



Report

6-Days Online Short-Term Course

on

Advancements in Civil Engineering (with emphasis on water resources, environment engineering and climate change)

November 02-07, 2020

Organized by

Dr Manish Kumar Goyal

Discipline of Civil Engineering

Indian Institute of Technology Indore

Khandwa Road, Simrol, Indore

Madhya Pradesh 453552

www.iiti.ac.in

Content

- 1. Introduction**
- 2. Objectives of the Program**
- 3. Brochure and Schedule of the Course**
- 4. Day-wise Summary**
- 5. List of Participants**
- 6. Attendance of Participants**
- 7. Photographs**
- 8. Feedback of Participants**

6-Days Online Short-Term Course

Advancements in Civil Engineering (with emphasis on water resources, environment engineering and climate change)

November 02-07, 2020

Introduction

Indian Institute of Technology Indore organized 6-Days online short-term course on “Advancements in Civil Engineering (with emphasis on water resources, environment engineering and climate change) between November 02-07, 2020. The aim of the short-term course was aims to provide an academic platform for scientists, engineers, professionals and scholars to present and discuss their latest findings about water resource environment and climate change. Relevance of the proposed course will be highlighted through a series of lectures delivered by prominent industry and academia experts. The course is aimed at bringing together leading academic scientists, experts and research scholars to exchange and share quality research in various fields. The program explores the extreme events such as droughts, heatwaves, heavy rain, and violent storms. It also tried to explore climate change, one of the biggest environmental threats faced by the world which can potentially impact food production and security, sustained water supply. The program also focuses on climate variability and change that could result in increased number of extreme events which can cause profound damage to the human well-being. The program also explores other fields such as Machine learning, Transportation and traffic engineering, waste water treatment technology, etc. The event was joined by about 92 participants from IITs, NITs, IIMs and different education and non-educational bodies all across the country.

Objectives and Area of focus of short-term course

Aim of the short-term course is to update the knowledge on advancements in Civil Engineering and bringing together leading academic scientists, experts and research scholars to exchange and share quality research in the below mentioned fields:

- Advancement in Structural and Geotechnical Engineering
- Hydrological and Hydrodynamic modelling
- Machine learning in Civil Engineering
- Transportation and Traffic Engineering
- Wastewater treatment technology
- Water Pollution
- Waste to Energy

Brochure of short-term course



Indian Institute of Technology Indore Department of Civil Engineering

Organizes

6- Days ONLINE SHORT-TERM COURSE ON

Advancements in Civil Engineering (with emphasis on water resources, environment engineering and climate change)

November 02-07, 2020

Sponsored by Technical Education Quality Improvement Program (TEQIP)-III



About the Course

Civil engineering is an exciting profession and is everything you see that's been built around us. Water resource, environment and climate are key elements guaranteeing the sustainability of societies. The short-term course aims to provide an academic platform for scientists, engineers, professionals and scholars to present and discuss their latest findings about water resource environment and climate change. Relevance of the proposed course will be highlighted through a series of lectures delivered by prominent industry and academia experts. The course is aimed at bringing together leading academic scientists, experts and research scholars to exchange and share quality research in the below mentioned fields.

- Advancement in structural and Geotechnical Engineering
- Hydrological and Hydrodynamic modelling
- Machine learning in Civil Engineering
- Climate change and variability
- Transportation and Traffic Engineering
- Wastewater treatment technology, Water pollution and Waste to Energy

Registration

Interested candidates can register at
<https://forms.gle/W4YaUf3FVdhJyYe76>.

Complete registration form should be filled. Incomplete registration form will not be entertained. Number of seats are limited. Selection is based on first come first serve basis.

Last date of receipt of duly filled applications: Oct 30, 2020

Eligibility

• There is no fee for participants- faculty members/ scientist from TEQIP sponsored colleges.

• For Other participants, the fee is Rs. 3500/- (Three Thousand Five Hundred Only) per participant for professionals.

Mode of Payment

Through online payment/bank transfer.

(Bank: Canara Bank; Branch: IIT Indore, Simrol campus; Account number: 1476101027440; IFS Code: CNRB0006223)

Course Coordinator

Dr. Manish Kumar Goyal

Associate Professor, Discipline of Civil Engineering, Indian Institute of Technology Indore, Indore -453552, M.P. India

Ph: +91 731 6603288 Email: teqip.ce@gmail.com, mkgoyal@iiti.ac.in

Schedule of short-term course

TEQIP-STC on Advancements in Civil Engineering (with emphasis on water resources, environment engineering and climate change) IIT Indore from 02 Nov 2020 -07 Nov 2020						
Date	9:30 – 9:45	9:45 – 11:15	11:15 – 12:59	Lunch Break (01:00 to 2:00)	2:00– 4:00	4:00– 5:30
02.11.2020	Inauguration	AM-(Water security using innovative technologies)	MKG(Water resources and climate change)		MKG-(Ecosystem Resilience)	LB-(Modeling of Artificial Island in deep se water)
Date	9:30 – 11:00		11:00 – 12:59	Lunch Break (01:00 to 2:00)	2:00– 4:00	4:00– 5:30
03.11.2020	MKG(Identifying strategies and challenges with stakeholders' perspectives)		AR- Interaction of freshwater /sea water with steel MKG- (Google Earth Engine)		SG-(Water Resources and climate change)	MKG-(Hydrologic Resilience)
04.11.2020	MKG (GIOF Studies)		KG-(Urban Flood Mitigation under extreme climate change) MKG- (Atmospheric Rivers)		AKG (Disaster Risk Management)	MKG- (Hydrological modeling)
05.11.2020	MKG- (Drought studies)		MKG- Extremes and Rainfall Risk GP-(Damage detection and prognosis in Engineering)		BG-(Bridging in water resources between acedmics and field) MKG-(CROPWAT study and Demo)	MKG(Teesta river - Ecohydrological resilience)
06.11.2020	YCS-(A case study of extreme flood event in gandhisagar dam of Madhya Pradesh)		HT- Flood:Engineering, Management or Beyond.. MKG-(Machine learning and applications)		SK-Optimization of Design of Conveyance Mains in Water Supply Projects SPG-(Climate Change Challenges and Options)	RG: Skill Development for Civil Engineers MKG (AI Applications in Env Eng)
07.11.2020	MKG (Water management studies)		PS: Climate Change Adaptation: Methods and Policy from Socioeconomic Perspectives VG-Transformation of Water Sector as Inter-Disciplinary Science & Engineering for a Resilient Future Valedictory at 12:55 PM			
MKG- Dr Manish Kumar Goyal, IIT Indore AM- Shri Avinash Mishra, NITI Aayog VG- Sh Vikas Goyal, Asian Development Bank SG- Prof Subimal Ghosh (IITB) RK- Dr Ravi Kumar-Principal, BSDU AR- Dr Abhishek Rajput- IIT Indore HT: Dr Hari N Tiwari, FloodKon SPG- Prof S P Gautam, Former Chairman, CPCB				AKG- Prof Anil K Gupta, NIDM YCS- Shri Y C Sharma (Chief Engineer, MPWRD) BG- Shri Bharat Gosavi (Chief Engineer, MPWRD) SK- Shri Sudhir Kalra, Retired SE, PHED KG -Prof.Kapil Gupta (IITB) LB: Dr Lalit Borana, IIT Indore GB: Dr Guru Prakash, IIT Indore PS- Dr Pritee Sharma, IIT Indore		

Summary: Day 1, (November 02, 2020) of online short-term course

Inauguration Session:

Indian Institute of Technology Indore embarked upon the 6- Day's online TEQIP-STC program on 'Advancements in Civil Engineering (with emphasis on water resources, environment engineering and climate change)', on November 2nd 2020. The program is being organized with an aim of providing an academic platform for scientists, engineers, professionals and scholars to present and discuss their latest findings about water resource environment and climate change. The event was joined by about 92 participants from TEQIP-sponsored institutes and different non-educational bodies all across the country. First day of the course commenced with the brief talk of the course coordinator Dr. Manish Kumar Goyal (Associate Professor, IIT Indore) who explained the aims and objectives of the event. Prof. Neelesh Kumar Jain (Director Officiating, Indian Institute of Technology Indore) encouraged and congratulated the organizers and participants in his inaugural address. Shri Avinash Mishra, NITI Aayog in his lecture on water security provided insights about India's plans and policies to tackle the forthcoming challenges due to climate change and water security. The first day witnessed active participation from the faculties in the form of enthusiastic interactions and question-answer sessions. The certification course will be hosting lectures of various scientists, academicians and researchers from around the world over the five days where the participants will not only be taught about the theoretical aspects of water resource, environment and climate change but also practical knowledge through hands-on projects and assignments.

Water security using Innovative Technologies by Shri Avinash Mishra, Adviser, NITI Aayog

Shri Avinash Mishra, Adviser, NITI Aayog pointed out the application of Innovative Technologies in curbing water security with a comparison of developed and developing world. He discussed the water resources of India and its interlinkages with the economy. He further pointed out major challenges in the water sector and gave examples of Innovative Technologies for water security from all over the country (Maharashtra, Andhra Pradesh, Nagpur). Further, he briefly discussed a decision support system designed by NITI Aayog at village/block/district/state level and further pointed out specific sections of it where potential improvement and

innovation is required at this moment. Finally, he concluded with an important message that how technology (IOT, Installation of measurement equipment and others) can transform societies by solving practical problems.

Recommendation:

- The future will require technological innovation, improved thinking about the exploitation of water supplies and better incorporation of new technologies into current and future infrastructure.

Water Resources and Climate Change by Dr. Manish Kumar Goyal, Associate Professor, IIT Indore

Dr. Manish Kumar Goyal (IIT Indore), talked comprehensively on impact of climate change on water resources of India. He explained rainfall and temperature trends and projections across the country. Furthermore, he discussed the attribution of changing climate towards river run-off, evolution of drought and receding glaciers. Moreover, he concisely explained the various implications of climate change from a policy perspective. He went further to briefly discuss climate models and discussed a study on precipitation extremes across India. The study discusses four extreme precipitation indices (R20, R95p, CDD, CWD) over India across past and future.

Recommendation:

- With the advent of more extreme events and possibly more uncertain weather patterns, it is essential to prepare ourselves for forthcoming challenges. Therefore, policy and decision makers must focus on building the resilience of communities, especially along the coastlines where compound extreme events such as cyclone-flood-storm surge situations are more likely.

Ecosystem resilience by Dr. Manish Kumar Goyal, Associate Professor, IIT Indore

Dr. Manish Kumar Goyal (IIT Indore), in his lecture ‘Ecosystem Resilience of Indian river basins’ talked about the capacity of Indian river basins in withstanding the hydroclimatic disturbances. He pointed out that only 4 out of 25 river basins in India are capable of withstanding the risk due to extreme events. The study explained the mechanism of different

forest types, climate zones and river basins in absorbing and recovering from the hydroclimatic disturbances. The study facilitates the understanding of ecosystem resilience and provides policymakers important inputs for sustainable ecosystem management.

Recommendation:

- Water use efficiency is the crucial parameter in determining the resilience of terrestrial ecosystems against the hydroclimatic disturbances. The policy makers need to look at ensuring sufficient water use efficiency in river basins, especially in the non-resilient river basins to enhance the capacity of the terrestrial ecosystem in fighting the risks due to climate change.

Modeling of Artificial Island in deep sea water by Dr. Lalit Borana, Assistant Professor IIT Indore

Dr. Lalit Borana in his lecture provided insights about the modelling of artificial islands in deep sea waters. He concisely discussed the background of the problem and method used i.e. geotechnical centrifuge modelling, then provided a brief introduction to fundamental principles of geotechnical centrifuge modelling. Geotechnical centrifuge modelling is a technique for testing physical scale models of geotechnical engineering systems such as natural and man-made slopes and earth retaining structures and building or bridge foundations. Moreover, he comprehensively explained modelling artificial land in sea water. Finally, he discussed the importance of modelling with field experiments to facilitate a good design proposal.

Recommendation:

- Centrifuge tests can also be used to obtain experimental data to verify a design procedure or a computer model. The rapid development of computational power over recent decades has revolutionized engineering analysis.

Link for all sessions (Day-1):

<https://drive.google.com/file/d/1PJV-dDPyu9CTkSR0frqO3pGICvPcz0H4/view>

Summary: Day 2, (November 03, 2020) of online short-term course

Identification adaptation strategies and challenges with stakeholders' perspectives: Adapting water management in Sikkim to climate change by Dr. Manish Kumar Goyal, Associate Professor, IIT Indore

Dr. Manish Kumar Goyal gave an insightful presentation on climate change impacts focusing on Indian Himalayan state of Sikkim including local factors (the stakeholders, government, water resources (lakes, aquifers etc.), rainfall trend etc.) involved. Climate change impacts in Sikkim includes change in vegetation type and coverage, changes in precipitation pattern, higher frequency of floods and droughts, and also the socio-cultural alienation of the region. He also talked about the vulnerability aspect in context of Sikkim for climate change, highlighting the need for adaptation strategies. Also, he mentions the needs of involvement of local stakeholders for successful decision making and planning of a model to counteract the climate change impacts. The work involved identification of contextual needs of adaption and potential barriers of implementation and making a participatory model of identifying the local contextual situations and roles of key stakeholders, policy makers, development agencies, farmers etc. also assessment of inter-organizational network to identify weak linkages for capacity building by conducting interviews through proper questionnaires for each type of local stakeholders about their concerns, role and knowledge of climate change impacts.

