

Editor In Chief

Dr. Shiv K Sahu

Ph.D. (CSE), M.Tech. (IT, Honors), B.Tech. (IT)

Director, Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd., Bhopal (M.P.), India

Dr. Shachi Sahu

Ph.D. (Chemistry), M.Sc. (Organic Chemistry)

Additional Director, Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd., Bhopal(M.P.), India

Vice Editor In Chief

Dr. Vahid Nourani

Professor, Faculty of Civil Engineering, University of Tabriz, Iran

Prof. (Dr.) Anuranjan Misra

Professor & Head, Computer Science & Engineering and Information Technology & Engineering, Noida International University, Noida (U.P.), India

Chief Advisory Board

Prof. (Dr.) Hamid Saremi

Vice Chancellor of Islamic Azad University of Iran, Quchan Branch, Quchan-Iran

Dr. Uma Shanker

Professor & Head, Department of Mathematics, CEC, Bilaspur(C.G.), India

Dr. Rama Shanker

Professor & Head, Department of Statistics, Eritrea Institute of Technology, Asmara, Eritrea

Dr. Vinita Kumari

Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd., India

Dr. Kapil Kumar Bansal

Head (Research and Publication), SRM University, Gaziabad (U.P.), India

Dr. Deepak Garg

Professor, Department of Computer Science and Engineering, Thapar University, Patiala (Punjab), India, Senior Member of IEEE, Secretary of IEEE Computer Society (Delhi Section), Life Member of Computer Society of India (CSI), Indian Society of Technical Education (ISTE), Indian Science Congress Association Kolkata.

Dr. Vijay Anant Athavale

Director of SVS Group of Institutions, Mawana, Meerut (U.P.) India/ U.P. Technical University, India

Dr. T.C. Manjunath

Principal & Professor, HKBK College of Engg, Nagawara, Arabic College Road, Bengaluru-560045, Karnataka, India

Dr. Kosta Yogeshwar Prasad

Director, Technical Campus, Marwadi Education Foundation's Group of Institutions, Rajkot-Morbi Highway, Gauridada, Rajkot, Gujarat, India

Dr. Dinesh Varshney

Director of College Development Counseling, Devi Ahilya University, Indore (M.P.), Professor, School of Physics, Devi Ahilya University, Indore (M.P.), and Regional Director, Madhya Pradesh Bhoj (Open) University, Indore (M.P.), India

Dr. P. Dananjayan

Professor, Department of Department of ECE, Pondicherry Engineering College, Pondicherry, India

Dr. Sadhana Vishwakarma

Associate Professor, Department of Engineering Chemistry, Technocrat Institute of Technology, Bhopal(M.P.), India

Dr. Kamal Mehta

Associate Professor, Deptment of Computer Engineering, Institute of Technology, NIRMA University, Ahmedabad (Gujarat), India

Dr. CheeFai Tan

Faculty of Mechanical Engineering, University Technical, Malaysia Melaka, Malaysia

Dr. Suresh Babu Perli

Professor & Head, Department of Electrical and Electronic Engineering, Narasaraopeta Engineering College, Guntur, A.P., India

Dr. Binod Kumar

Associate Professor, School of Engineering and Computer Technology, Faculty of Integrative Sciences and Technology, Quest International University, Ipoh, Perak, Malaysia

Dr. Chiladze George

Professor, Faculty of Law, Akhaltsikhe State University, Tbilisi University, Georgia

Dr. Kavita Khare

Professor, Department of Electronics & Communication Engineering., MANIT, Bhopal (M.P.), INDIA

Dr. C. Saravanan

Associate Professor (System Manager) & Head, Computer Center, NIT, Durgapur, W.B. India

Dr. S. Saravanan

Professor, Department of Electrical and Electronics Engineering, Muthayamal Engineering College, Resipuram, Tamilnadu, India

Dr. Amit Kumar Garg

Professor & Head, Department of Electronics and Communication Engineering, Maharishi Markandeshwar University, Mullana, Ambala (Haryana), India

Dr. T.C.Manjunath

Principal & Professor, HKBK College of Engg, Nagawara, Arabic College Road, Bengaluru-560045, Karnataka, India

Dr. P. Dananjayan

Professor, Department of Department of ECE, Pondicherry Engineering College, Pondicherry, India

Dr. Kamal K Mehta

Associate Professor, Department of Computer Engineering, Institute of Technology, NIRMA University, Ahmedabad (Gujarat), India

Dr. Rajiv Srivastava

Director, Department of Computer Science & Engineering, Sagar Institute of Research & Technology, Bhopal (M.P.), India

Dr. Chakunta Venkata Guru Rao

Professor, Department of Computer Science & Engineering, SR Engineering College, Ananthasagar, Warangal, Andhra Pradesh, India

Dr. Anuranjan Misra

Professor, Department of Computer Science & Engineering, Bhagwant Institute of Technology, NH-24, Jindal Nagar, Ghaziabad, India

Dr. Robert Brian Smith

International Development Assistance Consultant, Department of AEC Consultants Pty Ltd, AEC Consultants Pty Ltd, Macquarie Centre, North Ryde, New South Wales, Australia

Dr. Saber Mohamed Abd-Allah

Associate Professor, Department of Biochemistry, Shanghai Institute of Biochemistry and Cell Biology, Yue Yang Road, Shanghai, China

Dr. Himani Sharma

Professor & Dean, Department of Electronics & Communication Engineering, MLR Institute of Technology, Laxman Reddy Avenue, Dundigal, Hyderabad, India

Dr. Sahab Singh

Associate Professor, Department of Management Studies, Dronacharya Group of Institutions, Knowledge Park-III, Greater Noida, India

Dr. Umesh Kumar

Principal: Govt Women Poly, Ranchi, India

Dr. Syed Zaheer Hasan

Scientist-G Petroleum Research Wing, Gujarat Energy Research and Management Institute, Energy Building, Pandit Deendayal Petroleum University Campus, Raisan, Gandhinagar-382007, Gujarat, India.

