AICTE Training and Learning (ATAL) Acadmy sponsored online Faculty Development Program on Environmental Geotechnology

(21st - 25th June 2021)

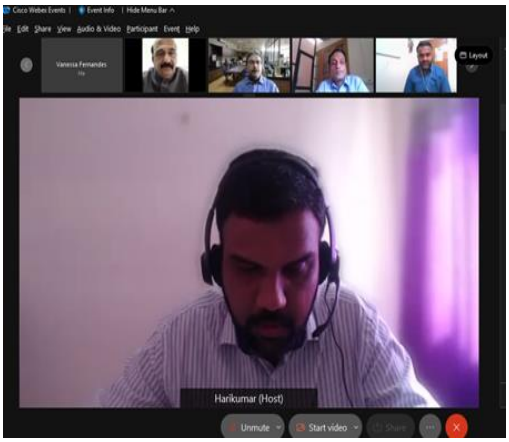
The ATAL academy sponsored online faculty development program on Environmental Geotechnology was inaugurated by our Honorable Director, Prof. Dr. Gopal Mugeraya on 21st June 2021. Prof. Dr. D N Singh, IIT Bombay delivered the keynote lecture. Dr. Sreeraj E S, HoD, presided over the function. The event was conducted on Cisco webex platform and consisted of faculty members, research scholars and students from various institutes pan India. The coordinator of the event was Dr. Harikumar M and the Co-coordinators of the event were Dr. Harish N, Dr. Prasenjit Ghosh, Mr. Tanvesh Dabholkar and Ms. Vanessa Fernandes. The student volunteers were Ms. Sudeeptha, Ms. Ganga Pratima, Ms. Mahima Rawal, Mr. Manas Hadkar, Ms. Krishnapriya S, Mr. Hariom Saraswat and Ms. Shefali Mhaldar.The technical team constituted of Mr. Nikhil Thakur, Mr. Nijin Mambrol and Mr. Rameez Rahman.

The main aim of this multidisciplinary topic includes solutions to present day problems such as scarcity of construction materials, non-availability of land, energy crisis, carbon sequestration, effect of climatic conditions on strength and stability of soil structures, disposal and management of industrial by products, design and functioning of landfills, solid waste management, waste water and sludge, treatment, soil and ground water contamination and many more. Therefore this FDP aims at dissemination and sharing knowledge on various areas of research related to Environmental Geotechnology.

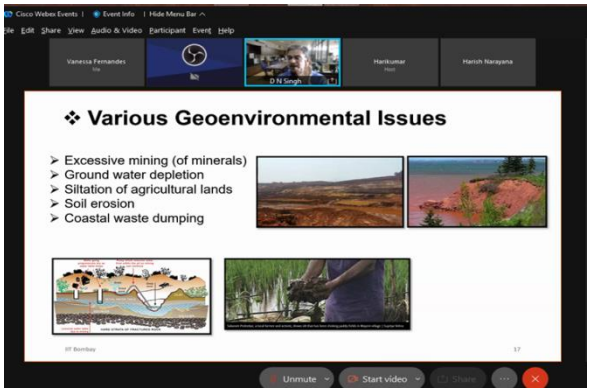
There were total of 13 expert speakers from various IITs, NITs and Goa College of Engineering and one session was from Art of living.

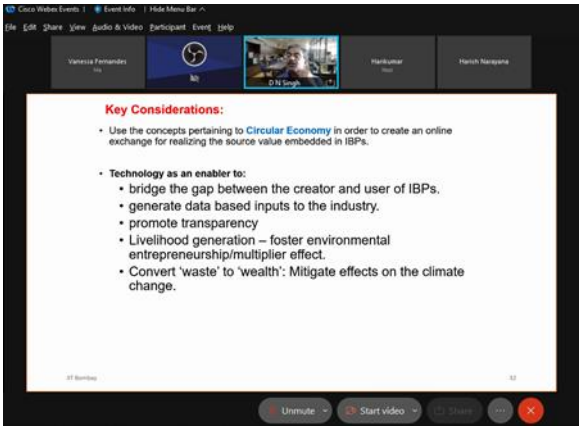
The course contents of the session included introduction to Environmental Geotechnology, Municipal Solid Waste Landfills. Seismic behavior, Geotechnical aspects and treated techniques, sustainable soil stabilization technique, Environmental friendly Bio-retention systems, soil contamination and remediation of contaminated sites. A few snapshots of the sessions are given below:

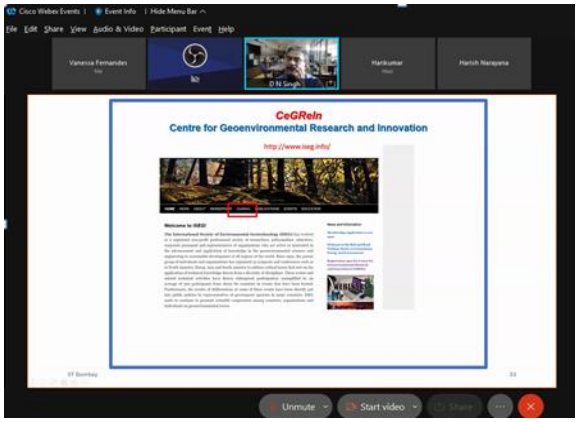
21st June 2021 - Inaugural Session



21st June - Session 1 - Dr. DN Singh, IIT Bombay

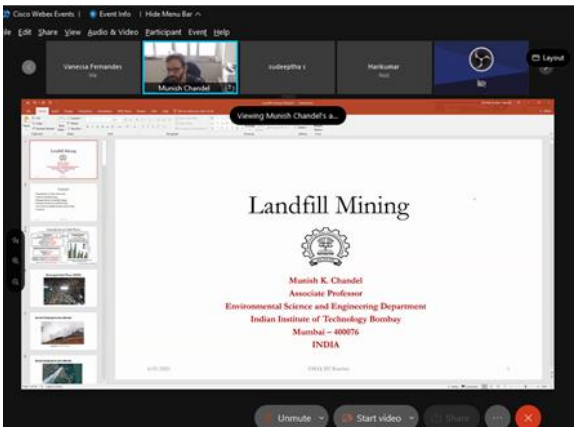


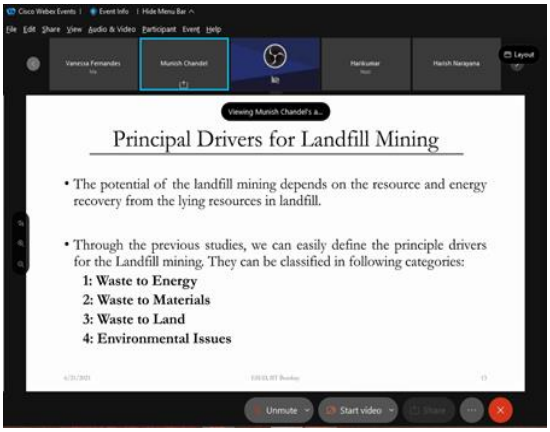


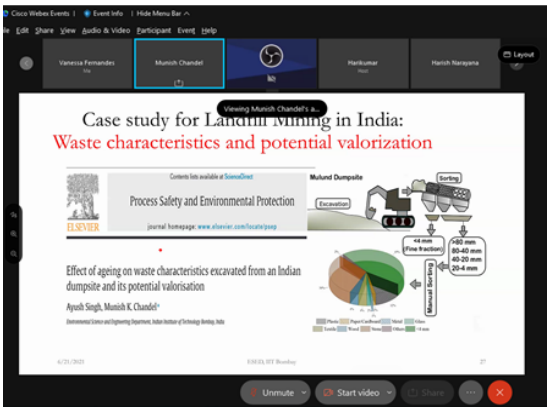


Dr. DN Singh, IIT Bombay gave a talk on ***introduction to Environmental Geotechnology***. He spoke on the 17 sustainable development goals. The various geotechnical issues such as excessive mining, ground water depletion, siltation of agricultural lands and coastal waste dumping were explained in depth in the lecture. His lecture also included about the industrial byproduct for sustainable infrastructure development.

21st June - Session 2 - Dr. Munesh K Chandel, IIT Bombay

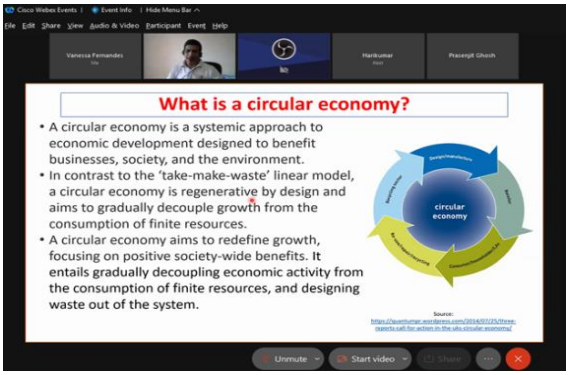


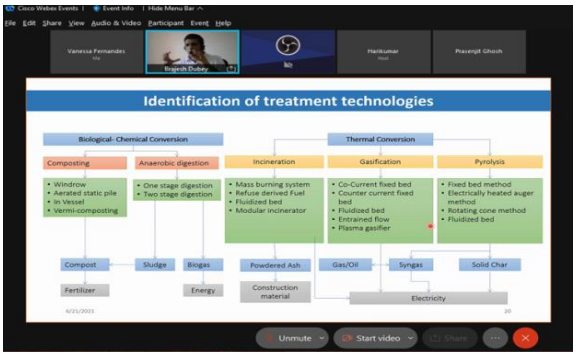


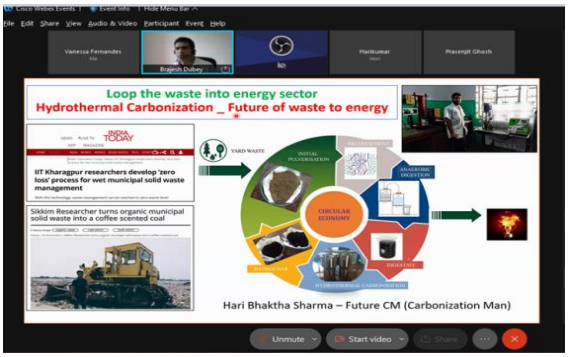


A lecture on ***landfill mining*** was conducted by Dr. Munesh K Chandel, IIT Bombay. He explained about the various principal drivers for landfill mining which include the waste to energy, waste to materials, waste to land and environmental issues. The technology for waste excavation and processing was explained in detail in the lecture. Dr. Munesh also explained about waste characterization and potential valorization using a case study for landfill mining in India.

