

# Annual Report 2008-'09

## Department of Civil Engineering

### Introduction

The Department of Civil Engineering with its multifaceted faculty continues to maintain and cultivate its strong links with the building and construction industry and academic and research institutions both within and outside the country. Besides high quality teaching and instruction at both UG and PG levels, the Department is actively involved in basic and applied research and consultancy and provides high quality technical advisory support through various R & D projects and consultancy to various organizations. The department has attracted significant amount of sponsored research funding from government and private agencies.

### Academic Programmes

The Department of Civil Engineering offers broad-based undergraduate BTech degree programme. A dual degree BTech-MTech programme is also run in structural engineering. Postgraduate MTech (admissions through GATE/sponsorships) and PhD (through selections/sponsorships) programmes are offered in the following five specializations:

Transportation Systems Engineering

Geotechnical Engineering

Water Resources Engineering

Structural Engineering

Geodesy and Remote Sensing

This year, 45 MTech and 12 PhD students were admitted in the above specializations. In the first year, 73 students were on rolls in the BTech, 12 in the dual degree BTech/MTech programmes. The students that graduated from the Department are as follows:

<b>Degree Awarded</b>	
BTech.	: 48
MTech.	: 51
Ph.D.	: 15
Dual Degree	
BTech.	: 12
MTech.	: 12

## R&D Activities

### Sponsored Research

<b>Sponsored Research Projects : 49</b>
New : 8
Ongoing : 38
Completed : 13
<b>Faculty Involved : 28</b>

Department received 8 new sponsored projects with a sanctioned outlay of Rs. 47,63,403. A list of ongoing and new sponsored projects is as below:

<b>Project Title</b>	<b>Sponsoring Agency</b>	<b>Status</b>
Estimation of design values of seismic bearing capacity of foundations by pseudo-dynamic method	INAE	Ongoing
Behaviour of shallow footings subjected to underground and overground blast loading	DST	Ongoing
Evaluation of Coal ash as a landfill liner material for waste containment systems	DST	Ongoing
Inelastic displacement-based design of steel plate shear wall (SPSW) structures	DST-SERC	Ongoing
Integrated watershed modeling using IRS data and geographical information systems	ISRO-IITB	Ongoing
Assessment of hydro climatic teleconnection for basin-scale, real-time stream flow and its use in real-time streamflow forecasting	DST	Ongoing
Seismic analysis of piping systems with supplemental devices	BRNS	Ongoing
Centrifuge model studies on strong ground motion in the near field	BARC	Ongoing
Integrated Design of Sewerage, Storm Water Drainage, Drinking Water and Rainwater Harvesting System for Indian Institute of Technology Bombay, Campus	IITB	Ongoing
Development of an integrated web-based wave simulation using wind data, based on soft computing	NIOT	Ongoing
Risk of cracking of clay liners for landfill capping and environmental hazards	Indo-French	Ongoing

### Consultancy Work

204 consultancy projects worth about Rs. 6.08 crores were undertaken during the year by the Civil Engineering Department. 21 faculty members were involved in the above consultancy work.

## **Extension Activities**

In order to encourage and facilitate interaction amongst practitioners and researchers, the following activities were organized:

### **Conferences**

Organized 12th IACMAG Conference in Goa, India during October 1-6, 2008 (Chairman: Singh, D.N.).

### **Workshops**

One day joint workshop by IIT Bombay and PTV, Germany on Micro-simulation of Traffic System using VISUM/VISSIM on May 02, 2008 (Convener: Prof. Tom V Mathew).

Brainstorming Workshop on Application of Advanced Soft-computing techniques in Geo-spatial Data Analysis during September 22-23,,2008 (Convener: Jothiprakash, V., Janga Reddy, M. and Deo, M.C.)

Organized a Workshop on Real time Wave Forecasting using Soft Computing Tools, at IIT Bombay on January 3, 2009 (Convener: Deo, M.C.)

NRB Workshop on Real Time Forecasting of Ocean Waves and Wind, IIT Bombay, Jan. 2, 2009 (Convener: Deo, M.C.).

### **Short-Term Courses**

QIP short term training program on Recent Trends in Water Resources Systems Planning and Management, during 3-7 November 2008 (Convener: Janga Reddy, M. and Jothiprakash, V.)

### **CEP Courses**

Finite Element Method and Applications in Engineering, during November 23-27, 2008 (Convener: Eldho, T.I and Desai, Y.M.).

Recent Trends in Water Resources Systems Planning and Management, during November 3-7, 2008 (Convener: Jothiprakash, V. and Janga Reddy, M.)

Urban Drainage Management-State-of-the-Art, during July 10-12, 2008 (Convener: Gupta, K.)

Mechanics of Solids, during June 30 – July 6, 2008 (Convener: Choudhury, Deepankar)

Hydrologic Impacts of Climate Change and Sustainable Development, during June, 4-5, 2008 (Convener: Ghosh, S.)