Dr. Jaswant Singh Bhomrah

Director, Department of Profit Oriented Technique, 1 – B Crystal Gold, Vijalpore Road, Navsari 396445, Gujarat. India

Technical Advisory Board

Dr. Mohd. Husain

Director, MG Institute of Management & Technology, Banthara, Lucknow (U.P.), India

Dr. T. Jayanthi

Principal, Panimalar Institute of Technology, Chennai (TN), India

Dr. Umesh A.S.

Director, Technocrats Institute of Technology & Science, Bhopal(M.P.), India

Dr. B. Kanagasabapathi

Infosys Labs, Infosys Limited, Center for Advance Modeling and Simulation, Infosys Labs, Infosys Limited, Electronics City, Bangalore, India

Dr. C.B. Gupta

Professor, Department of Mathematics, Birla Institute of Technology & Sciences, Pilani (Rajasthan), India

Dr. Sunandan Bhunia

Associate Professor & Head,, Dept. of Electronics & Communication Engineering, Haldia Institute of Technology, Haldia, West Bengal, India

Dr. Jaydeb Bhaumik

Associate Professor, Dept. of Electronics & Communication Engineering, Haldia Institute of Technology, Haldia, West Bengal, India

Dr. Rajesh Das

Associate Professor, School of Applied Sciences, Haldia Institute of Technology, Haldia, West Bengal, India

Dr. Mrutyunjaya Panda

Professor & Head, Department of EEE, Gandhi Institute for Technological Development, Bhubaneswar, Odisha, India

Dr. Mohd. Nazri Ismail

Associate Professor, Department of System and Networking, University of Kuala (UniKL), Kuala Lumpur, Malaysia

Dr. Haw Su Cheng

Faculty of Information Technology, Multimedia University (MMU), Jalan Multimedia, 63100 Cyberjaya

Dr. Hossein Rajabalipour Cheshmehgaz

Industrial Modeling and Computing Department, Faculty of Computer Science and Information Systems, Universiti Teknologi Malaysia (UTM) 81310, Skudai, Malaysia

Dr. Sudhinder Singh Chowhan

Associate Professor, Institute of Management and Computer Science, NIMS University, Jaipur (Rajasthan), India

Dr. Neeta Sharma

Professor & Head, Department of Communication Skills, Technocrat Institute of Technology, Bhopal(M.P.), India

Dr. Ashish Rastogi

Associate Professor, Department of CSIT, Guru Ghansi Das University, Bilaspur (C.G.), India

Dr. Santosh Kumar Nanda

Professor, Department of Computer Science and Engineering, Eastern Academy of Science and Technology (EAST), Khurda (Orisa), India

Dr. Hai Shanker Hota

Associate Professor, Department of CSIT, Guru Ghansi Das University, Bilaspur (C.G.), India

Dr. Sunil Kumar Singla

Professor, Department of Electrical and Instrumentation Engineering, Thapar University, Patiala (Punjab), India

Dr. A. K. Verma

Professor, Department of Computer Science and Engineering, Thapar University, Patiala (Punjab), India

Dr. Durgesh Mishra

Chairman, IEEE Computer Society Chapter Bombay Section, Chairman IEEE MP Subsection, Professor & Dean (R&D), Acropolis Institute of Technology, Indore (M.P.), India

Dr. Xiaoguang Yue

Associate Professor, College of Computer and Information, Southwest Forestry University, Kunming (Yunnan), China

Dr. Veronica Mc Gowan

Associate Professor, Department of Computer and Business Information Systems, Delaware Valley College, Doylestown, PA, Allman China

Dr. Mohd. Ali Hussain

Professor, Department of Computer Science and Engineering, Sri Sai Madhavi Institute of Science & Technology, Rajahmundry (A.P.), India

Dr. Mohd. Nazri Ismail

Professor, System and Networking Department, Jalan Sultan Ismail, Kuala Lumpur, MALAYSIA

Dr. Sunil Mishra

Associate Professor, Department of Communication Skills (English), Dronacharya College of Engineering, Farrukhnagar, Gurgaon (Haryana), India

Dr. Labib Francis Gergis Rofaiel

Associate Professor, Department of Digital Communications and Electronics, Misr Academy for Engineering and Technology, Mansoura City, Egypt

Dr. Pavol Tanuska

Associate Professor, Department of Applied Informatics, Automation, and Mathematics, Trnava, Slovakia

Dr. VS Giridhar Akula

Professor, Avanthi's Research & Technological Academy, Gunthapally, Hyderabad, Andhra Pradesh, India

Dr. S. Satyanarayana

Associate Professor, Department of Computer Science and Engineering, KL University, Guntur, Andhra Pradesh, India

Dr. Bhupendra Kumar Sharma

Associate Professor, Department of Mathematics, KL University, BITS, Pilani, India

Dr. Praveen Agarwal

Associate Professor & Head, Department of Mathematics, Anand International College of Engineering, Jaipur (Rajasthan), India

Dr. Manoj Kumar

Professor, Department of Mathematics, Rashtriya Kishan Post Graduate Degree, College, Shamli, Prabhudh Nagar, (U.P.), India

Dr. Shaikh Abdul Hannan

Associate Professor, Department of Computer Science, Vivekanand Arts Sardar Dalipsing Arts and Science College, Aurangabad (Maharashtra), India