Recommendations:

- Strengthening the network of information exchange, capacity building and coordination among local people (stakeholders, farmers, etc.), NGOs, development bodies and government officials.
- Initiatives such as aquifer rejuvenation can be dealt with more detailed surveys such as geo-hydrology of the region and experts of various areas for better results to make it more technically sound for decision making and planning.
- Interdisciplinary approach is needed to have a better understanding of the problem and give suggestions and comments to make it more realistic in the perspectives of local bodies.

Effects of sea and fresh water environment on structural steel By Dr. Abhishek Rajput, Assistant Professor, IIT Indore

Dr. Rajput has explained the behavior (failures due to yielding and corrosion etc.) of structural steel in sea and fresh water and in normal environment and how corrosion progresses with the passage of time in steel in the presence of moisture (sea water, fresh water or atmosphere) and oxygen and how due to corrosion the behavior and response of structural steel (steel used for cargo ships) changes in terms of load carrying capacity and other mechanical properties under varying condition of moisture (submerged in fresh water, sea water and in open air) with varying temperatures by performing mechanical testing's in the laboratory and measuring losses in weight of steel with the time.

Recommendations:

- Corrosion is not affecting mechanical properties of steel but reducing the cross-section and hence resulting in reduced strength of structure. Corrosion in steel decreased with the fall in temperature.
- Arch shaped failure was observed in all specimens in the period of 15 month which indicates ductile failure of steel. However, in longer time, there may be chances with brittle failure in steel as corrosion is a long-term phenomenon to take place.

Google Earth Engine overview by Saket Dubey, research scholar, IIT Indore

Saket Dubey provided a brief overview on the applications of Google Earth engine along with a hands-on session on 'Image Classification'. The objective of this practical session aimed to gain an understanding of the image classification process and explore ways of turning remotely sensed imagery into land cover maps using machine learning algorithms. The session included the training of the classifier (Random forest, SVM and CART) with collection of training data from LANDSAT imagery. Further, the classifier is trained and classification is carried out, along with a visual examination of the results.

Data, Modelling and case study by Dr. Manish Kumar Goyal, Associate professor, IIT Indore

Dr. Goyal spoke about various types of data (topographical data (DEM), Hydrological data (ground or surface water), Soil maps data, Land use/ cover data, Geologic data, Socio-economic data, etc.) and the sources (sites/web pages) to download these data for thematic analysis of our research work.

Feedback from land process to Indian Monsoon by Professor Subimal Ghosh, IIT Bombay

Dr. Subimal Ghosh gave a very enlightening presentation covering multiple topics starting from the importance to understand the feedback from land process (evapotranspiration) in Indian Monsoon context, role of irrigation pattern over monsoon (incorporating realistic or ideal pattern of irrigation (paddy fields with flood irrigation)) in context of India, impact of urbanization in rainfall patterns (study conducted at Bombay and Alibaug of Maharashtra), extreme rainfall projection with integrated downscaling model considering future urban expansions and finally development of Chennai flood forecasting system. He talked about recycling precipitation and recycling ratio to explain the role of evapotranspiration in total rainfall where Ganga Basin and north eastern India was found with higher recycling ratio. He also presented the contributions of land process in extreme events over India which was found greater than the contribution of Bay of Bengal.

Recommendation:

- From the presentation, it was very clear that the role of the land processes in rainfall patterns or even extreme events is very prominent and cannot be underestimated. It was found that central India contributes around 29% whereas Arabian sea has maximum contribution of 36% and Bay of Bengal has 29% contribution to wide spread extremes over India.

A study on hydrologic resilience to warming shifts in peninsular India by Dr. Manish Kumar Goyal, Associate Professor, IIT Indore

Dr. Goyal gave another a concise presentation on the influence of climate variance and anthropogenic stress on hydrologic resilience. The study on hydrologic resilience was carried out in 55 catchments of 17 major river basins of peninsular India in context of warming shifts in peninsular India. He mentioned various factors (climatic variability (human induced or internal forcing's) and anthropogenic stress) influencing variability of catchment hydrology. The study used the Budyko framework for the resilience assessment of the catchment. Budyko framework has been introduced in the study to distinguish the resilient and non- resilient watershed based on two resilience indices, dynamic deviation and modified elasticity. Out of 55 catchments, 17 were climate dominated, 35 anthropogenic dominated and 3 were neutral dominated whereas in resilience results, 23 were found resilient and 32 were non-resilient in nature out of total 55 catchments. In 23 resilient catchments, 13 were anthropogenic dominated and 10 were climate dominated.

Recommendation:

- As a future scope of this study, the results may be more realistic, if we can differentiate the relative impacts of various anthropogenic activities (e.g. foliage restoration, soil and water conservation measures, ground water exploitation) on hydrological responses.

Links for all sessions (Day-2):

https://drive.google.com/file/d/1fN5L7aaOnjSetRh_u8jkaDgEtCdVfs-J/view

<https://drive.google.com/file/d/1TUHPQXfzJHWhCYG9tqA5dW5d1pZ3t1iP/view>

Summary: Day 3, (November 04, 2020) of online short-term course

Flood Routing and Runoff Assessment in the downstream of upper Teesta River, North Sikkim Himalaya under Climate change by Dr. Manish Kumar Goyal, Associate Professor, IIT Indore

Discussed the basic concept associated with the phenomenon of glacial lake outburst flood. Based on the basic concepts, presented the estimation of potentially dangerous glacial lakes in the Upper Teesta River basin. Steep lakefront area was used to determine the Potential Flood Volume associated with various glacial lakes. Mike hydrodynamic model was used to determine regions that may have flooding in case of Outburst. Various climate models were used using different scenarios to project the future flood and assessed the associated uncertainty.

Urban Flood Mitigation in Changing Climate and Extreme Weather by Prof. Kapil Gupta, IIT Bombay

Dr. Kapil Gupta (IIT, Bombay) very comprehensively illustrated the past and present aspects of urban flood management in the country. The lecture revolved around threats, exposure, sensitivity and vulnerability related to flood events. Talking about urban flooding, he stated that 94% of urban surfaces are impermeable which is one of the major factors of generating instant runoff leading to flash floods. Explaining the case of the city of Mumbai, he demonstrated how a wide network of weather monitoring systems in combination with structural measures have improved the flood monitoring, forecasting and management system. He explained different components of flood risk management and discussed how an integrated approach can be taken to improve the risk reduction strategies.

Recommendations:

- Assessment of flood in Indian context is a complex process and needs analytical solutions to mitigate these events.
- With the advent of more extreme events and possibly more uncertain weather patterns, it is essential to prepare our cities for forthcoming challenges. The current scenario indicates that the infrastructure to contain urban flooding is inadequate. Therefore, policy and decision makers must focus on building the resilience of cities, especially along the

coastlines where compound extreme events such as cyclone-flood-storm surge situations are more likely.

Understanding rivers in the sky: Atmospheric Rivers by Dr. Manish Kumar Goyal, Associate professor IIT Indore

Dr. Goyal gave a brief introduction of a new research field atmospheric river (AR) in his presentation. He spoke about what are atmospheric rivers? how do we characterize them? what is spatial coverage? how frequent ARs are globally? He talked about physical, technical and scientific characteristics of AR. He also mentioned the need to be understood AR science as its related with extreme precipitation events at various region and in changing climate, it is becoming more important to understand the AR science with various climatic projections and its relation with large scale climate oscillations.

Recommendations:

- ARs have significant influence over mid-latitudes (extra-tropical regions) climatology by supplying beneficial rain and sometimes with devastating flooding events.
- Around 30-50% of water gets supplied annually by atmospheric rivers in just a few AR events in west coasts.

Science-policy-practice interface for climate and disaster resilience by Dr. Anil Kumar Gupta, professor, Head-ECDRM, International cooperation NIDM, India

Professor Anil K Gupta (Professor & Head ECDRM, NIDM) in his lecture on climate change extremes and disaster risk management provided insights about India's plans and policies to tackle the forthcoming challenges due to climate change. In his lecture, Prof. Anil discussed about the nexus of science, policy and practice also discussed in detail about environmental impact analysis, life cycle analysis and cost benefit analysis. With respect to disaster risk management, his knowledge on mitigation, preparedness, response and recovery can act as catalyst to reduce the overall impact on society.

Recommendations:

- Disaster risk management plans should be feasible, with high aid from local governance.
- Local skill development and capacity building based on locations susceptibility should be the prime objective

Hydrological Modeling and Case Study by Dr. Manish Kumar Goyal, Associate professor IIT Indore

Dr. Manish Kumar Goyal provided a demonstration on hydrological models and various processes it takes into consideration. Comparison of various hydrological models such as SWAT, Mike, VIC; suggest that none of the model is perfect but each has their individual pros and cons. These demonstrations were followed by hands on which were on the hydrological modelling of any river basin in India. The modelling can be carried out using a web portal and the data for the same can be obtained from CFSR, for calibration purpose discharge time series is required which can be obtained from IndiaWris portal. He also demonstrated a case study for Narmada basin in Madhya Pradesh where the obtained soil moisture from ABCD model was evaluated based on Satellite-derived solid moisture.

Recommendation:

- For simple applications, ABCD model which can run using a web portal can be applied and is capable of providing excellent results in case the inputs to the models are considerably good.

Links for all sessions (Day-3):

https://drive.google.com/file/d/180F47zY0UpZ4DrSkGam-PNan3yJ_ysle/view

Summary: Day 4, (November 05, 2020) of online short-term course

Distribution, trend, concurrency and evolution of droughts over river basins of India by Dr. Manish Kumar Goyal, Associate Professor, IIT Indore

Dr. Manish Kumar Goyal, associate professor at IIT Indore discussed a study carried out regarding drought characterization based on severity, spatial extent and trend analysis in all major river basins of India. Basically, drought has been characterized in four sections as meteorological, hydrological, soil moisture and vegetation and studied on the basis of frequency, severity, spatial/temporal extent, drought trend, concurrent drought and drought evolution. Results showed hydrological and soil moisture droughts are usually more severe than meteorological and vegetation droughts in most of the basins, also valid for spatial extent. The Eastern India, Western India, Northern India, and Indo-Gangetic plain exhibited more continuous, frequent, and larger areas of meteorological drought during 1982-92 to 2004-13.

Recommendations:

- As a future scope, copula-based study may be useful to study the relationship between different kinds of drought.
- For the drought evolution finer temporal resolution of input data can be more appreciable.

Probabilistic evaluation of Vegetation Drought likelihood and its implications across India by Dr. Manish Kumar Goyal, Associate Professor, IIT Indore

Dr. Manish Kumar Goyal, associate professor at IIT discussed how they estimate the likelihood of vegetation droughts across India in changing scenarios of temperature, precipitation and soil moisture content. Further, he discussed the resilience of vegetation cover to disturbances induced by a dry condition. He also demonstrated how to run MATLAB code to determine joint distribution of NDVI and precipitation. Results showed that at least half the area of 16 out of 24 major river basins is facing high chances of vegetation droughts due to lowered soil moisture levels. Further, he suggested that at least one-third area of 18 river basins is non-resilient to vegetation droughts. Moreover, more than fifty percent of each vegetation type is non-resilient, which points out the fragility of country's terrestrial ecosystems. In the last, he stated that this

study facilitates the understanding of vegetation drought hotspot regions, factors risking the terrestrial ecosystem and their ability to withstand such conditions.

Recommendation:

- These findings provide useful insights for policy makers to develop effective strategies for vegetation drought mitigation and sustainable ecosystem management.

Damage Detection and Prognosis in Civil Engineering by Dr. Guru Prakash, Assistant Professor, IIT Indore

Dr. Guru Prakash (Assistant Professor, IIT Indore) in his lecture on Damage Detection and Prognosis in Civil Engineering provided insights about various damage detection and damage prognosis. In his lecture, Dr. Guru Prakash discussed about the best condition indicators for fault detection and degradation modeling. In his presentation, he also discussed the damage sensitive features (DSF), Hidden Markov Model and associated challenges. He also demonstrates the case study of Tsankov Kamak concrete dam, Bulgaria based on dam health monitoring. With respect to damage detection and prognosis, his knowledge on condition-based maintenance and damage prognosis can act as catalyst to reduce the damages in Civil Engineering.

Bridging in Water Resources between Academics and Field by Shri. Bharat Gosavi, Chief Engineer, MPWRD.

Mr. Bharat Gosavi, Chief Engineer, MPWRD, gave an insightful and interactive lecture on his current and innovative technologies used in Civil Engineering in various construction. He shared his experience of more than 30 years from the post of Assistant Engineer to the Chief Engineer in MPWRD. His lecture mainly focusses on bridging the gaps in water resources between Academics and field. He discussed that how problems are practically solved in the fields are not reaching to the academia's and researchers. Therefore, this gap needs to be the sorted out, for that we need sound communication platform.

Recommendation:

- Practical field problems need to be solved by the researchers in the Civil Engineering.