Engineering Mechanics, during April 21-25, 2008 (Convener: Choudhury, Deepankar).

## **Visitors to the Department**

Dr. Jeremy Blum, Assistant Professor, Department of Computer Science, Penn State, Harrisburg, USA and National Science Foundation research fellow at IIT Bombay visited and gave lecture on Intelligent Agent Optimization of Urban Bus Transit Operations, on January 30, 2009.

Dr. Laurence R. Rilett, Professor of Civil Engineering at the University of Nebraska-Lincoln (USA) and the Director of the Mid-America Transportation Center, visited and gave lecture on ITS Test Beds for Non-Intrusive Vehicle Detection Sensors on January 30, 2009.

Prof. R. Kerry Rowe, Vice-Principal (Research) and Professor of Civil Engineering, Queen's University, Kingston, Canada delivered a lecture titled Long-Term Performance of Contaminant Barrier Systems on December 31, 2009.

## **Participation in Conferences/Symposia/Workshops/Seminars**

### **Chandiramani, N. K.**

Participated *The Mechanics Conference to Celebrate the 100th Anniversary of The Department of Engineering Science and Mechanics*, Virginia Tech. held during May 29-30, 2008 at Virginia Tech., Blacksburg.

### **Choudhury, D.**

Participated in *The International Geotechnical Conference 'Development of Urban Areas And Geotechnical Engineering'*, held during June 16 - 19, 2008, Saint Petersburg, Russia.

Participated in the *The 12<sup>th</sup> International Conference of International Association for Computer Methods and Advances in Geomechanics (12IACMAG)*, held during October 1 - 6, 2008, Goa, India.

Participated in the *14<sup>th</sup> World Conference on Earthquake Engineering (14WCEE)*, held during October 12 - 17, 2008, Beijing, China.

Participated in the *6<sup>th</sup> Asian Young Geotechnical Engineers Conference (6AYGEC) – 2008*, held during December 20 - 21, 2008, IISc Bangalore, India.

### **Dasaka, S.M.**

Participated in the *Indian Geotechnical Conference-2008* held during December 17-19, 2008 at IISc, Bangalore.

Participated in the *6th Asian Young Geotechnical Engineers Conference (6th AYGEC)* held during December 20-21, 2008 at IISc, Bangalore.

Participated in the *2nd Indian Young Geotechnical Engineers Conference*, held during March 14-15, 2009 at JNTU Kakinada, A.P.

### **Deo, M.C.**

Participated in the *DST Brainstorming Workshop on Application of Advanced Soft Computing Techniques in Geo-Spatial Data Analysis*, during September 22-23, 2008 held at IIT Bombay.

Participated in the *Indian National Conference on Advances in Hydraulic Engineering with special emphasis on Model –Prototype Conformity* during November 6-7, 2008 at CWPRS, Pune

Participated in the *ONGC Seminar on: Challenges in Deep Water Structures*, on December 10, 2008, Mumbai.

Participated in the *Hydro-2008 Conference*, held at MNIT Jaipur during December 15-16, 2008.

Participated in the *International Conference on Ocean Engineering, ICOE2009*, IIT Madras, Feb. 1-5, 2009.

**Eldho, T.I.**

Participated in the *DST Brainstorming Workshop on Application of Advanced Soft Computing Techniques in Geo-Spatial Data Analysis*, during September 22-23, 2008 held at IIT Bombay.

Participated in the *12<sup>th</sup> Int. Conf. of Int. Assoc. for Computer Methods & Advances in Geomechanics (IACMAG)* held during October 1-6, 2008 at Goa.

Participated in the *Indian National Conference on Advances in Hydraulic Engineering (INCAHE)* held during November 6-7, 2008 at CWPRS, Pune.

**Ghosh, S.**

Participated in the *National Conference on Sustainable Water Resources Development and Management* held during June 13-14, 2008 at Govt. Engg. College, Aurangabad.

Participated in the *Planning Workshop on Life Management of Indian Structures* at Thapar University, Patiala, in August 5-7, 2008.

Participated in the *14th World Conference on Earthquake Engineering* in Beijing, China, during October 12-17, 2008.

Participated in the *TU9 Indo-German Workshop*, at IIT Madras, Chennai, during November 30 to December 02, 2008.

**Gupta, K.**

Participated in the meeting *Urban Infrastructural Challenges of the 21<sup>st</sup> Century: Efficient Sewerage and Drainage Management,* during June 5-6, 2008 at Institution of Engineers (India): Kolkata.

Participated in the *13<sup>th</sup> National Hydrology Symposium*, held during August 28-29, 2008 at Delhi.

Participated in the *11<sup>th</sup> International Conference on Urban Drainage*, Edinburgh, UK, August 31 to September 5, 2008. Participated in the *International Urban Water Conference*,

Leuven, Belgium during September 15-19, 2008.

**Janga Reddy, M.**

Participated in the National Conference on *Sustainable Water Resources Development and Management, SWRDAM-2008* held during June 11-12, 2008 at Aurangabad.

