

## **Department of Civil Engineering**

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 & Remote Sensing

This year, 91 MTech and 86 PhD students were on rolls in the above specializations. In the first year, 169 students were on rolls in the BTech, 54 in the dual degree BTech/MTech programmes. During the year, 35 BTech, 31 MTech, 9 DD and 06 PhD students graduated from the Department.

### **Extension Activities**

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

CEP course on “Dynamic Analysis of Deep Water Platforms, for L & T, April 19-20, 2004

CEP course on "Irrigation and Water Resources Management-State of the art, IMTI, Kota, November 1-2, 2004

Workshop on "Model curriculum for M Tech Programs, IIT Bombay, April 6, 2004

Workshop on "Teaching Science and Practice (EFIP), IIT Bombay during September 13-17, 2004

CD Seminar on "Emerging Trends in Publishing Technology and Opportunity, September 29, 2004.

CEP course on "Integrated Water Resources Management Using Numerical Methods, remote Sensing & GIS, November 22-26, 2004, Department of Civil Engineering, IIT Bombay

CEP course on "Advanced Water and Waste Water Treatment Technologies, November 29 - December 3 2004, Centre for Environmental Science and Engineering (CESE), IIT Bombay.

CEP course on "Urban Drainage Management- State-of-the-Art, City Managers' Association of Tamil Nadu, December 17-18, 2004

CEP course on "Urban Drainage Management- State-of-the-Art, IIT Bombay, September 23-25, 2004

CEP course on "Urban Drainage Management- State-of-the-Art, IIT Bombay, July 26-27, 2004

CEP course on "Finite Element Analysis, Research & Development Establishment (Engrs), Dighi, Pune, April 3-4 and 9-10, 2004

CEP course on "Global Positioning System & Its Applications, DEP Course, IIT Bombay, May 14, 2004

NPEE course "Structural Dynamics – Applications to Earthquake Engineering, MHRD Sponsored Training Course, July 12-23, 2004.

## **Sponsored Research**

During the financial year 8 projects were completed and 10 new sponsored research projects worth about 1.61 crores were initiated during the year. A few of the ongoing and new projects are listed below:

Characterization and Design of FRP Reinforced Concrete Structures in India Environment

Centrifuge Model Studies on Stabilization of slopes with Piles

Health Monitoring and Retrofitting of Infrastructure - Indo-US Collaboration Project

Procurement of Spares & Packages for Permanent GPS Station  
Publication of received Brochure...GPS programme  
National Programme for Capacity Building of Engineers in Earthquake Risk Management  
YSRA Displacement Based Earth Pressure under Seismic Conditions  
In-Situ Studies on Hydraulic Conductivity of Unsaturated Soils  
Real Time Wave Forecasting Using Soft Computing Tools  
Characterizing & Designing Concrete With Multiple Attributes Based On Numerical Modeling  
Development of a Multi-purpose Electronic Instructional Facility  
IRCC Project on Stability Evaluation of a Hill Slope

### Consultancy Work

242 consultancy projects worth about Rs.1.92 crores were undertaken during the year by the Civil Engineering Department. 16 faculty members were involved in the above consultancy work.

### Books/Chapters in Books

#### Kulkarni M.N.

National GPS Programme for Earthquake Hazard Assessment, Brochure prepared for DST, Govt. of India, February, 2005.

### National Journal Papers

Azmathullah H.M., Bhajantri M.R., Deolalikar P.B. and **Deo M.C.**,  
Scour at the Base of Flip-Bucket Spillways, *ISH Journal of Hydraulics Engineering*, Indian Society of Hydraulics, Volume 19(2), pp 121-129, 2004.

Kalyani A.R., Joshi M.V. and **Mukherjee A.**,  
Upgradation of RCC Frames with FRC-I: Design of Elements, *Indian Concrete Journal*, Volume 78 (10), pp 15-19, 2004.

Kalyani A.R., Joshi M.V. and **Mukherjee A.**,  
Upgradation of RCC Frames with FRC- II: Design of Structures, *Indian Concrete Journal*, Volume 78 (10), pp 22-25, 2004.

## International Journal Papers

Bakis C.E., Boothby T.E., Maitra S.R., Joshi M.V. and **Mukherjee A.**,  
Mechanical Behaviour of FRP Wrapped Concrete – Complicating Effects,  
*ASCE Journal of Composites in Construction*, Volume 8(2), pp 97-103, 2004.

Bakre S.V. and **Jangid R.S.**,  
Optimum Multiple Tuned Mass Dampers for Base-Excited Damped Main  
System, *International Journal of Structural Stability and Dynamics*, Volume 4,  
pp 527-542, 2004.

Choi G.W., Ukarande S.K. and **Rastogi A.K.**,  
Diffused Interface Model to Prevent Ingress of Sea Water in Multi-Layer  
Coastal Aquifers, *Journal of Spatial Hydrology*, Volume 4, No 2, pp 1-31,  
2004.

Dafedar J.B. and **Desai Y.M.**,  
Stability of Composite and Sandwich Beam - Columns By Mixed Formulation,  
*Journal of Engineering Mechanics*, ASCE, Volume 130, pp 762–770, 2004.