21st June 2021 - Session 3 - Dr. Brajesh Kumar Dubey, IIT Kharagpur

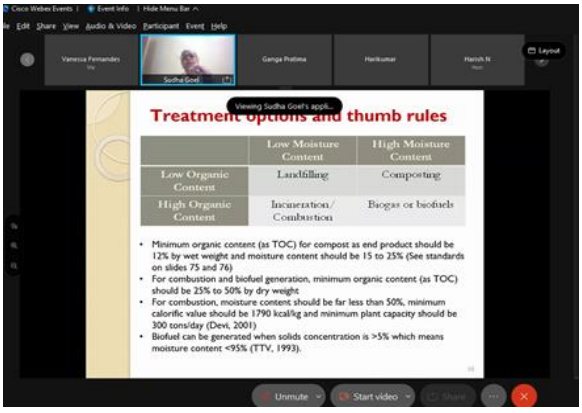


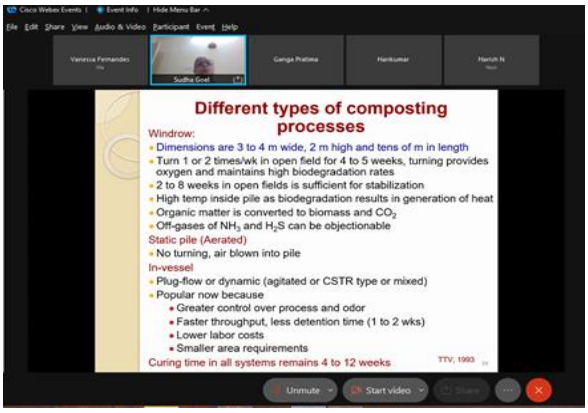




A lecture on ***resource recovery from waste materials on how to incorporate circular economy application*** was conducted by Dr. Brajesh Kumar Dubey, IIT Kharagpur. He explained about the circular economy which is a systematic approach to economic development designed to benefit business, society and the environment. Decoupling the natural resource use and environmental impact from economic growth were highlighted in the lecture.

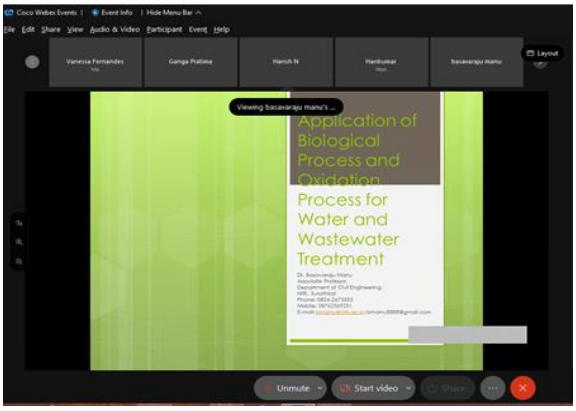
22nd June 2021 - Session 1 - Dr.Sudha Goel, IIT Kharagpur

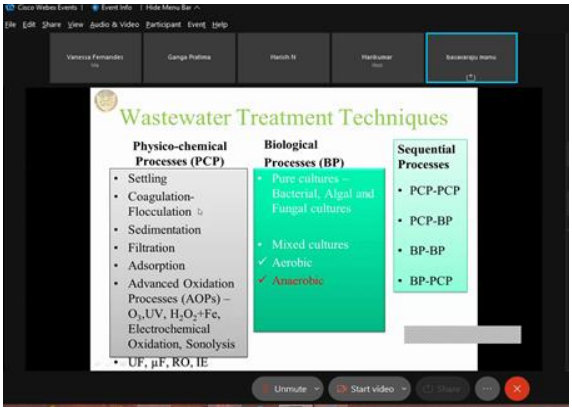


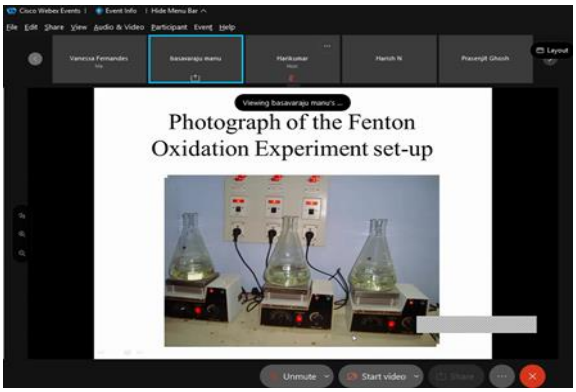


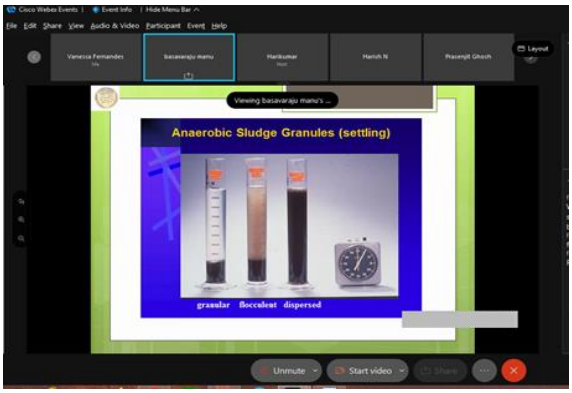
Dr. Sudha Goel, IIT Kharagpur conducted a session on ***treatment option for managing the municipal solid waste***. Different treatment option in India for municipal solid waste management were explained in detail. She also explained about the different types of composting processes such as Windrow, Static pile or aerated and vermicomposting. A case study in Uttarpara of the MSW composting plant was explained.