**Jangid, R.S.**

Participated in the *World Academy Conference of Science, Engineering and Technology*, during February 25-27, 2009 held at Penang, Malaysia,

Participated in the 14<sup>th</sup> *World Conf. on Earthquake Engineering*, Beijing during October 12-17, 2008.

Participated in the *The 12<sup>th</sup> International Conference of International Association for Computer Methods and Advances in Geomechanics (IACMAG)*, Goa during October 1-6, 2008.

**Jothiprakash, V.**

Participated in the 12<sup>th</sup> *Int. Conf. of Int. Assoc. for Computer Methods & Advances in Geomechanics (IACMAG)* held during October 1-6, 2008 at Goa.

Participated in the *Thematic Symposia on IITB-Monash Research Academy*, November 27-29, 2008 at IIT Bombay.

Participated in the *International Conference on Transportation Planning and Implementation Methodologies For Developing Countries TPMDC 2008* held during December 3-6, 2008, at IIT Bombay.

Participated in the *National Conference, on Hydraulics, Water Resources and Environment, HYDRO-2008* held during December 15-16, 2008 at MNIT Jaipur.

Participated in the *PanIIT Research Symposium 2008 (PIRS'08) An International Conference on Spirit of Research, Spirit of Innovation*, held during December 19-20, 2008 at IIT Madras.

Participated in the *ASCE-EWRI International Perspective on Environmental and Water Resources Conference*, held at Asian Institute of Technology, Bangkok, Thailand during January 5-7, 2009.

**Juneja, A.**

Participated in the *Half-day Workshop on IGS (Mumbai Chapter) and IIT Bombay Lectures on Plaxis FE programming* at IIT Bombay on April 11, 2008.

Participated in the *International Foundation Congress and Equipment Expo 09*, during March 15-19, 2009 held at Orlando, Florida.

**Kant, T.**

Participated and gave an invited lecture at *Indo-Russian Workshop on Solid Mechanics*, Birla Institute of Technology, Panaji, Goa, October 2008.

Participated and gave a keynote lecture at *Sixth Structural Engineering Convention (SEC-2008)*, SERC Madras, Chennai, December 2008.

Participated and delivered an invited talk at *IUTAM Symposium on Multi-functional Material Structures and Systems*, Indian Institute of Science, Bangalore, December 2008.

**Mathew, T.V.**

Participated in the *10th International Conference on Application of Advanced Technologies in Transportation (AATT-08)* held during May 27-31, 2008 at Athens.

Participated in the *88th Annual Meeting of Transportation Research Board*, held during January 11-15, 2009 at Washington DC.

**Invited Lectures**

**Choudhury, D.**

*Introduction to Geotechnical Earthquake Engineering and its Applications* on January 2, 2009 at SVNIT, Surat, Gujarat, India.

*Geotechnical Earthquake Engineering Research and Developments at IIT Bombay* on December 1, 2008 at IIT Madras, India in connection with the TU9-IITM Indo-German Workshop on Earthquake Engineering for Sustainable Structures during November 30 to December 2, 2008

*Recent Developments in Analysis of Waterfront Retaining Structures Subjected to Earthquake and Tsunami* on November 8, 2008 at Department of Earthquake Engineering, Indian Institute of Technology (IIT) Roorkee, India in connection with the receipt of Shamsheer Prakash (SP) Research Award – 2008.

*Analytical Solutions for Design of Waterfront Retaining Structures Subjected to Earthquake and Tsunami* on October 14, 2008 at Beijing, China during Young Researchers Forum of 14<sup>th</sup> World Conference on Earthquake Engineering (14WCEE), Beijing, China.

*Recent Advances in Seismic Design of Waterfront Retaining Structures* on August 29, 2008 at CPRI, Bangalore, India as organized by NITK Surathkal, BARC Mumbai and CPRI Bangalore, India.

**Dasaka, S.M.**

*Design and Construction Aspects of Driven Piles*, College of Engineering, Pune on March 29, 2009.

*Site Investigation and Basics of Foundation Engineering*, MANIT, Bhopal on April 9, 2008.

**Deo, M.C.**

*Climate Change and Effects in Offshore Design*, Proc. ONGC Seminar on Challenges in Deep Water Structures, December 10, 2008, Mumbai.

**Eldho, T.I.**

*Integrated Watershed Modeling using Numerical Method, Geographical Information Systems & Remote Sensing and Scope for Urban Flood Assessment Modeling*, DST Workshop, at IIT Delhi on April 21, 2008.

*Mathematical Modeling of Water Resources Systems*, Nirma University, Ahmedabad on 15<sup>th</sup> July 2008.

*Watershed Modeling Using Numerical Methods, GIS and Remote Sensing*, Nirma University, Ahmedabad on 15<sup>th</sup> July 2008.

