

International Conference on Advances in Civil Engineering (ACE 2002) 3-5 January 2002

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Conference Program

A brief write-up about the (i) Technical Sessions, (ii) Food and accommodation and (iii) Cultural programs is given below to give you a birds-eye-view of the entire arrangements.

The following pages will show the Program Schedule of presentation of 171 technical papers including one Keynote paper and 13 Invited papers during the three days of the Conference (3-5 January 2002). After completing the Registration and Inauguration at 10-45 hrs, there will be a tea break up to 11 - 45 hrs. The Keynote paper will be in one session, followed by Invited papers. There will be six Invited papers on 3rd January and six on 4th January. These Invited papers will run in two parallel sessions. The one Invited paper of 5th January will run in one session.

In addition, the program also includes the timings of Breakfast, Lunch, Tea and Dinner. Tea (except immediately after the Inauguration) will be supplied near the Session venue to facilitate easy access.

The Program schedule also mentions about the Cultural Programs, we could arrange for all of you on the evenings of 3rd and 4th January.

All the three items, mentioned above, are elaborated below.

(i) Technical Sessions:

There are five Technical Sessions each having five parallel sessions. Technical session I is on 3rd January, Technical sessions II and III are on 4th January, while Technical sessions IV and V are on 5th January. Each of these twenty-five Technical sessions is having Chairman and Co-Chairman. The details of the titles of each of the papers along with their respective authors are indicated in the Program schedule.

The following few lines will help you to locate your paper vis-à-vis others.

Each paper has a three-digit number: the first digit (one to six) indicates the broad area and the following two digits are the serial number of that paper. The first digit 7, however, indicates that those are Invited papers, including Keynote paper. The different first digits and their broad areas are given below:

| First digit | Broad Area | No. of Papers |
|-------------|-----------------------------|---------------|
| 1 | Water Resources Engineering | 51 |
| 2 | Transportation Engineering | 21 |
| 3 | Environmental Engineering | 25 |
| 4 | Geotechnical Engineering | 18 |
| 5 | Structural Engineering | 39 |
| 6 | General | 03 |
| 7 | Keynote & Invited Papers | 14 |

Twenty-five Sessions are also represented by three digits followed by letter 'S'; the first digit (from one to five) indicates the Session number, followed by two digits indicating the respective parallel session number. Thus, Session number S204 means that it is the Fourth parallel Session of the Second Technical Session. The total time slot of each Session, including summarizing by the respective Chairman and Co-Chairman, is also indicated within parentheses. It is very important for each contributing author to complete his presentation including answering questions, if any, within the allotted 15 minutes. We sincerely request the authors to follow this guideline to avoid the consequent chain reaction of delayed sessions. All facilities including multi media projector with an attached PC, OHP, microphone will be provided.

Parallel sessions of each Technical session will be held in the following venues located within the academic premises of IIT:

Parallel Session 1: IEM Seminar Room, Industrial Engineering Dept.

Parallel Session 2: VGSOM Hall I, Vinod Gupta School of Management

Parallel Session 3: SN Bose Auditorium, Main Building

Parallel Session 4: VGSOM Hall II, Vinod Gupta School of Management

Parallel Session 5: IEM EDP Room, Industrial Engineering Dept.

For example Session S403 will be held in SN Bose Auditorium.

(ii) Food and lodging:

All the delegates are provided accommodation in three Guest Houses well within the campus. The farthest place is within one kilometer from the respective venue of the Seminar halls. Their names and the contact Phone Numbers are given below:

- (a) Technology Guest House, Manager Mr. K.B.Mahapatra, Phone No. 2840 (O) and 2841 (R), 2800 (Reception), Room Nos 01 to 27 (respective Phones: 2801 to 2827).
- (b) Alumni Guest House, Phone. No. 2860
- (c) CEC Guest House (V.Niwas), Ph.No. 2880

The arrangement for food (Breakfast, Lunch and Dinner) has been made in a common venue, popularly known as "Hangar" within the IIT academic premises. We have arranged transport for all of you at your needs. These arranged transports would take you and bring back from the venue, so that you do not have any problem in a new place. Such transport arrangements are also made to bring you from your place of lodging in the morning and to take you back at night, or whenever you may be needing on emergency.

(iii) Cultural Programs:

On 3rd evening from 17.30 to 19.00 hrs, Pandit Tejendra Majumdar will play Sarod accompanied by Pundit Kumar Bose on Tabla. On the same day from 19.00 to 21.00 hrs, Ms. Tanshree Shankar and her troupe will perform the cultural program. She belongs to the family of great maestro Late Pandit Uday Shankar.

On 4th January, Professor Sri Bandyopadhyay (an Invited Speaker also), of the University of New South Wales, Sydney, Australia will present his skill in music for about an hour starting from 18.00 hrs.

You will know more about these programs through other invitations.

Wishing all you a very Happy New Year 2002.

Looking forward to meeting you in ACE 2002.

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SPEAKER'S GUIDE

Presentation

After the session chairman invites you for presentation, briefly introduce yourself (less than a minute) and then begin the presentation. After the discussion period is over, the next speaker will be introduced.

- All speakers are encouraged to make their presentation using MS Powerpoint. [They are encouraged to submit the Powerpoint file in CD-ROM format or 3½" floppy diskette, if space permits, to expedite downloading. Please use the paper number as the file name.](#) However Overhead Projector (OHP) will also be provided in each conference room.

Duration

Technical presentations: 12 minutes presentation, 3 min Q&A (Total 15 min.)

- The bell will sound **ONCE**, 3 minutes before the end of the presentation period.
- The bell will sound **TWICE** with 1 minute remaining in the presentation period.
- All presenters **MUST** conclude/wrap-up after the bell is rung the second time.

Computer Software & Accessories

Computers will be provided in the conference rooms. All computers will be installed with:

- Windows 95/98
- Office '97/2000
- Winzip
- Acrobat PDF reader (Ver 4 or 5)
- CD-ROM drive
- Floppy diskette drive

Conference Rooms

An LCD (multimedia) projector and a computer will be [set-up](#) in each conference room. Speaker's presentation material must be loaded into designated computers. All files **MUST** be loaded [at least](#) 2 hours prior to your presentation.

