



G H Patel College of Engineering & Technology, Vallabh Vidyanagar

Department of Civil Engineering

Report on

Two days seminar on “Recent Advances in Civil Engineering”

Department of Civil Engineering, GCET organized two days seminar on “Recent Advances in Civil engineering (RACE- 2019)” on 27th and 28th February, 2019. The program was organized under ISTE and IGBC students’ chapter and it was sponsored by our parent body CVM and Patel Infrastructure Ltd., Vadodara. Dr. Himanshu soni, Principal GCET inaugurated the seminar. Total 129 students and 13 faculty members participated in the seminar. The seminar aimed at enhancing the advanced technical knowledge and practical approaches to Civil Engineers in the thrust areas of Structural Engineering, Environmental Engineering, Transportation Engineering, Soil Mechanics and Water Resource Engineering. Technical sessions were engaged by renowned experts from institutes of national importance such as IITs, NITs and from well-known construction industries. The seminar was highly beneficial to all the participants. Participants cleared their doubts / queries by interacting with the respective experts. It was a fruitful seminar for all the participants.



Day 1: Advances in Municipal Wastewater Treatment

Dr. M. Mansoor Ahammed, Professor, SVNIT, Surat



Dr. M. Mansoor Ahammed delivered the lecture on wastewater generation scenario and treatment methods. He presented the historical overview of wastewater treatment from dark middle age till the present modern day. He discussed about the developments of various treatment methods starting from septic tank to activated sludge process and effects of wastewater disposal on environment. He explained various methods of physical, chemical and biological treatment like dilution, concentration and conversion.

Dr. M. Mansoor Ahammed provided detailed insight into the aerobic and anaerobic biological treatment process in which micro-organisms play a vital role wherein organic matter gets oxidized, gases are generated and nutrients are reduced. He highlighted suspended and attached growth system and discussed the process of activated sludge and trickling filter in detail.

Prof. Ahammed concluded his lecture by discussing advanced methods like Sequential Batch Reactor, Membrane Bio Reactor which are more efficient than activated sludge process. Finally he highlighted about “Greywater” and its reusability to conserve water on the earth.

Day 1: Dam Break Flow Analysis

Dr. Pranab Kumar Mohapatra, Professor, IIT Gandhinagar



Dr. Pranab Kumar Mohapatra presented an interesting talk on normal flood and dam break flow analysis. He differentiated three terms levee break, dam break and dam breach as variant phenomena that exist in nature and its importance in dam break flow analysis. He explained analytical, experimental and numerical methods of analysis and mentioned many software used such as DAMBRK, FESWMS, FLO-2D, FLUENT, MIKE-11, HEC-RAS, FLO-3D, etc. He listed CFD approach such as 3D RANS equations, turbulence closure, surface tacking, and Breaching.

He presented several examples of collapses of dams and discussed the reasons for possible failures. He explained about pilot channel, its experimental analysis and results through different animated videos. He concluded his lecture that the depth of the structures matter much more than the shape.

Day 1: Advances in Pavement Construction & Management

Mr. Vinay Shah, Vice President (Technical), Patel Infrastructure Ltd., Vadodara



Mr. Vinay Shah presented an overview of construction of bitumen layer of flexible pavements. He started his lecture by giving the basic information about the material requirements, mixing and transportation of the materials, cleaning of surfaces and applying emulsion before laying. He discussed the machinery requirements such as loader, paver, batch type hot mix plant, tippers, tandem rollers, recycling machine, WR 2400 and milling machine.

Mr. Vinay Shah discussed in detail Cold in Place Recycling (CIPR) and Hot in Place Recycling method. He discussed procedure of CIPR, design mix procedure and advantages of the processes. He illustrated many operational videos of CIPR and hot in place recycling method. He discussed about various road projects of Patel Infrastructure which are ongoing/ already constructed in various parts of India.

Day 2: Non- Destructive Geophysical Exploration and Related Case Studies

Ms. Silky Agrawal, Director, GeoCarte Radar Technology Pvt. Ltd., Gandhinagar



Ms. Silky Agrawal started her talk with importance of Geophysical explorations. She discussed the general methods of geophysical exploration such as seismic, gravitational, magnetic, electrical and electromagnetic. She demonstrated the instrument used for the exploration that is Ground Penetrating Radar (GPR), which receives the information underneath the soil up to a depth of 12-15m by moving the instrument in the grids prepared, and by using AUTOCAD software the location of any obstruction beneath the soil can be found at an accuracy of 98%.