Dr. K.M. Pandey

Professor, Department of Mechanical Engineering, National Institute of Technology, Silchar, India

Prof. Pranav Parashar

Technical Advisor, International Journal of Soft Computing and Engineering (IJSCE), Bhopal (M.P.), India

Dr. Biswajit Chakraborty

MECON Limited, Research and Development Division (A Govt. of India Enterprise), Ranchi-834002, Jharkhand, India

Dr. D.V. Ashoka

Professor & Head, Department of Information Science & Engineering, SJB Institute of Technology, Kengeri, Bangalore, India

Dr. Sasidhar Babu Suvanam

Professor & Academic Coordinator, Department of Computer Science & Engineering, Sree Narayana Gurukulam College of Engineering, Kadayiuruppu, Kolenchery, Kerala, India

Dr. C. Venkatesh

Professor & Dean, Faculty of Engineering, EBET Group of Institutions, Kangayam, Erode, Caimbatore (Tamil Nadu), India

Dr. Nilay Khare

Assoc. Professor & Head, Department of Computer Science, MANIT, Bhopal (M.P.), India

Dr. Sandra De Iaco

Professor, Dip.to Di Scienze Dell'Economia-Sez. Matematico-Statistica, Italy

Dr. Yaduvir Singh

Associate Professor, Department of Computer Science & Engineering, Ideal Institute of Technology, Govindpuram Ghaziabad, Lucknow (U.P.), India

Dr. Angela Amphawan

Head of Optical Technology, School of Computing, School Of Computing, Universiti Utara Malaysia, 06010 Sintok, Kedah, Malaysia

Dr. Ashwini Kumar Arya

Associate Professor, Department of Electronics & Communication Engineering, Faculty of Engineering and Technology, Graphic Era University, Dehradun (U.K.), India

Dr. Yash Pal Singh

Professor, Department of Electronics & Communication Engg, Director, KLS Institute Of Engg.& Technology, Director, KLSIET, Chandok, Bijnor, (U.P.), India

Dr. Ashish Jain

Associate Professor, Department of Computer Science & Engineering, Accurate Institute of Management & Technology, Gr. Noida (U.P.), India

Dr. Abhay Saxena

Associate Professor&Head, Department. of Computer Science, Dev Sanskriti University, Haridwar, Utrakhand, India

Dr. Judy. M.V

Associate Professor, Head of the Department CS &IT, Amrita School of Arts and Sciences, Amrita Vishwa Vidyapeetham, Brahmasthanam, Edapally, Cochin, Kerala, India

Dr. Sangkyun Kim

Professor, Department of Industrial Engineering, Kangwon National University, Hyoja 2 dong, Chunche0nsi, Gangwondo, Korea

Dr. Sanjay M. Gulhane

Professor, Department of Electronics & Telecommunication Engineering, Jawaharlal Darda Institute of Engineering & Technology, Yavatmal, Maharastra, India

Dr. K.K. Thyagarajan

Principal & Professor, Department of Informational Technology, RMK College of Engineering & Technology, RSM Nagar, Thiruyallur, Tamil Nadu, India

Dr. P. Subashini

Assoc. Professor, Department of Computer Science, Coimbatore, India

Dr. G. Srinivasrao

Professor, Department of Mechanical Engineering, RVR & JC, College of Engineering, Chowdavaram, Guntur, India

Dr. Rajesh Verma

Professor, Department of Computer Science & Engg. and Deptt. of Information Technology, Kurukshetra Institute of Technology & Management, Bhor Sadian, Pehowa, Kurukshetra (Haryana), India

Dr. Pawan Kumar Shukla

Associate Professor, Satya College of Engineering & Technology, Haryana, India

Dr. U C Srivastava

Associate Professor, Department of Applied Physics, Amity Institute of Applied Sciences, Amity University, Noida, India

Dr. Reena Dadhich

Prof. & Head, Department of Computer Science and Informatics, MBS MArg, Near Kabir Circle, University of Kota, Rajasthan, India

Dr. Aashis. S. Roy

Department of Materials Engineering, Indian Institute of Science, Bangalore Karnataka, India

Dr. Sudhir Nigam

Professor Department of Civil Engineering, Principal, Lakshmi Narain College of Technology and Science, Raisen, Road, Bhopal, (M.P.), India

Dr. S. Senthil Kumar

Doctorate, Department of Center for Advanced Image and Information Technology, Division of Computer Science and Engineering, Graduate School of Electronics and Information Engineering, Chon Buk National University Deok Jin-Dong, Jeonju, Chon Buk, 561-756, South Korea Tamilnadu, India

Dr. Gufran Ahmad Ansari

Associate Professor, Department of Information Technology, College of Computer, Qassim University, Al-Qassim, Kingdom of Saudi Arabia (KSA)

Dr. R. Navaneetha krishnan

Associate Professor, Department of MCA, Bharathiyar College of Engg & Tech, Karaikal Puducherry, India

Dr. Hossein Rajabalipour Cheshmejjaz

Industrial Modeling and Computing Department, Faculty of Computer Science and Information Systems, Universiti Teknologi Skudai, Malaysia

Dr. Veronica McGowan

Associate Professor, Department of Computer and Business Information Systems, Delaware Valley College, Doylestown, PA, Allman China

Dr. Sanjay Sharma

Associate Professor, Department of Mathematics, Bhilai Institute of Technology, Durg, Chhattisgarh, India

Dr. Taghreed Hashim Al-Noor

Professor, Department of Chemistry, Ibn-Al-Haitham Education for pure Science College, University of Baghdad, Iraq

Dr. Madhumita Dash

Professor, Department of Electronics & Telecommunication, Orissa Engineering College, Bhubaneswar, Odisha, India