Devasthale A., Krishna M.B. and **Rao E.P.**,  
The Evaluation of JPEG-2000 Compression Standard for Remote Sensing  
Applications" *Asian Journal of Geoinformatics*, Volume 4, No. 4, June 2004

Dhawan K.R., Gupta I.D. and **Singh D.N.**,  
Three Dimensional Finite Element Analysis of Underground Caverns,  
*International Journal of Geomechanics*, Volume 4(3), pp 224-228, 2004.

Dhawan K.R., Gupta I.D. and **Singh D.N.**,  
Dynamic Analysis of Underground Openings, *Rock Mechanics and Rock  
Engineering*, Volume 37(4), pp 299-315, 2004.

**Eldho T.I.**,  
Preventing Groundwater Pollution, *Everything about Water Journal*, Volume 1,  
pp 55-60, 2004.

Gurumoorthy C. and **Singh, D.N.**,  
Diffusion of Iodide, Cesium and Strontium in Charnokite Rock Mass, *Journal  
of Radio analytical and Nuclear Chemistry*, Volume 262(3), pp 639-644, 2004.

Gurumoorthy C. and **Singh, D.N.**,  
Centrifuge Modeling of Diffusion through the Rock Mass, *Journal of Testing  
and Evaluation*, ASTM, Volume 31(1), pp 562-568, 2005.

Jadhav M.B. and **Jangid R.S.**,

Response of Base-Isolated Liquid Storage Tanks, *Shock and Vibration*, Volume 11, pp 33-45, 2004.

**Jangid R.S.,**

Seismic Response of Isolated Bridges, *Journal of Bridge Engineering*, ASCE, Volume 9, pp 156-166, 2004.

**Jangid R.S.,**

Response of SDOF System to Non-Stationary Earthquake Excitation, *Earthquake Engineering and Structural Dynamics*, Volume 33, pp 1417-1428, 2004.

Khare R.K., Garg A.K. and **Kant T.,**

Free Vibration of Composite and Sandwich Laminates with a Higher Order Facet Shell Element, *Composite Structures*, Volume 66, pp 405-418, 2004.

Krishnaiah S., **Singh D.N.** and **Jadhav G.N.,**

A Methodology for Determining Thermal Properties of Rocks, *International Journal of Rock Mechanics and Mining Sciences*. Volume 41, pp 877-882, 2004.

Krishnaiah S. and **Singh D.N.,**

Centrifuge Modeling of Heat Migration In Soils, *International Journal of Physical Modeling in Geotechnics*, Volume 4(3), pp 39-47, 2004.

König D. and **Viswanadham B.V.S.,**

Studies on Scaling and Instrumentation of a Geogrid, *Geotextiles and Geomembranes Journal*, Volume 22, pp 307-308, 2004.

Kulkarni S.C., Reddy G.R., Prasad P., Vaze K.K., Gupta C., **Desai Y.M.** and **Kant T.,**

Uniaxial and Biaxial Ratcheting in Piping Materials – Experiments and Analysis, *International Journal of Pressure Vessels and Piping*, Volume 81(7), pp 609-617, 2004.

Kumar S. and **Deo M.C.,**

Design Wave Estimation Considering Directional Distribution of Waves, *Ocean Engineering*, Volume 31, pp 2343-2352, 2004.

Matsagar V.A. and **Jangid R.S.,**

Influence of Isolator Characteristics on the Response of Base-Isolated Structures, *Engineering Structures*, Volume 26, pp 1735-1749, 2004.

**Mukherjee A.,** and Saha Chaudhuri A.,

Exact Solutions for Instability Control of Piezolaminated Struts. *AIAA Journal*, Volume 42 (4), pp 857-859, 2004.

**Pani B.S.,**

Trajectory of A Round Buoyant Jet In Cross-Flows, *ISH Journal of Hydraulic Engineering*, Volume 11, No.1, March 2005.

Radhakrishnan N., Rai D. and **Kulkarni M.N.,**

GPS and Structural Monitoring: Deformation Studies of Koyna Dam, *GPS World*, Volume 15, No.11, pp14-19, 2004.

Ramtekkar G.S., **Desai Y.M.** and Shah, A.H.,

First Ply Failure of Laminated Composite Plates - A Mixed Finite Element Approach, *Reinforced Plastics and Composites*, Volume 23(3), pp 291–315, 2004.

Rao M.K., Scherbatiuk K. **Desai Y.M.** and Shah A.H.,

Natural Vibrations of Laminated and Sandwich Plates, *Journal of Engineering Mechanics*, ASCE, Volume 130, pp 1268–1278, 2004.

Rao M.K. and **Desai Y.M.,**

Analytical Solutions For Vibrations of Laminated And Sandwich Plates Using Mixed Theory, *Composite Structures*, Volume 63, pp 361–373, 2004.

Shah P.H. and **Singh D.N.,**

A Simple Methodology For Determining Electrical Conductivity of Soils, *Journal of ASTM International*, Volume 1(5), pp 1-11, 2004.

