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September - December, 2021

Message from Director



During last five years, several engineering colleges have been closed down and more are on verge of closing down across our country due to want of qualified faculty members, improper curricula, mismanagement, unemployment and poor instructional methods. It is very often mentioned that our students are not industry ready as they do not possess adequate engineering skills not being exposed to industrial environment. Of course most of engineering teachers are devoid of industrial experiences and do not also keep pace with fast changing scenario in the field of engineering and technology. Hence it is important and essential to train the teachers in proper manner with adequate exposure to industrial environment. In this direction, the entire NITTR system along with AICTE, New Delhi has initiated a National Initiative for Technical Teachers Training (NITTT) which is meant to train technical teachers both for incumbent teacher and senior teachers with more than five years of service. In this program, teachers have to undertake industrial training and a semester-based mentorship during which they will be learning how to teach students in practical ways but also have industrial exposure which will be helpful to take up collaborative work with industry partner. Of course this program will go a long way in implementing the basic ideas of NEP 2020. It must be kept in mind that this NEP 2020 has created

an euphoria in the education sectors which is expected to change the quality skyline of teachers training in India. The faculty induction program as envisaged as part of National Initiative for Technical Teachers Training (NITTT) may not deliver the desired results if the potential teachers during their studentship are not trained enough for entering the noble technical teaching. Hence it is equally important and essential to design and develop systematic long term training program for nurturing high caliber teachers which can change the landscape of teaching technical teachers. In order to groom and train better teachers in technical education sector, it is important to introduce integrated teacher education program specially designed for training of technical teachers with a component of educational research as a part of dissertation. Efforts must be made to create adequate manpower to undertake meaningful research for devising suitable technical education for India. I feel that NITTR Kolkata can take lead role in designing and developing such long term program for technical teacher training instead of just offering traditional short term training program alone

हिरण्मयेन पात्रेण सत्यस्यापिहितं मुखम्।
तत् त्वं पूषन्नपावृणु सत्यधर्माय दृष्टये ॥

The face of Truth is covered with a brilliant golden lid; that do thou remove, O Fosterer, for the law of the Truth, for sight.

Prof. Debi Prasad Mishra
Director, NITTR, Kolkata

Online Learning in Technical Education System during Covid-19

Dr. Sagarika Pal
Associate Professor, EE.

Introduction

The sudden outbreak of the deadly disease called Covid-19 caused by a Corona Virus (SARS-CoV-2) shook the entire world with respect to all aspects of human life. This pandemic situation challenged the education system across the world and forced educators to shift to an online mode instead of face to face learning. Educational institutions such as schools, colleges and universities in India are based only on traditional methods of learning that is face-to-face lectures in a classroom. Many academic institutions that were earlier reluctant to change their traditional pedagogical approach had no option but to shift entirely towards online teaching and learning.

Technical education has some distinct features as compared to non-Technical domains. The students are required to develop design approach by learning theory and basic concepts in the classrooms followed by practical experimentation in the laboratory for psychomotor learning in order to enable themselves to solve real world problems. Thus opportunity for appropriate hands on practice in laboratory must be created associated with distance learning through online mode in technical education.

Pros and Cons of Online Learning

Today, the world is considered as a global village due to the innovation and development in Information Technology (IT) infrastructure. Therefore, it is possible to design online teaching courses where a student located in the far off territory of the world can access world's best Professors. Besides all, the psychological stress due to lockdown and social distancing during this pandemic situation, it is required that the technical students especially the newly admitted students must be engaged in online classes to keep them busy in learning new concepts resulting improved retention rates.

There are a lot of benefits of online learning such as

1. Work from anywhere, at any time.

2. Review of lectures instantly either by rewinding the audio or video.
3. More time to think before sharing ideas
4. Easy Group communication
5. Flexible learning schedule
6. Reduced cost of learning
7. Diversity in selecting teachers of different areas as and when required etc.

Also some disadvantages of online learning are there such as

1. Chances of distraction is high with no faculty around for face-to-face interaction and no classmates who can help. Interaction with teacher using chalk and board along with eye contact (Fig.1) is really motivating for students' learning and this is completely absent in online mode.



Fig. 1. Face to face learning with chalk and board
(<https://www.istockphoto.com/photo/teacher-by-blackboard>)

2. Hidden costs like initial expenses for installing computer and getting a reliable internet connection is high although the cost of a distance education program is usually cheaper.
3. Complicated technology i.e. any malfunctioning of software or hardware can bring an ongoing class to a standstill and interrupt the learning process.
4. Lack of opportunity to have hands on practice within e-classroom.

Lab Experiences for Online Classes

Lab-based courses in technical curriculum typically require specialized equipment and supplies, making them among the most difficult types of courses to transition into an online format. Some laboratory activities may be impossible to fully translate into an online or asynchronous mode but when circumstances make remote instruction mandatory, strategies are

available that may work for some courses. Focus should be on course's learning outcomes, and those outcomes will determine what types of online experiences should be considered, and how adequate those experiences may be. For laboratory experiences that primarily address learning outcomes related to developing students' skill implementing experimental protocols, digital simulations may be accepted to meet those objectives. Websites that provide virtual laboratories in which students may simulate experiments and demonstrations may be considered for skill development.

Moreover, international collaboration among universities (offering similar engineering programs) can be established for access to remote laboratory use where a laboratory facility in a technologically advanced country can be utilized by a student residing in a developing country. The role of universities is two-fold in such scenarios, in the sense that they are required to provide infrastructure, trainings and policy guidelines to all the faculty members about conducting online academic activities and on the other hand, the universities must also be aiming to maintain uniformity and quality standards.

Blended Learning Model

Blended learning (also known as hybrid learning) is a method of teaching that integrates technology and digital media with traditional instructor-led classroom activities, giving students more flexibility to customize their learning experiences.

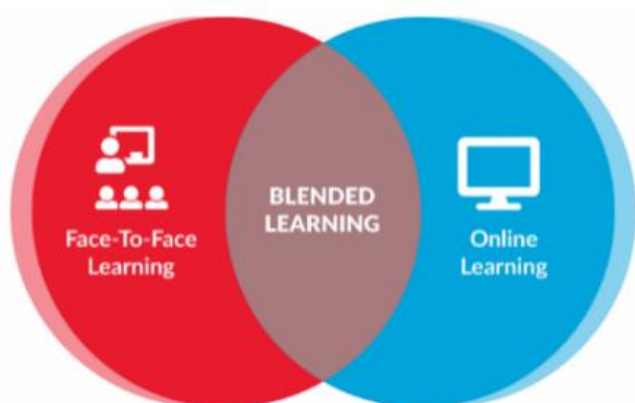


Fig.2 Blended Learning Model

<https://www.odysseyware.com/blog/7-ways-implement-blended-learning-model>

The aim of blended learning is to combine the strengths of both traditional and online learning methods in order to give the learners a more engaging learning experience (Fig. 2). Essentially, through blended learning, online and instructor-led training is complementary and creates an integrated learning environment.

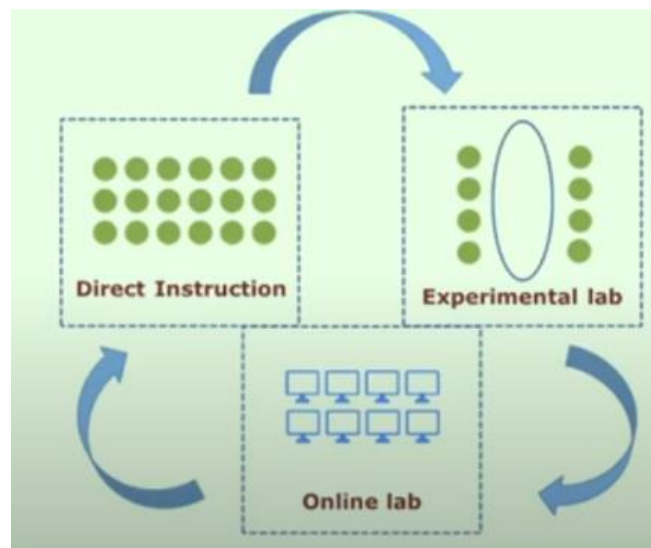


Fig.3 Lab Rotation Model of Blended learning
https://www.youtube.com/watch?v=XwaDBC_ZJuA

Two different categories of blended learning are popular: in one category four different models and in other category six different models of blended learning are there. Among all these models Lab Rotation Model (Fig.3) is very much effective for laboratory based courses in technical education system. In this model students will rotate for direct instruction mode to face to face mode for experimental lab and then again to online lab or virtual kind of lab.

AICTE Policy for Online Education

Currently All India Council for Technical Education (AICTE) also allows Technical Education through a Hybrid Model or blended learning model. As per AICTE approval process guide line, "Blended Learning Mode" means activities of delivering part of classroom learning through distance mode and Laboratory, Practical, Workshop etc. through conventional mode where presence of students at the Institute and giving examination is essential. AICTE now gives approval to conduct Technical Programme at Degree, Post Graduate Degree, diploma and Post Diploma, Post graduate Diploma level in Blended Learning mode and are now meant for only working professionals with certain minimum experiences.

Conclusions

The benefit of online instruction is that all documentation needed for learning will be stored and easily accessible. But the major limitations of the online learning experience is the lack of communication with classmates and teachers, which can be frustrating for some students. That is why Blended Learning is becoming popular today where students can interact

with the teacher, the material, and other students through both physical classroom and online platform. AICTE is also guiding the Institutions properly to conduct the Technical Education through Blended Learning mode which seems to be popular in near future.

References

1. Shivangi Dhawan, Online Learning: A Panacea in the Time of COVID-19 Crisis, Journal of Educational Technology Systems 2020, Vol. 49(1) 5–22.
2. Somayeh Ghaderizefreh, Michael L. Hoover, Student Satisfaction with Online Learning in a Blended Course, International Journal of Digital Society (IJDS), Volume 9, Issue 3, September 2018.

3. <https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning>.

Teachers' Training

Teachers' Training During the period of September - December 2021, a total of 3586 technical teachers have been trained, through various short-term training programmes, broadly in the areas of content updating, management, pedagogy and professional skill development. A total of 96 training programs were conducted for the teachers of polytechnic colleges and engineering colleges all over India. Due to lockdown situation these programmes have been conducted primarily in online mode. Details of the programmes, such as programme title, programme coordinator, date etc. are given below.