Dr. Anita Sagadevan Ethiraj

Associate Professor, Department of Centre for Nanotechnology Research (CNR), School of Electronics Engineering (Sense), Vellore Institute of Technology (VIT) University, Tamilnadu, India

Dr. Sibasis Acharya

Project Consultant, Department of Metallurgy & Mineral Processing, Midas Tech International, 30 Mukin Street, Jindalee-4074, Queensland, Australia

Dr. Neelam Ruhil

Professor, Department of Electronics & Computer Engineering, Dronacharya College of Engineering, Gurgaon, Haryana, India

Dr. Faizullah Mahar

Professor, Department of Electrical Engineering, Balochistan University of Engineering and Technology, Pakistan

Dr. K. Selvaraju

Head, PG & Research, Department of Physics, Kandaswami Kandars College (Govt. Aided), Velur (PO), Namakkal DT. Tamil Nadu, India

Dr. M. K. Bhanarkar

Associate Professor, Department of Electronics, Shivaji University, Kolhapur, Maharashtra, India

Dr. Sanjay Hari Sawant

Professor, Department of Mechanical Engineering, Dr. J. J. Magdum College of Engineering, Jaysingpur, India

Dr. Arindam Ghosal

Professor, Department of Mechanical Engineering, Dronacharya Group of Institutions, B-27, Part-III, Knowledge Park, Greater Noida, India

Dr. M. Chithirai Pon Selvan

Associate Professor, Department of Mechanical Engineering, School of Engineering & Information Technology Manipal University, Dubai, UAE

Dr. S. Sambhu Prasad

Professor & Principal, Department of Mechanical Engineering, Pragati College of Engineering, Andhra Pradesh, India.

Dr. Muhammad Attique Khan Shahid

Professor of Physics & Chairman, Department of Physics, Advisor (SAAP) at Government Post Graduate College of Science, Faisalabad.

Dr. Kuldeep Pareta

Professor & Head, Department of Remote Sensing/GIS & NRM, B-30 Kailash Colony, New Delhi 110 048, India

Dr. Th. Kiranbala Devi

Associate Professor, Department of Civil Engineering, Manipur Institute of Technology, Takyelpat, Imphal, Manipur, India

Dr. Nirmala Mungamuru

Associate Professor, Department of Computing, School of Engineering, Adama Science and Technology University, Ethiopia

Dr. Srilalitha Giriya Kumari Sagi

Associate Professor, Department of Management, Gandhi Institute of Technology and Management, India

Dr. Vishnu Narayan Mishra

Associate Professor, Department of Mathematics, Sardar Vallabhbhai National Institute of Technology, Ichchhanath Mahadev Dumas Road, Surat (Gujarat), India

Dr. Yash Pal Singh

Director/Principal, Somany (P.G.) Institute of Technology & Management, Garhi Bolni Road, Rewari Haryana, India.

Dr. Sripada Rama Sree

Vice Principal, Associate Professor, Department of Computer Science and Engineering, Aditya Engineering College, Surampalem, Andhra Pradesh. India.

Dr. Rustom Mamlook

Associate Professor, Department of Electrical and Computer Engineering, Dhofar University, Salalah, Oman. Middle East.

Managing Editor

Mr. Jitendra Kumar Sen

International Journal of Advanced Engineering and Nano Technology (IJAENT)

Editorial Board

Dr. Saeed Balochian

Associate Professor, Gonaabad Branch, Islamic Azad University, Gonabad, Iratan

Dr. Mongey Ram

Associate Professor, Department of Mathematics, Graphics Era University, Dehradun, India

Dr. Arupratan Santra

Sr. Project Manager, Infosys Technologies Ltd, Hyderabad (A.P.)-500005, India

Dr. Ashish Jolly

Dean, Department of Computer Applications, Guru Nanak Khalsa Institute & Management Studies, Yamuna Nagar (Haryana), India

Dr. Israel Gonzalez Carrasco

Associate Professor, Department of Computer Science, Universidad Carlos III de Madrid, Leganes, Madrid, Spain

Dr. Guoxiang Liu

Member of IEEE, University of North Dakota, Grand Forks, N.D., USA

Dr. Khushali Menaria

Associate Professor, Department of Bio-Informatics, Maulana Azad National Institute of Technology (MANIT), Bhopal (M.P.), India

Dr. R. Sukumar

Professor, Sethu Institute of Technology, Pulloor, Kariapatti, Virudhunagar, Tamilnadu, India

Dr. Cherouat Abel

Professor, University of Technology of Troyes, France

Dr. Rinkle Aggrawal

Associate Professor, Department of Computer Science and Engineering, Thapar University, Patiala (Punjab), India

Dr. Parteek Bhatia

Associate Professor, Department of Computer Science & Engineering, Thapar University, Patiala (Punjab), India

Dr. Manish Srivastava

Professor & Head, Computer Science and Engineering, Guru Ghasidas Central University, Bilaspur (C.G.), India