Regional Crop Water & Irrigation Requirements for Different Major Crops in Sikkim Under Changing Climate Scenarios and CROPWAT Software Demo by Dr. Manish Kumar Goyal, Associate Professor, IIT Indore

Dr. Manish Kumar Goyal gave a concise presentation on the regional crop water and irrigation requirement for different major crops in Sikkim under changing climate scenarios. The study used CROPWAT software to calculate crop water and irrigation requirement for Maize, Wheat and Rice in Sikkim for observed period as well as projected period (2021-2100) with uncertainty analysis. Further Mr. Vikas Poonia, Research scholar at IIT Indore gave a demo on CROPWAT software for estimating crop water requirement and irrigation water requirement. He discussed that CROPWAT is a computer program used for the calculation of crop water requirements and irrigation requirements based on soil, climate and crop data. He suggested that this software can also be used to evaluate farmers irrigation practices and to estimate crop performance under both rain fed and irrigated conditions.

Recommendations:

- Calculation of crop water requirements and irrigation scheduling for paddy & upland rice, using a newly developed procedure to calculate water requirements including the land preparation period
- Easy saving and retrieval of sessions and of user-defined irrigation schedules.
- Graphical presentations of input data, crop water requirements and irrigation schedules.

Sustainable Decentralized Wastewater Treatment by Dr. Puneet Pal Singh Cheema, Assistant Professor, Guru Nanak Dev Engineering College, Ludhiana

Mr. Puneet Pal Singh, Assistant Professor, Guru Nanak Dev Engineering College, Ludhiana, gave a very insightful presentation on the need and systematic approach of sustainable decentralized waste water treatment. He discussed the key advantages of decentralized wastewater treatment such as increase the ultimate reuse of water, less cost, reduce the impact on the environment and public health and overcome the problem associated with the site conditions and flexible in management. He discussed the basic water loss problems such as pond encroachment, overflowing water, waste through taps, etc. He also pointed out basic concern and

challenges in the rural water management like unsustainable, unfeasible and not viable water system. He also talked about the sustainable rural water management model.

Recommendation:

- Provide road-side drains to serve the total rural human settlement for the collection and conveyance of both greywater-stormwater into village pond.

Assessment of Ecohydrological Resilience to Teesta River Basin by Dr. Manish Kumar Goyal, Associate Professor, IIT Indore

Dr. Manish Kumar Goyal, associate prof. at IIT Indore gave a concise presentation on influence of climate variance and anthropogenic stress on hydrologic resilience. In this study, an assessment of the changes in precipitation and temperature patterns was carried out along with the climate extremes over the period 1951-2100 in Teesta River basin in eastern parts of Indian Himalayan Regions. CMIP5 based on four different GCMs were used for projected climate under two RCPs. Bias correction of GCM dataset was carried out using quantile mapping approach. The analysis of past climate revealed that there was a decrease in precipitation between periods 1951-1980 and 1981-2010 and there was an increase in daily maximum and minimum temperature for the same period. Similarly, the precipitation and temperature indices showed large differences between these periods. Drastic changes in some of the climate extremes were found in the projected climate.

Recommendation:

- As a future scope of this study, the results may be more realistic, if we can differentiate the relative impacts of various anthropogenic activities on hydrological responses.

Links for all sessions (Day-4):

<https://drive.google.com/file/d/1vFPfEPgOVkJxPnq1c3kQ3mg6OQMM9kGf/view>

Summary: Day 5, (November 06, 2020) of online short-term course

A case study of extreme flood event: Real life problem of Gandhi Sagar Dam by Retired Chief Engineer Shri YC Sharma ji

Shri YC Sharma ji shared his field experiences and challenges in operation and management of Gandhi Sagar Dam, Madhya Pradesh while working as a Chief Engineer, Water Resources Department. He gave us the information about the storage capacity and spillway capacity of the Dam and the reason for failures in reservoir operation at historical extreme rainfall events. He also mentioned the steps taken to mitigate such extreme flood events in the site in near future (e.g. construction of an extra spillway to spill out excess water in emergency), improved precipitation forecast for managing huge amounts of water with prior increased absorption capacity. He also requested the participants (academicians) to take GandhiSagar Dam as a part of their research interest and provide some practical solutions to be implemented successfully.

Recommendation:

- Improved research in forecasting rainfall in the catchment and proper modelling of the catchment hydrology can be the solutions for managing reservoir operation successfully in changing climates with more such extremes to come in future.

Flood: Engineering, Management and Beyond by Dr. Hari Narayan Tiwari, Managing Director at Floodkon Consultants

Dr. Hari Narayan Tiwari, managing director at Floodkon Consultants gave an elaborated presentation on dam break analysis. He gave an overview of major drivers for the failure of a dam, types of dam failure, major consequences of dam failure with some case studies. He also discussed dam break modelling to assess the risk and hazard associated with the dam failure. He also gave key notes to be taken care for the designing of dam projects like future water conservation techniques at the upstream watershed of the dam should be incorporated in the dam otherwise the dam capacity may get under-utilized in future. He discussed various remote sensing techniques (google earth engine, remote sensing satellite data: Sentinel) for flood risk management. And, it shed light upon the devastation caused by Jhelum in Srinagar and Adiyar river in Chennai - what can be done apart from structural interference to improve the resilience

of such urban areas toward extreme events (effect on critical infrastructure such as electricity, water supply network).

Recommendation:

- Dam break modelling the risk associated can be accessed easily and emergency action plan can be prepared for minimizing the loss associated with the failure.

Development of stage-discharge rating curve using model tree and neural networks: An application to Peachtree Creek in Atlanta by Dr. Manish Kumar Goyal, Associate Professor, IIT Indore

Dr. Manish Kumar Goyal (IIT Indore), talked comprehensively on machine learning application on estimation of discharge using different climatic variables as inputs. The study evaluates the performance of Machine learning techniques (M5P model tree, Artificial Neural Network) for forecasting discharge for Peachtree Creek, Atlanta, Canada. The accuracy of M5P trees is superior to neural network models and conventional models. It was found that M5P outperformed when fewer data events were available for model development. In other words, M5P has potential to be a useful and practical tool for cases where less measured data is available for modeling stage–discharge problem. This study has also shown high consistency between the training and testing phases of modeling when using M5P compared to neural network models and conventional methods. Furthermore, a partition analysis has been performed. This analysis reveals that the results obtained using the M5P model performed better than ANN for both the high flows and the low flows.

Recommendation:

- M5P models can be used over ANN for forecasting for extreme hydrologic extremes.

Optimization of design of Conveyance mains in water supply scheme by Retd. Superintending Engineer Shri Sudhir Kalra Ji

Shri Kalra ji presented a very excellent case study on optimized designing of conveyance for water supply. He presented a study carrying various cross-sectional diameter of conveyance and

carrying out energy losses to choose optimized diameter for supplying water. He talked about pumping mains and gravity mains and designing criteria for both mains and then finally showed us some results of a study carrying out optimization of mains diameter with recurring cost of energy for a water supply scheme. He also mentioned the important factors such as design period, material of pipe, size of pipes, cost of pipes, recurring costs of energy and other important criteria to be taken for designing a conveyance for supply scheme.

Recommendation:

- Optimization of design for conveyance mains in a water supply scheme is of great significance to achieve energy and cost efficient and sustainable systems understanding the demand of the region.

Climate change and Environmental scenario through the light of science and spirituality by Prof SP Gautam, Former Chairman Central Pollution Control Board, Delhi

Professor Gautam gave a very interesting and interactive talk starting from the various quotations of Srimad Bhagavatam and Ramcharitmanas explaining climate change (inclusive scope of science), commonality in all, homogeneity etc. He also talked briefly about the IPCC report, Global climate model and their limitations (radiations, clouds, forecast, projections), feedback factors (clouds, carbonyl, nitrous oxide, methane, aerosols etc.) and radiative forcings and various observations (glaciers, sea ice, stream flow, precipitation pattern, sea level etc.). He took a very interactive question answer session and spoke about the inversion phenomenon causing the air pollution problem in Indian Capital state Delhi and some other parts of India. Also, in another answer of a question he talked about science and spirituality to be taken same.

Recommendation:

- Professor Gautam defined Bhagavan by defining basic elements for creation fire, air, earth, water and ether to be taken as Bhagvan then only we can serve the Bhagavan in a real manner.

Skill Development for Civil Engineers by Dr. Ravi Goyal Director, Planning and Development, Bhartiya Skill Development University Jaipur

Dr. Ravi Goyal in his lecture provided insights about various different government schemes (NRLM, Naya Manzil Scheme, Shyama Prasad Mukherji urban Mission, USSTAD, INSPIRE and others) and policies on skill development in India. He discussed the structure of Ministry of Skill Development and Entrepreneurship is responsible for coordination of all Skill Development efforts across the country, removal of disconnect between demand and supply of skilled manpower, building the vocational and technical training framework, skill up-gradation, building of new skills and innovative thinking not only for existing jobs but also jobs that are to be created. Further he discussed the dire need of skill development in civil engineering India through various mechanisms for social and economic growth.

Recommendation:

- Globalization, knowledge and competition have intensified the need for a highly skilled workforce in both the developing and developed nations as it enables them to accelerate their growth rate towards a higher trajectory.

Air quality modelling using long short-term memory (LSTM) over NCT-Delhi, India by Dr. Manish Kumar Goyal, Associate Professor, IIT Indore

Dr. Manish Kumar Goyal in his lecture discussed application of artificial intelligence/machine learning in environmental monitoring. The present study is mainly aimed at predicting O₃, PM_{2.5}, NO_x, and CO concentrations at a location in NCT-Delhi using the long short-term memory (LSTM) approach, which is considered as more efficient over other deep learning methods. Factors and parameters such as vehicular emissions, meteorological conditions, traffic data, and pollutant levels are employed in five different combinations. Performance evaluation of LSTM algorithms for hourly concentration prediction is carried out during 2008–2010, and it is found that LSTM models efficiently deal with the complexities and are immensely effective in ambient air quality forecasting.

Recommendation:

- This paper can be considered as a significant motivation for carrying research on urban air pollution using latest LSTMs and helping the government and policymakers a better forecasting methodology for planning measures to curb ill impacts of degrading air quality.

Links for all sessions (Day-5):

https://drive.google.com/file/d/1O_4D2litS_8005A5OR7ju-rrDqzM9HsH/view

Summary: Day 6, (November 07, 2020) of online short-term course

Isolating the impact of changes in climate and land use/land cover on ecosystem services of a river watershed in Peninsular India by Dr. Manish Kumar Goyal, Associate Professor, IIT Indore

Dr. Manish Kumar Goyal in his lecture discussed the assessment of the impact of changes in climate and land use and land cover (LULC) on ecosystem services (ES). This assessment is important for planning regional-scale strategies for sustainability and restoration of ES. He discussed that the Upper Narmada River Basin (UNRB) in peninsular India has undergone rapid LULC change due to recent agricultural expansion. The impact of future climate and LULC change on ES in the UNRB is quantified and mapped using the Integrated Valuation of Ecosystem Services and Tradeoffs (InVEST 3.3.0) tool. His results showed that water yield is projected to increase under climate change (about 43% for representative concentration pathway 4.5 for 2031–2040), whereas it is projected to decrease under the LULC change scenario. Further, study also showed that sediment export is projected to increase (by 54.53%) under LULC change for 2031–2040. In the end, Dr. Goyal suggests that under the combined effect of climate and LULC change, both water yield and sediment export are expected to increase.

Recommendation:

- Climate change has a greater impact on projected water yield than LULC change, whereas LULC has greater impact on sediment export.

Shah, Mihir (2016) A21ST Century Institutional Architecture Report for Water Reforms in India, Final Report Submitted to the Ministry of Water Resources, Government of India, New Delhi, July 2016 by Dr. Manish Kumar Goyal, Associate Professor, IIT Indore

Dr. Manish Kumar Goyal in his lecture discussed the Mihir Shah (2016) A21ST Century Institutional Architecture Report for water Reforms in India, Final Report Submitted to the Ministry of Water Resources, Government of India, New Delhi, July 2016. In his presentation, he discussed about the scenario after independence and what will be the challenges in 21st century. Further, he also discusses the emerging limits to supply side solutions. Finally,

presentation ends with some new approach in surface water, groundwater, rejuvenating rivers and flood management.

Climate change adaptations: Methods and policy from socio-economic perspective by Dr. Pritee Sharma, Associate Professor, IIT Indore

Dr. Pritee Sharma in her lecture discussed climate change adaptations from socio-economic perspectives. She discussed how globally we have reached the situation where we contribute to global warming and therefore result in climate change. She talked exhaustively about sustainability, principle of sustainability, overlapping themes of sustainability paradigms. She also pointed that sustainability should include, equity, bearability and viability. She also briefly talked about climate change, impacts of climate change and need for mitigation and adaptation in a sustainable way. She also presented the various ways to estimate loss and damages for carrying out socio-economic studies. She also promised to give a session on regional and global conflicts involved in policy making in future.

Recommendations:

- With the changing climate, there is a need for sustainable development by incorporating mitigation and adaptation measures by incorporating socio-economic point of view while making policies, planning and implementation.