List of Training Programmes (September - December 2021)

Sl. No.	Programme Co-ordinator	Prog. Code	Programme Title	From	To
1	Prasanta Sarkar	ICT146	Electricity Rules and Code of Practices	06/09/2021	10/09/2021
2	Rajeev Chatterjee	ICT147	Introduction to Software-Defined Networking (SDN)	06/09/2021	10/09/2021
3	Ranjan Dasgupta and Samir Roy	ICT148	Topics in Algorithms	06/09/2021	10/09/2021
4	Rayapati Subbarao	ICT149	NBA Accreditation for polytechnics	06/09/2021	10/09/2021
5	Samiran Mandal	ICT150	Research Methodology	06/09/2021	10/09/2021
6	Sheela Yadav Rai	ICT151	Renewable Energy Sources and Emerging Technologies	06/09/2021	10/09/2021
7	Soumitra Kumar Mandal	ICT152	Microprocessor & Microcontroller	06/09/2021	10/09/2021
8	Subrata Mondal	ICT153	Induction Training	06/09/2021	10/09/2021
9	Uday Chand Kumar	ICT154	Occupational Health and Safety	06/09/2021	10/09/2021
10	Nirmal Kumar Mandal	ICT156	CAD/CAM	06/09/2021	10/09/2021
11	Jagat Jyoti Mandal	ICT157	Refresher Course in Engineering Mechanics: Principal of Statics	13/09/2021	17/09/2021
12	Sagarika Pal	ICT158	Sensors & Transducers and Signal conditioning	13/09/2021	17/09/2021
13	Subrata Chattopadhyay	ICT159	Power Plant Instrumentation	13/09/2021	17/09/2021
14	Sukanta Kumar Naskar	ICT160	Curriculum Development and Implementation	13/09/2021	17/09/2021
15	Dipankar Bose	ICT161	Student Assessment and Evaluation	20/09/2021	24/09/2021
16	Habiba Hussain	ICT162	Interpersonal Skill Development	20/09/2021	24/09/2021

Sl. No.	Programme Co-ordinator	Prog. Code	Programme Title	From	To
17	Indrajit Saha	ICT163	Technology Enabled Learning	20/09/2021	24/09/2021
18	Santanu Bhanja	ICT164	Advanced Course on Analysis and Design of RC Buildings as per IS 1893 Part 1 2016 and IS 13920 2016 with application of Software	20/09/2021	24/09/2021
19	Sheela Yadav Rai	ICT165	Role of Technical Institutions in Community Development	20/09/2021	24/09/2021
20	Soumitra Kumar Mandal	ICT166	Power Electronics	20/09/2021	24/09/2021
21	Subrata Mondal	ICT167	Development of Laboratory Instruction and Manual	20/09/2021	24/09/2021
22	Sailendra Nath Mandal	ICT168	Drinking Water Purification Technologies	20/09/2021	01/10/2021
23	Chandan Chakraborty	ICT169	Machine Learning with R programming	27/09/2021	01/10/2021
24	Indrajit Saha, Sagarika Pal, Kinsuk Giri & Arpan Kumar Mondal	ICT170	Hybrid Pedagogy	27/09/2021	01/10/2021
25	Rajeev Chatterjee & Ranjan Dasgupta	ICT171	Network Infrastructure and Cloud Security	27/09/2021	01/10/2021
26	Urmila Kar	ICT172	Research Methodology	27/09/2021	01/10/2021
27	Rayapati Subbarao	ICT173	NBA Accreditation for engineering colleges	04/10/2021	08/10/2021
28	Dipankar Bose	ICT174	Fluid Machines	04/10/2021	08/10/2021
29	Habiba Hussain	ICT175	Student Mentorship	04/10/2021	08/10/2021
30	Kinsuk Giri	ICT176	Problem Solving with SCILAB	04/10/2021	08/10/2021
31	Mithu Dey	ICT177	Earthquake Resistant Structure	04/10/2021	08/10/2021
32	Samir Roy	ICT178	Artificial Intelligence	04/10/2021	08/10/2021
33	Sheela Yadav Rai	ICT179	Power Generation from Energy Resources	04/10/2021	08/10/2021
34	Subrata Mondal	ICT180	Waste Water Treatment: Pollution Control and Reuse	04/10/2021	08/10/2021
35	Sukanta Kumar Naskar	ICT181	Induction Training	04/10/2021	08/10/2021
36	Uday Chand Kumar	ICT182	Laboratory Practice on Civil Engineering Materials – Coarse Aggregate and Fine Aggregate	04/10/2021	08/10/2021
37	Nirmal Kumar Mandal	ICT183	Vibration Analysis using MATLAB	04/10/2021	08/10/2021
38	Jagat Jyoti Mandal	ICT185	Introduction to Solid Mechanics	25/10/2021	29/10/2021
39	Mithu Dey	ICT186	Seismic Analysis and Design of RC Structure	25/10/2021	29/10/2021
40	Prasanta Sarkar	ICT187	Engineering Capstone Project	25/10/2021	29/10/2021
41	Rajeev Chatterjee	ICT188	Mobile and Wireless Network	25/10/2021	29/10/2021
42	Sagarika Pal	ICT190	Induction Training	25/10/2021	29/10/2021
43	Santanu Bhanja	ICT191	Analysis and Design of structures using latest version of a Structural Engineering Software	25/10/2021	29/10/2021
44	Soumitra Kumar Mandal	ICT192	MATLAB Applications in Engineering	25/10/2021	29/10/2021

Sl. No.	Programme Co-ordinator	Prog. Code	Programme Title	From	To
45	Sukanta Kumar Naskar	ICT193	Essentials of Strategic Management	25/10/2021	29/10/2021
46	Rayapati Subbarao	SPL03	Effective Engineering Teaching Practices (PVP Siddhartha Institute of Technology, Vijayawada, Andhra Pradesh)	25/10/2021	30/10/2021
47	Indrajit Saha	ICT184	Introduction to Data Security	08/11/2021	12/11/2021
48	Rayapati Subbarao	ICT189	How to Write Thesis and Research paper	08/11/2021	12/11/2021
49	Dipankar Bose	ICT194	Fluid Power with Applications	08/11/2021	12/11/2021
50	Sagarika Pal	ICT195	Application of MATLAB, Control System, Image Processing and Fuzzy Logic Tool box	08/11/2021	12/11/2021
51	Sailendra Nath Mandal	ICT196	Analysis of Drinking Water Quality Parameters	08/11/2021	12/11/2021
52	Sheela Yadav Rai	ICT197	Induction Training	08/11/2021	12/11/2021
53	Soumitra Kumar Mandal	ICT198	Microprocessor: 8085 & 8086	08/11/2021	12/11/2021
54	Subrata Mondal	ICT199	Polymer Composites and Nanocomposites	08/11/2021	12/11/2021
55	Kinsuk Giri	ICT200	Discrete Mathematics	15/11/2021	19/11/2021
56	Mithu Dey	ICT201	Design of steel structures	15/11/2021	19/11/2021
57	Rajeev Chatterjee	ICT202	Advance Programming in C	15/11/2021	19/11/2021
58	Santanu Bhanja	ICT203	Earthquake Resistant Design of RC Buildings as per latest Indian Standards with an Introduction to Shake Table	15/11/2021	19/11/2021
59	Sukanta Kumar Naskar	ICT204	Training and Development	15/11/2021	20/11/2021
60	Nirmal Kumar Mandal	ICT205	Constructional Features and Programming on CNC Machines	15/11/2021	26/11/2021
61	Arpan Kumar Mondal & Ranjan Dasgupta	ICT206	NBA Accreditation Issues	22/11/2021	26/11/2021
62	Habiba Hussain	ICT207	Teaching Skill Development	22/11/2021	26/11/2021
63	Indrajit Saha	ICT208	Fundamentals of Image Processing	22/11/2021	26/11/2021
64	Jagat Jyoti Mandal	ICT209	Design & detailing of Reinforced Concrete Flexure Members	22/11/2021	26/11/2021
65	Prasanta Sarkar	ICT210	Innovation and Startup in higher Education Institutions	22/11/2021	26/11/2021
66	Rayapati Subbarao	ICT211	NBA Accreditation for polytechnics	22/11/2021	26/11/2021
67	Sagarika Pal	ICT212	Industrial automation using PLC, DCS & SCADA	22/11/2021	26/11/2021
68	Sheela Yadav Rai	ICT213	Community Development through Technical Institutes	22/11/2021	26/11/2021
69	Soumitra Kumar Mandal	ICT214	Solar Photovoltaic System	22/11/2021	26/11/2021
70	Subrata Chattopadhyay	ICT215	Medical Instrumentation	22/11/2021	26/11/2021
71	Uday Chand Kumar	ICT216	Rural Development through CDTP / PWD / UBA Scheme	22/11/2021	26/11/2021
72	Rajeev Chatterjee, Samir Roy & Ranjan Dasgupta	ICT217	Introduction to Technology Enabled Learning	29/11/2021	03/12/2021

Sl. No.	Programme Co-ordinator	Prog. Code	Programme Title	From	To
73	Urmila Kar	ICT218	Designing Direct and Indirect Assessment Tools	29/11/2021	03/12/2021
74	Arpan Kumar Mondal	ICT219	ICT Tools for Teaching and Learning	06/12/2021	10/12/2021
75	Rayapati Subbarao	ICT220	Thesis and Research paper writing	06/12/2021	10/12/2021
76	Sheela Yadav Rai	ICT221	Estimating and Costing of Non-conventional Energies	06/12/2021	10/12/2021
77	Soumitra Kumar Mandal	ICT222	PLC and LABVIEW Programming	06/12/2021	10/12/2021
78	Subrata Chattopadhyay	ICT223	Sensors Transducers And Signal Conditioning	06/12/2021	10/12/2021
79	Sukanta Kumar Naskar	ICT224	Managerial Skills for Technical Teachers	06/12/2021	10/12/2021
80	Chandan Chakraborty	ICT226	Data Analytics with R	13/12/2021	17/12/2021
81	Habiba Hussain	ICT227	Designing Question Papers	13/12/2021	17/12/2021
82	Kinsuk Giri	ICT228	Word Processing with LaTeX	13/12/2021	17/12/2021
83	Sailendra Nath Mandal	ICT230	Laboratory Experimentation in Engineering Chemistry	13/12/2021	17/12/2021
84	Santanu Bhanja	ICT231	Philosophy of Limit State Method of RC Design as per Indian Standards and its Limitations	13/12/2021	17/12/2021
85	Uday Chand Kumar	ICT232	Laboratory Practice on Civil Engineering Materials – Concrete	13/12/2021	17/12/2021
86	Nirmal Kumar Mandal	ICT234	Optimization with MATLAB Applications	13/12/2021	17/12/2021
87	Sheela Yadav Rai	ICT235	Renewable Energy Sources and Emerging Technologies	20/12/2021	24/12/2021
88	Soumitra Kumar Mandal	ICT236	Refresher course on Design of Analog & Digital Electronics	20/12/2021	24/12/2021
89	Jagat Jyoti Mandal	ICT237	Laboratory Testing of Soil	20/12/2021	24/12/2021
90	Habiba Hussain	ICTSPL06	Refresher course in Research Methodology	20/12/2021	31/12/2021
91	Indrajit Saha	ICT238	Machine Learning and It's Applications	27/12/2021	31/12/2021
92	Prasanta Sarkar	ICT239	MATLAB and its Applications	27/12/2021	31/12/2021
93	Sagarika Pal	ICT240	Application of MATLAB, Control System, Image Processing and Fuzzy Logic Tool box	27/12/2021	31/12/2021
94	Samir Roy	ICT241	Data Structures and Algorithms	27/12/2021	31/12/2021
95	Santanu Bhanja	ICT242	Design of RC Beams, Columns and Shear Walls as per fundamentals of Limit State Method	27/12/2021	31/12/2021
96	Subrata Mondal	ICT243	Advanced Materials Science and Engineering	27/12/2021	31/12/2021

Forthcoming Programmes (till 31st March, 2022)