S. No	Volume-2 Issue-12, November 2015, ISSN: 2347-6389 (Online) Published By: Blue Eyes Intelligence Engineering & Sciences Publication Pvt. Ltd.		Page No.
1.	Authors:	Ahmed El-Desouky, Gamal El-Sheaky	1-5
	Paper Title:	New Concept for the Design of Flexible Pavement at Critical Highway Sections	
	<p>Abstract: The design procedure of flexible pavement to be completely rational in nature, consideration should be given to all forces acting on pavement through the vehicle's tire. Although the horizontal forces (HF) on the pavements are of significant values, all pavement design methods do not take the actions of these forces on the pavement system into consideration. This may appear to be unrealistic load condition. Previous studies concluded that horizontal forces have significant effect on the response of flexible pavements. The main objective of this research is to recommend/quantify solutions to eliminate the effect of these forces on the response of flexible pavements. To achieve this objective theoretical analysis, using finite element technique, was performed to investigate the response of different flexible pavement sections under various wheel loads. Linear analysis was conducted using the computer program ANSYS 12.1. The basic measuring parameters of flexible pavement in this study were; the maximum surface deflection (SD), the maximum horizontal tensile strain at the bottom of asphalt concrete layer (ϵ_t) and the maximum compressive strain at the top of subgrade (ϵ_c). A total of 643 cases were studied to investigate the effect of HF on the behavior of asphalt pavements. Based on the response of asphalt pavement under HF, recommended pavement sections were adopted to eliminate the effect of HF. Reduction of the effect of HF on the flexible pavement response may be achieved by increasing the AC layer thickness (h_1) followed by the asphalt concrete layer modulus (E_1) or by increasing the base layer modulus (E_2).</p> <p>Keywords: Flexible Pavement, Horizontal Forces, Design, Critical Sections.</p> <p>References:</p> <ol style="list-style-type: none"> 1. Yang H. Huang, "Pavement Analysis and Design," Prince-Hall, Inc, 1993. 2. S. Khedr, A. El-Sayed, and A. El-Desouky, "Effect of Horizontal forces on flexible pavement response," Third International Conference on Civil & Architecture Engineering, MTC, Cairo, Egypt, March, 1999. 3. A. El-Desouky, S. Khedr, and A. El-Sayed, "Variation of flexible pavement behavior with Asphalt Concrete Modulus under various wheel loads," Third International Conference on Civil & Architecture Engineering, MTC, Cairo, Egypt, March, 1999. 4. A. El-Desouky, A. El-Sayed, and I. El-Sherief, "Effect of Various Tracked Vehicle Loads on Flexible Pavement Life," Ninth International Conference on Applied Mechanics, MTC, May, 2000. 5. A. El-Desouky, A. El-Sayed, and S. Fathalla, "Studying the response of airfield pavement during aircraft ground operations," Fifth International Conference on Civil & Architecture Engineering, MTC, Cairo, Egypt, Nov. 23-25, 2004. 6. A. El-Desouky and G. El-Shikhy, "Studing the Effect of Layer Properties on Flexible Pavement Response at Critical Highway Sections," 9th Malaysian Road Conference, Kuala Lumpur, Malaysia, Nov. 10-12, 2014. 7. ANSYS12.1, Engineering Analysis System, Release 12.1, User's Manual, SAS IP, ANSYS University Copy, 2008. 8. The Asphalt Institute, "Thickness Design - Asphalt Pavements for Highways and Streets", Manual Series No. 1 (MS - 1), September 1981. 9. W. Uddin, D. Zhang, and F. Fernandez, "Finite Element Simulation of Pavement Discontinuities and Dynamic Load Response", Transportation Research Record, vol. 1448, pp.100-106, 1994. 		
2.	Authors:	Yugandhara S. Sontakke, V. G. Sayagavi, P. J. Salunke, N. G. Gore	6-10
	Paper Title:	Seismic Analysis of Multistorey Building on Sloping Ground	
	<p>Abstract: In most of the northern earthquake prone hilly part of the India, due to local topography constraint engineered construction is resulting in the adoption of either a step back or step back & set back configuration as a structural form for buildings. The adopted form is generally irregular, torsionally coupled & hence, susceptible to serve damage when affected by earthquake ground motion. Such buildings have mass & stiffness varying along the vertical & horizontal planes, resulting the centre of mass & centre of rigidity do not coincide on various floors, hence they demand torsional analysis, in addition to lateral forces under the action of earthquakes. In this paper seismic analysis performed on 48 RC buildings with three different configurations like, Step back building, Step back Set back building and Set back building are presented. 3 -D response spectrum analysis including torsional effect has been carried out by considering the dynamic response properties i.e. fundamental time period, top storey displacement and, the base shear action induced in columns with reference to the suitability of a building configuration on sloping ground. It is observed that Step back Set back buildings are found to be more suitable on sloping ground.</p> <p>Keywords: Building, Etab, Response Spectrum Analysis, Seismic, Sloping ground.</p> <p>References:</p> <ol style="list-style-type: none"> 1. "Seismic performance of multi-storeyed building on sloping ground" by S. M.Nagargoje and K.S.Sable Elixir Elec. Engg. 2. "Seismic Analysis of Buildings Resting on Sloping Ground." by Birajdar, B G., and S. S. Nalawade. 3. "Earthquake Behaviour of Reinforced Concrete Framed Buildings On Hill Slopes." By Ajay Kumar Sreerama & Pradeep Kumar Ramancharla. 4. "Seismic Behaviour of Buildings Located on Slopes – An Analytical Study and Some Observations From Sikkim Earthquake of September 18, 2011" by Y. Singh & Phani Gade and D.H. Lang & E. Erduran. 5. "Seismic Analysis of Buildings Resting on Sloping Ground with Varying Number of Bays and Hill Slopes" by Dr. S. A. Halkude, Mr. M. G. Kalyanshetti,. 6. "Effect of Sloping Ground on Step- Back and Setback Configurations of R.C.C. Frame Building" by Chaitrali Arvind 		