Shrimali M.K. and **Jangid R.S.,**

Seismic Analysis of Base-Isolated Liquid Storage Tanks, *Journal of Sound and Vibration*, Volume 275, pp 59-75, 2004.

Sreedeeep S., Reshma A.C. and **Singh D.N.,**

Generalized Relationship for Determining Soil Electrical Resistivity from its Thermal Resistivity, *Experimental Thermal and Fluid Science*, Volume 29, pp 217-226, 2005.

Sreedeeep S., Reshma A.C. and **Singh D.N.,**

Measuring Soil Electrical Resistivity Using a Resistivity Box and a Resistivity Probe, *Geotechnical Testing Journal*, ASTM, Volume 27(4), pp 411-415, 2004.

Sreedeeep S. and **Singh D.N.,**

A Study to Investigate Influence of Soil Properties on Its Suction, *Journal of Testing and Evaluation*, ASTM, Volume 31(1), pp 579-584, 2005.

Varia H.R. and **Dhingra S.L.**,  
Dynamic User Equilibrium Traffic Assignment on Congested Multidestination Network, *Journal of Transportation Engg, ASCE*, Volume130, No 2, pp 211-221, 2004.

Young D.L. and **Eldho T.I.**,  
Two Dimensional Incompressible Viscous Flow Simulation Using Velocity-Vorticity Dual Reciprocity Boundary Element Method', *Journal of Mechanics*, Volume 20, No.3, 2004.

### **National Conference Papers**

Babu K.V. and **Viswanadham, B.V.S.**,  
A Study on the Deformation Behaviour Of Cantilever Sheet Pile Wall In Sand, *Proc. National Symposium on Advances in Geotechnical Engineering NSAGE*, Bangalore, pp 145-150, June, 2004.

**Deo M.C.**,  
M Tech Progrmas - Curriculum and related issues, *National Seminar on Engineering Education*, IISc, Bangalore, pp 1-5, February 25-26, 2005.

**Eldho T.I.** and Chandra N.,  
Two Dimensional Hydrodynamic Modeling of COCHIN Estuary Using Finite Element Method" *National Conference, INCHOE2004*, NIO, Goa, December 7-9, 2004.

**Kant T.**,  
On Two-Dimensional Modeling of Fiber Reinforced Composite Laminates, *Proc. Fifteenth Mid-Year Meeting of the Indian Academy of Sciences*, July 2-3, 2004.

**Kant T.**,  
On Two-Dimensional Modeling of Fiber Reinforced Composite Laminates, *Proc. National Conference on Structural Engineering and Mechanics (SEM-04)*, BITS Pilani, September 24-25, 2004.

Rajeev K.P. and **Singh D.N.**,  
Modeling Of Contaminant Transport Through Clayey Soil Using Laboratory Column Test, *Indian Geotechnical Conference*, Warangal, pp 262-264, 2004.

Shah P.H. and **Singh D.N.**,  
Assessment of Corrosion Potential of Soils, *Indian Geotechnical Conference*, Warangal, pp 1-4, 2004.

**Singh D.N.,**

Numerical and Physical Modeling of Geomaterials, *Indian Geotechnical Conference*, Warangal, pp 59-65, 2004.

Shah P.P. and **Singh D.N.,**

Pore Fluid Sampling Using A Pressure Membrane Extractor, *National Symposium on Advances in Geotechnical Engineering (NSAGE-2004)*, IISc Bangalore, July 22-23, 2004.

Sreedeeep S., Kuriyan S.J. and **Singh D.N.,**

Estimation of Hydraulic Conductivity of Soils from their Electrical Resistivity, *Indian Geotechnical Conference*, Warangal, pp 61-64, 2004.

### **International Conference Papers**

Agnihotri S.D. and **Jangid R.S.,**

Earthquake-Resistant Design Of Bridges Using Seismic Isolators, *Proc. of Int. Conf. on Emerging Technology*, Bhubaneshwar, pp 48-55, December 21-24, 2004.

Bakre S., Reddy, G.R. and **Jangid R.S.,**

Seismic response of piping systems with isolation devices, Paper No. 2676, *13<sup>th</sup> World Conf. on Earthquake Engineering*, Vancouver, August 1-6, 2004.

Bandivadekar T.P. and **Jangid R.S.,**

Vibration Control Using Multiple Tuned Mass Dampers, *Proc. of VETOMAC 3 & ACSIM 2004 Conference*, New Delhi, pp 382-389, December 6-9, 2004.

Bhaskararao A.V. and **Jangid R.S.,**

Seismic Response Of Adjacent Building Connected With Dampers, Paper No. 3143, *13<sup>th</sup> World Conf. on Earthquake Engineering*, Vancouver, August 1-6, 2004.

Bhaskararao A.V and **Jangid, R.S.,**

Response Of Adjacent Buildings Connected With Passive Damper, *Proc. of Int. Conf. on Structural and Road Transportation Engineering*, Kharagpur, pp. 306-314, January 3-5, 2005.