Sl. No.	Prog. Code	Programme Title	Programme Co-ordinator	Date: From	Date: To	Programme Objectives
1.	ICT244	Online Pedagogy	Habiba Hussain	03/01/2022	07/01/2022	<ul style="list-style-type: none"> Explain the need for online pedagogy Plan online instruction Incorporate different principles for effective online delivery
2.	ICT245	Introduction to Coding Theory	Rajeev Chatterjee	03/01/2022	07/01/2022	After participating in this program the participants will be able to: <ul style="list-style-type: none"> Explain information, quality of Information, and Information entropy, Demonstrate the working principles and design of AES, DES, Demonstrate various encoding techniques like Arithmetic Encoding, Huffman Encoding, Hamming Code, Gray code, JPEG Encoding Standard, etc., and Demonstrate the applications of coding techniques in the area of Networking and Communication
3.	ICT246	Induction Training	Sagarika Pal	03/01/2022	07/01/2022	After completing the course the participants will be able to <ul style="list-style-type: none"> Identify the roll of a teacher Identify Instructional Objectives Prepare Lesson Plan Assess the learning performance of students Design question paper
4.	ICT247	LABVIEW & MATLAB Applications in Engineering	Soumitra Kumar Mandal	03/01/2022	07/01/2022	After attending the programme, the participants will be able to <ul style="list-style-type: none"> Understand fundamentals of LABVIEW Implement LABVIEW Applications in Engineering Explain the different aspect of MATLAB & Simulink Solve simple problem using MATLAB programming Develop simple model using Simulink Use MATLAB in analysis, design and simulation of Engineering problems
5.	ICT248	Sensor Transducer And Signal Conditioning	Subrata Chattopadhyay	03/01/2022	07/01/2022	After attending the course the participants will be able to <ul style="list-style-type: none"> Differentiate sensors, transducers and actuators Define & classify different sensors, transducers and actuators in industry Experiment with different types of sensors and actuators Use of signal conditioning Explain the concept of Intrinsic safety instruments Apply transducers and actuators in process Control Systems
6.	ICT249	Rural Engineering	Uday Chand Kumar	03/01/2022	07/01/2022	After attending the programme, the participants will be able to <ul style="list-style-type: none"> identify the need of the village people. describe the rain water harvesting. describe the need of sanitation. understand the different scheme of government.
7.	ICT266	NBA Accreditation and SAR preparation	Rayapati Subbarao	03/01/2022	07/01/2022	At the end of the programme, the participants will be to: <ul style="list-style-type: none"> Identify the Impact of NBA Accreditation Prepare Vision, Mission, Program Educational Objectives Prepare Course Outcomes and map with Program Outcomes Learn how to prepare pre-qualifier and SAR. Practice Criteria i to x.
8.	ICTSPL04	Essentials of Strategic Management in Technical Institutions	Sukanta Kumar Naskar	03/01/2022	07/01/2022	
9.	ICTSPL10	Pedagogy Techniques in Engineering Education	Chandan Chakraborty	03/01/2022	14/01/2022	
10.	ICT250	Fusion Welding Processes	Dipankar Bose	10/01/2022	14/01/2022	After attending the programme the participants will be able <ul style="list-style-type: none"> explain various types of fusion welding processes understand working principles of different fusionwelding proceses state characteristics of vairous fusion welding processes Hands on practices on varoius fusion welding proceses
11.	ICT251	Induction Training	Sheela Yadav Rai	10/01/2022	14/01/2022	After attending the programme the participants will be able to <ul style="list-style-type: none"> Formulate the lesson plan Prepare the instructional objectives Identify the principles of evaluation Distinguish between types of evaluation
12.	ICT252	National Education Policy (NEP) 2020 – Reforms in Higher Education	Urmila Kar	10/01/2022	14/01/2022	After attending the programme, participants will be able to: <ul style="list-style-type: none"> explain the guiding principles of NEP 2020. explain new vision for India's higher education system. explain the major reforms identified in NEP 2020.

Sl. No.	Prog. Code	Programme Title	Programme Co-ordinator	Date: From	Date: To	Programme Objectives
						identify the role of teachers of Higher Education Institutes (HEIs) as revealed in NEP 2020.
13.	ICTSPL07	Industrial Automation and LABVIEW	Subrata Chattopadhyay , Sagarika Pal	10/01/2022	21/01/2022	
14.	ICT253	Mathematical Foundation of Computer Science	Kinsuk Giri & Samir Roy	10/01/2022	21/01/2022	<ul style="list-style-type: none"> able to explain mathematical/logical foundation of computations model computational tasks in terms of mathematical formalism apply appropriate mathematical tools to solve computational problem
15.	ICT255	Concept Teaching in Geotechnical Engineering	Jagat Jyoti Mandal	17/01/2022	21/01/2021	After attending the programme the participants will be able to <ul style="list-style-type: none"> Explain origin of soil and basics of clay mineralogy Explain the consistency and determine index properties, consistency limits and particle size distribution of soil Classify soil as per Indian standards specifications Explain the flow through soil and concepts of flownets Explain the concept of compaction determine the compaction characteristics of soil Explain the concept of consolidation of soil and determine the consolidation characteristics of soil Explain and define strength characteristics of soil and determine the strength characteristics of soil Impart acquired knowledge to students in a systematic manner
16.	ICT256	Control System analysis and Design with MATLAB	Prasanta Sarkar	17/01/2022	21/01/2022	After attending the programme, the participants will be able to <ul style="list-style-type: none"> Model physical systems Analyze in time & frequency domain Determine input – output stability Design controller Apply MATLAB Control System Toolbox
17.	ICT257	How to write Thesis and Research paper	Rayapati Subbarao	17/01/2022	21/01/2022	At the end of the programme, the participants will be to: <ul style="list-style-type: none"> Describe the steps involved in writing a thesis. Identify the scope of a thesis. Construct the results in a better way. Derive conclusions from the plots and contours made. Discover the ways of writing a research paper. Communicate a paper in their area of research.
18.	ICT258	Course on Commentary for Code on Ductility Design and Detailing of RC structures subjected to Seismic Forces - IS 13920 2016	Santanu Bhanja	17/01/2022	21/01/2022	After attending the programme, the participants will be able to <ul style="list-style-type: none"> Interpret some of the important clauses of the code in their true letter and spirit Implement the code clauses in a better manner for design and detailing of Earthquake Resistant Structures Understand the fundamentals of Limit State Method and need for ductility design Identify the major design and detailing considerations Apply a standard software for designing structures
19.	ICT259	Induction Training	Sukanta Kumar Naskar	17/01/2022	21/01/2022	After attending the programme participants will be able to: <ul style="list-style-type: none"> Develop concept of curriculum development Manage the classroom effectively Identify instructional objectives Develop lesson plan Identify quality parameters of Technical Education Identify managerial roles of a teacher
20.	ICT260	Probability and Statistics	Chandan Chakraborty	17/01/2022	28/01/2022	At the end of this course the participants will be able to <ul style="list-style-type: none"> Develop in-depth understanding of concept of probability and probability theory for uncertainty analysis in decision making, Explore various standard Probability distributions with its applications, Demonstrate descriptive statistics for data visualization and analysis, Analyse the multivariate data using Correlation and Regression analysis for problem solving, Explain an overview of Inferential Statistics and related issues in class room teaching, Explain the various statistical tables for decision making, Explore their applications in Engineering problems specially in AI/ML/Data Science etc.
21.	ICT261	Machine Learning in Engineering	Nirmal Kumar Mandal	17/01/2022	21/01/2022	After attending the programme the participants will be able to <ul style="list-style-type: none"> Explain supervised and unsupervised learning Apply Multinomial Logistic Regressions, Monte Carlo Simulation (MCS), Markov Chains in engineering problems

Sl. No.	Prog. Code	Programme Title	Programme Co-ordinator	Date: From	Date: To	Programme Objectives
22.	ICTSPL05	Environmental Pollution: Laboratory and Testing	Sailendra Nath Mandal	17/01/2022	28/01/2022	After attending the programme the participants will be able to gain and develop <ul style="list-style-type: none"> Knowledge of conventional and modern sophisticated equipment for testing of Air Pollution, Water Pollution, Noise Pollution, Light Pollution and impact of Human Health. Skill of virtual handling (online live demonstration) of conventional and modern so-phitscated equipment, preparation of laboratory instruction sheets, interpreting experimental results, providng laboratory instruction such as to develop in enquiring attitude among students, preparation related test reports. Attitude of virual hands-on-working (online live demonstration) in the laboratory.
23.	ICT262	Technology Enabled Learning	Indrajit Saha	24/01/2022	28/01/2022	After attending the course the participants will be able to <ul style="list-style-type: none"> describe the National policy regarding Technology in Education apply the current Technology in online Education explain the ethical issues in Technology Enable Learning
24.	ICT263	Engineering Drawing using Software	Mithu Dey	24/01/2022	28/01/2022	After attending the program, participants will be able to <ul style="list-style-type: none"> Know the different commands of the Software Draw the 2D and 3D Appreciate the use of AutoCAD in Engg. And Science Field
25.	ICT264	Power Generation from Energy Resources	Sheela Yadav Rai	24/01/2022	28/01/2022	After attending the programme the participants will be able to <ul style="list-style-type: none"> Understand potential sources of conventional energies for power generation Describe potential sources of non-conventional energies for power generation Understand environmental aspects of power generation Appreciate about various power projects
26.	ICTSPL08	Refresher course on Advanced Pedagogy	Nirmal Kumar Mandal	24/01/2022	04/02/2022	
27.	ICTSPL12	National Education Policy (NEP) 2020 – Reforms in Higher Education (NE State)	Urmila Kar	24/01/2022	28/01/2022	After attending the programme, participants will be able to: <ul style="list-style-type: none"> explain the guiding principles of NEP 2020. explain new vision for India's higher education system. explain the major reforms identified in NEP 2020. identify the role of teachers of Higher Education Institutes (HEIs) as revealed in NEP 2020.
28.	ICT265	Modelling, Analysis and Design of Buildings with Software	Santanu Bhanja	31/01/2022	04/02/2022	After attending the programme, the participants will be able to <ul style="list-style-type: none"> Be acquainted with the basic methodology of software application in structural analysis and design of RC buildings Apply latest IS codal provisions in analysis, design and detailing like IS 456, 1893, 875, 13920 etc. Know the basic features of a universally accepted standard software-ETABS Analyse, Design and Detail real life multi-storeyed buildings
29.	ICTSPL09	Digital Tools for Faculty and Staff	Kinsuk Giri & Arpan Kumar Mondal	02/02/2022	04/02/2022	
30.	ICT267	Non Traditional Machining Processes	Dipankar Bose	07/02/2022	11/02/2022	After attending the programme the participants will be able <ul style="list-style-type: none"> explain various types of non traditional machininh processes understand working principles of different nonn traditional machining processes Hands on practices on varoius fusion welding proceses
31.	ICT268	Pedagogical Communication	Habiba Hussain	07/02/2022	11/02/2022	<ul style="list-style-type: none"> Interpret functions of the different elements in communication cycle Categorise the patterns in classroom communication Minimise barriers in communication Relate feedback & assessment
32.	ICT269	Introduction to PYTHON Programming	Kinsuk Giri	07/02/2022	11/02/2022	<ul style="list-style-type: none"> understand and explain the different aspects of PYTHON apply PYTHON to solve problems use PYTHON for visualizations
33.	ICT270	Control & Automation	Sagarika Pal	07/02/2022	11/02/2022	After completing the course the participant will be able to <ul style="list-style-type: none"> Explain Conventional and complex control techniques for industrial automation Develop PLC programmes for automation Explain SCADA systems for various process control systems Apply PLC and DCS for various control systems
34.	ICT271	Major Environmental Pollutants and Human Health	Sailendra Nath Mandal	07/02/2022	11/02/2022	After attending the programme the participants will be able to acquire – <ul style="list-style-type: none"> knowledge of basic concept of major pollutants of drinking water, Ambient Air, techniques of sampling, preservation, analysis, standards, interpretation of result and management of Environment, impact on human health ,

