MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(An ISO 9001:2015 Certified Institution, Accredited by NAAC)

(A unit of Rajalaxmi Education Trust®, Mangalore)

Badaga Mijar, Moodabidri 574225

MITE

Invent Solutions

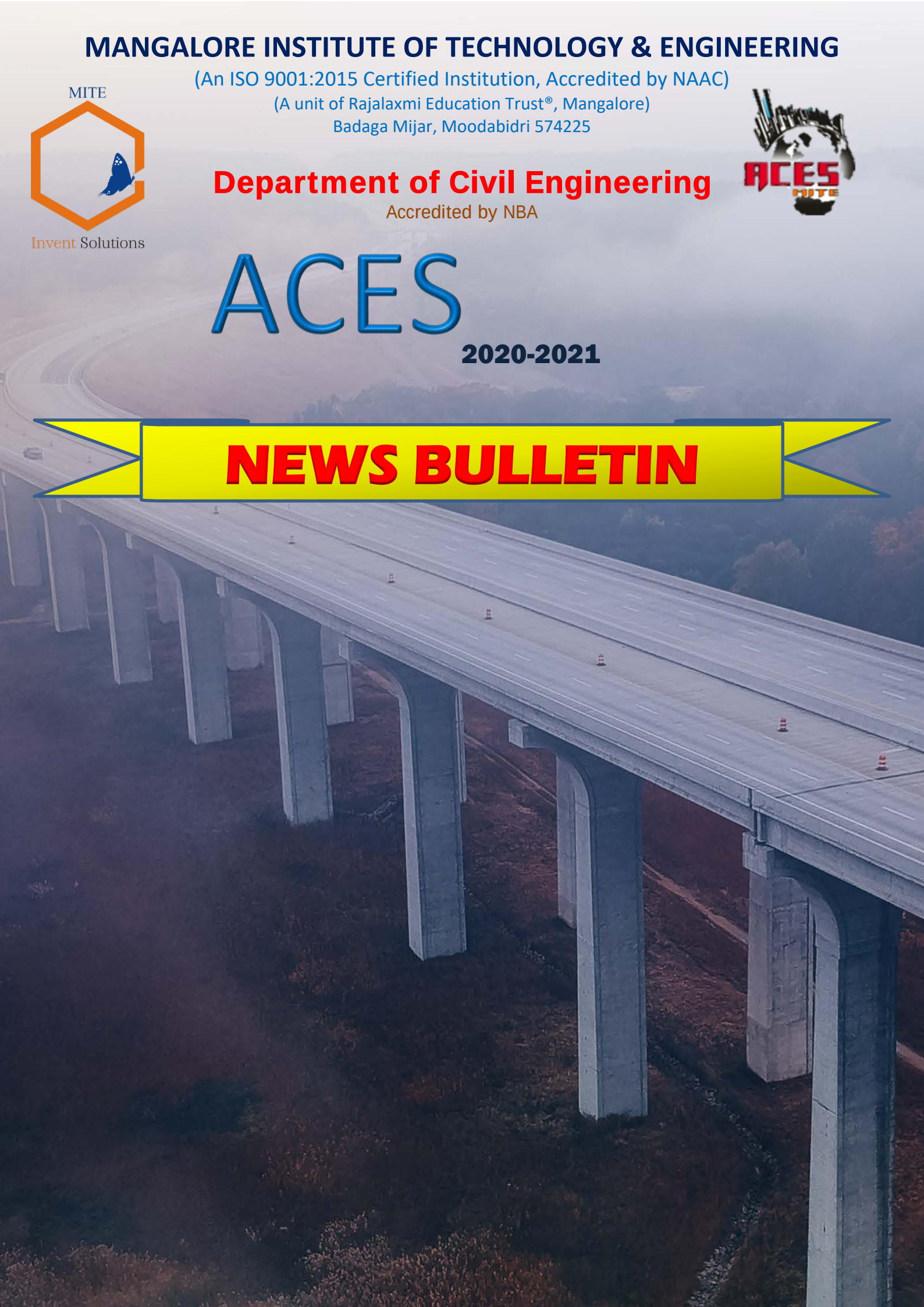
Department of Civil Engineering

Accredited by NBA

ACES

2020-2021

NEWS BULLETIN



DEPARTMENT OF CIVIL ENGINEERING
(Accredited by NBA)

VISION

To produce **Competent and Professional** Civil Engineers with **Academic excellence** and **Ethics** to meet Societal Challenges at Global level

MISSION

M1: To provide quality technical education through student centric teaching - learning processes.

M2: To enable student with practical knowledge, innovation and research to find solutions for societal problems.

M3: To impart professional skills and ethics to involve in consultancy and Civil Engineering projects

About the Civil Engineering Department
(Accredited by NBA)

Civil Engineering is a prominent and oldest branch of engineering which deals with buildings, bridges, roads, flyovers, railways, water supply, sanitary, development of townships and other infrastructural development. Due to liberalization policy of the government, many infrastructure projects like golden quadrilateral, National highway constructions and transport sector development are the need of the hour. Many multinationals are engaged in the infrastructure developmental activities. The job opportunities are in civil engineering fields and software companies. Analytical and logical abilities and liking for the profession are the essential requirements. Subjects on concrete technology, transport engineering, water supply and sanitary engineering, geotechnical engineering, fluid mechanics and machinery, structural mechanics, hydrology and water resources, irrigation engineering are studied in this course.

