

A REPORT ON
ONE WEEK
FACULTY DEVELOPMENT PROGRAM
ON
ADVANCE CONSTRUCTION TECHNIQUES
AND INNOVATIVE MATERIALS
18TH TO 23RD NOVEMBER, 2019
ORGANIZED BY
DEPARTMENT OF CIVIL ENGINEERING,
HJD INSTITUTE OF TECHNICAL EDUCATION AND
RESEARCH, KUTCH



GTU SPONSORED AND ISTE APPROVED



Background:

In today's era, vast growth is being observed in urbanization and modernization which leads to application of various advanced technologies of Engineering. To make up with the ever-growing world we should be capable of applying world's most recent technologies.

The Faculty Development Program (FDP) was aimed to bridge the gap between academicians, researchers and industry delegates of same interest on a same platform to share their experiences, observations in the fields described above. The FDP will certainly ignite the minds of faculties which may stimulate them to take up the research.

HJD Institute, Kutch had organized one week Faculty Development Program in collaboration with Gujarat Technological University (GTU) & Indian Society of Technical Education (ISTE) on "Advance Construction Techniques and Innovative Materials", on 18th to 23rd November, 2019.

Inaugural Session:

The dignitaries of the FDP Dr. D. L. Shah, Retired Professor, from Maharaja Sayaji Rao University (MSU), Dr. Santosh Shah, Professor and Director (Innovations), Babariya Institute of Technology and Science (BITS), Hon'ble Chairman Shree Jagdish Halai, Vice Principal Dr. Rasila Hirani and I/C Head of Civil Engineering Department Mr. Priyank Bhimani have graced the event with their presence on the Dias.

28 Faculties of Engineering College/Polytechnics from all over the state have come to participate in the FDP. Ms. Deepa Aiyar and Mr. Vishnu Vardhan faculties of Civil Engineering Department have anchored the inauguration ceremony. All the dignitaries and participants had gathered for lightening of the lamp as per Indian traditions, followed by the GTU theme song.

Advance Construction Techniques and Innovative Materials

Vice Principal Dr. Rasila Hirani addressed the audience by giving energetic speech to all the faculties. She explained the importance of FDP and how HJD Institute is contributing towards this initiative. She acknowledged the work done by Organising Committee. She especially thanked Mr. Jagdish Halai to providing such kind of platform to organize the event.

Dr. D. L. Shah congratulated the institute for organizing such kind of FDPs. He put weight to the faculties for updating themselves with advancements in the field by attending such programs.

Dr. Santosh Shah also appreciated efforts of entire team of Civil Engineering Department to get such milestone into their account and congratulated Mr. Jagdish Halai to have such kind of enthusiastic team in his institute. Also, he insisted for more events of this type to be organised for overall growth of the institute as well as the faculties of other institutes.



Lamp Lighting at Inauguration



Welcoming Dr D.L.Shah

SUMMARY OF EXPERT LECTURES

DAY 1: NOVEMBER 18, 2019

DR. D. L. SHAH

RETIRED PROFESSOR, APPLIED MECHANICS DEPARTMENT, MSU,
BARODA

TOPIC: GROUND IMPROVEMENT TECHNIQUES AND CASE STUDIES

He explained the types of failure in soil i.e. shear failure, excessive settlement of soil and liquefaction. Geotechnical investigation should consists of no of bores, depth of bore, field tests, laboratory tests and correlation between field and laboratory tests data and determining safe bearing capacity of soil. Also, he has explained case studies of different locations where soil plays an important role for the failure of structure and discussed advanced techniques as solution to improve the properties of different soils. Characteristics of gradation, consolidation and compacted soil were briefly explained to participants.