Dugad S.B., and **Pani B.S.,**

Effect Of Seepage On Scour Caused By Circular Wall Jets, *ISEH Symposium and 14<sup>th</sup> IAHR-APD2004 Congress*, Hong Kong, Volume II, pp. 1835-1842, 2004.

**Eldho T.I.,**

Hydraulic Techniques for Groundwater Pollution Remediation, *Int. Conf. on*

*Geosynthetics & Geoenvironmental Engineering*, IIT Bombay, December 8-10, 2004.

**Eldho T.I.** and Singh A.K.,  
Sustainable Development of Water Resources for Poverty Reduction, *Int. IABSE- Conference 2005*, New Delhi, Feb. 2005.

**Eldho T.I.** and Chandra Mohan P.V.,  
Hydrodynamics & Salinity Transport Modeling of Cochin Backwater, *National Conference, HYDRO-2004*, Nagpur, December 2004.

**Gupta K.**,  
Interactions Between Sewers, The Urban Wastewater System And Receiving Waters In Hyderabad, India, *Proceedings, 4<sup>th</sup> International Conference on Sewer Processes and Networks*, Funchal, Madeira, Portugal, pp 11-19, November 22-24, 2004.

**Gupta K.** and Sreeja P.,  
Dynamic Modeling of Urban Drainage Systems For Controller Design, *Proceedings CBIP Fifth International R & D Conference*, Bangalore, pp 186-196, February 15-18, 2005.

**Gupta K.**, Mehta P, Thinglas T., Tait S.J., and Stovin V.,  
Optimization of Sediment Trap Configuration Using CFD Modeling, *Proceedings CBIP Fifth International R & D conference*, Bangalore, pp 175-185, February 15-18, 2005.

**Gupta K.** and Sreeja, P.,  
Urban Flood management by structural and non-structural measures, *CBIP workshop on Flood and Drought Management*, New Delhi, pp 160-170, September 16-17, 2004.

Jha A., Jana R., Singh A.K., and **Eldho T.I.**,  
Integrated Watershed Modeling Using Finite Element Method and GIS Approach, *14<sup>th</sup> IAHR (APD) & 4<sup>th</sup> ISEH Conference*, Hong Kong, December 15-18, 2004.

Kalra R., Raj Kumar, Agarwal V.K. and **Deo M.C.**,  
Relating Deep Water Waves With Coastal Waves Using Neural Networks, *Hydro 2004*, VNIT, Nagpur, pp 581-588, December 27-28, 2004.

**Kant T.**,  
Thermomechanics of Polymer Composites, Invited Presentation, *Proc. of Recent Advances in Composite Materials*, BHU Varanasi, December 17-19, 2004.

Krishnaiah S. and **Singh D.N.**,

A Methodology to Determine Thermal Properties of Cement and Concrete Blocks, *Proc. Intl. Conf. on Advances in Concrete and Construction (ICACC-2004)*, Hyderabad, pp 785-794, December 16–18, 2004.

**Kulkarni M.N.**, Radhakrishnan N., Rai D. and Deshpande S.,

Techniques for Monitoring deformation in Large Engineering Structures, *Proceedings of the Third International Symposium on New Techniques For Urban Safety of Mega Cities in Asia*, Agra, October 18-19, 2004.

**Kulkarni M.N.**, Radhakrishnan N., Rai D.,

Global Positioning System in Disaster Monitoring of Koyna Dam, Western Maharashtra, *Proc. on CD, 24<sup>th</sup> ISRS Annual Convention and National Symposium*, Jaipur, November 3-5, 2004.

**Kulkarni M.N.**,

Application of GPS & GIS to Transportation Engg: Some Case Studies, Proc. on CD, *International Conference: START-2005*, IIT Kharagpur, January 3-5, 2005

**Kulkarni M.N.**, Rai D. and Patel P.R.,

Study of Horizontal Crustal Motion and Land Subsidence in South Gujarat Using the Global Positioning System, *Proc. on CD, Map India-2005 International Conference*, New Delhi, January 27-28, 2005.

**Kulkarni M.N.**,

Indian National Programme on GPS Studies for Geodynamics, *Proc. on CD, Asia Oceania Geophysical Society International Conference: AOGS-2004*, Singapore, July, 2004.

Kulkarni S.C., **Desai Y.M.**, **Kant T.**, Reddy G.R., Gupta C. and Chakravarthy J.K.,

Ratcheting Behavior Of Primary Heat Transport (PHT) Piping Material SA-333 Carbon Steel Subjected To Cyclic Loads At Room Temperature, *Proc 12th Int Conf Nuclear Eng (ICONE12)*, Vol 1, pp 801 – 816, 2004 (date?).

Mahajan R. and **Viswanadham B.V.S.**,

Centrifuge Modeling of Geotextile Reinforced Slopes, *Proc. Of Geosynthetics - New Horizons*, New Delhi, pp 87-98, 2004.

Mahajan, R. and **Viswanadham B.V.S.**, "Testing of Geotextile Reinforced sand slopes in a Large Beam Centrifuge, *Proc. International Conference on Geosynthetics and Geoenvironmental Engineering*, ICGGE-2004, pp. 472-477, December 8-10, 2004.