22nd June 2021 - Session 2 - Dr.B Manu, NITK Surathkal



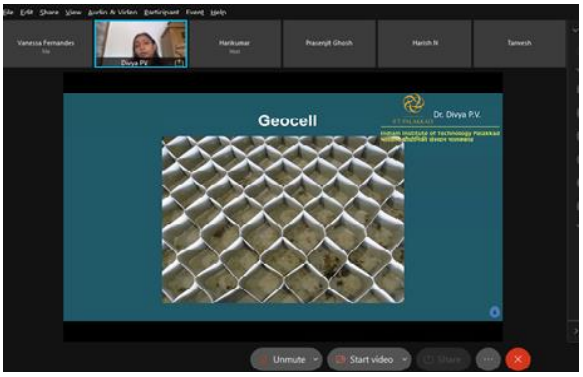


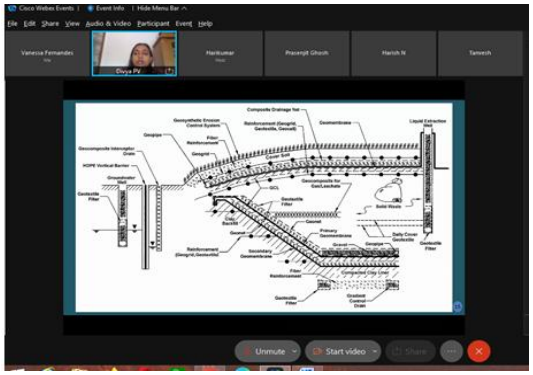


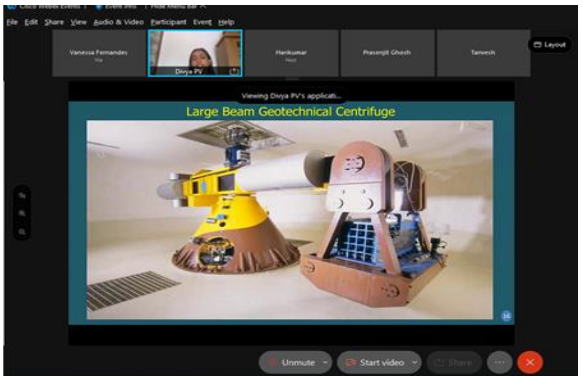


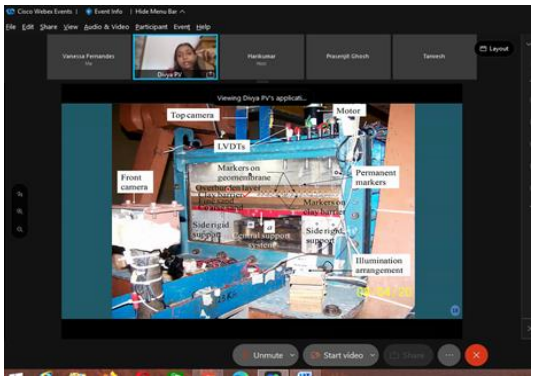
A lecture on ***application of biological process and oxidation process for water and waste water treatment*** was delivered by Dr. B Manu, NITK Surathkal. He explained about the different waste water treatment techniques for physiochemical process, biological process and sequential process.Fenton oxidation experiment and the factors influencing the fentons oxidation was elaborated in detail in the lecture.

