include lectures/tutorials and laboratory sessions.
ASSESSMENT

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: 1
COURSE CODE: BIOL 3970
COURSE TITLE: AQUACULTURE
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 1262, BIOL 1263 AND BIOL 2464
COURSE DESCRIPTION: In Aquaculture students will be exposed to basic knowledge in the related fields of culturing fish in both the marine and brackish-water environments. You will learn about the various techniques and the exciting field of tropical aquaculture- which is currently the fastest growing food-production system in the world.The course covers major trends in aquacultural practices, human and environmental influences on productivity and sustainability and traditional and modern strategies for managing aquaculture. Emphasis will be placed on tropical culture species.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: 2
COURSE CODE: BIOL 3971
COURSE TITLE: FISHERIES MANAGEMENT
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 3063
COURSE DESCRIPTION: Fisheries biology and management are critical disciplines in today's world, given the importance of the fishing industry as a source of animal protein in the human diet; the basis of a multimillion-dollar industry; and the threatened status of many of the major species on which we depend. This course introduces concepts in the related fields of fisheries biology, stock assessment and fisheries management. The course covers major trends in global and regional fisheries and fishing patterns; human and environmental influences on productivity and sustainability; traditional fish stock assessment models; and traditional, modern and emerging strategies for managing fisheries. Emphasis will be placed on tropical fisheries, which are among the most difficult fisheries to manage.
ASSESSMENT:

Coursework	50%
Final Examination	50%

BIOMEDICAL: BMET

LEVEL: I
SEMESTER: 1
COURSE CODE: BMET 1004
COURSE TITLE: INTRODUCTORY HUMAN ANATOMY AND PHYSIOLOGY I
NUMBER OF CREDITS: 3
PREREQUISITES: CAPE PHYSICS (UNITS I AND II) OR CAPE MATHEMATICS (UNITS I AND II) AND CSEC (CXC) PHYSICS OR PHYS 0070 AND PHYS 0071 OR THEIR EQUIVALENT
COURSE DESCRIPTION:
It is essential that biotechnology personnel, in any form of the use of the body, should be more than merely acquainted with the human body and the relationship of its parts to the total working of the healthy person. Scientific background will underscore student opportunities to think critically, from the perspective of the human organism functioning independently, the interface between the individual and his/her immediate environment, including interactive relationships with technology, and global environment. This course integrates several disciplines including the basic gross anatomy and histology of all the system, as well as physiology of the human body. Contemporaneous issues of homeostasis, ergonomics, adaptation and health will be discussed in the context of today's emerging environmental and inter-organism impacts in the quality of life. This course comprises: General Introduction of Gross anatomy, concepts and principles of cell biology; histology; the integumentary, skeletal, muscular, and nervous systems; special senses; and the endocrine system. This course will be assessed through in-course assignments, in-course laboratory exercises and a final examination.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hr paper)	60%

LEVEL: I
SEMESTER: 2
COURSE CODE: BMET 1005
COURSE TITLE: INTRODUCTORY HUMAN ANATOMY AND PHYSIOLOGY II
NUMBER OF CREDITS: 3
PREREQUISITES: : CAPE PHYSICS (UNITS I AND II) OR CAPE MATHEMATICS (UNITS I AND II) AND CSEC (CXC) PHYSICS OR PHYS 0070 AND PHYS 0071 OR THEIR EQUIVALENT
COURSE DESCRIPTION: Introductory Human Anatomy and Physiology II is an extension of its first semester counterpart Introductory Human Anatomy and Physiology I.Introductory Human Anatomy & Physiology II offers a broad overview of the structure (anatomy) and function (physiology) of tissues, organs and organ systems. The systems covered in this course are: heart, blood and circulatory system; the lymphatic system, immune System and disease; the digestive System and nutrition; the excretory System, kidneys and fluid balance; and the respiratory system, lungs and respiration. The course concludes with human reproductive anatomy and physiology.
This course will be assessed through in-course assignments, in-course laboratory exercises and a final examination.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hr paper)	60%

LEVEL: II
SEMESTER: 1
COURSE CODE: BMET 2001
COURSE TITLE: BIOENGINEERING
NUMBER OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216
COURSE DESCRIPTION: This course will emphasize a systemic view of human anatomy, hierarchy of structures, the function of the various systems of the body and an introduction to selected physiological functions in the human body. Additionally, the physics of the human body will be addressed in terms of the generation of electricity and the use of biopotential measurements in medical diagnostics. This course will focus on the following: Review of radiation interaction with matter; Medical radiation sources and their applications in diagnosis and therapy (focus on detectors, scanners and image processing in the medical environment); Nuclear medicine: radioisotopes, tracer studies and system modeling; Biomechanics as applied in orthopaedic and cardiac surgery; Biomaterials: focusing on the properties of implantable materials and their preparation for implantation; Kinetic and blood flow studies. This course will be assessed through in-course assignments and a final examination.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hr paper)	60%

LEVEL: II
SEMESTER: 1
COURSE CODE: BMET 2002
COURSE TITLE: INTRODUCTION TO MEDICAL PHYSICS
NUMBER OF CREDITS:3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216
COURSE DESCRIPTION: The Medical Physics section of this course will focus on radiation diagnostic methods, corresponding equipment and image analysis in medicine in addition to the production and use of different radiation types for diagnosis and cancer therapy. While in the Bioengineering section, human movement analysis, the development of prostheses and orthoses, the use of man-made materials in the human body, fluid flow and tracer techniques for diagnosis will be considered. This course will focus on the following: The structure, function, properties and Physics of bone, muscles, cardiovascular and nervous system. Feedback and Control systems in the body and homeostatis. Biomedical potentials, electrooculogram (EOG), electrocardiogram (ECG), electromyogram (EMG), electroencephalogram (EEG) and magnetocardiogram (MCG).The visual system and the auditory system. This course will be assessed through in-course assignments and a final examination.
ASSESSMENT:

Coursework	50%
Final Examination (One 2-hr paper)	50%

LEVEL: III
SEMESTER: YEAR-LONG
COURSE CODE: BMET 3000
COURSE TITLE: BIOMEDICAL TECHNOLOGY PROJECT
NUMBER OF CREDITS: 6
PREREQUISITES:
AVAILABLE TO B.SC. BIOMEDICAL TECHNOLOGY STUDENTS ONLY, WITH AT LEAST 30 LEVEL II/III CREDITS
COURSE DESCRIPTION: The project will be compulsory for all B.Sc. Biomedical Technology students and will consist of practical work and related activities such as writing critiques of selected literature, training on equipment, attending and presenting interim reports verbally, and meeting with supervisors. The student will be assigned a research project and will work under the guidance of a member of academic and/or professional staff. The student will be required to write a research proposal outlining the research project, a critical analysis of the literature and the methodology to be used. The student will plan and carry out experiments under the supervision of the advisor or professional recommended by the supervisor. On completion of the practical component, the student will be required to write a project report according to specified format. The report is to be submitted for assessment by a deadline set by the Department of Physics. Students will also be required to orally present their project to an open audience on dates set by the Department of Physics. The oral presentation should make use of current presentation technologies and technique and should be of ten minutes duration per student. This course will be assessed through a written report and an oral presentation.
ASSESSMENT:

Oral Dissertation	20%
Written Report	80%

LEVEL: III
SEMESTER: 1
COURSE CODE: BMET 3001
COURSE TITLE: LABORATORY MANAGEMENT AND PRACTICE
NUMBER OF CREDITS: 3
PREREQUISITES: AVAILABLE ONLY TO BSC BIOMEDICAL TECHNOLOGY STUDENTS
COURSE DESCRIPTION: Biomedical technologists may work within a laboratory environment and may be managers of a laboratory. Technologists may calibrate, test, sample, and evaluate various types of signals and materials and quantify results that may be used by other medical professionals for interpretation. One objective of laboratories is the achievement of documented processes and error-free results that are above reproach. Mistakes can lead to a lack of confidence in the results and services provided by a laboratory. Laboratories are designed, managed, and operated in a manner to consistently provide reliable services. This course provides an introductory overview on the various aspects involved in managing the laboratory environment. The content comprises the following topics: General concepts and administrative issues; optimizing efficiency in workflow processes; workload management; quality management and performance improvement; laboratory informatics and data management; financial management; staff manage ment; laboratory safety; competitive performance in the market. This course will be assessed through in-course assignments.
ASSESSMENT:

Coursework	100%

LEVEL: III
SEMESTER: 1
COURSE CODE: BMET 3002
COURSE TITLE: LIGHT AND OPTICS IN MEDICINE
NUMBER OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216
COURSE DESCRIPTION: Lasers and fiber optics have significant applications in medicine including in imaging and the illumination components of endoscopes to view internal organs. Flexible and rigid fiber cables with laser emitters and detectors are used to access organs. This course provides a background on fundamental optics, fiber optics, and lasers, and their applications to biomedical instrumentation. This course comprises: physics of fiber optics; fiber modes, transmission, and detection; fiber bundles; endoscopy imaging; sigmoidoscopy; colonoscopy; bronchoscopy; physics of lasers; laser classifications and characteristics; laser types; laser interaction with tissue; laser medical applications; laser radiation safety; clinical applications of fiber-optic laser systems. This course will be assessed through in-course assignments and a final examination.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hr paper)	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: BMET 3003
COURSE TITLE: BIOMEDICAL TECHNOLOGY LABORATORY
NUMBER OF CREDITS: 3
PREREQUISITES:
PHYS 1110 AND PHYS 1111 OR PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224 OR OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216
COURSE DESCRIPTION: Biomedical Technology is based on scientific principles which are tested by practical experimentation. In the process, the students are expected to deepen their understanding of the relations between experiment and theory. The data obtained will have the inevitable systematic and random errors that obscure the relations between macroscopic observables of our sensory experience and the ideal laws that govern the phenomena. Students will be challenged to learn how each of the experimental configurations work, to master its manipulation so as to obtain the best possible data set and then to interpret the data in light of theory and a quantitative assessment of the errors. This course stresses data analysis in a laboratory setting. This course will be assessed through in-course assignments.
ASSESSMENT:

Coursework	100%

LEVEL: III
SEMESTER: 2
COURSE CODE: BMET 3004
COURSE TITLE: METROLOGY & REGULATORY STANDARDS
NUMBER OF CREDITS: 3
PREREQUISITES: AVAILABLE ONLY TO BSC BIOMEDICAL TECHNOLOGY STUDENTS
COURSE DESCRIPTION: In the health sector, due to the inherent potential risk to life it is necessary to measure quantities as accurately as possible. The accuracy and reliability of medical measurements have direct consequences on each individual's health. In addition, medical decisions are often based on statistical analysis and on the conclusions of clinical studies. Medical measurements are incorporated within these studies and are correlated with other medical findings. Thus, the accuracy, reproducibility, and repeatability as well as the quality assurance (calibration, legal metrological control and reference measurement methods) of medical instrumentation must be assured. This course introduces the metrology and regulatory framework and standards of certain categories of medical devices. This course comprises: metrology principles; quality in measurement and testing; the different international classification systems for medical devices; the life phases to developing medical devices; medical device design standards versus medical device operational standards; the regulatory framework for medical devices including the World Health Organization Medical Devices regulations; International Electrotechnical Commission standards for electrical equipment in medical practice and on medical device software; Examples of metrological characteristics (methods and equipment) for specific equipment such as, but not limited to, electrocardiographs. This course will be assessed through in-course assignments.
ASSESSMENT:

Coursework	100%

CHEMISTRY: CHEM

LEVEL: 0 (PRELIMINARY)
SEMESTER: 1
COURSE CODE: CHEM 0060
COURSE TITLE: PRELIMINARY CHEMISTRY I
NUMBER OF CREDITS: 0
PREREQUISITES: CSEC OR EQUIVALENT PASS IN CHEMISTRY
COURSE DESCRIPTION: Theory: Foundations of Chemistry. Descriptive inorganic and organic chemistry. Energy changes in chemical reactions. Chemical equilibria. Chemical kinetics.
Practical: Forty-eight (48) hours of practical work
ASSESSMENT:

Coursework	40%
Final Examination - 3-hour written paper	60%

LEVEL: 0 (PRELIMINARY)
SEMESTER: 2
COURSE CODE: CHEM 0061
COURSE TITLE: PRELIMINARY CHEMISTRY II
NUMBER OF CREDITS: 0
PREREQUISITES: CSEC OR EQUIVALENT PASS IN CHEMISTRY
COURSE DESCRIPTION: Theory: The three physical states of matter. Further introduction to the chemistry of the elements. Properties of solutions. Acid-base systems and buffer systems. Electrical conductance, oxidation-reduction.
Practical: Forty-eight (48) hours of practical work.
ASSESSMENT:

Coursework	40%
Final Examination - 3-hour written paper	60%

LEVEL: I
SEMESTER: 1
COURSE CODE: CHEM 1062
COURSE TITLE: BASIC CHEMISTRY FOR LIFE SCIENCES
NUMBER OF CREDITS: 3
PREREQUISITES: NONE
COURSE DESCRIPTION: The course is intended to provide students, who have had very little exposure to chemistry and who intend to proceed to degree level in the Life and Health Sciences, with a working knowledge of the basic concepts and principles of Chemistry. Topics of study: atoms, bonding, (ionic and covalent) intermolecular forces, quantifying matter, classes of reactions; properties of ionic and covalent compounds; solution chemistry; acid-base equilibrium; reaction kinetics; thermochemistry; gases; properties and reactions of carbon compounds including alcohols, aldehydes and ketones, carboxylic acids, esters and ethers, amines and amides; amino acids and peptides, natural polymers and stereochemistry.
ASSESSMENT:

Coursework	40%
Final Examination - 2-hour written paper	60%

LEVEL: I
SEMESTER: 1
COURSE CODE: CHEM 1066
COURSE TITLE: INTRODUCTION TO CHEMISTRY I
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 0060 & CHEM 0061 OR CAPE CHEMISTRY OR EQUIVALENT
COURSE DESCRIPTION: Atomic structure, group and periodic trends, chemical reactivity, fundamentals of bonding.
ASSESSMENT:

Coursework	40%
Final Examination - 2-hour written paper	60%

LEVEL: I
SEMESTER: 2
COURSE CODE: CHEM 1067
COURSE TITLE: INTRODUCTION TO CHEMISTRY II
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 0060 & CHEM 0061 OR CAPE CHEMISTRY OR EQUIVALENT
COURSE DESCRIPTION: Fundamentals of organic chemistry, introduction to chemical thermodynamics, reaction kinetics, chemical equilibria, d-block elements and coordination chemistry.
ASSESSMENT:

Coursework	40%
Final Examination - 2-hour written paper	60%

LEVEL: I
SEMESTER: 2
COURSE CODE: CHEM 1068
COURSE TITLE: INTRODUCTION TO CHEMISTRY III
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 0060 & CHEM 0061 OR CAPE CHEMISTRY OR EQUIVALENT
COURSE DESCRIPTION: Particle in a box, eigenvalues, harmonic oscillators, heat capacity, entropy, Gibbs free energy. Organic chemistry: addition, substitution, elimination and hydrolysis reactions.
ASSESSMENT:

Coursework	40%
Final Examination - 2-hour written paper	60%

LEVEL: I
SEMESTER: YEAR-LONG
COURSE CODE: CHEM 1070
COURSE TITLE: INTRODUCTORY CHEMISTRY LABORATORY
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 0060 & CHEM 0061 OR CAPE CHEMISTRY OR EQUIVALENT
COURSE DESCRIPTION: This is a laboratory based course covering basic and intermediate laboratory skills, including chemical calculations, simple data and statistical analyses, volumetric and gravimetric techniques, chemical quantitation, pH measurements, purification of mixtures, chromatography, measurement of thermodynamic and kinetic parameters of reactions, basic symmetry and laboratory safety. Laboratory exercises begin with a careful emphasis on skill acquisition, then move towards more complicated exercises. During the later stages of the course students would be expected to do more advanced laboratory activities, using the techniques taught in the earlier sessions to plan, design and execute their own solution to a laboratory problem. The final grade for CHEM 1070 will be determined from an assessment of student performance in the following activities: general laboratory reports / exercises, laboratory quizzes, laboratory skills evaluation, and mini-projects.
ASSESSMENT:

Coursework	100%

LEVEL: II
SEMESTER: 1
COURSE CODE: CHEM 2170
COURSE TITLE: FUNDAMENTALS OF INORGANIC CHEMISTRY I
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 1065 OR CHEM 1070, CHEM 1066, CHEM 1067 AND CHEM 1068 OR CHEM 1060 AND CHEM 1061
COURSE DESCRIPTION: This is part I of two of core inorganic chemistry courses and gives an introduction to fundamental concepts in inorganic chemistry with a focus on descriptive inorganic chemistry and bonding theories both in inorganic molecules and in the solid state. The course is divided into topic themes and includes structure of solids, survey of properties of main group elements, aqueous and redox chemistry of ionic compounds, principles of group theory, descriptive transition metal chemistry the basis of which includes crystal field theory and extending into basic molecular magnetism and electronic spectroscopy. The topics are pursued with a common theme of chemical bonding and structure and the derived chemical properties of compounds of elements across the most of the periodic table.
The assessment approach will be varied and continuous throughout the course and include online quizzes, in-course exams, tutorial worksheets and group research paper.
ASSESSMENT:

Coursework	40 %
Final Examination - 2-hour written paper	60%

LEVEL: II
SEMESTER: 1
COURSE CODE: CHEM 2270
COURSE TITLE: ORGANIC CHEMISTRY I
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 1065 OR CHEM 1070, CHEM 1066, CHEM 1067 AND CHEM 1068 OR CHEM 1060
COURSE DESCRIPTION: This course will be the first of the two basic organic chemistry courses required for students who have completed the Introductory Chemistry programme and wish to pursue a major in chemistry. Students are introduced to the basic reactions, principles and tools which will enable them to devise reasonable schemes for the synthesis of given molecules, to determine the structures of these molecules and to explain the formation of the products obtained from reactions. This will be achieved through six lectures in Stereochemistry, six lectures in Spectroscopy and 12 lectures on Synthetic Design which will focus on applying knowledge of aromatic and carbanion chemistry and retrosynthetic analysis to the synthesis of given organic molecules. There will be twelve weekly tutorials during which assigned problems will be discussed. Students will be assigned to work in small groups on the problems and hand in their solutions before each tutorial.
ASSESSMENT:

Coursework	40%
Final Examination - 2-hour written paper	60%

LEVEL: II
SEMESTER: 1
COURSE CODE: CHEM 2370
COURSE TITLE: PHYSICAL CHEMISTRY I
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 1065 OR CHEM 1070, CHEM 1066, CHEM 1067 and CHEM 1068 OR CHEM 1061
COURSE DESCRIPTION: Introduction and fundamental theory of spectroscopic techniques important to chemists and how the techniques can be used to find out more about atoms and molecules. The course also includes reaction kinetics, particularly its application to real world chemistry problems. This is a core subject area in physical chemistry. The course covers important material that will be needed in subsequent courses in all disciplines of chemistry.
The course is assessed by two in-course examinations, and tutorial activities, along with a final examination.
ASSESSMENT:

Coursework	40%
Final Examination - 2-hour written paper	60%

LEVEL: II
SEMESTER: 1
COURSE CODE: CHEM 2470
COURSE TITLE: INTRODUCTION TO ANALYTICAL CHEMISTRY
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 1065 OR CHEM1070, CHEM 1066, CHEM 1067 AND CHEM 1068 OR CHEM 1060 AND CHEM 1061
COURSE DESCRIPTION: This course emphasizes classical methods in analytical chemistry. In the first of two units, students are introduced to the basic tools needed in all chemical analyses. The techniques of chemical measurements of mass and volume, for example, are studied, along with relevant units and interconversions. The errors associated with chemical analyses are discussed; students will be able to describe these errors, identify how they can occur in an analysis and suggest methods for minimizing or eliminating them. Simple statistical analysis is also considered in this unit. In the second unit, students are introduced to a survey of classical and modern analytical methods. This is followed by the principles of chemical equilibria, and how these apply to the important classical analytical chemistry methods of gravimetry and titration. The teaching/learning strategies in use in this course are based on the classroom lecture along with small group activities, supported by myeLearning components. The course is assessed by in-course examinations, tutorial activities and participation, along with a final examination.
ASSESSMENT:

Coursework	50%
Final Examination - 2-hour written paper	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: CHEM 2471
COURSE TITLE: ANALYTICAL METHODS IN CHEMISTRY I
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 2460 OR CHEM 2470
COURSE DESCRIPTION: This is a compulsory course for students who wish to pursue the Minor in Analytical Chemistry, which continues the study of analytical chemistry concepts begun in CHEM 2470. More advanced concepts are presented, including further development of titrimetric techniques, focusing on complexometric titrations. The understanding and use of instrumental techniques begins in this course, with electrochemical methods, basic spectroscopy and separation techniques. The unit on electrochemical methods covers the chemical theory that is exploited in potentiometric and other analytical techniques as well as more applied issues to do with the appropriate use of these methods. The units on basic spectroscopy and separation techniques provide a general introduction to these advanced instrumental techniques. The teaching/learning strategies used in this course are based on the classroom lecture along with small group activities and participation; all of this supported by myeLearning components. The course is assessed by in-course examination, tutorial activities, poster preparation, a literature review and a final examination.
ASSESSMENT:

Coursework	50%
Final Examination - 2-hour written paper	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: CHEM 2472
COURSE TITLE: ANALYTICAL CHEMISTRY LABORATORY
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 2460 OR CHEM 2470
COURSE DESCRIPTION: This is a compulsory course for students who wish to pursue the Minor in Analytical Chemistry, which provides a general survey of the most common laboratory activities required by the modern analytical chemist. These activities include planning and design, techniques for the acquisition, handling and processing of samples, analytical techniques, data analysis and quality control and quality assurance concepts. The course is organised as a semester-long "research project" with the students working on one site/problem over the whole semester using a range of analytical techniques. In the first year, the site/problem under investigation will be an environmental survey of a contaminated river. Each week a different set of relevant analytical techniques will be emphasised, while some critical areas will be repeated in a variety of labs for better understanding by students. For example, the use of replicates, simple statistical analysis and error evaluation will be conducted in every lab. Group learning is emphasised, as students will carry out all course activities in small groups. The course is assessed entirely by coursework, which consists of a variety of activities; including laboratory skill demonstrations, weekly lab reports, a final lab report and an oral presentation.
ASSESSMENT:

Coursework	100%

LEVEL: II
SEMESTER: 1
COURSE CODE: CHEM 2672
COURSE TITLE: CORE CHEMISTRY LABORATORY I
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 1070 OR CHEM 1065
COURSE DESCRIPTION: CHEM 2672 reinforces and further develops basic and intermediate laboratory skills covered in CHEM 1070. The course also introduces students to advanced techniques and skills such as advanced separation and purification techniques; chemical quantitation; reaction thermodynamics and kinetics; one step and basic multistep reaction syntheses; interpretation of spectral data; structure elucidation and chemical characterization; stereochemistry; as well as the basic analytical & spectroscopic instrumentation skills required of a chemist: HPLC, GC, Flame Atomic Absorption, UV-Visible Spectroscopy, IR, ^{1}H NMR and mass spectrometry. The final grade for CHEM 2672 will be determined from an assessment of student performance in the following activities: pre-lab preparation, general laboratory reports / exercises, laboratory quizzes oral and written, practical lab skills and tutorial/group discussions.
ASSESSMENT:

Coursework	100%

LEVEL: II
SEMESTER: 2
COURSE CODE: CHEM 2673
COURSE TITLE: CORE CHEMISTRY LABORATORY II
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 1070 OR CHEM 1065
COURSE DESCRIPTION: This course integrates and further develops the basic laboratory skills covered in CHEM 1070 **and CHEM 2672 courses**. The course also introduces students to further advanced experimental techniques and skills ranging from experimental design and planning of multistep reaction syntheses to product purification and quantitation; complex structure/mixture elucidation and chemical characterization with the aid of advanced spectroscopic techniques to the investigation and measurement of the physical parameters (thermodynamics, equilibria and kinetics) of reactions. In this course students will be continuously evaluated throughout the semester on pre-lab preparation, experimental planning and design, post lab report write-up, practical lab skills through the acquisition of meaningful accurate experimental data as well as on their chemical knowledge through short lab quizzes, oral examinations and tutorial/group discussions.
ASSESSMENT:

Coursework	100%

LEVEL: II
SEMESTER: 1
COURSE CODE: CHEM 2770
COURSE TITLE: INTRODUCTION TO RESEARCH IN CHEMISTRY LEARNING
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 1065 OR CHEM1070, CHEM 1066, CHEM 1067 AND CHEM 1068 OR CHEM 1060 AND CHEM 1061
COURSE DESCRIPTION: CHEM 2770 is one of an intended series of courses that a student with an interest in the field of Chemical Education will take. This course thus provides an introduction to a variety of research topics in Chemical Education Research (CER). The course begins with an investigation into what exactly is research in Chemistry Education followed by an exploration of the chemical education literature in the following areas: chemistry problem-solving and the development of misconceptions among chemistry learners; the application of learning theories to the practice of chemistry teaching and learning; the use of non-traditional assessment methods in measuring chemistry learning and the impact of CER on college-level chemistry teaching and learning. The topics were chosen as they represent examples of on-going areas of research in the developing field of CER. Learning in this course will be facilitated in large part through interactive weekly discussion forums based on thorough reading of the course materials by all class participants. Students will also experience small-group learning activities during the weekly tutorial sessions. The course will be assessed via a series of exercises that will be conducted during the course of the semester, namely, preparation/participation in weekly discussions, review of journal articles, exploratory essays and a research paper. There will be no final examination in this course.
ASSESSMENT:

Coursework	100%

LEVEL: III
SEMESTER: 1
COURSE CODE: CHEM 3162
COURSE TITLE: CHEMISTRY OF METAL-CATALYZED TRANSFORMATIONS
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 2160 OR CHEM 2170
COURSE DESCRIPTION: The applications of metals and their compounds in industrial and chemically significant transformations; some processes of local significance such as the synthesis of ammonia and petrochemicals as well as bioinorganic processes. Process control variables in homogeneous, heterogeneous and phase transfer catalysis and a survey of the active sites of metalloenzymes in light harvesting molecules, oxygen transport, nitrogen fixation and electron transfer processes.
ASSESSMENT:

Theory Coursework	50%
Final Examination - 2-hour written paper	50%

LEVEL: III
SEMESTER: 2
COURSE CODE: CHEM 3163
COURSE TITLE: CHEMISTRY OF TECHNOLOGICALLY IMPORTANT MATERIALS
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 2160 OR CHEM 2170
COURSE DESCRIPTION: The properties, characterization and applications of various advanced technologically important materials such as Liquid Crystals for LCD applications, Semiconductors for electronic device and Solar Cell applications, lanthanide phosphors for LED applications and Nanomaterials.
ASSESSMENT:

Theory Coursework	50%
Final Examination - 2-hour written paper	50%

LEVEL: II/III
SEMESTER: 2
COURSE CODE: CHEM 3170
COURSE TITLE: FUNDAMENTALS OF INORGANIC CHEMISTRY II
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 2160 OR CHEM 2170
COURSE DESCRIPTION: This course is part II of the core inorganic chemistry courses and provides comprehensive fundamental basis for chemistry students and designed with the aim of introducing the salient features of the vast inorganic chemistry of main group, transition metal and inner transition metal compounds. The course is structured into three subtopics which specifically discusses exclusively the chemistry of their compounds. These topics include: chemistry of the main group elements with a focus on hydrides, oxides and halides, etc; coordination and organometallic chemistry, the basis of which is ligand field theory and molecular orbital theory and then extending into chemistry of organometallic compounds, electronic spectroscopy and magnetic properties; and finally, chemistry of the lanthanides and actinides.
The assessment approach will be varied and continuous throughout the course and include online quizzes, in-course exams, tutorial worksheets and group research paper.
ASSESSMENT:

Coursework	40 %
Final Examination - 2-hour written paper	60 %

LEVEL: III
SEMESTER: 2
COURSE CODE: CHEM 3172
COURSE TITLE: ADVANCED INORGANIC CHEMISTRY
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM2170 AND CHEM 3170
COURSE DESCRIPTION: This course is the result of a major revision of the advanced programme being offered in the Department of Chemistry and is an essential component for students who are likely to either pursue the single Chemistry discipline for their Bachelor's Degree or to cover the special topics offered within in preparation for graduate study and research. The course builds on the knowledge base and experiences of the student who has successfully completed core Level II inorganic chemistry. The course content is therefore specialized in depth rather than diversity, and heavily biased toward topics which cover areas of active research in the department. It is intended that students who complete this course will be well exposed to and competent in the usage of common methodologies for the characterization and study of metal complexes, with a good grasp of the principles, limitations, calculations and derivations that apply in each general case.
ASSESSMENT:

Coursework:	40%
Final Examination:	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: CHEM 3268
COURSE TITLE: CHEMISTRY OF NATURAL PRODUCTS
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 2260 OR CHEM 2270
COURSE DESCRIPTION: Importance of natural products to man - medicine, agriculture - and in plant-plant and plant-animal interactions. Biosynthesis of natural products in acetate-malonate (polyketides), mevalonate (terpenoids), shikimic acid (aromatics), amino acids (alkaloids), modern methods of characterization of natural products; manipulating biosynthetic pathways.**ASSESSMENT:**

Theory Coursework	40%
Final Examination - 2-hour written paper	60%

LEVEL: II/III
SEMESTER: 2
COURSE CODE: CHEM 3270
COURSE TITLE: ORGANIC CHEMISTRY II
NUMBER OF CREDITS: 3
PREREQUISITE: CHEM2260 OR CHEM 2270
COURSE DESCRIPTION: This course follows on the Organic Chemistry I course which students would have already taken and is designed to complete the organic chemistry theoretical knowledge considered essential for a major in Chemistry. Students will apply the knowledge they have gained in stereochemistry, spectroscopy and synthetic methodology. The course introduces the student to the basic chemistry and synthesis of heterocyclic compounds, amino acids, peptides and carbohydrates and to the mechanistic features of important types of organic reactions, namely substitution and elimination. The properties and role of reactive intermediates, eg carbenes, nitrenes, radicals and carbocations, in organic chemistry are also discussed.
ASSESSMENT:

Coursework	40%
Final Examination - 2-hour written paper	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: CHEM 3273
COURSE TITLE: SYNTHESIS OF BLOCKBUSTER DRUGS
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 3270
COURSE DESCRIPTION: The course introduces the student to the modern organic chemistry and synthesis of selected modern blockbuster drugs. The synthesis of the ring systems are underpinned by theoretical organic chemistry. Application of the Woodward Hoffmann rules and the Baldwin ring closure rules will be discussed. The mechanistic features of important types of selected organic reactions in organic chemistry will also be discussed. Modern Mass and NMR spectrometric methods for determining the structures of intermediates and target drugs will also be presented.
ASSESSMENT:

Coursework	40%
Final Examination	60%

LEVEL: II/III
SEMESTER: 2
COURSE CODE: CHEM 3370
COURSE TITLE: PHYSICAL CHEMISTRY II
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 1065 OR CHEM1070, CHEM 1066, CHEM 1067 and CHEM 1068 OR CHEM 1061
COURSE DESCRIPTION: This is a core course for anyone pursuing the B.Sc. or a major in chemistry. This rigorous and comprehensive course continues building student knowledge of concepts in modern physical chemistry. The material covers: Gases, Liquids & Solids introducing the student to adhesive forces and the characteristics of ideal and non-ideal gases; Surface Chemistry and discusses catalytic activity at surface; and Electrochemistry and oxidation-reduction reactions with insight into industrial chemical processes as related to redox reactions. The knowledge and understanding gained in this course will be important for the more advanced physical chemistry and elective courses.The final grade for CHEM 2370 will be determined from student performance in the in-course examinations, graded tutorials and the final examination.
ASSESSMENT:

Coursework	40%
Final Examination - 2-hour written paper	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: CHEM 3373
COURSE TITLE: ADVANCED TOPICS IN PHYSICAL CHEMISTRY
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 2370 AND CHEM 3370
COURSE DESCRIPTION: Statistical Thermodynamics: microstates and configurations, Boltzmann distribution; Partition functions for translation, rotation and vibration; Calculation of Internal energy, entropy and Gibbs free energy and equilibrium constants. Computational chemistry: molecular mechanics- potential energy functions - stretching, bending and torsions. Molecular Orbital Theory - Ab initio Methods, Hartree-Fock approximation self consistent field (SCF) theory, basis sets electron correlation. Comparison of available software and practical workshop.
ASSESSMENT:

Coursework	40%
Final Examination - 2-hour written paper	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: CHEM 3470
COURSE TITLE: ANALYTICAL METHODS IN CHEMISTRY II
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 2470 AND CHEM 2471
COURSE DESCRIPTION: The course "Analytical Methods in Chemistry II" is a compulsory course for students who wish to pursue the Minor in Analytical Chemistry. It seeks to reinforce the principles and practices of chemical analyses that were taught in CHEM 2470 and CHEM 2471 by use of appropriate training materials and methods to the application of analysis of real samples. This course also introduces students to experimental designs and project management which utilizes problem solving skills to solve real-world problems. The teaching/learning strategies in use in this course are based on the classroom lecture along with small group activities, supported by myeLearning components. The course is assessed entirely by coursework, involving in-course exams, the production of an experimental proposal, and the design and construction of a functioning analytical instrument. In order to be awarded with a Minor in Analytical Chemistry, students must also successfully complete two additional optional courses.
ASSESSMENT:

Coursework	100%

LEVEL: III
SEMESTER: 1
COURSE CODE: CHEM 3560
COURSE TITLE: ENVIRONMENTAL CHEMISTRY
NUMBER OF CREDITS: 4
PREREQUISITES: AT LEAST THREE OF CHEM 2160 OR CHEM 2170;CHEM 2260 OR CHEM 2270; CHEM 2360 OR CHEM 3370, CHEM 2015, CHEM 2025, CHEM 2460 OR CHEM 2470
COURSE DESCRIPTION: Introduction to the structure of the environment; the physicochemical characteristics and processes of natural waters: equilibrium, redox, and microbiological reactions; function and processes in the atmosphere: major element cycles, ozone, climate change, acid rain, smog; characteristics of, and processes in soils; sources, effects and control of selected water, air and soil pollutants; introduction to environmental analytical chemistry.
ASSESSMENT:

Coursework	40%
Final Examination - 2-hour written paper	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: CHEM 3561
COURSE TITLE: INTRODUCTION TO POLYMER CHEMISTRY
NUMBER OF CREDITS: 4
PREREQUISITES: CHEM 2260 OR CHEM 2270, AND AT LEAST TWO (2) OF CHEM 2160 OR CHEM 2170, CHEM 2360 OR CHEM 3370, CHEM 2015, OR CHEM 2025
COURSE DESCRIPTION: Macromolecules, molecular weights, characterisation, step polymerisation, chain reaction polymerisation, co-polymerisation; polymer morphology, testing and characterisation; flow properties and elasticity; solubility, thermodynamics; polymer technology.
ASSESSMENT:

Coursework	25%
Final Examination - 2-hour written paper	75%

LEVEL: III
SEMESTER: 2
COURSE CODE: CHEM 3562
COURSE TITLE: CORROSION SCIENCE
NUMBER OF CREDITS: 4
PREREQUISITES: CHEM 2360 OR CHEM 2370 OR CHEM 3370
COURSE DESCRIPTION: Basic types of corrosion; basic electrochemical processes and concepts taking place in corrosion; corrosive characteristics of commonly encountered environments; basic concepts of metals relating to corrosion; various corrosion phenomena and methods of corrosion control.
ASSESSMENT:

Coursework	25%
Final Examination - 2-hour written paper	75%

LEVEL: III
SEMESTER: 2
COURSE CODE: CHEM 3563
COURSE TITLE: ENVIRONMENTAL DEGRADATION OF MATERIALS
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 2360 OR CHEM 3370
COURSE DESCRIPTION: This course is a revised version of Corrosion Science - CHEM3562. It is an applied chemistry elective which covers environmental degradation of materials with particular reference to the degradation of metals in their environment. Topics include the basic principles of aqueous corrosion of metals, costs resulting from corrosion, different forms of corrosion, corrosion rate expressions, monitoring and visualization, testing, and prevention techniques. The course also includes degradation of plastics by UV and high temperatures and the degradation of concrete. A candidate for this course should have a clear understanding of the thermodynamics and electrochemistry theory covered in CHEM1067, CHEM1068 and CHEM 2360 or 3370. If you feel uncertain in those areas a thorough review of that material is advised before the start of this course. This is a Level III course as such there are two, 1-hour, lectures and one tutorial weekly. There will be one field trip on a Thursday to be announced. This visit will be to a company where corrosion affects the way they do business. A written report from this visit will contribute to the course mark.
ASSESSMENT:

Coursework:	40%
Final Examination:	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: CHEM 3564
COURSE TITLE: PRINCIPLES OF POLYMER CHEMISTRY
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 2260 OR CHEM 2270, AND AT LEAST TWO (2) OF CHEM 2160 OR CHEM 2170, CHEM 2360 OR CHEM 3370 PASSES IN CHEM 2470, CHEM 2672 AND ONE OF CHEM 2160, CHEM 2170, CHEM 2260, CHEM 2370.
COURSE DESCRIPTION: This chemistry elective introduces students to the field of macromolecular chemistry, from both industrial and research perspectives. Students will be introduced to various elements involved in the study of polymers, from their synthesis and characterization to applications in industry and everyday life. The two laboratory-based demonstration exercises will allow students to interact with various models of polymers as well as observe at least one synthesis performed on a laboratory scale. This component is especially useful for what can be viewed as a largely practical area of study.
ASSESSMENT:

Coursework:	40%
Final Examination:	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: CHEM 3569
COURSE TITLE: INDUSTRIAL CHEMISTRY I
NUMBER OF CREDITS: 4
PREREQUISITES: AT LEAST THREE OF CHEM 2160 OR CHEM 2170; CHEM 2260 OR CHEM 2270; CHEM 2360 OR CHEM 3370 OR CHEM 2370; CHEM 2015
COURSE DESCRIPTION: Overview of the Chemical Industry. Petrochemicals. Selected Products of the Chemical Industry - some major chemical commodities, other industrial products. Water in Industry. Chemicals from Sugar. Industrial Safety and Pollution in the Chemical Industry. Unit Operations: An Introduction. The Patent Literature. Coursework will consist of reports on site visits and a project.
ASSESSMENT:

Coursework	40%
Final Examination - 2-hour written paper	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: CHEM 3570
COURSE TITLE: CHEMISTRY OF THE ENVIRONMENT
NUMBER OF CREDITS: 3
PREREQUISITES: ANY TWO (2) OF CHEM 2160 OR CHEM 2170; CHEM 2260 OR CHEM 2270; CHEM 2360 OR CHEM 2370; CHEM 2460 OR CHEM 2470.
COURSE DESCRIPTION: CHEM 3570 is a broad-based introduction to environmental chemistry for advanced chemistry students. The goal of the course is to introduce you, using unusual and innovative learning experiences, to the application of chemical facts and principles to processes occurring in the environment, and the solution of problems relating to environmental processes and pollution.
ASSESSMENT:

Coursework:	50%
Final Examination:	50%

LEVEL: III
SEMESTER: 1
COURSE CODE: CHEM 3573
COURSE TITLE: CONTEMPORARY CHEMISTRY
NUMBER OF CREDITS: 3
PREREQUISITES: PASS IN ONE OF CHEM 2160, CHEM 2170, CHEM 2260, CHEM 2270, CHEM 2370, CHEM 2460 OR CHEM 2470
COURSE DESCRIPTION: This course focuses on recent advances in chemistry and on the role of chemistry in helping to address the challenges faced by modern society in the areas of energy, health and nutrition, the environment and food security. It also places emphasis on the development of skills of scientific writing, on critical analysis of published articles and on publication of research work in peer reviewed journals. The topics to be dealt with each year will vary depending on the developments both in the area of chemistry itself and in its application to the contemporary social challenges. The course will be delivered through a multimodal teaching-learning approach and will include lectures and discussions of emerging topics in chemistry as a basis for further assigned reading which will be from articles chosen from the recent scientific literature. Online discussion, oral presentations and in-class discussions involving critical analysis of the assigned reading material will be other features of the course. Students will also be required to produce written reviews and analyses of articles in the major emerging areas of chemical science and its applications towards the solution of major problems.Students will critically assess the scientific method as a means of generating knowledge, and discuss modern research strategies or methodologies including building value through interdisciplinary research at an advanced level.
ASSESSMENT:
Coursework: 100%

LEVEL: III
SEMESTER: 1
COURSE CODE: CHEM 3575
COURSE TITLE: CHEMISTRY AND INDUSTRY I
NUMBER OF CREDITS: 3
PREREQUISITES: ANY TWO OF CHEM 2160 OR CHEM 2170; CHEM 2260 OR CHEM 2270; CHEM 2360 OR CHEM 2370; CHEM 2460 OR CHEM 2470.
COURSE DESCRIPTION: The course introduces the student to the chemical principles involved in the production and use of a wide range of food, household and industrial products. Discussion of the chemical processes involved will draw on the knowledge already gained from all areas of chemistry.
ASSESSMENT:
Coursework: 40%
Final Examination: 60%

LEVEL: III
SEMESTER: 2
COURSE CODE: CHEM 3576
COURSE TITLE: CHEMISTRY OF MEDICINES
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 2260 OR CHEM 2270
COURSE DESCRIPTION: The course introduces the student to the chemical principles involved in modern medicinal chemistry. The chemical processes involved in the production of these products in everyday life will be discussed. Aspects of general and organic chemistry will be employed in the discussion and understanding of the chemical principles and reactions involved in the efficacy and use of these products.
ASSESSMENT:
Coursework: 40%
Final Examination: 60%

LEVEL: III
SEMESTER: 1
COURSE CODE: CHEM 3577
COURSE TITLE: GREEN CHEMISTRY
NUMBER OF CREDITS: 3
PREREQUISITES: ANY TWO OF CHEM 2160 OR CHEM 2170; CHEM 2260 OR CHEM 2270; CHEM 2360 OR CHEM 2370; CHEM 2460 OR CHEM 2470.
COURSE DESCRIPTION: This exciting new elective is based on the recently elaborated concept of Green Chemistry. It encompasses the use of sustainable design from the viewpoint of the chemical reaction itself to the choice of reaction materials or process design. Areas such as hetero- and homogeneous catalysis, material synthesis, assisted reactions, use of solvents and others will be presented in relation to introducing inherently green design. The information presented in lectures and developed in tutorials (hands-on) will give the student a sound basis for chemical design in a like manner to other international courses adopted by world leading institutions.
ASSESSMENT:
Coursework: 50%
Final Examination: 50%

LEVEL: III
SEMESTER: 2
COURSE CODE: CHEM 3578
COURSE TITLE: ENERGY FOR A SUSTAINABLE FUTURE
NUMBER OF CREDITS: 3
PREREQUISITES: PASS IN ONE OF CHEM 2160, CHEM 2170, CHEM 2260, CHEM 2270, CHEM 2460 OR CHEM 2470

COURSE DESCRIPTION: Energy is an integral part of the future of mankind. By 2050 it is estimated that 9 billion people will be housed on planet earth…9 billion people to feed, clothe and provide facilities such as education, work, housing, health care and others. Each and every human activity requires energy and how energy is used in the modern world goes beyond the simple process of growing and eating food crops. As the energy demand grows human innovation and creative design of new systems based on chemically sound technologies will become increasingly necessary. This course will take you from the layman's perspective on energy to the current status of the energy industry and then into the technologies being proposed for a sustainable future. This course is truly an applied chemistry module and will be underpinned by your previous learning of fundamental chemical principles and as such more emphasis will be placed on the chemistry involved in specific applications as opposed to an overview of knowledge garnered in earlier courses. The course approach is an integrated one where the student has the opportunity to utilise the material presented in lectures in real-life applications, thereby gaining a deeper understanding of the topic in the wider sense, *i.e.* beyond the chemistry taught in the classroom. The fundamentals of, as well as advances in, biomass (alternative bio-renewable energy), traditional renewable energy and the hydrogen economy will be presented through examples of the best-in-class proven and emerging technologies for each area. This will be positioned in the context of fossil and nuclear fuels currently used for the energy and chemicals industry.
ASSESSMENT:

Coursework:	50%
Final Examination:	50%

LEVEL: III
SEMESTER: 2
COURSE CODE: CHEM 3579
COURSE TITLE: CHEMISTRY AND INDUSTRY II
NUMBER OF CREDITS: 3
PREREQUISITES: PASSES IN ANY TWO OF CHEM 2460 OR 2470; CHEM 2160 OR CHEM 2170; CHEM 2260 OR CHEM 2270; CHEM 2360 OR CHEM 2370
COURSE DESCRIPTION: The chemical industry sustains human activity across the globe. Industrialised and developing nations depend on a vast array of chemical products for agriculture, energy and consumer needs. This course is designed to provide students with an overview of the manufacture and used of major industrial chemicals, and processes, as well as some appreciation of production levels, costs and future directions. This will be delivered through lectures that cover the fundamental principles in the manufacture of selected chemicals, with a focus on how the chemistry taught in core courses is integrated into the chemical industry. Additionally, students be exposed to the working environment of local industrial plants through site visits and recent literature on chemical production (markets and outlooks) Finally health and safety aspects of the manufacturing processes and the chemical products themselves will be presented to students for discussion.
ASSESSMENT:

Coursework:	40%
Final Examination:	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: CHEM 3660
COURSE TITLE: RESEARCH PROJECT
NUMBER OF CREDITS: 4
PREREQUISITES: AT LEAST THREE OF CHEM 2160 OR 2170; CHEM 2260 OR CHEM2270; CHEM 2360 OR CHEM3370; CHEM 2370; CHEM 2015
COURSE DESCRIPTION: The project will be compulsory for all chemistry majors and will consist of 96 hours of practical work and the related requirements e.g. library work, lectures/seminars, meetings with supervisor(s), training on instruments etc. The student will be assigned a research problem carefully selected, bearing in mind the available time and resources, and will work under the supervision of a member of academic staff. The student will be required to do a literature review including an outline of the problem and the approach and methodology to be utilised. The student will plan and carry out experiments under supervision. On completion of the practical work, the student will be required to write up the project according to a specified format and submit the report by a given deadline for assessment. An oral presentation of ten minutes duration will also be required of the student at a public session to be held before the start of the semester final examinations.
ASSESSMENT:

Written Report	60%
Supervisor's Assessment	20%
Oral Presentation	20%

LEVEL: III
SEMESTER: 1 OR 2
COURSE CODE: CHEM 3670
COURSE TITLE: RESEARCH PROJECT FOR CHEMISTRY MAJORS
NUMBER OF CREDITS: 3
PREREQUISITES: PASSES IN EITHER CHEM 2670 AND CHEM 2671 OR CHEM 2672 AND CHEM 2673
COURSE DESCRIPTION: CHEM 3670 is a one semester condensed chemistry research project course for students pursuing a Chemistry Major in which the skills and techniques acquired in the Level I and II lab courses are utilized in solving a research problem. In this course each student will engage in guided research under the supervision of a member of staff on a project which may be interdisciplinary or in one of the sub-disciplines: analytical, inorganic, organic and physical chemistry. The student will be required to meet each week with his/her supervisor to discuss/review their experimental results, progress on the project and weekly work plan before executing their plan each week. Students are expected to work more independently in this course but will receive further guidance on specific safety issues; searching, reviewing and critically assessing the chemical literature; developing and testing a research question/hypothesis; interpreting and drawing conclusions from experimental results and in presenting research results in written and oral formats. The course also introduces students to specialized advanced techniques and skills specific to individual projects and provides hands-on experience with modern research instrumentation. CHEM 3670 comprises sixty hours of bench work, two two-hour sessions of instruction and ten one-hour non-lab based research work sessions each semester. **A compulsory research project specific safety test must be passed within the first two weeks of the course before lab work can commence.** Assessment will focus primarily on the chemical knowledge, practical competency, problem-solving skills and research capability of students through the preparation and quality of milestone reports, the final project report, and oral presentation as well as the quality of research work performed, and active participation in group discussions.
ASSESSMENT:

Coursework	100%

LEVEL: III
SEMESTER: (YEAR-LONG)
COURSE CODE: CHEM 3671
COURSE TITLE: RESEARCH PROJECT FOR B.SC. CHEMISTRY
NUMBER OF CREDITS: 6
PREREQUISITES: PASSES IN EITHER CHEM 2670 AND CHEM 2671 OR CHEM 2672 AND CHEM 2673
COURSE DESCRIPTION: CHEM 3671 is a year-long intensive chemistry research project course for students in the B.Sc. chemistry programme in which the skills and techniques acquired in the Level I and II lab courses are utilized in solving a research problem. In this course each student will get involved in guided research under the supervision of a member of staff on a project which may be interdisciplinary or in one of the sub-disciplines in chemistry. Students will get hands-on experience on addressing laboratory safety issues; searching, reviewing and critically assessing the chemical literature; developing a research proposal and testing a research question/hypothesis, interpreting and drawing conclusions from experimental results, and in presenting research results in written and oral formats. The course also introduces students to specialized advanced techniques and skills specific to individual projects and provides hands-on experience with modern research instrumentation. Assessment will focus primarily on the chemical knowledge, practical competency, problem-solving skills and research capability of students through the preparation and quality of milestone reports, the final project report, and oral presentation as well as the quality of research work performed, and active participation in group discussions.
ASSESSMENT:

Coursework	100%

LEVEL: III
SEMESTER: 1
COURSE CODE: CHEM 3870
COURSE TITLE: PRINCIPLES OF CHEMICAL BIOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: PASS IN ONE OF CHEM 2260, CHEM 2270, CHEM 2370, CHEM 2460 OR CHEM 2470
COURSE DESCRIPTION: This chemistry elective provides knowledge of the three major classes of bioactive molecules (Carbohydrates, Proteins and Nucleic Acids). Quite distinct from simply examining the chemical reactions of the three molecular classes, this course focuses on their structures, functioning in signalling and recognition pathways, and their role in diseases and the aging process. For each biomolecule, its use and potential in the design of new drug therapies is addressed. The section on free radicals acts as a tie-in for the three biomolecules, in terms of relating the onset and prognosis of all diseases to a free radical origin. The two laboratory-based demonstration exercises (Carbohydrates and Nucleic Acids) will allow students to appreciate the dynamic 3-D nature of these molecules and the implications of their structure, conformation and configuration on their chemical and biological properties.
ASSESSMENT:

Coursework	40%
Final Examination - 2-hour written paper	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: CHEM 3871
COURSE TITLE: METHODS IN CHEMICAL BIOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: CHEM 2260, OR CHEM 2270, OR CHEM 2370, OR CHEM 2460 OR CHEM 2470
COURSE DESCRIPTION: This chemistry elective introduces the practical/ experimental techniques available to study the biomolecules described in CHEM 3870, Principles of Chemical Biology. Description of the chemical biology tools available for researchers at this interfacial discipline, provided in lectures, is followed by hands-on laboratory demonstrations; where students can immerse themselves in the actual execution and manipulation of different techniques. This is a very practical / technique oriented course. Each section concludes with research opportunities available and potential future developments, to address current needs as well as deficiencies in techniques and understanding.
ASSESSMENT:

Coursework	40%
Final Examination	60%

CHINESE : CHIN

LEVEL: I
SEMESTER: 1
COURSE CODE: CHIN 1003
COURSE TITLE: LEVEL 1A CHINESE (MANDARIN)
NUMBER OF CREDITS: 2
PREREQUISITES: NONE
COURSE DESCRIPTION: The course which involves four skills (listening, speaking, reading and writing) introduces students to Mandarin Chinese and some aspects of Chinese culture and daily life. Students will develop an ability to communicate in Chinese in basic situations relating to their personal lives via exposure to the new language and culture. The course meets for four hours per week for 13 weeks. In addition, class contact time should be supplemented by two hours of independent study for each contact hour.
ASSESSMENT:
In-course testing: 100%: 40% [mid-semester]; 40% [end of semester]; 20% [two assignments]

LEVEL: I
SEMESTER: 1
COURSE CODE: CHIN 1004
COURSE TITLE: LEVEL 1B CHINESE (MANDARIN)
NUMBER OF CREDITS: 2
PREREQUISITES: CHIN 1003/1A CHINESE OR EQUIVALENT
COURSE DESCRIPTION: This course introduces the further study of Mandarin Chinese (listening, speaking, reading, and writing) and Chinese culture begun in CHIN 1003/1A Chinese. Students will develop a minimal level of communicative competence for socializing in everyday situations. The course meets for four hours per week for 13 weeks. In addition, class contact time should be supplemented by two hours of independent study for each contact hour.
ASSESSMENT:
In-course testing: 100%: 40% [mid-semester]; 40% [end of semester]; 20% [two assignments]

COMPUTER SCIENCE: COMP

LEVEL: I
SEMESTERS: 1 AND 2
COURSE CODE: COMP 1011
COURSE TITLE: INTRODUCTION TO INFORMATION TECHNOLOGY
NUMBER OF CREDITS: 3
PREREQUISITE: NONE
COURSE DESCRIPTION: This course will provide the knowledge needed to formulate a sound but basic understanding of Information Technology, its major components and its broad applications. Students will acquire hands-on experience with computers. They will become familiar with the components of a computer and learn about the various elements that make up an information system. The course deals with hardware, software, telecommunications and computer networks.
General Topics: The Technology Revolution; Inside the Computer; Information Input and Output; Storing and Retrieving Information; Software; Networks and Networking; Internet and The Web.
Practical Topics: Microsoft Package 2002 - Word, Excel, Access, PowerPoint and Front Page.
ASSESSMENT:

Practical Coursework	50%
Project Report	25%
Mid-term examination	25%

(NO FINAL WRITTEN EXAMINATION)

LEVEL: I
SEMESTER: 1 AND 2
COURSE CODE: COMP 1400
COURSE TITLE: PROGRAMMING I
NUMBER OF CREDITS: 3
PREREQUISITE: TWO UNITS OF CAPE MATHEMATICS OR ITS EQUIVALENT
COURSE DESCRIPTION: This course uses the C language as a tool to teach fundamental programming concepts. The main concepts covered are sequence selection and repetition logic, character and string manipulation, functions, arrays and their applications.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: I
SEMESTER: 1
COURSE CODE: COMP 1401
COURSE TITLE: INTRODUCTION TO COMPUTER SCIENCE CONCEPTS I
NUMBER OF CREDITS: 3
PREREQUISITE: TWO UNITS OF CAPE MATHEMATICS OR ITS EQUIVALENT
COURSE DESCRIPTION: This course presents an overview of computing technology and the field of computer science. Discussion topics will include the organization of modern computers, operating systems, algorithms, programming languages and database systems.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: I
SEMESTER: 1 COURSE CODE: COMP 1402
COURSE TITLE: COMPUTER SCIENCE MATHEMATICS I
NUMBER OF CREDITS: 3
PREREQUISITE: TWO UNITS OF CAPE MATHEMATICS OR ITS EQUIVALENT
COURSE DESCRIPTION: This course provides students with the mathematical tools for problem solving. Students are taught to develop solutions for problems by mathematical Modelling using fundamental mathematical methods. Finally students are taught to implement solutions using mathematical software.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: I
SEMESTER: 1
COURSE CODE: COMP 1403
COURSE TITLE: INTRODUCTION TO WEB PROGRAMMING
NUMBER OF CREDITS: 3
PREREQUISITE: TWO UNITS OF CAPE MATHEMATICS OR ITS EQUIVALENT
COURSE DESCRIPTION: This is an introduction to web technologies and systems, including hypertext, self-descriptive text, web page design, web navigational systems, and various mark-up languages and scripting languages. Programming examples, exercises and projects are drawn from practical web-based applications. Good programming practice and program clarity is emphasized throughout the course.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: I
SEMESTER: 2
COURSE CODE: COMP 1404
COURSE TITLE: PROGRAMMING II
NUMBER OF CREDITS: 3
PREREQUISITE: COMP 1100 OR COMP 1400
COURSE DESCRIPTION: This course uses the C language as a tool to teach intermediate programming concepts. The main concepts covered are structures, one and two dimensional arrays and applications involving their searching, sorting and merging, random number generation, numerical methods, games and simulation.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: I
SEMESTER: 2
COURSE CODE: COMP 1405
COURSE TITLE: PROGRAMMING III
NUMBER OF CREDITS: 3
PREREQUISITE: COMP 1100 OR COMP 1400
COURSE DESCRIPTION: This course uses the C language as a tool to teach intermediate programming concepts. The main concepts covered are pointers, linked lists, stacks and queues and their implementations using arrays and linked lists and recursion. This course requires an understanding of basic programming concepts such as variables, assignment, selection and looping constructs as well as being comfortable with working with character, strings and arrays.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: I
SEMESTER: 2
COURSE CODE: COMP 1406
COURSE TITLE: COMPUTER SCIENCE MATHEMATICS II
NUMBER OF CREDITS: 3
PREREQUISITE: COMP 1300 OR COMP 1402
COURSE DESCRIPTION: This course provides students with an introduction to number theory, counting, probability, matrices and limits. Students are taught to analyze and develop solutions for solving problems using the topics listed above. Finally students are taught to implement solutions using mathematical software.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: I
SEMESTER: 2
COURSE CODE: COMP 1407
COURSE TITLE: INTRODUCTION TO COMPUTER SCIENCE CONCEPTS II
NUMBER OF CREDITS: 3
PREREQUISITE: COMP 1100 OR COMP 1401
COURSE DESCRIPTION: This course presents an overview of some key areas of computing technology and the field of computer science. Discussion topics will include Networking and the Internet, Software Engineering, Data Abstractions, Computer Graphics, Artificial Intelligence and Theory of Computation.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: II
SEMESTER: 1 AND 2
COURSE CODE: COMP 2000
COURSE TITLE: DATA STRUCTURES
NUMBER OF CREDITS: 4
PREREQUISITES: COMP 1200 OR (COMP 1404 AND COMP 1405)
COURSE DESCRIPTION: Stacks, queues, linked lists. Methods for solving the 'search and insert' problem. Hashing. Hash functions. Clustering. Methods of resolving collisions, e.g. linear, quadratic, chaining, double hashing. Trees. Binary trees. Search trees. Tree traversal. Analysis of binary search tree algorithm. Build binary trees. Build the best search tree from sorted data. Heaps. Priority queues. Internal and external sorting. Shell sort, quicksort, heapsort, mergesort. Polyphase merge sort. Replacement selection. Graph concepts and terminology. Representation of graphs. Depth-first and breadth-first traversals. Topological sort. Minimal cost paths. Minimal cost spanning trees. Efficiently storing and manipulating matrices with special properties, e.g. symmetric, triangular, band, sparse and others. Write programs using any or all of the above data structures/techniques.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: II
SEMESTER: 2
COURSE CODE: COMP 2100
COURSE TITLE: DISCRETE MATHEMATICS FOR COMPUTER SCIENCE
NUMBER OF CREDITS: 4
PREREQUISITE: MATH 1140 OR COMP 1300 OR (COMP 1402 AND COMP 1406)
COURSE DESCRIPTION: Propositional logic: connectives, truth tables, tautology, contradiction, logical equivalences, predicate logic, quantifiers and valid arguments. Nature of proof: direct and indirect proofs, proof by contradiction, counterexamples, existence and constructive proofs, mathematical induction. Sets: set theoretic proofs, functions, cardinality, relations. Combinatorics: counting arguments (addition and multiplication principles), permutations and combinations, combinatorial arguments, pigeonhole principle. Probability: probability space, independent and dependent events, random variables and expected values, the binomial theorem and Bayes theorem. Recurrence relations: homogeneous and non - homogeneous linear recurrence relations with constant coefficients. Application of the above content to relevant areas of Computer Science.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: II
SEMESTER: 1
COURSE CODE: COMP 2200
COURSE TITLE: COMPUTER ARCHITECTURE
NUMBER OF CREDITS: 4
PREREQUISITES: COMP 1200 OR (COMP 1404 AND COMP 1405
COURSE DESCRIPTION: Computer functions; Memory caching, Internal Memory; Input/output devices and operation; Computer arithmetic; Instruction sets; Reduced instruction set computers; Control unit operation; Micro programmed control.
ASSESSMENT:

Coursework	40%
Final Examination-One 2-hour written paper	60%

LEVEL: II
SEMESTER: 2
COURSE CODE: COMP 2300
COURSE TITLE: PROGRAMMING FOR BUSINESS APPLICATIONS
NUMBER OF CREDITS: 4
PREREQUISITES: COMP 1200 OR (COMP 1401 AND EITHER COMP 1404 OR COMP 1405)
COURSE DESCRIPTION: Basic Concepts: Fundamentals of information systems. Overview of accounting systems. Introduction to data processing. Business Information Systems: The revenue cycle (sales order processing, billing, accounts receivable). The expenditure cycle (purchasing, accounts payable). Value added tax management. Inventory control. Human resources management/payroll/PAYE. General ledger and financial reporting system. Access DBMS and Visual Basic for Access, Develop a database application (Tables, Queries, Forms, Reports). Event driven programming. VBA programming. Working with objects. Class modules.
Multi-user applications.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: II
SEMESTER: NOT OFFERED IN 2015/2016COURSE CODE: COMP 2400
COURSE TITLE: INFORMATION SYSTEMS
NUMBER OF CREDITS: 4
PREREQUISITES: COMP 1200 OR (COMP 1401 AND EITHER COMP 1404 OR COMP 1405)
COURSE DESCRIPTION: Overview of Computer Hardware and Software. The nature of data and information. Types of Information Systems. Identifying and selecting Systems Development Projects (SDPs), corporate and information systems planning. Initiating and planning SDPs, assessing project feasibility. Performing requirements determination: interviews, questionnaires, group interviews, direction observation, joint application design, prototyping. Process modelling: Data Flow Diagrams (DFDs), symbols, rules, decomposition, balancing, completeness, consistency, timing, iterative development. Logic Modelling: Structured English, decision tables, decision trees. Conceptual data modelling, entity-relationship diagrams. Selecting the best alternative design.
Designing forms and reports. Assessing usability. Designing interfaces and dialogues, means of interaction. Finalising design specification: documents, charts, prototypes. System implementation, software testing, installation strategies, documentation, user training and support. Maintenance.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: II
SEMESTER: 2
COURSE CODE: COMP 2500
COURSE TITLE: OBJECT-ORIENTED PROGRAMMING
NUMBER OF CREDITS: 4
PREREQUISITES: COMP 1200 OR (COMP 1404 AND COMP 1405)
COURSE DESCRIPTION: Classes and Methods: Encapsulation, Varieties of Classes, Interface and Implementation, Classes and Methods in Java, Class Variables and Class Methods. Instances, Initialization and Messages: Instance Creation and Initialization, Message-Passing Syntax. Inheritance and Composition: Subclass, Subtype, and Substitutability, Replacement and Refinement, Assignment, Equality, and Type Conversion, Polymorphism. Introduction to Object-Oriented Software Development: Analysis, Design, Programming. Object-Oriented Software Architectures: Model-View Controller, 3-Tier Architecture. Object-Oriented Design. Introduction to Developing User Interfaces using Swing. Introduction to Object-Oriented Frameworks. Introduction to the Java Collections Framework: LinkedList, ArrayList, HashSet, TreeSet, HashMap, TreeMap, Comparators, Generics, Choosing the Right Collection to Use. Object Persistence: Object-oriented database, Relational database, Object serialization.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: II
SEMESTER: 1
COURSE CODE: COMP 2600
COURSE TITLE: THEORY OF COMPUTING I
NUMBER OF CREDITS: 4
PREREQUISITES: MATH 1140 OR COMP 1300 OR (MATH 1141 AND MATH 1152 OR COMP 1402 AND MATH 1151)
COURSE DESCRIPTION: Strings and Languages and Induction. Finite Automata and Regular Languages. Context-free Languages. Computability; Turing machine.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: II
SEMESTER: 1
COURSE CODE: COMP 2700
COURSE TITLE: DATABASE MANAGEMENT SYSTEMS I
NUMBER OF CREDITS: 4
PREREQUISITES: COMP 1200 OR (COMP 1401 AND EITHER COMP 1404 OR COMP 1405)
COURSE DESCRIPTION: Components of a Relational database System. The Relational Data Model. Structured Query Language.
Database design; ER Modelling; Functional Dependency and Normalization.Transaction Management. Query Processing and Optimization. Database Administration.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: COMP 3000
COURSE TITLE: DESIGN AND ANALYSIS OF ALGORITHMS
NUMBER OF CREDITS: 4
PREREQUISITE: COMP 2000
COURSE DESCRIPTION: Analyse algorithms for time and space bounds. Growth of functions. Asymptotic notation. Recurrences: substitution, iteration, master method. Review and analysis of data structures: stacks, queues, linked lists hash tables, binary search trees, graph, spanning trees. Review and analysis of sorting methods: insertion sort, merge sort, heapsort, quicksort. Algorithms design techniques. Brute force. Dynamic programming, Greedy algorithms. Divide-and-conquer algorithms. Graph algorithms. String matching algorithms. Approximation algorithms. Examples of problems which can be solved using each of these techniques.Write programs which employ any or all of these techniques.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: COMP 3100
COURSE TITLE: OPERATING SYSTEMS
NUMBER OF CREDITS: 4
PREREQUISITE: COMP 2200
COURSE DESCRIPTION: Introduction to a systems programming language. Overview of Von Neumann computer architecture. Processes: Process creation/destruction, implementation, process table entries. Process Management: Context. switching, interrupt handling, inter-process communication, race conditions, mutual exclusion, critical regions, busy-waiting solutions, sleep-wakeup solutions, scheduling algorithms. Deadlocks: Pre-emption, necessary conditions, deadlock modelling, detection, avoidance, prevention. Memory Management: Multiprogramming, relocation and protection, swapping, bit-mapped management, linked-list management, partition management, virtual memory. Virtual Memory: Pages, page frames, page tables, address translation, Memory Management Unit (MMU), page faults, translation look aside buffers, and page replacement algorithms. File Systems: Contiguous allocation, linked-list allocation, index nodes, implementing directories. Disk Performance Optimization: Seek optimization strategies. Input/Output: Device controllers, I/O ports, memory-mapped I/O, direct memory access, interrupt handlers, device drivers. Resource Protection: Protection domains, access matrices, access lists, capabilities lists, lock-key mechanisms.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: COMP 3150
COURSE TITLE: COMPUTER NETWORKS
NUMBER OF CREDITS: 4
PREREQUISITE: COMP 2500
COURSE DESCRIPTION: Computer Networks and the Internet. The Internet. Network edge and core. Network access and physical media. Protocol layers and their Service models. This chapter provides a good introduction to networking.
The Application Layer. Principles of application layer protocols FTP, Email, SMTP, DNS etc. Socket programming with TCP and UDP.
The Transport Layer. Transport-layer services. Multiplexing and demultiplexing. UDP and TCP. Reliability. Congestion control.
The Network layer and Routing Service models. Routing. IP. Mobility. Link Layer and Local Area Networks Services. Error detection and correction. Multiple access protocols. Ethernet. Network hardware. Wireless links. PPP. Frame Relay.
Introduction to Network Design. The network design and implementation process. Stages: Feasibility Study, preparing network design plan, understanding current network, defining new network requirements, identifying geographic scope, calculating circuit requirements, identifying security and control measures, designing network configurations, determining network costs, network Implementation. Common WAN, LAN and backbone designs. Examples.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: COMP 3220
COURSE TITLE: HUMAN-COMPUTER INTERACTION
NUMBER OF CREDITS: 4
PREREQUISITE: COMP 1200
COURSE DESCRIPTION: Human-computer interaction (HCI) is concerned with the joint performance of tasks by humans and machines. Task-centered system design. User-centered design and prototyping. Methods for evaluation of interfaces with users.
Characteristics of good representations, information visualization. Graphical screen design. Design principles and usability heuristics.
HCI design standards.
ASSESSMENT:

Coursework	60%
Final Examination - One 2-hour written paper	40%

LEVEL: III
SEMESTER: 2
COURSE CODE: COMP 3250
COURSE TITLE: SOFTWARE ENGINEERING
NUMBER OF CREDITS: 4
PREREQUISITE: COMP 2000
COURSE DESCRIPTION: Fundamentals of Software Engineering, Software Processes. Project Management. Requirements Engineering, Software Modeling and Software Prototyping. Software Cost Estimation and Quality Management. Data Flow Oriented Design, Object-Oriented Design, Design Patterns, and User Interfaces. Validation and Verification.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: COMP 3275
COURSE TITLE: WIRELESS & MOBILE COMPUTING
NUMBER OF CREDITS: 4
PREREQUISITES: COMP 3150
COURSE DESCRIPTION: Introduction to the ISO and other network architectures. History and Evolution of wireless standards, Special problems of wireless and mobile computing; Wireless Local loops; Mobile Internet Protocol, Mobile aware adaptation, Mobile client/server networks; Mobile data access; Software support for mobile and wireless computing (includes MIDP programming, SMS and Bluetooth based applications); Wireless Local loops; Mobile Internet Protocol; Application aware and application transparent adaptation; Mobile data address; The role of middleware; Performance Issues; Emerging Technologies.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: NOT OFFERED IN 2015/2016
COURSE CODE: COMP 3300
COURSE TITLE: PROGRAMMING LANGUAGES I
NUMBER OF CREDITS: 4
PREREQUISITE: COMP 2000
COURSE DESCRIPTION: This course will focus on two programming paradigms: imperative and logic. For the imperative paradigm, the programming language C (or any other language representative of this paradigm) will be used. For the logic programming paradigm, the programming language Prolog (or any other language representative of this paradigm) will be used.
The Imperative Programming Paradigm: Basic types. Expressions and statements. Functions/procedures and programme structure.
Arrays, pointers. Structures/records. Structures input/output. File input/output.
The Logic Programming Paradigm. Motivation and introduction. Knowledge bases, unification and variable instantiation, backtracking, relations, conjoined goals, disjoint goals, negative goals, equality testing. Structures and operators, Input/output. Problem-solving strategies.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: NOT OFFERED IN 2015/2016
COURSE CODE: COMP 3400
COURSE TITLE: ARTIFICIAL INTELLIGENCE
NUMBER OF CREDITS: 4
PREREQUISITE: COMP 2000
COURSE DESCRIPTION: The concept of problem solving as search through a state space. Basic search algorithms. Depth-first, breadth-first, best-first, hill-climbing, branch-and-bound, A*. Mini-max algorithm with alpha-beta pruning. Logic and theorem proving. Propositional logic. First order predicate logic. Unification. Clausal form. Resolution theorem proving. Natural language processing. Parsing expressions. Semantic transition trees. Planning. Basic goal regression using STRIPS type actions. Production rule systems. Basic concepts. An expert system shell.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: NOT OFFERED IN 2015/2016
COURSE CODE: COMP 3500
COURSE TITLE: INTERNET TECHNOLOGIES I
NUMBER OF CREDITS: 4
PREREQUISITE: COMP 2500
COURSE DESCRIPTION: Overview of networking. The TCP/IP stack. Domain name resolution. The Hypertext. Transfer Protocol (HTTP): headers, requests, responses, content-negotiation, caching. The Extensible. Hypertext. Mark up Language (XHTML): XML syntax, XHTML DTDs, document structure, text formatting elements, images, tables, forms, links, image maps. Cascading Style Sheets (CSS): separation of content and presentation, selectors, declarations, conflict resolution. Client-side scripting: Control of document appearance and content, browser control, user interaction, window manipulation, client-side object hierarchy, cookies, animation. Applets: Class hierarchy, graphical user interface elements, event handling, component layouts, drawing graphics, applications. Extensible Mark up Language (XML): Advantages and applications, Document Type Definitions (DTDs).
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: COMP 3550
COURSE TITLE: INTERNET TECHNOLOGIES II
NUMBER OF CREDITS: 4
PREREQUISITE: COMP2500 OR COMP 3500
COURSE DESCRIPTION: HTTP; Server-side scripting. Java structures for the Internet. Servlets; Java Server Pages XML, DTD and Schemas, Namespaces. XSLT, XPath Structure and Applications Server-side database connectivity. Security Architecture
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: NOT OFFERED IN 2015/2016
COURSE CODE: COMP 3600
COURSE TITLE: THEORY OF COMPUTING II
NUMBER OF CREDITS: 4
PREREQUISITE: COMP 2100
COURSE DESCRIPTION: Turing machines. Computing with Turing machines. Extensions of Turing machines. Nondeterministic Turing machines. Grammars. Undecidability. The Church-Turing Thesis. The halting problem. Unsolvable problems. Recursively enumerable languages. Chomsky hierarchy. Computational complexity: Classes P and NP. NP–completeness. Special topics, e.g. Methods of tackling NP-hard problems.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: NOT OFFERED IN 2015/2016
COURSE CODE: COMP 3700
COURSE TITLE: DATABASE MANAGEMENT SYSTEMS II
NUMBER OF CREDITS: 4
PREREQUISITE: COMP 2700
COURSE DESCRIPTION: Transaction management and concurrency control. Database recovery management. Performance query optimization. Database administration. Distributed database. Internet technologies and Databases. Databases and XML. Object-Oriented databases. Database Modelling with UML. Data warehousing
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: NOT OFFERED IN 2015/2016
COURSE CODE: COMP 3750
COURSE TITLE: NUMERICAL COMPUTING
NUMBER OF CREDITS: 4
PREREQUISITE: COMP 2100
COURSE DESCRIPTION: Introduction to MATLAB. Review of Calculus, Binary Numbers, Error Analysis. Solution of Non-linear Equations. Solution of Linear Systems.Interpolation and Polynomial Approximation. Numerical Differentiation and Integration.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: NOT OFFERED IN 2015/2016
COURSE CODE: COMP 3800
COURSE TITLE: CRYPTOGRAPHY AND SECURITY
NUMBER OF CREDITS: 4
PREREQUISITE: COMP 2100
COURSE DESCRIPTION: Classical Cryptography. Shift cipher. Substitution cipher. Permutation cipher. Other ciphers. Cryptanalysis applicable to these encodings. Shannon's Theory. Entropy. Huffman encodings. Keys. Cryptosystems. Data Encryption Standard. Block ciphers and the Advanced Encryption Standard. Cryptographic hash functions. Internet Security.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: COMP 3850
COURSE TITLE: INTELLIGENT SYSTEMS
NUMBER OF CREDITS: 4
PREREQUISITE: COMP 2000
COURSE DESCRIPTION: Characteristics of intelligent systems. Rule-based Expert Systems; production rules. Reasoning with uncertainty. Fuzzy logic. Frame-based expert systems. Artificial Neural Networks. Genetic algorithms. Knowledge Engineering and Data Mining.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: COMP 3900
COURSE TITLE: SPECIAL TOPICS IN COMPUTER SCIENCE (GAME PROGRAMMING)
NUMBER OF CREDITS: 4
PREREQUISITES: COMP 2000 AND COMP 2500
COURSE DESCRIPTION: Graphics. Computer Assisted Design (CAD). Computer Assisted Education (CAE). Speech synthesis. Advanced processor architecture.Expert systems. Computability and complexity. Proof of correctness of programs. Image Processing. Any other approved topics.The particular topic taught may change from year to year.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: COMP 3950
COURSE TITLE: MODELLING AND SIMULATION
NUMBER OF CREDITS: 4
PREREQUISITE: COMP 2100
COURSE DESCRIPTION: Discrete and Continuous Systems. Discrete-Event System Simulation; Dynamic Allocation and Linked Lists. Queuing Models; Steady-State Behavior of Infinite-Population Markovian Models. Single-Server Queues with Poisson Arrivals and Unlimited Capacity. Analysis of Simulation Data; Goodness-of-Fit Tests, Chi-Square Test. Non-stationary Poisson Process. Output Analysis for Terminating Simulations. Error Estimation for Steady-State Simulation.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: COMP 3990
COURSE TITLE: PROJECT
NUMBER OF CREDITS: 4
PREREQUISITES: COMP 2500 AND COMP 3250
COURSE DESCRIPTION: Assessing project feasibility; Methods of investigation; Project reporting and presentation; Project management. Select and implement an appropriate project on some topic in Computer Science. This may include design and implementation of a computer application.
ASSESSMENT:

Project report	80%
Oral presentation	20%

(No final written examination)

LEVEL: II
SEMESTER: 2
COURSE CODE: ECNG 2001
COURSE TITLE: COMMUNICATION SYSTEMS I
NUMBER OF CREDITS: 3
PREREQUISITES: ECNG 2011 SIGNALS AND SYSTEMS & ECNG 2013 MATHEMATICS FOR ELECTRICAL ENGINEERS II
* **STUDENTS WILL BE ALLOWED TO DO THIS COURSE WITH MODIFIED PREREQUISITE I.E PHYS 2150 (MATHEMATICS FOR PHYSICISTS)**

DEPARTMENT RESPONSIBLE: ELECTRICAL AND COMPUTING ENGINEERING
COURSE DESCRIPTION: This is the introductory course in Communications in the Department. It establishes the technical foundation for the topic by introducing the fundamentals of communications and exploring the common principles that underpin communications systems. The course provides a detailed treatment of amplitude modulation (AM) techniques (such as conventional AM, double-sideband suppressed carrier AM, and single sideband AM) as well as that of angle modulation techniques (i.e., frequency modulation and phase modulation) in the presence of additive white Gaussian noise. Once these communication principles are well established, the course illustrates their application to a representative set of analog communication systems. This course will be assessed through simulation exercises, in-course examination, group project and a final examination.