*Application of GIS and SCS-CN Method for Watershed Modeling*, Nirma University, Ahmedabad on 15<sup>th</sup> July 2008.

*Groundwater Flow and Contaminant Transport Modeling*, Nirma University, Ahmedabad, on 15<sup>th</sup> July 2008.

*Groundwater Flow Modeling*, Nirma University, Ahmedabad on 28<sup>th</sup> February 2009.

*Applications of GIS & Numerical Methods for Watershed Modeling*, Nirma University, Ahmedabad on 28<sup>th</sup> February 2009.

*Applications of Finite Element Method in Engineering*, Indian Rubber Manufacturer's Research Association, Thane on 30<sup>th</sup> March 2009.

**Ghosh, S.**

*Modeling Hydrologic Impacts of Climate Change*, Govt. Engg. College, Aurangabad on June 13-14, 2008.

**Ghosh, Subimal**

*Climate Change and Uncertainty Modeling*, School of Water Resources Engineering, Jadavpur University on September, 26, 2008.

*Climate Change, Hydrology and Uncertainty Modeling*, NIT Rourkela on November 16, 2008.

**Jothiprakash, V.**

*Conventional Optimization Technique for a Large Scale Irrigation System*, Pravara Rural College of Engineering, Loni, Maharashtra on 26<sup>th</sup> Sep 2008.

*Soft Computing Techniques to Establish Rainfall-Runoff Relationship and Reservoir Inflow Prediction*, AICTE-Workshop on Water Resources Systems Engineering, SVNIT Surat on 26<sup>th</sup> Dec. 2008.

*Rainwater Harvesting*, Indira Gandhi College of Engineering and Technology for Women, Athur, Chengalpat, Tamil Nadu on 11<sup>th</sup> March 2009.

**Juneja, A.**

*Measurement and Interpretation of Stress in Small Soil Models*, Department of Civil and Environment Engineering, University of Pittsburgh USA on March 11, 2009.

**Kant, T.**



*History and Basics of Finite Element Method*, Indian Rubber Manufacturer's Research Association, Thane on 30<sup>th</sup> March 2009.

**Singh, D.N.**

*Modeling of Geoenvironmental Issues*, SVNIT, Surat on January 11, 2009.

*Characterization of Soft Clays for Infrastructure Projects using Bender Elements*, Proc., National Seminar on Geotechnical Solutions for Infrastructures" organized by Indian Geotechnical Society, Ahmadabad Chapter on November 11, 2008.

**Significant Awards / Distinctions**

**Choudhury, D.**

*CBRI Best Paper Award in Diamond Jubilee Conference on Landslide Management – 2008*, Central Building Research Institute, Roorkee, India, April 2008.

*Contributed one of the Most Popular Geotechnical Papers*, ASCE Geotechnical Book News, August 2008, American Society of Civil Engineers (ASCE) Publications, August 2008.

*IEI Young Engineers Award – 2008*, The Institute of Engineers (India), Kolkata, India, Bhubaneswar, India, October 2008.

*IACMAG Excellent Paper Award: Junior – 2008*, International Association for Computer Methods and Advances in Geomechanics (IACMAG), AZ, USA, Goa, India, October 2008.

*Shamsher Prakash Research Award – 2008*, Indian Institute of Technology Roorkee through Shamsher Prakash (SP) Research Foundation, USA, Roorkee, India, November 2008.

*ISTE-SGSITS National Award – 2008*, Indian Society for Technical Education (ISTE), New Delhi, India, Bhubaneswar, India, December 2008.

*Dr. Jai Krishna Prize – 2008*, The Institution of Engineers (India), Kolkata, India, Warangal, India, December 2008.

*INSA-JSPS Bilateral Exchange Programme 2009-2010*, Indian National Science Academy (INSA), New Delhi, India, March 2009.

**Deo, M.C.**

*Contributed one of the Top 10 most cited Ocean Engineering papers over all years and during 2006-2008* as per Thomson Scientific Analysis (ISI)

**Ghosh, S.**

*Professor N.S. Govinda Rao Medal for Best PhD Thesis for 2007-08*, IISc, Bangalore, March, 2009.

**Jothiprakash, V.**

*Certificate of Merit Prize by Institution of Engineers (India) for the paper published in Agricultural Engineering*, December 12, 2008.

**Singh, D.N.**

*IACMAG Excellent Contributions Award 2008.*

*IACMAG Appreciation Award 2008 for the outstanding, highly successful and unique organization of the 12 IACMAG Conference in Goa, India, with meritorious efforts, perseverance and efficiency".*

**Honorary Work****Banerjee, S.**

Member of Organizing Committee, SPIE conference on Health Monitoring and Smart NDE of Structural and Biological Systems, San Deigo, California, USA, March 9-12, 2009.

Reviewed papers for Journal of Intelligent Materials Systems and Structures, and International Journal of Solids and Structures.

**Chandiramani, N. K.**

Reviewed papers for (i) Structural and Multidisciplinary Optimization (ii) Journal of Sound and Vibration (iii) Shock and Vibration (iv) Journal of the Institution of Engineers (India).