22nd June 2021 - Session 3 - Dr. Divya P V, IIT Palakkad



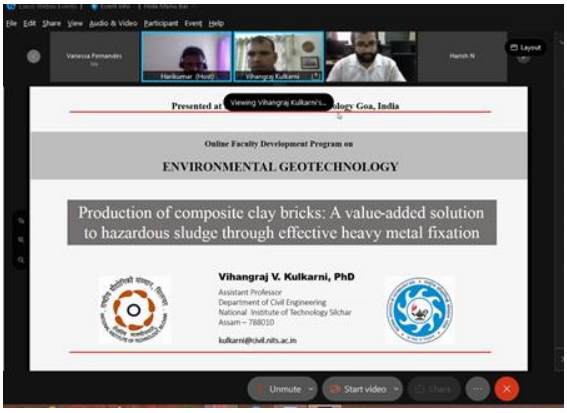


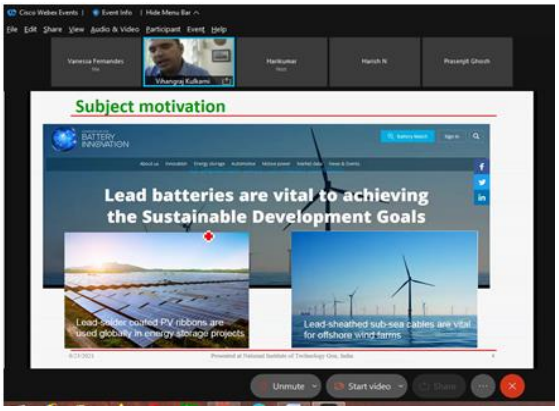


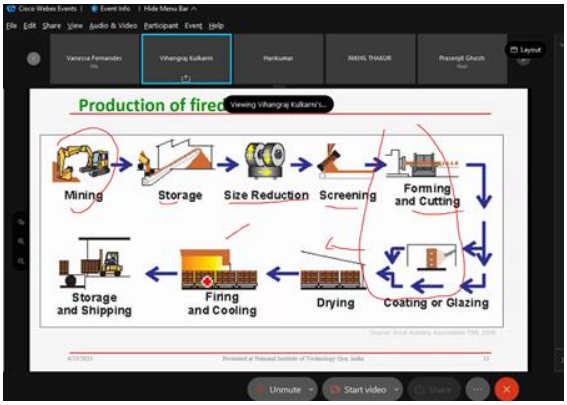


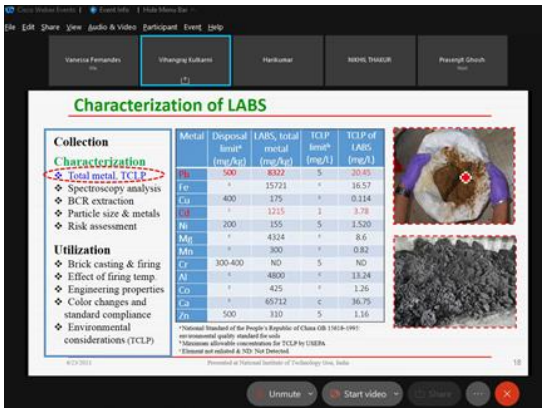
Dr. Divya P V, IIT Palakkad conducted a session on ***applications of Geosynthetics in landfills*.** She explained about the different types of Geosynthetics and its applications in landfills. The large beam geotechnical centrifuge at IITB was also demonstrated.

23rd June 2021 - Session 1 - Dr. V V Kulkarni, NIT Silchar



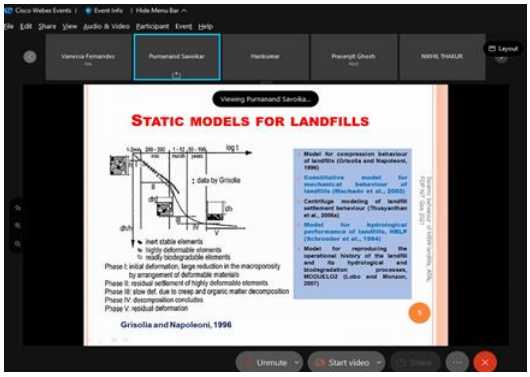


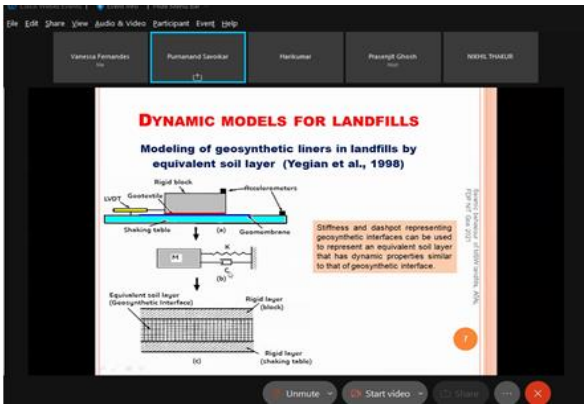


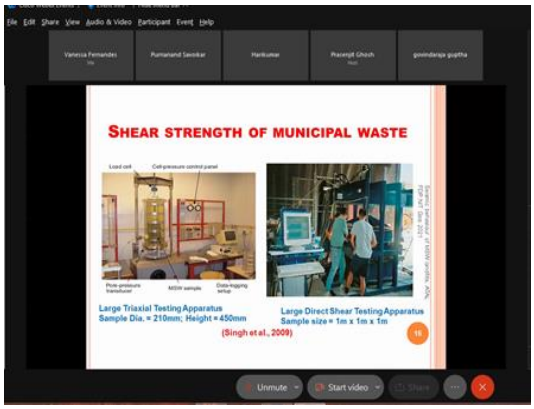


A lecture on ***production of composite clay bricks: A value added solution to hazardous sludge through effective heavy metal fixation*** was conducted by Dr. V V Kulkarni, NIT Silchar. He highlighted that the lead batteries are vital for achieving the sustainable development goals. The production of bricks were explained in detail in the lecture. The characterization of LABS was explained based on collection and utilization.