ELECTRICAL & COMPUTING: ECNG

LEVEL: III
SEMESTER: 1
COURSE CODE: ECNG 3001
COURSE TITLE: COMMUNICATION SYSTEMS II
NUMBER OF CREDITS: 3
PREREQUISITE: ECNG 2001 COMMUNICATION SYSTEMS I
DEPARTMENT RESPONSIBLE: ELECTRICAL AND COMPUTING ENGINEERING
COURSE DESCRIPTION: Digital communications is the primary means of electronic communications today, enjoying tremendous levels of reach around the world. ECNG 3001 Communications II provides students with the basic theoretical tools required for the modeling, analysis and design of digital communication systems. It begins with a brief review of analog communication systems and an overview of digital communication systems. The course then explores the key principles which underlie the characterization of information sources and the basic techniques employed in processing analog and digital information signals for transmission. Considerations for the digital transmission of information over various media are explored. Digital signal reception and detection techniques are introduced. The course closes with a concise treatment of the overall design of a basic digital communication system. This course is assessed through a design project and a final examination.
ASSESSMENT:

Coursework		30%
Final Examination	(one 3-hr paper)	70%

LEVEL: III
SEMESTER: 1
COURSE CODE: ECNG 3002
COURSE TITLE: DATA COMMUNICATION SYSTEMS
NUMBER OF CREDITS: 3
PREREQUISITES: NONE
DEPARTMENT RESPONSIBLE: ELECTRICAL AND COMPUTING ENGINEERING
COURSE DESCRIPTION: ECNG 3002 explores the organization and operation of contemporary data networks by presenting fundamental principles and applying these to the architecture of the global Internet. It begins by identifying applications and requirements of data communication and exploring network structure and architecture. It distinguishes between the communication of data between a pair of computers and across a network of computers. Current standards, including the OSI and TCP/IP reference models are investigated. Once layered network architecture is established a top down approach is employed, investigating the functions, implementation and performance of the Application, Transport, Network, Data Link and Physical Layers. This course will be assessed through practical/laboratory based coursework and a final examination.
ASSESSMENT:

Coursework		30%
Final Examination	(one 3-hr paper)	70%

LEVEL: III
SEMESTER: 1 AND 2
COURSE CODE: ECNG 3025
COURSE TITLE: DISCRETE SIGNAL PROCESSING
NUMBER OF CREDITS: 3
PREREQUISITES: NONE
DEPARTMENT RESPONSIBLE: ELECTRICAL AND COMPUTING ENGINEERING
COURSE DESCRIPTION: In this course, we will examine the techniques of discrete-time signal processing and digital signal processing, investigate the development of digital FIR and IIR filters, study the Discrete-time Fourier Transform and in particular, a numerical, efficient version called the Fast Fourier Transform (FFT) and use the FFT to carry out spectral analysis of some sample signals. We will also examine some Digital Signal Processors which are specialized microprocessors created for the sole purpose of performing numerical calculations. This course will be assessed through in-course exam and a final examination.
ASSESSMENT:

Coursework	20%
Final Examination (One 3-hr paper)	80%

LEVEL: III
SEMESTER: 2
COURSE CODE: ECNG 3003
COURSE TITLE: TELECOMMUNICATION NETWORKS
NUMBER OF CREDITS: 3
PREREQUISITES: NONE
DEPARTMENT RESPONSIBLE: ELECTRICAL AND COMPUTING ENGINEERING
COURSE DESCRIPTION: ECNG 3003 is a capstone course in contemporary telecommunications networks and technologies. Assuming prior understanding of fundamental communications including coding, modulation and error analysis, the course starts by dismantling the telecommunications network into its transmission, switching/routing, access and signaling network subsystems. Key technologies used in each sub network are explored, paying particular attention to those that facilitate the delivery of voice service over circuit switched networks. The course identifies the benefits, requirements, and challenges of transporting various traffic types on a single, converged network. The example of Voice over Internet Protocol (VoIP) is explored in detail and its implementation and performance compared to that of traditional circuit switched voice service. This course will be assessed through practical based coursework, in-course exam and a final examination.
ASSESSMENT:

Coursework	30%
Final Examination (One 3-hr paper)	70%

LEVEL: III
SEMESTER: 1
COURSE CODE: ECNG 3019
COURSE TITLE: ADVANCED CONTROL SYSTEMS DESIGN
NUMBER OF CREDITS: 3
PREREQUISITE: ECNG 2009 (Control Systems)
DEPARTMENT RESPONSIBLE: ELECTRICAL AND COMPUTING ENGINEERING
COURSE DESCRIPTION: This course first reviews the typical techniques for classical control analysis and design as covered in earlier undergraduate study such as Bode plots, Nyquist, Root Locus etc. Control System Development such as lead/lag compensator design methods are comprehensively reviewed with continuous time approach first covered. After the fundamentals of digital control implementation are introduced, these classical control design methods are revisited in a digital/hybrid system development context. The second part of the course focuses on the introduction to modern control strategy using state space system analysis and development. State space representation, State diagrams, Canonical forms of system representation, controllability and observability as well as observer design are all introduced. This course will be assessed through in-course exam and a final examination.
ASSESSMENT:

Coursework	10%
Final Examination (One 3-hr paper)	90%

*** Students will be allowed to do this course with modified prerequisite i.e. PHYS 3201 (Advance Electronics and Control Theory)**

ECONOMICS: ECON

LEVEL: I
SEMESTER: 1
COURSE CODE: ECON 1001
COURSE TITLE: INTRODUCTION TO MICROECONOMICS
NUMBER OF CREDITS: 3
PREREQUISITES: NONE
DEPARTMENT RESPONSIBLE: ECONOMICS
COURSE DESCRIPTION: This course provides students to the history of economic thought highlighting some of the key economic issues, which have preoccupied the discipline from its origins. The course also provides an introduction to the basic principles of micro-economic analysis together with the main perspectives on the functioning of the macro-economy. The micro-economic analysis is illustrated by reference to a key export sector in the Caribbean (e.g. oil or bananas). The implications of trends in the latter for the Balance of Payments and macro economy conclude this first semester course.

LEVEL: I
SEMESTER: 2
COURSE CODE: ECON 1002
COURSE TITLE: INTRODUCTION TO MACROECONOMICS
NUMBER OF CREDITS: 3
PREREQUISITES: NONE
CO-REQUISITE: ECON 1001
DEPARTMENT RESPONSIBLE: ECONOMICS
COURSE DESCRIPTION: This course emphasises macro-economic theory and policy and the related national income accounting together with international trade and the balance of payments. There is a significant stress on the implications of these economic issues for the Caribbean reality.

LEVEL: I
SEMESTER:
COURSE CODE: ECON 1005
COURSE TITLE: INTRODUCTION TO STATISTICS
NUMBER OF CREDITS: 3
PREREQUISITES:
DEPARTMENT RESPONSIBLE: ECONOMICS
COURSE DESCRIPTION: Descriptive Statistics; Probability and Probability distributions, Sampling distributions, Estimation, Hypothesis testing, simple correlation and regression.

ENVIRONMENTAL SCIENCE: ESST

LEVEL: I
SEMESTER: 2
COURSE CODE: ESST 1000
COURSE TITLE: PHYSICS FOR ENVIRONMENTAL SCIENCES
NO. OF CREDITS: 3
PREREQUISITES: 2 CAPE SCIENCE SUBJECTS (UNITS I &II) OR 'A' LEVEL EQUIVALENT, WITH AN AVERAGE GRADE OF III OR B. MUST HAVE PASSES IN BIOLOGY, CHEMISTRY, MATHEMATICS AND PHYSICS AT CSEC LEVEL OR AN APPROVED ASSOCIATE DEGREE WITH A MINIMUM GPA OF 2.5
COURSE DESCRIPTION: Physics for Environmental Sciences offers an introduction into the physics of the Earth's climate system and the physical methods which are developed and applied to investigate quantitatively different environmental systems. The principal topics covered are the physics of the built environment, the physics of human survival, energy for living, environmental health, revealing the planet, the sun and the atmosphere, the biosphere, the global climate, and climate change. It provides an essentially non-mathematical treatment suitable for a first year undergraduate level course. Course delivery would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials

ASSESSMENT

Coursework	50%
Final Examination	50%

LEVEL: I
SEMESTER: 1
COURSE CODE: ESST 1001
COURSE TITLE: BIOLOGY FOR ENVIRONMENTAL SCIENCES
NO. OF CREDITS: 3
PREREQUISITES: 2 CAPE SCIENCE SUBJECTS (UNITS I &II) OR 'A' LEVEL EQUIVALENT, WITH AN AVERAGE GRADE OF III OR B. MUST HAVE PASSES IN BIOLOGY, CHEMISTRY, MATHEMATICS AND PHYSICS AT CSEC LEVEL OR AN APPROVED ASSOCIATE DEGREE WITH A MINIMUM GPA OF 2.5
COURSE DESCRIPTION: This course introduces the biological principles underlying the study of environmental science, and provides an introduction to the diversity of microbes, plants and animals. It also examines the importance and diversity of the biological component of the environment. It will also cover basic principles of biochemistry and genetics, and is a necessary foundation course for several Level II-III courses in the Environmental Sciences programme. Delivery of course materials would involve a combination of lectures, practicals, tutorials, and web bases materials. Assessments are designed to encourage students to work continuously with the course materials
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: I
SEMESTER: 1
COURSE CODE: ESST 1002
COURSE TITLE: CHEMISTRY FOR ENVIRONMENTAL SCIENCES
NO. OF CREDITS: 3
PREREQUISITES: 2 CAPE SCIENCE SUBJECTS (UNITS I &II) OR 'A' LEVEL EQUIVALENT, WITH AN AVERAGE GRADE OF III OR B. MUST HAVE PASSES IN BIOLOGY, CHEMISTRY, MATHEMATICS AND PHYSICS AT CSEC LEVEL OR AN APPROVED ASSOCIATE DEGREE WITH A MINIMUM GPA OF 2.5
COURSE DESCRIPTION: Introduction to Environmental Chemistry offers an introduction to the field of environmental chemistry. It is designed to provide fundamental understanding in the underlying concepts of Chemistry along with the more specific areas relevant to environmental concepts. Students will be introduced to the fundamentals of general, physical and organic chemistry within the context of their application to environmental issues. To achieve this, qualitative and quantitative aspects of environmental processes will be studied. Specific topics include processes in the atmosphere, natural waters, and soils, along with the transport and fate of chemicals in the environment. Wherever possible, examples involving local/regional issues and current events will be used to illustrate the concepts in the course. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials
ASSESSMENT

Coursework	50%
Final Examination	50%

LEVEL: I
SEMESTER: 1
COURSE CODE: ESST 1004
COURSE TITLE: SCIENCE COMMUNICATION
NO. OF CREDITS: 3
PREREQUISITE(S): 2 CAPE SCIENCE SUBJECTS (UNITS I &II) OR 'A' LEVEL EQUIVALENT, WITH AN AVERAGE GRADE OF III OR B. MUST HAVE PASSES IN BIOLOGY, CHEMISTRY, MATHEMATICS AND PHYSICS AT CSEC LEVEL OR AN APPROVED ASSOCIATE DEGREE WITH A MINIMUM GPA OF 2.5
COURSE DESCRIPTION: The ability to communicate information and ideas to others is fundamental to every branch of science. Communications skills are reported by employers to be the qualities they most desire in potential job applicants. Scientists are often required to report their findings to a range of audiences using various delivery methods. Unfortunately, communication skills do not come naturally, nor can they be learned by simply reading about the subject. They require development, with the opportunity for practice and feedback, before students can feel truly comfortable expressing themselves orally and in writing, in logical, clear and concise terms. The aim of this course is to provide students entering the Environmental Science and Sustainable technology with instruction on developing effective scientific communication skills relevant to areas of research and employment. Some of the main skills would include reporting writing, literature reviews, oral presentation and team-work. The course content would be delivered in 5 modules using a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.
ASSESSMENT

Coursework	100%

LEVEL: I
SEMESTER: 2
COURSE CODE: ESST 1005
COURSE TITLE: INFORMATION TECHNOLOGY FUNDAMENTALS
NO. OF CREDITS: 3
PREREQUISITES: 2 CAPE SCIENCE SUBJECTS (UNITS I &II) OR 'A' LEVEL EQUIVALENT, WITH AN AVERAGE GRADE OF III OR B. MUST HAVE PASSES IN BIOLOGY, CHEMISTRY, MATHEMATICS AND PHYSICS AT CSEC LEVEL OR AN APPROVED ASSOCIATE DEGREE WITH A MINIMUM GPA OF 2.5
COURSE DESCRIPTION: This course provides an introduction of the discipline of IT. It describes how it relates to environmental science and sustainable technology. The goal is to help students understand the diverse contexts in which IT is used and the challenges inherent in the diffusion of innovative technology. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.
ASSESSMENT

Coursework	50%
Final Examination	50%

LEVEL: 1
SEMESTER: 2
COURSE CODE: ESST 1006
COURSE TITLE: HUMAN IMPACTS ON THE ENVIRONMENT
NO. OF CREDITS: 3
PREREQUISITES: 2 CAPE SCIENCE SUBJECTS (UNITS I &II) OR 'A' LEVEL EQUIVALENT, WITH AN AVERAGE GRADE OF III OR B. MUST HAVE PASSES IN BIOLOGY, CHEMISTRY, MATHEMATICS AND PHYSICS AT CSEC LEVEL, OR; AN APPROVED ASSOCIATE DEGREE WITH A MINIMUM GPA OF 2.5
COURSE DESCRIPTION: This course gives an overview of human-environment interactions exploring causes, effects and solutions of human impacts using a broad temporal and spatial perspective. We consider the evolutionary and historical changes in human-environment interactions and the main drivers of change: population growth, technological and lifestyle changes. Regional variation in these drivers along with issues of economy, urbanisation and inequality will also be considered. The bulk of the course illustrates the complex and dynamic ecological interactions between humans and specific resources and components of the environment necessary for human wellbeing namely ecosystems and biodiversity, food, freshwater, clean air, materials and energy. The consequences of these interactions such as resource depletion, environmental degradation and global climate change will be highlighted. Future scenarios and management solutions will be explored. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.
ASSESSMENT

Coursework	50%
Final Examination	50%

LEVEL: II
SEMESTER: 1
COURSE CODE: ESST 2001
COURSE TITLE: PRINCIPLES OF ENVIRONMENTAL CHEMISTRY 1
NUMBER OF CREDITS: 3
PREREQUISITES: ESST, and MATH 1115
COURSE DESCRIPTION: This course is a broad-based introduction to environmental chemistry for advanced environmental science students. The goal of the course is to introduce the application of chemical facts and principles to processes occurring in the environment, and the solution of problems relating to environmental processes and pollution. This course will cover issues surrounding water, air, soil chemistry, and the processes that occur naturally within them, along with the study of what happens when human interference changes the picture. There will be a specific effort made to include local and regional examples to illustrate the concepts covered in this course. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.
ASSESSMENT

Coursework -	50%
Final Examination -	50%

LEVEL:
SEMESTER: 1
COURSE CODE: ESST 2002
COURSE TITLE: ENVIRONMENTAL TECHNOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: ESST 1006
COURSE DESCRIPTION: ESST 2002 – Environmental Technology provides students with an understanding of the connection between environmental science and technological advancement. Students would gain insights into the basic concepts in environmental sciences, detailing the structure, problems and their interrelated causes in the ecosphere. It explains how technology has contributed to these problems and how clean-up and clean technology initiatives can be used to minimize, mitigate and reduce impacts. It also introduces students to the concepts of green science and green engineering and highlights their role in ensuring sustainability and sustainable development.
ASSESSMENT

Coursework -	50%
Final Examination -	50%

LEVEL:
SEMESTER: 1
COURSE CODE: ESST 2003
COURSE TITLE: DATA MANAGEMENT FOR ENVIRONMENTAL SCIENCE
NUMBER OF CREDITS: 3
PREREQUISITES: ESST 1005
COURSE DESCRIPTION: This course provides an introduction the interdisciplinary field of environmental informatics which provides the information processing and communication mechanisms to the field of environmental sciences. Information processing involves organizing data and therefore students will be introduced to data management tools such as spreadsheets and database technologies from a user perspective rather than a design perspective. In the communication infrastructure aspect of the course students will be introduced to Geographic Information Systems (GIS).
ASSESSMENT
Coursework - 100%

LEVEL: II
SEMESTER: 2
COURSE CODE: ESST 2004
COURSE TITLE: PHYSICS FOR ENVIRONMENTAL SCIENCE II
NUMBER OF CREDITS: 3
PREREQUISITES: ESST 1000
COURSE DESCRIPTION: Environmental Physics builds on the level I courses, Physics for Environmental Sciences, Chemistry for Environmental Sciences, Mathematics for Environmental Sciences I and Mathematics for Environmental Sciences II. There is a quantitative approach to the physics of the processes of the environment together with a more of an integrated view of the science of the environment. Topics to be covered include energy and the environment, weather and climate, climate change and global warming, radiative forcing and pollution. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.
ASSESSMENT
Coursework - 50%
Final Examination - 50%

LEVEL: II
SEMESTER: 2
COURSE CODE: ESST 2005
COURSE TITLE: POLLUTION MANAGEMENT AND ABATEMENT TECHNOLOGIES
NUMBER OF CREDITS: 3
PREREQUISITES: ESST 1006; ESST 1002
COURSE DESCRIPTION: This course examines the various approaches used for pollution management taking into account legislative, management systems and engineering approaches. This would be addressed within the context of sustainable development. It also highlights some of the major environmental problems and focuses on how these are addressed. It would cover major strategies used for dealing with waste/pollution control in different matrices (air water and soils). The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.
ASSESSMENT
Coursework - 50%
Final Examination - 50%

LEVEL: II
SEMESTER: 1
COURSE CODE: ESST 2006 (OFFERED WITH EFFECT FROM 2015/2016)
COURSE TITLE: POLLUTION BIOLOGY
NUMBER OF CREDITS: 3
PRE-REQUISITE(S): ESST 1001 BIOLOGY FOR ENVIRONMENTAL SCIENCES
COURSE DESCRIPTION: Healthy ecosystems rely on interactions between the living portions of the environment and its non-living components. However, human activities can cause significant disturbance as a result of the accidental or deliberate introduction of pollutants into the environment. These disturbances can cause significant alterations in the interactions between the various components that make up the ecosystem. The main focus would be on the effects of these pollutants and how they can be assessed using physicochemical and biological endpoints.
Particular attention would be placed on describing (1) what pollution is and how/why it is harmful at multiple levels of biological organization, (2) what the root sources and causes of pollution are, (3) what happens to pollutants (chemical, biological and physical) when they enter the environment, and (4) how each pollutant class affects individual and community health over acute to chronic exposure periods.
The course will focus on a variety of anthropogenic stressors in outdoor and indoor environments such as (1) chemical agents including ozone, asbestos, radon, smoke, nanoparticles, heavy metals, chlorination by-products, pesticides, petroleum hydrocarbons and endocrine active chemicals; (2) physical stressors including radiation, heat and noise; and (3) food/water-borne stressors such as bacteria, viruses, algae/biotoxins and parasites.
The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.
ASSESSMENT:

Coursework -	50%
Final Examination -	50%

LEVEL: III
SEMESTER: 2
COURSE CODE: ESST 3000
COURSE TITLE: ENVIRONMENTAL TOXICOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: ESST 2001
COURSE DESCRIPTION: Healthy ecosystems rely on interactions between the living portions of the environment and its non-living components. However, human activities can cause significant disturbance as a result of the accidental or deliberate introduction of contaminants into the environment. These disturbances can cause significant alterations in the interactions between the various components that make up the ecosystem. This course introduces the concepts of environmental toxicology. It is concerned with the toxic effects of environmental chemicals (both natural and anthropogenic) on living organisms. Fundamental toxicological concepts will be covered including dose-response relationships; absorption of toxicants; distribution and storage of toxicants; biotransformation and elimination of toxicants; acute and sub-lethal toxicity; target organ toxicity and risk assessment. The interaction between toxicants and organisms would be investigated at varying levels of biological organizations, ranging from molecular, tissue, organ, individual, population and ecosystem. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.
ASSESSMENT

Coursework -	50%
Final Examination -	50%

LEVEL: III
SEMESTER: 1
COURSE CODE: ESST 3001
COURSE TITLE: ENVIRONMENTAL FATE AND TRANSPORT
NUMBER OF CREDITS: 3
PREREQUISITES: ESST 2001, ESST 2004 and MATH 1125
COURSE DESCRIPTION: A significant aspect of environmental studies is the ability to predict the fate (end point) and transport mechanisms (how the contaminants get to the endpoint) of environmentally relevant chemicals. This course is designed to introduce students to the concepts of environmental fate and transport. The factors that affect the movement of chemicals in the air, soil, water and biotic environments will be discussed, including vapour pressure, wind, water movement, soil/water and biota/water partitioning and chemical transformation reactions. Mathematical and chemical treatments will be utilized to predict the final distribution of chemicals in the various environmental compartments. The delivery of course materials would involve a combination of lectures, tutorials and web based materials. Assessments are designed to encourage studen ts to work continuously with the course materials.
ASSESSMENT
Coursework - 75%
Final Examination 25%

LEVEL: III
SEMESTER: 1
COURSE CODE: ESST 3002
COURSE TITLE: ENVIRONMENTAL MODELING
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2163 AND MATH 1125
COURSE DESCRIPTION: This course introduces advanced statistical concepts that can be applied to data in the biological, life sciences and environmental sciences. It covers more advanced statistical concepts in the arena of experimental design, quantitative analysis of data and statistical inference. This course emphasises applications and will empower students to use sound statistical methods in the analysis of environmental data. Assessment is designed to make students work continuously with the course materials, exploring and critically analysing research and real world data. Assessment will be continuous through assigned problem sheets allowing continuous feedback and guidance on problem solving techniques.
ASSESSMENT
Coursework 100%

LEVEL: III
SEMESTER: 1
COURSE CODE: ESST 3003
COURSE TITLE: ENVIRONMENTAL MONITORING AND ASSESSMENT
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2163 AND ESST 2005
COURSE DESCRIPTION: Environmental monitoring is a broad field which intends to answer both very specific questions such as "what is the concentration of lead in the water and is it above a threshold of safety" to very broad questions such as "what is the condition of a particular ecosystem and is it changing?" Answering such questions with an effective monitoring strategy takes very different approaches. The lectures, discussions, readings and field exercises for this course are intended to expose the student to a wide range of monitoring strategies and current environmental issues
This course will introduce students to broad principles within the field of environmental monitoring and give students a basic understanding of various monitoring techniques that can be used to assess environmental impacts. It would focus on chemical, biological and ecological methods applied to air water and soil. It would emphasize why monitoring is important and focus on some approaches, sample management and quality control. The delivery of course materials would involve a combination of lectures, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.
ASSESSMENT
Coursework 100%

LEVEL: III
SEMESTER: 11
COURSE CODE: ESST 3004
COURSE TITLE: CAPSTONE PROJECT
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2163 AND ESST 3002
COURSE DESCRIPTION: During the first semester, students would be required to discuss ideas with different advisors and decide on a specific project option. They would then be required to prepare a pre-proposal for submission. They would also be required to do a literature review, outlining the problem and the approach to be used. Upon completion of their research students would have to write up a project according to the specified format and submit it for assessment. They would also be required to do a 15 minute oral presentation. Students should also consult the course manual for further details. Capstone projects are expected to demonstrate reflection, critical thinking, and effective communication (including presentation, research and technological skills as defined by the nature of the project). The benefit of the capstone project is that you are able to take the theoretical ideas learned and apply them to address real issues.
ASSESSMENT
Coursework 100%

LEVEL: III
SEMESTER: 1
COURSE CODE: ESST 3006
COURSE TITLE: FUNDAMENTALS OF GEOGRAPHIC INFORMATION SYSTEMS (GIS)
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2163
COURSE DESCRIPTION: A basic course that focuses on how geographical information science (GIS) is used and applied in environmental research and resource management. It introduces students to fundamental concepts in GIS including the basic data structures in GIS, sources of data, geographic positioning systems and other data collection techniques, geodesy (including geoids, datums, geographic coordinate systems and map projections) and data management (including fundamental concepts in the development of geodatabases). Using examples from the natural sciences, we will explore basic spatial and tabular analyses, and how GIS is used to assist environmental scientists and natural resource managers, how it is employed for data management, landscape ecology and how it aids in decision making. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.
ASSESSMENT

Coursework	100%

LEVEL: III
SEMESTER: 2
COURSE CODE: ESST 3007
COURSE TITLE: ENVIRONMENTAL MANAGEMENT INFORMATION SYSTEMS
NUMBER OF CREDITS: 3
PREREQUISITES: ESST 3003
COURSE DESCRIPTION: Environmental management information systems (EMIS) present ICT solution for environmental management: planning, assessment, compliance monitoring and impact assessment as well as emergency. They integrate a number of advanced analytical functions for operational real-time control, but also scenario analysis, strategic planning, and optimization, within a shared common information basis. EMIS should be compliant with environmental management system standard ISO 14001 on integrated pollution prevention and control, including industrial emissions, and noise monitoring and management for construction, operations, and traffic. Students will learn what hardware, software and techniques are appropriate for building an EMIS. They will be familiar with EMIS design principles and guidelines illustrated by a number of case studies. Industrial EMIS support strategic planning and environmental impact assessment with real-time monitoring, on-line reporting, and operational control including emergency management options. They could include EMIS modules like: 1) tools addressing resources (e.g. water, energy) efficiency, emission optimization and techno-economic valuation; 2) model supported tools for monitoring, reporting and forecasting of environmental impacts from normal operations with online compliance reporting, alerts and alarms; 3) tools for risk assessment and emergency management of accidental release of hazardous materials; 4) administrative data bases of emission sources, MSDS and hazardous substances data base, use and storage, waste streams; 5) tools for simulation model-based analysis, environmental and strategic impact environmental assessment.
ASSESSMENT

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTER: 2
COURSE CODE: ESST 3101
COURSE TITLE: ENVIRONMENTAL ERGONOMICS
NUMBER OF CREDITS: 3
PREREQUISITES: ESST 2002
COURSE DESCRIPTION: The course concentrates on the interaction between the user and his or her physical environment. The principles, methods and models used in environmental ergonomics are provided in terms of the effects of heat and cold, vibration, noise and light on the health, comfort and performance of people. Humans do not respond to the environment in a way monotonically related to direct measures of the physical environment. There are human characteristics which determine human sensitivities and responses. Practical methods for assessing responses to individual environmental components are presented as well as responses to 'total' environments. The course provides a basic explanation of the systems of the body to establish a foundation for understanding and consistently applying ergonomic principles. Covers the human senses and the sensory process for each, including techniques for assessing sensory impact. Explains the functionality, relationship, and elements of the integrated roles of the musculo-skeletal system. Introduces the basic ergonomic principles of work place and work tool design. Includes coverage of the concepts of information processing and user experience design of digital workplaces. The course introduces the green ergonomics approach and the relationship between ergonomics and sustainable development. Design principles for green ergonomics based on ecological and ergonomics science are introduced. Environmental health and safety principles are presented. The course content is oriented to the model of European Ergonomist. Study of this course is beneficial to students wishing to qualify for the title Eur. Ergs. in this subject.
ASSESSMENT
Coursework 100%

LEVEL: III
SEMESTER: 2
COURSE CODE: ESST 3102
COURSE TITLE: ENVIRONMENTAL IMPACT ASSESSMENTS
NUMBER OF CREDITS: 3
PREREQUISITES: ESST 3003
COURSE DESCRIPTION: This course introduces the methodology of environmental impact assessment (EIA) as a vital tool for sound environmental decision-making. It provides an introduction to the concepts, methods, issues and various stages of the EIA process. The role of the various stages of the EIA process, such as screening, scoping, EIA document preparation, public involvement, review and assessment, monitoring and auditing, appeal rights and decision-making are examined. The course mainly focuses on EIA in the Caribbean drawing on case studies from the region, but also includes other EIA systems of other countries. The delivery of course materials would involve a combination of lectures, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.
ASSESSMENT
Coursework 50%
Final Examination 50%

LEVEL: III
SEMESTER: 1
COURSE CODE: ESST 3103
COURSE TITLE: ENVIRONMENTAL HEALTH
NUMBER OF CREDITS: 3
PREREQUISITES: BIOL 2464 AND ESST 1006
COURSE DESCRIPTION: This course provide an understand of how both the natural and built environment affect human health, by looking at the impact of physical, chemical and biological factors external to humans. It examines health issues, scientific understanding of causes, and possible future approaches to control of the major environmental health problems in industrialized and developing countries. Topics include how the body reacts to environmental pollutants; physical, chemical, and biological agents of environmental contamination; vectors for dissemination (air, water, soil); solid and hazardous waste; susceptible populations; biomarkers and risk analysis; the scientific basis for policy decisions; and emerging global environmental health problems. The delivery of course materials would involve a combination of lectures, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials
ASSESSMENT
Coursework 100%

LEVEL: III
SEMESTER: 1
COURSE CODE: ESST 3104
COURSE TITLE: CLIMATE CHANGE AND ABATEMENT TECHNOLOGY
NUMBER OF CREDITS: 3
PREREQUISITES: ESST 2005
COURSE DESCRIPTION: Climate change and its effects are a major environmental concern today; this is particularly so for small island developing states in the Caribbean. This course will develop students' understanding of the nature of climate change and the strategies that can be used to mitigate its effects. The course will have two main units; the first will discuss the issues surrounding climate change, primarily the science behind climate change; the mechanisms that underpin the greenhouse effect, energy balances, molecular energy absorption by greenhouse gases, the sources of these gases and the general global effects of the global warming and how this translates into climate change. The consequences of climate change will be discussed, as well as the continuing debate on whether or not global warming/climate change are happening at all, or being caused by rising carbon dioxide concentrations in the atmosphere. The second unit will introduce the mechanisms that are in use to mitigate the potential hazards of climate change. This will include legislative and technical efforts to reduce greenhouse gas emissions. The course will cover international agreements like the Kyoto Protocol, local and regional legislation, technological solutions, like alternative energy sources and strategies to reduce the current climate change impacts being experienced by some nations. The delivery of course materials would involve a combination of lectures, practicals, tutorials, and web based materials. Assessments are designed to encourage students to work continuously with the course materials.
ASSESSMENT

Coursework	50%
Final Examination	50%

FOUNDATION COURSES: FOUN

LEVEL: I
SEMESTERS: 1 AND 2
COURSE CODE: FOUN 1101
COURSE TITLE: CARIBBEAN CIVILISATION
NUMBER OF CREDITS: 3PREREQUISITES:
FACULTY RESPONSIBLE: FACULTY OF HUMANITIES & EDUCATION
COURSE DESCRIPTION: (NOT FOR HUMANITIES STUDENTS)
OBJECTIVES:

1. To develop an awareness of the main process of cultural development in Caribbean societies, highlighting the factors, the problematics and the creative output that have fed the emergence of Caribbean identities.
2. To develop a perception of the Caribbean as wider than island nations or linguistic blocs.
3. To stimulate studentsí interest in, and commitment to Caribbean civilisation and to further their self-definition.