	<p>Deshpande & Prof. P. M. Mohite.</p> <p>7. "A Review on Seismic Analysis Of a Building on sloping ground" by Sanjaya Kumar Patro, Susanta Banerjee, Debasana Jena, Sourav Kumar Das.</p> <p>8. "Seismic performance of buildings resting on sloping ground-A review" by Hemal Dr. R. B. Khadiraikar and Arif Masali.</p> <p>9. "Earthquake Building Vulnerability and Damage Assessment with Reference to Sikkim Earthquake 2011" thesis by Venkata Purna Teja Malladi.</p> <p>10. "Dynamics of Structures" by A.K.Chopra</p> <p>11. "Earthquake Resistant Design of Structures" by Shashikant K Duggal"</p> <p>12. "Some Concepts in Earthquake Behaviour of Buildings" by C. V. R. Murty, Rupen Goswami, A. R. Vijaynarayanan, Vipul V. Mehta</p> <p>13. IS 1893 (Part I) 2002 "Criteria for Earthquake Resistant Design of Structures".</p> <p>14. Explanatory Examples on Indian Seismic Code IS 1893 (Part I) by Dr. Sudhir K Jain (IITK-GSDMA)</p>	
	<p>Authors: A. Hussain, M. A. Matin, M. F. Islam</p> <p>Paper Title: Fabrication and Characterization of Dielectric Properties of BaTiO₃/Ni_{0.6}Zn_{0.4}Fe₂O₄ Multiphase Multiferroic</p>	
3.	<p>Abstract: Multiphase multiferroic ceramics based on xBaTiO₃ (BTO)/(1-x)Ni_{0.6}Zn_{0.4}Fe₂O₄ (NZFO) system were fabricated employing solid-state synthesis route. The composition of BTO was varied with x= 0.7-0.9 and sintered at 1275°C or 1275°C. Employing field emission scanning electron microscopy (FESEM) an improved microstructure has been found for samples sintered at 1275°C. X-ray diffraction study confirmed the crystalline tetragonal perovskite structure of BTO phase and cubic spinel structure of NZFO phase in fabricated samples at all sintering temperatures. With increasing NZFO content dielectric constant was found to be decreased at the studied frequency range of 100 Hz to 2 MHz at room temperature. Curie temperature has shown to increase significantly with increasing composition of NZFO and broadened.</p> <p>Keywords: Multiferroic composites, dielectric constant, Microstructure, BTO/NZFO.</p> <p>References:</p> <ol style="list-style-type: none"> 1. N. A. Spaldin, S.-W. Cheong, and R. Ramesh, "Multiferroics: Past, present, and future," <i>Physics Today</i>, vol. 63, pp. 38-43, 2010. 2. W. Eerenstein, N. D. Mathur, and J. F. Scott, "Multiferroic and magnetoelectric materials," <i>Nature</i>, vol. 442, pp. 759-65, Aug 17 2006. 3. N. A. Hill, "Why Are There so Few Magnetic Ferroelectrics?," <i>Journal of Physical Chemistry B</i>, vol. 104, pp. 6694-6709, 2000. 4. F. Fang, Y. Y. Zhou, Y. T. Xu, W. Q. Jing, and W. Yang, "Magnetoelectric coupling of multiferroic composites under combined magnetic and mechanical loadings," <i>Smart Materials and Structures</i>, vol. 22, p. 075009, 2013. 5. B. K. Bammannavar and L. R. Naik, "Study of magnetic properties and magnetoelectric effect in xNi_{0.5}Zn_{0.5}Fe₂O₄+(1-x)PZT composites," <i>Journal of Magnetism and Magnetic Materials</i>, vol. 324, pp. 944-948, 2012. 6. A. Testino, L. Mitoseriu, V. Buscaglia, M. T. Buscaglia, I. Pallecchi, A. S. Albuquerque, et al., "Preparation of multiferroic composites of BaTiO₃-Ni_{0.5}Zn_{0.5}Fe₂O₄ ceramics," <i>Journal of the European Ceramic Society</i>, vol. 26, pp. 3031-3036, 2006. 7. A. Sakanas, R. Grigalaitis, J. Banys, L. Mitoseriu, V. Buscaglia, and P. Nanni, "Broadband dielectric spectroscopy of BaTiO₃-Ni_{0.5}Zn_{0.5}Fe₂O₄ composite ceramics," <i>Journal of Alloys and Compounds</i>, vol. 602, pp. 241-247, 2014. 8. H. Zhang and P. Du, "Ferroelectricity and ferromagnetism in fine-grained multiferroic BaTiO₃/(Ni_{0.5}Zn_{0.5})Fe₂O₄ composites prepared by a novel hybrid process," <i>Solid State Communications</i>, vol. 149, pp. 101-106, 2009. 9. S. Lopatin, I. Lopatina, and I. Lisnevskaya, "Magnetoelectric PZT/ferrite composite material," <i>Ferroelectrics</i>, vol. 162, pp. 63-68, 1994. 10. H. Zheng, W. J. Weng, G. R. Han, and P. Y. Du, "Crucial role of percolation transition on the formation and electromagnetic properties of BaTiO₃/Ni_{0.5}Zn_{0.47}Fe₂O₄ ceramic composites," <i>Ceramics International</i>, vol. 41, pp. 1511-1519, 2015. 11. R.-F. Zhang, C.-Y. Deng, L. Ren, Z. Li, and J.-P. Zhou, "Dielectric, ferromagnetic and magnetoelectric properties of BaTiO₃-Ni_{0.5}Zn_{0.3}Fe₂O₄ composite ceramics," <i>Materials Research Bulletin</i>, vol. 48, pp. 4100-4104, 2013. 12. Z. Yu and C. Ang, "Electrical and magnetic properties of BaTiO₃-(Ni_{0.5}Zn_{0.7})Fe_{2.1}O₄ composites," <i>Journal of Materials Science: Materials in Electronics</i>, vol. 13, pp. 193-196, 2002. 13. K. K. Patankar, S. S. Joshi, and B. K. Chougule, "Dielectric behaviour in magnetoelectric composites," <i>Physics Letters A</i>, vol. 346, pp. 337-341, 2005. 14. O. M. Hameda, A. Tawfik, A. A. Sharif, M. A. Amer, B. M. Kamal, D. E. El Refaay, et al., "DC conductivity and magnetic properties of piezoelectric-piezomagnetic composite system," <i>Journal of Magnetism and Magnetic Materials</i>, vol. 324, pp. 4118-4126, 2012. 	11-14
	<p>Authors: Badr A. El-sayed, Ibrahim A. Ibrahim, Walied A. A. Mohamed, Mahmoud A. M. Ahmed</p> <p>Paper Title: Synthesis and Characterization of Crystalline Nano TiO₂ and ZnO and their Effects on the Photodegradation of Indigo Carmine Dye</p>	
4.	<p>Abstract: TiO₂ and ZnO as nanoparticles have been synthesized and characterized using powder X-Ray Diffraction (XRD) and Scanning Electron Microscope (SEM). The study of photocatalytic Activity using the synthesized TiO₂ and ZnO in commercial and nano forms on the photodegradation of indigo carmine dye under UV irradiation has been carried out. The photodegradation was monitored by measuring the change of dye concentration as a function of irradiation time with power of UV lamps (254, 312 and 354 nm). The optimum of indigo carmine concentration was initially determined; the effects of different pH's on the photodegradation of IC have been studied in the range of (3 - 13.5) under UV irradiation. Also pK_a of the dye was determined by two methods. The photocatalytic effects of different amounts of the synthesized nano particles of TiO₂ (28 nm) and ZnO (34 nm) on the photodegradation rates were of the first- order reaction, and mechanism of photodegradation of the dye was discussed. It is observed that the rate of photodegradation process increasing with the nano particles of the synthesized oxides TiO₂ (28 nm) and ZnO (34 nm) comparable to their commercial oxides.</p>	15-22