23rd June 2021 - Session 2 - Dr. Purnanand Savoikar, GCE, Goa

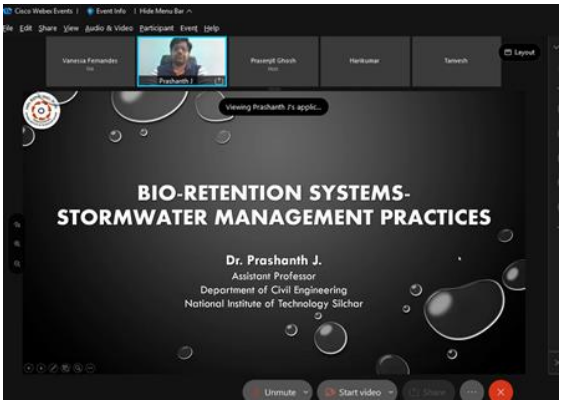


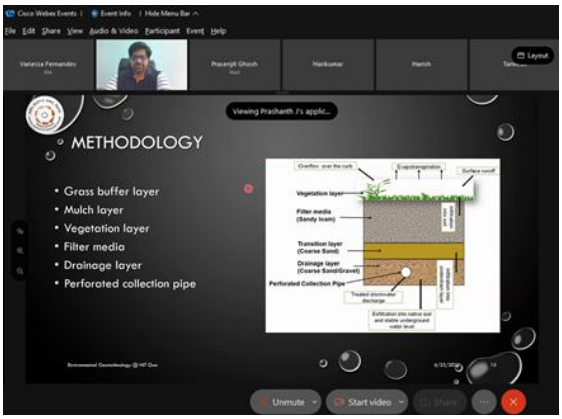


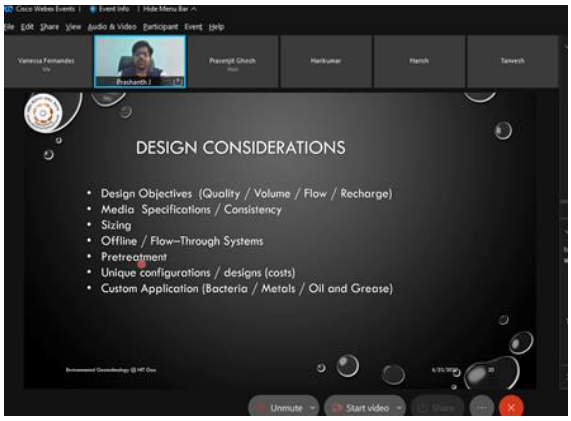


Dr. Purnanand Savoikar delivered a lecture on ***Seismic behavior of municipal solid waste landfills***. He explained about the static and dynamic models for landfills, characterization of MSW landfill properties under seismic conditions. Seismic stability analysis of MSW landfills using Pseudo static and Pseudo dynamic approach was also discussed. Case studies of failure of landfills were also highlighted in the lecture.

23rd June 2021 - Session 3 - Dr. Prashanth J, NIT Silchar

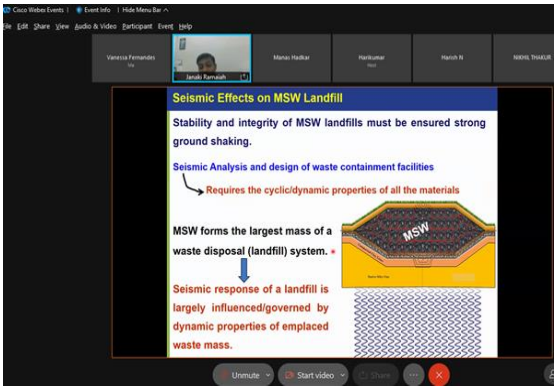


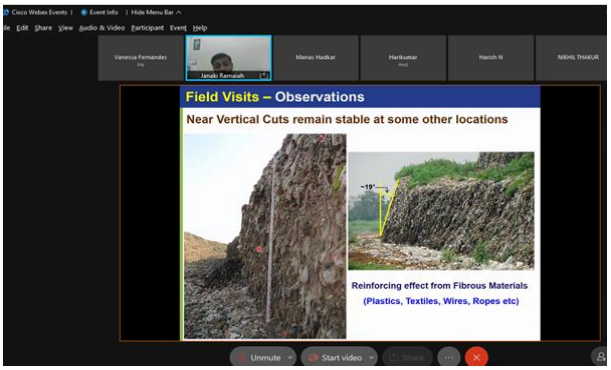


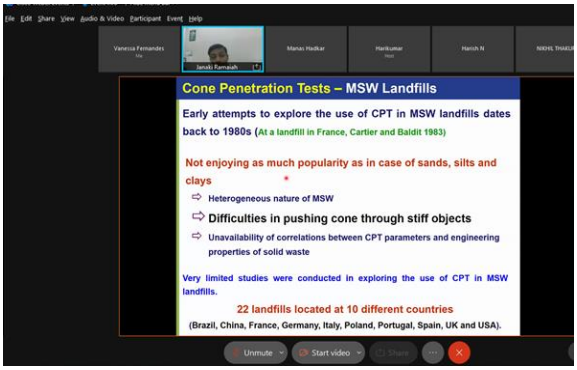


A lecture on ***biorentention systems-storm water management*** practices was conducted by Dr. Prashanth J, NIT Silchar. He explained about the different methodologies to be adopted in a biorentention system. By implementing a biorention system pollutant can be filtered and also improves the runoff quality.The different properties of the biorention soil medium were also explained in detail.