Overhead Projector (OHP)/ Slide Projector

OHP will be kept in each conference room. Slide Projectors will be made available from the control/preview room upon request. Please consult with the person-in-charge in the Control/Preview Room for slide projector.

Control/Preview Room

Additional desktop computers are available for speakers to preview their presentation material.

International Conference on Advances in Civil Engineering (ACE 2002)
Program Summary

| | 3 rd January 2002 | 4 th January 2002 | 5 th January 2002 |
|---------------|---|---|--|
| 7.30 - 7.45 | Breakfast | Breakfast | Breakfast |
| 7.45 - 8.00 | | | |
| 8.00 - 8.15 | | | |
| 8.15 - 8.30 | | | |
| 8.30 - 8.45 | Registration | Invited papers (2 Nos.) | Tech. Session (IV) (5 Nos.) (S401 to S405) |
| 8.45 - 9.00 | | | |
| 9.00 - 9.15 | | | |
| 9.15 - 9.30 | | | |
| 9.30 - 9.45 | Inauguration | Invited papers (2 Nos.) | Invited paper (1 No.) |
| 9.45 - 10.00 | | | |
| 10.00 - 10.15 | | | |
| 10.15 - 10.30 | | | |
| 10.30 - 10.45 | Tea | Tech. Session (II) (5 Nos.) (S201 to S205) | Tech. Session (V) (5 Nos.) (S501 to S505) |
| 10.45 - 11.00 | | | |
| 11.00 - 11.15 | | | |
| 11.15 - 11.30 | | | |
| 11.30 - 11.45 | Keynote Paper | Invited papers (2 Nos.) | Valedictory Function |
| 11.45 - 12.00 | | | |
| 12.00 - 12.15 | | | |
| 12.15 - 12.30 | | | |
| 12.30 - 12.45 | Lunch | Lunch | Lunch |
| 12.45 - 13.00 | | | |
| 13.00 - 13.15 | | | |
| 13.15 - 13.30 | | | |
| 13.30 - 13.45 | Invited papers (2 Nos.) | Invited papers (2 Nos.) | Tea |
| 13.45 - 14.00 | | | |
| 14.00 - 14.15 | | | |
| 14.15 - 14.30 | | | |
| 14.30 - 14.45 | Invited papers (2 Nos.) | Tech. Session (III) (5 Nos.) (S301 to S305) | Cultural Program |
| 14.45 - 15.00 | | | |
| 15.00 - 15.15 | | | |
| 15.15 - 15.30 | | | |
| 15.30 - 15.45 | Tea | Alumni Meet | Dinner |
| 15.45 - 16.00 | | | |
| 16.00 - 16.15 | | | |
| 16.15 - 16.30 | | | |
| 16.30 - 16.45 | Tech. Session (I) (5 Nos.) (S101 to S105) | Cultural Program | Dinner |
| 16.45 - 17.00 | | | |
| 17.00 - 17.15 | | | |
| 17.15 - 17.30 | | | |
| 17.30 - 17.45 | Cultural Program (2 Nos.) | Conference Dinner | Dinner |
| 17.45 - 18.00 | | | |
| 18.00 - 18.15 | | | |
| 18.15 - 18.30 | | | |
| 18.30 - 18.45 | | | |
| 18.45 - 19.00 | | | |
| 19.00 - 19.15 | | | |
| 19.15 - 19.30 | | | |
| 19.30 - 19.45 | | | |
| 19.45 - 20.00 | | | |
| 20.00 - 20.15 | | | |
| 20.15 - 20.30 | | | |
| 20.30 - 20.45 | Dinner | Dinner | Dinner |
| 20.45 - 21.00 | | | |
| 21.00 - 21.15 | | | |
| 21.15 - 21.30 | | | |
| 21.30 - 21.45 | Dinner | Dinner | Dinner |
| 21.45 - 22.00 | | | |

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Technical Sessions Program (Summary)

(Paper Numbers to be presented in each Technical Session)

January 3, 2002 (Thursday)

Technical Session I (16.00 to 17.00 hrs)

| S101 | S102 | S103 | S104 | S105 |
|-------------|-------------|-------------|-------------|-------------|
| 122 | 304 | 502 | 210 | 402 |
| 124 | 315 | 527 | 218 | 414 |
| 125 | 331 | 606 | 228 | 421 |

January 4, 2002 (Friday)

Technical Session II (10.45 to 12.45 hrs)

| S201 | S202 | S203 | S204 | S205 |
|-------------|-------------|-------------|-------------|-------------|
| 101 | 142 | 524 | 202 | 401 |
| 114 | 160 | 528 | 208 | 403 |
| 136 | 166 | 546 | 212 | 405 |
| 140 | 167 | 547 | 214 | 417 |
| 146 | 169 | 548 | 224 | 418 |
| 150 | 170 | 550 | 225 | 419 |
| 154 | 171 | 552 | 226 | 420 |

January 4, 2002 (Friday)

Technical Session III (14.45 to 17.30 hrs)

| S301 | S302 | S303 | S304 | S305 |
|-------------|-------------|-------------|-------------|-------------|
| 102 | 309 | 509 | 220 | 407 |
| 103 | 312 | 519 | 227 | 408 |
| 116 | 319 | 521 | 235 | 416 |
| 121 | 324 | 522 | 236 | 422 |
| 144 | 326 | 523 | 237 | 424 |
| 157 | 327 | 529 | 238 | 425 |
| 159 | 334 | 540 | 239 | 427 |
| 163 | 335 | 544 | 243 | 428 |
| 165 | 336 | 553 | | |

January 5, 2002 (Saturday)

Technical Session IV (08.30 to 10.00 hrs)

| S401 | S402 | S403 | S404 | S405 |
|-------------|-------------|-------------|-------------|-------------|
| 108 | 313 | 512 | 201 | 111 |
| 112 | 316 | 514 | 240 | 120 |
| 115 | 320 | 515 | 241 | 127 |
| 126 | 322 | 541 | 604 | 128 |
| 138 | 323 | 560 | 605 | 130 |
| | 332 | | | |