Transformation of water sector as Interdisciplinary Science and Engineering for a Resilient Future by Shri Vikas Goyal, Senior Project Officer (water resources), Asian Development Bank

Mr. Vikas Goyal in his lecture discussed the potential water crisis in Asia including extreme events, economic growth, water supply, sanitation and water quality. His lecture primarily focussed on the use of resilient circles as a decision support system for future water resource management. Resilient infrastructures were discussed at many scales ranging from global to individual cities. He also discussed closing the water loop with the example of Singapore (which is water scarce but excellent water management infrastructure). He also discussed investment in

High-Level Technology such as radar-based precipitation forecasting, remote sensing and Big data and disaster risk insurance.

Recommendation:

- Strategies needs to be planned for a resilient future especially in the sectors such as reducing poverty, tackling climate change, rural development, and food security. We also need to strengthening governance and institutional capacity.

Links for all sessions (Day-6):

https://drive.google.com/file/d/1W_NIG8my1x5WVFeQFJCr6y6MiOs_bXp/view

Valedictory Session (November 07, 2020)

Dr. Korimilli Eswar Prasad- TEQIP, IIT Indore, congratulate all the participants and lecturers for contributing to the short-term course. He talked about the future collaboration of such kind of events in the IIT Indore. He also thanked and congratulated Dr. Manish Kumar Goyal for organizing the program in such wonderful fashion.

Dr. Manish Kumar Goyal- Associate Professor, IIT Indore, congratulated the resource persons and lecturers for successfully contributing to the program.

List of Participants

S.NO.	Name	Email	Mob. No.
1	Abdu Rahiman K U	arku@cusat.ac.in	9497683196
2	Sohil Sisodiya	ssisodiya.npiu.ce@rtu.ac.in	9406869562
3	Payal Panwar	payal.rtu3015@gmail.com	8561995197
4	Akhilesh Singh Tomar	akhi8260@gmail.com	7252880399
5	Amresh Kumar Yadav	amreshcivil0010@gmail.com	7408261447
6	Tanmay Kulshrestha	tanmaykuls99@gmail.com	9649211123
7	Vaibhav Shivhare	vaibhavshivhare11@gmail.com	7771979752
8	Iqbal Sheikh	iqbal.sheikh046@gmail.com	8709770434
9	Bhupesh Jain	bhupesh931983@gmail.com	8619272178
10	Dr. Sandeep Choudhary	sc3973@gmail.com	7693042169
11	Sitansu Kumar Das	sitansudas_fce@gcekej.ac.in	8327753395
12	Asif Ansari	asifiitd1@gmail.com	8081267555
13	Nitish Kumar	nnitishkumar200@gmail.com	9149560914
14	Tumpa Hazra	tumpa.hazra@jadavpuruniversity.in	9732932854
15	Harish Kumar Dwivedi	harishdwivedi@ipsacademy.org	9753042427
16	J S Vishwas	vishwajs@pes.edu	9483461396
17	Abhishek Kumar Choudhary	choudharyab143@gmail.com	9549110143
18	Nimma Ram Babu	nrb.369@gmail.com	9966361712
19	Dr Manoj Kumar Pradhan	mkpradhan2007@gmail.com	7978798174
20	Ubaid Mushtaq Mir	ubaimushtaqmir@gmail.com	9345751722
21	Shivam Chauhan	imshivamhere@gmail.com	9828438709
22	Mohd Abu Bakr	abubakrjabal@gmail.com	7309217865
23	Anubhav Rai	anubhavrai.str4@gmail.com	8516078002
24	Shailesh kumar	kr.shailesh456@gmail.com	7906209274
25	Huda Noorien	hudanoorien@gmail.com	7981159661
26	Sujit Kumar Pradhan	bpradhan.cutm@gmail.com	8280051483
27	Sasmita Sahoo	sasmita.sahoo@gmail.com	8917315545
28	Garima Yadav	garimayadav1326@gmail.com	9557988295
29	Chaitanya Nidhi	chaitanya.nidhi@gmail.com	9036065623
30	Mrs. Mudo Puming	mamunqm@yahoo.com	9436259845
31	Dr.S.P. Jeyapriya	jeyapriya@gct.ac.in	9443157730
32	Dr. Nitin Mohite	nmm.civil@coep.ac.in	9552630232
33	K Raghu	rksjcit@gmail.com	9141354948
34	Aruna Dattatraya Thube	adt.civil@coep.ac.in	9420426106
35	DR Kailash Arjun Pandit	kapatil67@gmail.com	9422206481

36	Lavkush Gupta	rockinglavkush@gmail.com	8879179429
37	Devendra Dohare	devendradohare@gmail.com	9826745494
38	Ms. Shruti Bajpai	bajpai.shruti11@gmail.com	7415620459
39	Medalson Ronghang	medalsonr@gmail.com	9085805488
40	Dr. Vidyapriya V	vidyapriya804@gmail.com	8825917667
41	Darshan M	darshanm@jssstuniv.in	8904550430
42	Vishishtta Nagaraj	vishunagraj@sjce.ac.in	9986568230
43	Savitha U Ulavi	savitha_ulavi@sjce.ac.in	9901371308
44	Mrs. Hemalatha Prabhuswamy	hemaprabhu1806@gmail.com	9844942940
45	Dr. Pushpa Tuppad	ptuppad@sjce.ac.in	9591083451
46	Dr. Anoop Narain Singh	anoopnarain1407@gmail.com	8745883666
47	Ansari	hashmat.ansari07@gmail.com	7904718724
48	Pooja Patle	pooja.patle71@gmail.com	9981534746
49	Santosh Kumar	santoshraebareli2@gmail.com	8887943896
50	Abhishek Shrivastava	abhishekshrivastava086@gmail.com	8982257918
51	Sunil Kumar Ahirwar	skasgsits@gmail.com	8169845602
52	Siddhartha Sengupta	siddhartha@bitmesra.ac.in	9471502436
53	Parinitha T Niranjana	parinitha@sjce.ac.in	9686343420
54	Dhruv Saxena	dhruv.saxena@ecajmer.ac.in	7042712792
55	Dhanendra Bahekar	dhanendrabahekar1996@gmail.com	9755161137
56	Thanushree M S	thanushree.shree@sjce.ac.in	9986755812
57	Shivam	shivam.ide.caepht@cau.ac.in	8638133035
58	Dr. Prathap Reddy Patlolla	prathapreddypatlolla@gmail.com	9727602023
59	Anjana T R	anjanatr@thejusengg.com	8606610615
60	Reshma Jaipal	reshmajaipal@thejusengg.com	9746331691
61	Misba Gul	misbaqul@gmail.com	7006919099
62	Uttam Puri Goswami	uttam2388@gmail.com	8638696009
63	Dr. Neeru	neeru_dabas2006@yahoo.com	9560334187
64	Dr. S. Vijaya	vijaya.s@dr-ait.org	9343462295
65	Dr. Rakesh Kumar Dubey	dubeyable@mitsgwalior.in	9474600968
66	Dr. Deepak Kumar	hodcerggec@gmail.com	9418459175
67	Rohit Rana	rohitrana1jan@gmail.com	7249999886
68	Rakesh Purviya	purviya88rakesh@gmail.com	9425150044
69	Sachin Ramesh Rao Geed	sachingeed@mitsgwalior.in	8874712170
70	PROF A K Shukla	head.ced@ietlucknow.ac.in	9415584212
71	Tripti Kumar	triptikumar2010@gmail.com	9458177912
72	Bhavesh Kumar Jha	bhavesh.kr.jha@gmail.com	9882327564

73	Aditya Kumar Agarwal	adyyagrawal0902@mitsgwalior.in	8262992201
74	Mr. Prasanta Patri	phd1901261002@iiti.ac.in	9348969623
75	Bushra Praveen	bushraparvn@gmail.com	9634392746
76	Dr. Murtaza Hasan	murtazadce@gmail.com	7500780301
77	Mohd Zia Hussain	mzhussain26@gmail.com	8969978838
78	Dr. Sandeep Thakur	sandeep.manit@rediffmail.com	9893295621
79	Dr. Nirmala D B	nirmaladb@sjce.ac.in	9620431246
80	Puneet Pal Singh Cheema	ppsc390@gmail.com	9781816320
81	H.G.Vivek Prasad	hgvprasad@sjce.ac.in	9986009424
82	Suhail Shafi Lone	Suhail_13phd19@nitsri.ac.in	7006392511
83	Ms.Prachi chincholikar Dharmadhikari	prachidm786@gmail.com	9424850828
84	Mintoo Kumar Gautam	kumar200829@gmail.com	9540129081
85	Nikki Chanda	nikkichanda@gmail.com	7870325128
86	Seraj Ahmed	ahmadseraj86@gmail.com	7417196280
87	Anjali Yadav	phd2001161001@iiti.ac.in	8802365472
88	Vivek Tiwari	ervivektiwari.17@gmail.com	9479722032
89	Mr Gongati Nani Babu	nani.anu25@gmail.com	9700773387
90	Vivek Tiwari	vivek.tiwari9786@gmail.com	9399666034
91	Hina parveen	Hinakhanam945240@gmail.com	7905480942
92	Harswaroop Goliya	hsgoliya20@gmail.com	9425064088

Attendance of Participants (Day-1)

Date and Time	NAME	Email
11-02-2020 09:31	Dr. Vishishtta Nagaraj	vishunagraj@sjce.ac.in
11-02-2020 12:00	vivek Tiwari	vivek.tiwari9786@gmail.com
11-02-2020 14:52	Dr. Vishishtta Nagaraj	vishunagraj@sjce.ac.in
11-02-2020 14:27	Dr. S. Vijaya	33haita.s@dr-ait.org
11-02-2020 09:33	Dr.Vidyapriya V	vidyapriya804@gmail.com
11-02-2020 11:45	Dr. Uttam Puri Goswami	uttam2388@gmail.com
11-02-2020 14:15	Tumpa Hazra	tumpa.hazra@jadavpuruniversity.in
11-02-2020 13:49	Tripti kumar	triptikumar2010@gmail.com
11-02-2020 14:49	Ms. Thanushree M S	thanushree.shree@sjce.ac.in
11-02-2020 14:02	TANMAY KULSHRESTHA	tanmaykuls99@gmail.com
11-02-2020 13:43	Sujit kumar Pradhan	sujitcivil749@gmail.com
11-02-2020 09:56	Sohil Sisodiya	ssisodiya.npiu.ce@rtu.ac.in
11-02-2020 13:46	Sunil Kumar Ahirwar	skasgsits@gmail.com
11-02-2020 14:24	Sitansu Kumar Das	sitansudas_fce@gcekjr.ac.in
11-02-2020 09:31	Siddhartha Sengupta	siddhartha@bitmesra.ac.in
11-02-2020 15:48	Shivam Gupta	shivam.ide.caepht@cau.ac.in
11-02-2020 14:00	Savitha Ulavi	33haitan_ulavi@sjce.ac.in
11-02-2020 09:56	Sasmita Sahoo	sasmita.sahoo@gmail.com
11-02-2020 17:15	Santosh Kumar	santoshraebareli2@gmail.com
11-02-2020 17:54	Sachin Ramesh Rao Geed	sachingeed@mitsgwalior.in
11-02-2020 09:31	ROHIT RANA	rohitrana1jan@gmail.com
11-02-2020 09:36	RESHMA JAIPAL	reshmajaipal@thejusengg.com
11-02-2020 09:58	RAKESH PURVIYA	purviya88rakesh@gmail.com
11-02-2020 09:34	Dr. Pushpa Tuppad	ptuppad@sjce.ac.in
11-02-2020 14:46	Prathap Reddy Patlolla	prathapreddypatlolla@gmail.com
11-02-2020 10:03	Prachi dharmadhikari Chincholikar	prachidm786@gmail.com
11-02-2020 11:49	Puneet Pal Singh Cheema	ppsc390@gmail.com
11-02-2020 10:04	pooja patle	pooja.patle71@gmail.com
11-02-2020 14:25	Parinitha T Niranjana	parinitha@sjce.ac.in
11-02-2020 11:11	NITISH KUMAR	nnitishkumar200@gmail.com
11-02-2020 11:27	Dr. Nitin Mohite	nmm.civil@coep.ac.in
11-02-2020 14:34	Nikki Chanda	nikkichanda@gmail.com
11-02-2020 09:55	Dr. Neeru	neeru_dabas2006@yahoo.com
11-02-2020 11:46	Gongati Nani Babu	nani.anu25@gmail.com
11-02-2020 15:20	Mohd Zia Hussain	mzhussain26@gmail.com
11-02-2020 15:26	Dr. Murtaza Hasan	murtazadce@gmail.com
11-02-2020 11:25	Dr. Manoj Kumar Pradhan	mkpradhan2007@gmail.com
11-02-2020 13:53	Misba Gul	misbagul@gmail.com
11-02-2020 11:13	Mintoo Kumar Gautam	kumar200829@gmail.com