Mahajan R. and **Viswanadham B.V.S.**,  
Modeling of Geotextile Reinforced Highway Slopes in a Geotechnical Centrifuge, *Proc. GEOTRANS 2004*, Los Angeles USA, 2004.

Mathada V.M., **Venkatachalam G.** and Srividya A.,  
Spatially Distributed Reliability and Risk in Slopes, *Proc. Intl. Workshop on Risk Assessment in Site Characterization and Geotechnical Design (GEORISK 2004)*, IISc, Bangalore, pp. 160-166, November 26-27, 2004.

Mishra S.K., Sahu R.K., Jain M.K. and **Eldho T.I.**,  
An improved rainfall runoff model based on SCS-CN methodology, *Int. Conf. Water Resources Management*, IIT Roorkee, Feb. 2005.

Namekar S., Kambekar A.R. and **Deo M.C.**,  
Prediction of pile scour using ANN, *INCHOE conference*, Goa, pp 716-723, December 7-9, 2004.

Namekar S. and **Deo M.C.**,  
Neural Networks to Derive Wave Spectra, *ISOPE-2004 Conference*, Toulon, France, Session 21, Volume 3, Paper 7, 2004.

Patil L.G. and **Pani B.S.**,  
Helicoidal Flow Jet Flocculator, *ISEH Symposium and 14<sup>th</sup> IAHR-APD2004 Congress Hong Kong*, Volume II, pp. 1875-1882, 2004.

Pendhari S.S., Kalani M. and **Kant T.**,  
Fiber reinforced polymer composites for rehabilitation of Structures, *Proc. Seminar on Coastal Area Construction Management*, Mumbai, pp 218-224, November 1-2, 2004.

Pendhari S.S., Desai Y.M. and **Kant T.**,  
Modeling of reinforced concrete beams strengthened with composites, *Proc. International Conference on Structural and Road Transportation Engineering (START 2005)*, Indian Institute of Technology Kharagpur, January 3-5, 2005.

Rajeev K.P. and **Singh D.N.**,  
Derivation of Scaling Relationships for Centrifuge Modeling of Contaminant Transport Through Soils, *Int. Conference on Geosynthetics and Geoenvironmental Engineering (ICGGE-2004)*, IIT Bombay, pp 437-442, December 8-10, 2004.

Rao M.K., **Desai Y.M.** and **Kant T.**,  
A Comparison Of Displacement And Mixed Models For Elasto-Statics Of Composite Plates, Keynote Talk, *Proc. Third International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2004)*, IIT Kharagpur, December 28-30, 2004.

**Rastogi A. K.,**

Mitigation of Natural Hazards in India – Interlinking of Rivers Project – *Proc. of 4<sup>th</sup> International Disaster Prevention Cooperation Seminar*, Seoul at Jeju Island, South Korea pp 41-51, November 19, 2004.

**Rastogi A.K.,**

Mitigation of Natural Hazards in India by River Basin Transfer of Water, *Proc. of Stream Design and Application in the Field with Consideration of Environmental Concept Seminar*, Incheon, South Korea, pp 95-115, November 1, 2004.

Reddy K.V., **Eldho T.I.** and **E.P. Rao,**

Runoff generation with kinematic wave model by GIS and Remote sensing techniques, *Fifth Inter. Conf. R&D Conference on Development & Management of Water & Energy Resources*, CBIP, Bangalore, Feb. 2005.

Shah A., **Kulkarni M.N.**, Tomar V.S. and Likhar S.,

Some Recent Results from GPS Studies for the January 2001 Bhuj Earthquake, *Proc. on CD, Map Asia International Conference*, Beijing-China, August 26-29,2004

Singh R.K., Singh R.K. and **Kant T.,**

Nonlinear Finite Element Analysis Of Deep Reinforced Concrete Beams Using Various Plasticity And Shear Deformation Kinematics Theories, *Proc. International Congress on Computational Mechanics and Simulation (ICCMS-04)*, IIT Kanpur and Indian Association for Computational Mechanics, pp 294-299, December 9-12, 2004.

Singh R.K., Singh R.K., Jain R.C., Ramanujam S., Ghosh A.K., Kushwaha H.S. and **Kant T.,**

Shear Failure In Beams With Second Order Shear Deformation And 3D Plasticity Theory, *Proc. Third International Conference on Theoretical, Applied, Computational and Experimental Mechanics (ICTACEM 2004)*, IIT Kharagpur, December 28-30, 2004.

Soneji B.B. and **Jangid R.S.,**

Seismic Isolation Of Cable-Stayed Bridge Using Laminated Rubber Bearings, *2<sup>nd</sup> International Conference on Protection of Structures against Hazards*, Singapore, pp. 303-310, December 1-3, 2004.

Subbaiah C.V. and **Kant T.,**

Analytical And Computational Mechanics Of Functionally Graded Beams, Plates And Shells, Invited Talk, *Proc. International Congress on Computational Mechanics and Simulation (ICCMS-04)*, IIT Kanpur and Indian Association for Computational Mechanics, pp 86-95, December 9-12, 2004.

