# K.L. DEEMED TO BE UNIVERSITY

# DEPARTMENT OF CIVIL ENGINEERING

# **One Week Online FDP**

**ON** 

# **Construction Technology and Management**

# Attended by

# **Civil Engineering Faculty**

**Dated:** 24th to 29th Aug, 2020, **Time:** 09:30 AM to 4:30 PM, **Venue: Online** 

We are happy to inform you that the Department of Civil Engineering, successfully organized an online Faculty Development Programme.

The Welcome note was presented by Dr. Dr. K. Subba Rao, Principal College of Engineering, KLEF then, HoD of Civil Engineering Dr. Ch. Hanumantha Rao has given a brief note about our department and this FDP to all participants. The organizing secretary Dr. Marimutu K, Associate Professor, has addressed the participants and given information on various themes of the FDP like BIM & Lean; Finance and Contracts; Sustainability; Planning & Scheduling; Safety & Building Science and Quality.

# **About FDP:**

Construction Technology management refers to the discipline of overall planning, coordination, and control of projects from beginning to completion. This gives the students scientific principles involved in construction, an understanding of the behavior of various knowledge management areas, such as scope, schedule, cost, quality, safety, resources, sustainability etc., Construction technologists should have good knowledge about various concepts, like Lean Construction, Building Information Modeling (BIM), Robotics and Automation, Construction methods and technologies to ensure meeting the customer value. The latter technologies are in the nascent stage of adoption in India and world-wide. Yet to understand the multifarious applications of construction technologies to improve the construction management functions. To fill this gap, the Department of Civil Engineering, K L Deemed to be University organising this FDP along with industry experts, academicians, scholars, and consultants to address the gap. Practicing Engineers, construction consultants, faculty, research scholars, PG and UG students can attend the program.

# **Resource Persons:**

- Dr. Rahul V. Ralegaonkar, Professor, VNIT, Nagpur
- Dr. V. Balakumar, Sr Consultant at Simplex Infra Ltd

- Mr. G. Boopathi, Director (Unique Const. India Pvt Ltd)
- Ar. K. Sundararaman, Asso. Prof. (RSA), Scholar (IITM)
- Mr. E. Vetriselvan, Manager-Projects (EPMCR)
- Ms. S. Manna Simon, Doctoral Research Scholar (IITM)
- Ms. Sreelakshmi S, Doctoral Research Scholar (IITM)
- Mr. Vinay Mathews, Chartered Engineer (Ind. Consultant)
- Mr. Manu K Poulose, Doctoral Research Scholar (IITM)
- Dr. B. Sudheer Kumar Reddy, Asst. Prof (Sreenidhi)
- Mr. Balasubramani Mahesh, Asst. Prof. (NICMAR-H)
- Mr. P. Mohan Chandra, Doctoral Research Scholar (IITM)
- Mr. Rakshith Komalan H K, Engineer (NCBS-TIFR,Bengaluru)
- Mr. Srinath P, Doctoral Research Scholar (IITM)
- Dr. Karthik Dasari, Research Assistant (Freelancer)
- Mr. Santhosh L, Research Associate (L&T), Scholar (IITM)
- Mr. S. Shriram, Asst. Prof. (Amrita College of Engg- Chennai)
- Mr. Varun Kumar Reja, Doctoral Research Scholar (IITM)
- Mr. S. Shanmugaraj, Project Officer (IITM)

• Mr. Pavankumar Tadepalli, MS Scholar (IITM)

# **Course Content:**

- ➤ Theme 1: BIM and Lean in Construction (Introduction, Lean concepts, Repair Co Game, Challenges in Adoption); Technology adoption in Construction Industry (Theory in construction management); BIM An overview (BIM, BEP, advantages/uses, challenges).
- ➤ Theme 2: Finance and Contracts relationship between Contractor and Subcontractor (Questionnaire survey; SPSS); Project risks and flexible contracts (Uncertainty, Flexibility, Real Options Analysis); Megaproject management.
- ➤ Theme 3: Sustainability Sustainable construction Primer (Overview of sustainable construction, Three pillars with focus on Environment in construction industry, Measurement); Sustainable construction Global perspective (Global perspective, Indicators, SuRE, Intelligent sustainable design, and PPP for sustainability); Sustainable construction materials, technologies and product performances.
- Practices, Tools and Techniques (Project Controls, Critical Path Method (CPM), Precedence Diagram Method (PDM), Construction Project Schedule, Baseline); Construction Labour Productivity (Measurement Techniques at various levels, Benchmarking, Schedule Management); Workforce management challenges in Indian construction projects (Socio-economic background of Indian construction workforce, Issues with respect to skills and productivity, Ways forward for effective management of workforce).

- ➤ Theme 5: Safety & Building Science (incl. robotics & automation) Building and its influence on occupants; Modern Solutions for Construction Safety Management (Construction Safety, IoT Applications, VR-Based Safety Training); Construction Site Accidents A critical appraisal; Automation in Construction (Trends in Robotics and Automation in construction).
- > Theme 6: Quality (incl. methods) Total Quality Management (Overview and Industry level examples of TQM, QA & QC implementation); Quality audit in construction (Third party quality audit in residential projects); Challenges in Underground Metro construction; Construction methods and technologies for low cost housing (Low cost housing, alternative technologies of construction, overview of these technologies).

# **Schedule of the Programme:**

Day / Timing	9:30 AM- 10:30 AM	10:30 AM- 11:30 AM	11:30 AM - 12:30 PM	12:30 PM - 1:30 PM	1:30 PM- 2:30 PM	2:30 PM - 3:30 PM	3:30 PM - 4:30 PM
Aug 24 MON	Lean in Construction - Introduction & Concepts SMS		Construction Site Accidents - a Critivcal appraisal <b>BV</b>	Total Quality Management SSM		Megaproject Management <b>BM</b>	
Aug 25 TUE	Sustainable Construction – Primer MC		Technology adoption in Construction Industry VM		LUNCH BREAK	Sustainable Construction Materials, Technologies, and Product Performances RVR	
Aug 26 WED	Building Information Modeling - An overview SS		Relationship between Contractor and Sub-contractor SKR			Automation in Construction KSR	
Aug 27 THU	Building and its Influence on occupants SSR		Project Risks and Flexible Contracts  MKP			Challenges in Underground Metro Construction <b>BG</b>	
Aug 28 FRI	Quality Audit in Construction VE	Modern Solutions for Construction Safety Management VKR	Sustainable ( - Global pe <b>RK</b> I	rspective		Construction N Technologies for Lo PT	ow Cost Housing
Aug 29 SAT	Construction Project Scheduling: Best Practices, Tools and Techniques PS		Construction Labour Productivity DKD			Workforce Management Challenges in Indian Construction Projects Activate Windows SL Go to Settings to activate	

## MS. S. MANNA SIMON

DOCTORAL RESEARCH SCHOLAR (IITM)

Theme I: BIM and Lean



- B.Tech CE (Pondicherry University), M.Tech CEM (SRM Univ)
- One international conference paper, four national conference paper
- Gold medalist M.Tech (CGPA 10)
- Lean in Construction Introduction & Concepts



#### DAY-I

9.30 am – 11.30 am

24, Aug, 2020



# **SPEAKER #2**

## DR. BALAKUMAR VENKATRAMAN

SENIOR CONSULTANT AT SIMPLEX INFRASTRUCTURES LIMITED

- Graduated from I.I.T., Madras, Chennai in Civil Engineering
- Ph.D from Anna University Chennai (Geo-Technical Piled raft)
- In 1985, started his own practice as Structural & Geotechnical and is in the same capacity till now. As a consultant, numerous Multi-Storied Residential apartments have been designed by him, one of which is supported on piled raft designed by him, which was instrumented and monitored forming a part of his Ph.D thesis
- Published more than 20 papers in National and International conferences and one journal paper. Two of his papers have won National awards
- Life fellow of Indian Geotechnical Society and member of the International Society of Soil Mechanics and Geotechnical Engineering and Deep Foundation Institute USA
- Visitor to Darmstadt University Germany, University of Wisconsin United States and Griffith University, Australia
- Construction Site Accidents A Critical Appraisal



#### DAY-I

I I.30 am – I2.30 pm

24, Aug, 2020

Theme 5: Safety & BS



# MR. S SHANMUGARAJ

PROJECT OFFICER (IITM)

Theme 6: Quality (incl methods)

- · BTech(Civil) PSG college of Technology,
- MTech (Construction Management) IITM
- Industry L&T Construction 3 yrs
- Area of interests 3D Printing, Application of Machine learning techniques in construction automation
- Total Quality Management (Overview and Industry level examples of TQM, QA & QC implementation)



**DAY- I**12.30 pm – 01.30 pm
24, Aug, 2020



# **SPEAKER #4**

#### MR. BALASUBRAMANI MAHESH

ASST. PROF. (NICMAR HYDERABAD)

Theme 2: Finance & Contracts

- M.Tech IITM, PhD IITM (Submitted thesis)
- L&T Construction Mumbai International Airport
- Area of interests Project organizing, business model innovation in projects, disruptive transitions in projects
- Balasubramani, M., Mahalingam, A., & W. Richard Scott (2019).
   "Imitation and adaptation: Lessons from a case study of a metro rail project in India." Construction Management & Economics, Special issue for Ray Levitt Festschrift, 38(4), 364-382.
- Megaproject management (Megaprojects, practice-based perspective)



DAY-I

2.30 pm – 4.30 pm 24, Aug, 2020



#### MR. P. MOHAN CHANDRA

DOCTORAL RESEARCH SCHOLAR (IITM)

Theme 3: Sustainability

- BE Civil Engineering Chennai Institute of Technology
- ME Construction Engineering and Management, College of Engineering, Guindy (Anna Univ)
- · Doctoral Research Scholar, IITM
- · Mentor Teach to Learn I Lab I School
- · Secretary Civil Engineering Association (CEA), IITM
- Sustainable construction Primer (Overview of sustainable construction, Three pillars with focus on Environment in construction industry, Measurement)



**DAY-2** 9.30 am – 11.30 am 25, Aug, 2020



# **SPEAKER #6**

#### MR. VINAY MATHEWS

CHARTERED ENGINEER (INDEPENDENT CONSULTANT)

Theme I: BIM and Lean

- BTech in Civil Engineering from Mar Athanasius College of Engineering
- MS (IITM)
- Software developer in UST Global; couple of years in Oman as a civil engineer before joining IIT Madras for MS in construction management
- · Worked as faculty in Amal Jyothi College of Engineering
- · Worked as a technical personnel for KSEB on a contract basis
- Technology adoption in Construction Industry (Technology adoption; Theory in construction management)



**DAY-2** 11.30 am – 1.30 pm 25, Aug, 2020



# DR. RAHUL V. RALEGAONKAR

PROFESSOR, VNIT, NAGPUR

Theme 3: Sustainability

- BE (Civil-1998); ME (Civil-2000), PhD (Energy Efficiency Buildings 2005, BITS, Pilani)
- Worked for a year in industry at managerial post in GIS industry and Civil construction industry
- Rest 17 years he has been associated with academics including research, testing, consultancy of civil engineering materials, projects etc.
- Awarded visiting professor post at Liverpool John Moores Uni, UK for the track Feb 2019-Jan 2022
- 3 international and 3 national awards for novel product design of energy efficient construction materials
- Over 150 publications at international and national level; Six Indian patents were filled for several sustainable construction materials
- 9 doctoral, over 40 master's candidates, and 10 graduates student groups have completed their projects under his supervision
- · He has been associated with National Mission Projects
- Area of interests Energy Efficient Buildings; Disaster Management;
   Construction Technology & Management
- Sustainable construction materials, technologies and product performances



**DAY-2**2.30 pm – 4.30 pm
25, Aug, 2020



# **SPEAKER #8**

#### MS. SREELAKSHMI S

DOCTORAL RESEARCH SCHOLAR (IITM)

Theme I: BIM and Lean

- BTech -CE (MGU), MTech-CEM (SRM University)
- Gold medalist-MTech
- Area of interests Digital technology in construction, organizational change, technology adoption
- Building Information Modeling- An overview (BIM, BEP, advantages/uses, challenges)



**DAY-3** 9.30 am – 11.30 am 26, Aug, 2020



#### DR. B. SUDHEER KUMAR REDDY

ASSISTANT PROFESSOR (SREENIDHI INSTITUTE OF SCIENCE AND TECHNOLOGY, HYDERABAD, TELANGANA) Theme 2: Finance and Contracts

- M.Tech (CTM) and Ph.D from VNIT Nagpur
- 1.5 Year of Teaching Experience
- · SCI-2; SCOPUS-3; Patent published I
- Area of interests Project Management; sustainability in construction; Structural Health Monitoring
- Relationship between Contractor and Sub-contractor



**DAY-3**11.30 am – 1.30 pm
26, Aug, 2020



# **SPEAKER #10**

#### AR. K. SUNDARARAMAN

ASSOCIATE PROFESSOR (RAJALAKSHMI SCHOOL OF ARCHITECTURE);
DOCTORAL RESEARCH SCHOLAR (IITM)

Theme 5: Safety & BS (incl robotics and automation)

- B.Arch (Thiagarajar College of Engg.), M.S. (IIT Madras)
- Research: 8 yrs; Industry: 15 yrs; Teaching: 10 yrs
- · Area of interests Architecture, Sustainability, Automation
- Automation in Construction (Trends in Robotics and Automation in construction)



**DAY-3** 2.30 pm – 4.30 pm 26, Aug, 2020



# MR. S. SHRIRAM

ASSISTANT PROFESSOR (AMRITA COLLEGE OF ENGINEERING, CHENNAI CAMPUS)

Theme 5: Safety & BS (incl. robotics and automation)

- · M.E College of Engineering, Guindy, PhD IITM
- 2 years of teaching experience
- · 2 journals, I conference
- Institute Research Award, IITM
- Area of interests Energy efficient Buildings, Occupant Physiology
- · Building and its influence on occupants



# **DAY-4** 9.30 am – 11.30 am

27, Aug, 2020



# **SPEAKER #12**

#### MR. MANU K POULOSE

DOCTORAL RESEARCH SCHOLAR (IITM)

Theme 2: Finance and Contracts

- B.Tech Civil Engg, M.Tech in Infrastructural Planning & Management – IITM
- Biz Analytics (Citicorp Iyr), O&M Lead (RTF Infra- I yr)
- POULOSE, M.K. and MAHALINGAM, A., 2019. Feasibility of Flexible Term Concessions based Real Options in Indian Highway Sector. Asian Transport Studies, 5(5), pp.811-827.
- Area of interests Uncertainty, Flexibility, Coordination, Policy Coherence
- Project risks and flexible contracts (Uncertainty, Flexibility, Real Options Analysis)



#### DAY-4

11.30 am – 1.30 pm 27, Aug, 2020



MR. G. BOOPATHI
DIRECTOR (UNIQCORE
CONSTRUCTIONS INDIA PVT LTD)

Theme 6: Quality (incl methods)

- BE (CIVIL) -VIT
- ME (CEM) Anna University
- Industry (20 yrs+) Consolidated Construction Consortium Limited (CCCL), L&T, UNIQCORE
- Challenges in Underground Metro construction (Underground metro projects, Construction methods)



## DAY-4

2.30 pm – 4.30 pm 27, Aug, 2020



# **SPEAKER #14**

#### MR. E. VETRISELVAN

MANAGER-PROJECTS (EPMCR)

Theme 6: Quality (incl methods)

- B.E (Civil), MSc. Construction Management (UK)
- Industry (12 yrs)
- · I Journal, I Conference
- Area of interests Planning and Control, Construction methods, Lean construction and Sustainable living
- Quality audit in construction (Third party quality audit in residential projects)



#### DAY-5

9.30 am - 10.30 am 28, Aug, 2020



#### MR. VARUN KUMAR REJA

DOCTORAL RESEARCH SCHOLAR (IITM)

- PMRF

Theme 5: Safety & BS (incl. robotics and automation)

- B.Tech- NIT Calicut (Civil), M.Tech-IITM (CTM-BIS)
- L&T Construction 2 Years
- 2 Conference
- Area of interests Construction Automation, IoT Applications
- Modern Solutions for Construction Safety Management (Construction Safety, IoT Applications, VR-Based Safety Training)



## DAY-5

10.30 am – 11.30 am

28, Aug, 2020



# **SPEAKER #16**

#### MR. RAKSHITH KOMALAN H K.

ENGINEER (NCBS-TIFR, BENGALURU)

Theme 3: Sustainability

- B.E VTU (Civil), Master of Technology-IITM (BTCM)
- 13 years of experience
- Area of interests PPP, Sustainable and Resilient construction, Automation, Artificial intelligence for construction
- Sustainable construction Global perspective (Global perspective, Indicators, SuRE, Intelligent sustainable design and PPP for sustainability)



#### DAY-5

11.30 am - 1.30 pm

28, Aug, 2020



# MR. PAVANKUMAR TADEPALLI

MS RESEARCH SCHOLAR (IITM)

Theme 6: Quality (incl methods)

- B.Arch. (School of Planning and Architecture, Vijayawada)
- Area of interests Architecture, energy efficient buildings, sustainable construction, project management
- Construction methods and technologies for low cost housing (Low cost housing, alternative technologies of construction, overview of these technologies)



**DAY-5** 2.30 pm – 4.30 pm

28, Aug, 2020



# **SPEAKER #18**

#### MR. PURUSHOTHAMAN SRINATH

DOCTORAL RESEARCH SCHOLAR (IITM)

Theme 4: Planning & Scheduling

- B.Tech- (VIT, Vellore); M.Tech- (VIT, Vellore), PhD- IIT Madras (Pursuing)
- Teaching and Research (6yr); Industry (2yrs)
- I Scopus Journal; 7 conferences
- Awards Rising Professional in Project Controls (AACE International Source Magazine)
- Area of interests Project Controls, Building Information Modelling, Statistics, Construction Contracts, Behavioral Theory
- Construction Project Scheduling: Best Practices, Tools and Techniques (Project Controls, Critical Path Method (CPM), Precedence Diagram Method (PDM), Construction Project Schedule, Baseline)



DAY-6

9.30 am - 11.30 am 29, Aug, 2020



#### DR. KARTHIK DASARI

RESEARCH ASSISTANT (FREELANCER)

Theme 4: Planning & Scheduling

- M.Tech, PhD From NIT Warangal
- Teaching (lyr), Industry (2yrs)
- Sci I, Scopus 2, Patent Submitted (1)
- Area of interests Productivity Measurement, Building Information Modeling, Construction Planning, Project Management, Contract Management
- Construction Labour Productivity (Measurement Techniques at various levels, Benchmarking, Schedule Management)



**DAY-6**11.30 am – 1.30 pm
29, Aug, 2020



# **SPEAKER #20**

#### MR. SANTHOSH LOGANATHAN

RESEARCH ASSOCIATE (L&T), SCHOLAR (IITM & UTS)

Theme 4: Planning & Scheduling

- M.E (Anna University), PhD (IIT Madras and University of Technology Sydney)
- Teaching (1.5 years), Research (6 years), Industry (1 year)
- 13 publications
- University rank holder at Bachelor's and Master's level
- Area of interests Construction productivity, Workforce management, Teamwork
- Workforce management challenges in Indian construction projects (Socio-economic background of Indian construction workforce, Issues with respect to skills and productivity, Ways forward for effective management of workforce)



#### DAY-6

2.30 pm – 4.30 pm 29, Aug, 2020