January 5, 2002 (Saturday)

Technical Session V (11.00 to 13.00 hrs)

| S401 | S402 | S403 | S404 | S405 |
|-------------|-------------|-------------|-------------|-------------|
| 107 | 302 | 545 | 504 | 109 |
| 118 | 308 | 549 | 520 | 145 |
| 131 | 310 | 555 | 551 | 149 |
| 134 | 317 | 556 | 554 | 155 |
| 137 | 318 | 557 | 559 | 156 |
| 139 | 321 | 558 | 601 | 161 |
| 143 | 325 | 561 | 602 | 172 |
| 168 | | 562 | 603 | |

International Conference on Advances in Civil Engineering (ACE 2002) 3-5 January 2002

Detailed Program

January 2, 2002 (Wednesday)

Registration : 15.00 to 17.00 hrs (Venue: CE Seminar Room)

January 3, 2002 (Thursday)

Breakfast : 07.30 to 09.00 hrs

Registration : 08.00 to 09.30 hrs (Venue: Near SN Bose Auditorium)

Inauguration: 09.30 to 10.45 hrs (Venue: Netaji Auditorium)

Tea: 10.45 to 11.15 hrs

Paper
No.

Title & Authors

Keynote Address (11.15 to 12.00 hrs)
Venue: SN Bose Auditorium

- 701 Nondestructive Monitoring of Concrete Structures: New Developments
Kolluru V. Subramaniam and Surendra P. Shah
Prof. Surendra P. Shah, Northwestern University, Evanston, USA

Invited Papers
Two Parallel Sessions (12.00 to 12.45 hrs)

- 702 Entropy Theory in Environmental and Water Resources Modeling
Vijay P. Singh
Prof. Vijay P. Singh, Louisiana State Univ., Baton Rouge, USA

Venue: IEM Seminar Room

- 708 Rational Shear Theory of Reinforced Concrete: A Historical Overview
Thomas T.C. Hsu
Prof. Thomas T.C. Hsu, Univ. of Houston, Houston, USA

Venue: SN Bose Auditorium

Lunch: 12.45 to 14.00 hrs

Invited Papers

Two Parallel Sessions (14.00 to 14.45 hrs)

- 751 Watershed Runoff from Geomorphology-based Artificial Neural Networks
Bin Zhang and Rao S. Govindaraju
Prof. Rao S. Govindaraju, Purdue Univ., West Lafayette, USA

Venue: IEM Seminar Room

- 752 Application of Fibre Reinforced Plastic Composites in Civil Engineering Structures
P.R. Chakrabarti, D. Millar and S. Bandyopadhyay
Prof. S. Bandyopadhyay, Univ. of New South Wales, Sydney, Australia

Venue: SN Bose Auditorium

Invited Papers

Two Parallel Sessions (14.45 to 15.30 hrs)

- 705 Technological Advances in Road and Transport Engineering in Sub-Saharan Africa
Philip Hendricks
Dr. Phillip Hendricks, CSIR-Transportek, Pretoria, South Africa

Venue: SN Bose Auditorium

- 706 An Evaluation of the Appropriate Technologies for Treatment of Domestic Wastewater in Tropical Countries
C. Venkobachar
Prof. C. Venkobachar, Univ. of West Indies, St. Augustine, West Indies

Venue: IEM Seminar Room

Tea: 15.30 to 16.00 hrs

Technical Session I

Five Parallel Sessions S101,S102,S103,S104,S105 (16.00 to 17.00 hrs)

S101. Stochastic Hydrology (16.00 to 17.00 hrs)

Venue: IEM Seminar Room

Chairman : **Prof. Vijay P. Singh**, Louisiana State Univ., Baton Rouge, USA
Co-Chairman : **Prof. S.N. Panda**, IIT, Kharagpur, India

- 122 Use of Medium to Long-Term Probabilistic Forecasting for Water Resources Management Applications
Ashish Sharma
- 124 A Resampling Model for Daily Rainfall Occurrence
Timothy I. Harrold, Ashish Sharma and Simon Sheather
- 125 Frequency Behaviour of Peak Flow of River Ranganadi in Arunachal Pradesh
R.K.Prasad and A.K.Sarma

S102. Water Treatment and Pollution Control (16.00 to 17.00 hrs)**Venue: VGSOM Hall I**Chairman : **Prof. C. Venkobachar**, Univ. of West Indies, St. Augustine, West IndiesCo-Chairman : **Prof. S.C. Kundu**, IIT, Kharagpur, India

- 304 Riverbank Filtration for Water Supply: An Alternative to Direct Intake of Surface Water
Chittaranjan Ray
- 315 Effect of Substrate Concentration on the Degradation of Nitrophenols
Khursheed Karim and S.K. Gupta
- 331 Sustainability Approach to Waste Management - A Case of Modified Design for Landfills
Sudhakar Yedla

S103. Construction Materials (16.00 to 17.00 hrs)**Venue: SN Bose Auditorium**Chairman : **Prof. Surendra P. Shah**, Northwestern University, Evanston, USACo-Chairman : **Prof. A.P. Gupta**, IIT, Kharagpur, India

- 502 Damage Modeling in Horizontally Loaded Reinforced Masonry
Giuseppina R. Uva, Rita Greco, Giuseppe Marano and Mauro Mezzina
- 527 Reinforced Concrete Elements under High Strain Rates
Pranava Kumar Jha and Ananth Ramaswamy
- 606 Random Fluctuations in the Material Micro-structure: The Need for Space-Time Modeling
Baidurya Bhattacharya

S104. Pavement Engineering (16.00 to 17.00 hrs)**Venue: VGSOM Hall II**Chairman : **Dr. Phillip Hendricks**, CSIR-Transportek, Pretoria, South AfricaCo-Chairman : **Prof. B.B. Pandey**, IIT, Kharagpur, India