Thakur V.K.S. and **Singh D.N.**,  
Evaluation of Different methods Used for Development of Soil Water Characteristics Curve" *7<sup>th</sup> Int. Symp. on Environmental Geotechnology and Global Sustainable Development*, Helsinki and Espoo, Finland, June 8-10, 2004.

Thakur V.K.S. and **Singh D N.**,  
Experimental Investigation for Studying Influence of Various Parameters on Soil Water Characteristics Curve, *GeoQuebec 2004, 57<sup>th</sup> Canadian Geotechnical Conference*, Quebec, Canada, session 5E, pp. 7-11, 2004.

Tharachand S. and **Viswanadham B.V.S.**,  
Testing of Geosynthetic Reinforced Flyash slopes, *Proc. Geosynthetics - New Horizons*, New Delhi, pp. 99- 106, 2004.

Tharachand S. and **Viswanadham B.V.S.**,  
Testing of Geosynthetic Reinforced Flyash slopes, *Proc. Geosynthetics - New Horizons*, New Delhi, pp. 87-98, October 2004.

Thomas J., Satkalmi V., Bhonsle S., Saroop U.K. and **Viswanadham B.V.S.**,  
Performance evaluation of Road reinforced with a woven Geotextile. *Proc. Geosynthetics - New Horizons*, New Delhi, pp. 213- 221, 2004.

**Venkatachalam G.**,  
Hazard and Risk Evaluation of Natural Slopes - Key Note Paper, *Intl. Workshop on Risk Assessment in Site Characterization and Geotechnical Design* (GEORISK 2004), IISc, Bangalore, November 26-27, 2004.

## Honorary Works

### Deo M.C.

Associate Editor of ASCE Journal of Computing in Civil Engg.  
Member, Editorial Board of the Journal of Ships and Offshore Structures,  
Member, Editorial Board, Civil-comp Conference, Rome 2005.  
President, The Indian Society of Hydraulics, Pune  
Chairman, Editorial Committee, ISH Journal of Hydraulic Engineering, Indian Society for Hydraulics  
Member of Various Accreditation Committees of National Board of Accreditation

Referee for Papers for ASCE Journal of Hydrologic Engg, ASCE Journal of Waterways, Port, Coastal and Ocean Engg., ASCE Journal of Computing in Civil Engg., Water Resources Research, Papers for Journal of Ships and

Offshore Structures, Journal of Natural Hazards, Journal of Ocean Modeling, Journal of Hydrology, Journal of Advances in Engineering Software, Journal of Institution of Engineers, Journal of Marine Sciences

Referee for Best paper selection for ASCE-JCCE

Referee for Papers for Indian Conferences including Inchoe2004 and Hydro2004.

### **Eldho T.I.**

Reviewer for Int. Journal of Water, Air and Soil Pollution, Journal Institution of Engineers India (Civil Engineering Section), Journal of Indian Association of Hydrologists, Journal of Spatial Hydrology (Electronic Journal), ISH Hydraulics Journal

### **Gupta K.**

Referee for papers and member of scientific committee for the papers for the “4<sup>th</sup> International Conference on Sewer Processes and Networks” to be held at Funchal, Madeira, Portugal in 22-24 November, 2004;

Referee for papers and member of scientific committee for the papers for 10 ICUD: “10<sup>th</sup> International Conference on Urban Drainage” to be held at Copenhagen, Denmark during August 21-26, 2005.

Member of three International working groups of the IAHR/IWA joint committee on Urban Drainage - *Sewer Systems and Processes Working Group (SS&PWG)*, *Urban Rainfall Group (URG)*, Technology, Exchange, Transfer and Training Working Group (TETTWG)

Member, Expert Committee, Mumbai Disaster Management Plan, BMC, Mumbai.

### **Jangid R.S.**

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

**Kant T.**

Member, Editorial Board, International Journal for Computational Methods in Engineering Science and Mechanics (IJCMESM) and Structural Engineering and Mechanics-An International Journal;

Expert member of selection committees for faculty selection & Member of accreditation teams of AICTE-NBA.

**Kulkarni M.N.**

Member, Editorial Board, Survey Review International Journal, UK

Referee for review of papers for journals: Survey Review UK, Current Science, India, GIS at development, India, NISCAR Journal, India, GPS World, USA, Indian Surveyor, Journal of Institution of Surveyors,

Member, National Expert Committee on GPS, DST, Govt of India

Member, Expert Subgroup on Advanced Technology Applications, Natural Resource Development & Management Service, DST, Govt. of India, from 3 Sept. 2001

Member, Assessment & Promotion Committee, Indian Institute of Geomagnetism, Panvel, Nov., 2003 and National Geophysical Research Institute, Hyderabad

Member, Indian National Science Academy Committee on Geodesy

Member and Rep. from India, International Association of Geodesy.