DR. SANTOSH SHAH

PROFESSOR AND DIRECTOR (INNOVATIONS), BITS, BARODA

TOPIC: SMART CONCRETE

He explained different types of smart concretes and their application. He has discussed self-healing concrete, translucent concrete, self-sensing concrete, self-illuminating concrete. He specifically introduce various types of interdepartmental project like use of nano material in concrete, use of capsule for self healing concrete use of bacteria and fungi for self healing concrete. Use of ANSYS for 3 D print concrete was well explained with the help of case study of one of his Phd student.



DAY 2: NOVEMBER 19, 2019

MR. TEJAS KOTAK

EXECUTIVE DIRECTOR, HUNNARSHALLA, BHUJ

TOPIC: BUILDING WITH NATURAL MATERIALS - A JOURNEY BY SANKALAN, HUNNARSHALA

Material plays an important role in construction. In Present scenario concrete is the highest in used after water. Earth material would be a better option if they are using with advance technique. He explained the use of mud, and soil in different composition with sand will give a good result. He explained various traditional techniques and method which gives far better result when compared with conventional practices. He also presented some literature regarding lowering down the carbon emission using traditional practice in construction. He also briefed about the Hunnar shalla Foundation and his team of artisan named as “Sankalan” and their work.



MR. HIMANSHU KOTAK

FOUNDER C-PHI, AHMEDABAD

TOPIC: USE OF GEOSYNTHETIC MATERIALS FOR ADVANCED CONSTRUCTION

In this session, he is clearly explained the primary concept of geo synthetic material and their types. He explains role of different forms of geo synthetic materials. Geo nets are vastly using in different construction. In concrete geo fibres are used to improve the tension part.



MR. KAUSTUBH SANE

ASSISTANT PROFESSOR (PURSUING PH.D), HJD INSTITUTE OF TECHNICAL EDUCATION AND RESEARCH, KUTCH

TOPIC: EFFECT OF EARTHQUAKE ON SUB SOIL INVESTIGATION

This session was based on the primary concept of earthquake, types of waves and its effect in various types of soil. Detail about different type of sub soil behaviour during lateral load was explained by him. As per the case study effect of epicentre from the loose soil effect the structure the most. In depth of component and characteristic of various type of soil was explained. Some case study from geological point of view was also explained in detail. In addition to all this how intensity and magnitude are noted down by digital seismograph was explained.

DAY 3: NOVEMBER 20, 2019

DR. UJJVAL SOLANKI

ASSISTANT PROFESSOR, DARSHAN INSTITUTE, RAJKOT

TOPIC: CONSTRUCTION AND DESIGN PRACTICES OF CONCRETE ROAD

In his session, he briefed about advanced techniques used in road construction. Road plays an important role to build the nation and hence it is very important for an engineer to take care of the roads and their construction. He briefed about the PQC roads, role of joints in the road construction. He also explains that line, grades and cross section is very much important in road construction. In his session he discussed about the filler and sealer are crucial and the techniques used in practice now a days to fill and to seal the joints of roads.



DR. SIDDHARTH G. SHAH

ASSOCIATE PROFESSOR AND HEAD, MARWADI INSTITUTE, RAJKOT

TOPIC: SUSTAINABLE MATERIALS FOR GROUND IMPROVEMENT AND REPAIR OF THE CONCRETE STRUCTURE

He emphasized the importance of the quality of work in civil engineering. He demonstrated many malpractices being carried out at site due to negligence of site engineer which results damage in the structure. He explained that serviceability is also very much important in construction and it is achieved by using advanced materials for repairs of the structure. He focused on geo membranes and their uses in for soil stabilization.



MR. PRIYANK BHIMANI

ASSISTANT PROFESSOR AND I/C HEAD, HJD INSTITUTE OF TECHNICAL EDUCATION AND RESEARCH, KUTCH

TOPIC: SUPPLEMENTARY CEMENTING MATERIALS USE IN CONCRETE

He Explained supplementary cementing materials (SCMs) contribute to the properties of hardened concrete through hydraulic or pozzolanic activity, typical examples are fly ashes, slag cement (ground, granulated blast-furnace slag), and silica fume. These can be used individually with portland or blended cement or in different combinations. Supplementary cementing materials are often added to concrete to make concrete mixtures more economical, reduce permeability, increase strength, or influence other concrete properties. He emphasized the importance of the quality of work in civil engineering. He demonstrated many malpractices being carried out at site due to negligence of site engineer.