Keywords: Indigo carmine (IC), nano oxides, pKa and photocatalytic degradation.

References:

1. M. Double., A. Kumar, Biotreatment of Industrial Effluents. Elsevier, Amesterdam, The Netherlands Eunyong B., Wonyong C., 2003, Highly Enhanced Photoreductive Degradation of Perchlorinated Compounds on Dye-Sensitized Metal/TiO₂ under Visible Light, Environmental Science & Technology, (2005), 37, 147-152.
2. G. Sachin. Ghugal, S. Suresh. Umare and Rajamma Sasikala, RSC Adv., (2015) 5, 63393
3. British Journal of Environmental Sciences, (December 2014), Vol.2, No.4, pp.29-40.
4. International Journal of Chemical Sciences and Applications, (2014), Vol. 5, Issue 1, pp 1-6.
5. I. T. Peternel, N. Koprivanac, A.M. Locaric Bozic, H.M. Kusic, Comparative study of a UV/TiO₂, UV/ZnO and photo-Fenton processes for the organic reactive dye degradation in aqueous solution, Journal of Hazardous Material, 2007, 148, 477-484.
6. Haarstrick, O.M. Kut, E. Heinze, TiO₂-Assisted Degradation of Environmentally Relevant Organic Compounds in wastewater Using a Novel Fluidized Bed Photoreactor, Environmental Science & Technology, 1996, 30, 817-824.
7. H. Lachheb, E. Puzenat, A. Houas, M. Ksibi, E. Elaloui, C. Guillard, J. M. Herrmann., Photocatalytic degradation of various types of dyes (Alizarin S, Crocein Orange G, Methyl red, Congo Red, Methylene blue) in water by UV- irradiated titania, Applied Catalysis B: Environmental, 2002, 39, 75-90.
8. B V Suresh Kumar, C P Sajan, K M Lokanatha Rai, K Byrappa, Indian Journal of chemical technology May 2010, Vol. 17, pp. 191-197.
9. M. Vořnov and J. Augustynski., (1997). "Heterogeneous Photocatalysis", Vol., John wiley & sons LTD, Bafins Lane, Chichester, West Sussex PO19 1UD, England.
10. Hagfeldt Anders, Michel Gratzcl, (1995) "light induced redox reactions in nanocrystalline systems", Chem Rev. 95, 49- 68.
11. Sobczykński, A. Dobosz, Water Purification by Photocatalysis on Semiconductors, Polish Journal of Environmental Studies, . 2001, 10, 195.
12. A. L. Linsebigler, G. Lu, T. John Yates, (1995), Photocatalysis on TiO₂ Surfaces: Principles, Mechanisms, and Selected Results, Chem. Rev, 95, 735.
13. R. Benedix, F. Dehan and J. Quaas, (2000), Application of Titanium Dioxide Photocatalysis to Create Self-cleaning Building Materials, LACER, Vol.5.
14. T. Robinson, G. McMullan, R. Marchant, P. Nigam, Bioresour. Technol., 2001, 77, 247.
15. I. M. Banat, P. Nigam, D. Singh, R. Marchant, Microbial decolorization of textile-dye- containing effluents: a review. Bioresour Technol, 1996, 58, 217-227.
16. Z. Zainal, L.K. Hui, M. Z. Hussein, Y.H. Taufiq-Yap, A. H. Abdullah, I. Ramli, Removal of dyes using immobilized titanium dioxide illuminated by fluorescent lamps. J. Haz. Mat., 2005, 125, 113-120.
17. C. Hachem, F. Bocquillon, O. Zahraa, M. Bouchy, Decolourization of textile industry wastewater by the photocatalytic degradation process., Dyes and Pigments, 2001, 49, 117-125.
18. K. M. Joshi et al Arch. Appl. Sci Res., 2011, 3(2):596-605.
19. CC Liu, YH Hsieh, PF Lai, CH Li, CL Kao, Photodegradation treatment of azo dye wastewater by UV/TiO₂ process., Dyes Pigments, 2006, 68, 5-191.
20. F Kiriakidou, DI Kondarides, XE Verykios, The effect of operational parameters and TiO₂ doping on the photocatalytic degradation of azo-dyes., Catalysis Today, 1999, 54, 30-119.
21. S Senthilkumar, K Porkodi, Heterogeneous photocatalytic decomposition of Crystal Violet in UV illuminated sol-gel derived nanocrystalline TiO₂ suspension., J. of Colloid Interface Sci., 2005, 288, 9-184.
22. CG Silva, W. Wong, JL Faria., Photocatalytic and photochemical degradation of mono-di-and triazo dye in aqueous solution by UV irradiation., J. of Photochem. Photobiol. A, 2006, 181, 24-314.
23. Langmuir, J.Am. Chem. Soc., 1918, 40 1361-1403.
24. AP Toor, A Verma, CK Jotshi, PK Bajpai, V Singh., Photocatalytic degradation of Direct Yellow 12 dye using UV/TiO₂ in a shallow pound slurry reactor., Dyes Pigments, 2006, 68, 53-60.
25. J Sun, L Qiao, S Sun, G Wang, Photocatalytic degradation of Orange G on nitrogen- doped TiO₂ catalyst under visible light and sunlight irradiation, J. Hazard Mater, 2008, 155, 9-312.
26. M. Vautier, C. Guillard, J.-M. Herrmann, Photocatalytic Degradation of Dyes in Water: Case Study of Indigo and of Indigo Carmine, Journal of Catalysis, 2001, 201, 46-59.
27. S. Görög , Ultraviolet-Visible Spectroscopy in Pharmaceutical Analysis CRS Press (Boca Raton New York London Tokyo) Inc. (1995) ; 82-90 .
28. R.I. Allen, K.J. Box, J.E.A. Comer, C. Peake, K.Y. Tam, J. Pharm. Biomed. Anal., 1998, 17 699.
29. P. Maroni and J. P. Calmon, Bull. Soc. Chim. Fr., 1964, 519.

Authors: Fani Samara, Stavros Sakellariou, Stergios Tampekis, Olga Christopoulou, Athanasios Sfougaris

Paper Title: Comparison of the land uses on the Island of Skiathos, Greece

Abstract: The island of Skiathos has a total area of 50 sq. Km, accounting for 1.6% of the area of the prefecture of Magnesia and 0.28% of the Region of Thessaly, Greece. The land is hilly and attributed to farmland, meadows, woodlands, on land covered by water and land occupied by settlements and roads. Also, a large part occupied by burnt areas resulted from the fire of 2007. The aim of this paper is to present the progress of the existing land uses at the Island of Skiathos for the last decades. With the contribution of Geographic Information Systems (GIS) and the orthophotomaps, the spatial planning of the land uses can be evaluated for all these years and the total area can also be calculated. Our results are important for understanding the impacts of land uses on ecosystems in the frame of sustainable development. In the past there wasn't other research about the land uses of Skiathos Island and also is the first digitization of the area.

Keywords: GIS, land uses, area, Island, thematic maps.

References:

1. Lasanta-Martínez T., Vicente-Serrano S. M., & Cuadrat-Prats J. M. "Mountain Mediterranean landscape evolution caused by the abandonment of traditional primary activities: a study of the Spanish Central Pyrenees." Applied Geography 2007, 25(1), 47-65.
2. Moreira F., Rego F. C., & Ferreira P. G. "Temporal (1958e1995) pattern of Change in a cultural landscape of northwestern Portugal: implications for fire Occurrence". Landscape Ecology 2001, 16(6), 557-567.
3. Narumalani S., Mishra D. R., & Rothwell R. G. Analyzing landscape structural change using image interpretation and

5.

23-26

	<p>spatial pattern metrics. <i>GI Science and Remote Sensing</i> 2004, 41(1), 25-44.</p> <p>4. Pausas J. G., Llovet J., Rodrigo A., & Vallejo R. "Are wildfires a disaster in the Mediterranean basin? A review". <i>International Journal of Wildland Fire</i> 2007, 17(6), 713-723.</p> <p>5. Reger B., Otte A., & Waldhardt R. "Identifying patterns of land-cover change and their physical attributes in a marginal European landscape". <i>Landscape and Urban Planning</i> 2007, 81(1-2), 104-113.</p> <p>6. Serra P., Pons X., & Sauri D. "Land-cover and land-use change in a Mediterranean landscape: a spatial analysis of driving forces integrating biophysical and human factors". <i>Applied Geography</i> 2008, 28(3), 189-209.</p> <p>7. Schulz J. J., Cayuela L., Echeverria C., Salas J., & Rey Benayas J. M. Monitoring land cover change of the dryland forest landscape of Central Chile (1975-2008). <i>Applied Geography</i> 2010, 30(3), 436-447.</p> <p>8. Viedma O., Moreno J. M., & Rieiro I. "Interactions between land use/landcover change, forest fires and landscape structure in Sierra de Gredos (Central Spain)". <i>Environmental Conservation</i> 2006, 33(3), 212-222.</p> <p>9. Vogiatzakis I. N., Mannion A. M., & Griffiths G. H. "Mediterranean ecosystems: problems and tools for conservation". <i>Progress in Physical Geography</i> 2006, 30(2), 175-200.</p>	
--	--	--