Ms. Agrawal presented more than 15 case studies where they have utilized GPR in various projects such as pipe line installation in Mumbai, Metro rail in Ahmedabad, Shree Somnath Temple, Railway ballast investigation at Ahmedabad and Mumbai, IIM Ahmedabad, Chennai smart city and many more. She explained the various requirements of the clients and the problem faced during the execution of the work. She also narrated her story, being an entrepreneur.

Day 2: Recent Advances in Structures (Design of Beam- Column Junction)

Dr. Yogesh D Patil, Associate Professor, SVNIT, Surat



Dr. Yogesh Patil started his talk by giving a brief introduction about earthquake, behaviour of structures due to earthquake load and liquefaction of the soil. He highlighted the most ignored part in the structural design as structural joint and discussed different types of joints and its important role when any structure fails. He correlated joints of human body with structural members such as Neck as a torsion member, Hands as Tension members, Legs as Compression members, Spinal cord as flexure member.

Dr. Patil discussed and compared the latest updates in IS codes and its provisions. He discussed about the classification of joints as per ACI 352R-2 and explained static, blast and earthquake loading. He also discussed the importance of circular columns than the square columns and discussed the concentration of stresses at the joints. He listed various waste materials such as granulated blast furnace slag, copper slag, flyash, meta keolin, foundry sand, polypropylene, waste glass, municipal solid waste ash etc. which can be used in construction, eventually increase the strength and many other characteristics of the concrete.

Dr. Patil concluded his talk with a sensational topic of the time as how to construct a blast proof structure or terrorist proof structures.

Day 2: Application of Nano Technology in Civil Engineering

Dr. Santosh Shah, Professor & Director (Innovations) BIT, Vadodara



Dr. Santosh Shah highlighted the importance of nanomaterial in construction industry. He compared human hair as 80000 larger than nano particle. He listed mainly three nano materials such as Nano-Silica, Nano-Titanium dioxide and Carbon nano tubes (single walled and multi walled). He highlighted the uses and unique properties like carbon nanotubes is 150 times stronger and 6 times lighter than steel which makes it a wonderful substitute to steel and methods of obtaining the nano size through Top-Down methodology.

Dr. Santosh discussed the innovative material “Aerogel” which is the world’s lightest material and it has an amazing transparency, and fire and sound insulation property which makes it the ideal material to be used as a window glass. He highlighted all the property of the nano materials with the informative videos.

Dr. Shah concluded his talk with examples of nano materials having self-cleaning, self-healing and self-sensing property. He presented a video showing “Lotus Leaf effect”. Also, he explained nanotechnology solutions for durable roads, reduction in permeability, water desalination and future of nanotechnology.

Brochure of Seminar RACE - 2019

Registration Form for Seminar

Full Name: _____
 Branch & Semester: _____
 Organization: _____
 Contact Number: _____
 Email: _____
 Amount (For Seminar)
 : ₹ 100/- For Students
 Date: _____

Signature of the applicant
 (Last Date of Registration: February 25th, 2019)

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Venue

Smt. Kamlaben Shankarbhai Patel Seminar Hall,
 G H Patel College of Engineering & Technology
 Bakrol Road, Vallabh Vidyanagar – 388 120
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Tentative Program Details

Duration	Expert	Topic
Wednesday 27th February, 2019		
10:00 am - 10:30 am	Inauguration	
10:30 am - 12:30 pm	Dr. M. Mansoor Ahammed Professor SVNIT, Surat	Advances in Municipal Wastewater Treatment
12:30 pm - 1:30 pm	Lunch	
1:30 pm - 3:15 pm	Dr. Pranab Kumar Mohapatra Professor IIT, Gandhinagar	Dam Break Flow Analysis
3:15 pm - 3:30 pm	Tea Break	
3:30 pm - 5:30 pm	Mr. Vinay Shah Vice President (Technical) Patel Infrastructure Ltd., Vadodara	Advances in Pavement Construction & Management
Thursday 28th February, 2019		
10:30 am - 12:30 pm	Ms. Silky Agrawal Director GeoCarte Radar Technology Pvt. Ltd., Gandhinagar	Non- Destructive Geophysical Exploration and Related Case Studies
12:30 pm - 1:30 pm	Lunch	
1:30 pm - 3:15 pm	Dr. Yogesh D. Patil Associate Professor SVNIT, Surat	Recent Advances in Structures (Design of Beam-Column Junction)
3:15 pm - 3:30 pm	Tea Break	
3:30 pm - 5:30 pm	Dr. Santosh Shah Professor & Director (Innovations) BIT, Vadodara	Application of Nano Technology in Civil Engineering