11-02-2020 09:51	Shailesh kumar	kr.shailesh456@gmail.com
11-02-2020 16:19	Kamalesh Tripathi	kkt.civil@coep.ac.in
11-02-2020 19:53	Dr Kailas A. Patil	kapatil67@gmail.com
11-02-2020 16:33	SHIVAM CHAUHAN	imshivamhere@gmail.com
11-02-2020 11:45	Harswaroop Goliya	hsgoliya20@gmail.com
11-02-2020 13:47	Dr. Deepak Kumar	hodcerggec@gmail.com
11-02-2020 14:03	Hina parveen	Hinakhanam945240@gmail.com
11-02-2020 17:11	H. G. Vivek Prasad	hgvprasad@sjce.ac.in
11-02-2020 11:51	Hemalatha Prabhuswamy	hemaprabhu1806@gmail.com
11-02-2020 09:34	MD MASOOD ZAFAR ANSARI	hashmat.ansari07@gmail.com
11-02-2020 13:53	Harish kumar dwivedi	harishdwivedi@ipsacademy.org
11-02-2020 09:57	Garima Yadav	garimayadav1326@gmail.com
11-02-2020 14:12	Vivek Tiwari	ervivektiwari.17@gmail.com
11-02-2020 09:55	Dhruv Saxena	dhruv.saxena@ecajmer.ac.in
11-02-2020 09:36	Dhanendra Bahekar	dhanendrabahekar1996@gmail.com
11-02-2020 14:13	Devendra Dohare	devendradohare@gmail.com
11-02-2020 11:12	DARSHAN M	darshanm@jssstuniv.in
11-02-2020 09:31	Chaitanya Nidhi	34haitanya.nidhi@gmail.com
11-02-2020 10:04	Bhupesh Jain	bhupesh931983@gmail.com
11-02-2020 09:59	Bhavesh kumar jha	34haitan.kr.jha@gmail.com
11-02-2020 18:36	Shruti Bajpai	34haita.shruti11@gmail.com
11-02-2020 11:48	ASIF ANSARI	asifiitd1@gmail.com
11-02-2020 17:26	Dr. Abdu Rahiman K U	arku@cusat.ac.in
11-02-2020 15:30	Anoop Narain Singh	anoopnarain1407@gmail.com
11-02-2020 09:40	Anjana T R	anjanatr@thejusengg.com
11-02-2020 13:43	AKHILESH SINGH TOMAR	akhi8260@gmail.com
11-02-2020 13:44	SERAJ AHMAD	AHMADSERAJ86@GMAIL.COM
11-02-2020 11:12	Aditya Kumar Agarwal	adyyagrawal0902@mitsgwalior.in
11-02-2020 12:03	MOHD ABU BAKR	abubakrjabal@gmail.com
11-02-2020 13:49	Abhishek Shrivastava	abhishekshrivastava086@gmail.com
11-02-2020 14:11	Dr. Nitin Mohite	nmm.civil@coep.ac.in
11-02-2020 14:46	Sohil Sisodiya	ssisodiya.npiu.ce@rtu.ac.in

Attendance of Participants (Day-2)

Date and Time	NAME	Email
03-11-2020 14:23	Dr.Vidyapriya V	vidyapriya804@gmail.com
03-11-2020 12:11	A k Shukla	akshuklaiet@gmail.com
03-11-2020 10:27	Abhishek Shrivastava	abhishekshrivastava086@gmail.com
03-11-2020 10:26	Aditya Kumar Agarwal	adyyagrawal0902@mitsgwalior.in
03-11-2020 10:32	Amresh Kumar Yadav	amreshcivil0010@gmail.com
03-11-2020 09:57	Anjana T R	anjanatr@thejusengg.com
03-11-2020 10:33	ASIF ANSARI	asifiitd1@gmail.com
03-11-2020 09:43	Bhaveskumar Jha	35haitan.kr.jha@gmail.com
03-11-2020 10:30	Bhupesh Jain	bhupesh931983@gmail.com
03-11-2020 10:25	Chaitanya Nidhi	35haitanya.nidhi@gmail.com
03-11-2020 10:26	Darshan M	darshanm@jssstuniv.in
03-11-2020 10:25	Devendra Dohare	devendradohare@gmail.com
03-11-2020 09:33	Dhanendra Bahekar	dhanendrabahekar1996@gmail.com
03-11-2020 10:25	Dhruv Saxena	dhruv.saxena@ecajmer.ac.in
03-11-2020 11:27	Dr Kailas A. Patil	kapatil67@gmail.com
03-11-2020 10:32	Dr. Deepak Kumar	hodcergec@gmail.com
03-11-2020 10:30	Dr. Manoj Kumar Pradhan	mkpradhan2007@gmail.com
03-11-2020 09:54	Dr. Neeru	neeru_dabas2006@yahoo.com
03-11-2020 10:44	Dr. Nitin Mohite	nmm.civil@coep.ac.in
03-11-2020 10:31	Dr. Pushpa Tuppada	ptuppada@sjce.ac.in
03-11-2020 14:51	Dr. Rakesh Kumar Dubey	dubeyable@mitsgwalior.in
03-11-2020 12:46	Dr. Sandeep Thakur	35haitan.manit@rediffmail.com
03-11-2020 11:13	Dr. Vishishtta Nagaraj	vishunagraj@sjce.ac.in
03-11-2020 13:12	Dr.Abdu Rahiman K U	arku@cusat.ac.in
03-11-2020 11:35	Dr.Nirmala D B	nirmaladb@sjce.ac.in
03-11-2020 13:12	Dr.Vidyapriya V	vidyapriya804@gmail.com
03-11-2020 13:57	Garima Yadav	garimayadav1326@gmail.com
03-11-2020 10:26	Gongati Nani Babu	nani.anu25@gmail.com
03-11-2020 13:57	H.G.Vivek Prasad	hgvpasad@sjce.ac.in
03-11-2020 10:47	Harish Kumar Dwivedi	harishdwivedi@ipsacademy.org
03-11-2020 10:22	Harswaroop Goliya	hsgoliya29@gmail.com
03-11-2020 10:56	Hina parveen	Hinakhanam945240@gmail.com
03-11-2020 15:50	Lavkush Gupta	rockinglavkush@gmail.com
03-11-2020 10:07	MD MASOOD ZAFAR ANSARI	hashmat.ansari07@gmail.com
03-11-2020 10:36	Mintoo Kumar Gautam	kumar200829@gmail.com
03-11-2020 11:36	Misha Gul	misbagul@gmail.com
03-11-2020 10:30	Mohd Zia Hussain	mzhussain26@gmail.com
03-11-2020 10:37	Mrs. Hemalatha Prabhuswamy	hemaprabhu1806@gmail.com
03-11-2020 10:42	Ms.Thanushree M S	thanushree.shree@sjce.ac.in

03-11-2020 10:31	nikki chanda	nikkichanda@gmail.com
03-11-2020 10:31	NITISH KUMAR	nnitishkumar200@gmail.com
03-11-2020 11:15	Parinitha T Niranjan	parinitha@sjce.ac.in
03-11-2020 09:31	pooja patle	pooja.patle71@gmail.com
03-11-2020 10:32	Prachi Chincholikar	Prachidm786@gmail.com
03-11-2020 11:50	Prathap Reddy Patlolla	prathapreddypatlolla@gmail.com
03-11-2020 10:48	Puneet Pal Singh Cheema	ppsc390@gmail.com
03-11-2020 14:55	RAKESH PURVIYA	purviya88rakesh@gmail.com
03-11-2020 10:57	Ram B Nimma	nrb.369@gmail.com
03-11-2020 09:30	Reshma Jaipal	reshmajaipal@thejusengg.com
03-11-2020 10:01	ROHIT RANA	rohitrana1jan@gmail.com
03-11-2020 10:33	S.P.JEYAPRIYA	jeyapriya@gct.ac.in
03-11-2020 16:36	Sachin Ramesh Rao Geed	sachingeed@mitsgwalior.in
03-11-2020 09:38	SANTOSH KUMAR	santoshraebareli2@gmail.com
03-11-2020 10:48	SANTOSH KUMAR	santoshraebareli2@gmail.com
03-11-2020 10:27	Sasmita Sahoo	sasmita.sahoo@gmail.com
03-11-2020 11:03	Savitha Ulavi	36haitan_ulavi@sjce.ac.in
03-11-2020 11:04	SERAJ AHMAD	ahmadseraj86@gmail.com
03-11-2020 09:54	Shailesh kumar	kr.shailesh456@gmail.com
03-11-2020 14:11	Shivam	shivam.ide.caepht@cau.ac.in
03-11-2020 14:21	Siddhartha Sengupta	siddhartha@bitmesra.ac.in
03-11-2020 10:47	Sitansu Kumar Das	sitansudas_fce@gcekjr.ac.in
03-11-2020 09:31	Sohil Sisodiya	ssisodiya.npiu.ce@rtu.ac.in
03-11-2020 12:41	Sujit kumar Pradhan	sujitcivil749@gmail.com
03-11-2020 10:51	Sunil Kumar Ahirwar	skasgsits@gmail.com
03-11-2020 10:29	Tripti kumar	triptikumar2010@gmail.com
03-11-2020 09:32	Tumpa Hazra	tumpa.hazra@jadavpuruniversity.in
03-11-2020 10:10	Vivek Tiwari	ervivektiwari.17@gmail.com
03-11-2020 10:25	vivek Tiwari	vivek.tiwari9786@gmail.com

Attendance of Participants (Day-3)

Date and Time	NAME	Email
04-11-2020 09:38	pooja patle	pooja.patle71@gmail.com
04-11-2020 09:38	Garima Yadav	garimayadav1326@gmail.com
04-11-2020 09:38	Tumpa Hazra	tumpa.hazra@jadavpuruniversity.in
04-11-2020 09:38	Shailesh Kumar	kr.shailesh456@gmail.com
04-11-2020 09:39	Siddhartha Sengupta	siddhartha@bitmesra.ac.in
04-11-2020 09:40	Reshma Jaipal	reshmajaipal@thejusengg.com
04-11-2020 09:43	Harswaroop Goliya	hsgoliya20@gmail.com
04-11-2020 09:45	ROHIT RANA	rohitrana1jan@gmail.com
04-11-2020 09:47	Vivek Tiwari	ervivektiwari.17@gmail.com
04-11-2020 09:47	S.P.Jeyapriya	jeyapriya@gct.ac.in
04-11-2020 09:59	Parinitha T Niranjan	parinitha@sjce.ac.in
04-11-2020 09:59	Dr. Nitin Mohite	nmm.civil@coep.ac.in
04-11-2020 10:00	Mohd Zia Hussain	mzhussain26@gmail.com
04-11-2020 10:00	Mintoo Kumar Gautam	kumar200829@gmail.com
04-11-2020 10:00	Dr. Pushpa Tuppad	ptuppad@sjce.ac.in
04-11-2020 10:01	MOHD ABU BAKR	abubakrjabal@gmail.com
04-11-2020 10:01	Gongati Nani Babu	nani.anu25@gmail.com
04-11-2020 10:02	TANMAY KULSHRESTHA	tanmaykuls99@gmail.com
04-11-2020 10:03	Prathap Reddy Patlolla	prathapreddypatlolla@gmail.com
04-11-2020 10:07	Chaitanya Nidhi	37haitanya.nidhi@gmail.com
04-11-2020 10:09	Dr. Vishishtta Nagaraj	vishunagraj@sjce.ac.in
04-11-2020 10:10	Sohil Sisodiya	ssisodiya.npiu.ce@rtu.ac.in
04-11-2020 10:10	Amresh Kumar Yadav	Amreshcivil0010@gmail.com
04-11-2020 10:11	Abhishek Shrivastava	abhishekshrivastava086@gmail.com
04-11-2020 10:14	ASIF ANSARI	asifiitd1@gmail.com
04-11-2020 10:16	Dhruv Saxena	dhruv.saxena@ecajmer.ac.in
04-11-2020 10:18	Dr. Deepak Kumar	hodcerggec@gmail.com
04-11-2020 10:19	vivek Tiwari	vivek.tiwari9786@gmail.com
04-11-2020 10:20	Harish Kumar Dwivedi	harishdwivedi@ipsacademy.org
04-11-2020 10:20	Sasmita Sahoo	sasmita.sahoo@gmail.com
04-11-2020 10:21	Misba Gul	misbagul@gmail.com
04-11-2020 10:21	Misba Gul	misbagul@gmail.com
04-11-2020 10:32	Sitansu Kumar Das	sitansudas_fce@gcekjr.ac.in
04-11-2020 10:32	Abhishek Kumar Choudhary	choudharyab143@gmail.com
04-11-2020 10:33	MD MASOOD ZAFAR ANSARI	hashmat.ansari07@gmail.com
04-11-2020 10:34	Aditya Kumar Agarwal	adyyagrawal0902@mitsgwaliior.in
04-11-2020 10:34	Nikki Chanda	nikkichanda@gmail.com
04-11-2020 10:37	Thanushree M S	thanushree.shree@sjce.ac.in

