

PROGRAMME CALENDAR 2018 – 2019

(April 2018 – March 2019)

A. NATIONAL LEVEL SHORT TERM TRAINING PROGRAMMES

The schedule of Short Term Training Programmes (STTP) to be conducted by NITTTR, Kolkata during the year 2018 – 2019 is given below.

I. CONTENT UPDATING (CU)

VENUE: NITTTR, KOLKATA

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
1.	CU01	Advance Programming in C	Rajeev Chatterjee	02.04.2018	06.04.2018	1	After going through this program the participants will be able to: <ul style="list-style-type: none"> • demonstrate the various operation on single and multi –dimensional arrays and structures, • demonstrate programs related to functions and pointers, and • demonstrate programing skills on dynamic allocation of memory using linked list.
2.	CU02	TIG and MIG Welding Processes and Testing of Welds	Arpan Kumar Mondal	09.04.2018	20.04.2018	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Classify various types of TIG and MIG welding processes. • Understand the principles of TIG and MIG welding processes. • Perform TIG & MIG welding and testing of welds.
3.	CU03	Coding Theory and Application	Rajeev Chatterjee	16.04.2018	20.04.2018	1	After going through this program the participants will be able to: <ul style="list-style-type: none"> • explain Information, quality of Information, information entropy, • demonstrate the Working principles and design of AES and DES, • demonstrate various encoding algorithm like Arithmetic Huffman, Hamming, Gray, and • demonstrate the application on various network applications.
4.	CU04	Thermal Engineering – I	Rayapati Subbarao	16.04.2018	20.04.2018	1	At the end of the programme, the participants will be able to: <ul style="list-style-type: none"> • paraphrase the basics of thermodynamics. • apply laws of thermodynamics in various problems. • appreciate more about entropy. • identify and analyze thermodynamic air cycles.
5.	CU05	Introduction to Robotics	Samiran Mandal	16.04.2018	20.04.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • describe the construction of industrial robots • explain the applications of industrial robots • explain kinematics of industrial robots • assess the economic justification of robot
6.	CU06	Laboratory Experiments and Students' Project	Sagarika Pal	23.04.2018	27.04.2018	1	After attending the course the participants will be able to <ul style="list-style-type: none"> • Select the laboratory experiments and projects as per curriculum • Perform experiments and record the data properly • Prepare laboratory manual for different experiments • Guide student to perform project work • Write project report in proper format • Evaluate the laboratory and project performance of students

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7.	CU07	AUTOCAD	Nirmal Kumar Mandal	23.04.2018	27.04.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Use the various drafting and editing tools • Draw Engineering products
8.	CU08	Membranes for Water Treatment: Challenges and Opportunities	Subrata Mondal	23.04.2018	27.04.2018	1	After attending this program, participants would be able to: <ul style="list-style-type: none"> • describe the fundamental concept of membrane separations. • identify various types of membranes. • describe the wastewater treatment using environmental friendly membrane technology. • explain the challenges in the membrane technology for water treatment. • explain the membrane fouling and its control for the membrane based water treatment processes etc.
9.	CU09	Power System Protection and Safety	Prasanta Sarkar	01.05.2018	05.05.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • Familiarize with various power system protection schemes • Analysis performance characteristics of relays used in power system protection • Develop power system protection schemes for electrical installation • Familiarize with electrical safety and code of practices.
10.	CU10	Polymer Composites and Nanocomposites	Subrata Mondal	01.05.2018	05.05.2018	1	After attending this program, participants would be able to: <ul style="list-style-type: none"> • explain the fundamental concept of nanotechnology. • differentiate the microfillers and nanofillers. • explore the fundamental of polymeric composites and nanocomposites. • describe the properties of polymeric composites and nanocomposites. • explain the applications of polymeric composites and nanocomposites etc.
11.	CU11	Design and Development of e-learning Systems	Rajeev Chatterjee	01.05.2018	11.05.2018	2	After going through this program the participants will be able to: <ul style="list-style-type: none"> • explain the concept of e-learning, • design the basic requirement of ICT infrastructure for e-learning, • explain synchronous and asynchronous e-learning models, • explain the various standards available for e-learning, • explain the basis terminologies such as Learning Objects, sharable Content Objects, SCORM, • explain and demonstrate ADDIE Model of ISD demonstrate the various concept of e-content, LMS, interactive Multimedia Presentation, • develop e-content chunks / learning object in their own subject Kolkata domain, • implement the curriculum for effective instructional design, • design and develop e-content using various standards, tools and technique, and • exhibit and demonstrate the process of e-content creation.
12.	CU12	Mathematical Logic	Samir Roy	07.05.2018	11.05.2018	1	On successful completion of the programme the participants will be able to <ul style="list-style-type: none"> • explain Mathematical Logic in classroom • solve problems related to Mathematical Logic • apply Mathematical Logic in real life problem
13.	CU13	Applied Thermodynamics	Rayapati Subbarao	07.05.2018	11.05.2018	1	At the end of the programme, the participants will be able to: <ul style="list-style-type: none"> • interpret the working principle and features of steam engines, turbines and condensers. • explain the basics of I.C. Engines and analyze the performance. • identify the functions of gas turbines and power plants.
14.	CU14	Common Contaminants in Drinking Water	Sailendra Nath Mandal	07.05.2018	18.05.2018	2	After attending the programme the participants will be able to acquire – <ul style="list-style-type: none"> • knowledge of basic concept of drinking water, sampling, preservation, analysis, interpretation of result, national and international standards, Common water contaminants – analysis and impacts on health, • skill of handling 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 water analysis/treatment laboratory, • attitude of hand-on working in the laboratory/field (Plant Visit)