- 210 Runoff Through Porous Pavements
Vittorio Ranieri
- 218 Numerical Modelling of Cracked Reinforced Concrete Pavements
A. Montepara and F. Giuliani
- 228 Design of Runway for Durban International Airport
Ramachandra Rao Kalaga and Archana K. Gupta

S105. Pile Foundation Investigations (16.00 to 17.00 hrs)**Venue: IEM EDP Room**Chairman : **Prof. P.J. Pise**, IIT, Kharagpur, IndiaCo-Chairman : **Prof. D.P. Ghosh**, IIT, Kharagpur, India

- 402 Feasibility of Superpile Anchors for Tension Leg Platforms
Baleshwar Singh, Manoj Datta and Shashi K. Gulhati
- 414 Dynamic Centrifuge Modelling of Seismic Behaviour of Piles
S.P. Gopal Madabhushi and Subhamoy Bhattacharya
- 421 Effect of Densification on Granular Pile Treated Ground
Madhira R. Madhav, P.K. Basudhar and K.P. Sujata

Tea: 17.00 to 17.30 hrs**Cultural Program: 17.30 to 21.00 hrs****Dinner: 21.00 hrs onwards**

January 4, 2002 (Friday)

Breakfast: 07.30 to 09.00 hrs

Invited Papers

Two Parallel Sessions (09.00 to 09.45 hrs)

- 704 The Role of Transportation as a Civil Engineering Subdiscipline in a Changing World
Kumares C. Sinha
Prof. Kumares C. Sinha, Purdue Univ., West Lafayette, USA

Venue: SN Bose Auditorium

- 707 Importance of Soil Behavior in Geotechnical Modeling
Andrew J. Whittle
Prof. Andrew J. Whittle, Massachusetts Institute of Technology, Cambridge, USA

Venue: IEM Seminar Room

Invited Papers

Two Parallel Sessions (09.45 to 10.30 hrs)

- 710 Advances in Computing Techniques for Transportation Planning
S.L. Dhingra
Prof. S.L. Dhingra, IIT Bombay, Mumbai, India

Venue: IEM Seminar Room

- 713 Reflections on Shell Theories
Tarun Kant
Prof. Tarun Kant, IIT Bombay, Mumbai, India

Venue: SN Bose Auditorium

Tea: 10.30 to 10.45 hrs

Technical Session II

Five Parallel Sessions S201,S202,S203,S204,S205 (10.45 to 12.45 hrs)

S201. Applied Hydrology & Groundwater Modeling (10.45 to 12.45 hrs)

Venue: IEM Seminar Room

Chairman : **Prof. Rao S. Govindaraju**, Purdue Univ., West Lafayette, USA

Co-Chairman : **Prof. D. Nagesh Kumar**, IIT, Kharagpur, India

- 101 Flood Situation in Coastal Area due to Dam Failure
Siddhartha Bagchi
- 114 Groundwater Pollution Management using Pump and Treat Technology: a Case Study
U. Mohrllok and T.I. Eldho

- 136 Identification of Unknown Groundwater Pollution Sources using Artificial Neural Network
Raj Mohan Singh, Bithin Datta and Ashu Jain
- 140 General and Sensitivity Analysis of Rainfall Recharge Model
M.K. Nagaraj
- 146 Efficacy of Seawater Intrusion Preventive Structures on Meghal River Basin of Saurashtra Region, Gujarat: A Case Study
V.P. Parekh and A.S. Patel
- 150 Groundwater Management in a Coastal Catchment in Orissa, India using a Finite Element Model
R. Rejani, S. N. Panda, M. K. Jha, T.I. Eldho and R. Mull
- 154 A Comparative Study of Permeability: HYPON versus Carman-Kozeny Models
Ram C. Acharya, Anton Leijnse and Sjoerd E.A.T.M. van der Zee

S202. Water Resources Management (10.45 to 12.45 hrs)

Venue: VGSOM Hall I

Chairman : **Prof. Nani G. Bhowmik**, Illinois State Water Survey, Champaign, USA

Co-Chairman : **Prof. Ashish Sharma**, Univ. of New South Wales, Sydney, Australia

- 142 Risk Analysis of Dam Gates and Associated Operating Equipment for Multiple Hazardous States using Fault Tree Methodology
Chandra S. Putcha, Robert C. Patev, Stuart D. Foltz, John Schroerlucke and Kevin Arima
- 160 Long Term Operating Policy for a Single Reservoir System via Genetic Algorithms - Part I
Kamel Al-Mohseen and Rakesh Khosa
- 166 Role of Mathematical Models in the Layout Design of Ports and Harbours
L.K. Ghosh and S. Balakrishna
- 167 Long Term Operating Policy for a Single Reservoir System via Genetic Algorithms - Part II
Kamel Al-Mohseen and Rakesh Khosa
- 169 Reservoir Sizing Model for Multicrop Irrigation
P.G. Jairaj and S. Vedula
- 170 Spatially Distributed Root Zone Water Balance Modeling
M. K. Goel, S. K. Jain, U. C. Chaube and P. K. Agarwal
- 171 Water Management under Deficit Water Condition
Jothiprakash V. and Mohan S.

S203. Analytical and Experimental Investigation of Structures (10.45 to 12.45 hrs)

Venue: SN Bose Auditorium

Chairman : **Prof. Thomas T.C. Hsu**, Univ. of Houston, Houston, USA

Co-Chairman : **Prof. J.N. Bandyopadhyay**, IIT, Kharagpur, India

- 524 Effect of Moment of Inertia of Pylon on the Structural Behavior of Cable Stayed Bridges
S.V.Rajeeva and J.Mouneawara
- 528 Durability of Reinforced Concrete Structures: Analysis of S.Nicola Stadium of Bari, Italy
Stefano Delussi and Giuseppe Carlo Marano
- 546 FRPC Confined Concrete Columns- Experimental and Analytical Studies
Abhijit Mukherjee, Swati Roy Maitra and Mangesh V. Joshi
- 547 Optimal Grade and Cover for RC Elements Through Life Cycle Cost Design
N. Harikrishna and B. Bhattacharjee
- 548 Toughness Characteristics of Steel Fibre Reinforced Flyash Concrete Mixes
B.T. Patil, Mattur C. Narasimhan and M. Ravi Kishore
- 550 Ultrasonic Pulse Velocity for High Volume Flyash Concrete
Virendra Kumar, M.M. Prasad and K.K. Jain
- 552 An Interactive Approach of Concrete Mix Design is Boom for Construction Industry
Ashok Dhariwal