Sl. No.	Prog. Code	Programme Title	Programme Co-ordinator	Date: From	Date: To	Programme Objectives
						<ul style="list-style-type: none"> skill of handling/ online demonstration of conventional and modern sophisticated equipment, performing experiments, interpreting results, preparing test report, providing laboratory instructions to develop inquiring attitude among the student and evaluation of laboratory performance in related to drinking water analysis, wastewater analysis/ treatment laboratory, attitude of hand-on working in the laboratory/field (Plant Visit)/ online live demonstration
35.	ICT272	Role of Technical Institutions in Community Development	Sheela Yadav Rai	07/02/2022	11/02/2022	After attending the programme the participants will be able to : <ul style="list-style-type: none"> Know various Community Development Schemes Understand Feasibility Report Prepare Planning Report Make the Curricula Estimate the Training cost
36.	ICT273	Sensor Transducer And Signal Conditioning	Subrata Chattopadhyay	07/02/2022	11/02/2022	After attending the course the participants will be able to <ul style="list-style-type: none"> Differentiate sensors, transducers and actuators Define & classify different sensors, transducers and actuators in industry Experiment with different types of sensors and actuators Use of signal conditioning Explain the concept of Intrinsic safety instruments Apply transducers and actuators in process Control Systems
37.	ICT274	Fundamental of Surveying	Uday Chand Kumar	07/02/2022	11/02/2022	After attending this programme, participants would be able to: <ul style="list-style-type: none"> Describe Surveying Practice different types of Surveying (Chain, Plain Table, Compus, Leveling, Theodolote) Solve the different type of problems
38.	ICT275	Introduction to Finite Element method in Engineering	Jagat Jyoti Mandal	07/02/2022	18/02/2022	After attending the programme the participants will be able to <ul style="list-style-type: none"> Explain basic concept of finite element method Develop formulation for simple structural elements (one dimensional, two dimensional and beam elements) by using finite element Explain the concept of shape functions and numerical integration techniques in FEM Solve simple problems by using FEM Use standard software for solving simple structural problems
39.	ICTSPL06	Psychology and Mental Health	Sukanta Kumar Naskar	10/02/2022	12/02/2022	After attending the programme the participants will be able to <ul style="list-style-type: none"> Stress and Factors of Str4esses Coping Strategies of Stress Emotional Intelligence Building Resilience Mindfulness and Wellbeing
40.	ICT276	Complex Engineering Problems (CEP): Role in NBA accreditation process	Arpan Kumar Mondal & Ranjan Dasgupta	14/02/2022	18/02/2022	After participating in this program the participants will be able to: <ul style="list-style-type: none"> Explain the fundamental issues of accreditation as per Washington Accord & NBA guidelines Explain the need of understanding of CEP Explain the role of CO, PO with CEP Measure the CO PO attainment by using Rubrics
41.	ICT277	Management Aspects of Laboratory Classes	Dipankar Bose	14/02/2022	18/02/2022	After attending the programme the participants will be able <ul style="list-style-type: none"> know varoius management issues of conducting laboratory and workshop classes understand the effective techniques of management of classroom , macines/equipment and manpower state different safety aspects
42.	ICT278	Electricity Rules and Code of Practices	Prasanta Sarkar	14/02/2022	18/02/2022	After attending the programme, the participants will be able to <ul style="list-style-type: none"> Familiarize with Indian Electricity Act and National Electric Code Understand fundamental principles for electrical installation Design electrical installation Enforce safety in electrical work
43.	ICT279	Artificial Intelligence	Samir Roy	14/02/2022	18/02/2022	After successful completion of the program, the participants will be able to <ul style="list-style-type: none"> Explain the principles and techniques of AI Apply the techniques of AI to solve complex problems Develop AI applications for real-life problems
44.	ICTSPL15	NBA Accreditation	Rayapati Subbarao	14/02/2022	18/02/2022	
45.	ICTSPL13	Values and Ethics for Professionals	Mithu Dey	16/02/2022	18/02/2022	

Sl. No.	Prog. Code	Programme Title	Programme Co-ordinator	Date: From	Date: To	Programme Objectives
46.	ICT280	Machine Learning with Python	Chandan Chakraborty & Kinsuk Giri	21/02/2022	25/02/2022	After attending this course, the participants will be accomplished with <ul style="list-style-type: none"> The notion of Machine Learning and its impact on future employment Overview of Python programming Exposure of supervised and unsupervised ML techniques Hands-on-practice of ML algorithms implementation using Python Explore for problem solving.
47.	ICT281	Fundamentals to Data Security	Indrajit Saha	21/02/2022	25/02/2022	After attending the program, the participants will be able to <ul style="list-style-type: none"> describe the fundamentals of Data Security demonstrate how to maintain the privacy of computer data explain network security in classroom
48.	ICT282	Preview of Science and Technology in Ancient India	Nirmal Kumar Mandal & Santanu Bhanja	21/02/2022	25/02/2022	After attending the programme, the participants will be able to <ul style="list-style-type: none"> Explore ancient Indian Science, Technology and Engineering with special emphasis on Civil and Mechanical Engineering Explain ancient Indian knowledge system Introduce the basic features of ancient technology Explain how even with limited knowledge the application of basic science in technology resulted in wonders
49.	ICT283	Estimating & Costing of Non-conventional Energies	Sheela Yadav Rai	21/02/2022	25/02/2022	After attending the programme the participants will be able to : <ul style="list-style-type: none"> Describe various type of Non-conventional Energies Sources Understand the scope of Solar energy, Solar Thermal Conversion, Solar Collector, Wind Energy Estimating & costing of various energies
50.	ICT284	Assessment and Evaluation under Outcome Based Education	Urmila Kar	21/02/2022	25/02/2022	After attending the programme, participants will be able to: <ul style="list-style-type: none"> Identify the features of Outcome Based Education (OBE) identify features of learning-teaching and assessment system under OBE decide assessment strategies, methods and tools based on types and purposes of Assessment and Evaluation design direct and indirect assessment tools under OBE.
51.	ICTSPL11	Thesis and Research Paper Writing	Rayapati Subbarao	21/02/2022	25/02/2022	
52.	ICTSPL14	Refresher course on MATLAB and LABVIEW Applications in Engineering	Sagarika Pal	21/02/2022	25/02/2022	
53.	ICT285	Effective Teaching	Habiba Hussain	28/02/2022	04/03/2022	<ul style="list-style-type: none"> Characterise effective teaching Identify essential parameters for effective teaching Practise few active learning strategies Develop scoring scale for teaching effectiveness
54.	ICT254	Complex Engineering Problems (CEP) and Life Long Learning (LLL): Role in NBA accreditation process	Arpan Kumar Mondal & Ranjan Dasgupta	28/02/2022	04/03/2022	After participating in this program the participants will be able to: <ul style="list-style-type: none"> Explain the fundamental issues of accreditation as per Washington Accord & NBA guidelines Explain the need of understanding of CEP Explain the role of CO, PO with CEP Explain the need of Lifelong Learning
55.	ICT286	NBA Accreditation for polytechnics and engineering colleges	Rayapati Subbarao	07/03/2022	11/03/2022	At the end of the programme, the participants will be to: <ul style="list-style-type: none"> Identify the Impact of NBA Accreditation Prepare Vision, Mission, Program Educational Objectives Prepare Course Outcomes and map with Program Outcomes Learn how to prepare pre-qualifier and SAR. Practice Criteria i to x.
56.	ICT287	Advanced Welding Processes	Arpan Kumar Mondal	07/03/2022	11/03/2022	After attending the programme the participants will be able to <ul style="list-style-type: none"> Explain the principles of advanced welding processes. Perform independently various advanced welding processes. Understand the physics of welding
57.	ICT288	Managing Aspects of Laboratory Classes	Dipankar Bose	07/03/2022	11/03/2022	After attending the programme the participants will be able <ul style="list-style-type: none"> know various management issues of conducting laboratory and workshop classes understand the effective techniques of management of classroom, machines/equipment and manpower state different safety aspects
58.	ICT289	Course on Vibration Analysis and its Application in Engineering Design	Nirmal Kumar Mandal & Santanu Bhanja	07/03/2022	11/03/2022	After attending the course, the participants will be able to <ul style="list-style-type: none"> Understand different types of vibrations Understand the importance of vibration analysis in Mechanical and Civil Engineering

Sl. No.	Prog. Code	Programme Title	Programme Co-ordinator	Date: From	Date: To	Programme Objectives
						<ul style="list-style-type: none"> Understand the application of vibration analysis in design of machines Identify the major design and detailing considerations of structures subjected to vibrations
59.	ICT290	Community Development through Technical Institutes	Sheela Yadav Rai	07/03/2022	11/03/2022	After attending the programme the participants will be able to : <ul style="list-style-type: none"> Know various Community Development Schemes Understand Feasibility Report Prepare Reports Make linkages with organisations
60.	ICT291	Computer Aided Instruction In Teaching Learning Process	Subrata Chattopadhyay	07/03/2022	11/03/2022	After attending the course the participants will be able to <ul style="list-style-type: none"> Understand the utility of instructional media Know the types of instructional media and its advantages Familiar with the computer to be used as instructional media and its advantages and limitations Understand the courseware Classify the Different types of courseware Application of Computer assisted instruction Know the features of CAI Explanation of different types of CAI A model class with CAI
61.	ICT292	Laboratory Practice on Civil Engineering Materials – NDT / SDT	Uday Chand Kumar	07/03/2022	11/03/2022	After attending the programme the participants will be able to <ul style="list-style-type: none"> Explain basic concepts on laboratory tests of NDT / SDT Guide students in conducting different laboratory experiments for determination of various parameters. Demonstrate different tests on NDT / SDT.
62.	ICT293	Quality Assurance through Accreditation (NBA Guidelines)	Urmila Kar	14/03/2022	18/03/2022	After attending the programme, participants will be able to: <ul style="list-style-type: none"> identify quality issues of Technical Education System explain the need for and features of Outcome Based Education (OBE) justify the requirement of Outcome Based Accreditation (OBA) identify parameters for OBA explain the process of preparing self-assessment report (SAR) for Accreditation by NBA
63.	ICT294	Professional Values and Ethics	Mithu Dey	14/03/2022	18/03/2022	After attending the program, participants will be able to <ul style="list-style-type: none"> To understand the moral values that ought to guide the engineering profession To create an awareness on professional Ethics and Human Values. Resolve the moral issues in the profession develop a set of beliefs, attitudes, and habits that professional should display regarding morality.
64.	ICT295	Engineering Capstone Project	Prasanta Sarkar	14/03/2022	18/03/2022	After attending the programme, the participants will be able to <ul style="list-style-type: none"> Form Capstone Project Team Identify Capstone Project topic Prepare Capstone Project proposal Develop Capstone Project Assess Capstone Project
65.	ICT296	HPC and Cloud Computing	Ranjan Dasgupta & Kinsuk Giri	14/03/2022	18/03/2022	<ul style="list-style-type: none"> get exposure in different hardware components of modern computer get exposure in the limitation of modern computer in context of high performance get exposure in HPC and Cloud Computing
66.	ICT297	Object Oriented Design & Programming in C++	Rajeev Chatterjee & Samir Roy	14/03/2022	18/03/2022	After successful completion of the program, the participants will be able to <ul style="list-style-type: none"> Create an Object Oriented Model of a software, Write a Program in C++ to solve a computational problem Compile, debug and execute a program in C++ Apply objects, classes, inheritance, polymorphism etc. to implement object oriented programming.
67.	ICT298	Environmental Pollution and Protective Measures	Sailendra Nath Mandal	14/03/2022	18/03/2022	After attending the programme the participants will be able to gain and develop <ul style="list-style-type: none"> knowledge of basic concept of Air pollution, Water pollution, Noise pollution, Light pollution and impact on human health, protective measures skill of handling/ online demonstration of conventional and modern sophisticated equipment, preparation of laboratory instruction sheets, interpreting experimental results, providing laboratory instruction such as to develop in enquiring attitude among students, preparing related test reports,

Sl. No.	Prog. Code	Programme Title	Programme Co-ordinator	Date: From	Date: To	Programme Objectives
						attitude of hands-on-working in the laboratory/field(Plant Visit)/online live demonstration
68.	ICT299	MATLAB in Mechanical Engineering Applications	Nirmal Kumar Mandal	21/03/2022	25/03/2022	After attending the programme the participants will be able to <ul style="list-style-type: none"> Use graphics with MATLAB Apply MATLAB in statics and dynamic
69.	ICT300	Pattern Recognition: Theory & Applications	Chandan Chakraborty	21/03/2022	25/03/2022	After completion of this course the participants will be able to <ul style="list-style-type: none"> Understand the overview of pattern recognition system with examples Explain feature space, feature selection and dimensionality reduction Demonstrate supervised pattern classification (Bayesian, SVM, FLDA etc.) methods and its applications in class room teaching / practicing Explain unsupervised pattern classification tools (Clustering) Design relevant projects for hands on experience towards problem solving
70.	ICT301	Leadership in Academia	Habiba Hussain	21/03/2022	25/03/2022	<ul style="list-style-type: none"> Expalin academic leadership Classify leadership styles Build learning teams
71.	ICT302	Renewable Energy Sources and Emerging Technologies	Sheela Yadav Rai	21/03/2022	25/03/2022	After attending the programme the participants will be able to: <ul style="list-style-type: none"> Understand Energy Sources and their utilization Explain Environmental aspects of electric energies generation Understand the scope of Solar Thermal Conversion and Solar Photovoltaic system Describe about wind energy, Geothermal energy and Biomass Apply Non-conventional energies through various agencies viz.WBREDA
72.	ICT303	Fundamental and Applications of Nanomaterials	Subrata Mondal	21/03/2022	25/03/2022	After attending this program, participants would be able to: <ul style="list-style-type: none"> explore the concept of nanotechnology; describe the fundamental of nanoscale materials' properties; identify various carbon based nanomaterials; describe applications of nanomaterials in various fields; explain the nano toxicology and nano safety etc.
73.	ICT304	HRD through Training and Development	Sukanta Kumar Naskar	21/03/2022	25/03/2022	After attending the programme, participants will be able to: <ul style="list-style-type: none"> Understand the components of HRD Identify the stages for conducting a training programme Design a training programme Apply differt techniques for conducting a training programme Evaluate effectively outcome of a traing programme
74.	ICT305	Hybrid Machining	Dipankar Bose	21/03/2022	25/03/2022	After attending the programme the participants will be able <ul style="list-style-type: none"> know different types of hybrid machining processes undertand working principles of various hybrid machining processes state characteristics of difeerent hybrid machining processes
75.	ICT306	Geotechnical Aspects of Pile Foundations	Jagat Jyoti Mandal	21/03/2022	25/03/2022	After attending the programme the participants will be able to <ul style="list-style-type: none"> Explain the basic principles of determination of pile capacity & settlement of single piles in different types of soil deposits Determine lateral load capacity of piles in different types of soil deposits Determine group capacity of piles Determine settlement of pile groups in different types of soil deposits Use the recommendations of Indian standard for for design of pile foundations Teach the related topics in more efficient manner
76.	ICT307	NBA Accreditation Issues	Arpan Kumar Mondal & Ranjan Dasgupta	28/03/2022	01/04/2022	After successful completion of the program, the participants will be able to <ul style="list-style-type: none"> Explain the role of Washington Accord (WA) in Indian context explain the accreditation process as per NBA guideline get exposure on mission, vision, PSO, PO, CO Fill up SAR as per requirement
77.	ICT233	Active Learning under Engineering Education	Urmila Kar	28/03/2022	01/04/2022	After attending the programme, participants will be able to: <ul style="list-style-type: none"> identify features of learning-teaching system under engineering education explain the need for active learning analyse the learning styles of engineering students identify innovative approaches for active learning illustrate the features of Problem Based Learning and Project Based Learning identify the way to incorporate active learning and life-long learning into engineering curricula