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15.	CU15	Lab VIEW Architecture, Programming and its applications in Measurement & Control	Subrata Chattopadhyay	14.05.2018	18.05.2018	1	After attending the course the participants will be able to <ul style="list-style-type: none"> Familiar with the features, dataflow programming, and common LabVIEW architectures. Develop test and measurement, data acquisition, instrument control, data logging, and measurement analysis applications using LabVIEW Describe and develop interfacing of input output devices with LabVIEW Implement the LabVIEW in Measurement & Control System and its trouble shooting Create applications using a state machine. Design pattern to acquire, process, display, and store real-world data
16.	CU16	Programming and Operations of CNC Machines	Nirmal Kumar Mandal	14.05.2018	18.05.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> Explain CNC Technology. Develop programs in CNC Lathe. Operate CNC Lathe.
17.	CU17	Web Design using PHP and MySQL	Indrajit Saha	14.05.2018	25.05.2018	2	After attending the program, the participants will be able to <ul style="list-style-type: none"> describe the fundamentals of PHP and MySQL design and develop dynamic webpages explain PHP and MySQL in classroom
18.	CU18	Database Design Theory and Practice	Ranjan Dasgupta	21.05.2018	25.05.2018	1	After attending the course the participants will be able to <ul style="list-style-type: none"> get exposure in database design theory design and develop small database application
19.	CU19	Fluid Power	Dipankar Bose	21.05.2018	25.05.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> State principle of fluid power Describe various elements of fluid power systems Explain control components of fluid power systems Illustrate applications of fluid power
20.	CU20	Refresher Course in Strength of Materials	Jagat Jyoti Mandal	28.05.2018	01.06.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> Explain basic concepts of Strength of Material Apply these concepts to solve simple engineering problems Teach the related topics in more efficient manner
21.	CU21	Numerical and Statistical Methods Using software Tools	Kinsuk Giri	28.05.2018	01.06.2018	1	After attending the program, the participants will be able to <ul style="list-style-type: none"> get an overview on different numerical and statistical methods get an overview on Monte Carlo methods with hands-on solve problems on numerical and statistical using SCILAB
22.	CU22	Computer Fundamentals for Placements	Arpan Kumar Mondal	28.05.2018	01.06.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> Learn letters & resume writing Improve his / her presentation style Fundamentals of computer applications <p>* Practice based training, candidates have to bring their own laptop with latest OS and MS Office installed</p>
23.	CU23	Microprocessor & Embedded Systems	Soumitra Kumar Mandal	04.06.2018	08.06.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> Describe Architecture and programming of 8085 Microprocessor & 8051 Microcontroller Design interfacing circuits for Microprocessor & Microcontroller based systems Write assembly language programs for embedded system
24.	CU24	Development of Laboratory Instruction and Manual	Subrata Mondal	04.06.2018	08.06.2018	1	After attending this programme, participants would be able to: <ul style="list-style-type: none"> explore the role of laboratory in student learning explore development of laboratory exercise explore writing of laboratory report explore standard operating procedure (SoP) in laboratory explore safety management in laboratory etc.