S204. Traffic Engineering & Transportation Planning (10.45 to 12.45 hrs)
Venue: VGSOM Hall II

Chairman : **Prof. P.K. Sikdar**, CRRI, New Delhi, India
Co-Chairman : **Prof. S.L. Dhingra**, IIT Bombay, Mumbai, India

- 202 An Internet-based Pre-trip Traveller Information System in Singapore
Feng Xie and Soi-Hoi Lam
- 208 Convenience Analysis for the Realization of an Air Transport System of Fourth Level
Domenico Sassanelli
- 212 Analysis of the Interactions between Road Infrastructure and Social-economic Development
Pasquale Colonna and Achille Fonzone
- 214 Evaluation of Time Allocation to Travel and Other Activities Through Time-Use Analysis
A. Lakshmi and CSRK Prasad
- 224 A Method of Evaluating Private Investments in Road Projects
S. Velmurugan, T.S. Reddy and H.H. Suthar
- 225 TSM Actions to Improve Traffic Operations - A Case Study
T. S. Reddy, E. Madhu and J. V. R. Reddy
- 226 Traffic Calming -A Tool to Improve Urban Environment
T.S. Reddy and Nagendra Madiwal

S205. Analytical and Experimental Investigations in Geotechnical Engineering (10.45 to 12.45 hrs)
Venue: IEM EDP Room

Chairman : **Prof. M.R. Madhav**, IIT, Kanpur, India
Co-Chairman : **Prof. S.P. Dasgupta**, IIT, Kharagpur, India

- 401 Displacement - Related Active Earth Pressure
Deepankar Choudhury and K.S. Subba Rao
- 403 Free Vibration Analysis of Circular Plate on Elastic Half-Space by FEM-BEM Coupling
J.J. Mandal and D.P. Ghosh
- 405 Assessments of Fly Ash and Bottom Ash Stabilization Methods on Soft and Natural Expansive Soils
Anand J. Puppala, Koonamas Punthutaecha and Nandika D'Souza
- 417 Reinforcing Soil Anchors with Geosynthetics
Subbarao Chillara, Dasari Ganeswara Rao and Ghosh Ambarish
- 418 Fly Ash and Stabilized Fly Ash as Construction Materials
Subbarao Chillara, Ghosh A., Behera L., Mukherjee S. and Chand S.K.
- 419 Study of the Nature of Uplift Resistance of Underreamed Piles
K.V. Krishnamurthy and Siddhartha Sengupta
- 420 Site Characterisation by Expert System
Arun Kumar, Tiwari A. N., Patil P. M. and Mishra S.S.

Lunch: 12.45 to 14.00 hrs

Invited Papers
Two Parallel Sessions (14.00 to 14.45 hrs)

- 711 Novel Approach to Wastewater Treatment
S.K. Gupta
Prof. S.K. Gupta, IIT Bombay, Mumbai, India

Venue: IEM Seminar Room

- 712 Analysis and Response of Granular Pile Reinforced Ground
M.R. Madhav
Prof. M.R. Madhav, IIT, Kanpur, India

Venue: SN Bose Auditorium

Technical Session III

Five Parallel Sessions S301,S302,S303,S304,S305 (14.45 to 17.30 hrs)

S301. Applied Hydrology (14.45 to 17.30 hrs)

Venue: IEM Seminar Room

Chairman : **Prof. S. Bagchi**, Manhattan College, Riverdale, USA

Co-Chairman : **Prof. K.N. Tiwari**, IIT, Kharagpur, India

- 102 Knowledge of Basin Hydrology in Mitigating and Managing Water Related Disasters
S.V. Vijaya Kumar
- 103 Comparisons between Back Propagation and Radial Basis Function based Neural Networks in Rainfall-Runoff Modeling
K.P.Sudheer, A.K. Gosain and K.S Ramasastry
- 116 Artificial Neural Network Technique for Evapotranspiration Estimation
M. Kumar, N. S. Raghuvanshi and R. Singh
- 121 Application of SMADA for Hyderabad Urban Watershed
E.Venkata Rathnam and K.V.Jayakumar
- 144 Effect of Irrigation Scheduling on Profile Soil Water Status and Water Use Efficiency under Scarcity Conditions
P. S. Kashyap and R. K. Panda
- 157 Development of GIS Based GIUH Model for an Ungauged Catchment
Rakesh Kumar, C. Chatterjee, S. Kumar, A. K. Lohani and R.D. Singh and R.K. Nema
- 159 Rainfall-Runoff Modeling With Neural Networks
Prakash C. Swain and N.V. Umamahesh
- 163 Application of Remote Sensing and GIS in Watershed Prioritization
Sujata Biswas, V.R. Desai and S. Sudhakar
- 165 Sustainable Watershed Management Strategies in Semi-arid Region of India - A Case Study
Anupam K. Singh and T.I. Eldho

S302. Pollution Control Technologies (14.45 to 17.30 hrs)

Venue: VGSOM Hall I

Chairman : **Prof. Chittaranjan Ray**, Univ. of Hawaii at Manoa, Honolulu, USA

Co-Chairman : **Prof. Tarasankar Pal**, IIT, Kharagpur, India

- 309 Effects of Atrazine on Methanogenic Activity of Anaerobic Mixed Microbial Culture
P. K. Ghosh, Ligy Philip and M. Bandyopadhyay
- 312 Critical Issues in Bioremediation of Oil and Tar Contaminated Sites
S. Mukherji and A. Vijay
- 319 Thermodynamics of the Removal of Herbicides 2,4-D and Atrazine by Waste Rubber Granules
J. B. Alam, A. K. Dikshit and M. Bandyopadhyay
- 324 Indoor/Outdoor Air Quality Relationship and Evaluation of Air Handling Units Efficiency - A Case Study
Sanjeev Gupta and Mukesh Khare
- 326 Photochemical Dissolution of Gold Nanoparticles by Trihalomethanes and its Analytical Application
Anjali Pal and Manas Bandyopadhyay