The Department of Civil Engineering has been started at MITE in the year 2013 and has been accredited by the National Board of Accreditation, New Delhi. The Department focuses on the overall development of the students through innovative teaching and learning. One of the main objectives of the Department is to produce qualified, competent and employable civil engineering graduates to cater the needs of industry and society by imparting requisite knowledge and training in different areas of Civil Engineering and emerging technologies. The department has highly qualified faculty. The students from different parts of the country are studying in the branch. Some of the labs which have been established under the department are Surveying, Basic Material testing Lab and Fluid Mechanics Lab. Software Application and Design Lab, Geotechnical Lab, Environmental Lab, Concrete and Highway Lab and Structural Engineering Laboratory.

MITE - Local CAFET INNOVA Technical Society Centre is started under the Department of Civil Engineering in association with CAFET-INNOVA Technical Society, Hyderabad. It is an International nonprofit organization to encourage the teaching faculties, young talent especially students towards the field of Research & Development (R&D) and harness their intellectual abilities for the betterment of institution as well as industry.

About ACES: ACES (Association of Civil Engineering Students) is a student's of civil engineering association, it is one of the non-profit association formed for the benefit of civil engineering students. Under the flag ship of Department of Civil Engineering every year conducting various technical talks from the industry persons and professors from IITs, IISc & NITs, workshops, conferences, technical tour, industry visit, sports etc. for the benefit of civil engineering students.

MITECONS: MITE consultancy services provides the consultancy services in different fields of Civil Engineering for both Government, Semi Government and private agencies since from inception. The basic aim of MITE consultancy services (MITECONS) is provide quality services for technical problems at reasonable and affordable rates as a service to society.

About Finishing School Program: The finishing school program on Building Construction Practices initiated by the Department of Civil Engineering was started for the Final Year students' in 2017-18. The training covered areas of construction practices like setting out and marking, hands on training on masonry, software application in Civil Engineering, Geotechnical investigations. The FSP also covered topics on formwork and scaffolding, bar bending, RMC, Mixed design, alternate building materials etc. This pre-employment training program was to enhance and sharpen required skills among the civil engineering graduates and make them employable.

MESSAGE FROM HEAD OF THE DEPARTMENT

Dr. Ganesha Mogaveera
Professor & Head
Department of Civil Engineering
Mangalore Institute of Technology & Engineering
Badaga Mijar, Moodbidri-574 225
Mobile: +91 9448983955 / 9591843955
Email: *hodciv@mite.ac.in*
Website: *mite.ac.in*

It is my immense pleasure to mention that, Civil Engineering is a prominent and oldest branch of engineering which deals with buildings, bridges, roads, flyovers, railways, water supply, sanitary, development of townships and other infrastructural development. Due to liberalization policy of the government, many infrastructure projects like golden quadrilateral, National highway constructions and transport sector development are the need of the hour. Department of Civil Engineering was established in the year 2013 and organised a series of activities like Technical talks, Quiz competition, Model exhibition, National and international level conferences & workshops and finishing school program. Department focused on industrial training to the students apart from regular academic activities. I am proud to mention that, our Department is releasing News Bulletin for concluding series of activities of the academic year 2020-21.

I am grateful to our honourable chairman Sri. Rajesh Chouta, Founder of Rajalaxmi Education Trust® for his tremendous support in developmental work of the department and our beloved Principal Dr. G. L. Easwara Prasad for his constant support and encouragement. I would like to appreciate the continuous effort put forward by the Chief Coordinator of Association of Civil Engineering Students (ACES) Dr. Jayaprakash, M. C. and it's my privilege to thank the faculty members of Civil Engineering Department and my dear students.

Dr. Ganesha Mogaveera

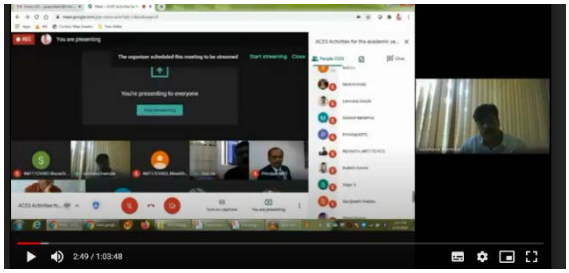
CIVIL ENGINEERING
DEPARTMENTAL ACTIVITIES 2020-21

Inauguration of ACES Activities 2021-21 by Virtual

ACES (Association of Civil Engineering Students) is one of the non-profit association formed for the benefit of civil engineering students. Under the flag ship of Department of Civil Engineering, every year we are conducting various technical talks of the successful industrial personalites and professors from IITs, IISc & NITs. Along with that we propose workshops, conferences, technical tour, industry visit, sports etc. for the benefit of students.

On 9th October 2020, Er. Vaibhava S Inamdar, Director, Business Development, Purna Design Engineering Pvt Ltd., BANGALORE has inaugurated the ACES activities of 2020-21 in the virtual mode followed by delivered a technical talk on **"Career Opportunities in Civil/Structural Engineering Discipline for Fresh Graduates"**. In his inaugural address, he has more focused on the Career opportunities of Civil Engineering students in the field of structural engineering field. Engineers should serve the nation with innovative technology which should reach the common people. During the virtual ACES activity inaugural program felicitated the 3 years class toppers based on their consolidated CGPA and also released the news bulletin of 2019-20 virtually.

Ms. Harshitha C K, President of ACES welcomed in the inauguration of ACES Activities of 2020-21



Er. Vaibhava S Inamdar, Director, Business Development, Purna Design Engineering Pvt Ltd., BANGALORE, delivered a talk on 'Career Opportunities in Civil/Structural Engineering Discipline for Fresh Graduates' on the occasion of ACES Students Activity Inauguration 2020-21

Technical Webinar

The webinar on "Smart Technology for Smart Constructions" was conducted in 3rd December, 2020 for the benefit of Engineering students Er. Nagesh Puttaswamy, Zonal Head WT & RMDT (South) UltraTech Cement Ltd., Bangalore. He has covered the topics of Smart Technology for Smart Construction and Smart Construction Materials and Techniques

Er. Nagesh Puttaswamy, Zonal Head WT & RMDT (South) UltraTech Cement Ltd., Bangalore has mainly focused in the webinar of "Smart Technology for Smart Construction" are as follows:

- Demand rolling out in Construction Today!
- Autoclaved Aerated Concrete
- Mortar less Masonry
- Glass fibre in Concrete
- Fabric concrete
- Monolithic Concrete Construction
- Wireless maturity meter system

- Quality control Techniques that could be adopted at site WMMS

Er. Nagesh Puttaswamy, Zonal Head WT & RMDT (South) UltraTech Cement Ltd., Bangalore, delivered a talk on "Smart Technology for Smart Constructions"

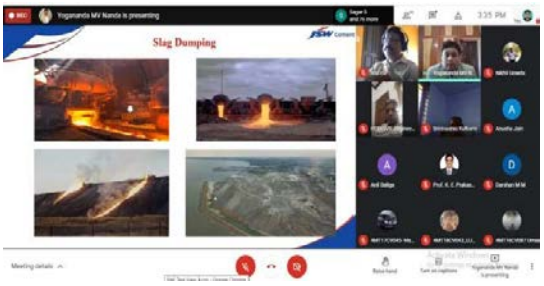
Technical Webinar

The webinar on "Alternative Materials for Sustainable and Durable Constructions" was conducted in 21st May, 2021 by Er. Yogananda M V, Concrete Technologist, BDM - Direct Sales, KA, JSW Cement Ltd. Bangalore. This program was organized by Indian Concrete Institute, Mangalore Center, in association with Department of Civil Engineering, Mangalore Institute of Technology & Engineering.

Resource person has mainly focused on Alternative Materials for Sustainable and Durable Constructions, Embodied Energy and Carbon Foot Print of Ingredient of basic Concrete Slag sand - An Eco-friendly Fine Aggregate Advantage and Dis advantage of GGBS

The major Topic was covered by Er. Yogananda M V, Concrete Technologist, BDM - Direct Sales, KA, JSW Cement Ltd. Bangalore during the webinar "Alternative Materials for Sustainable and Durable Constructions" are as follows:

- Fresh Concrete
- Supplementary cementitious material (Fly Ash, GGBS, Silica Fume)
- Embodied Energy and Carbon Foot Print of Ingredient of basic Concrete
- Embodied Energy and Carbon Foot Print of Ingredient of new Generation Concrete
- Paver Block
- Slag sand -An Eco-friendly Fine Aggregate
- Mortar and Concrete Test



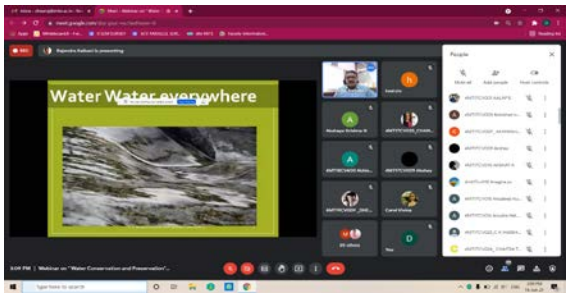
Er. Yogananda M V, Concrete Technologist, BDM - Direct Sales, KA, JSW Cement Ltd. Bangalore, delivered a talk on "Alternative Materials for Sustainable and Durable Constructions"

Technical Webinar

A technical webinar on "Water Conservation & Preservation" Er. Rajendra Kalbhavi, Executive Director, DK Nirmithi Kendra, Mangalore during 16th June 2021.

Er. Rajendra Kalbhavi, in his talks mainly focused on;

- Groundwater depletion in India and the need for water conservation
- Rain water harvesting system to achieve environmental and financial benefits.
- Installing a rooftop rainwater harvesting system
- Necessary components of the system and filtration mechanisms like sand gravel filter, charcoal filter



Er. Rajendra Kalbhavi, Executive Director, DK Nirmithi Kendra, Mangalore, delivered a talk on "Water Conservation & Preservation"

Webinar on "Email Etiquette"

Dr. Ganesha Mogaveera, Professor & HoD, Department of Civil Engineering, MITE, has delivered a talk on "Email Etiquette" for Civil Engineering Students on 22nd June 2021.

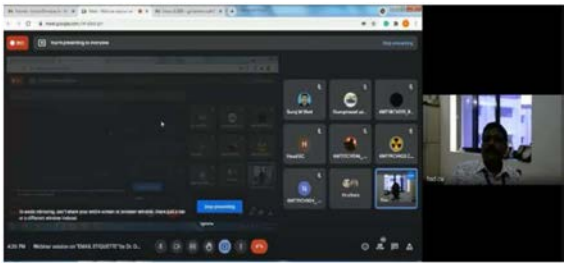
He has covered the topics on,
1. Email etiquette refers to how a person should behave when writing, answering and sending emails
2. Various application of email
3. Writing Effective Emails
4. What are the problems with using CC/BCC in Email?
5. Benefits or Email Threading
6. Frequently asked Question and answer

During his webinar, he also focused on,

- Definition of BC,BCC,Signature
- Various application of email
- Vcard Backup using Email
- Rules to Follow for Professional Communication

Writing Effective Emails should contain following things

- Don't over communicate by email.
- Make good use of subject lines.
- Keep messages clear and brief.
- Be polite.
- Check your tone.
- Proofread
- Signature

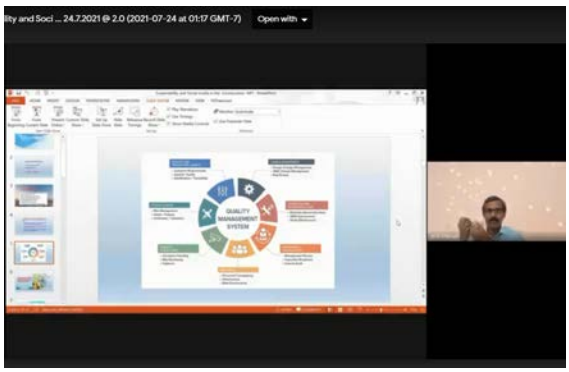


Dr. Ganesha Mogaveera, Professor & HoD, Department of Civil Engineering, MITE, has delivered a talk on "Email Etiquette"

Technical Webinar

Dr. Anil Cherian, Technical Manager-JF Group United Arab Emirates (UAE), has delivered a talk on "Role of Sustainability and Social Media in the Construction Industry" on 24th July, 2021.

Resource has mainly focused on Career Opportunities and importance of social media in Civil/Construction Engineering Discipline for Graduates in the pandemic COVID-19. Also, he has been suggested social media will help with communication and collaboration in the construction sector and benefit sustainability initiatives for the development of the country there are significant benefits to be gained by the construction sector.



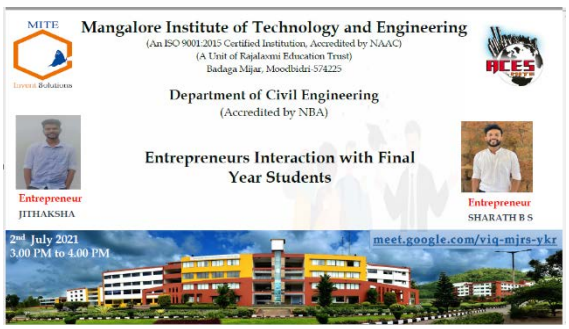
Dr. Anil Cherian, Technical Manager-JF Group United Arab Emirates (UAE), delivered a talk on "Role of Sustainability and Social Media in the Construction Industry"

Alumni Entrepreneur Interaction

02nd July, 2021, Mr. Karnik Shetty who has completed his BE degree in the academic year 2015-16, Mr. Thushar Salian Alumni, who has completed his BE degree in the academic year 2016-17, Mr. Anup Kumar, who has completed his BE degree in the academic year 2017-18, Ms. Poojitha, she has completed his BE degree in the academic year 2018-19, Mr. Sharath B S (2019-20) and Mr. Jithaksha (2016-17), were delivered talk and express their field experience to present Final year Students (2020-21).

The major Topic was covered by our Invited Alumni's during webinar on "Entrepreneur Interaction with Final year Students" are as follows:

- Career opportunities in the field of Civil Engineering domain and its allied domain.
- Core Subjects preparation for the interview process.
- How to crack the public sector examinations and its Competition level.
- Entrance exams for Higher studies in and around the globe and also its preliminary preparations.
- Essential software's required for present situation.
- Expectation of Companies for hiring the job.
- Correlation of practical knowledge Vs Theoretical Knowledge in the Civil Engineering Domain.



Alumni Interaction was organized by our alumini's on "Entrepreneur Interaction with Final year Students"

MITECONS – Department of Civil Engineering Consultancy Services

MITE consultancy services provides the consultancy services in different fields of Civil Engineering for Government, Semi Government and private agencies since from inception. The basic aim of MITE consultancy services (MITECONS) is to provide quality services for technical problems at reasonable and affordable rates as a service to society.

The MITECONS, recently provided geotechnical investigation consultancy services to KIUWMIP-KUIDFC, Government of Karnataka for proposed construction of Water Treatment Plant at Haladi. Expert Faculty members of the department conducted filed investigations such as resistivity meter survey, standard penetration test, collection of soil samples from proposed construction site. Further Investigation team carried out laboratory tests on collected samples and Geotechnical Investigation report is submitted to respective client.

The MITE Consultancy services provided Iron ore percentage test in the laterite rocks for OHT and water supply pipelines continuously from the client of Karnataka Urban Infrastructure Development & Finance Corpn. Ltd. and Suez Projects Pvt. Ltd. (SPPL), Mangalore.

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ANVESHANA-2021 (Virtual Mode)

The TWO projects were selected for state level science and technical exhibition for the academic year 2020-21. The first project entitled **"Fly Ash Concrete Sounds by Nature"** submitted by Niveditha S P, Vaishnavi G, Bharghavi S R, Disha of Department of Civil Engineering, MITE students and Athmashri H G And Dhanushree K M, 9th standard of Govt. High School Elimale, Devachalla Village, Nellur Kemraje Post, Sullia Taluk, D.K. 574248 under the guidance of Dr. Jayaprakash M C, Department of Civil Engineering, MITE.

Second, **"MP - Based Smart "Waste Segregation" for Clean India"** submitted by Naveena M, Nithin K R (Department of Electronics and Communication Engineering) and Prithvi S, G Manish Raj of Department of Civil Engineering, MITE students and Rithesh R K And Anil Kumar – 9th Standard of Karnataka Public School Kanyana (High School Shikshana), Kanyana Village and Post, Bantwala Taluk, D.K. Pin: 574279. DISE CODE: 29240102910, under the guidance of Dr. Jayaprakash M C, Department of Civil Engineering and Dr. Srikrishna Shastri C of Department of Electronics and Communication Engineering, MITE.

KSCST Funded Projects (Student)

MITE, Department of Civil Engineering students consecutively receiving KSCST financial assistance for their B.E Projects from past five academic years.

2020-21: 4 Project

1. **"Parametric study of euphoria cactus on the properties of concrete as Alternate material"** Project proposal submitted by Mr. Fahiz C K, Mr. Mohammed Jabir, Mr. Safwan Sadique, Ms. Krishna under the guidance of Mr. Sagar, Department of Civil Engineering, MITE.

2. **"Experimental investigation on paver block by partial replacement of fine aggregate with iron ore wastes"** Project proposal submitted by Mr. Muzamil Ahmad Kantroo, Ms. Kaviya M V, Mr. Mallikarjuna and Mr. Kowshik D under the guidance of Mr. Suraj Shet and Mr. Akshaya Krishna N, Department of Civil Engineering, MITE.

3. **"Drone based identification of threat caused by locusts infestation in Agricultural crop"** Project proposal submitted by Ms. Kavyashree C Mundasad, Mr. Pavan Kumar, Ms. Shreya S and Ms. Sadhwi Padival – Aeronautical Department, under the guidance of Mr. Sujesh Kumar (Department of Aeronautical Department) and Dr. Jayaprakash M C (Department of Civil Engineering)

National Level Inter College Competition

Mr. Muzamil Ahmad Kantroo, Ms. Kavya M V, Mr. Mallikarjuna Naik and Mr. Kowshik D of Department of Civil Engineering has participated in National level inter college competition "AJIET TECH EXPO-2021" Virtually on 15th September 2021 organized by Department of Civil Engineering, A J Institute of Engineering and Technology Mangalore in association with Institute of India (IEI) and Indian Society for Technical Education (ISTE)

Faculty Development Program (FDP) – Virtual Mode

AICTE sponsored online FDP

"Environmental Geo-Technology", a 5-Day ATAL sponsored online FDP was organized by Department of Civil Engineering from 25th to 29th January 2021 in which around 161 participants out of 200 participants participated from different parts of the country participated.

AICTE is committed for development of quality technical education in the country by initiating various schemes launched by Govt. of India, Ministry of Human Resource Development e.g. SWAYAM, MOOCs, Start-up Initiatives, Prime Minister Kaushal Vikas Yojana, Sansad Adarsh Gram Yojana (SAGY), Swachh Bharat/ Unnat Bharat Abhiyan, Yoga Activities etc.

Vision: To empower faculty to achieve goals of Higher Education such as access, equity and quality.

Mission:

- To establish AICTE Training and Learning (ATAL) cell in all the technical institutions, Universities, Deemed-to be Universities and other institutions of technical learning.

About AICTE Training and Learning (ATAL) Academy

- AICTE will support for establishment of AICTE Training and Learning (ATAL) cell in all the technical institutions. Universities. Deemed to be Universities and other institution of technical learning.

- ❖ Initially AICTE will establish AICTE Training and Learning (ATAL) Academies in Jaipur, Vadodara, Guwahati and Trivandrum. However, in future more academies may be opened as per requirements.
- ❖ AICTE HQ will have a training cell which will coordinate with training academies of AICTE and training cells across the country.
- ❖ To establish Academies web portal and mobile application for carrying out its operations.
- ❖ To build a database of trainers/experts, Video Repositories, Training materials and training needs of technical institutions.
- ❖ Training needs analysis of technical manpower of the country.

Objectives of the Training:

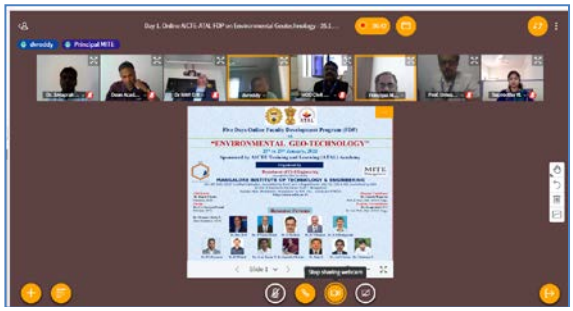
- To set up an Academy which will plan and help in imparting quality technical education in the country
- To support technical institutions in fostering research. innovation and entrepreneurship through training
- To stress upon empowering technical teachers & technicians using Information & Communication Technology
- To utilize SWAYAM platform and other resource for the delivery of trainings.
- To provide a variety of opportunities for training and exchange of experiences. Such as workshops, Orientations, learning communities, peer mentoring and other faculty development programmes.
- To support policy makers for incorporating training as per requirements.

This FDP program of "Environmental Geo-Technology" inaugurated by the Chief Guest Dr. Ravi D.R, Environmental Officer, Karnataka State Pollution Control Board, GoK, Bangalore highlighted the issues and challenges in Environmental Geo-technology and the role of Civil engineers in nation-building. Dr. G.L. Easwara Prasad the Principal, MITE in his presidential remarks emphasized the rising scarcity of natural resources, the need for its judicious use, and the need for civil engineers to work towards sustainable development with great social responsibilities. Dr. Ganesha Mogaveera, the programme coordinator and Head of the Department of Civil Engineering and Dr. Jayaprakash M.C., the Program Co-Coordinator were also present during the inaugural ceremony.

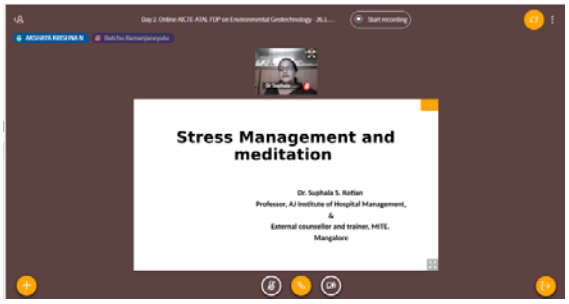
The main objective of the five days FDP Programme is to create more awareness amongst Engineers and Industry professionals to find the solution for the problems such as Geo environmental pollution, stabilization of expansive soil, impact of landslides on Environmental attributes, Environmental impact of foundations, Biological waste treatment, soil and groundwater contamination from industrial effluent, and many more. The FDP would host 200 participants from various institutions and industries from across the country and is a right concoction with keynote addresses from academicians, researchers from IIT Madras, NITK Surathkal, and other renowned institutions and officers from the Karnataka Pollution Control Board in addition to leaders from industries like MCF and Starinstall, UAE. ATAL academy of AICTE, the Ministry of Human Resource Development is supporting technical institutions in fostering research, innovation, and entrepreneurship through training and is empowering technical teachers & technicians to use Information & Communication Technology effectively.

MITE continues its mission of shaping young graduates with quintessential skills and knowledge. The institution through the industry supported Siemens Center of Excellence in digital design, validation and manufacturing, Bosch Rexroth Center of Competence in automation technologies, the MOU's with Infosys, KPIT Technologies, UI Path, and Carl Zeiss has been turning graduates industry-ready. Also, the association with Binghamton University, USA, ITE West, Singapore, Kumamoto University Japan, and the MDIS Singapore gives graduates a global outlook. The institution is also shaping businesses of tomorrow through the incubation center that has received grants from state and central government and currently has around 20 students' ideas been mentored and incubated. With a passion to provide the best for the graduates, to learn and explore, MITE over the years has created an electrifying atmosphere for everyone to nurture their skills and excel.

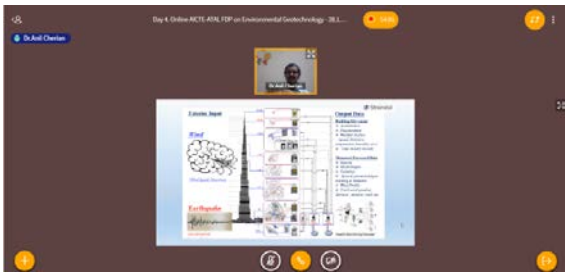
Few screenshots of the inaugural function are as below.



"Environmental Geo-Technology" FDP programme was inaugurated by Dr. Ravi, Environmental Officer, KSPCB, Bangalore.



Dr. Suphala S Kotian, Professor, in MHA department, AJ hospital and Research Centre, Kuntikana, Mangalore



Dr. Anil Cherian, Technical Manager, Strainstall, Middle East, Dubai, UAE

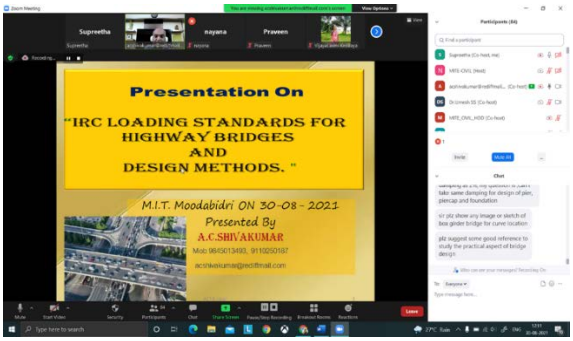
National level 5 days FDP on Design & Construction Practices of Bridges

Five-day online Faculty Development Program (FDP) on "Design & Construction Practices of Bridges" was inaugurated at Mangalore Institute of Technology & Engineering on 30th of August, 2021. The FDP is organized by the Department of Civil Engineering in association with Indian Concrete Institute, Mangalore chapter and supported by Purna Design Engineers Pvt. Ltd., Consulting Engineers Group Ltd., SISA Consultants LLP, TRANSYS Consulting Pvt. Ltd. and Vinaxo Structures Consulting Services and is scheduled from 30th August 2021 to 3rd September 2021 and would host 200+ participants from various institutions and industries across the country.

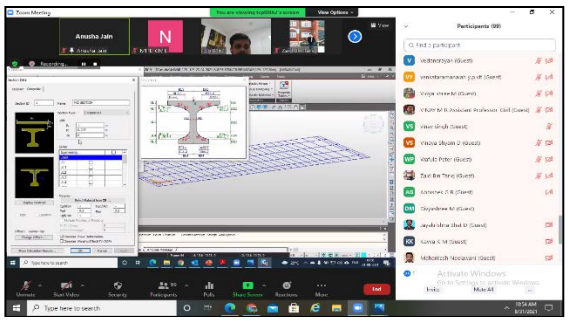
The FDP programme was inaugurated by the Chief Guest Dr. M S Sudarshan, Managing Director, Stredent, Bangalore highlighted the issues and challenges in the Design and Construction of various types of bridges and the role of Civil engineers in nation-building. Dr. G.L. Easwara Prasad, Principal, MITE in his presidential remarks emphasized the need of advanced technologies in the construction of bridges to make the structure more sustainable and economical. He congratulated the Department of Civil Engineering for being a front runner in augmenting learning at MITE with strong industry connections and training through industrial professionals. Dr. Ganesha Mogaveera, Head of the Department of Civil Engineering welcomed the gathering and Dr. Umesh S. S, Program Co-Coordinator briefed about the program and Mr. Suraj Shet, Co-Coordinator proposed the vote of thanks.

The objectives of the five days FDP is to create awareness amongst Academicians and Industry professionals on Economic growth of the country through Bridges and Flyovers, Importance of IRC loading standards for Highway Bridges, Design methods, Software Application in Design of Bridges, Overview on Bridge design project and Issues encountered during implementation with respect to feasibility study, Investigation and rehabilitation of Bridges and Soil Structure Interaction Analysis.

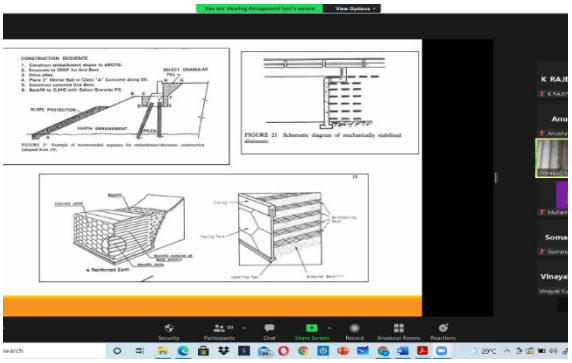
Few screenshots of the inaugural function are as below.



Er. A.C. Shivakumar, Design Academy Consulting Civil Engineers, Bangalore delivered a talk on IRC loading standards for Highway Bridges and Design Methods explaining Economic benefits of new bridge construction



Er Deeplav Kumar, Assistant Manager (Structures) Transys Consulting Pvt Ltd. delivered a talk on usage of MIDAS Civil in design of bridges



Er Annapporni Iyer, Geotechnical Consultant Mumbai, delivered a talk on design details of Gabion

MoUs With

1. National Highways Authority of India (NHAI)
2. Dakshina Kannada Nirmithi Kendra, GOK
3. Master Plannery, Puttur, D.K
4. SAI CADD, Bangalore
5. CAFET Innova Technical Society, Hyderabad
6. Paradigm Environmental strategies (P) Ltd, Bangalore

Technical Articles by Students

Fly Ash Concrete Sounds by Nature

Niveditha S P, Vaishnavi G, Bharghavi S R, Disha (Department of Civil Engineering)

Fly ash can be a cost-effective substitute for Portland cement in many markets. Fly ash is also recognized as an environmentally friendly material because it is a by-product and has low embodied energy, the measure of how much energy is consumed in producing and shipping a building material. By contrast, Portland cement has a very high embodied energy because its production requires a great deal of heat. Fly ash requires less water than Portland cement and is easier to use in cold weather. In fact, high volume fly ash concrete as a green concrete, since it can protect environment from global warming and at the same time from pollution. Fly ash concrete gain strength slowly and gives lower early strength, this can be ignored by using new innovative idea, fly ash concrete may sounds better by eco-friendly concept applying in this innovative project.

HYPOTHESIS:

- High volume fly ash concrete has given promisable result as well as strength as a green concrete.
- Curing could be done with anaerobic process instead of aerobic to get better result.
- Further, research on fly ash concrete is appreciable to study in detail with changing materials proportions in the concrete mix.

Method:

Mix Design - Stipulations for Proportioning

Grade Designation: M25
Type of Fly Ash: Fly Ash (type - 9.6% CaO)
Type of Mineral Admixture: Egg shell and Sea shell
Maximum Nominal Size of Aggregate:20 mm
Maximum Water-Fly ash Ratio: 0.5
Workability: 100 mm
Exposure Condition: Severe
Degree of Supervision: FAIR

Type of Aggregate: Crushed Angular Aggregate
Chemical Admixture Type: Liquid Fly Ash Bricks Chemical Hardener (Perma Construction Chemicals) – Super Plasticizer

Experiment:
Fly Ash Concrete with Fly Ash (70%) + Egg Shell (20%) + Sea Shell (10%) + Fresh water (0.5) + River Sand + Coarse Aggregate + Supplied Atmospheric CO_2 to reduce pH.
Refereed IS Code: 10262:2009
Grade: M25
Proportion: 1 : 1.84 : 3.1

Summary:

- Fly ash can be a cost-effective substitute for Portland cement in many markets.
- Fly ash is also recognized as an environmentally friendly material because it is a byproduct and has low embodied energy.
- Fly ash requires less water than Portland cement and is easier to use in cold weather.
- In fact, high volume fly ash concrete as a green concrete, since it can protect environment from global warming and at the same time from pollution.

MP - Based Smart "Waste Segregation" For Clean India

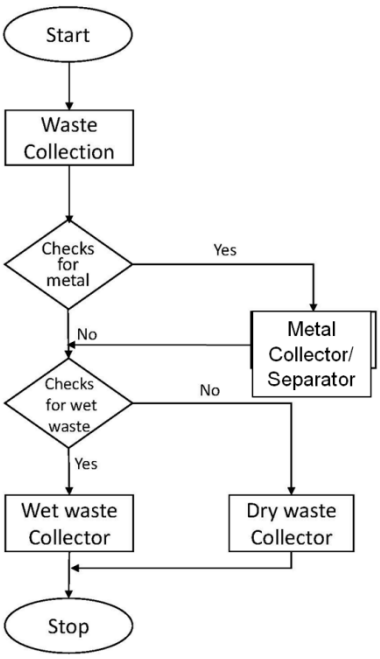
Naveena M, Nithin K R (Electronics and Communication Engineering) and Prithvi S, G Manish Raj (Department of Civil Engineering)

Proper solid-waste collection is important for the protection of public health, safety, and environmental quality. It is a labour-intensive activity, accounting for approximately three-quarters of the total cost of solid-waste management. Public employees are often assigned to the task, but sometimes it is more economical for private companies to do the work under contract to the municipality or for private collectors to be paid by individual home owners. The major problems affecting solid waste management are unscientific treatment, improper collection of waste, and ethical problems. This in turn leads to hazards like environmental degradation, water pollution, soil pollution, and air pollution.

The key to efficient waste management is to ensure proper segregation of waste at source and to ensure that the waste goes through different streams of recycling and resource recovery. Then reduced final residue is then deposited scientifically in sanitary landfills. Major limitation of this method is the costly transportation of MSW to far away landfill sites. Thus Microprocessor (MP) based smart innovative technology would help the segregating of the waste at source.

Hypothesis:
The separated waste can be sent to the recycling and processing plant instead of sending it to the segregation plant then to the recycling plant.

Method:



Experiment:

Working Operation:

1) Conveyor Belt
2) Funnel
3) Dustbin
4) Hot Air Blower
5) Air Blower
6) Servo motor
7) Rotating Plate
8) Electromagnetic Arm

Summary:

Microcontroller “dry & wet waste segregator” which is an affordable and easy to use solution for segregation, even, if there are large scale industrial waste and urban/rural households.

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