Two -Days Seminar

on
"Recent Advances in Civil Engineering"
 (RACE – 2019)

FEBRUARY 27th & 28th, 2019

Organized by



Dr. C. C. Patel & Mrs. Sushilaben Patel

DEPARTMENT OF CIVIL ENGINEERING
G H Patel College of Engineering & Technology
 Vallabh Vidyanagar – 388 120, Gujarat, India
 (A Charutar Vidyamandal Institute)
 www.gcet.ac.in



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The Management & The Institute:

The institute, G H Patel College of Engineering & Technology (GCET) is managed by highly reputed and the largest educational trust Charutar Vidya Mandal (CVM), established in 1945 for the upliftment of rural education. Over the span of 60 years CVM has been making spectacular progress by venturing into various emerging disciplines. Today CVM is nurturing 49 educational institutions of diverse types contributing to the panoramic growth of Vallabh Vidyanagar and New Vallabh Vidyanagar.

From the very inception (in the year 1996) GCET has striven to develop itself into an 'Institution of Excellence' in education and research in consonance with the spirit of modern Gujarat. In meeting this challenge for excellence, GCET has shaped its institution to the contemporary as well as future demands of need-oriented education. Today GCET has a total strength of 2500 students studying for Chemical, Mechanical, Information Technology, Electronics & Communication, Computer, Electrical, Mechatronics and Civil Engineering under the tutelage of 125 dedicated and competent faculty members. Also, GCET have seven post graduate programmes. The institute was ranked 82nd among 150 engineering college across country in 2017 (i3RC Times Engineering) and honored by ABP News National Education Awards in 2015 & 2016 with "Outstanding Engineering Institute West".

About the Department:

Civil Engineering is the youngest department in the college established in the year 2014 with an intake of 60 affiliated to Gujarat Technological University (GTU), Ahmedabad. The department has 13 qualified and experienced faculty members who promote excellent teaching learning platform in the department. The department has developed all the necessary laboratories and other infrastructure facilities.

VISION

To mould professionally competent and ethical civil engineers to fulfill the needs of the society.

MISSION

1. To adopt excellent teaching learning process through academically proficient faculty members, State of Art laboratories & other infrastructure facilities.
2. To foster innovative & intellectual research with practical applications.
3. To promote co-curricular and extra-curricular activities for meeting global challenges with vibrancy and creativity.
4. To nurture set of core values in the students that promotes the development of rural areas of the country.

About the Seminar:

The aim of two - days seminar "Recent Advances in Civil Engineering" organised by Civil Engineering Department, GCET is to enhance the advanced technical knowledge and practical relevance to Civil Engineers in the thrust areas of Structural Engineering, Environmental Engineering, Transportation Engineering, Soil Mechanics and Water Resource Engineering. Researchers from academia and industry are invited to disseminate their expertise in on-going technical advancements, constraints and other significant areas of various branches of civil engineering. The objective of the seminar is to form a forum for the exchange of ideas and state-of-the-art techniques from industry experts and academicians for the development of innovative theories, methodologies, tools and applications for core branches of Civil Engineering. The seminar would be highly beneficial to the students and faculty members to upgrade their knowledge in the era of sustainable development.

PATRONS

Er. Bhikhubhai B. Patel, Chairman, CVM
Shri. Manishbhai S. Patel, VP, CVM
Dr. S. G. Patel, Hon. Secretary, CVM
Er. M. J. Patel, Hon. Jt. Secretary, CVM
Shri. B. P. Patel, Hon. Jt. Secretary, CVM
Shri. Mehul D. Patel, Hon. Jt. Secretary, CVM
Dr. Nikhil Zaveri, Director General, CVM

ORGANIZING TEAM

Dr. Himanshu Soni, Principal, GCET
Dr. Khadeeja Priyan, Convener
Dr. Snehal Popli, Faculty Coordinator
Prof. Poorav Shah, Faculty Coordinator
Priyam Andharia, Student Coordinator
Shivam Patel, Student Coordinator
Prof. Nirajkumar Mandowara, Member
Prof. Riddhi Vashi, Member
Prof. Krunali Patel, Member
Prof. Anand Darji, Member
Prof. Ratansharan Panchal, Member
Prof. Ajaysinh Vaghela, Member
Prof. Jalpa Patel, Member



Banner of Seminar RACE - 2019



Two - Days Seminar

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