**Choudhury, D.**

Reviewed papers for (i) Canadian Geotechnical Journal, (ii) Soil Dynamics and Earthquake Engineering, (iii) Journal of Geotechnical and Geoenvironmental Engineering, ASCE, (iv) International Journal of Geomechanics, ASCE, (v) Engineering Geology, (vi) Ocean Engineering, (vii) Geotechnical Engineering, Proc. of Institute of Civil Engineers (ICE), (viii) Geosynthetics International, (ix) Journal of Earth System Sciences, (x) Sadhana, Journal of Engineering Sciences, (xi) Journal of Institute of Engineers, India and (xii) Indian Geotechnical Journal, India.

Coordinator of *Session No. 11* and Reviewer for *The 12<sup>th</sup> International Conference of International Association for Computer Methods and Advances in Geomechanics (12IACMAG)*, October 1 - 6, 2008, Goa, India organized by IACMAG, USA.

Reviewer for *Geotechnical Earthquake Engineering and Soil Dynamics IV (GEESD-2008)*, May 18 - 22, 2008, Sacramento, California, USA organized by GI-ASCE.

Serving as Nominated Expert Member of the Departmental Undergraduate Programme Committee (DUPC) of Department of Civil Engineering, College of Engineering, Pune (COEP), India, since January 2009.

Guest Editor, Special Issue on "Earthquake Geotechnical Engineering – Recent Developments" for *American Journal of Engineering and Applied Sciences (AJEAS)* (ISSN: 1941-7020), Science Publications, USA.

Member, Coordinator for Asia, *ISSMGE Bulletin*, a Quarterly Newsletter, International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE), London, U.K.

Member, Editorial Board, *Disaster Advances* (ISSN: 0974-262X), a Quarterly Journal, India.

Member, Best Paper Award Nomination Committee under Technical Committee on 'Unsaturated Soils' of Geo-Institute of American Society of Civil Engineers (GI-ASCE), USA.

Reviewer of PhD theses of Department of Civil Engineering, Indian Institute of Science, Bangalore, India and Faculty of Civil Engineering, Jawaharlal Nehru Technological University (JNTU), Kukatpallay, Hyderabad, India.

Reviewer of Master's theses from VJTI Mumbai.

**Dasaka, S.M.**

External Expert member of Research Degree Committee of Civil Engineering Department, NIT, Bhopal.

Reviewer of PhD thesis of Department of Civil Engineering, Indian Institute of Science, Bangalore.

Reviewer of Geosynthetics International, International Journal of Earth Sciences & Engineering

**Deo, M.C.**

Editor-in-Chief, The International Journal of Ocean and Climate Systems, Multi-Science Publications, UK.

Non-official Director, Konkan Railways Corporation.

Associate Editor, ASCE Journal of Computing in Civil Engg.

Member, Editorial Board, International Journal of Ships and Offshore Structures (Taylor and Francis, UK), Open Ocean Engineering Journal (Bentham Press, UK) and Journal of Advances in Civil Engineering, Hindawi Publication Corporation, New York.

Editor, Special Issue – 2008 of the ISH Journal of Hydraulic Engineering, Pune.

Member, Editorial Board of Civil-Comp Conference 2008, UK.

Member, Best Paper Prize Committee, ASCE Journal of Computing in Civil Engg.

Member, Advisory Board, National Water Academy, Ministry of Water Resources.

Member, Advisory Board, Indian National Committee for Hydraulics, Ministry of Water Resources

Member, Faculty Selection Committees of other IITs, IISc and NITs.

Member, Scientists' Selection of a CSIR Labs.

Member, Executive Council, The Indian Society for Hydraulics.

Chair, Curriculum Review Committee, SVNIT Surat.

Member, Board of Studies, Goa University.

Reviewer for papers of ASCE Journal of Computing in Civil Engg., ASCE Journal of Hydraulic Engineering, Natural Hazards, Elsevier, Water Management, ICE, Ocean Engineering, Engineering Application of Artificial Intelligence, Elsevier, Applied Ocean Research, Elsevier, Civil Engineering and Environmental Systems, Springer, Journal of Geophysical Research, AMS, Journal of Environmental and Earth Systems Science, Journal of Hydraulic Engineering, IAHR, Engineering Mechanics, ICE and Computers and Geosciences, Elsevier.

**Eldho, T.I.**

Associate Editor of International Journal of Ecology and Development.

Editor-in-Chief of the new Journal “International Journal of Water Resources and Environmental Management” to be published by Serial Publications from 2009.

Executive Council Member, Indian Society of Hydraulics, Pune.

Referee PhD Theses, IIT Roorkee, NIT Surathkal, Indian Statistical Institute, Kolkotta.

Technical Review Committee Member of ICAR, Rubber Dam project implemented by Indian Rubber Manufacturing Research Association, Thane..