Special Training Programmes Conducted

- **Dr. S. K. Naskar** coordinated AICTE ATAL FDP on *Strategic Management Issues in Technical Institutions* during 27-31 December 2021
- **Dr. Habiba Hussain** conducted a two-week Refresher programme on *Research Methodology* during 20th to 31st December 2021
- Civil Engineering Department organized workshop titled "*Critical Review Of Aicte Model Diploma Curriculum [Civil Engineering]*" on 11.09.21., jointly coordinated by **Prof. J. J. Mandal & Prof. U. C. Kumar**. Sixty one (61) participants attended the workshop. Representatives of almost all the NE states, West Bengal, Bihar, Rajasthan, Odisha actively took part in the workshop. Invited speakers from West Bengal, Bihar, Odisha, and Assam had provided their valuable inputs on the theme of the workshop.
- Civil Engineering Department organized 5-Days ONLINE ATAL AICTE FDP on "*Waste Technology*". The sponsored workshop was conducted from 25th to 29th October 2021 in which 148 participants from different parts of the country participated. The FDP was coordinated by **Prof. S. N. Mandal**.
- The Department of Mechanical Engineering has successfully conducted one week FDP (13.01.2022 to 17.01.2022) on "*Product Design*" sponsored by AICTE Training and Learning (ATAL). **Professor Dipankar Bose** was the Coordinator of the programme.
- **Dr. Rayapati Subbarao** conducted AICTE online STTP on *Effective Engineering Teaching Practices*; Phase-IV successfully for PVP Siddhartha Institute of Technology, Vijayawada, Andhra Pradesh, from 25th-30th Oct 2021.

New MOOCs Developed

The need for well qualified engineers / professionals is extremely important and critical towards holistic development of the future students. National Initiative for Technical Teachers Training (NITTT) encompasses senior teachers with service more than 05 years to undergo online higher modules which are recently launched by Hon'ble Secretary, Ministry of Education. In this context, it is to be mentioned that NITTTR, Kolkata has designed and developed following four modules for promoting quality of technical education in the country:

1. Module 9: Essentials of Pedagogy -I
2. Module 10: Essentials of Pedagogy -II
3. Higher Module (HM) 07 : Data Analytics

4. Higher Module (HM) 11: Institutional Assessment

M9 (Essentials of Pedagogy I): This is a 40 hours, 3 credits course, coordinated by Dr. Urmila Kar and contributed by Dr. Sukanta Kumar Naskar, Dr. Chandan Chakraborty, Dr. Habiba Hussain and Ms. Mithu De. The complete package includes 44 number of video lectures and related e-content with thinking exercises.

M10 (Essentials of Pedagogy II) It is a 40 hours, 3 credits course, jointly coordinated by Dr. Sukanta Kumar Naskar and Dr. Samir Roy. The entire module consists of 43 number of video lectures and related e-contents. The videos and related e-contents were contributed by Dr. Urmila Kar, Dr. Habiba Hussain, Dr. Samiran Mandal, Dr. Sukanta Kumar Naskar, Dr. Samir Roy, Dr. Sagarika Pal, Dr. Ranjan Dasgupta and Dr. Indrajit Saha.

HM07 (Data Analytics): Education and training are progressively taking place on digital environments. As a result, these environments are generating unstructured amount of interaction and behavioral data that can be used to design better learning and teaching models for teaching, learning and assessment. The main objective of this module is to use different kind of methods from data analytics to identify unique patterns from educational data. This module is a 2 credits 20 hours course consisting of 16 videos and corresponding e-contents. Dr. Chandan Chakraborty and Dr. Samir Roy jointly coordinated this module. They were the main contributors in the video lectures as well as e-content development.

HM11 (Institutional Assessment): This course has been designed to enable the faculty members to develop parameters for institute review, prepare for review process, mentor junior colleagues on implementing the outcomes of institute review and conduct peer review of other institutes. This is 2 credits course is coordinated by Dr. Urmila Kar and Dr. Debi Prasad Mishra and the learning effort required by the teachers is 20 hours, which includes studying the e-content and related 23 videos, completing activities and assignments.

SWAYAM MOOC Courses

Course Name: Academic and Research Report writing
Coordinators: Dr Samir Roy, Dr Rayapati Subbarao & Dr Kinsuk Giri

Category : Teacher Education Learners

Enrolled : 10,563

This is an AICTE approved FDP course

Start Date: 30th July 2021, End Date: 31st October 2021

Trainings Attended

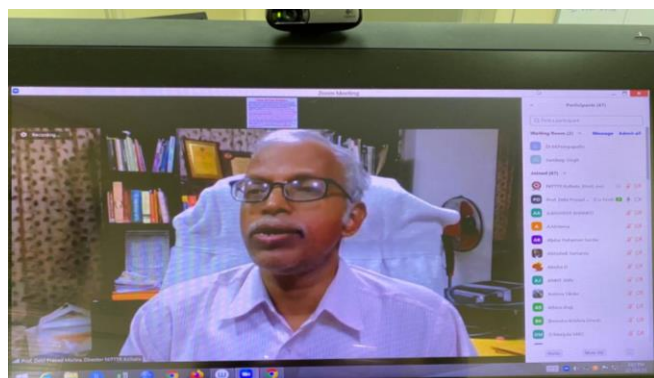
Dr. S. K. Naskar attended online skill development programme on recent advancements in materials and digital manufacturing conducted by Faculty of Engineering and Technology (FEAT) department of Mechanical Engineering of SGT University, Gurgaon during 509/10/21 under Associations of Engineers and Technocrats (AET)

Workshop / Seminars

AICTE Sponsored ATAL FDP entitled 'Machine Learning with R Programming'

(Coordinator: Prof. Chandan Chakraborty, Dept. of Computer Science & Engg.)

Dept. of Computer Science and Engineering of NITTTR Kolkata has organized an online 5-days ATAL-FDP entitled 'Machine Learning with R Programming' sponsored by AICTE during 25th to 29th October 2021. The online inauguration of the programme was graced by the Chief Guest Mr. Prashant Javkar (Regional Manufacturing Business Manager at Ford Motor Company, Canton Michigan, USA), Guest of Honor Prof. Anil D. Sahasrabudhe (Chairman, AICTE), Dr Amit Dutta (Deputy Director, ATAL Academy, AICTE) and Smt. Mamta R Agarwal (Advisor-I, AICTE) dated 25th October 2021. Also, the faculty members of NITTTR Kolkata, Directors of different academies, AICTE official, coordinators and participants were present during the program. Smt. Mamta R Agarwal (Advisor-I, AICTE) welcomed the participants and addressed the virtual gathering about the ATAL FDP and its successful progress for online training. Mr Javkar gave an inaugural address highlighting the importance of artificial intelligence in present and future times. Prof. Sahasrabudhe, Chairman of AICTE, delivered his address about the various initiatives taken AICTE during this pandemic period. Dr Amit Dutta gave vote of thanks to all. In the programme, 140 participants participated in the programme across the country.



Eminent speakers: Prof. Ashish Ghosh (ISI Kolkata), Prof. Pabitra Mitra (IIT Kharagpur), Prof. Debi Prasad Mishra (Director, NITTTR Kolkata), Prof Samir Roy (Head-CSE, NITTTR Kolkata), Prof. Mohuya Chakraborty (IEM Kolkata), Prof. Chandan Chakraborty (CSE, NITTTR Kolkata), Prof. Indrajit Saha (CSE, NITTTR Kolkata), Prof. Kinsuk Giri (CSE, NITTTR Kolkata) have delivered their lectures. In fact, online assessment was conducted via Google Form and participants have successfully completed.



The 5-day programme ended with a valedictory function dated on 29th October 2021 where Prof. Samir Roy, Head CSE, NITTTR Kolkata has graced the session and Prof. Chandan Chakraborty, coordinator of the programme concluded it with feedback of the participants.

Report of the 2-day national conference (held on 11th & 12th November 2021)

A two-day National Conference on Engineering Education was held on the 11th & 12th November 2021. The conference was inaugurated by the Honourable Minister of State for Education, GOI, Dr. Subhas Sarkar. The Union Minister of State for Education, Dr Subhas Sarkar had pointed out that in the present situation, though it has become unavoidable, teachers can never be replaced by technology in teaching-learning. While inaugurating the two-day national conference on Engineering Education (NCEE 2021) at National Institute of Technical Teachers' Training & Research, Kolkata, to commemorate the birth anniversary of the first Education Minister of independent India, Dr Maulana Abul Kalam Azad, Dr Sarkar stated that the primary objective of the Institute is to provide in-service training to technical teachers and praised the active involvement in upgrading the quality of teaching techniques in general, particularly the service it is providing to North East region of the country. He also pointed out the tremendous expansion and rapid changes in Engineering Education in the last decade. Dr Sarkar felt that NCEE 2021 is going to address the various tethering issues in technical education.

Prof. Amitava Ghosh, Ex-Director, IIT Kharagpur, Honorary Scientist of the Indian National Science Academy, New Delhi and Honorary Distinguished Professor at Indian Institute of Engineering Science Technology (IIEST), Shibpur, was the Guest of Honour. Prof. Amitava Ghosh spoke about various important issues, which one expected to be addressed in Engineering Education. He also acknowledged the immense contribution of NITTTR, Kolkata, especially in the field of technical education.

The session started with a brief introduction by Dr. Habiba Hussain, the Coordinator of the Conference, outlining the aims and objectives of the conference. Prof. Debi Prasad Mishra, Director of the Institute and Chairman of the conference and Shri Harshbardhan Neotia, Chairman, BOG, NITTTR-Kolkata, welcomed the Chief Guest Dr. Subhas Sarkar, Prof. Amitava Ghosh and Dr. D. D. Mishra, keynote speaker, ex- Chairman BoG, IIT Dhanbad, the delegates and the august gathering in the inaugural session.



In his address Prof. D. P. Mishra, highlighted the major activities of NITTTR, Kolkata including some collaborative activities with CPSC Manila, UNESCO and UNEVOC. Shri Neotia stressed on the importance of interdisciplinary curricula, shifting from teacher centric to student centric education in the teaching learning process under the present day's context.