Member, Asia-Pacific Space Geodynamics Group (APSG)

Member, Advisory Committee, Symbiosis Institute of Geo-informatics, Pune

**Rastogi A.K.**

Reviewer for ASCE- HRTWM Journal, Hydrology Journal, Water and Energy International Journal, NIH, ISH – Jr. of Hydr. Engg, Jr. of Porous Media.

**Venkatachalam G.**

Conference Chairman, International Conference on Geotechnical and Geoenvironmental Engineering, IIT Bombay, Dec. 2004.

Chairman, Session on Reliability, International Conference on Risk and Reliability, GEORISK, IISc, Bangalore, 2004.

Expert Member, Technology Leadership Evaluation Program, L & T, Mumbai

Invited expert for advise on Artificial landslide induced lakes for Ministry of Home Affairs.

Member, Tripartite Awards Committee, Directorate General Factory Advice Service and Labour Institutes, Ministry of Labour.

Member, Sub-Committee on Reviewing Norms for Vishwakarma Award Leader of Honble Mumbai High Court appointed Multi-IIT Committee for investigating stability of hill slope adjacent to a High Rise Building.

Member, Expert Committee for studying landslides along Mumbai-Pune Expressway, MSRDC.

Chairman/Member of AICTE NBA Accrediatation teams.

## **Invited Lectures**

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

Research needs in coastal hazard preparedness, National Workshop on Formulation of Science Plan for Coastal Hazard Preparedness, NIO, Goa, Feb. 18-19, 2005,

Soft computing experiments for ocean state forecast, Workshop on Advanced Ocean state Forecast and Ocean Modeling, ISRO, Ahmedabad, December 20-21, 2004.

### **Eldho T.I.**

Conservation of water through Integrated Watershed management & Rain water Harvesting, *Pollution & Public Awareness - AICTE One Day National Workshop on Environment*, Mumbai, August 12, 2004.

Groundwater Pollution – Protection, Control & Remediation, *Pollution & Public Awareness - AICTE One Day National Workshop on Environment*, Mumbai, August 12, 2004.

Linking of Indian Rivers – A National River Grid Plan, *Pollution & Public Awareness - AICTE One Day National Workshop on Environment*, Mumbai, August 12, 2004.

**Gupta K.**

Significance of Natural disasters for Hospital Services, 60<sup>th</sup> Bombay Medical Congress, INHS Asvini, Mumbai, August 01, 2004.

**Kulkarni M.N.**

GPS & Its Applications, National Water Academy, Pune, October 14, 2004

GPS for Disaster Management, Indian Institute of Remote Sensing, Dehradun, 15<sup>th</sup> July 15, 2004

Indian GPS Programme, IIT Kanpur, July 20, 2004

GPS & Its Applications, National Water Academy, Pune, January 28, 2005

**Mukherjee A.**

Our Research on Smart Materials and Structures, Indo-US workshop on Smart Materials in Infrastructure, Mumbai, December 21, 2004.

Composite Materials in Construction, Indo-US workshop on composite materials, NCL, Pune, December 19, 2004.

Structural Upgradation with Fiber Reinforced Composites, Ruia College of Polytechnic, December 16, 2004.

New Materials and Techniques in Upgradation of Reinforced Concrete Structures, National Council for Cement and Building Materials, Port Blair, December 4-5, 2004.

Fiber Reinforced Composites in Seismic Retrofitting of Buildings, Indo-Taiwan Joint Workshop on Seismic Evaluation & Retrofit of Buildings, November 22-23, 2004.

Fiber Reinforced Composites for Structures, Institution of Engineers, Port Blair, November 16, 2004.

Workshop on Repairs and Rehabilitation of Concrete structures, Sponsored by Pidilite (I) Ltd., September 2004,

Lecture series on Application of Fiber Reinforced Composite Materials in Structures at Delhi, Kolkata, Bangalore, Hyderabad, Chennai, Ahmedabad, Sponsored by Fosroc (I) Ltd., 2003-2004.

**Rastogi A.K.**

Application of Various Groundwater Models in Water Resources Engineering, Inha Univ, Dept. of Civil and Env. Engg; South Korea, November 2, 2004.

Groundwater Flow, Inverse, Transport and Sea Water Intrusion Models, Seoul National Univ, Dept. of Civil and Env. Engg, South Korea, November 8, 2004.  
Importance of Groundwater Models as Tools for Effective Water Management, Dongguk Univ, Dept. of Civil and Env. Engg, South Korea, November 10, 2004.

Modeling Groundwater Systems, KCIT, Water Resources Dept, Ilsan, South Korea, November 16, 2004

The role of mathematical modeling in the management of groundwater resources of Mahi Right Bank Canal Command Area, N G R I- Hyderabad, December 13, 2004

Numerical methods of solution - Finite Element, N G R I- Hyderabad Dec. 13, 2004

Inverse modeling in groundwater flow, N G R I- Hyderabad, December 14, 2004

Stream – aquifer interaction by finite element modeling, CMRI – Dhanbad, March 15, 2005

Hydrologic parameter assessment by inverse modeling, CMRI – Dhanbad March 16, 2005

Evaluation of recharge – discharge relationship in groundwater modeling, CMRI – Dhanbad March 16, 2005

### **Venkatachalam G.**

Safety in Construction Industry, Key Note Lecture in Seminar on SHE Management in Building and Construction Work, National Safety Council, Maharashtra, January 2005.