24th June 2021 - Session 1- Dr.B Janaki Ramaiah, IIT Tirupati

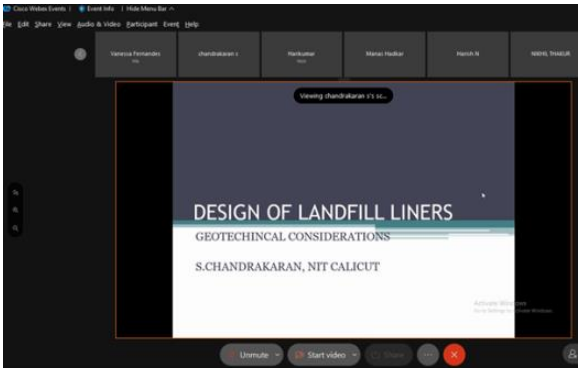


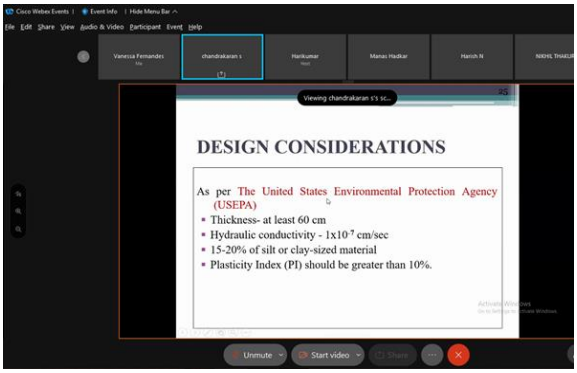


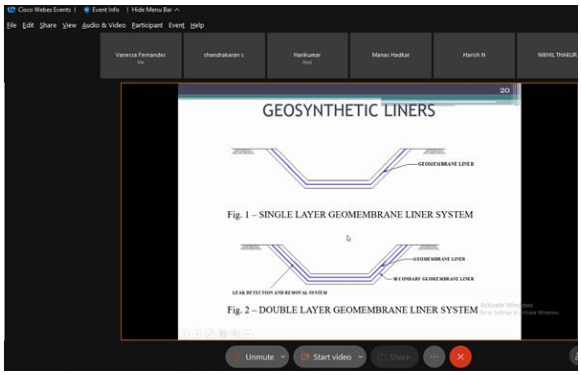


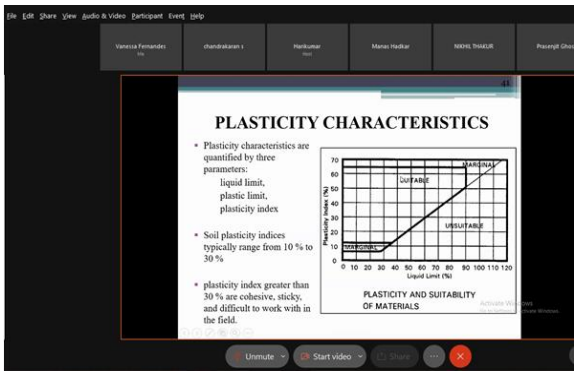
Geotechnical aspects of MSW landfill lecture was conducted by Dr. B Janaki Ramaiah, IIT Tirupati. Case studies from India explaining the engineering properties of MSW landfills were explained. Cone penetration test on MSW landfills was elaborated in detail in the lecture. Also the surface wave methods for detecting the landfill profile was discussed in the session.

24th June 2021 - Session 2 - Dr. S Chandrakaran, NIT Calicut



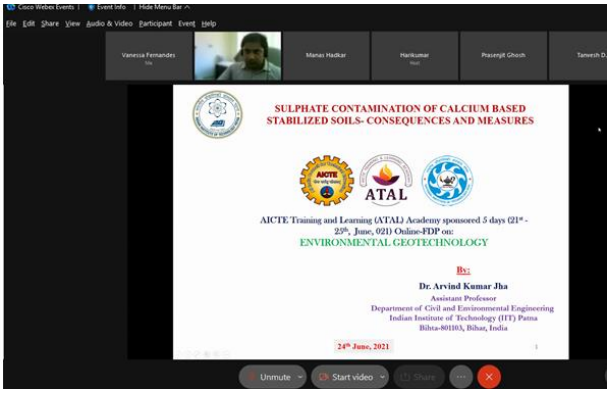


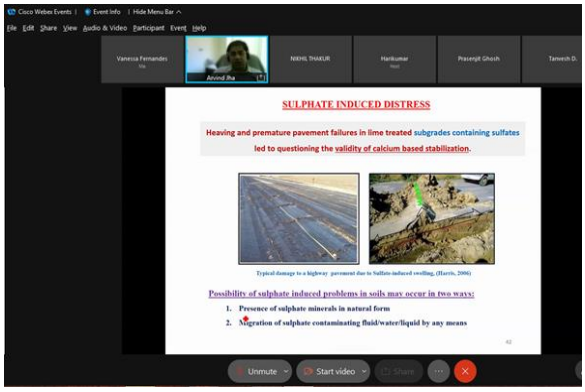


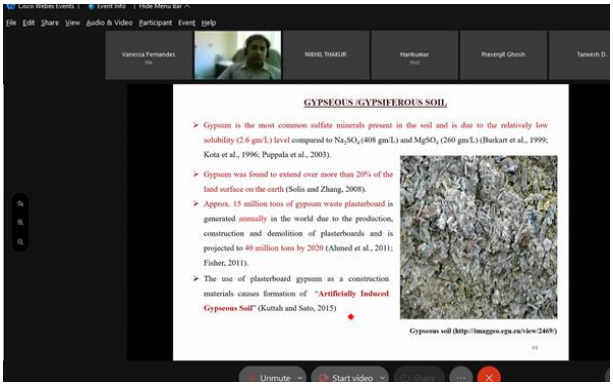


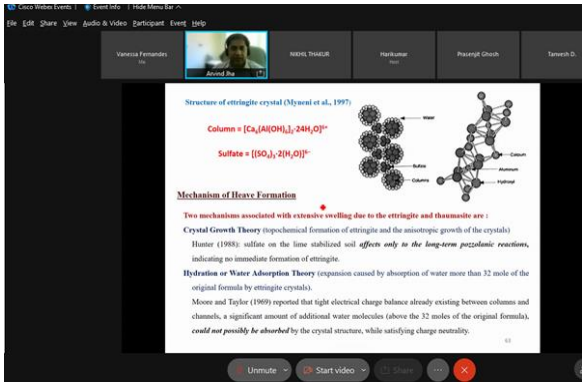
Dr. S Chandrakaran, NIT Calicut delivered a lecture on design of landfill liners, in which he highlighted the design criteria to be taken into account, in the design of liners and leachate collection systems in the landfill.