In the two days of the conference, there were paper presentations on different themes and subthemes of the conference, mainly highlighting the multifarious

challenges being faced by Engineering Education, and arriving at plausible solutions. Thus, the conference had been successful in bringing together all the stakeholders, policy-makers, educationists and researchers on a common platform to address the important issues and formulate strategies to address them to bring it as per global scenario.

List of Talks Delivered by Prof. Debi Prasad Mishra, Director, NITTTR, Kolkata

A. In programmes organized by NITTTR, Kolkata

1. Celebration of Teachers' day on 5th Sept 2021 from 11.30 am to 12.30 pm organized by NITTTR, Kolkata, Dr. S. Chattopadhyay, Dr. R. Subbarao
2. Celebration of International literacy Day 2021, on 8th Sept 2021 at 3:00 pm organized by NITTTR, Kolkata, Dr. U. C. Kumar and Mr. Avijit Kundu
3. ICT Based Workshop on Critical Review of AICTE Diploma Model Curriculum of Civil Engineering on 11th September 2021 at 10:00 AM organized by NITTTR, Kolkata, Prof. U. C. Kumar and Prof. J. J. Mandal
4. Gandhi Jayanti and Shastri Jayanti on 2nd October, 2021 organized by NITTTR, Kolkata
5. AICTE-ATAL Faculty Development Programme on Machine Learning with R Programming on 25th to 29th October, 2021 organized by NITTTR, Kolkata, Prof. Chandan Chakraborty
6. ATAL AICTE Online Faculty Development Programme on Waste Technology on 25th to 29th October 2021 organized by NITTTR, Kolkata, Prof. S. N. Mandal
7. 2-day National Conference on Engineering Education (NCEE 2021) scheduled to be held in virtual mode on the 11th & 12th of November 2021, organized by NITTTR, Kolkata, Dr. Habiba Hussain
8. Use of Technology in Education 13th November, 2021 organized by NITTTR, Kolkata and GL Bajaj Institute of Technology & Management, Gr. Noida
9. Observation of Cyber Security Awareness Month, 2021 on 30th November, 2021 organized by NITTTR, Kolkata, Dr. I. Saha and Mr. Dipak Gupta
10. AICTE-ATAL Faculty Development Programme on Product Design from 13th December to 17th December, 2021, organized by NITTTR, Kolkata, Prof. D. Bose
11. AICTE Sponsored 5 day ATAL Faculty Development Programme on Strategic Management Issues In Technical Institutions on 27th to 31st December,

2021, organized by NITTTR, Kolkata, Dr. S. K. Naskar

B. In programmes organized by other institutions

12. Personality Development for Youth on 14th September, 2021
13. World Ozone Day on 16th September, 2021 organized by Dept. of Applied Sciences and Humanities.
14. National Webinar on Water Conservation-Reviving Ancient India Practices on 29th September, 2021
15. National Webinar on Modern Health Challenges and Yoga Therapy on 3rd October 2021
16. National Webinar on Modern Health Challenges and Yoga Therapy on 24th October 2021
17. Webinar on Use of Technology in Education on 13th November, 2021, Jointly organized by G L Bajaj Institute of Technology & Management. Gr. Noida and National Institute of Technical Teachers' Training and Research, Kolkata.
18. Webinar on Career Counselling on 14th November, 2021 organized by The Odisha State Bharat Scouts & Guides

Invited Lectures by Faculty Members

- **Dr. S. K. Naskar** delivered invited lecture for AICTE FDP on Effective Engineering Practices Phae-IV organized by department of Civil engineering of PPS Institute of technology, Vijaywada, Andhra Prades during 29.1.21
- **Dr. S. K. Naskar** took two invited sessions for the ACTE ATAL FDP on Product Design conducted by the department of Mechanical engineering, NITTTR, Kolkata during 13-17 December 2021
- **Dr. S. K. Naskar** delivered invited lecture for the ISTE-AICTE Induction/ Refresher course on Introduction to Hybrid and Electric Vehicle Technology conducted by MCKV, Kolkata during 29.12.21.
- **Dr. Habiba Hussain** delivered an invited talk on 7th September 2021 in an Online FDP organised by St. Thomas' College of Engineering and Technology, Kolkata, W. B.
- **Dr. Habiba Hussain** delivered an invited talk on 27th September 2021 in an Online Refresher Course on ICT for Teaching-Learning and Research in Higher Education organised by UGC-Human Resource Development Centre, Guru Ghasidas Vishwavidyalaya (Central University), Bilaspur, C. G.
- **Dr. Habiba Hussain** has delivered invited lectures in the FDP on Designing of Question Paper and Efficient Evaluation Methodology, organized by Academic Success Centre, GLA University, Mathura during 15th to 19th November 2021.
- **Dr. Indrajit Saha** delivered an invited talk on "Machine Learning in Bioinformatics", on 26th October, 2021, in AICTE Training And Learning (ATAL) Academy Online Elementary FDP on "Machine Learning with R Programming" from 25th to 29th October, 2021, organized by National Institute of Technical Teachers' Training and Research Kolkata
- **Dr. Indrajit Saha** delivered an invited talk on "Fundamentals of Machine Learning", on 23rd November, 2021, in an online Faculty Development Program on "Artificial Intelligence and Machine Learning", organized by Department of Electronics & Communication Engineering, Heritage Institute of Technology, Kolkata from 22nd to 24th November, 2021.
- **Professor Dipankar Bose** of ME Department has acted as Resource Person and delivered lecture on Cross over Processes-Hybrid Machining for 5 days ATAL FDP on Recent Advancement in Manufacturing Processes (RAMP-2021) from 27-31st December, 2021 organized by Veer Surendra Sai University of Technology, Burla, Sambalpur, Odisha.
- **Dr. Arpan Kumar Mondal** of ME Department has acted as Resource Person and delivered two lectures on Design for Manufacture and Assembly (DMFA) and Design for Environment (DFE) and Physical Models and Experimentation for 5 days ATAL FDP on Product Design from 13-17th December, 2021 organized by the Department of Mechanical Engineering
- **Professor Dipankar Bose** of ME Department has acted as Resource Person and delivered lecture on Overview of Training and Development for 5 days ATAL FDP on Strategic Management Issues in Technical Institutions from 27-31st December, 2021 organized by Department of Education and Management of NITTTR, Kolkata.
- **Dr. Arpan Kumar Mondal** of ME Department has acted as Resource Person and delivered two lectures on Quality in Technical Education and Problem Solving and Decision Making: an overview for 5 days ATAL FDP on Strategic Management Issues in Technical Institutions from 27-31st December, 2021 organized by Department of Education and Management of NITTTR, Kolkata.
- **Dr. Rayapati Subba Rao** of ME Department has acted as Resource Person and delivered lecture on Accreditation in Education for 5 days ATAL FDP on Strategic Management Issues in Technical

Institutions from 27-31th December, 2021 organized by Department of Education and Management of NITTTR, Kolkata.

- **Dr. Kinsuk Giri** delivered an invited talk on Open Source Academic Software and Their Uses in Five Days STTP on Mathematical Software, September 17, 2021, SKIT, Jaipur, Rajasthan, India
- **Dr. Kinsuk Giri** delivered an invited talk on Optimization for Machine Learning in AICTE ATAL FDP on Machine Learning with R, October 29, 2021, AICTE-ATAL, NITTTR Kolkata, India
- **Dr. Urmila Kar** acted as Resource Person in the FDP on Designing of Question Paper and Efficient Evaluation Methodology, Organized by Academic Success Centre, GLA University, Mathura on 8th November 2021 on Topic : Direct and In-direct Assessment Tools, 16th November 2021 on Topic : Designing Test Under Outcome Based Education
- **Dr. Urmila Kar** acted as Resource Person in the Faculty Development Programme (Online mode) on “Outcome Based Education and Teaching Learning Process” 27th – 29th October 2021 organised by Dr. B. C. Roy Polytechnic, Durgapur, Topic : “Active Learning Strategies for Continuous Quality Improvement”
- **Dr. Urmila Kar** acted as Resource Person in six days AICTE sponsored Short Term Training Programme (STTP) on “Cyber- Physical System: Recent trends and its application to the Healthcare System” during 20.09. 2021–25.09.2021, organised by North Eastern Regional Institute of Science and Technology, Topic - NEP 2020: Reforms in Higher Education on 25th Sept.’21.
- **Dr. Urmila Kar** acted as Resource Person in the online seminar on “NEP-2020” organised by :GCETT, Serampore on 4th Sept.’21.
- **Dr. Urmila Kar** acted as Resource Person in the AICTE Sponsored 5-day ATAL-FDP organized by Department of Education and Management, NITTTR, Kolkata on Strategic Management Issues in Technical Institutions, during 27.12,21 to 31.12, 2021. Topic: Curriculum Revision and Development Processes on 28th Dec.’21
- **Dr. Urmila Kar** acted as Resource Person in NITTT Webinar on 07 Dec.’21 organised by Faculty Development Cell, AICTE.
- **Dr. Samir Roy** delivered an invited talk on the topic “Some Case Studies on Application of AI and ML in Healthcare”, on 16th December, 2021, in the FDP “Machine Intelligence: Recent Trends & Applications in Industries 4.0” conducted by Dept. of CSE, ATRIA INSTITUTE OF TECHNOLOGY, Bangalore.
- **Prof. Chandan Chakraborty** delivered an invited lecture entitled 'Statistical Machine Learning with Applications ' in the DBT funded National Workshop

'Recent trends of Biotechnology in Engineering" conducted by GH Raison Engineering College, Nagpur, Maharashtra, 15th-18th Dec. 2021.

Paper presentation

Dr. Samir Roy presented a research paper entitled “computer-aided automatic question paper generation under outcome based educational framework” in the National Conference on Engineering Education on 11th & 12th November 2021, held at NITTTR, Kolkata.

Publications

- A.K. Dutta, D. Bandyopadhyay, **J.J. Mandal**, “Free Vibration Analysis of Second-Order Continuity Plate Element Resting on Pasternak Type Foundation Using Finite Element Method”, International Journal of Pavement Research Technology (2021). <https://doi.org/10.1007/s42947-021-00099-x>.
- Anasuya Mondal and **Santanu Bhanja**, “Augmentation of Abrams Law for Fly Ash Concrete”, International Conference on Advances in Concrete Materials and Structures (ICCMS 2021), 14-19 December 2021
- Sadananda Chakraborty, Souren Mitra, **Dipankar Bose**, “Performance characterization of powder mixed wire electrical discharge machining technique for processing of Ti6Al4V alloy”, First – Published November 22, 2021 Research Article <https://doi.org/10.1177/09544089211060722>, Proceedings of Institution of Mechanical Engineer, Part E : Journal of Process Mechanical Engineering, Impact factor 1.620.
- Ranajit Banerjee, Mrutyunjay Rout, **Dipankar Bose**, Amit Karmakar, “A solution to free vibration of rotating pretwisted hybrid CNTs multiscale functionally graded conical shell”, International Journal for Computational Methods in Engineering Science and Mechanics, Published online: 13 Sep 2021 <https://doi.org/10.1080/15502287.2021.1973151>
- Jogendra Kumar, Rajesh K Verma, **Arpan K Mondal**, Vijay K Singh, “A hybrid optimization technique to control the Machining performances of Graphene/ Carbon/ polymer (epoxy) nanocomposites; Polymers and Polymer Composites”, Sage Publication, 2021, Vol. 29(9S) S1168–S1180, DOI: 10.1177/096739112111046789
- D. Santoni, N. Ghosh, **Indrajit Saha**, “An entropy-based study on mutational trajectory of SARS-CoV-2 in India, Infection, Genetics and Evolution”, Vol. 97, pp. 105154, 2021. [Impact Factor: 3.342]
- **Indrajit Saha**, N. Ghosh, N. Sharma, S. Nandi, “Hotspot Mutations in SARS-CoV-2”, Frontiers in

Genetics, Vol. 12, pp. 753440, 2021. [Impact Factor: 4.599]