Modules:

1. Origins
   I Caribbean space / physical environment / Amerindian peoples and Cultures: their legacy.
   II European conquest, settlement and demographic changes.
2. Fighting for Freedom
   I Slavery, marronage and rebellion.
   II New in/out- migration, indenture, and their consequences: 19th and 20th centuries.
3. Quest for Identity
   I Race and nationalism.
   II Independence, dependence and regionalism.
   III Creolisation and ethnic identity.
4. Ideas, Ideologies and Theologies
   I Education/religion in the Caribbean.
   II Caribbean Intellectual Traditions.
5. Caribbean Expressions
   I Caribbean music - Calypso, Reggae.
   II Caribbean festivals.
   III Sports.
   IV Caribbean voices - French, English, Spanish, Linguistic Identity.

ASSESSMENT

In-course test	40%
Final 2-hour examination	60%

LEVEL: I
SEMESTER: 2
COURSE CODE: FOUN 1105
COURSE TITLE: SCIENTIFC AND TECHNICAL WRITING
NUMBER OF CREDITS: 3
PREREQUISITES:
Any one of the following:

- CSEC English Language Grade I (General Proficiency) Grade I or II in CAPE Communication Studies
- General Paper Grade A or B
- A Pass in the English Language Proficiency Test
- A Pass in English as a Foreign Language (Intermediate)

FACULTY RESPONSIBLE: FACULTY OF HUMANITIES & EDUCATION
COURSE DESCRIPTION: The aim of this course is to develop students writing skills in areas related to their academic disciplines. There will be twenty-four (24) contact hours. Classroom activity will be supplemented by printed materials.
Option C

Scientific and Technical Writing (Compulsory for FST Students)
Technical Description
Expository Writing for Scientific and Technical Purposes

ASSESSMENT

Coursework	50%
Final Examination	50%

Students must pass both coursework and final examination in order to qualify for an overall pass in the course.
Attendance Regulation:
A student in any of the Foundation courses in English Language who misses two (2) out of any six (6) class hours will be warned, and after two warnings any further absence without prior permission or an acceptable medical certificate will result in automatic exclusion from the examination.

NB: FST students should **not** register for FOUN 1001 – English for Academic Purposes

FOUN 1210 Not offered to FST Students.

LEVEL: I
SEMESTERS: 1 AND 2
COURSE CODE: FOUN 1301
COURSE TITLE: LAW, GOVERNANCE, ECONOMY AND SOCIETY (UNIVERSITY FOUNDATION COURSE) (FACULTY OF SOCIAL SCIENCES)
NUMBER OF CREDITS: 3
PREREQUISITES:
FACULTY RESPONSIBLE: FACULTY OF SOCIAL SCIENCES
COURSE DESCRIPTION: This course is delivered through the medium of print. The print package comprises a student manual, a study guide and a reader. In addition to the print material there are teleconferencing and/or tutorials.
The course introduces students to some of the major institutions in Caribbean society. It exposes the student to both the historical and contemporary aspects of Caribbean society, including Caribbean legal, political and economic systems. In addition, Caribbean culture and Caribbean social problems are discussed.
Assessment is based solely on a final examination at the end of the semester. It consists of twelve (12) essay-type questions, of which students are required to write on three (3). All questions carry equal marks. The examination is divided into four (4) sections corresponding to the four (4) subject areas in the course. Students are not allowed to do more than one question in any one section.

FRENCH: FREN

LEVEL: I
SEMESTERS: 1 AND 2
COURSE CODE: FREN 1001
COURSE TITLE: LEVEL 1A FRENCH
NUMBER OF CREDITS: 2
PREREQUISITES: NONE
COURSE DESCRIPTION: This is a beginners' course for students with no previous knowledge of French. It develops the communicative, linguistic, and intercultural competence of learners by focusing on their speaking, listening, reading and writing skills. The course meets for four hours per week for 13 weeks. In addition, class contact time should be supplemented by one hour of independent study for each contact hour.
ASSESSMENT:
In-course testing: 100%: 40% [mid-semester]; 40% [end of semester]; 20% [two assignments]

LEVEL: I
SEMESTERS: 1 & 2
COURSE CODE: FREN 1002
COURSE TITLE: LEVEL 1B FRENCH
NUMBER OF CREDITS: 2
PREREQUISITES: FREN 1001/1A FRENCH OR EQUIVALENT
COURSE DESCRIPTION: This couse is the next level after FREN 1001/1A French with the aim to further develop the communicative, linguistic, and inter cultural competence of learners. Emphasis is placed on the development of learners' speaking, listening, reading, and writing skills. The course meets for four hours per week for 13 weeks. In addition, class contact time should be supplemented by one hour of independent study for each contact hour..
ASSESSMENT:
In-course testing: 100%: 40% [mid-semester]; 40% [end of semester]; 20% [two assignments]

FACULTY COURSE: FST

LEVEL: I
SEMESTER: 1
COURSE CODE: FSTF 1000
COURSE TITLE: STUDY SKILLS FOR THE SCIENCES
NUMBER OF CREDITS: 1
PREREQUISITE: NONE
RESTRICTIONS: FOR FST STUDENTS ONLY
COURSE DESCRIPTION: This course is designed to help students improve their learning effectiveness, attitudes, and motivation. The following are part of the curriculum: Time management, concentration, coping with life challenges and studying, note taking skills, textbook study methods, test taking strategies, and critical thinking skills. Teaching and learning will be done by mixed mode with traditional lectures supported by online components. There will be continuous assessments with 100 % coursework for this programme. The assessments will employ different methodologies such as multiple choice test, group work with presentations, journal writing and term research paper.
ASSESSMENT:

Coursework		100%
Term paper	25%	
Multiple choice exam	25 %	
Poster	25%	
Course journal for every class	25%	

INFORMATION TECHNOLOGY: INFO

LEVEL: I
SEMESTER: 1
COURSE CODE: INFO 1500
COURSE TITLE: INTRODUCTION TO INFORMATION TECHNOLOGY FUNDAMENTALS
NUMBER OF CREDITS: 3
PREREQUISITE: NONE
COURSE DESCRIPTION: This course provides an overview of the discipline of IT. It describes how it relates to other computing disciplines. The goal is to help students understand the diverse contexts in which IT is used and the challenges inherent in the diffusion of innovative technology.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: I
SEMESTER: 1
COURSE CODE: INFO 1501
COURSE TITLE: INTRODUCTION TO WWW PROGRAMMING
NUMBER OF CREDITS: 3
PREREQUISITE: NONE
COURSE DESCRIPTION: This is an introduction to web technologies and systems, including hypertext, self-descriptive text, web page design, web navigational systems, and various mark-up languages and scripting languages. Programming examples, exercises and projects are drawn from practical web-based applications. Good programming practice and program clarity is emphasized throughout the course.
ASSESSMENT:

Attendance and Participation	10%
5 Lab Examinations	10% each
Project	40%
(NO FINAL WRITTEN EXAMINATION)	

LEVEL: I
SEMESTER: 1
COURSE CODE: INFO 1502
COURSE TITLE: INTRODUCTION TO PROBLEM SOLVING
NUMBER OF CREDITS: 3
PREREQUISITE: NONE
COURSE DESCRIPTION: This course provides mostly a non-language specific introduction to problem-solving and computer programming. Topics include: structured problem-solving, structured program design, control (logic) structures, working with arrays and data files, and an overview of data management and object-oriented programming. Students will be exposed to a variety of tools and methods that are useful in all aspects of developing software applications and writing program code. There is a small hands-on java (or other language of choice) component of the course with the bulk of the course focusing instead on designing program logic.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: I
SEMESTER: 1
COURSE CODE: INFO 1503
COURSE TITLE: INTRODUCTION TO MATHEMATICS FOR CRITICAL THINKING
NUMBER OF CREDITS: 3
PREREQUISITE: NONE
COURSE DESCRIPTION: This course provides students with the mathematical tools for problem solving. Students are taught to develop solutions for problems by mathematical Modelling using fundamental mathematical methods.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: I
SEMESTER: 2
COURSE CODE: INFO 1504
COURSE TITLE: INTRODUCTION TO PROGRAMMING FUNDAMENTALS I
NUMBER OF CREDITS: 3
PREREQUISITE: NONE
COURSE DESCRIPTION: Programming fundamentals develops skills and concepts that are essential to good programming practice and problem solving. The course introduces students to the basics of programming, including programming constructs, basic data structures, and arrays. Throughout the course these concepts are applied to the solution of simple business type problems..
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: I
SEMESTER: 2
COURSE CODE: INFO 1505
COURSE TITLE: INTRODUCTION TO COMPUTER SYSTEMS
NUMBER OF CREDITS: 3
PREREQUISITE: NONE
COURSE DESCRIPTION: The course introduces the student to the basics of hardware, storage and system software. It covers the relationship between different parts of a computer system and how they work together to get a job completed. Additionally it gives the student an appreciation for data organization techniques and their applicability to real world scenarios.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: I
SEMESTER: 2
COURSE CODE: INFO 1506
COURSE TITLE: INTRODUCTION TO INFORMATION AND DATA MANAGEMENT
NUMBER OF CREDITS: 3
PREREQUISITE: NONE
COURSE DESCRIPTION: Data Management is the process of organizing data from the resource perspective. It introduces students to spreadsheets and databases. This course looks at databases from a user perspective rather than a design perspective to give an appreciation for its place in the Information Technology area. The spreadsheets will be presented with the purpose of students being able to create models required by the working environment
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: I
SEMESTER: 2
COURSE CODE: INFO 1507
COURSE TITLE: INTRODUCTION TO BUSINESS PRINCIPLES
NUMBER OF CREDITS: 3
PREREQUISITE: NONE
COURSE DESCRIPTION: This course gives an introduction to economics, managerial accounting and project management. Additionally, it gives the student a grasp of the role each of these areas perform and an appreciation as to why they are critical to any organization.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: II
SEMESTER: 2
COURSE CODE: INFO 2400
COURSE TITLE: INFORMATION SYSTEMS DEVELOPMENT
NUMBER OF CREDITS: 4
PREREQUISITE: INFO 1400 OR INFO 1500
COURSE DESCRIPTION: Systems development. Throughout the course, information is seen as a valuable corporate resource, one that can be used to maximize profit and improve competitiveness of a business organization. Consequently, the course takes an in-depth look at business processes and the ways in which they can be automated through an Information System. There is extensive coverage of the technical foundations of modern Information Systems as well as the process of developing and implementing a suitable Information System for an organization. The development of web-based information systems is also covered.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: II
SEMESTER: 2 AND
EVENING UNIVERSITY - SEMESTERS 2 AND 3
COURSE CODE: INFO 2405
COURSE TITLE: DISCRETE MATHEMATICS
NUMBER OF CREDITS: 4
PREREQUISITES: INFO 1415 OR INFO 1503
COURSE DESCRIPTION: This course seeks to build formal mathematical competence required in many fields in Information Technology such as information security, cryptography and data structures. Students are exposed to formal logic and reasoning and use this to construct proofs and develop algorithms. The course also introduces various problem solving strategies especially thinking algorithmically both iterative and recursive. The course also motivates the need for discrete structures and techniques by introducing computer applications.

ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: II
SEMESTER: 2 AND EVENING UNIVERSITY - SEMESTER 2
COURSE CODE: INFO 2410
COURSE TITLE: FUNDAMENTAL DATA STRUCTURES
NUMBER OF CREDITS: 4
PREREQUISITE: INFO 2420
COURSE DESCRIPTION: This course covers the major data structures used in programming. The properties of the various data structures are studied as well as their appropriate use for different applications. In-memory data structures as well as structures for file organizations are considered.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: II
SEMESTER: 1 AND
EVENING UNIVERSITY - SEMESTERS 1 AND 3
COURSE CODE: INFO 2415
COURSE TITLE: ENTERPRISE DATABASE SYSTEMS
NUMBER OF CREDITS: 4
PREREQUISITES: (INFO 1400 AND INFO 1405) OR (INFO 1506 AND INFO 1501) OR [INFO 1400 AND INFO 1501] OR (INFO 1506 AND INFO 1405)
COURSE DESCRIPTION: The course covers the design, implementation and management of Database Systems. Emphasis is placed on database design of real world business applications using Entity-Relationship modeling. SQL programming is covered in detail. Query Optimization concepts are introduced in the context of database performance tuning. Data Management concepts such as Transaction Management, Concurrency Control, Recovery, and Security are discussed. Several current database environments and applications including Distributed Databases and Web-enabled Databases are discussed.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: II
SEMESTER: 1 AND
EVENING UNIVERSITY - SEMESTER 1
COURSE CODE: INFO 2420
COURSE TITLE: PROGRAMMING FUNDAMENTALS II
NUMBER OF CREDITS: 4
PREREQUISITE: INFO 1420 OR INFO 1504
COURSE DESCRIPTION: The course introduces simple data structures that every novice programmer should become familiar with. It introduces the concept of Abstract Data Types, their characteristics and implementation, such as Linked list, stacks and queues.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: II
SEMESTER: 1 AND
EVENING UNIVERSITY - SEMESTER 3
COURSE CODE: INFO 2425
COURSE TITLE: COMPUTER ARCHITECTURE
NUMBER OF CREDITS: 4
PREREQUISITES: (INFO 1415 AND INFO 1420) OR (INFO 1503 AND INFO 1504) OR (INFO1415 AND INFO 1504) OR (INFO 1503 AND INFO 1420)
COURSE DESCRIPTION: This course covers the fundamentals of the operation and design of computers from the programmer's and architect's point of view. It describes the components of a computer, functions of each component, and how components interact with each other and with software.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: II
SEMESTER: 1
COURSE CODE: INFO 2430
COURSE TITLE: BUSINESS INFORMATION SYSTEMS
NUMBER OF CREDITS: 4
PREREQUISITE: (INFO 1400 AND INFO 1405) OR (INFO 1506 AND INFO 1501) OR (INFO 1400 AND INFO 1501) OR (INFO 1506 AND INFO 1405)
COURSE DESCRIPTION: The course focuses on Information Systems in terms of business processes. It covers transaction cycles, events, and activities of Revenue, Expenditure, Production, and Human Resources business processes. The course covers core application frameworks – customer relationship management, enterprise resource planning, revenue and expenditure management, and human resource management – with emphasis on modeling of business processes and data. The material is covered from the perspective of business in Trinidad & Tobago. E-Business concepts and principles are introduced.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: II
SEMESTER: 1
COURSE CODE: INFO 2500
COURSE TITLE: NETWORKING TECHNOLOGIES FUNDAMENTALS
NUMBER OF CREDITS: 4
PREREQUISITE: INFO 1500 AND INFO 1505 OR INFO 1400
COURSE DESCRIPTION: The course introduces the student to the world of computer networks. Principles and protocols for data communication are covered. Network architecture models are visited and students get exposure to the practical aspects of networking e.g. setting up a basic network, router configuration, crimping of cables.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 1 AND EVENING UNIVERSITY-SEMESTER 1
COURSE CODE: INFO 3400
COURSE TITLE: FUNDAMENTALS OF OPERATING SYSTEMS
NUMBER OF CREDITS: 4
PREREQUISITE: INFO 2425 OR INFO 2420
COURSE DESCRIPTION: This course provides the student with an introductory understanding of the role and functioning of an operating system. The basic algorithms used to manage processes, memory and disk devices will be presented.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 2 AND
EVENING UNIVERSITY - SEMESTERS: 2 AND 3
COURSE CODE: INFO 3410
COURSE TITLE: WEB SYSTEMS AND TECHNOLOGIES
NUMBER OF CREDITS: 4
PREREQUISITE: INFO 2420
COURSE DESCRIPTION: This course covers the design, implementation and testing of web-based applications and social software, and the incorporation of a variety of digital media into these applications. Students are exposed to a range of web technologies, both client-side and server-side.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: I AND EVENING UNIVERSITY-SEMESTER 1
COURSE CODE: INFO 3415
COURSE TITLE: INFORMATION ASSURANCE AND SECURITY
NUMBER OF CREDITS: 4
PREREQUISITE: INFO 2400 OR COMP 2200
COURSE DESCRIPTION: This course provides the knowledge to understand, apply and manage information assurance and security in computing, communication, and organizational systems. It covers operational issues, policies and procedures, attacks and defense mechanisms, risk analyses, recovery, and information security.
ASSESSMENT:

Coursework (test/assignments)	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: NOT OFFERED IN 2015/2016
COURSE CODE: INFO 3420
COURSE TITLE: PROGRAMMING LANGUAGES
NUMBER OF CREDITS: 4
PREREQUISITE: INFO 2420 OR COMP 2500
COURSE DESCRIPTION: The aim of this course is to provide a conceptual framework that will enable students to understand already-learned programming languages more deeply and to learn new languages effectively as they will require skills in adopting new programming languages. Students will gain an understanding of the fundamental concepts and design issues of programming languages and become familiar with the majaor programming paradigms.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 2 AND EVENING UNIVERSITY - SEMESTER 3
COURSE CODE: INFO 3425
COURSE TITLE: PROFESSIONAL ETHICS AND LAW
NUMBER OF CREDITS: 4
PREREQUISITE: INFO 2400
COURSE DESCRIPTION: This course provides an overview of current ethical standards and practices in the computing and information technology area. Students will develop an awareness of both the ethical and legal issues facing the computerized workplace. The course also introduces the student to policy development in computer technology related environments.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: NOT OFFERED IN 2015/2016
COURSE CODE: INFO 3430
COURSE TITLE: INTRODUCTION TO SCIENTIFIC COMPUTING
NUMBER OF CREDITS: 4
PREREQUISITE: INFO 2405 AND INFO 2420
COURSE DESCRIPTION: This course provides a broad overview of numerical methods for students in computationally oriented disciplines who need to solve mathematical problems that arise in many fields, especially science and engineering. It focuses on the motivation and ideas behind the numerical algorithms and on the use of professionally written mathematical software for obtaining solutions whenever possible.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: INFO 3435
COURSE TITLE: E-COMMERCE
NUMBER OF CREDITS: 4
PREREQUISITE: INFO 2400
COURSE DESCRIPTION: This course provides broad coverage of e-commerce systems. It covers the various e-commerce business models and e-commerce payment systems.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 1 AND EVENING UNIVERSITY - SEMESTER 3
COURSE CODE: INFO 3440
COURSE TITLE: SOFTWARE ENGINEERING
NUMBER OF CREDITS: 4
PREREQUISITES: INFO 2400 AND INFO 2420
COURSE DESCRIPTION: This course introduces students to the fundamental concepts and techniques of software engineering. It examines various approaches for developing a software product, from the initial request for development right down to the delivery of the final product to the customer. All of these approaches involve steps such as determining the user requirements, structuring these requirements in the form of a requirements specification document, and designing, coding and testing the software. These aspects of software engineering form the major component of the course. Since project management skills are crucial for the successful development of a software product, the course also covers project management techniques as they pertain to software engineering. This includes the topics of project scheduling, software estimation, and risk management
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 2
EVENING UNIVERSITY – SEMESTER 2
COURSE CODE: INFO 3490
COURSE TITLE: PROJECT
NUMBER OF CREDITS: 4
PREREQUISITES: INFO 2400 AND INFO 2420
COURSE DESCRIPTION: This course requires the student to implement an IT project of an appropriate scope. The student will liaise with an academic supervisor. Several lectures will be given on project management and research methodologies.
ASSESSMENT:

Coursework	80%
Presentation	20%
(NO FINAL WRITTEN EXAMINATION)	

LEVEL: III
SEMESTER: SEMESTER 1 AND EVENING UNIVERSITY – SEMESTER 1
COURSE CODE: INFO 3500
COURSE TITLE: USER INTERFACE DESIGN AND DEVELOPMENT
NUMBER OF CREDITS: 4
PREREQUISITES: INFO 2400
COURSE DESCRIPTION: Human-computer Interaction is an interdisciplinary field that integrates theories and methodologies from Computer Science, cognitive psychology, design, and many other areas. The course is intended to introduce the student to the basic concepts of Human-computer Interaction. It will cover the basic theory and methods that exist in the field. The course will unfold by examining design and evaluation. Case studies are used throughout the readings to exemplify the methods presented and to lend a context to the issues discussed. The students will gain principles and skills for designing and evaluating interactive systems.
Among the topics studied are the design and evaluation of effective user interaction designs, including principles and guidelines for designing interactive systems. Additionally, much emphasis is given to the development process for user interaction designs as an integral, but different, part of interactive software development. User interaction development activities include requirements and task analysis, usability specifications, design, prototyping, and evaluation. It is a goal of this course to help students realize that user interface development is an ongoing process throughout the full product life cycle, and developing the human-computer interface is not something to be done at the last minute, when the "rest of the system" is finished. During the course the students will be involved with a real problem solving/software development project. Students will be required to gather functional requirements, identify the problem, form a solution and present this solution.
ASSESSMENT:

Coursework	70%
Final Examination - One 2-hour written paper	30%

LEVEL: III
SEMESTER: NOT OFFERED IN 2015/2016
COURSE CODE: INFO 3510
COURSE TITLE: NETWORKING FOR PROFESSIONALS
NUMBER OF CREDITS: 4
PREREQUISITES: INFO 2500
COURSE DESCRIPTION: This course introduces students to Local-Area-Network (LAN) switching equipment, protocols and topologies. Students learn about Classless Routing, RIP V2, Single Area OSPF, EIGRP, the Spanning Tree Protocol and differentiate between cut-through and store-and-forward LAN switching. Lab activities include implementing VLSM, RIP V2, OSPF, EIGRP, and trunking and routing VLANs. Students create virtual LANs and analyze various LAN segmentations.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: INFO 3520
COURSE TITLE: DATABASE ADMINISTRATION FOR PROFESSIONALS
NUMBER OF CREDITS: 4
PREREQUISITES: INFO 2415
COURSE DESCRIPTION: This course introduces students to Database Administration. Students taking the course should have a basic understanding of how database concepts and SQL commands. The course provides practical experience in setting up and maintaining a MySQL/Oracle server, including backing up, recovery, configuration and optimization strategies.
This course is suitable for delegates intending to sit the 'Certified MySQL DBA I' and 'Certified MySQL DBA 2' examinations.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

LEVEL: III
SEMESTER: NOT OFFERED 2015/2016
COURSE CODE: INFO 3530
COURSE TITLE: GEOGRAPHIC INFORMATION SYSTEMS FOR BUSINESS
NUMBER OF CREDITS: 4
PREREQUISITES: INFO 2415
COURSE DESCRIPTION: This course introduces students to the subject of geographic information systems. Students are introduced to the characteristics of geographical data including coordinate systems and projections. Spatial data models are presented with a view of laying the foundation to understanding the usefulness of Geographic Information Systems (GIS) in organizations that use geographic data. Database structure and design are delivered in the context of managing spatial records and analysis techniques for interrogating such data are discussed. GIS is also presented as a tool used to effect business process re-engineering; the type of Information System enhancement which can significantly alter the productivity of business positively.
ASSESSMENT:

Coursework	40%
Final Examination - One 2-hour written paper	60%

JAPANESE: JAPA

LEVEL: I
SEMESTER: 1
COURSE CODE: JAPA 1003
COURSE TITLE: LEVEL 1A JAPANESE
NUMBER OF CREDITS: 2
PREREQUISITES: NONE
COURSE DESCRIPTION: This is a beginners' Japanese couse that introduces students to the Japanese language and some aspects of Japanese culture and daily life. Classes are conducted as far as possible in the target language to give students maximum exposure to the new language and culture. During the course, students develop an ability to communicate in Japanese in basic situations relating to their personal lives. The course meets for four hours per week for 13 weeks. In addition, class contact time should be supplemented by two hours of independent study for each contact hour.
ASSESSMENT:
In-course testing: 100%:
40% [mid-semester];
40% [end of semester];
20% [two assignments]

LEVEL: I
SEMESTER: 2
COURSE CODE: JAPA 1004
COURSE TITLE: LEVEL 1B JAPANESE
NUMBER OF CREDITS: 2
PREREQUISITES: JAPA 1003/1A JAPANESE OR EQUIVALENT
COURSE DESCRIPTION: JAPA 1004 is the second part of the introductory Japanese programme continuing the work begun in JAPA 1003/1A Japanese. Classes are conducted as far as possible in the target language to give students maximum exposure to the language and culture during class time. During the course, students develop an ability to communicate in Japanese in basic situations relating to their personal lives. The course meets for four hours per week for 13 weeks. In addition, class contact time should be supplemented by two hours of independent study for each contact hour.
ASSESSMENT:
In-course testing: 100%:
40% [mid-semester];
40% [end of semester];
20% [two assignments]