Technical Committee Member of National Conference on Sustainable Water Resources Development & Management, SWRDM, 2008, Aurangabad.

Technical Committee Member of 17<sup>th</sup> APD-IAHR Congress to be held at New Zealand in 2010.

Vice-Chairman, GATE 2009, IIT Bombay.

Reviewed research papers for ASCE Int. Journal of Irrigation and Drainage, Journal Institution of Engineers India (Civil Engineering Section), Journal Hydraulics Research, IAHR, Journal of Environmental Monitoring and Assessment, Journal of Environmental Modeling and Software, ASCE Practice Periodical of Hazardous, Toxic, and Radioactive Waste Management, ISH Journal Hydraulics Engineering, Journal of Advances in Water Resources, Journal of Sadhana, Indian Academy of Sciences, Journal of Water Management, Institution of Engineers, UK, Journal of Hydro-environment Research, Journal of Sediment Research, International Journal of Water and Environmental Management, Journal of Water Resources Management, Int. Journal of Hydrologic Processes, International Journal of Ecology & Development and International Journal Environment and Waste Management.

**Ghosh, S.**

Reviewed research article for the Journal of Structural Engineering, ASCE.

Reviewed project report submitted to the BRNS, DAE, India.

Reviewed PhD thesis from IIT Madras.

Reviewed & examined Master's theses from College of Engineering (Pune), VJTI (Mumbai), and SP College (Mumbai).

Served as the local host professor for Prof. DL Johnston, President, University of Waterloo, Canada at the IITB Golden Jubilee event of the International VC Conclave in January, 2008.

Served as an external expert member of DUPC, College of Engineering, Pune.

Served as an external expert member of DPPC (Structural Engineering), College of Engineering, Pune.

Served as an external expert for PhD interviews in VJTI, Mumbai.

**Gupta, K.**

Member and Convener, Core group for the preparation of National Guidelines on Urban flood disaster management, National Disaster Management Authority (NDMA), Delhi.

Member, Expert committee for preparation of Manual on Urban Drainage, Ministry of Urban Development, Government of India.

Member, Expert Committee on Mumbai Disaster Management Plan, Bombay Municipal Corporation, Mumbai.

**Ghosh, S.**

Reviewed papers for Journal of Hydrology, Water Resources Management, Journal of Earth Systems Sciences, Journal of Hydrologic Engineering, ASCE, Journal of Computing in Civil Engineering, ASCE, Journal of water Resources Planning and Management, ASCE, Journal of Hydraulic Engineering [Indian Society for Hydraulics], Geography and Regional Planning Journal, Journal of Hydroinformatics, Journal of Ocean and Climate Systems in 2008-09.

**Juneja, A.**

Reviewer of papers in (i) Geotechnical Testing Journal, ASTM, American Institute of Physics, NY; (ii) Journal of Materials in Civil Engineering, ASCE; (iii) Geotechnical and Geological Engineering, Springer Science.

Reviewer of papers in international conferences (i) International Foundation Congress & Equipment Expo 09, Geo-Institute of ASCE; (ii) 12<sup>th</sup> International Association for Computers Methods and Advances in Geomechanics.

Core Member ATC-18 on Deep excavations and Mega Foundations of International Society of Soil Mechanics and Geotechnical Engineering (June 2008 onwards).

**Jangid, R.S.**

Reviewer for research papers of ASCE Journal of Structural Engineering, Soil Dynamics and Earthquake Engineering, Journal of Sound and Vibration, Wind and Structures, Advances in Structural Engineering-An International Journal, Engineering Structures, International Journal of Solids and Structures and Finite Elements in Analysis

Editorial Board Member, The Open Ocean Engineering Journal.

Editorial Board Member, The Open Construction and Building Technology Journal.

Independent Director, ETC Network Limited.

**Janga Reddy, M.**

Reviewed papers for Journal of IEEE Transactions on Evolutionary Computation, Journal of Hydrologic Engineering (ASCE), Journal of Computing in Civil Engineering (ASCE), Hydrological Processes Journal, Water Resources Management Journal, Irrigation & Drainage Journal, ISH Journal of Hydraulic Engineering, Journal of Civil Engineering (Institution of Engineers, India).

**Jothiprakash, V.**

Co-opted Member Indian Society for Hydraulics Pune.

Reviewed PhD and MS theses from IIT Madras and Anna Unvierstiy Chennai.

**Kant, T.**

Member: National committee of IUTAM, Engineering science committee of IASc, BW&C of NITIE, AICTE, IITs/IISc selection committees, High-rise committee of Government of Maharashtra, Editorial boards of Computer Modeling in Engineering Science (CMES), Structural Engineering and Mechanics (SEM), International Journal for Computer Methods in Engineering Science and Mechanics (IJCMESM) and Advances in Civil Engineering.

Chairman: AICTE-NBA accreditation committees.