- 327 Studies on Biomethanation of Water Hyacinth (*Eichhornia Crassipes*) by Phase Separation
N.W. Ingole and A.G. Bhole
- 334 Ecosystem Restoration of Large Rivers: River Restoration or River Development ?
Nani G. Bhowmik
- 335 Evaluation of Performance and Kinetic Parameters by Sorption for the Removal of Heavy Metals Using Bagasse
M. Rao, A.V. Parwate, V.P. Deshpande and A.G. Bhole
- 336 Performance of Upflow Anaerobic Reactor Treating Municipal Sewage
Md. Ahmaruzzaman and Rehan Ahmad Khan

S303. Vibration Analysis (14.45 to 17.30 hrs)

Venue: SN Bose Auditorium

Chairman : **Prof. R.N. Iyengar**, IISc, Bangalore, India

Co-Chairman : **Prof. P.K. Sinha**, IIT, Kharagpur, India

- 509 Behavior of GFRP Reinforced SFRC Beams in Flexure and Shear
Likhar Sushant Kumar, Ananth Ramaswamy and K.S.Nanjunda Rao
- 519 Fatigue Life of Offshore Platforms - A Deterministic Spectral Approach
Mattur C. Narasimhan, K. Sunil, Sam J.Paramban and P. Narendra Babu
- 521 Response of Slant-legged Rigid- Frame Highway Bridges to Dynamic Loadings
Munirudrappa N. and Kumar N.S.
- 522 Dynamical Behaviour of Slant Legged and Skew Bridges - A Critical Review
Kumar N.S., Munirudrappa N. and Shivananda K.P.
- 523 Response of Transmission Towers under Dynamic Loading
Devaraj V., Munirudrappa N. and Ranga K.
- 529 Vibration Control of Lattice Antenna Tower under Earthquake Excitations Considering Soil-Structure Interaction
S. K. Singh and N. Dhang
- 540 A Study of Accuracy of the SPR Technique at the Singular Regions of Plane Elasticity and Plate Bending Problems
K.S.R.K. Murthy and M.Mukhopadhyay
- 544 Transient Response of Pipe Lines using Numerical Laplace Transform
S.S. Dey
- 553 Dynamic Behaviour of a Cable Stayed Bridge under Critical Parametric Conditions
Rehan Ahmad Khan, Suhail Ahmad and T. K. Datta

S304. Pavement Engineering & Transportation Planning (14.45 to 17.30 hrs)

Venue: VGSOM Hall II

Chairman : **Prof. Kumares C. Sinha**, Purdue Univ., West Lafayette, USA

Co-Chairman : **Prof. K. Sudhakar Reddy**, IIT, Kharagpur, India

- 220 Permanent Deformation of Crumb Rubber Modified Bituminous Mixes
S. K. Palit, K. Sudhakar Reddy and B. B. Pandey
- 227 In-Situ Evaluation of Subgrade Moduli
R. Srinivasa Kumar, K. Sudhakar Reddy, M. Mazumdar and B.B. Pandey
- 235 Accelerated Pavement Testing Facility - A Practical Decision Tool
R.K. Srivastava, P. Prasanna Kumar and G.K. Vij
- 236 Study of Alternative Systems for Urban Mass Transport
Ashish Verma and S.L.Dhingra
- 237 Genetic Algorithm - A Tool for Public Transport Scheduling
Shrivastava Prabhat, S.L.Dhingra and Gundaliya P.J.
- 238 Rural Road Network Planning Based on Functional Accessibility
P.K. Sikdar, B.Kanagadurai, Mahesh Chand and A.K. Singh
- 239 Strategic Planning and Programming of Rural Road Network using HDM-4
D. Mukhopadhyay and P.K. Sikdar

- 243 Critical Considerations of Parking Control in Urban Areas
Bhargab Maitra

S305. Analytical and Experimental Investigations in Geotechnical Engineering (14.45 to 17.30 hrs)

Venue: IEM EDP Room

Chairman : **Prof. Andrew J. Whittle**, Massachusetts Institute of Technology, Cambridge, USA
Co-Chairman : **Prof. C.S. Rao**, IIT, Kharagpur, India

- 407 Monitoring of Pile Raft Soil Interaction
D.K.Maharaj and S.R.Gandhi
- 408 Nonlinear FEA to Predict the Behaviour of Horizontal Plate Anchor
D.K.Maharaj
- 416 Analysis of Hammer Foundation Considering Soil Damping
Indrajit Chowdhury, Basab Ghosh and Shambhu P. Dasgupta
- 422 Vibration of Footing Resting on Layered Soil System
D.K. Baidya and A. Mandal
- 424 An Experimental Study on Pullout of Strip Anchors in Reinforced Clay
Smarjit Sarkar and Sibapriya Mukherjee
- 425 Stabilisation of Expansive Soil Bed using Calcium Chloride and Sodium Silicate
B.P.Chandrasekhar, V.Ramana Murty and G.V.R.Prasada Raju
- 427 In - Situ Heave Measurement of Expansive Soil
P. Hari Krishna and V. Ramana Murty
- 428 Uplift Capacity of Rammed Anchored Granular Piles In Expansive Soils - A Field Study
P. Hari Krishna and V. Ramana Murty

Tea: 17.30 to 18.00 hrs

Cultural Program: 18.00 to 19.30 hrs

Conference Dinner : 19.30 hrs onwards

January 5, 2002 (Saturday)

Breakfast: 07.30 to 08.30 hrs

Technical Session IV

Five Parallel Sessions S401,S402,S403,S404,S405 (08.30 to 10.00 hrs)

S401. Water Resources Management (08.30 to 10.00 hrs)