MATHEMATICS: MATH

LEVEL: 0 (PRELIMINARY)
SEMESTER: 1
COURSE CODE: MATH 0100
COURSE TITLE: PRE-CALCULUS
NUMBER OF CREDITS: 0
PREREQUISITES: CSEC MATHEMATICS OR EQUIVALENT
COURSE DESCRIPTION: The following topics will be treated with the minimum of rigour, but with emphasis on the understanding of the concepts involved.
Algebra: Elementary logic, number sets, real numbers, functions, inequalities, complex numbers, surds, logarithms, linear and quadratic equations, finite series, binomial theorem, mathematical induction.
Trigonometry: Trigonometric functions and their inverses, addition and multiplication formulae, identities, trigonometric equations, solutions of triangles.
ASSESSMENT:

Coursework - Test	50%
Final Examination - One 3-hour paper	50%

LEVEL: 0 (PRELIMINARY)
SEMESTER: 2
COURSE CODE: MATH 0110
COURSE TITLE: CALCULUS AND ANALYTICAL GEOMETRY
NUMBER OF CREDITS: 0
PREREQUISITES: CSEC MATHEMATICS OR EQUIVALENT
COURSE DESCRIPTION: The following topics will be treated with the minimum of rigour, but with emphasis on the understanding of the concepts involved. Calculus: Functions, limits, continuity, differentiability, higher derivatives and application, anti-derivatives, Simpson'srule and the integral. Elementary methods of integration and solutions of simple differential equations. Analytical Geometry: Equations and representations of elementary plane curves. Applications of calculus to determine equations of tangents, normals and in the computation of areas and volumes.
ASSESSMENT:

Coursework - Test	50%
Final Examination - One 3-hour paper	50%

LEVEL: I - UNDERGRADUATE SERVICE COURSE
SEMESTERS: 1 AND 2
COURSE CODE: MATH 1115
COURSE TITLE: FUNDAMENTAL MATHEMATICS FOR THE GENERAL SCIENCES I
NUMBER OF CREDITS: 3
PREREQUISITEs: NONE
NB: STUDENTS WITH ANY TWO UNITS OF CAPE LEVEL MATHEMATICS (OR EQUIVALENT), AGRI 1003 (MATHEMATICS FOR SCIENTISTS) AND/OR MATH 0100 (PRE-CALCULUS) WILL NOT RECEIVE CREDITS FOR THIS COURSE.
COURSE DESCRIPTION: Algebra: Types of numbers, scientific notation, precision and accuracy, manipulating numbers, factorials, inequalities, simultaneous equations, indices, partial fractions, quadratic equations, remainder theorem, solving polynomial equations. Functions: Logarithms, exponentials, inverse functions. Trigonometry: Trigonometric functions and their graphs, common identities, solution of trigonometric equations. Coordinate Geometry: gradients and intercepts, extrapolation techniques, linear regression. Statistics: Introduction to descriptive statistics, frequency distribution, mean, median, mode and standard deviation, measures of central tendency, normal and binomial distributions, chi-squared test.
ASSESSMENT:

Coursework	40%
Final Examination: One 2-hour written paper	60%

LEVEL: I - UNDERGRADUATE SERVICE COURSE
SEMESTER: 2
COURSE CODE: MATH 1125
COURSE TITLE: FUNDAMENTAL MATHEMATICS FOR THE GENERAL SCIENCES II
NUMBER OF CREDITS: 3
PREREQUISITES: EITHER CSEC MATHEMATICS (OR EQUIVALENT) OR MATH 1115
COURSE DESCRIPTION: Differentiation: Functions of a single real variable, polynomials, exponentials and basic trigonometric functions. Product, quotient and 'function of a function' rules. Implicit differentiation. Finding and classifying stationary points. Basic curve sketching for quadratic, polynomial, exponential and logarithmic functions. Application to velocity, acceleration, deceleration, distance traveled. Calculating rates of change. Basic rules for partial differentiation for functions of more than one real variable. Taylor series for a function of a single real variable. Limits: Concept of a limit. Evaluation of basic limits. Errors: precision of calculations, round-off errors. Integration: Definition as reverse of differentiation. Definite integrals and areas under curves. Integration by substitution (u=f(x)), integration by parts, integration by partial fractions. Calculation of work done. Differential Equations (Topic to be motivated by models of physical systems): First order separable and linear equations. Second order linear with constant coefficients - complementary functions and particular integrals
ASSESSMENT:

Coursework	40%
Final Examination: One 2-hour written paper	60%

LEVEL: 2
SEMESTER: II
COURSE CODE: MATH 1141
COURSE TITLE: INTRODUCTORY LINEAR ALGEBRA AND ANALYTICAL GEOMETRY
NUMBER OF CREDITS: 3
PREREQUISITES: TWO UNITS OF CAPE PURE MATHEMATICS, OR EQUIVALENT
COURSE DESCRIPTION: Vectors in two and three dimensions, the dot product and cross – product. Applications to geometry of lines and planes. Complex numbers as vectors. De Moivres Theorem; basic algebra of matrices of any order. Determinants. Solutions of systems of linear equations
ASSESSMENT:

Coursework	50%
Final Examination: One 2-hour written paper	50%

LEVEL: I
SEMESTER: 1
COURSE CODE: MATH 1142
COURSE TITLE: CALCULUS I
NUMBER OF CREDITS: 3
PREREQUISITES: TWO UNITS (1&2) OF CAPE PURE MATHEMATICS OR MATH 0100 AND MATH 0110, OR EQUIVALENT
COURSE DESCRIPTION: Functions; elementary functions; definition of derivative and rules of differentiation. Applications to maxima, minima and curve tracing; Taylor and Maclaurin Series. Evaluation of indefinite integrals using substitution, integration by parts and partial fractions. Length of curve and areas of regions. First order differential equations and second order differential equations with constant coefficients.
ASSESSMENT:

Coursework	50%
Final Examination - One 2-hour written paper	50%

LEVEL: I
SEMESTER: 2
COURSE CODE: MATH 1151
COURSE TITLE: CALCULUS II
NUMBER OF CREDITS: 3
PREREQUISITES: TWO UNITS (1&2) OF CAPE PURE MATHEMATICS OR MATH 0100 AND MATH 0110. OR EQUIVALENT
COURSE DESCRIPTION: Neighbourhoods and bounds of a function; definition of limit; properties of limits; continuity; the Intermediate Value Theorem; The derivative; Rolle's Theorem; The Mean Value Theorem; L'Hospital's Rule. The Riemann Integral : Fundamental Theorem of the Calculus. Partial Derivatives. Double integrals.
ASSESSMENT:

Coursework	50%
Final Examination - One 2-hour written paper	50%

LEVEL: I
SEMESTER: 1
COURSE CODE: MATH 1152
COURSE TITLE: SETS AND NUMBER SYSTEMS
NUMBER OF CREDITS: 3
PREREQUISITES: TWO UNITS OF CAPE PURE MATHEMATICS, OR MATH 0100 AND MATH 0110 OR EQUIVALENT
COURSE DESCRIPTION: Set Theory. Elementary mathematical logic: logical statements, logical operations AND, OR and NOT. Illustration using Venn diagrams, Algebra of Sets. Relations and Binary operation Properties of the natural numbers; basic arithmetic of complex numbers. The polar and exponential forms of a complex number.
ASSESSMENT:

Coursework	50%
Final Examination: One 2-hour written paper	50%

LEVEL: I
SEMESTER: 1
COURSE CODE: MATH 1192
COURSE TITLE: MATHEMATICAL SOFTWARE I - A PRIMER ON EXCEL
NUMBER OF CREDITS: 1
PREREQUISITES: CAPE PURE MATHEMATICS (UNITS 1 & 2) OR MATH 1125 OR EQUIVALENT.
COURSE DESCRIPTION: This course will enhance the student's knowledge of Microsoft Excel, which will be used to solve frequently encountered mathematics and statistics problems.
Microsoft Excel will be introduced as data management software, and popular features of Excel such as formatting, editing, chart types and 'autofill' will be covered at the beginning of the course. The student will later be introduced to statistical tools in Excel which assist in solving problems in inferential statistics. An introduction to the Visual Basic Editor and programming in Visual Basic is then offered to the student.
Teaching will take place entirely in weekly interactive lab sessions where the emphasis will be on active learning. Assessment will be based on coursework examinations and several lab assignments.
ASSESSMENT:

Coursework	100%

LEVEL: I
SEMESTER: 2
COURSE CODE: MATH 1193
COURSE TITLE: MATHEMATICAL SOFTWARE II - A PRIMER ON MAPLE
NUMBER OF CREDITS: 1
PREREQUISITES: CAPE PURE MATHEMATICS (UNITS 1 & 2) OR MATH 1125 OR EQUIVALENT.
COURSE DESCRIPTION: This course covers Maple software, which can be used to solve frequently encountered mathematics problems. Maple is a symbolic mathematical package with a wide range of applications. In this course, problem solving in algebra, calculus and differential equations will be covered. Maple's word processing features will be shown to students, who will be expected to produce scientific documents using the Maple word processor. An introduction to the Maple programming language is also included in this module.

Teaching will take place entirely in weekly interactive lab sessions where the emphasis will be on active learning. Assessment will be based on coursework examinations and several lab assignments
ASSESSMENT:

Coursework	100%

LEVEL: I
SEMESTER: 1 AND 2
COURSE CODE: MATH 1194
COURSE TITLE: MATHEMATICAL SOFTWARE III - A PRIMER ON MATLAB
NUMBER OF CREDITS: 1
PREREQUISITES: CAPE PURE MATHEMATICS (UNITS 1 &2) OR MATH 1125 OR EQUIVALENT.
COURSE DESCRIPTION: MATLAB, which stands for Matrix Laboratory, is a software package for high-performance numerical computation and visualization. It provides an interactive environment with hundreds of built-in functions for technical computation, graphics and animation, while providing easy extensibility with its own high-level programming language.
This course prepares the student to understand and properly apply MATLAB in analyzing and solving problems without a previous knowledge of either MATLAB or computer programming. It first introduces the student to the most useful and easily accessible features of MATLAB. Students will be guided through the MATLAB environment and shown basic functionalities of the package such as the use of MATLAB as a calculator. Online documentation and Help features will be delineated to the students, followed by interactive computation, including but not limited to matrices and vectors. The use of built-in functions and a thorough study on plots, graphics, and animations will be performed. The latter part of the course introduces the student to the programming language of MATLAB, particularly as it relates to the creation of user-designed functions.
Teaching will take place entirely in weekly interactive lab sessions where the emphasis will be on active learning. Assessment will be based on coursework examinations and several lab assignments
ASSESSMENT:

Coursework	100%

LEVEL II
SEMEESTER 1
COURSE CODE: MATH 1201
COURSE TITLE: APPLIED MATHEMATICS I
NUMBER OF CREDITS: 3
PREREQUISITES: CAPE PURE MATHEMATICS (UNITS 1 & 2) OR GCE A-LEVEL MATHEMATICS OR EQUIVALENT.
COURSE DESCRIPTION: This course will cover the basic concepts and techniques of vectors and some common topics in statics. It will provide undergraduate students with a good understanding of the fundamental laws and associated applications of vectors, as well the necessary tools used in solving elementary common problems in vectors and statics.
ASSESSMENT:

Coursework:	50%
Final Examination -one 2-hour written paper	50%

LEVEL II
SEMEESTER 2
COURSE CODE: MATH 1202
COURSE TITLE: APPLIED MATHEMATICS II
NUMBER OF CREDITS: 3
PREREQUISITES: CAPE PURE MATHEMATICS (UNITS 1 & 2) OR GCE A-LEVEL MATHEMATICS OR EQUIVALENT.
COURSE DESCRIPTION: This course will cover the basic concepts and techniques of Dynamics, mostly particle dynamics. It will provide students with a good understanding of the laws and associated applications of particles in motion, as well as supply the necessary tools used in solving elementary common problems in the field.
ASSESSMENT:

Coursework:	50%
Final Examination -one 2-hour written paper	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: MATH 2115
COURSE TITLE: LIFE CONTINGENCIES I
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2274 AND MATH 2211 COURSE
DESCRIPTION: This course is an introduction to life contingencies as applied in actuarial practice. Topics include present value random variables for contingent annuities and insurance, their distributions and actuarial present values, equivalence principle, and other principles for determining premiums and reserves.
ASSESSMENT:

Coursework	50%
Final Examination - one 2-hour written paper	50%

LEVEL: II
SEMESTER: 1
COURSE CODE: MATH 2170
COURSE TITLE: INTRODUCTION TO COMBINATORICS
NUMBER OF CREDITS: 4
PREREQUISITE: MATH 1140 OR MATH 1141 AND MATH 1152
COURSE DESCRIPTION: Permutations and Combinations. The Inclusion - Exclusion Principle. Linear equations with unit coefficients; Recurrence relations; Generating functions; Geometry of the plane; Colouring problems; Combinatorial probability. Partitions of integer; Random walks; Designs.
ASSESSMENT:

Coursework	25%
Final Examination - One 2-hour written paper	75%

LEVEL: II
SEMESTER: 2
COURSE CODE: MATH 2180
COURSE TITLE: INTRODUCTION TO OPTIMIZATION
NUMBER OF CREDITS: 4
PREREQUISITE: MATH 1140 OR MATH 1141 AND MATH 1152
COURSE DESCRIPTION: Graphs and Digraphs; Ranking; Shortest Path; Communication Networks; Convex sets; Linear programming; Simplex Method; Theory of games.
ASSESSMENT:

Coursework Examination	25%
Final Examination - One 2-hour written paper	75%

LEVEL: II
SEMESTER: 1
COURSE CODE: MATH 2211
COURSE TITLE: MATHEMATICS OF FINANCE I
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 1141, MATH 1142, MATH 1151, MATH 1152
COURSE DESCRIPTION: This course covers topics relevant in financial mathematics that include measurement of interest, accumulation and discount, forces of interest and discount, equations of value, annuities, perpetuities, amortization and sinking funds, yield rates, bonds and securities, depreciation, depletion, and capitalized costs.
ASSESSMENT:

Coursework	50%
Final Examination - one 2-hour written paper	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: MATH 2212
COURSE TITLE: MATHEMATICS OF FINANCE II
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2211
COURSE DESCRIPTION: This course covers topics relevant in financial mathematics that include mathematical techniques used to price and hedge derivative securities in modern finance. Assessment of the course will be continuous and students are encouraged to practice questions and read the prescribed reading texts to keep abreast. Assignments will employ the use of actuarial and statistical software to solve business oriented problems.
ASSESSMENT:

Coursework	50%
Final Examination - one 2-hour written paper	50%

LEVEL: II
SEMESTER: 1
COURSE CODE: MATH 2270
COURSE TITLE MULTIVARIABLE CALCULUS
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 1142 AND MATH 1151
COURSE DESCRIPTION: This is a one-semester, three-credit course at the intermediate level in multivariate calculus intended for students who have satisfactorily completed six credits in elementary differential and integral calculus. For this reason, MATH 1142 - Calculus I and MATH 1151 - Calculus II (or their equivalents) are listed as prerequisite courses.
In this course, vector notation is introduced and utilized for modelling and solving problems in multidimensional space. The first section of the course deals with the Calculus of functions of several real variables. The fundamental ideas of limits and continuity are introduced, followed by the technique of partial differentiation via the chain rule and its related applications. One key application covered is the use of the method of Lagrange multipliers for the determination of constrained extrema. This is followed by the calculus of vectors and their description of curves and surfaces in space. Differentiation of vectors is more fully developed, extending elementary notions of differentiation to those involving multiple variables. Integration is developed to encompass double integrals and triple integrals. Finally, line and surface and volume integrals are considered. The Green's Theorem in a plane, Stokes' Theorem and the Divergence Theorem are introduced and utilized for the calculation of line, surface and volume integrals.
This course includes proofs and discussions at a level of complexity suitable for those intending to specialize in mathematics, as well as many examples and applications of the theory for those more interested in being able to make use of the theory in their various fields of interest.
ASSESSMENT:

Coursework:	50%
Final Examination - one 2-hour written paper	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: MATH 2271
COURSE TITLE: ORDINARY DIFFERENTIAL EQUATIONS
NUMBER OF CREDITS: 3
PREREQUISITES: MATH1142, MATH1151 AND MATH 2273
COURSE DESCRIPTION: This is an introductory course that involves the solving of various ordinary differential equations of first and second order, as well as the solution of systems of differential equations. Methods of solution include separation of variables, various substitution techniques and use of integrating factors, undetermined coefficients, and variation of parameters. Laplace transforms, infinite series, and selected numerical methods are also incorporated. Uniqueness and existence theorems are covered.
A solid grounding in Calculus is necessary, as is knowledge of linear algebra for the theory of solution of systems of equations. For this reason, these are considered to be prerequisite courses. Prior knowledge of mathematical software (such as Maple and Matlab) will be an asset for the numerical work involved, but should not be considered to be a prerequisite.
Active learning will be achieved through assigned problem sheets allowing continuous feedback and guidance on problem solving techniques in tutorials and on myeLearning and through four major assignments.
ASSESSMENT:

Coursework	50%
Final Examination - one 2-hour written paper	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: MATH 2272
COURSE TITLE: ABSTRACT ALGEBRA I
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 1141 AND MATH 1152
COURSE DESCRIPTION: Students who take this course will require a basic grounding in set theory and logic. For this reason, Math 1152 is listed as a prerequisite.
This course introduces students to basic structures of abstract algebra, including groups, rings and fields. In the introduction, the focus is on binary operations and equivalence relations, which will be used throughout this course. Then groups are introduced, and students will learn that they come in many varieties. Subgroups and maps between groups are studied. In the second part of the course, rings are studied. Again, examples are studied, some familiar and some new. As usual, subrings, ideals and maps between rings are studied. After this, Euclidean rings are studied. Finally, a brief introduction to fields is given. Since cogent communication of mathematical ideas is important in the presentation of proofs, the course will emphasize clear, concise exposition. This course will therefore be useful for all students who wish to improve their skills in mathematical proof and exposition, or who intend to study more advanced topics in mathematics.
ASSESSMENT:

Coursework	50%
Final Examination - one 2-hour written paper	50%

LEVEL: II
SEMESTER: 1
COURSE CODE: MATH 2273
COURSE TITLE: LINEAR ALGEBRA I
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 1141
COURSE DESCRIPTION: Students who take this course will require a solid grounding in set theory and basic logic. For this reason, MATH 1140 is listed as a pre-requisite.
The course begins with a study of abstract linear algebra which involves vector spacers and linear transformations. Formulating such an approach leads to a study of linear equations and the technique of elementary row transformations used for solving them. The concepts of rank and equivalence are introduced. Determinants are discussed in terms of permutations. The important concepts of orthogonality, eigenvalues, eigenvectors are studied. A treatise on quadratic forms, diagonalisation of matrices and the Cayley – Hamilton theorem is included. The writing of detailed proofs is incorporated throughout.
ASSESSMENT:

Coursework:	50%
Final Examination - one 2-hour written paper	50%

LEVEL: II
SEMESTER: 1
COURSE CODE: MATH 2274
COURSE TITLE: PROBABILITY THEORY I
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 1142 AND MATH 1151
COURSE DESCRIPTION: This is an introductory course that approaches probability theory from two perspectives: Probability theory is a branch of mathematics. As such, we will focus on the fundamental assumptions of Probability Theory and how the main properties of Probability Measures proceed from these assumptions. Throughout the course, therefore, students will be expected to be able to derive the main results that they use. Very little will be assumed without proof.
Probability Theory is primarily concerned with modelling phenomena with uncertain outcomes. The course emphasizes this. It is most definitely not a course in Pure Mathematics.
A knowledge of calculus (including a good understanding of limits, continuity, differentiability) is assumed (hence the need for Math1150). An appreciation of the idea of proof is expected but Math1140 is not essential (though it is desirable).
The course begins with a discussion of the basic ideas of probability, including the axioms of probability, combinatorial probability, conditional probability and independence. The rest of the course focuses on distribution theory. The distribution theory of one discrete and one continuous random variable is discussed. Special attention is paid to well-known discrete and continuous distributions such as the Bernoulli, Binomial, Poisson, Exponential, Gamma and Normal. Then the distribution theory of several random variables is discussed. The idea of a statistic is introduced and the distribution theory of the mean and the sample variance is described. This leads finally to the idea of convergence in distribution and the Central Limit Theorem (without proof)
The approach taken is non-rigorous. In particular, there will be no mention of sigma algebras or of measure theory. Assessment is designed to encourage students to work continuously with the course materials. Active learning will be achieved through weekly assignments and problem sheets allowing continuous feedback and guidance on problem solving techniques in tutorials and lectures.
ASSESSMENT:

Coursework	50%
Final Examination - one 2-hour written paper	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: MATH 2275
COURSE TITLE: STATISTICS I
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2274
COURSE DESCRIPTION: The course is a survey of the major ideas of inference, experimental design and statistical methods. The course may be viewed as consisting of three closely connected parts. In the first section, students are introduced to the basics of the statistical packages Minitab and R and their use in descriptive statistics. Emphasis is placed on the use of real data and both summary statistical measures and graphical descriptive devices for continuous and discrete data are discussed.
In the second section, we discuss the frequentist theory of inference, including point estimation, confidence intervals and hypothesis testing. Section three is devoted to various statistical methods. The major ones are regression models and the use of ANOVA in designed experiments. Several of the important basic designs are discussed. We also discuss methods for the analysis of discrete data, such as in contingency tables, and non-parametric procedures.
A knowledge of Probability Theory I is assumed. This is needed since we derive the distributions of most statistics that are used and also discuss systematic mathematical methods for finding point estimators and constructing tests.
ASSESSMENT:

Coursework	50%
Final Examination - one 2-hour written paper	50%

LEVEL: II
SEMESTER: 1
COURSE CODE: MATH 2276
COURSE TITLE: DISCRETE MATHEMATICS
NUMBER OF CREDITS: 3
PREREQUISITES: MATH1141 AND MATH1152
COURSE DESCRIPTION: Students who take this course will require a solid foundation of most topics that are examined in the level 1 courses Math 1141 and Math 1152.
We begin with a study of methods of proofs and discrete mathematical structures. Some basic definitions in combinatorics and graph theory are given. In such a situation recurrence relations are formulated but linear type ones are solved. The solutions of various problems in enumeration are expressed in terms of recurrences.
We introduce different general network structures and the models that generate them. Some of the notations and terminology of graphs are used that would lead to established properties of networks, combinatorial designs and the efficiency of the Hungarian algorithm.
ASSESSMENT:

Coursework	50%
Final Examination - one 2-hour written paper	50%

LEVEL: II
SEMESTER: 2
COURSE CODE: MATH 2277
COURSE TITLE: INTRODUCTION TO REAL ANALYSIS I
NUMBER OF CREDITS: 3
PREREQUISITES: MATH1141, MATH1142, MATH1151 AND MATH1152 OR EQUIVALENT
COURSE DESCRIPTION: This is a classical course in analysis, providing a foundation for many other mathematical courses. Knowledge of Calculus, analytical geometry and basic set theory is required.
The course exposes students to rigorous mathematical definitions of limits of sequences of numbers and functions, classical results about continuity and series of numbers and their proofs. A major emphasis is placed on the proper use of definitions for the rigorous proof of theorems. The following topics will be covered: The real number system, topological properties of real numbers, sequences, continuity and differentiation.
ASSESSMENT:

Coursework	50%
Final Examination - one 2-hour written paper	50%

LEVEL: III
SEMESTER: 1
COURSE CODE: MATH 3250
COURSE TITLE: FLUID DYNAMICS I
NUMBER OF CREDITS: 4
PREREQUISITES: MATH 2120 AND MATH 2160
COURSE DESCRIPTION: Orthogonal Curvilinear Co-ordinates: Cartesian, Cylindrical and Spherical. Introduction to Tensors. Kinematics and Equations of motion for Inviscid fluids. Simple Inviscid Flows. Axisymmetric 3-D flows and Stokes stream function. Viscous flows: Navier-Stokes equations and some exact solutions.
ASSESSMENT:

Coursework	40%
Final Examination - one 2-hour written paper	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: MATH 3272
COURSE TITLE: ABSTRACT ALGEBRA II
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2272 AND MATH 2273
COURSE DESCRIPTION: Students who take this course will require knowledge of the basic concepts of Algebra. Thus, ABSTRACT ALGEBRA I and LINEAR ALGEBRA are both listed as pre-requisites.
The first part of the course continues the treatment of Groups started in ABSTRACT ALGEBRA I. Some important subgroups are defined, and the important concept of a group acting on a set is introduced. The power of group actions is demonstrated by using the technique to prove several key results about finite groups. The investigation of finite groups is concluded with the famous Sylow Theorems.
The construction of the (finite) direct product should be familiar to any mathematician, and so the course proceeds to do this. Abelian groups are discussed briefly; a statement of the Decomposition Theorem for finite groups is given. The section on Group Theory is concluded with a discussion of subgroup series – an important technique in determining the structure of a group. The Jordan-Holder Theorem is proved, and an important class of groups - the solvable groups are introduced.
The course then shifts focus to one of the most important examples of a Euclidean ring – the polynomial ring over a field. (Euclidean rings were introduced in ABSTRACT ALGEBRA I.) The fundamental results that transfer from Euclidean rings are restated in context, and the idea of irreducibility is introduced. The course then specialises to the rational field, and several key results concerning polynomials over the rationals are proved.
The course naturally progresses to investigate the existence of roots of polynomials over their base field. The extremely important construction of the algebraic extension containing the root of a polynomial is done in detail, with several interesting and motivating examples. The course continues to prove the existence of a splitting field, and concludes with a statement of the Fundamental Theorem of Algebra. Straightedge and compass constructions will be presented as an application if time permits.
Since cogent communication of mathematical ideas is important in the presentation of proofs, the course will emphasize clear, concise exposition. This course will therefore be useful for all students who wish to improve their skills in mathematical proof and exposition, or who intend to study more advanced topics in mathematics.
ASSESSMENT:

Coursework	50%
Final Examination - one 2-hour written paper	50%

LEVEL: III
SEMESTER: 2
COURSE CODE: MATH 3273
COURSE TITLE: LINEAR ALGEBRA II
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2272, MATH 3272 AND MATH 2273
COURSE DESCRIPTION: Students who take this course will require knowledge of the basic and some advanced concepts of Algebra. Thus, ABSTRACT ALGEBRA I & II and LINEAR ALGEBRA I are both listed as prerequisites.
The first part of the course continues the treatment of Vector Spaces and Linear Transformations started in LINEAR ALGEBRA I. The Rank-Nullity Theorem is stated and proved. Linear transformations are then viewed as elements of a larger algebraic structure, the algebra. In this formal context, the idea of polynomials of linear transformations is developed.
The theory of eigenvalues and eigenvectors is fundamental to Linear Algebra, and the course proceeds to study the same in detail. The connection between polynomials of matrices and their eigenvalues is explored and the celebrated Cayley-Hamilton Theorem is proved.
At this point, the students become aware that an algorithm for writing a matrix in a standard form, where the eigenvalues of the matrix may be easily obtained, is desirable. With this motivation, the existence and uniqueness of the Jordan Normal Form is proved. Techniques for computing the Jordan Normal Form are presented. The applications and limitations of the Jordan Normal Form are discussed.
The module is a natural generalisation of a vector space, and any student of advanced Linear Algebra should be familiar with the structure. The course therefore proceeds to define the module, giving motivating examples. The fundamental theorems are proved, drawing parallels with the algebraic structures which the students have already met. The existence and uniqueness of the Rational Canonical Form are stated here. Proofs may be sketched, but are not examinable.
The course then turns to vector spaces over the complex numbers, where the concept of an inner product is introduced. The properties of the inner product are discussed, and the fundamental definitions of unitary and Hermitian (in the context of linear transformations and matrices) are made. The base field is then further restricted to the reals, and the results developed are specialised to this case. An elegant proof of the Spectral Theorem for real symmetric matrices is given. The material developed here is applied to the study of quadratic forms.
The true power of Linear Algebra lies in its adaptability to computational tasks. As an illustration of this, the Singular Value Decomposition is introduced and its applications are discussed.
Traditionally, the tools of Linear Algebra have been heavily used in geometrical applications. As a demonstration of this, the material developed on quadratic forms is used to investigate the nature of quadric surfaces.
Since cogent communication of mathematical ideas is important in the presentation of proofs, the course will emphasize clear, concise exposition. This course will therefore be useful for all students who wish to improve their skills in mathematical proof and exposition, or who intend to study more advanced topics in mathematics.
ASSESSMENT:

Coursework	50%
Final Examination - one 2-hour written paper	50%

LEVEL: III
SEMESTER: 1
COURSE CODE: MATH 3274
COURSE TITLE: SET THEORY
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2272 AND MATH 2277
COURSE DESCRIPTION: Students who take this course will require knowledge of the basic concepts of Algebra. They will also be required to have a solid grounding in elementary set theory and basic logic. Thus, ABSTRACT ALGEBRA I is listed as a prerequisite.
The first part of the course involves axiomatic set theory, which includes philosophy of sets. The language of set theory is used to describe representations of relations and functions. A fundamental approach to concepts in set and the algebraic structures of groups, rings and fields is utilized to develop number systems. These systems include the natural numbers, integers, rationals, reals and complex numbers. The course proceeds onto a treatise on infinite sets and on the different cardinal numbers that lead to transfinite arithmetic. Axiom of Choice and its equivalent representations are then introduced, as well as point-set topology.
Since cogent communication of mathematical ideas is important in the presentation of proofs, the course will emphasize clear, concise exposition. This course will therefore be useful for all students who wish to improve their skills in mathematical proof and exposition, or who intend to study more advanced topics in mathematics**.**
ASSESSMENT:

Coursework	50%
Final Examination - one 2-hour written paper	50%

LEVEL: III
SEMESTER: 1
COURSE CODE: MATH 3275
COURSE TITLE: INTRODUCTION TO COMPLEX ANALYSIS
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2277
COURSE DESCRIPTION: This course provides an introduction to the theory and application of complex variables and complex functions. The properties of elementary complex functions are outlined, and the concept of analyticity is developed in its entirety. The most fundamental theorems are stated, proved and utilized throughout. Particular emphasis is placed on the development of integral calculus in the complex plane. Practice problems will be incorporated throughout to provide concrete examples of how to apply the theory. A sound knowledge of introductory Real Analysis is required. For this reason, Analysis I is listed as a course prerequisite.
ASSESSMENT:

Coursework	50%
Final Examination - one 2-hour written paper	50%

LEVEL: III
SEMESTER: 2
COURSE CODE: MATH 3277
COURSE TITLE: INTRODUCTION TO REAL ANALYSIS II
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2277 OR EQUIVALENT
COURSE DESCRIPTION: This is the follow-up course for MATH 2277 Introduction to Real Analysis I. The course exposes students to rigorous mathematical definitions, proofs and classical results on differentiation, Riemann integration, sequences and series of functions. Major emphasis is placed on the proper use of definitions for the rigorous proof of theorems. The following topics will be covered: Differentiation, Riemann integration, sequences and series of functions and metric spaces.
Assessment is designed to encourage students to work continuously with the course materials. Active learning will be achieved through weekly problem sheets, allowing continuous feedback and guidance on problem solving techniques in tutorials and lectures, and periodic marked assignments
ASSESSMENT:

Coursework	50%
Final Examination - one 2-hour written paper	50%

LEVEL: II
SEMESTER: 1
COURSE CODE: MATH 3278
COURSE TITLE: PROBABILITY THEORY II
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2270 AND MATH 2274
COURSE DESCRIPTION: The course begins with a discussion of the axioms of probability. We point out that not all subsets of an arbitrary sample can be events and introduce the idea of a sigma field. There is a careful discussion of distribution functions in general (including continuous, absolutely continuous and discrete cases). The rest of the section on distribution theory focuses on the distribution theory of several random variables. Joint density functions, transformations, joint mgfs, order statistics, convolution are discussed. We then define conditional expectation and give its main properties. The section on distribution theory closes with a discussion of multivariate distributions, including the multinomial and multivariate normal. We prove that the sample mean and sample variance in a sample from the normal distribution are independent and obtain the distribution of the sample variance.

The second half of the course focuses on stochastic processes. Markov Chains in discrete time and with discrete state space are discussed. Details are as follows: Definition of a stochastic process and a Markov Chain; Chapman-Kolmogorov Equations; Classification of states; Ergodic theorem; The Poisson process; Generating functions with Applications to Branching Processes.
ASSESSMENT:

Coursework	50%
Final Examination - One 2-hour written paper	50%

LEVEL: III
SEMESTER: 1
COURSE CODE: MATH 3400
COURSE TITLE: GRAPH THEORY
NUMBER OF CREDITS: 4
PREREQUISITE: MATH 2100
COURSE DESCRIPTION: Graphs: Trees, Spanning trees Algorithms for spanning trees, and for tree-coding Planarity, Colouring Network Algorithms: Matchings, Graph polynomials Applications in Operations Research.
ASSESSMENT:

Coursework	15%
Final Examination - One 2-hour written paper	85%

LEVEL: III
SEMESTERS: 2
COURSE CODE: MATH 3465
COURSE TITLE: STATISTICAL INFERENCE
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2275 AND MATH 2270
COURSE DESCRIPTION: This is a second course in Statistical Theory. The course may be thought of as a direct continuation of the introductory second year course Statistics I. This course is necessary to expose students to both classical and Bayesian inference which they would not have encountered in Statistics I. While Statistics I gives a relatively broad non-theoretical approach to statistics, this course completes the undergraduate statistical theory so that students can understand the underlying concepts in a more concise mathematical setting.
The course consists of three fairly distinct modules– frequentist inference, Bayesian inference and non-parametric methods. We continue the discussion of classical inference begun in Math 2275 Likelihood techniques are applied to a wide range of models. There is a fairly detailed discussion of unbiasedness and sufficiency. UMP and likelihood ratio tests are discussed. For Bayesian Inference, we introduce the ideas of subjective probability, prior and posterior distributions and the basics of Bayesian estimation and testing. In the short section on non-parametric methods we introduce the empirical distribution function and tests based on it. There is a brief introduction to inference on censored data and an introduction to the bootstrap.
ASSESSMENT:

Coursework	50%
Final Examination (One 2-hr paper)	50%

MANAGEMENT: MGMT

LEVEL: II
SEMESTER: 2
COURSE CODE: MGMT 2006
COURSE TITLE: MANAGEMENT INFORMATION SYSTEMS I
NUMBER OF CREDITS: 3
PREREQUISITES: NONE
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: This course provides an overview of Management Information Systems. It describes the components of Management Information Systems and the relationship of MIS to the larger area of Organisation and Management. Information Systems Technology is covered.
ASSESSMENT:

Coursework	25%
Final Examination	75%

LEVEL: II
SEMESTER:
COURSE CODE: MGMT 2007
COURSE TITLE: INTRODUCTION TO E-COMMERCE
NUMBER OF CREDITS: 3
PREREQUISITES/CO-REQUISITE: MKTG 2080 AND MGMT 2006
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: This course aims to prepare students with the requisite fundamentals to enable them to provide the business perspective/inputs to the e-commerce adoption process. Emphasis will be on the underlying commercial principles of e-commerce rather than on the technological processes. Topics to be covered include: internet demographics; internet business models; customer support strategies; security issues in e-commerce; legal issues in e-commerce; logistical challenges for Caribbean e-commerce.
ASSESSMENT:

Coursework	40%
Final Examination	60%

LEVEL:II
SEMESTERS: 2
COURSE CODE: MGMT 2008
COURSE TITLE: ORGANISATIONAL BEHAVIOUR
NUMBER OF CREDITS: 3
PREREQUISITES FOR CHEMISTRY AND MANAGEMENT STUDENTS: SOCI 1002 OR MGMT 1001 OR AGEX 1000
FOR COMPUTER SCIENCE AND MANAGEMENT STUDENTS: SOCI 1002 OR MGMT 1001 OR AGEX 1000 OR COMP 1100
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: This course uses the systems approach to organisations to highlight how interrelated variables such as people, technology, task, structure and external environments impact on organisational effectiveness. Emphasis is on the nature of behavioural issues and how and why they impact on the functioning of organisations.
ASSESSMENT:

Coursework	40%
Final Examination	60%

LEVEL:
SEMESTER: 1
COURSE CODE: MGMT 2012
COURSE TITLE: QUANTITATIVE METHODS
NUMBER OF CREDITS: 3
PREREQUISITES: FOR CHEMISTRY AND MANAGEMENT STUDENTS: ECON 1001 AND CHEM1060
FOR COMPUTER SCIENCE & MANAGEMENT STUDENTS: ECON1002 AND MATH1140
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: This course is an introductory level survey of quantitative techniques commonly used to provide insight into business decisions. The primary emphasis is on preparing the student to become an intelligent user of these techniques.
ASSESSMENT:
Coursework 25%
Final Examination 75%

LEVEL: II
SEMESTERS: 2
COURSE CODE: MGMT 2021
COURSE TITLE: BUSINESS LAW I
NUMBER OF CREDITS: 3
PREREQUISITES: NONE
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: The main focus of this course is the general principles of the law of contract, the law of Agency as well as other related areas of interest like the Sale of Goods Act and the Hire Purchase Act 1938 and 1954. Background material covers the role and function of the law in society, the sources of the law, the legal system etc.
ASSESSMENT:
Coursework 25%
Final Examination 75%

LEVEL: II
SEMESTERS: 2
COURSE CODE: MGMT 2023
COURSE TITLE: FINANCIAL MANAGEMENT I
NUMBER OF CREDITS: 3
PREREQUISITES:
FOR CHEMISTRY AND MANAGEMENT STUDENTS: ACCT 1002 AND ECON 1003 OR CHEM1060
FOR COMPUTER SCIENCE & MANAGEMENT STUDENTS: ACCT 1002 AND MATH 1140
FOR BSC ACTUARIAL STUDENTS: ECON 1002 AND ACCT 1002
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: This course is concerned with the core concepts of financial decision-making; the time-value of money, the cost of capital and trade-offs between risk and return. Students should develop a thorough understanding of these basic concepts and how to apply them in real-world examples
ASSESSMENT:
Coursework 40%
Final Examination 60%

LEVEL: III
SEMESTER: 1
COURSE CODE: MGMT 2026 (MGMT 3057)
COURSE TITLE: PRODUCTION AND OPERATIONS
NUMBER OF CREDITS: 3
PREREQUISITES: MGMT 2012
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: This course is intended to present students with an up-to-date view of primary activities of the production/operations functions in organisations. The production/operations function is an area of management that has a profound effect on efficiency, productivity and the quality of our daily lives. Focusing on Caribbean economies, the course will examine the resources that are required in the production of goods and services and illustrate the method of their acquisition utilisation, and upkeep. The topics to be covered will be shown to apply not only to the manufacturing sector but to the service sectors as well such as banks, hospitals, etc.
ASSESSMENT:
Coursework 30%
Final Examination 70%

LEVEL: II
SEMESTER: 2
COURSE CODE: MGMT 2032
COURSE TITLE: MANAGERIAL ECONOMICS
NUMBER OF CREDITS: 3
PREREQUISITES:
FOR CHEMISTRY AND MANAGEMENT STUDENTS: ECON 1001 AND CHEM 1060
FOR COMPUTER SCIENCE & MANAGEMENT STUDENTS: ECON1002 AND MATH1140
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: This course is concerned with the application of economic principles and methodologies to the decision-making process of the business firm operating under conditions of risk and uncertainty. Emphasis is also placed on the firm's competitive strategy.
ASSESSMENT:

Coursework	25%
Final Examination	75%

LEVEL: III
SEMESTER:
COURSE CODE: MGMT 3011
COURSE TITLE: MANAGEMENT INFORMATION SYSTEMS II (ANALYSIS AND DESIGN)
NUMBER OF CREDITS: 3
PREREQUISITES: MGMT 2006
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: This course addresses the need for managers to understand the requirements for Information Systems, to participate in the design of systems and to manage the procurement of systems**.**

LEVEL: III
SEMESTER: 1
COURSE CODE: MGMT 3017
COURSE TITLE: HUMAN RESOURCE MANAGEMENT
NUMBER OF CREDITS: 3
PREREQUISITES: MGMT 2008
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: This course provides participants with a broad overview of issues pertaining to human resource management with special reference to the Caribbean environment.

LEVEL: III
SEMESTER: 2
COURSE CODE: MGMT 3060
COURSE TITLE: OPERATIONS, PLANNING AND CONTROL
NUMBER OF CREDITS: 3
PREREQUISITE: MGMT 2026
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: Building on the earlier course in Production and Operations Management, this course is intended to illustrate the array of planning and control techniques available to management to ensure the maximum productivity, quality, efficiency and profitability of the various operation systems involved in the production of goods and services.
ASSESSMENT:

Coursework	25%
Final Examination	75%

MARKETING: MKTG

LEVEL: II
SEMESTERS: 2
COURSE CODE: MKTG 2001
COURSE TITLE: PRINCIPLES OF MARKETING
NUMBER OF CREDITS: 3
PREREQUISITES: ECON 1001 AND ACCT 1002
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: This course is intended to provide students with the conceptual framework and analytical skills necessary for the analysis of markets and marketing activities of firms in a dynamic environment.
ASSESSMENT:

Coursework	40%
Final Examination	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: MKTG 3000
COURSE TITLE: MARKETING MANAGEMENT
NUMBER OF CREDITS: 3
PREREQUISITES: MGMT 2003
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: This course is concerned with the development of the student's marketing decision-making and students are expected to undertake a marketing project based on fieldwork.
ASSESSMENT:

Coursework	30%
Final Examination	70%

LEVEL: III
SEMESTER: 2
COURSE CODE: MKTG 3007
COURSE TITLE: MARKETING PLANNING
NUMBER OF CREDITS: 3
PREREQUISITES: MGMT 2003, MGMT 2012 AND MGMT 2023
DEPARTMENT RESPONSIBLE: MANAGEMENT STUDIES
COURSE DESCRIPTION: This intention is to equip students with the tools necessary for effective marketing planning in the public and private sectors. Analytical methods and data sources necessary in defining competition, analysing an industry and customers, and forecasting market potential is covered in depth. Students are expected to develop an actual marketing plan as a coursework project.
ASSESSMENT:

Coursework	30%
Final Examination	70%

PHYSICS: PHYS

LEVEL: 0 (PRELIMINARY)
SEMESTER: 1
COURSE CODE: PHYS 0070
COURSE TITLE: PRELIMINARY PHYSICS I
NUMBER OF CREDITS: 0
PREREQUISITES: CSEC PHYSICS OR EQUIVALENT.
COURSE DESCRIPTION: This course focuses on the fundamentals of Mechanics, Heat and Waves.
Students will study the kinematic and dynamic motion of particles in one and two dimensions, the fundamental forces and equations describing the motion of satellites in orbit around the earth, the conditions leading to equilibrium in mechanical systems and fluids, and the conservation of energy and its conversion with special reference to renewable energy sources (solar, wind, geothermal and wave). The course also allows you to describe the simple oscillating motion of a pendulum and the characteristics of simple wave motion. Students will be able to construct simple thermometers using properties of thermal equilibrium and thermal expansion, describe the variation of state properties of ideal gases using the ideal gas equation and use the kinetic nature of gas molecules to determine the state of the gas. You will learn how to calculate how much energy is conducted and radiated which depends on the nature of the material, how much work a gas does when expanding, whether thermal energy supplied or removed would be able to cause a phase change in a substance, and whether thermal energy is conserved. In this course, students will also have the opportunity to perform and interpret the results of simple experiments and demonstrations of physics.
ASSESSMENT:

Theory Coursework	20%
Practical Coursework	30%
One 3-hour Final Examination	50%

LEVEL: 0 (PRELIMINARY)
SEMESTER: 2
COURSE CODE: PHYS 0071
COURSE TITLE: PRELIMINARY PHYSICS II
NUMBER OF CREDITS: 0
PREREQUISITES: CSEC PHYSICS OR EQUIVALENT.
COURSE DESCRIPTION: This course focuses on the fundamentals of Electricity & Magnetism, Optics and Modern Physics. Students will be able to describe electric fields, apply Ohm's law and Kirchoff's law in designing electric circuits, and determine the size of a capacitor in a circuit to store electric energy and to discharge this energy across a resistor. Other designs you will encounter will be determining the speed of a charge moving in a magnetic field so that it does not undergo angular deviations, and the force between current-carrying conductors. Applications that you will meet in electromagnetic induction will include motors, generators and transformers. Under the optics component you will be able to appreciate the wave-particle nature of matter and energy and the concepts of reflection, total internal reflection and refraction. In addition, students will compute the optical characteristics of concave and convex mirrors and thin lenses for different optical applications for image formation which may include image formation for the eye, simple camera, telescope and spectrometer. Modern Physics will take you through a journey from the structure of the stable nucleus and "binding energy" to nuclear instability, radioactive decay and "mass defect" with applications in radioactive shielding, archaeology, and medicine. In this course, students will also have the opportunity to perform and interpret the results of simple experiments and demonstrations of physics.
ASSESSMENT:

Theory Coursework	20%
Practical Coursework	30%
One 3-hour Final Examination	50%

LEVEL: I
SEMESTER: 1
COURSE CODE: PHYS 1001
COURSE TITLE: INTRODUCTION TO ASTRONOMY
NUMBER OF CREDITS : 3
PREREQUISITES: NONE
COURSE DESCRIPTION: This course develops the ideas of Ancient Astronomy leading up to the contributions of Copernicus, Brahe, Galileo and Newton. Optics and instrumentation. The solar system, stars: composition and evolution, white dwarfs, neutron stars, black holes. Extragalactic Astronomy: Galaxies, dark matter, dark energy, Cosmology. Life in the Universe.
ASSESSMENT:

Coursework	40%
One 2- hour Final Examination	60%

LEVEL: I
SEMESTER: 1
COURSE CODE: PHYS 1221
COURSE TITLE: INTRODUCTION TO MECHANICS
NO. OF CREDITS: 3
PREREQUISITES: CAPE PHYSICS (UNITS I AND II) OR CAPE MATHEMATICS (UNITS I AND II) AND CSEC (CXC) PHYSICS OR PHYS 0070 AND PHYS 0071 OR THEIR EQUIVALENT
COURSE DESCRIPTION: This course introduces the students to topics in Mechanics. The topics covered address Newtonian Mechanics including: kinematics, laws of motion, work and energy, systems of particles, momentum, circular motion, oscillations, and gravitation and concludes with topics in fluid mechanics. Through in-class discussions, problem-solving sessions and practical sessions, the student will have the opportunity to improve his/her ability to reason through challenging situations in the physical world using basic principles to develop appropriate solutions. **ASSESSMENT:**

Final Examination (one 2-hr paper):	50%
Coursework:	50%

LEVEL: I
SEMESTER: 1
COURSE CODE: PHYS 1222
COURSE TITLE: INTRODUCTION TO OPTICS, OSCILLATIONS AND WAVES
NO. OF CREDITS: 3
PREREQUISITES: CAPE PHYSICS (UNITS I AND II) OR CAPE MATHEMATICS (UNITS I AND II) AND CSEC (CXC) PHYSICS OR PHYS 0070 AND PHYS 0071 OR THEIR EQUIVALENT
COURSE DESCRIPTION: The theoretical aspect of this course provides students with the fundamentals of Optics, Oscillations and Waves whereas the practical component allows all the Year I students to be exposed to a variety of techniques, concepts and skills in the experimental sciences. Through in-class discussion, problem solving sessions and practical exercises students will have the opportunity to improve their ability to reason through challenging situations in the physical world using basic principles to develop appropriate solutions.
ASSESSMENT:

Final Examination (one 2-hr paper):	50%
Coursework:	50%

LEVEL: I
SEMESTER: 2
COURSE CODE: PHYS 1223
COURSE TITLE: INTRODUCTION TO ELECTRICITY AND MAGNETISM
NO. OF CREDITS: 3
PREREQUISITES: CAPE PHYSICS (UNITS I AND II) OR CAPE MATHEMATICS (UNITS I AND II) AND CSEC (CXC) PHYSICS OR PHYS 0070 AND PHYS 0071 OR THEIR EQUIVALENT
COURSE DESCRIPTION: This course introduces the student to topics in Electricity, Magnetism and AC Theory. Through in-class discussion, problem-solving sessions and practical sessions, the student will have the opportunity to improve his/her ability to reason through challenging situations in the physical world using basic principles to develop appropriate solutions.
ASSESSMENT:

Final Examination (one 2-hr paper):	50%
Coursework:	50%

LEVEL: I
SEMESTER: 2
COURSE CODE: PHYS 1224
COURSE TITLE: INTRODUCTION TO THERMODYNAMICS & MODERN PHYSICS
NO. OF CREDITS: 3
PREREQUISITES: CAPE PHYSICS (UNITS I AND II) OR CAPE MATHEMATICS (UNITS I AND II) AND CSEC (CXC) PHYSICS OR PHYS 0070 AND PHYS 0071 OR THEIR EQUIVALENT
COURSE DESCRIPTION: This course introduces the student to topics in the fundamentals of Thermodynamics and Modern Physics. Through in-class discussion, problem solving sessions and practical exercises students will have the opportunity to improve their ability to reason through challenging situations in the physical world using basic principles to develop appropriate solutions.
ASSESSMENT:

Final Examination (one 2-hr paper):	50%
Coursework:	50%

LEVEL: II
SEMESTER: 1
COURSE CODE: PHYS 2150
COURSE TITLE: MATHEMATICS FOR PHYSICISTS
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111, OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: Cartesian and Curvilinear Coordinate Systems; Vector Analysis; Complex Variable Theory; Fourier Series Analysis; Differential Equations (up to second order); and Applications of these methods in Physics.
ASSESSMENT:

Coursework	40%
Final Examination (one 2-hour paper)	60%

LEVEL: II
SEMESTER: 2
COURSE CODE: PHYS 2151
COURSE TITLE: CLASSICAL AND STATISTICAL MECHANICS
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111, OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: This course provides a formal introduction to classical mechanics and statistical mechanics. Topics covered are under Classical Mechanics include Newtonian Mechanics for a system of particles, Lagrangian dynamics and Hamiltonian dynamics. Topics under Statistical Mechanics include microcanonical, canonical, and grand canonical ensemble probabilistic tools, with applications to thermodynamic systems involving ideal gases, solids, and quantum gases.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hr paper)	60%

LEVEL: II
SEMESTER: 1
COURSE CODE: PHYS 2152
COURSE TITLE: VIBRATIONS, WAVES AND OPTICS
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111, OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: Optics: Review of thin lens imaging; reflection and refraction at a spherical surface; Lensmaker formula; Vergence and refracting power; Newtonian equation for a thin lens; Matrix methods; Aberration Theory.
Oscillations and Waves: Simple, damped and forced harmonic motion; Equations of motion and their solutions; Different aspects and applications of these motions; Equation of wave motion in one dimension; Longitudinal and transverse waves and the consideration of different examples of the propagation of these waves.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hr paper)	60%

LEVEL: II
SEMESTER: 2
COURSE CODE: PHYS 2153
COURSE TITLE: ASTROPHYSICS
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213,PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224 COURSE DESCRIPTION:
Special Relativity (10 lectures)**:** Introduction to theory of Special Relativity: Galiliean transformation, Postulates of Special Relativity, Lorentz transformation equations. The Foundations of Special Relativity.Relativistic kinematics and Relativistic Particle Mechanics.Space-time intervals and Minkowski diagrams.
Astronomy (15 lectures): Observational Instruments, Celestial Sphere and coordinate systems, Solar System, Astrobiology, Stars and their evolution, Galaxies, Extragalactic Astronomy, Cosmology and New Frontiers.
ASSESSMENT:

Coursework	40%
Final Examination (one 2 hour paper)	60%

LEVEL: II
SEMESTER: YEAR-LONG
COURSE CODE: PHYS 2155
COURSE TITLE: MAJOR LABORATORY LEVEL II
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111, OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: Laboratory experiments and numerical modelling using MAPLE and/or MATLAB are to be performed corresponding to the theory courses of the Major. The students will be expected to perform the exercises and collect their data and depending on the complexity of the exercise will submit the written report at the end of the exercise or submit it the following week for assessment.
ASSESSMENT:
Coursework: 100%
Students will be required to submit a lab report for each of the experiments they will perform. Each lab report will be marked and this will constitute the coursework.

LEVEL: II
SEMESTER: 1
COURSE CODE: PHYS 2156
COURSE TITLE: METEOROLOGY AND CLIMATOLOGY
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: Meteorology: Structure and composition of the atmosphere. Meteorological elements and measurements. Physical processes in the atmosphere. Atmosphere motion and circulation, Geostrophic wind, gradient wind, cyclones, thermal wind, frictional effects, vorticity. The general circulation, frontal systems, circulation and disturbances of the tropics. Climatology and pollution: Climate controls, classification, regional climates, climates of the Caribbean. Land use, water resources, pollution.Aerosols.El Nino-Southern Oscillation.ITCZ.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hour paper)	60%

LEVEL: II
SEMESTER: 2
COURSE CODE: PHYS 2157
COURSE TITLE: SOLID EARTH GEOPHYSICS
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: Physics of the Earth: The shape of the Earth: The Geoid and reference Spheroid, Gravity of the Earth, Measurement of gravity, Corrections to gravity measurements (gravity reductions); Latitude; Elevation; Topographs of surrounding terrain; Earth tides, and Density variations in the subsurface. Testing Isostasy by gravity measurements.Geoid height anomalies.