- N. Ghosh, **Indrajit Saha**, N. Sharma, “Interactome of Human and SARS-CoV-2 Proteins to Identify Human Hub Proteins Associated with Comorbidities”; Computers in Biology and Medicine, Vol. 138, pp. 104889, 2021. [Impact Factor: 4.589]
- S. Gupta, N. Sharma, N. Ghosh, **Indrajit Saha**, “Comparative Study of Deep Transfer Learning Techniques for the Detection of COVID-19 using Chest X-Ray Images &”, In Proceedings of National Conference on Engineering Education (NCEE), 2021.
- S. Rajput, A. Yadav, S. Nandi, **Indrajit Saha**, D. P. Mishra, “Development of Inventory Management System: Case Study of NITTTR Kolkata”, In Proceedings of National Conference on Engineering Education (NCEE), 2021.
- N. Sharma, S. Gupta, N. Ghosh, **Indrajit Saha**, “Face Identification and Recognition of STTP Participants of NITTTR Kolkata with the Integration of Feature Extractor and Machine Learning: A Comparative Study”, In Proceedings of National Conference on Engineering Education (NCEE), 2021.
- **Kinsuk Giri**, Tuhin K. Biswas and Pritisha Sarkar, “ECR-DBSCAN: An Improved DBSCAN Based on Computational Geometry”, Machine Learning with Applications, Elsevier, 6, 100148, 2021
- Tuhin K. Biswas and **Kinsuk Giri**, “A Novel Approach for Initializing Centroid at K-Means Clustering in Paradigm of Computational Geometry”; Artificial Intelligence and Technologies. Lecture Notes in Electrical Engineering, vol 806. Springer, Singapore, page 445-452, 2021
- Adrita Chaudhury, Somerup Ponda, **Kinsuk Giri** and Susmita Singh, “A Computational Study on the Modeling of Surface Modified Carbon Nanotube for Low Temperature Fuel Cell”; International Conference on Nanomaterials: Recent Developments and New Directions, Cape Comorin Conference, October, 2021
- **Rayapati Subbarao** and Hindol Banerjee, “Computational Investigation of Nickel and Chromium Based Super Alloys as Gas Turbine Blade Materials”, IHMTC2021–357, 26th National and 4th International ISHMT-ASTFE Heat and Mass Transfer Conference, 2021, IIT Madras.
- **Rayapati Subbarao**, “Application of OBE approach for thermodynamics course in order to improve the overall teaching-learning practice”, National Conference on Engineering Education, NITTTR Kolkata, India, 2021
- **Rayapati Subbarao**, “Real time analysis of CO and PO attainment and their significance in case of a post graduate engineering program”, National

Conference on Engineering Education, NITTTR Kolkata, India, 2021.

- **Rayapati Subbarao**, “Computational Studies on a Two-Stage Axial Flow Turbine Aiming Flow Losses and Performance”, FMFP2021–10–129, 48th National Conference on Fluid Mechanics and Fluid Power (FMFP), BITS Pilani, 2021.
- **Rayapati Subbarao**, “Computational Studies on the Flow Aspects Through the Nozzle in Case of a Counter Rotating Gas Turbine Stage”, FMFP2021–10–279, 48th National Conference on Fluid Mechanics and Fluid Power (FMFP), BITS Pilani, 2021.
- KK Chakraborty, R Mukherjee, **C Chakraborty**, K Bora, “Automated recognition of optical image based potato leaf blight diseases using deep learning”, Physiological and Molecular Plant Pathology, Vol. 117, 2022.

Miscellaneous

List of signed MoU

Sl. No.	Name of Institute	Date of MoU Signed	Valid Up-to
1.	NUJS	11-11-2021	10-11-2026 (Five Years)
2.	IIT Guwahati	08-12-2021	07-12-2026 (Five Years)
3.	Jagadguru Kripalu University Cuttack, Odisha	21-12-2021	20-12-2026 (Five Years)
4.	MoMSME Technology Centre, IDTR Jamshedpur	24-12-2021	23-12-2024 (Three Years)
5.	NIT Jamshedpur	24-12-2021	23-12-2024 (Three Years)

Conference/ Seminars/ Workshops conducted & attended

1. **Dr. S. K. Naskar** submitted paper on Covid-19 and the paradigm shift in teaching learning process, for the National Conference on Engineering Education (NCEE-21) organized by NITTTR, Kolkata held during 11-12 Nov. 2021
2. **Dr. Habiba Hussain** served as keynote speaker in the International Conference on English Learning and Teaching Skills 2021 (ICELTS), on ELT (English Language Teaching) held during 2nd to 4th Dec, 2021, organised by Institute of Engineering and Management, Kolkata in collaboration with SMART, USA.
3. **Dr. Habiba Hussain** presented a paper on “Realigning skills of the Gurukul Education System in the age of technology”, in the 2nd International

Conclave on Globalizing Indian Thought (GIT2021), organised by IIM, Kozhikode during 16th to 18th December 2021.

4. **Dr. Habiba Hussain** conducted 1-day curriculum workshop on 7th October 2021 for the state of Arunachal Pradesh for 1st year curriculum of Diploma Engineering.
5. **Dr. Habiba Hussain** conducted a 2-day National Conference on Engineering Education on 11th & 12th November 2021.
6. Sujay Majumder and **Arpan Kumar Mondal**, Analysis of Underwater Friction Stir Welding of Aluminum AA6063, International Conference on Experimental and Computational Methods in Manufacturing (ICECMM 2021), October 28-29, North Eastern Regional Institute of Science and Technology (NERIST), Nirjuli, Arunachal Pradesh, India
7. **Dr. Rayapati Subbarao** attended National Conference on Engineering Education, NITTTR Kolkata, 11th -12th Nov 2021.
8. **Dr. Rayapati Subbarao** attended 48th National Conference on Fluid Mechanics and Fluid Power (FMFP), BITS Pilani, 27th-29th Dec 2021.
9. **Dr. S. K. Naskar** acted as guest of honor for student's induction programme during 5.1.21 organized by Coochbehar Government Engineering College, west Bengal
10. **Dr. Indrajit Saha** chaired a session on Computational Biology and Biomedical Informatics in IEEE INDICON 2021 on 20th December, 2021, organized by IIT Guwahati.

INSTITUTE EVENTS

Celebration of Teachers' Day

Teachers' day was celebrated on 5th Sept 2021 by the Faculty, Staff and Students of NITTTR Kolkata in virtual mode on Google meet. All the faculty, staff and students of NITTTR Kolkata attended the programme. The programme started with the welcome words by Dr. Rayapati Subbarao, followed by Saraswati vandana. Prayers to the God Saraswati were offered by Mr. Indrajit Nandi. Dr. Subbarao highlighted the importance of the day. Teachers' day is celebrated all over India every year on 5th Sept 2021, to mark the birth anniversary of Dr. Sarvepalli Radhakrishnan, who was a teacher, scholar and philosopher. Teachers' day is marked to show honour and gratitude to all teachers, mentors and guides. Then, he requested the honourable Director, Prof. Debi Prasad Mishra to deliver the address on the occasion of Teachers' day. Dr. Mishra has given light on the responsibility of teachers to do something towards education. Also, he insisted on becoming a good teacher. Also, we need to understand what can be done to the society by playing our roles and responsibilities to the maximum

extent possible. Then, Prof. Sukanta Kumar Naskar reiterated the need of remembering our teachers and thanking them. In the process, he thanked all his teachers for their help and wished all for a memorable Teachers' day. Mr. Samrian Pal gave a talk on the importance of Teachers' day. Ms. Mousmi Das sang a beautiful song that highlighted the importance of teachers and their service to the nation. Then, Mr. Abhishek Chakraborty utilized the opportunity to thank his teachers for their moral support and help. Mr. Sitesh Anand placed number of poems before the gathering, through which he thanked all his Mechanical Engineering faculty.

Later, Dr. Subrata Chattopadhyay gave a talk on 'what students can experience from teachers'. Teaching involves a lot more than just performing this set of actions in front of students. Teachers can be the role models of their students. Later, he presented the customary vote of thanks, in which, he thanked all for making the programme successful.

In the end, details of essay competition were given by Dr. R. Subbarao. An essay competition among students on the occasion of 'Teachers' day' was conducted by the Teachers' day celebration committee. The topic for the 'Essay Competition' was: *The role of teachers in the lives of students* with maximum number of words as 800. Based on the entries received by the committee, Mr. Sitesh Anand was awarded with a prize money of Rs. 300/-. The programme ended with Dr. Subbarao again thanking the faculty, staff and students of NITTTR Kolkata, who have attended the programme and made it very special and memorable to all.

Celebration of International Literacy Day

Organised by: Prof. U. C. Kumar & Mr. Avijit kundu, Prof. U. C. Kumar briefed about about the International Literacy Day and its importance:

International Literacy day was declared by UNESCO in the year 1966 and celebrated for the first time in 1967. The main aim is to highlight the importance of literacy to individual, communities and societies at large. It is celebrated every year to remind the public of the importance of literacy as a matter of dignity and human rights. So, celebrating international literacy day is a brilliant way to raise awareness of the value of literacy and to encourage children and adults alike to develop their literacy skills. This year the theme is "Literacy for a human – centered recovery: Narrowing the digital divide"

After the brief introduction about the *International Literacy day*, he requested Prof. D. P. Mishra

(Honourable director) to welcome the participants and address them.

Prof. D. P. Mishra welcomed the participants and talked about the “Substance of Literacy and Overall literacy status of India”. He also expressed the details about the International Literacy Day.

After the welcome address by Honourable Director, senior faculty members and respected Swami Vedatitananda of Ramakrishna Mission, Belur Math addressed the gathering.

Prof. P. Sarkar, Department of Electrical Engineering, speaking on this occasion, delivered on the issue of “Good governance and partnerships for technology enabled literacy learning” in the context of prevailing pandemic as well as the initiatives taken by the government of India and states governments to mitigate the digital divide between the urban and rural areas where net connectivity, mobile phone, tablets and computer are major impediments to sustain online classes.

He also opined that partnerships among multi-stakeholder, like, telecom companies for ensuring the high quality internet speed to access seamless online courseware, free on-line open courseware developers and free distribution of tables or laptops at school level by government to the needy students are the needs of the hour.

He also highlighted that Government of India has sanctioned a budget of Rs 93223 crore during 2021-22 to support both higher and school education to implement the NEP 2020 with the creation of 1500 new Adarsh vidyalaya and national research foundation to support higher education with a budget outlay of Rs 50000 crore for the next five years. This will act as a catalysis in enhancing technology enabled literacy learning as well.

Swami Vedatitananda started by recognising the value of digital learning in the time of Covid pandemic. If we did not have access to this mode of teaching-learning, it would have been a great loss to students all over the world. But, inequality among students leads to differences in access to logistic infrastructure. Many students don't have smartphones, laptops, or internet connections. For technical education, complete shift to digital mode of teaching-learning is impossible. There is a necessity of hands-on training in labs and workshops. But, until situation improves, we need to continue with digital learning platforms. Swami Vivekananda said, 'The teacher has to come down to the level of the student and teach.' As teachers, we should not lose sight of this great message.

Dr. Rayapati Subha Rao, Department of Mechanical Engineering, in his speech, highlighted the actual meaning of literacy by saying that to have more literacy of a region or state means converting the illiterate to literate. Recent Statistics show that still much more to be done in this area. Kerala has highest literacy rate and Bihar has the highest literacy rate. Literacy is more among males and less among females.

To overcome this, governments have gone for Vayojan Vidya Kendras, whose aim is to deal with Primary literacy, Primary Education, Continuing Education and Skill Education. Other aspect is to ensure students attend schools. To have maximum students joining the programme, ‘Mid-day meal scheme’ is offered in schools. Incentives are being given to parents, who send their students to schools. Some governments are offering free books, clothes etc. to make sure more children join the school for education. Drop outs also are to be taken care. Facilities in schools are to be improved. During pandemic state governments used doordarshan to teach students according to their syllabus. Most of the groups could not have the access to high end devices, DD was very much useful for them. The celebration ended with a vote of thanks proposed by Dr. Sukanta Naskar, Depart of Education and Management. At the outset, he expressed his sincere thanks to the Hon’ble Director for his constant encouragement and inspiration and address details about the International Literacy Day. He also expressed his profound gratitude to the spakers who were kind enough to deliver talks in this occasion. The session ended with a token of appreciation to the participants for making the event a grand success.