Venue: IEM Seminar Room

Chairman : **Prof. P.P. Mujumdar**, IISc, Bangalore, India

Co-Chairman : **Prof. R.K. Panda**, IIT, Kharagpur, India

- 108 Multicriterion Decision Making in Sustainable Irrigation Planning : An European Case Study
K.Srinivasa Raju and Lucien Duckstein
- 112 Improving Canal Water Delivery through Optimization Simulation Modelling
A. Mishra, R. Singh and N. S. Raghuwanshi
- 115 Development and Testing of a Regional Scale Irrigation Scheduling Model
Biju A. George, N. S. Raghuwanshi and R. Singh
- 126 Folded Dynamic Programming for Optimal Operation of Multi reservoir System
Falguni Baliarsingh and D. Nagesh Kumar
- 138 Methodology for Assessment of Water Service Infrastructure Systems
B. J. C. Perera and L. S. Burn

S402. Environmental Impact Assessment (08.30 to 10.00 hrs)

Venue: VGSOM Hall I

Chairman : **Prof. S.K. Gupta**, IIT Bombay, Mumbai, India

Co-Chairman : **Prof. A.K. Biswas**, IIT, Kharagpur, India

- 313 Fly Ash Disposal and Deposition - A Challenge for the New Millennium
S.N. Sinha, M.K. Agarwal, R.B. Prasad and S.B. Prasad
- 316 Estimating Potential Environmental Impact of Manufacturing Processes using Life Cycle Impact Analysis Approach
Amit Dutta and Mahesh Koshti
- 320 Water Quality of River Yamuna in Delhi
Mohammad Zafar and B.J. Alappat
- 322 Laboratory Studies on Removal of Chromium from Contaminated Soil
S. Das and M. Bandyopadhyay
- 323 Biodiversity Characterisation at Landscape Level using Satellite Remote Sensing & GIS
Uday Kumar, S. Sudhakar and P. S. Roy
- 332 Artificial Neural Network based Line Source Emission Modelling: A Review
Shiva Nagendra S.M. and Mukesh Khare

S403. Computational Modeling (08.30 to 10.00 hrs)

Venue: SN Bose Auditorium

Chairman : **Prof. Tarun Kant**, IIT Bombay, Mumbai, India

Co-Chairman : **Prof. B. Pradhan**, IIT, Kharagpur, India

- 512 An Efficient Iterative Scheme for Fluid-Structure Interaction Problems
Damodar Maity and S. K. Bhattacharyya
- 514 Machine Learning Approach for Material Behaviour Modelling
S.V. Barai

- 515 User Friendly Approach to the Design of Skew Bridges
Sujata De and J.N. Bandyopadhyay
- 541 Finite Elements on Punctured Plates and Shells through Automatic Mesh Generation
Dipankar Chakravorty
- 560 Free Vibration Analysis of Stiffened Cylindrical Roof Shells
A.N. Nayak and J.N. Bandyopadhyay

S404. Pavement Engineering & General Aspects (08.30 to 10.00 hrs)

Venue: VGSOM Hall II

Chairman : **Dr. T.S. Reddy**, CRRI, New Delhi, India

Co-Chairman : **Prof. M. Mazumdar**, IIT, Kharagpur, India

- 201 A Study on the Influence of Compaction Moisture Content on CBR
Babu T. Jose, Soosan George T. and Benny Mathews Abraham
- 240 Mechanistic Evaluation of Premature Failure of a Major National Highway
Sunil Bose, C. Kamaraj and M.C. Harit
- 241 Application of Genetic Algorithms for Backcalculation of Pavement Layer Moduli
M.Amaranatha Reddy, K.Sudhakar Reddy and B.B.Pandey
- 604 Bidding and Estimation Practices in Indian Construction Industry
K. Chandrashekhar Iyer and Kumar N. Jha
- 605 Optical Fibre Sensors in Civil Engineering Applications
Y.C. Tewari and Lalita Jangpangi

S405. River Engineering (08.30 to 10.00 hrs)

Venue: IEM EDP Room

Chairman : **Prof. S.K. Kar**, IIT, Kharagpur, India

Co-Chairman: **Dr. L.K. Ghosh**, CWPRS, Pune, India

- 111 Transcritical Flow Simulation in Natural Channel using a Flux Predictor Numerical Model
D.L. Young, H. Capart, S.Y. Huang and T.I. Eldho
- 120 Local Scour on Gravel Bed below Sluice with Shallow Tailwater
M. Chattopadhyay
- 127 Studies on the Stability of Tandem Breakwater
Kiran G. Shirlal, Subba Rao and Mahalingeshwara Prasad S.K.
- 128 Wave Reflection Characteristics of Single Row Suspended Porous Pipe Breakwater
Subba Rao, N.B.S.Rao and Kiran G. Shirlal
- 130 Study of Plotting Position Formulae for Rivers in North-East India
A. K. Barbhuiya

Invited Paper

(10.00 to 10.45 hrs)

- 714 Engineering Approaches in Seismic Hazard Estimation
R.N. Iyengar
Prof. R.N. Iyengar, IISc, Bangalore, India

Venue: SN Bose Auditorium

Tea: 10.45 to 11.00 hrs

Technical Session V

Five Parallel Sessions S501,S502,S503,S504,S505 (11.00 to 13.00 hrs)

S501. Water Resources Management (11.00 to 13.00 hrs)

Venue: IEM Seminar Room

Chairman : **Prof. B.J.C. Perera**, Victoria Univ. of Technology, Melbourne, Australia

Co-Chairman : **Prof. N.S. Raghuwanshi**, IIT, Kharagpur, India

- 107 Fuzzy Membership Functions for Reservoir Operation Modeling
P.P. Mujumdar and Sunil Kumar Singh
- 118 Forecasting Rainfall and Floods: Advances and Way Forward
Auroop R. Ganguly
- 131 Optimal Reservoir Operation for Irrigation using Genetic Algorithms
D. G. Regulwar, M. M. Ghangrekar and P. Anand Raj
- 134 A Nonlinear Chance Constrained Approach to Irrigation System Planning
R. Subbaiah
- 137 Influence of Method and Scheduling of Irrigation on Management of Water and Fertilizer Nitrogen: Field and Simulation Studies
Patrick G. Home, Rabindra Kumar Panda and Sandipta Kar
- 139 Application of Real-Time Reservoir Operation Model to Mahanadi Reservoir Project
M. K. Verma and R. K. Shrivastava
- 143 Two Phase DP-LP Model for Optimal Irrigation Planning under Deficit Water Supply
N.V. Umamahesh and S. Sudarsana Raju
- 168 Analysis of Weather Spells and Weather Cycles by Markov Chain for Udaipur
B.S. Polisgowdar and Raj Vir Singh

S502. Pollution Control Technologies (11.00 to 13.00 hrs)

Venue: VGSOM Hall I

Chairman : **Prof. M. Bandyopadhyay**, IIT, Kharagpur, India

Co-Chairman : **Prof. A.K. Dikshit**, IIT, Kharagpur, India

- 302 Heavy Metal Adsorption by Liner Materials to Impound Industrial Waste
Solly George and Babu. T. Jose
- 308 Performance Evaluation of a Biofilter for the Control of Sulphur Dioxide
Lalan Sanjay Laxmichand and Ligy Philip
- 310 Environmental Auditing of a Bearing Industry: An Overview
Pallab Chaudhury
- 317 Recovery and Use of Municipal Landfill Gases
Dinesh Kumar, Mukesh Khare and B.J. Alappat
- 318 COB Ore for Removal of Arsenic from Water Environment
Prashant Mukherjee and Ligy Philip
- 321 Separation and Fractionation of Dye Solutions in Cross-flow Nano-filtration
S. Chakraborty, B. C. Bag, S. DasGupta, S. De and J. K. Basu
- 325 Silver and Gold Nanocluster Catalysed Reduction of Methylene Blue by Arsine in Micellar Medium
Subrata Kundu, Sujit Kumar Ghosh, Narayan Pradhan, Anjali Pal and Tarasankar Pal

S503. Analytical and Experimental Investigation of Structures (11.00 to 13.00 hrs)

Venue: SN Bose Auditorium

Chairman : **Prof. S.S. Dey**, B.E. College, Howrah, India

Co-Chairman : **Prof. S.K. Bhattacharyya**, IIT, Kharagpur, India

- 545 Finite Element Simulation of External Inversion of a Round Tube
P. K. Gupta, G. S. Sekhon and N. K. Gupta

- 549 Neural Network Approach for Conceptual Design of Tall Steel Buildings
Ravindra Nagar and Hassan Al Nagiem
- 555 A Study of Large Deformation Behaviour of Square and Rectangular Metallic Tubes Subjected to Lateral Compression
P. K. Gupta, N. K. Gupta and G. S. Sekhon
- 556 Finite Element Modeling of Smart Composite Shells Using Higher Order Theory
Sudhakar A. Kulkarni and Kamal M. Bajoria
- 557 Condition Monitoring of a Prestressed Concrete Girder Railway Over Bridge Adopting Extensive Field Testing
D. Bandyopadhyay, S. Saraswati, P.P. Biswas and S. Mondal
- 558 Thermo-mechanical Buckling of Composite Cylindrical Panels
Maloy K. Singha and J.N. Bandyopadhyay
- 561 Effect of Particle Characteristics of Size Fractionated Flyash on the Compressive Strength of Flyash - Cement Concrete
A. Sarkar, G. Udayabhanu, P. K. Behera and A.K. Basu
- 562 Finite Element Analysis of Laminated Composite Hat Stiffened Shells
B. Gangadhara Prusty and Subir Kumar Satsangi

S504. General Aspects (11.00 to 13.00 hrs)

Venue: VGSOM Hall II

Chairman : **Prof. S. Bandyopadhyay**, Univ. of New South Wales, Sydney, Australia

Co-Chairman : **Prof. N. Dhang**, IIT, Kharagpur, India

- 504 Developments in Offshore Structures for Exploration and Production
Amit K. Agarwal and A. K. Jain
- 520 Innovations in Infrastructure Renewal
K.P. George and Ashraf M. Rahim
- 551 A Weak Stochastic Newmark Method
D. Roy
- 554 Assessment of an Extreme Wind Event: Approach towards Mitigating Disasters
R.K. Garg
- 559 Development of High Volume Mineral Additive Cement
Konstantin Sobolev and Metin Arikan
- 601 Stability Controls and Deformations Measurements in Civil Engineering Works
Mauro Caprioli and Eufemia Tarantino
- 602 Advances in Civil Engineering from Decision Making Prospective
Shashi Bhattarai
- 603 Application of the Global Positioning System to Civil Engineering
Madhav N. Kulkarni

S505. River Engineering (11.00 to 13.00 hrs)

Venue: IEM EDP Room

Chairman : **Prof. C.S. Putcha**, California State Univ., Fullerton, USA

Co-Chairman : **Prof. R. Singh**, IIT, Kharagpur, India

- 109 Local Scour of Cohesive Bed Downstream of an Apron due to Submerged Jet
Subhasish Dey and Bernhard Westrich
- 145 Effect of Fluming on the Performance and Economy of an Aqueduct
P. N. Sutaria, A. S. Patel and Shilpesh C. Rana
- 149 Energy Dissipation Arrangement Studies for a Reservoir in Tamil Nadu
M.K.L.F. Arul, P.K. Suresh, P. Venkatachalam and A. Selvarajah
- 155 An Overview on Sediment Threshold
Subhasish Dey and Koustuv Debnath

- 156 Regional Flood Frequency Analysis for the Ganga and Yamuna Basins
Mohd. Muzammil, Mohd. Jamil and Kesheo Prasad
- 161 Discharge Sensitivity of Emitters to Pressure and Water Temperature
R.T. Thokal, B.S. Polisgowdar and M.S. Ayyanagowdar
- 172 Flow Characteristics of a Freely Discharging Trough Weir
Singh K.K., Butare A., Verma D.V.S. and Jain M.K.

Lunch: 13.00 to 14.30 hrs

Valedictory Function: 14.30 to 16.00 hrs

Tea: 16.00 to 16.30 hrs

Dinner: 19.00 hrs onwards