Reviewer: IJCMESM, CMES, Journal of Sound and Vibration, Computational Mechanics, Computers and Structures, PhD theses of IISc, IITKgp, IITM, VNIT-Nagpur, Patna University and Pune University.

**Singh, D.N.**

Editorial Board Member-International Journal of Geotechnical Engineering.

Editorial Board Member--Geotechnical Testing Journal, ASTM International.

Editorial Board Member-- Geomechanics and Geoengineering (Taylor & Francis).

Editorial Board Member-- Korean Society of Civil Engineering (KSCE) Journal of Civil Engineering .

Editorial Board Member-- Geomechanics and Engineering (GAE), An International Journal of Computational and theoretical Geomechanics, Foundation Engineering, Engineering Applications, Site Characterization.

Reviewed Technical papers for several international journals.

Reviewed project proposals for: Georgian National Science Foundation · Technology Foundation, Utrecht, The Netherlands, Department of Science & Technology, DST, New Delhi.

**Faculty Members and their Specializations**

**K.M. Bajoria**, PhD (Cambridge)

*Associate Professor*

Structural engineering: Computer aided design, Non-linear analysis, Nuclear structures.

**P. Banerji**, PhD (UCBerkeley)

*Professor*

Structural engineering: Earthquake analysis, Risk assessment, Artificial neural networks, Nuclear structures.

**Sauvik Banerjee**, (PhD, UCLA)

*Assistant Professor*

Structural engineering: Structural and solid mechanics, Ultrasonic wave propagation in solids, Non-destructive quality evaluation of composites, Structural health monitoring, Dislocation mechanics, Multiscale materials modeling.

**N.K. Chandiramani**, PhD (Virginia Tech)

*Associate Professor*

Structural engineering: Nonlinear dynamics, Stability and control, Solid mechanics.

**D. Choudhury**, PhD (IISc Bangalore)

*Associate Professor*

Geotechnical engineering: Geotechnical Earthquake Engineering, Earth retaining structures, Slope Stability, Anchor, Pile, Bearing capacity problems, Earth Dams, Seismic effects on Reinforced Soil-Wall, Dynamic Soil-Structure interaction problems, Tsunami resistant design of waterfront structures, Seismic behavior of Landfills, Seismic Ground Characterization, Behavior of Subgrade Soil under Cyclic railway and airways loads, Centrifuge Modeling, Fundamentals of soil behaviour for fine grained soils, DDL theory.

**M.C. Deo**, PhD (IIT Bombay)

*Professor*

Ocean engineering: Random data analysis using artificial intelligence techniques, Neural networks, Genetic programming, Model trees, Locally weighted learning, Support vector machines, Soft computing, Data mining, Statistical and stochastic analysis, Hydrology (Random data analysis using soft computing tools)

**Y.M. Desai**, PhD (Manitoba)

*Professor and Head*

Structural engineering: Wind induced vibrations, Computational mechanics, Nonlinear analysis, Finite elements, Parallel computing, Fiber reinforced polymer composites, Composites in construction.

**D.M. Dewaikar**, PhD (IIT Bombay)

*Professor*

Geotechnical engineering: Offshore foundations, Ground improvement, Seepage.

**S.L. Dhingra**, PhD (IIT Kanpur)

*Professor*

Transportation systems engineering: Modeling, Simulation, Economics, Environmental impact assessment, GIS, Expert systems, Artificial intelligence, Genetic algorithms, Fuzzy set theory.

**T.I. Eldho**, PhD (IIT Bombay)

*Professor*

Water resources engineering: Groundwater flow, pollutant transport, remediation – numerical & experimental investigations Computational fluid dynamics – Incompressible viscous flows, shallow water flow, estuary dynamics, pollutant transport Watershed management – applications of numerical models, Geographical Information Systems, Remote sensing.

**Alok Goyal**, PhD (UCBerkeley)

*Professor*

Structural engineering: Base isolation systems and energy absorbing devices, Earthquake analysis and design, Liquid storage tanks, Bridges, Vibration control of structures, Service life assessment of buildings.

**Siddhartha Ghosh**, PhD (Michigan)

*Assistant Professor*

Structural engineering: Performance-based seismic design, Reliability-based seismic design, Plastic design of steel structures, Life cycle cost analysis of buildings.

**Subimal Ghosh**, PhD (IISc, Bangalore)

*Assistant Professor*

Water resources engineering: Uncertainty modeling, Water resources systems, Hydroclimatology.

**Kapil Gupta**, PhD (Sheffield)

*Professor*

Water resources engineering: Urban water supply systems, Urban drainage, Urban water infrastructure management, Flood Protection structures, Computational fluid dynamics, Optimization, Environmental impact assessment, Water quality analysis and modeling, Constructed wetlands, Urban disaster management.

**M. Inamdar**, PhD (CalTech)

*Assistant Professor*

Structural engineering: Solid mechanics, Cellular adhesion and motility, Mechanics of soft materials, Dissipation in structural and mechanical systems.