Gravity Prospecting; Earth's internal structure and origin; Heat Flow: Continental and Oceanic. Geophysical Prospecting:Propagation of seismic waves, The principles of seismic refraction and reflection. Electrical properties of rocks and minerals,Electrical prospecting methods: self-potential, dc resistivity, Wenner and Schlumberger arrangements. Earth's Magnetic Field and Magnetic Prospecting.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hour paper)	60%

LEVEL: II
SEMESTER: 1
COURSE CODE: PHYS 2165
COURSE TITLE: MATERIALS SCIENCE I
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: The scope of materials science, importance of studying materials, interdisciplinary nature of materials science, principal aim to relate properties to structure, brief historical survey, the basic classification of materials – metals, polymer, ceramics, alloys, composites with brief description of structure, properties and applications.

The Structure of Solids:Structure of atom, molecules, bonding, relationship between bonding and properties, thermal vibration and structure sensitivity, crystal structure, lattice parameters, crystal geometries, defects in materials, point defects, line defects, area defects, defects in polymers, strengthening mechanisms, alloys. Amorphous structure, microstructure, alloys and composites.

Phase Diagrams:Introduction, solubility limit, phases, microstructure, phase equilibria, unary and binary phases, interpretation of phase diagrams, lever rule, eutectic and eutectoid alloys (binary systems), Iron-Iron carbide phase diagram, influence of alloying elements.

Polymers:Introduction, various polymer materials, molecular weight distribution, synthesis, properties, crystalline polymer, amorphous polymers, applications, models for various polymers.

Properties of Materials:Electrical properties, thermal properties, magnetic properties, optical properties, mechanical properties.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hr paper)	60%

LEVEL: II
SEMESTER: 2
COURSE CODE: PHYS 2166
COURSE TITLE: TECHNOLOGICAL MATERIALS
NO. OF CREDITS: 3
PREREQUISITES: PHYS 2165 OR PHYS 2294
COURSE DESCRIPTION: Earth Materials: Raw Materials, metals and their ores, importance of these materials, basic building blocks of earth materials, mineral chemistry, metal chemistry, glasses, ion conducting glasses, crystal structures, effect of temperature, pressure and environment on these minerals and metals

Material Extraction Processes: Importance of extraction, principles of extraction, crushing of ores, separation of ores: gravity separation, magnetic separation, froth floatation process, leeching, calcination, roasting, reduction of free metal: smelting, reduction of aluminium, self-reduction process, electrolytic reduction, cyanide method, refining/purification; liquation, distillation, poling, zone refining, Mond's process, Van Arkel process.

Characterization: Structure of metals and minerals, methods to determine structure, metallography, X-ray diffraction, scanning electron microscopy, transmission electron microscopy, phase diagrams, electrical properties and their variations with phases, physical property determination.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hr paper)	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: PHYS 3150
COURSE TITLE: ELECTROMAGNETISM
NO. OF CREDITS: 3
PREREQUISITES: PHYS 2150 OR PHYS 2280
COURSE DESCRIPTION:

Electromagnetic Theory

The electric field: Coulomb's law. Discrete and continuous charge distributions. Divergence and curl of electrostatic fields; The electric potential: The potential of a localized charge distribution. Work and energy in electrostatics; Electric fields in matter: Polarization. The electric displacement and linear dielectrics; The magnetic field: The magnetic field, magnetic forces and currents. The Biot-Savart law. The magnetic field of a steady current. The divergence and curl of magnetic fields; Magnetic fields in matter: Magnetization. Response of materials to magnetic fields. The magnetic field inside matter. Ampere's law in magnetized materials; Electrodynamics: Electromotive force and electromagnetic induction. Maxwell's equations and the displacement current in vacuum and in matter; Electromagnetic waves: The wave equation for E and B. Electromagnetic waves in a vacuum. Electromagnetic waves in conductors and dielectrics.

Applications of Electromagnetism:

Waveguides: The rectangular waveguide. Transverse electric modes (TE) and transverse magnetic modes (TM). Propagation characteristics of rectangular waveguides; Antennas: Introduction to types of antennas. Antenna parameters in terms of the time-averaged Poynting vector.

ASSESSMENT:

Coursework	40%
Final Examination (one 2-hr paper)	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: PHYS 3151
COURSE TITLE: QUANTUM MECHANICS
NO. OF CREDITS: 3
PREREQUISITES: PHYS 2150 OR PHYS 2280
COURSE DESCRIPTION:

- The origins of quantum physics: Review of Blackbody radiation, the Photoelectric effect and the Compton Effect. Wave properties of material particles and electron diffraction. The Bohr atom.
- The Schrödinger equation: Wave-particle duality: radiation as particles and electrons as waves. Development of a wave equation for a free particle and for a particle moving in a potential. The time-dependent and time-independent Schrödinger equations. The wave function and Born's probability interpretation of the wave function. Heisenberg's Uncertainty Principle. The momentum and energy operators.
- One-dimensional problems: The free particle. Solutions to the Schrödinger equation for the infinite potential well. Stationary states of the infinite well. The potential barrier and quantum tunnelling. The harmonic oscillator. Applications.
- Three-dimensional problems: Wave functions of the infinite cubical well. Degeneracy of the energy levels. Wave functions of the hydrogen atom and degeneracy of the spectrum.
- Eigenfunctions, eigenvalues and operators: The eigenfunctions, eigenvalues and Hamiltonian operator of the Schrödinger equation. Normalization and completeness of the eigenfunctions. . Eigenvalues and measurement. The superposition principle and generalized time-dependent wave functions. Properties of wave functions.Expectation values of position and momentum.
- Orbital and spin angular momentum: Representation of orbital angular momentum in quantum mechanics. Eigenfunctions of $L^2$and L_z. Orbital magnetic moment in terms of orbital angular momentum.The Stern-Gerlack experiment and the spin hypothesis. Theory of spin 1/2 and the Pauli matrices. Spin magnetic moment of the electron in terms of spin angular momentum. Applications.

ASSESSMENT:

Coursework	40%
Final Examination (one 2-hr paper)	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: PHYS 3152
COURSE TITLE: ADVANCED THERMODYNAMICS AND SOLID STATE PHYSICS
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION:
Thermodynamics: Heat, Work, First and Second Laws of Thermodynamics – Applications: engines, refrigerators, Entropy, Maxwell's relations, Joule-Thomson effect, Thermodynamic potentials, Magneto-thermal relations, Thermodynamic applications.
Solid State Physics: Structure of solids, elementary crystallography and crystal diffraction, free electron theory of metals, energy band theory, semiconductors, superconductivity.
ASSESSMENT:

Coursework	40%
Final Examination (one 2-hr paper)	60%

LEVEL: III
SEMESTER: 1 AND 2
COURSE CODE: PHYS 3153
COURSE TITLE: PHYSICS MAJOR RESEARCH PROJECT
NO. OF CREDITS: 3
PREREQUISITES: AVAILABLE ONLY TO PHYSICS MAJORS
COURSE DESCRIPTION: Students will be required to complete a 12 weeks research project for completion of their Major in Physics. Projects will be offered in the various disciplines of Physics and each Project will be assigned a Project Supervisor. Projects may involve pure research study toward a fundamental aspect of Physics or address more applied issues. It may involve field or laboratory based work or may be a desk study involving data analysis or interrogation of legal documents. The project should, however, give the student a chance to further develop skills from the toolbox and a more detailed understanding of some component of the course. This course is offered in both Semester I & II
ASSESSMENT:

Oral	20%
Report	80%

1. Only students who need **not more than 30 credits to graduate** will be assigned a project.

LEVEL: III
SEMESTER: YEAR-LONG
COURSE CODE: PHYS 3155
COURSE TITLE: PHYSICS MAJOR LABORATORY NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111, OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216, OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION:
Laboratory experiments are to be performed corresponding to the theory courses of the major. The students will be expected to perform the exercises and collect their data and depending on the complexity of the exercise will submit a written report at the end of the exercise or the following week for assessment.
ASSESSMENT:
Coursework: 100%
Students will be required to submit a lab report for each of the experiments they will perform. Each lab report will be marked and this will constitute the coursework.

LEVEL: III
SEMESTER: 1
COURSE CODE: PHYS 3156
COURSETITLE: PRINCIPLES OF PHYSICAL OCEANOGRAPHY AND GEOHYDROLOGY
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: Introduction to Physical Oceanography: Instruments and Measurements, Remote Sensing, Characteristics of sea water, Principles of fluid dynamics, Application to ocean circulation, Surface and deep water currents, Waves and wave generation, Tides, Coastal oceanography, Uses and problems of the oceans. Introduction to Geohydrology: Water bearing formations, Groundwater flow, Darcy's law, Equation of continuity, Laplace equation, Well hydraulics, Aquifer, Characteristics, Storage and transmissivity, Saline intrusion in coastal aquifers.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hour paper)	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: PHYS 3157
COURSE TITLE: EARTH SCIENCE
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 and PHYS 1111 or all credits from PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 and PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: Earth processes and Caribbean Stratigraphy: Properties of minerals and crystals; composition, occurrence, distribution, classification and field recognition of igneous, sedimentary and metamorphic rocks; tectonic and structural features of the earth; volcanic activity; formation of soils and sediments; stratigraphy and geologic time; plate tectonics. The Caribbean environment in relation to: man, water supply, soils, petroleum, engineering geology and minerals.
Introduction to Earth Materials: the origin, occurrence, world distribution and development of major earth resources- metalliferrous and non-metal ores, petroleum, coal building materials, chemical raw materials, biomass resources.
Earth seismology: the nature of earthquakes; the propagation and detection of seismic wave; geographical distribution of earthquakes; surface effects of earthquakes, earthquake history of the Caribbean.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hour paper)	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: PHYS 3158
COURSE TITLE: FUNDAMENTALS OF RENEWABLE ENERGY
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: Introduction to current sources of Energy and World's Oil production; Renewable Energy requirements, types and effects; Renewable Energy Technologies; Conservation, conversion and efficiency; applications and evaluation of renewable energy systems - solar energy, biomass, wind energy, geothermal energy and hydropower.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hour paper)	60%

LEVEL: III
SEMESTER: YEAR-LONG
COURSE CODE: PHYS 3159
COURSE TITLE: ENVIRONMENTAL PHYSICS LABORATORY
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215, AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: Laboratory experiments and field trips with site work are to be performed corresponding to the taught components of the Environmental Physics Minor. Students will be expected to perform the exercises and collect their data and depending on the complexity of the exercise will submit the written report at the end of the exercise or submit it the following week for assessment.
ASSESSMENT:

Coursework:	100%

The students will be required to submit a lab report for each of the experiments they will perform. Each lab report will be marked and this will constitute the coursework.

LEVEL: III
SEMESTER: YEAR-LONG
COURSE CODE: PHYS 3160
COURSE TITLE: MEDICAL PHYSICS & BIOENGINEERING LABORATORY
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: Laboratory experiments and field trips with site work are to be performed corresponding to the taught components of the Medical Physics & Bioengineering minor. The students will be expected to perform the exercises and collect their data and depending on the complexity of the exercise will submit the written report at the end of the exercise or submit it the following week for assessment.
ASSESSMENT:

Coursework:	100%

Students will be required to submit a lab report for each of the experiments they will perform. Each lab report will be marked and this will constitute the coursework.

LEVEL: III
SEMESTER: YEAR-LONG
COURSE CODE: PHYS 3163
COURSE TITLE: ELECTRONICS LABORATORY
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: Laboratory experiments and fieldtrip with site work are to be performed corresponding to the taught components of the Electronics Minor. The students will be expected to perform the exercises and collect their data and depending on the complexity of the exercise will submit the written report at the end of the exercise or submit it the following week for assessment.
ASSESSMENT:
Coursework: 100%
Students will be required to submit a lab report for each of the experiment they will perform. Each lab report will be marked and this will constitute the coursework.

LEVEL: III
SEMESTER: 1
COURSE CODE: PHYS 3164
COURSETITLE: CERAMICS SCIENCE
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: Definition and classification of ceramics; typical properties; engineering/industrial applications based on properties; crystal structure; raw materials; fabrication and processing; mechanical, thermal, electrical and magnetic properties; glasses; cement and concrete.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hr paper)	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: PHYS 3165
COURSE TITLE: MATERIALS SCIENCE II
NO. OF CREDITS: 3
PREREQUISITES: PHYS 2165 OR PHYS 2294
COURSE DESCRIPTION: Iron and Steel: Raw Materials, Iron ore, purification processes, steel, steel making, blast furnace, electric arc furnace, types of steels and applications, processing of steels, forging, dye formation, extrusion, rolling, heat treatment. Steel phase diagram, isothermal phase transformations, cooling curves, properties and effect of impurities
Testing of the Materials: Destructive Testing: Brinell's test, Rockwell test, Vicker's test (macro and micro), knoop test (micro), izod and charpy tests. Non Destructive Testing: Visual, liquid penetration, eddy current, electric current perturbation, magnetic particle, ultrasonic testing, microwave testing, holography.
Microstructure of Polymers: Introduction to polymers, polymerization processes, crystallinity and amorphicity in polymers, microstructure of polymers, architecture, crystallization, mechanical and other properties of polymers, viscoelasticity, elastic after effect, stress relaxation, models for viscoelasticity and stress relaxation, dynamic response.
Composites: Introduction, different types of composites (particle reinforced, fiber reinforced, structural composites), microstructure of ceramics, mechanical and other properties of ceramics.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hr paper)	60%

LEVEL: III
SEMESTER: YEAR-LONG
COURSE CODE: PHYS 3166
COURSE TITLE: MATERIALS SCIENCE LABORATORY
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111, OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 121 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: Laboratory experiments and a field trip with site work are to be performed corresponding to the taught components of the Materials Science Minor. The students will be expected to perform the exercises and collect their data and depending on the complexity of the exercise will submit the written report at the end of the exercise or submit it the following week for assessment.
ASSESSMENT:
Coursework: 100%
Students will be required to submit a lab report for each of the experiments they will perform. Each lab report will be marked and this will constitute the coursework.

LEVEL: III
SEMESTER: 2
COURSE CODE: PHYS 3167
COURSE TITLE: RADIATION BIOPHYSICS AND MEDICINE
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION:
Introduction to cell biology and DNA: this part of the course addresses cell structure, division and functioning, DNA as the main target for radiation, genetics, functioning of cell and damages caused by different types of radiation.
Radiation damage and DNA repair. Cell death and mutation. Organ, tissue and organism effects of irradiation: This part of course addresses cell survival after irradiation and different biological and chemical mechanisms affecting the survival as well as DNA damage and repair. Tissue, organs and organism, effects of irradiation. Here the key knowledge of radiation effects is learned.
Modern methods of radiotherapy: This part of course addresses the main principles, modern methods of radiotherapy and combined therapies as well as tumor biology and responses of tumor and of normal tissues to radiation.
Radiation Carcinogenesis: This part of course addresses the development of cancer after radiation: type of malignancy, dosage, time responses and concepts of for risk estimations.
Radiation protection and legislation: This part of course addresses radiation accidents, radioecology, risk estimation and current legislation in radiation (International and Local). What we have learned after certain accidents and how to avoid high radiation doses or to minimize the consequences of irradiation.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hr paper)	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: PHYS 3168
COURSE TITLE: MEDICAL INSTRUMENTATION
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1110 AND PHYS 1111 OR ALL CREDITS FROM PHYS 1211, PHYS 1212, PHYS 1213, PHYS 1214, PHYS 1215 AND PHYS 1216 OR ALL CREDITS FROM PHYS 1221, PHYS 1222, PHYS 1223 AND PHYS 1224
COURSE DESCRIPTION: Electronic Instruments: voltmeters e.g. VTVM Transistor voltmeter, multimeter, use of cathode-ray oscilloscope for the measurement of voltage, current phase and frequency, special purpose oscilloscopes, measurement of resistance, inductance, capacitance, using Kelvin's, Maxwell's and Schering bridge, measurement of effective resistance at high frequency, R meter, LCR meter. Signal generators, function generator, wave analyzer, harmonic distortion analyzer, spectrum analyzer, spectrum analysis.
Transducers: operation of strain gauge, electromechanical transducer e.g. Linear Variable Differential Transformer (LVDT), thermocouple, piezo- electric crystal, photoelectric transducers, light detecting resistor (LDR), SQUID, thermistors. Digital-to-analog and analog-to-digital conversion techniques.
Data Acquisition System for patient monitoring: recording equipment: types e.g. graphic, strip chart, magnetic tape, digital tape and requirements. Safety issues: Macro and micro current shock, special design from safety consideration, safety standards, testing, ensuring protection of equipment and personnel.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hr paper)	60%

LEVEL: II
SEMESTER: 1
COURSE CODE: PHYS 2401
COURSE TITLE: OPTOELECTRONICS
NO. OF CREDITS: 3
PREREQUISITES: PHYS 1223 OR PHYS 1212 OR PHYS 1110 AND PHYS 1111
COURSE DESCRIPTION: This course introduces the student to the fundamentals of analog electronics. It begins with semiconductor theory and its application to various electronic and optoelectronic devices. Semiconductor diodes, zener diodes and bipolar junction transistors, their types, construction, related theory, I/V characteristics, biasing techniques, ac/dc analysis and their applications are studied. Optoelectronics related to devices/systems such as light emitting diodes, laser diodes, optical detectors, fiber-optics and solar cells are discussed along with applications. The course provides the fundamentals for other electronics courses in particular the course on PHYS 3201 - Advance Electronics and Control Theory for which it is the prerequisite. Assessment and evaluation is done in the form of in-course tests and a final examination.
ASSESSMENT:

Coursework	40%
Final Examination (One 2-hr paper)	60%

LEVEL: II
SEMESTER: 2
COURSE CODE: PHYS 2402
COURSE TITLE: DIGITAL CIRCUITS AND LOGIC DESIGN
NUMBER OF CREDITS: 3
PREREQUISITES: PHYS 2401 OR PHYS 2163
COURSE DESCRIPTION: This course introduces the student to the fundamentals of digital electronic and logic circuit design. It covers basics of digital electronic i.e. logic gates, Boolean algebra, logic minimization & implementation, logic families, number systems, binary codes and binary arithmetic. Combinational and sequential logic circuit design fundamentals are explained along with their applications. Various type of registers and counters along with design steps and applications are also covered in this course. As such it provides building blocks for the other courses in particular the course PHYS 3203 Microprocessor and Modern Digital Designfor which it is the prerequisite. Assessment and evaluation is done in the form of in-course tests and a Final examination.
ASSESSMENT:

Coursework	40%
Final Examination (one 2-hr paper)	60%

LEVEL: III
SEMESTER: 1
COURSE CODE: PHYS 3201
COURSE TITLE: ADVANCE ELECTRONICS AND CONTROL THEORY
NO. OF CREDITS: 3
PREREQUISITES: PHYS 2401 OR PHYS 2163
COURSE DESCRIPTION: This course deals with two major areas of electronics. First part deals with the advance analog electronics and covers the concept of feedback, feedback amplifiers, multivibrators, differential amplifiers, operational amplifiers; related theory and their applications. Second part deals with control theory and explores modeling, analysis and design of feedback control systems using classical approach. This course builds foundation for the course ECNG 3019 - Advance Control System Design and prepares students for automation industry. **ASSESSMENT:**

Coursework	40%
Final Examination (one 2-hr paper)	60%

LEVEL: III
SEMESTER: YEAR-LONG
COURSE CODE: PHYS 3202
COURSE TITLE: PRACTICAL ELECTRONICS - I
NO. OF CREDITS: 3
PREREQUISITES: PHYS 2401 AND PHYS 2402 OR PHYS 2162 AND PHYS 2163
COURSE DESCRIPTION: This laboratory course addresses the practical component of the Electronics Minor and covers all topic areas taught in four courses of the minor. This course provides the necessary practical knowledge in the field of basic as well as advance analog and digital electronics. The purpose of this laboratory course is to give students hands-on experience and to allow them to test the principles which they learn from the theoretical components of the courses. The students will be expected to perform the laboratory exercises and collect their data and depending on the complexity of the exercise will submit the written report at the end of the exercise or submit it the following week for assessment.
ASSESSMENT:

Coursework	100%

LEVEL: III
SEMESTER: 2
COURSE CODE: PHYS 3203
COURSE TITLE: MICROPROCESSOR AND MODERN DIGITAL DESIGN
NUMBER OF CREDITS: 3
PREREQUISITES: PHYS 2402 OR PHYS 2162
COURSE DESCRIPTION: The main objective is to build a strong foundation for the students in the area of modern digital electronics and microprocessors fundamentals and to expose them to the entire digital systems design process from gate level to system level. An overview of advanced digital system design technologies and industrial grade Electronics Design and Automation (EDA) tools is provided to develop skilled manpower in the highly demanding area of System- On- Chip Design and to encourage entrepreneurship. **ASSESSMENT:**

Coursework	40%
Final Examination (One 2-hr paper)	60%

LEVEL: III
SEMESTER: 2
COURSE CODE: PHYS 3204
COURSE TITLE: PRACTICAL ELECTRONICS II
NO. OF CREDITS: 3
PREREQUISITES: ECNG 2001 OR PHYS 3161 OR PHYS 3201
COURSE DESCRIPTION: This laboratory based course consists of advance level laboratory exercises and mini project from analog & digital communication and control systems. Laboratory experiments covering topic areas of the courses ECNG 2001 –Communication System –I, ECNG 3001 - Communication Systems–II and PHYS 3201 - Advance Electronics and Control Theory will be performed. The purpose of this experimental based laboratory course is to give students hands-on experience and to allow them to test the principles which they learn from the theoretical components of the courses. The students will be expected to perform the laboratory exercises and collect their data and depending on the complexity of the exercise will submit the written report at the end of the exercise or submit it the following week for assessment.
ASSESSMENT:

Coursework	100%

SPANISH: SPAN

LEVEL: I
SEMESTERS: 1 AND 2
COURSE CODE: SPAN 1101
COURSE TITLE: LEVEL 1A SPANISH
NUMBER OF CREDITS: 2
PREREQUISITES: NONE
COURSE DESCRIPTION: This is a beginners' course for students with no previous knowledge of Spanish. This communicative course focuses on the development of the four skills: listening, speaking, reading and writing as well as on the development of knowledge of the Hispanic culture. The course meets for four hours per week for 13 weeks. In addition, class contact time should be supplemented by one hour of independent study for each contact hour.
ASSESSMENT:
In-course testing: 100%:
40% [mid-semester];
40% [end of semester];
20% [two assignments]

LEVEL: I
SEMESTERS: 1 AND 2
COURSE CODE: SPAN 1102
COURSE TITLE: LEVEL 1B SPANISH
NUMBER OF CREDITS: 2
PREREQUISITES: SPAN 1101/1A SPANISH OR EQUIVALENT
COURSE DESCRIPTION: Students in this course have some basic knowledge of Spanish. This course will build on the skils learnt in SPAN 1101/!A Spanish and aims to continue to promote communicative and intercultural competence. The focus will be on the development of the four skills: speaking, listening, reading and writing. The course meets for four hours per week for 13 weeks. In addition, class contact time should be supplemented by one hour of independent study for each contact hour.
ASSESSMENT:
In-course testing: 100%:
40% [mid-semester];
40% [end of semester];
20% [two assignments]

STATISTICS: STAT

LEVEL: III
SEMESTER: 1
COURSE CODE: STAT 3000
COURSE TITLE: REGRESSION WITH TIME SERIES ANALYSIS
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2275
COURSE DESCRIPTION: This course biulds on the applied aspects of Statistics I. It is primarily concerned with the construction of regression and time series models relevant to econometric modelling.
ASSESSMENT:

Coursework	50%
Final Examination	50%

LEVEL: III
SEMESTERS: 2
COURSE CODE: STAT 3001
COURSE TITLE: EXPERIMENTAL DESIGN AND SAMPLING THEORY
PREREQUISITES: MATH2275
COURSE DESCRIPTION: This course aims to deliver basic ideas of sampling and experimental design from an applied perspective and to provide experience with real-like problems and data. The course will cover the main techniques used in actual sampling practice — simple random sampling, stratification, systematic selection and cluster sampling.
This is an applied statistical methods course. It differs from most statistics courses because it is concerned as much with the *design* of data collection as with the analysis of data. The course will concentrate on problems of applying sampling methods to human populations, because survey practices are widely used in that area, and because sampling human populations pose particular problems not found in sampling of other types of units. However, the principles of sample selection can be applied to many other types of populations.
The experimental designs covered are sufficient to provide students with the knowledge and capability to execute and advise on experiments in and of the sciences. Students get exposure to the analysis of real datasets using appropriate statistical software like SPSS and R to analyze survey data.
ASSESSMENT:

Coursework	50%
Final Examination (One 2-hr paper)	50%

LEVEL: III
SEMESTERS: Not offered in 2015/2016
COURSE CODE: STAT 3010
COURSE TITLE: REGRESSION ANALYSIS
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2275
COURSE DESCRIPTION: The course will consist of a mixture of lectures and practical work (which will be assessed by the student's completion of practical assignments to be submitted). Computer practical session, in which R, the statistical package will be used on which the continuous assessment is based. The lectures will focus on statistical modelling, including selection of appropriate models, the analysis and interpretation of results and diagnostics. Exploratory and graphical techniques will be considered, as well as formal statistical procedures.
ASSESSMENT:

Coursework	50%
Final Examination (One 2-hr paper)	50%

LEVEL: III
SEMESTER: Not offered in 2015/2016
COURSE CODE: STAT 3011
COURSE TITLE: DESIGN OF EXPERIMENTS
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2275
COURSE DESCRIPTION: The main objective of this course is to provide undergraduates with the ability to design and properly analyze experimental data. Statisticians contribute to experiments by helping to make them more efficient. In a designed experiment the scientist is free to fix and/or randomize and/or mix the levels of the exploratory variables. Design is about choosing the combinations of these levels at which to observe the response variable. The course will describe the various ways of structuring data to eliminate the effects of confusing factors so that the main factors of interest can be investigated more reliably. The course will be very practical involving the use of the packages MINITAB and R (and SPSS where possible). Theory will be studied but the emphasis will be on the practical interpretation of the data and appropriate models.
ASSESSMENT:

Coursework	50%
Final Examination (One 2-hr paper)	50%

LEVEL: III
SEMESTERS: 2
COURSE CODE: STAT 3012
COURSE TITLE: APPLIED MULTIVARIATE STATISTICS
NUMBER OF CREDITS: 3
PREREQUISITES: MATH 2273 OR ECON 2015 AND MATH2275 OR ECON 2006
COURSE DESCRIPTION: The main objective of this course is to provide undergraduate students with a set of statistical tools that will enable them to analyze multivariate data properly using sound statistical methods and appropriate computer software.
Possible topics to be covered include multivariate data screening, principal component analysis, discriminant analysis, cluster analysis and factor analysis.
Students should expect to spend approximately 3-5 hours per week on homework assignments and readings (beyond class time).
All methods will be illustrated via real data sets, using the open source statistical software R (http://cran.r-project.org/). This course will also expose students to use of statistical software such as Minitab and SPSS.
ASSESSMENT:

Coursework	50%
Final Examination (One 2-hr paper)	50%