Raj Bhasha Hindi Diwas

Like every year, NITTTR, Kolkata celebrated the month of September 2021 as of the Official Language Month through various language activities programmes. On this occasion, the members of faculty, staff and students of the Institute wererequested to submit *One Thousand Word Write Up* in Hindi language on the topic “*Nasha Mukh Bharat Abhiyaan*”. The winner(s) of the above mentioned competition as decided by a 3-Member Committee were as under:

SL. No.	Name of the Employee	Designation	Position
1.	Shri Radhanath Rout	MTS	1 st Position
2.	Shri Dipak Gupta	Assistant Section Officer	2 nd Position
3.	Shri R. Subbarao	Associate Professor	3 rd Position
4.	Shri Rajpal Balmiki	MTS	4 th Position (Consolation)

Further, to mark the concluding celebration of the month long Official Language (Hindi) Celebration, this Institute organised a “Rajbhasha / Hindi Diwas Meeting” on 28th September 2021. In this meeting, members of faculty and staff members expressed their views and suggested the ways for improvement of the use of Hindi Language in Official Work. The Hon’ble Director of the Institute addressed the meeting and felicitated the participants and winners of the Official Language (Hindi) Competition 2021.

Gandhi Jayanti Celebration

Like the previous years, on 2nd October, 2021, NITTTT Kolkata celebrated 152nd birth anniversary of Mohandas Karamchand Gandhi, fondly known as the “Father of the Nation”. Students, staff and teachers gathered virtually to mark them with patriotic fervor. The director of the institute Prof. Debi Prasad Mishra addressed the gathering. He emphasized to follow the footsteps of Gandhiji and to be self-reliant like him. Special speeches comprising quotes and messages of Mahatma Gandhi given by Dr. Rayapati Subbarao attracted the attention of all. The celebration is wrapped up with a vote of thanks given by Dr. Kinsuk Giri, the coordinator of the program.

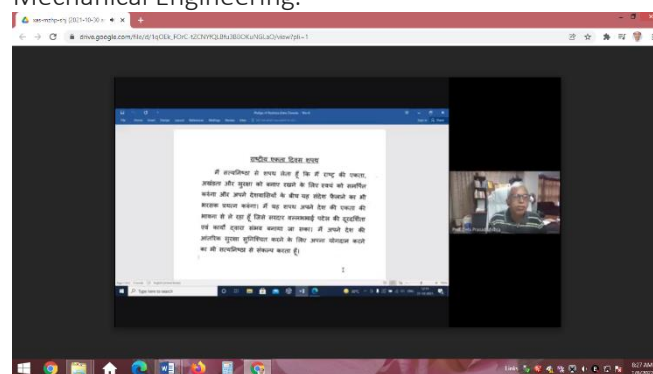
Vigilance Awareness Week

NITTTT, Kolkata has observed Vigilance Awareness Week on 29th October 2021 with the theme “Independent India @75: Self Reliance with Integrity (Swatantra Bharat @75: Self Reliance with Integrity – स्वतंत्र भारत @ 75: सत्यनिष्ठा से आत्मनिर्भरता. The event commenced at 5:00 PM with the address by the Director, Prof. Debi Prasad Mishra, on “Vigilance Awareness Week” 2021. Prof. Jagat Jyoti Mandal, Professor in Civil Engineering Dept. and CVO of the institute delivered his address on the theme. Then the Integrity Pledge was administered for all the faculty, students and non-teaching staff of the institute. The overall programme was coordinated by Mr. Mainak Mandal and Dr. Urmila Kar

Celebration of Ratriya Ekata Diwas

The institute has observed the Rashtriya Ekta Diwas on 31st October 2021 at 11-30 AM through virtual mode. Dr. Dipankar Bose, has welcomed the faculty and staff members to celebrate the occasion. Prof. Bose has elaborated the importance of the day and expressed his deep concern regarding the contribution of Sardar Ballav Bhai Patel on shaping the newly born country India’s development phases. Prof. Debi Prasad Mishra, Director of the Institute has enlightened the knowledge of the participants on significance of Rastriya Ekta Diwas

or National Unity Day. He stressed the need of maintaining internal unity and integrity among the faculty and staff members to make the mission and vision of the institute successful. Dr. Rayapati Subba Rao Associate Professor in Mechanical Engineering Dept. has elaborated the contribution of Sardar Vallabhbhai Patel for national integration with suitable illustrations. Finally the attendees have undertaken the oath on pledge of Rastriya Ekata Diwas. The event was coordinated by Prof. Dipankar Bose and Mrs. Soma Bhattacharyya, Senior Secretariate Assistant of Mechanical Engineering.



Celebration of Constitution Day

Our Institute celebrated 26th November 2021 as constitution day of India. It is the day on which our constitution was adopted. The programme was held at mini auditorium at 5:00 pm in offline mode. Prof. P. Sarkar and Prof. S. Pal jointly organized the programme. Prof. S. Pal mentioned the history of drafting of the constitution by the constitution assembly members and also mentioned the brief biography of Dr. B. R. Ambedkar, the father of the constitution. Our Hon’ble Director, Prof. D. P Mishra explained the importance of constitution in our country as well as in our society. Also he explained the concept of constitution in our ancient India. Prof. P. Sarkar, Professor, EE Dept. highlighted some important articles in our constitution. Mr. Subrata Mitra, SO-II, also mentioned the salient features of our constitution and its impact on the citizen of India. Some glimpses of the programme are shown below.





machines/equipment to cope up with state of the art expertise of Manufacturing Technology. They are:

1. Scanning Electron Microscope
2. Micro ECM
3. Micro Hardness Tester
4. Roughness Testing Machine
5. Plasma Welding Machine
6. Multispecimen Grinder and Polisher
7. Mould Making System
8. Machine Condition Monitoring System

Activities of LRC

- i. List of educational resources developed during the period

Thirty-Eight (38) numbers Higher Module (HM07 & HM11) videos prepared during the above-mentioned period. Beside these five numbers (05) Gayan Darshan Lecture videos have recorded during this period.

a) Observation of “Constitution Day” on 26.11.2021



b) Awareness program regarding “National Cyber Security Awareness Month” (NCSAM) held on 30th Nov 2021



National Cyber Security Awareness Month

National Cyber Security Awareness Month (NCSAM) is celebrated globally with a view to educate public and private sector to increase cyber resilience of the nation as recommended by National Security Council Secretariat (NSCS). This activity aims to promote and motivate the digital age citizens of our country, to be cyber aware and secured netizens. Keeping this in view, Information Security Education and Awareness (ISEA) programme of Ministry of Electronics and Information Technology (MeitY) in association with CERT-IN, NIC and C-DAC organized mass awareness activities through various modes as part of the National Cyber Security Awareness Month. The same was observed in the month of November 2021 at NITTTR, Kolkata. In this regard, a banner related to cyber security awareness was published through Institute website and social media of the institute. Moreover, an awareness program was organised with Director, Faculty, Expert and Staff members of this institute on 30th November. In this program, Dr. Indrajit Saha, Assistant Professor of NITTTR Kolkata and the coordinator of this even initially discussed the relevance of this program. Prof. Debi Prasad Mishra, Director of NITTTR Kolkata delivered a welcome address by giving his warm regards to the faculty, expert speaker and staff members and saying the important on this event. As an expert speaker, Mr. Suman Mandal, An Offensive Security Certified Professional discussed and demonstrated various aspects of security issues and disseminate the awareness among participants. The faculty and staff members were also involved in the discusses session after the presentation of Mr. Mandal. Finally, the programme ended with vote of thanks. From the staff members, Mr. Dipak Gupta assisted Dr. Indrajit Saha to organise this even successfully.

Development of New Facilities

The Department of Mechanical Engineering has procured and installed the following



c) Online MOU signing between the Director, NITTR, Kolkata and IIT, Guwahati on 08.12.202



d) Orientation Program of M.Tech. students (2021-23 Batch)

Report on M.Tech.

- a) Admission Status 2021 - 20 (Twenty) students as per details given below (Manufacturing Tech = 08, Structural = 07, Mechatronics = 05 and Multimedia & Software systems = NIL) have been admitted in PG Course this year.
- b) Orientation Programme - An Orientation Programme of the fresh PG Students was held on December 17, 2021 at 4:00 PM at the Mini Auditorium of the Institute.



Dr. Subrata Mondal has been recognized as top 2% of scientists in Polymers discipline published by the Stanford University, USA together with Elsevier BV (<https://doi.org/10.17632/btchxktzyw.3>). Dr. Mondal's world rank is 746 out of 100162 in the Polymers discipline (0.744%).



Image captured by Shri Utpal Chakraborty, from NITTR Kolkata campus, December, 2021

NATIONAL INSTITUTE OF TECHNICAL TEACHERS' TRAINING AND RESEARCH, KOLKATA

Block-FC, Sector-III, Salt Lake City, Kolkata-700106

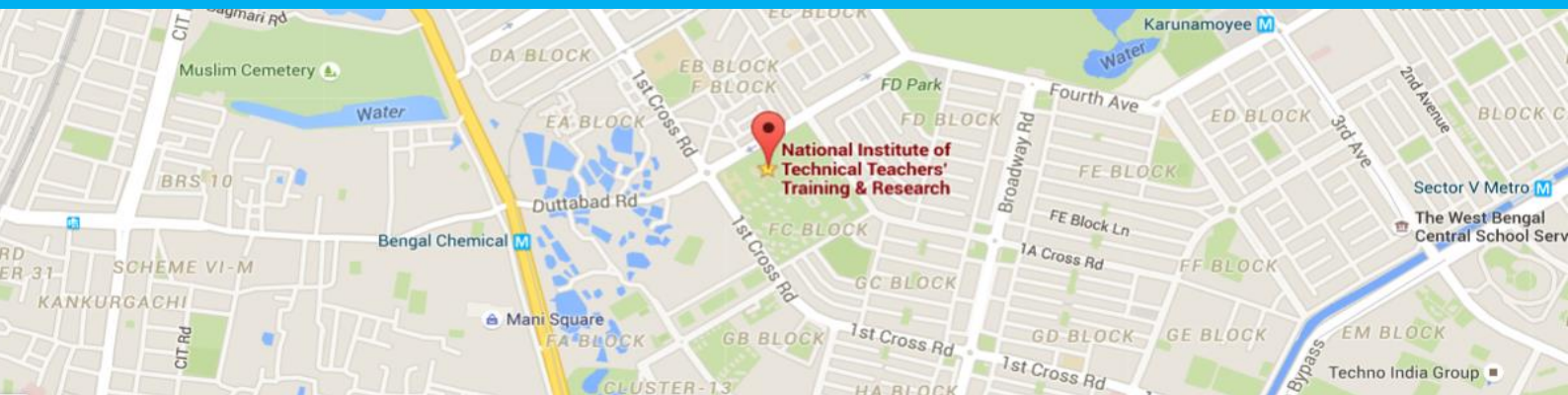
Phone: +91-33-66251900, Email: ds@nittrkol.ac.in

Visit us at www.nittrkol.ac.in

How to Reach NITTR, Kolkata

The Institute is located near Labony Bus Stand (Sector-III), FC Block in Salt Lake City, Kolkata 700106 and can be reached by taxi from Netaji Subhas Chandra Bose International Airport and also from Howrah, Shalimar, Sealdah and Kolkata Railway Stations.

“Intelligence is the capacity to perceive the essential, and to awaken this capacity, in oneself and in others, is Education.” - J. Krishnamurti



Distance:

- From Howrah Railway Station: **42 min** (8.1 km) via Maniktala Main Road
- From Sealdah Station: **26 min** (7.4 km) via Beliaghata Main Road and Broadway Road
- From Kolkata Railway Station: **16 min** (4.8 km) via Canal Circular Road
- From Shalimar Station: **38 min** (18.8 km) via Parama Island Flyover
- From Netaji Subhas Chandra Bose International Airport: **27 min** (11.5 km) via Kazi Nazrul Islam Sarani/VIP Road

Google map link: <https://goo.gl/maps/F7gssJoeqxSvffqf9>



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