SITE VISIT

PLACE: HUNNARSHALLA AND THE VILA

On this day, the participants had visited Hunnarshala and The Villa construction site. In Hunnarshala they are developing the artisan for wood work and in earth work. The office of Hunnarshala is made his building with using different earth materials. Lime plasters and use of chaina clay was shown in the construction site. Practical implementation of rammed earth was explained. How all the earth materials are mixing and rammed cast-in-situ, was shown in the site.



DAY 5: NOVEMBER 22, 2019

MS.ANINDITA CHAKRABORTY

DISTRIBUTION MANAGER (WEST-ZONE), BASF INDIA, AHMEDABAD

TOPIC: ROLE OF ADMIXTURES FOR ADVANCE CONSTRUCTION PRACTICE

The whole day session was divided in two parts, pre-lunch and post lunch. In pre-lunch session, she explained the role of admixtures in the construction industry. She emphasize that in construction adding admixture is very important to improve the performance of different materials. She explained the role of retarders and water proofing admixtures in construction.

In post-lunch session mix design is prepared in concrete laboratory and retarder is added to the concrete. The performance in noticed after adding the retarder. The whole session is fruitful for the participants.



DAY 6: NOVEMBER 23, 2019

MR. TUSHAR BHORANIYA

ASSISTANT PROFESSOR, GOVERNMENT ENGINEERING COLLEGE, BHUJ

TOPIC: TECHNIQUES FOR VIBRATION CONTROL IN BUILDING

He discussed about forces acting on the building and their behaviour and interacted with participants about 3 parameters for earthquake resistance building, i.e. mass, stiffness and damping. He also explained various types of dampers and had a deep talk on analysis and design of tune mass dampers. An in depth primary knowledge of earthquake studies and its effect on buildings were explained.



SWAMI PRADIPTA NANDJI

TOPIC: ART OF LIVING

In this session, swamiji was explained that despite of intelligence quotient (IQ), Emotional Quonset (ES) and Spiritual Quonset (SQ) is also very much important. The work place everywhere are very much hectic now a days but by improving SQ, we can reduce the stress level in our day to day life-said by swamiji. He also explained that acceptance is important at work place, the work has to be done with enjoyment.



MR. SHUBHAM SADH

LECTURER, HJD INSTITUTE OF TECHNICAL EDUCATION AND RESEARCH, KUTCH

TOPIC: UNIVERSAL HUMAN VALUES

In this session, he explained that Human values are things that have an intrinsic worth in usefulness or importance to the possessor, or principles, standards, or qualities considered worthwhile or desirable. He also spread light on Human values constitute an important aspect of self-concept and serve guiding principles for an individual. Human values are for example brotherhood, friendship, empathy, compassion, love, openness, listening, welcoming acceptance, recognition, appreciation, honesty, fairness, loyalty, sharing, solidarity, civility, respect and consideration. The function of most of these basic values in to make it possible for every human to realize of maintain the very highest or most basic universal core value of life, love and happiness, this is said by the expert. He also explained that physical needs are not important in life but the mental needs are important and unfortunately all of us are running for our physical needs.

EXAMINATIN AND FEEDBACK

After all the sessions on last day of this FDP an examination was conducted in which all the participants have participated.

Advance Construction Techniques and Innovative Materials



VALEDICTORY FUNCTION

At the last day of this one week FDP, in charge head of Civil Engineering Department has given the vote of thanks. He appreciated the participation of all the faculties coming from different colleges and their team of staff and management for being supportive to make this FDP successful.



Group Photo

Glimpses of the FDP:

