Foundations of Critical Civil Infrastructures (FOCI) - Theory to Design

AICTE Training and Learning (ATAL) Academy (https://www.aicte-india.org/atal)

in association with

IIT Hyderabad

5-day Faculty Development Program (FDP)

Dates: 01 Oct, 2020 - 05 Oct, 2020

Coordinator: Prof. B. Umashankar, IIT Hyderabad

Session	Speaker	Title	Contents
Day 1 (1st Oct, Thursday)			
# 1 (9:30-11:00 am)	**Prof. B. Umashankar,** IIT Hyderabad	Introduction to foundation engineering	Soil behavior relevant to foundation engineering, foundation movements, design philosophies
# 2 (11:15-12:45 pm)	**Prof. Satyanarayana Murty Dasaka,** IIT Bombay	Reliability-based design of foundations	Failure of foundations, alternative design philosophies, variability in design parameters, characterization of variability, acceptability criteria, limit state design, probability of failure.
# 3 (2:15-3:45 pm)	**Prof. B. Umashankar,** IIT Hyderabad	Characterization of ground and shallow foundation settlements	Site investigation; SPT and CPT testing; interpretation of their results; other in situ tests; Shallow foundation settlements overlying sand and clay deposits
Day 2 (2nd Oct, Friday)			
# 1 (9:30-11:00 am)	**Er. I. V. Anirudhan,** Geotechnical Solutions	Characterizing the ground- Practicing point of view	Ground variations, demands on the design parameters, reality check and surprises
# 2 (11:15-12:45 pm)	**Prof. S. Sireesh,** IIT Hyderabad	Bearing Capacity of shallow foundations	Limit bearing capacity concepts of foundations and design of shallow foundations, vertical and eccentric loads
# 3 (2:15-3:45 pm)	**Prof. M. R. Madhav,** IIT Hyderabad	New perspectives in bearing capacity of foundations	Consideration of effects of compressibility, ground profile, height of structure and serviceability criteria.

Day 3 (3rd Oct, Saturday)			
# 1 (9:30-11:00 am)	**Prof. M. R. Madhav,** IIT Hyderabad	Pile foundations- Analysis and design	Design philosophy, pile-raft – ground interactions, settlements.
# 2 (11:15-12:45 pm)	**Dr. Sunil S Basarkar,** GM (Geotechnical), AFCONS Infra. Ltd.	CFA piles: design approaches, suitability and adaptability to Indian conditions.	Design approaches, field CFA trials under aegis of DFI of India, adaptability for Indian conditions, way ahead for implementation
# 3 (2:15-3:45 pm)	**Dr. Arunakumari Garaga** Principal Structural Engineer (SME Geotechnical Engineering), Worley Services India Pvt. Ltd.	Foundations for offshore structures-Theory and practice	Overview of offshore structures and their foundations, pile foundations for offshore structures, soil structure interaction in offshore, design and installation of offshore foundations
Day 4 (4th Oct, Sunday)			
# 1 (9:30-11:00 am)	**Prof. M. R. Madhav,** IIT Hyderabad	Granular Piles – An Overview	Unreinforced and reinforced single and groups of granular piles, mitigation of liquefaction effects
# 2 (11:15-12:45 pm)	**Er. Prasad. PVSR,** Geotech Mgr., Keller India	Case studies – Foundation improvement using vibro techniques for various infrastructure projects	Installation and applications of vibro compaction and vibro stone columns for infrastructure projects
# 3 (2:15-3:45 pm)	To be decided	Art of living session- *Fit India Initiative from GoI*	
Day 5 (5th Oct, Monday)			
# 1 (9:30-11:00 am)	**Er. E. A. Khan,** L&T (ECC)	Extreme foundation engineering of mega structure - Mumbai Trans Harbour Link	Pile foundation, deep rock drilling, marine piling, intertidal zone, navigational zone, reverse circulation drilling, bracket self-support system and precast shell
# 2 (11:15-12:45 pm)	**Dr. Parthasarathy,** Sarathy Geotech & Engg. Services ltd.	Pile driving analysis and integrity methods with case studies	Historical perspective, GRL WEAP, PIT, cross hole, PDA, drilled shafts and steel piles
# 3 (2:15-3:15 pm)	**Prof. B. Umashankar,** IIT Hyderabad	Example design problems; overview of numerical softwares	Design steps in foundation design (shallow and pile foundations) through practical problem, numerical softwares (finite element/finite difference based) in foundation analysis
#4 (3:15-3:45 pm)	**Valedictory/feedback**		

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