**R.S. Jangid**, PhD (IIT Delhi)

*Professor*

Structural engineering: Structural mechanics, Structural dynamics and earthquake engineering, earthquake-resistant design, Base isolation for a seismic design of structures, Seismic isolation of bridges and liquid storage tanks, Non-classically damped system, Vibration control using tuned mass dampers.

**A. Juneja**, PhD (NUS Singapore)

*Assistant Professor*

Geotechnical engineering: In-situ and laboratory engineering properties of soil, Numerical and physical modeling in geotechniques, Earthwork, Ground improvement.

**V. Jothiprakash**, PhD (IIT Madras)



*Associate Professor*

Water resources engineering: Water resources systems analysis, Reservoir operation, Policy issues, Multi-objective analysis, Stochastic hydrological modeling, Irrigation water management.

**Tarun Kant**, PhD (IIT Bombay); FNA; FASc; FNAE

*Professor*

Structural engineering: Solid mechanics, Plates, Shells, Fiber reinforced polymer composite laminates, Higher order theories, Thermal stresses, Transient dynamic techniques, Finite elements, Numerical techniques, Polymer composites in construction, Composite mechanics, Computational mechanics.

**J.N. Mandal**, PhD (IIT Kharagpur)

*Professor*

Geotechnical engineering: Geosynthetics for civil engineering construction.

**T.V. Mathew**, PhD (IIT Madras)

*Associate Professor*

Transportation systems engineering: Traffic flow modeling and simulation, Transportation network optimization, control and management.

**Dasaka S. Murty**, PhD (IISc, Bangalore)

*Assistant Professor*

Geotechnical engineering: Site investigation, Stability of shallow and deep foundations, Reliability based design, Ground improvement, Landfill engineering and modeling of soil and rock.

**B.S. Pani**, PhD (Alberta)

*Professor*

Water resources engineering: Diffusion of jets and plumes, Multiple diffusers, Offshore pipelines, Scour problems, Cooling water structures.

**Pankaj K. Porwal**, PhD (Cornell University)

*Assistant Professor*

Structural engineering: Solid and structural mechanics, Impact strength of soft fibrous body armors, Micromechanics and reliability of composites, Statistical strength of twisted fiber bundles, Nanoscale adhesion.

**E.P. Rao**, PhD (IIT Bombay)

*Associate Professor*

Remote sensing: Remote sensing applications to water resources, Runoff modeling, Water distribution systems optimization.

**K.V. Krishna Rao**, PhD (IIT Madras)

*Professor*

Transportation systems engineering: Travel demand modeling, Evolutionary algorithms, Neural networks and GIS in transport planning, Traffic design and analysis.

**K. Gopal Rao**, PhD (IIT Bombay)

*Professor*

Remote sensing: Digital image processing (DIP) of multispectral, thermal and microwave data, Digital elevation modelling (DEM), Geographic information systems (GIS), Artificial neural networks (ANN), Applications of RS, GIS, DEM and ANN in hydrology.

**A.K. Rastogi**, PhD (Birmingham)

*Professor*

Water resources engineering: Groundwater flow modeling of aquifers, Ground water quality modeling.

**Manne Janga Reddy**, PhD (IISc, Bangalore)

*Assistant Professor*

Water resources engineering: Water resource systems, Evolutionary computation for single and multi-objective optimization, Stochastic hydrology, Soft computing applications in hydrology, Climate change impacts on watersheds, water resources and agriculture, Design and performance evaluation of drip and sprinkler irrigation systems, Application of remote sensing and GIS tools in watershed development and management, Precision agriculture and developing decision support systems for water resources management.

**D.N. Singh**, PhD (IIT Kanpur)

*Professor*

Geotechnical engineering: Environmental geotechnics, Radioactive waste disposal, Solid waste utilization, Geotechnical centrifuge modeling.

**Ravi Sinha**, PhD (Northwestern)

*Professor*

Structural engineering: Earthquake engineering, Vibration control and isolation, Structure rehabilitation and condition monitoring, Disaster management.

**G. Venkatachalam**, PhD (Leningrad)

*Professor*

Geotechnical engineering: Finite element analysis, Digital image processing, Digital terrain modeling, Centrifuge, Numerical and GIS modeling of landslides.

**B.V.S. Viswanadham**, PhD (Ruhr)

*Professor*

Geotechnical engineering: Centrifuge modeling, Soil reinforcement, Ground improvement, Environmental geotechnics-waste materials' behaviour, waste containment systems.

## **Publications**

### **Chapters in Books**

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#### **Choudhury, D.** and Modi, Deepa

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#### **Juneja, A.**

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#### Chandramohan, P.V. and **Eldho, T.I.**

“A sculpture in rock – construction of a massive lift irrigation scheme,” *Times Journal of Construction and Design*, Vol. 1, 2008, pp. 49-54.

#### Garg, V. and **Jothiprakash, V.**

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Mayank Mehta and **Jothiprakash, V.**

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