04-11-2020 10:42	DARSHAN M	darshanm@jssstuniv.in
04-11-2020 10:45	Devendra Dohare	devendradohare@gmail.com
04-11-2020 10:46	Puneet Pal Singh Cheema	ppsc390@gmail.com
04-11-2020 10:48	Anjana T R	anjanatr@thejusengg.com
04-11-2020 10:49	Dr. Manoj Kumar Pradhan	mkpradhan2007@gmail.com
04-11-2020 10:50	Dr. Neeru	neeru_dabas2006@yahoo.com
04-11-2020 10:52	Bhavesh Kumar Jha	38haitan.kr.jha@gmail.com
04-11-2020 10:54	Savitha Ulavi	38haitan_ulavi@sjce.ac.in
04-11-2020 10:56	NITISH KUMAR	nnitishkumar200@gmail.com
04-11-2020 10:59	Lavkush Gupta	rockinglavkush@gmail.com
04-11-2020 11:01	Akhilesh Singh Tomar	akhi8260@gmail.com
04-11-2020 11:03	Dr.Vidyapriya V	vidyapriya804@gmail.com
04-11-2020 11:04	38haitanya nidhi	38haitanya.nidhi@gmail.com
04-11-2020 11:05	Dr. Rakesh Kumar Dubey	dubeyable@mitsgwalior.in
04-11-2020 11:07	Mrs. HEMALATHA PRABHUSWAMY	hemaprabhu1806@gmail.com
04-11-2020 11:14	SANTOSH KUMAR	santoshraebareli2@gmail.com
04-11-2020 11:15	Dr.Nirmala D B	nirmaladb@sjce.ac.in
04-11-2020 11:17	RAKESH PURVIYA	purviya88rakesh@gmail.com
04-11-2020 11:18	Sunil Kumar Ahirwar	skasgsits@gmail.com
04-11-2020 11:18	Sachin Ramesh Rao Geed	sachingeed@mitsgwalior.in
04-11-2020 11:19	Sujit kumar Pradhan	sujitcivil749@gmail.com
04-11-2020 11:24	Hina parveen	Hinakhanam945240@gmail.com
04-11-2020 11:33	Dr. Vishishtta Nagaraj	vishunagraj@sjce.ac.in

Attendance of Participants (Day-4)

Timestamp	Name	Email Address
05-11-2020 09:25	Dr. Nitin Mohite	nmm.civil@coep.ac.in
05-11-2020 09:25	DARSHAN M	darshanm@jssstuniv.in
05-11-2020 09:26	Iqbal Sheikh	iqbal.sheikh046@gmail.com
05-11-2020 09:27	Shruti Bajpai	bajpai.shruti11@gmail.com
05-11-2020 09:28	Dr Kailas A. Patil	kapatil67@gmail.com
05-11-2020 09:28	Dr.Vishishtta Nagaraj	vishunagraj@sjce.ac.in
05-11-2020 09:28	Reshma Jaipal	reshmajaipal@thejusengg.com
05-11-2020 09:29	Siddhartha Sengupta	siddhartha@bitmesra.ac.in
05-11-2020 09:30	Prachi Chincholikar	Prachidm786@gmail.com
05-11-2020 09:30	Dr. Deepak Kumar	hodcergeec@gmail.com
05-11-2020 09:31	Shailesh kumar	kr.shailesh456@gmail.com
05-11-2020 09:33	SANTOSH KUMAR	santoshraebareli2@gmail.com
05-11-2020 09:33	Sohil Sisodiya	ssisodiya.npiu.ce@rtu.ac.in
05-11-2020 09:33	Abhishek Shrivastava	abhishekshrivastava086@gmail.com
05-11-2020 09:34	Dr. Pushpa Tuppada	ptuppada@sjce.ac.in
05-11-2020 09:35	Dr. S.P.JEYAPRIYA	jeyapriya@gct.ac.in
05-11-2020 09:36	sujit kumar Pradhan	sujitcivil749@gmail.com
05-11-2020 09:36	Sachin Ramesh Rao Geed	sachingeed@mitsgwalior.in
05-11-2020 09:36	Dr. Neeru	neeru_dabas2006@yahoo.com
05-11-2020 09:37	ASIF ANSARI	asifiitd1@gmail.com
05-11-2020 09:38	Anjana T R	anjanatr@thejusengg.com
05-11-2020 09:38	Tumpa hazra	tumpa.hazra@jadavpuruniversity.in
05-11-2020 09:38	Nikki Chanda	nikkichanda@gmail.com
05-11-2020 09:39	Garima Yadav	garimayadav1326@gmail.com
05-11-2020 09:43	Hina parveen	Hinakhanam945240@gmail.com
05-11-2020 09:44	Dr. Rakesh Kumar Dubey	dubeyable@mitsgwalior.in
05-11-2020 09:51	Mrs. HEMALATHA PRABHUSWAMY	hemaprabhu1806@gmail.com
05-11-2020 09:52	Misba Gul	misbagul@gmail.com
05-11-2020 09:55	Harswaroop Goliya	hsgoliya20@gmail.com
05-11-2020 09:56	Dr. Manoj Kumar Pradhan	mkpradhan2007@gmail.com
05-11-2020 09:57	Shivam	shivam.ide.caepht@cau.ac.in
05-11-2020 10:04	MOHD ABU BAKR	abubakrjabal@gmail.com
05-11-2020 10:06	Sasmita Sahoo	sasmita.sahoo@gmail.com
05-11-2020 10:07	Dhruv Saxena	dhruv.saxena@ecajmer.ac.in
05-11-2020 10:12	Puneet Pal Singh Cheema	ppsc390@gmail.com
05-11-2020 10:15	HudaNoorien	hudanoorien@gmail.com
05-11-2020 10:17	Dr.Vidyapriya V	vidyapriya804@gmail.com
05-11-2020 10:17	Aditya Kumar Agarwal	adyyagrawal0902@mitsgwalior.in
05-11-2020 10:19	ROHIT RANA	rohitrana1jan@gmail.com

05-11-2020 10:19	Dr Nirmala D B	nirmaladb@sjce.ac.in
05-11-2020 10:22	SHIVAM CHAUHAN	imshivamhere@gmail.com
05-11-2020 10:23	Chaitanya Nidhi	Chaitanya.nidhi@gmail.com
05-11-2020 10:23	Dr. S. Vijaya	vijaya.s@dr-ait.org
05-11-2020 10:24	Dhanendra Bahekar	dhanendrabahekar1996@gmail.com
05-11-2020 10:28	Parinitha T Niranjan	parinitha@sjce.ac.in
05-11-2020 10:40	MD MASOOD ZAFAR ANSARI	hashmat.ansari07@gmail.com
05-11-2020 10:46	Abhishek Kumar Choudhary	choudharyab143@gmail.com
05-11-2020 10:47	Sitansu Kumar Das	sitansudas_fce@gcekr.ac.in
05-11-2020 10:50	Thanushree M S	thanushree.shree@sjce.ac.in
05-11-2020 10:54	Dr.Abdu Rahiman K U	arku@cusat.ac.in
05-11-2020 11:01	Amresh Kumar Yadav	Amreshcivil0010@gmail.com
05-11-2020 11:09	vivek tiwari	vivek.tiwari9786@gmail.com
05-11-2020 11:12	Bhavesh kumar Jha	bhavesh.kr.jha@gmail.com
05-11-2020 11:14	Devendra Dohare	devendradohare@gmail.com
05-11-2020 11:30	Gongati Nani Babu	nani.anu25@gmail.com
05-11-2020 11:32	Mintoo Kumar Gautam	kumar200829@gmail.com
05-11-2020 11:35	TANMAY KULSHRESTHA	tanmaykuls99@gmail.com
05-11-2020 11:37	SERAJ AHMAD	ahmadseraj86@gmail.com
05-11-2020 11:44	Prathap Reddy Patlolla	prathapreddypatlolla@gmail.com
05-11-2020 11:50	Dr. Sandeep Thakur	sandeep.manit@rediffmail.com
05-11-2020 11:56	Sunil Kumar Ahirwar	skasgsits@gmail.com
05-11-2020 11:57	Tripti kumar	triptikumar2010@gmail.com

Attendance of Participants (Day-5)

Date and Time	NAME	Email
06-11-2020 10:10	A k Shukla	akshuklaiet@gmail.com
06-11-2020 10:51	Abhishek Kumar Choudhary	choudharyab143@gmail.com
06-11-2020 11:08	Abhishek Shrivastava	abhishekshrivastava086@gmail.com
06-11-2020 10:23	Aditya Kumar Agarwal	adyyagrawal0902@mitsgwalior.in
06-11-2020 09:54	AKHILESH SINGH TOMAR	akhi8260@gmail.com
06-11-2020 12:14	Amresh Kumar Yadav	Amreshcivil0010@gmail.com
06-11-2020 10:54	Anjana T R	anjanatr@thejusengg.com
06-11-2020 09:53	ASIF ANSARI	asifiitd1@gmail.com
06-11-2020 12:52	Bhavesh Kumar Jha	bhavesh.kr.jha@gmail.com
06-11-2020 13:10	Bhupesh Jain	bhupesh931983@gmail.com
06-11-2020 09:48	Chaitanya Nidhi	chaitanya.nidhi@gmail.com
06-11-2020 09:44	Darshan M	darshanm@jssstuniv.in
06-11-2020 10:02	Devendra Dohare	devendradohare@gmail.com
06-11-2020 09:37	Dhanendra Bahekar	dhanendrabahekar1996@gmail.com
06-11-2020 10:28	Dhruv Saxena	dhruv.saxena@ecajmer.ac.in
06-11-2020 10:56	Dr Kailas A. Patil	kapatil67@gmail.com
06-11-2020 10:21	Dr Nirmala D B	nirmaladb@sjce.ac.in
06-11-2020 09:57	Dr. Deepak Kumar	hodcerggec@gmail.com
06-11-2020 11:36	Dr. Manoj Kumar Pradhan	mkpradhan2007@gmail.com
06-11-2020 14:53	Dr. Murtaza Hasan	murtazadce@gmail.com
06-11-2020 14:29	Dr. Neeru	neeru_dabas2006@yahoo.com
06-11-2020 11:07	Dr. Nitin Mohite	nmm.civil@coep.ac.in
06-11-2020 09:59	Dr. Pushpa Tuppad	ptuppad@sjce.ac.in
06-11-2020 11:07	Dr. Rakesh Kumar Dubey	dubeyable@mitsgwalior.in
06-11-2020 10:00	Dr. S. Vijaya	vijaya.s@dr.ait.org
06-11-2020 10:32	Dr. SANDEEP THAKUR	sandeep.manit@rediffmail.com
06-11-2020 10:26	Dr. Vishishtta Nagaraj	vishunagraj@sjce.ac.in
06-11-2020 09:58	Dr.Abdu Rahiman K U	arku@cusat.ac.in
06-11-2020 10:36	Dr.Vidyapriya V	vidyapriya804@gmail.com
06-11-2020 10:19	Garima Yadav	garimayadav1326@gmail.com
06-11-2020 13:30	H.G.Vivek Prasad	hgvprasad@sjce.ac.in
06-11-2020 10:02	Harswaroop Goliya	hsgoliya@gmail.com
06-11-2020 09:48	Hina parveen	Hinakhanam945240@gmail.com
06-11-2020 12:12	Huda Noorien	hudanoorien@gmail.com
06-11-2020 10:55	Iqbal Sheikh	iqbal.sheikh046@gmail.com
06-11-2020 11:26	Lavkush Gupta	rockinglavkush@gmail.com
06-11-2020 14:24	MD MASOOD ZAFAR ANSARI	hashmat.ansari07@gmail.com
06-11-2020 12:29	Mintoo Kumar Gautam	kumar200829@gmail.com

06-11-2020 10:46	Misba Gul	misbagul@gmail.com
06-11-2020 09:49	MOHD ABU BAKR	abubakrjabal@gmail.com
06-11-2020 09:47	Mrs. HEMALATHA PRABHUSWAMY	hemaprabhu1806@gmail.com
06-11-2020 10:54	Nani Babu Gongati	nani.anu25@gmail.com
06-11-2020 09:51	Nikki Chanda	nikkichanda@gmail.com
06-11-2020 10:22	parinitha t Niranjan	parinitha@sjce.ac.in
06-11-2020 11:20	Pooja patle	pooja.patle71@gmail.com
06-11-2020 09:54	Prachi Chincholikar	Prachidm786@gmail.com
06-11-2020 10:14	Prathap Reddy Patlolla	prathapreddypatlolla@gmail.com
06-11-2020 10:40	Puneet Pal Singh Cheema	ppsc390@gmail.com
06-11-2020 11:04	RAKESH PURVIYA	purviya88rakesh@gmail.com
06-11-2020 10:08	Reshma Jaipal	reshmajaipal@thejusengg.com
06-11-2020 09:52	ROHIT RANA	rohitrana1jan@gmail.com
06-11-2020 09:48	S.P.Jeyapriya	jeyapriya@gct.ac.in
06-11-2020 13:19	Sachin Ramesh Rao Geed	sachingeed@mitsgwalior.in
06-11-2020 10:09	SANTOSH KUMAR	santoshraebareli2@gmail.com
06-11-2020 09:38	Sasmita Sahoo	sasmita.sahoo@gmail.com
06-11-2020 10:51	Savitha Ulavi	savitha_ulavi@sjce.ac.in
06-11-2020 13:10	Seraj Ahmad	ahmadseraj86@gmail.com
06-11-2020 09:49	Shailesh kumar	kr.shailesh456@gmail.com
06-11-2020 13:07	Shivam	shivam.ide.caepht@cau.ac.in
06-11-2020 10:23	SHIVAM CHAUHAN	imshivamhere@gmail.com
06-11-2020 09:36	Siddhartha Sengupta	siddhartha@bitmesra.ac.in
06-11-2020 10:53	Sitansu Kumar Das	sitansudas_fce@gcekjr.ac.in
06-11-2020 09:32	Sohil Sisodiya	ssisodiya.npiu.ce@rtu.ac.in
06-11-2020 10:01	Sujit kumar Pradhan	sujitcivil749@gmail.com
06-11-2020 14:11	Sunil Kumar Ahirwar	skasgsits@gmail.com
06-11-2020 14:04	TANMAY KULSHRESTHA	tanmaykuls99@gmail.com
06-11-2020 10:43	Thanushree M S	thanushree.shree@sjce.ac.in
06-11-2020 12:35	Tripti kumar	triptikumar2010@gmail.com
06-11-2020 09:45	Tumpa Hazra	tumpa.hazra@jadavpuruniversity.in
06-11-2020 10:05	vivek Tiwari	vivek.tiwari9786@gmail.com

Attendance of Participants (Day-6)

Timestamp	Name	Email Address
07-11-2020 09:40	Sohil Sisodiya	ssisodiya.npiu.ce@rtu.ac.in
07-11-2020 09:40	Tumpa Hazra	tumpa.hazra@jadavpuruniversity.in
07-11-2020 09:40	Siddhartha Sengupta	siddhartha@bitmesra.ac.in
07-11-2020 09:40	Harswaroop Goliya	hsgoliya20@gmail.com
07-11-2020 09:41	Parinitha T Niranjan	parinitha@sjce.ac.in
07-11-2020 09:42	Anjana T R	anjanatr@thejusengg.com
07-11-2020 09:42	Garima Yadav	garimayadav1326@gmail.com
07-11-2020 09:43	Dr Kailas A.Patil	kapatil67@gmail.com
07-11-2020 09:43	ROHIT RANA	rohitrana1jan@gmail.com
07-11-2020 09:43	Dhanendra Bahekar	dhanendrabahekar1996@gmail.com
07-11-2020 09:45	Bhaveskumar jha	bhavesk.kr.jha@gmail.com
07-11-2020 09:51	Prachi Chincholikar	prachidm786@gmail.com
07-11-2020 09:52	Tripti kumar	triptikumar2010@gmail.com
07-11-2020 09:52	Shailesh kumar	kr.shailesh456@gmail.com
07-11-2020 09:53	Dr. Manoj Kumar Pradhan	mkpradhan2007@gmail.com
07-11-2020 09:55	Mintoo Kumar Gautam	kumar200829@gmail.com
07-11-2020 09:57	Dr. S. Vijaya	vijaya.s@dr-ait.org
07-11-2020 10:02	ASIF ANSARI	asifiitd1@gmail.com
07-11-2020 10:02	SANTOSH KUMAR	santoshraebareli2@gmail.com
07-11-2020 10:05	TANMAY KULSHRESTHA	tanmaykuls99@gmail.com
07-11-2020 10:06	Nani Babu Gongati	nani.anu25@gmail.com
07-11-2020 10:14	Dr. Deepak Kumar	hodcerggec@gmail.com
07-11-2020 10:14	Abhishek Shrivastava	abhishekshrivastava086@gmail.com
07-11-2020 10:14	Dr. Pushpa Tuppad	ptuppad@sjce.ac.in
07-11-2020 10:14	vivek tiwari	vivek.tiwari9786@gmail.com
07-11-2020 10:16	A k shukla	akshuklaiet@gmail.com
07-11-2020 10:17	Dr.Abdu Rahiman K U	arku@cusat.ac.in
07-11-2020 10:18	Chaitanya Nidhi	chaitanya.nidhi@gmail.com
07-11-2020 10:22	Dhruv Saxena	dhruv.saxena@ecajmer.ac.in
07-11-2020 10:23	Hina parveen	Hinakhanam945240@gmail.com
07-11-2020 10:26	AKHILESH SINGH TOMAR	akhi8260@gmail.com
07-11-2020 10:32	RAKESH PURVIYA	purviya88rakesh@gmail.com
07-11-2020 10:36	Sunil Kumar Ahirwar	skasgsits@gmail.com
07-11-2020 10:40	Sachin Rameshrao Geed	sachingeed@mitsgwalior.in
07-11-2020 10:41	Misba Gul	misbagul@gmail.com
07-11-2020 10:43	Aditya Kumar Agarwal	adyyagrawal0902@mitsgwalior.in
07-11-2020 10:46	Mrs. HEMALATHA PRABHUSWAMY	hemaprabhu1806@gmail.com
07-11-2020 10:50	Dr. Nitin Mohite	nmm.civil@coep.ac.in
07-11-2020 10:54	Sitansu Kumar Das	sitansudas_fce@gcekjr.ac.in

07-11-2020 10:56	Puneet Pal Singh Cheema	ppsc390@gmail.com
07-11-2020 10:57	Thanushree M S	thanushree.shree@sjce.ac.in
07-11-2020 11:01	Dr.Vidyapriya V	vidyapriya804@gmail.com
07-11-2020 11:08	Dr. Vishishtta Nagaraj	vishunagraj@sjce.ac.in
07-11-2020 11:08	Sujit kumar pradhan	sujitcivil749@gmail.com
07-11-2020 11:09	NITISH KUMAR	nnitishkumar200@gmail.com
07-11-2020 11:13	Sasmita Sahoo	sasmita.sahoo@gmail.com
07-11-2020 11:15	Devendra Dohare	devendradohare@gmail.com
07-11-2020 11:23	DARSHAN M	darshanm@jssstuniv.in
07-11-2020 11:23	Savitha Ulavi	savitha_ulavi@sjce.ac.in
07-11-2020 11:26	Prathap Reddy Patlolla	prathapreddypatlolla@gmail.com
07-11-2020 11:32	Reshma Jaipal	reshmajaipal@thejusengg.com
07-11-2020 11:34	Abhishek Kumar Choudhary	choudharyab143@gmail.com
07-11-2020 11:40	Dr.Vidyapriya V	vidyapriya804@gmail.com
07-11-2020 12:14	Dr. Neeru	Neeru_dabas2006@yahoo.com
07-11-2020 12:29	Pooja patle	pooja.patle71@gmail.com
07-11-2020 12:49	MOHD ABU BAKR	abubakrjabal@gmail.com
07-11-2020 12:52	Seraj Ahmad	ahmadseraj86@gmail.com

Attendance of Participants (Summary)

Day	No. of Participants
Day 1	71
Day 2	68
Day 3	61
Day 4	62
Day 5	70
Day 6	57

Photographs

Day 1 (November 02, 2020)

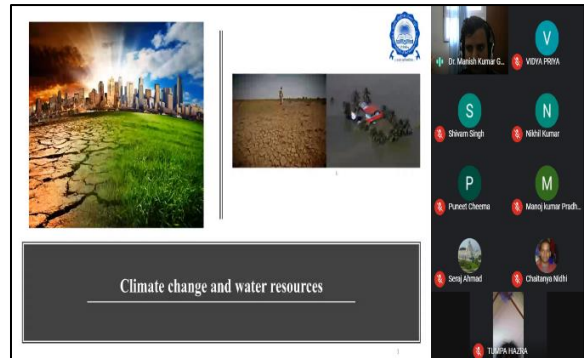
Day 1 (Innaugral Session)



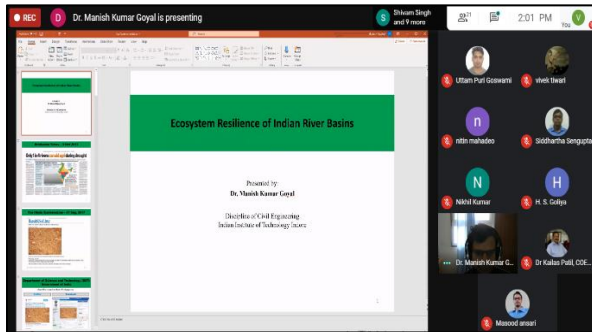
Day 1 (1st Presentation)



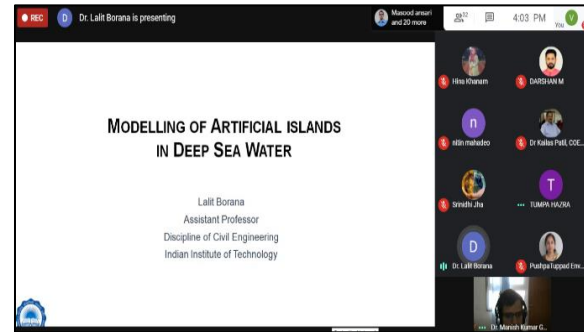
Day 1 (2nd Presentation)



Day 1 (3rd Presentation)



Day 1 (4th Presentation)



Day 2 (November 03, 2020)

Day 2 (1st Presentation)

Identifying adaptation strategies and challenges with stakeholders' perspectives: Adapting water management in Sikkim to climate change

Dr. Manish Kumar Goyal
Associate Professor
IIT Indore
Acknowledgement: Dr. Ashani

Day 2 (2nd Presentation)

Effects of sea and freshwater environment on structural steel

Dr. Abhishek Rajput
Assistant Professor
Department of Civil Engineering
Indian Institute of Technology, India

Day 2 (3rd Presentation)

Land cover Mapping using Google Earth Engine

Saket Dubey and Dr. Manish Kumar Goyal
Indian Institute of Technology Indore

USGS science for a changing world
Google Earth Engine

Day 2 (4th Presentation)

Data, Modelling, and case study

Day 2 (5th Presentation)

Feedback from Land Processes to Indian Monsoon

Amey Pathak, Arjuna Devarani, Sachin Budhale, Tejani Chauhan and Subimal Ghosh
Department of Civil Engineering
Interdisciplinary Program in Climate Studies
IIT Bombay

Day 2 (6th Presentation)

A STUDY ON HYDROLOGIC RESILIENCE TO WARMING SHIFTS IN PENINSULAR INDIA

Sirka, J., Sharma, A., Khan, M., and Goyal, Manish Kumar (2018). Assessment of the impacts of climatic variability and anthropogenic stress on hydrologic resilience to warming shifts in Peninsular India. *Scientific reports*, 8(1), 13833

Day 3 (November 04, 2020)

Day 3 (1st Presentation)

Flood Routing and Runoff Assessment in the Downstream of Upper Teesta River, North Sikkim Himalaya under Changing Climate

Dr. Manish Kumar Goyal
Department of Civil Engineering, IIT Indore

Acknowledgment: Dr. Uttam P Goswami

Day 3 (2nd Presentation)

TEQIP-STC, IIT INDORE
Advances in CE (WRE, EE & CC)
04 November 2020

Urban Flood Mitigation in Changing Climate and Extreme Weather

-Prof. Kapil Gupta
-Dept of Civil Engineering
IIT Bombay
kgupta@iitb.ac.in; profkgupta@gmail.com

Day 3 (3rd Presentation)

Understanding Rivers in the Sky : Atmospheric Rivers

Acknowledgment: Sheam Singh

Day 3 (4th Presentation)

Science-Policy-Practice Interface for Climate & Disaster Resilience

Dr. Anil Kumar Gupta
Professor, Head – ECDRM,
International Cooperation
NIDM, India

Day 3 (5th Presentation)

Hydrological Modelling, and case study

Dr. Manish Kumar Goyal

Day-4 (November 05, 2020)

Day 4 (1st Presentation)

Dr. Manish Kumar Goyal is presenting

9:32 AM

Distribution, Trend, Concurrence, and Evolution of Droughts over River Basins of India

Presented by:
Dr. Manish Kumar Goyal
Associate Professor
Department of Civil Engineering
Indian Institute of Technology Indore

Acknowledgment: Mr. Vikas Prasad

Participants: Dr. Manish Kumar G., Anil Arora, Shyam Singh, Siddhartha Sengupta, Chaitanya Nidhi, Nitesh Datta, Sanku Datta, Dr. Kalish Patel, O.E., Manish Kumar.

Day 4 (2nd Presentation)

Srinidhi Jha is presenting

11:03 AM

Probabilistic evaluation of vegetation drought likelihood and its implications across India

Srinidhi Jha
Roll No: 171204033
Discipline of Civil Engineering
Indian Institute of Technology Indore
Under the supervision of
Dr. Manish Kumar Goyal

Participants: H.S. Gohil and 10 more, Siddhartha Sengupta, Manish Kumar G., Hemalatha Prabhakar, Dr. Manish Kumar G., Sanku Datta, Ms. Anshika Jaiswal, Purant Chetana, Nitesh Datta, Pratik Laddad Etc...

Day 4 (3rd Presentation)

Guru Prakash is presenting

12:02 PM

Damage Detection and Prognosis in Civil Engineering

Dr. Guru Prakash
Department of Civil Engineering
IIT Indore, Indore

Participants: Shyam Singh and 11 more, Guru Prakash, Dr. Manish K., Anil Arora, Hemalatha P., Dr. Prashant, Pratik Laddad, VIDYA PATEL, Chaitanya N., Srinidhi Jha.

Day 4 (4th Presentation)

2:12 PM

Participants: Hemalatha and 14 more.

Day 4 (5th Presentation)

Dr. Manish Kumar Goyal is presenting

2:48 PM

Regional Crop Water & Irrigation Requirements for Different Major Crops in Sikkim Under Changing Climate Scenarios

Participants: Manish Kumar Pra... and 11 more, Manish Kumar G., Dr. Kalish Patel, O.E., Anil Arora, Nitesh Datta, Nitesh Datta, Dr. Manish Kumar G., Anshika Kumar, Saamita Sahoo, S.P. Jaiswal, Start Up.

Day 4 (6th Presentation)

Purant Chetana is presenting

4:06 PM

Sustainable Decentralized Wastewater Treatment

Dr. Purant Chetana
Assistant Professor, Department of Civil Engineering
Guru Nanak Dev Engineering College
(An Autonomous Institute)
Ludhiana, Punjab

Participants: Dr. Manish Kumar G., Pratik Laddad, Anil Arora, Nitesh Datta, Nitesh Datta, Anshika Kumar, Saamita Sahoo, S.P. Jaiswal, Manish Kumar Pra...

Day 4 (7th Presentation)

Dr. Manish Kumar Goyal is presenting

4:35 PM

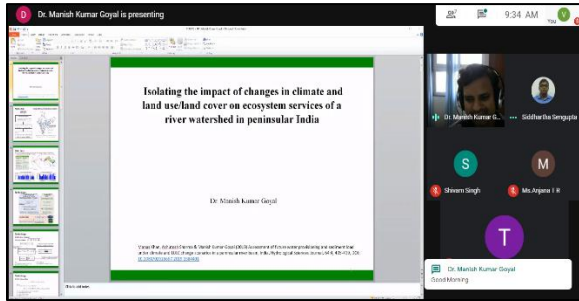
Assessment of Ecological Resilience to Teesta River Basins

Dr. Manish Kumar Goyal
Department of Civil Engineering
Indian Institute of Technology Indore

Participants: Pratik Laddad and 11 more, Purant Chetana, Dr. Manish Kumar G., Anil Arora, Nitesh Datta, Nitesh Datta, Manish Kumar Pra..., Hemalatha Prabhakar, Saamita Sahoo, Start Up.

Day-6 (November 07, 2020)

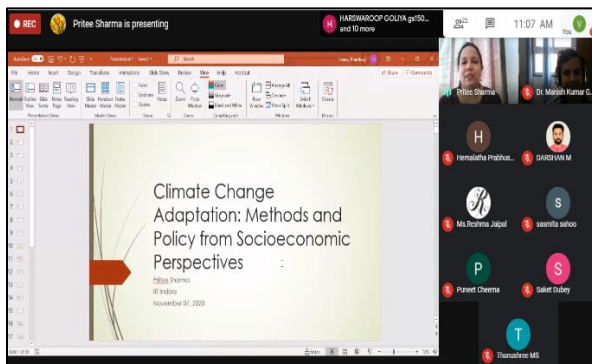
Day 5 (1st Presentation)



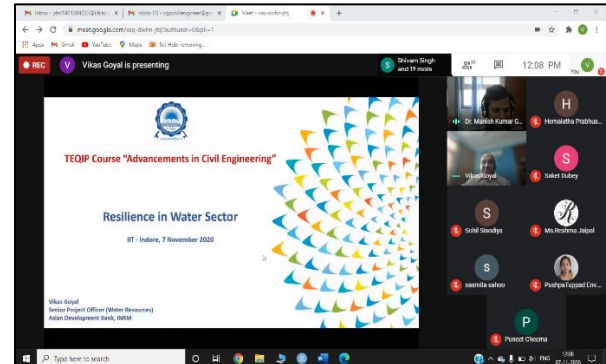
Day 5 (2nd Presentation)



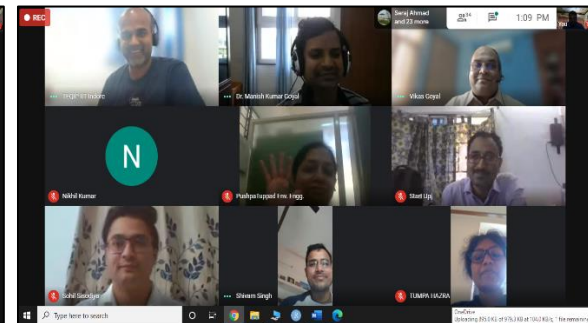
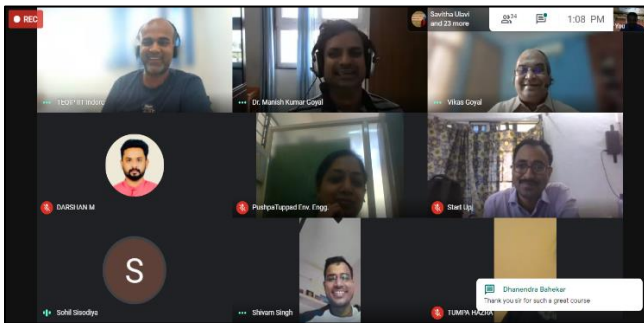
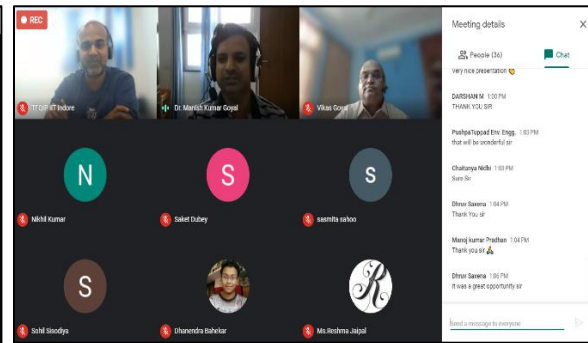
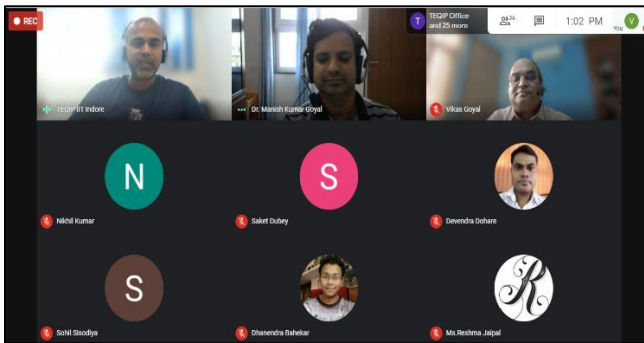
Day 5 (3rd Presentation)



Day 5 (4th Presentation)



Valedictory Session (November 07, 2020)



Feedback of the Participants

Feedback form (Format)

Title of the STC: _____

Dates of the STC: _____

Name of participant (optional):

A. Please rate the following (on a scale of 0-5):

Ques. 1. Academic Contents, organization & Selection of Topics
Comments:

(Useless-0, Innovative-5)

Ques. 2. Overall quality of Lecture Notes/Handouts/Examples:
useful-5)
Comments:

(Routine-0, Interesting and

Ques. 3. Overall quality of Theory Lectures
Comments:

(Poor-0, Excellent-5)

Ques. 4. Have you found the STC useful?

Strongly Yes

Yes

Neutral

No

Strongly No

Ques. 5. Will you recommend this STC to your colleagues?

Strongly Yes

Yes

Neutral

No

Strongly No

Ques. 6. Your overall assessment of the STC:

Waste of time

Visit to exotic location

Career compulsion

Useful

No comments

Ques. 7. Final remarks & suggestions for improvement:

Feedback of the Participants(Anonymous)

Timestamp	Question-1	Question-2	Question-3	Question-4	Question-5	Question-6	Question-7
11-6-2020 10:19:47	Innovative	Excellent	Innovative	Strongly Yes	Yes	Useful	Please organize this type of activity regularly
11-6-2020 10:24:04	Excellent	Excellent	Innovative	Strongly Yes	Strongly Yes	Career compulsion	
11-6-2020 10:26:47	Excellent	Excellent	Excellent	Yes	Yes	Useful	Very informative
11-6-2020 10:42:43	Innovative	Excellent	Innovative	Strongly Yes	Strongly Yes	Useful	More Demo type lectures can be inculcated.
11-6-2020 10:43:27	Excellent	Excellent	Excellent	Strongly Yes	Strongly Yes	Useful	Very useful
11-6-2020 10:44:15	Innovative	Excellent	Innovative	Neutral	Neutral	Career compulsion	more informative
11-6-2020 10:44:44	Excellent	Innovative	Innovative	Neutral	Neutral	Career compulsion	more informative
11-6-2020 10:45:55	Excellent	Excellent	Excellent	Yes	Yes	Useful	The design of the course is very thoughtful.
11-6-2020 10:46:26	Excellent	Excellent	Excellent	Strongly Yes	Strongly Yes	Useful	Very good and well organized event
11-6-2020 10:47:32	Excellent	Excellent	Excellent	Yes	Yes	Useful	The sessions are too lengthy.
11-6-2020 10:48:04	Excellent	Excellent	Excellent	Strongly Yes	Strongly Yes	Career compulsion	More programs
11-6-2020 10:49:08	Excellent	Excellent	Excellent	Yes	Yes	Useful	The sessions are too lengthy.
11-6-2020 10:49:27	Innovative	Excellent	Excellent	Yes	Yes	Useful	It was a great experience to have this type
11-6-2020 10:54:53	Excellent	Excellent	Excellent	Strongly Yes	Strongly Yes	Useful	Excellent sessions
11-6-2020 10:57:20	Excellent	Excellent	Excellent	Yes	Yes	Useful	None
11-6-2020 11:00:04	Excellent	Innovative	Excellent	Strongly Yes	Yes	Useful	The short-term course was well organized.
11-6-2020 11:10:14	Excellent	Excellent	Excellent	Yes	Yes	Career compulsion	Good One
11-6-2020 11:15:10	Excellent	Excellent	Excellent	Yes	Yes	Useful	Good information.

11-6-2020 11:23:20	Excellent	Excellent	Excellent	Strongly Yes	Strongly Yes	Useful	STC was extremely informative and inspiring.
11-6-2020 11:24:33	Innovative	Excellent	Excellent	Strongly Yes	Yes	Useful	excellent STC
11-6-2020 11:26:58	Excellent	Excellent	Excellent	Yes	Yes	Useful	None
11-6-2020 11:28:18	Excellent	Excellent	Excellent	Strongly Yes	Strongly Yes	Useful	None
11-6-2020 11:34:15	Excellent	Excellent	Excellent	Strongly Yes	Strongly Yes	Useful	Thanks & Regards C Nidhi
11-6-2020 11:36:18	Excellent	Excellent	Excellent	Strongly Yes	Strongly Yes	Useful	It was nice and well organised
11-6-2020 11:42:36	Excellent	Excellent	Excellent	Strongly Yes	Strongly Yes	Career compulsion	It was very excellent arrangement by organizing team.
11-6-2020 11:42:37	Excellent	Innovative	Excellent	Strongly Yes	Yes	Useful	None
11-6-2020 11:42:47	Excellent	Excellent	Excellent	Yes	Yes	Useful	None
11-6-2020 11:49:21	Excellent	Excellent	Excellent	Strongly Yes	Strongly Yes	Useful	Very informative and useful.
11-6-2020 12:14:49	Excellent	Excellent	Excellent	Strongly Yes	Strongly Yes	Useful	THANK YOU
11-6-2020 13:20:48	Excellent	Excellent	Excellent	Yes	Yes	Useful	No
11-6-2020 13:30:22	Excellent	Excellent	Excellent	Yes	Yes	Useful	Nil
11-6-2020 14:26:01	Excellent	Innovative	Excellent	Yes	Yes	Useful	thank you for the organizers
11-6-2020 14:45:45	Excellent	Excellent	Innovative	Yes	Yes	Useful	Thank You organizers
11-6-2020 15:17:42	Innovative	Excellent	Excellent	Strongly Yes	Yes	Useful	Have covered all the areas specified in the title of the STC.
11-6-2020 15:25:53	Innovative	Innovative	Any other	Yes	Yes	Useful	it was good and informative.
11-6-2020 15:40:17	Innovative	Innovative	Excellent	Yes	Yes	Useful	Nil
11-6-2020 15:49:19	Excellent	Excellent	Excellent	Strongly Yes	Strongly Yes	Useful	Excellent Programme
11-6-2020	Excellent	Innovative	Excellent	Strongly	Strongly	Useful	A big thanks to Dr. Manish Goyal.

17:35:42				Yes	Yes		
11-6-2020 20:30:54		Excellent	Excellent	Neutral	Yes	Useful	Nil
11-6-2020 21:34:05	Excellent	Excellent	Excellent	Yes	Neutral	Useful	Nil
11-6-2020 22:00:33		Excellent	Excellent	Neutral	Yes	Useful	Nil
11-7-2020 6:27:13	Excellent	Excellent	Innovative	Yes	Yes	Useful	Course material should be given in advance
11-7-2020 8:54:58	Innovative	Excellent	Excellent	Yes	Yes	Career compulsion	Everything was satisfactory.
11-7-2020 9:21:55	Excellent	Excellent	Excellent	Strongly Yes	Strongly Yes	Useful	Please organise this kind of workshop