Landslide Risk Evaluation Using GIS, Invited presentation at National Workshop on Disaster Management , Organized by NIDM and India Habitat Centre, New Delhi, March, 2005.

### **Participation/Organization of Conference**

#### **Dhingra S.L.**

Organised International Workshop on *Transportation Planning & Implementation Methodologies for Developing Countries* with special emphasis on Infrastructure Systems during December 16-18, 2004.

## **Jangid R.S.**

13<sup>th</sup> World Conf. on Earthquake Engineering, Vancouver, August 1-6, 2004

2<sup>nd</sup> International Conference on Protection of Structures against Hazards, Singapore, December 1-3, 2004

VETOMAC 3 & ACSIM 2004 Conference, New Delhi, December 6-9, 2004.

## **Mukherjee A.**

Indo-US workshop on Smart Materials in Infrastructure, Mumbai, India, 21-22 December 2004

14<sup>th</sup> International Workshop on Computational Mechanics of Materials, Goa, India, 23-25 September 2004

6<sup>th</sup> World Congress on Computational Mechanics, Session on Electro-Thermo-Mechanically coupled materials, Beijing, China, 5-11 September 2004

## **Specializations of the Faculty**

**N.K. Bairagi**, PhD (IIT Bombay)

*Professor*

Structural engineering: Elastic shells, Recycled aggregate concrete, Twisted reinforcements.

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

*Associate Professor*

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

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

*Professor*

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

**V.S. Chandrasekaran**, PhD (Liverpool)

*Professor*

Geotechnical engineering: Soil-structure interaction, Offshore Foundations, Centrifuge modelling.

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

*Assistant Professor*

Geotechnical engineering: Earth retaining structures, Slope Stability, Anchor, Pile, Bearing capacity problems, Fundamentals of soil behaviour for fine grained soils, DDL theory.

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

*Professor*

Off-shore Engineering, Wave hydrodynamics, Analysis of random data, Neural networks and Statistical analysis.

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

*Professor*

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)

*Associate 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.

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

*Professor*

Surveying and remote sensing, Digital Analysis and modelling, GIS, Decision support systems, Software development.

**Alok Goyal**, PhD (Berkeley)

*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.

**S. Ghosh**, Ph.D (Michigan)

*Assistant Professor*

Structural engineering: Performance-Based Seismic Design, Reliability-Based Seismic Design, Plastic Design of Steel Structures, Life Cycle Cost Analysis of Buildings.

**Kapil Gupta**, PhD (Sheffield)

*Associate 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 modelling, Constructed Wetlands, Urban Disaster Management.

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

*Associate 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.

**Tarun Kant**, PhD (IIT Bombay)

*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.

**R.K. Katti**, PhD (Iowa)

*Professor Emeritus*

Geotechnical engineering.

**Madhav N. Kulkarni**, PhD (Ohio State)

*Professor*

Surveying and remote sensing: Global positioning system (GPS), Space geodesy, Geodetic Studies for geodynamics and earthquake monitoring, Mapping, GIS.

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

*Professor*

Geotechnical engineering: Geosynthetics for civil engineering construction.

**A. Mukherjee**, PhD (IIT Kharagpur)

*Professor*

Structural engineering: Composite materials, Environmental effects, Artificial neural networks, Artificial intelligence, Fiber reinforced composites.

**S. Narasimhan**, PhD (Iowa)

*Professor Emeritus*

Water resources engineering.

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

*Professor*

Water resources engineering: diffusion of jets and plumes, multiple diffusers, offshore pipelines, scour problems, cooling water structures.

**B.V. Rao**, PhD (IISc Bangalore)

*Professor*

Water resources engineering: Separation control in diverging channels, 3-dimensional flow, Multireservoir systems, Multiaquifer basins, Interbasin transfer.

**C.S. Rao**, PhD (IIT Bombay)

*Associate Professor*

Remote sensing: Image processing, Geodetic adjustment, Non-linear optimization, Field astronomy.

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

*Assistant Professor*

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

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

*Professor*

Transportation systems engineering: Travel demand modelling; Evolutionary algorithms, neural networks and GIS in transport planning; Traffic design and analysis.

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

*Professor*

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

**P.K. Sikdar**, PhD (Waterloo)

*Professor (on lien)*

Transportation systems engineering.

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

*Professor*

Geotechnical engineering: Soil exploration and characterization, Foundation analysis and design, Stability analysis, Environmental geotechnics, Soil contamination detection and modelling, radioactive waste disposal, Solid waste utilization, Geotechnical centrifuge modelling.

**Ravi Sinha**, PhD (Northwestern)

*Professor*

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

**V.M. Tom**, PhD (IIT Madras)

*Assistant Professor*

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

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

*Professor and Head*

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

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

*Associate Professor*

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