24th June 2021 - Session 3 - Dr. Arvind Kumar Jha, IIT Patna



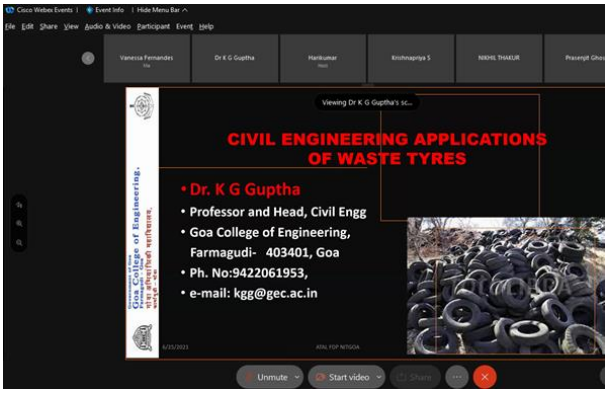


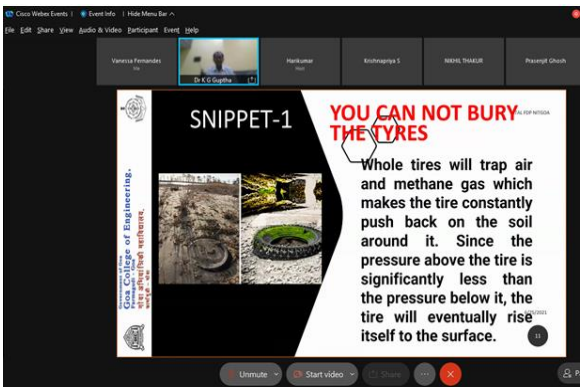


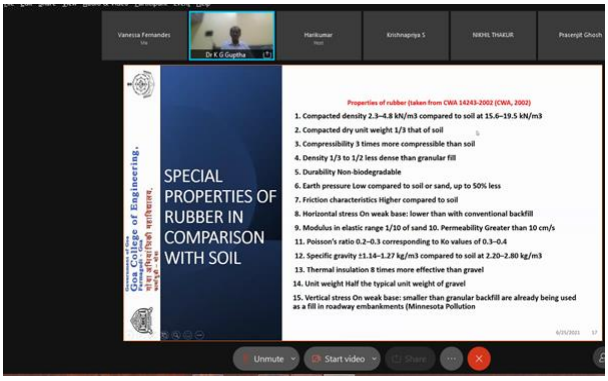


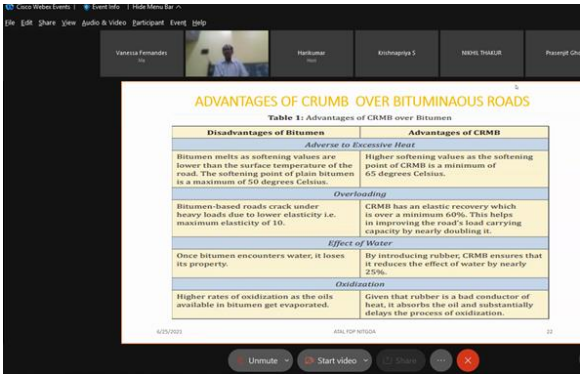
A lecture on ***Sulphate contamination of calcium based stabilized soils*** was delivered by Dr. Arvind Kumar Jha, IIT Patna. He explained about the different mechanism of lime stabilization . SEM images of soil treated with lime content at different curing periods was shown. The different problem with sulfate bearing/Gypseous soil was explained in detail.

25th June 2021 - Session 1 - Dr.KG Guptha ,GCE,Goa



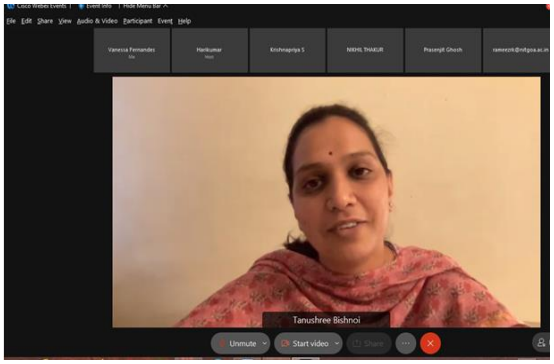






Dr. KG Guptha, GCE, Goa delivered a session on ***Civil engineering application of waste tyres***. He explained the issues related to dumping of rubber tyres in soil and the different methods by which waste tyres could be made useful in different applications. A study on environmental degradation of rubber grids was also presented.

25th June 2021 - Session 2 - Mrs Tanushree Bishnoi, Art of living



A lecture on ***stress relief through breath work and mediation*** was conducted by Mrs. Tanushree Bishnoi, Art of living. She demonstrated the different breathing exercises and stretching techniques.

The 5 day online faculty development program concluded with the valedictory session on 25th June 2021 at 1 pm.