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25.	CU25	Fundamentals of Data structures and Algorithms	Samir Roy	04.06.2018	15.06.2018	2	On successful completion of the programme the participants will be able to <ul style="list-style-type: none"> design algorithm to solve computational problems. analyze algorithms for their effectiveness and efficiency. implement algorithms to solve real-life problems.
26.	CU26	Control Systems Analysis & Design using MATLAB	Prasanta Sarkar	04.06.2018	15.06.2018	2	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
27.	CU27	Refresher Course on Structural Analysis and Design using STAAD.Pro Software with an Introduction to Foundation Design	Santanu Bhanja	11.06.2018	15.06.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> Understand the role of software in structural analysis and design Know the basic features of a universally accepted standard software - STAAD.Pro Apply IS codal provisions in analysis and design like IS 456, 1893, 875 etc. Analyse and design real-life civil engineering structures <p>Participants will be awarded a complete unlimited licenced version of STAAD.Pro v8i & Staad.foundation Advanced v8i for personal use on their PC's for full one year for academic purpose</p>
28.	CU28	CNC Machines: Constructional Features and Programming	Nirmal Kumar Mandal	11.06.2018	15.06.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> Identify Machining Centre. Develop programs on CNC Vertical machining Centre. Operate machining Centre.
29.	CU29	Development of Mechanical Engineering Experiments and Design Laboratory Instruction	Samiran Mandal	18.06.2018	22.06.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> classify the laboratory experiments develop laboratory experiments plan the laboratory instrumentation prepare laboratory instruction sheets evaluate laboratory skills
30.	CU30	Application of Revised Codes IS 1893-Part 1 : 2016 and IS 13920 :2016 in Earthquake Resistant Design with an Introduction to a sophisticated Shake Table	Santanu Bhanja	18.06.2018	29.06.2018	2	After attending the programme, the participants will be able to <ul style="list-style-type: none"> Understand the modifications suggested as per the revised (2016) Standards - IS:1893 Part 1 and IS:13920 Appreciate the underlying principles of earthquake resistant design of R. C. buildings Differentiate between Static and Dynamic analysis and know the domain of their application Know the use of different software in seismic analysis and design as per IS 1893-Part 1 :2016 Design RC elements for earthquake resistance and investigate their behaviour up to the failure levels Know the basic features and use of a high end Shake Table Procure hands on Training on application of Shake Table in Seismic Analysis including Development of Response Spectrum <p>Participants will be awarded a complete unlimited licensed version of STAAD.Pro v8i SS6 for personal use on their PC's for full one year for academic purpose</p>
31.	CU31	Networking Principles Management and Administration	Rajeev Chatterjee	18.06.2018	29.06.2018	2	After going through this program the participants will be able to: <ul style="list-style-type: none"> explain the various topologies and media of computer Network explain a network and Internetwork, explain the various protocols in TCP/IP suite, explain the concept of switching and routing, demonstrate the basic techniques of network management, explain the concept of basic network security, and explain Software Defined Network

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32.	CU32	Hardware Simulation of Electrical and Electronics Circuits	Soumitra Kumar Mandal	18.06.2018	29.06.2018	2	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • Explain concepts of Electrical & Electronic Circuit • Illustrate the technics of Electrical & Electronic Circuit analysis • Develop models of Electrical & Electronic Circuit • Hardware Simulation of Electrical & Electronic Circuit
33.	CU33	Mechanical Workshop	Arpan Kumar Mondal	18.06.2018	29.06.2018	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Classify various components of mechanical workshop. • Understand the principles of various metal working processes. • Practice on welding, forming, machine tools, CNC, mechanical testing etc.
34.	CU34	Unit Processes in Drinking Water Treatment	Sailendra Nath Mandal	25.06.2018	06.07.2018	2	After attending the programme the participants will be able to acquire – <ul style="list-style-type: none"> • knowledge of common parameters of drinking water, sampling, preservation, analysis, interpretation of result and human health, different water treatment methods, • skill of handling 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 water analysis/treatment laboratory, • attitude of hand-on working in the laboratory/field (Plant Visit)
35.	CU35	Testing of Brick, Cement, Aggregates, Concrete including Destructive and Semi Destructive Test	Uday Chand Kumar	25.06.2018	29.06.2018	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Explain basic concepts on laboratory tests of Bricks, cement, Aggregates • Guide students in conducting different laboratory experiments for determination of various parameters. • Demonstrate different tests on cement, aggregates and concrete. • Familiar with the use of NDT Equipment
36.	CU36	Limit State Design of Steel Structures	Mithu Dey	02.07.2018	06.07.2018	1	After attending the program, participants are expected to be able to <ul style="list-style-type: none"> • Appreciate the understanding principles on plastic analysis of Steel structures. • Design the different structural elements by limit state method. • Familiar with the new code IS 800 : 2007
37.	CU37	Software Engineering Fundamentals & Application Development	Ranjan Dasgupta	02.07.2018	13.07.2018	2	After attending the course the participants will be able to <ul style="list-style-type: none"> • get exposure in various issues related to software engineering • get exposure in application development process • design small application
38.	CU38	Mechanical Testing of Materials	Arpan Kumar Mondal	02.07.2018	13.07.2018	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Know various testing methods. • Analyze the theory behind various mechanical testing methods. • Perform various experiments in mechanical engineering.
39.	CU39	Renewable Energy Sources and Emerging Technologies	Sheela Yadav Rai	09.07.2018	13.07.2018	1	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
40.	CU40	Solar PV Module & Smart Grid	Soumitra Kumar Mandal	09.07.2018	13.07.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • Describe the principles of Solar Cell • Identify the various parameters of Solar PV Module • Develop an in-depth knowledge about Solar PV Module by performing basic experiments & through field visit • Understand fundamentals of Smart grid

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41.	CU41	Identification, Classification, Laboratory & In-situ Testing of Soil	Jagat Jyoti Mandal	09.07.2018	20.07.2018	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Explain basic concepts on laboratory tests of soil for identification and classification of soil • Guide students in conducting different laboratory experiments related to determination of related parameters • Demonstrate and conduct different tests on soil for determination of strength and compressibility parameter of soil
42.	CU42	Fundamentals and Applications of Nanomaterials	Subrata Mondal	09.07.2018	20.07.2018	2	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 the applications of nanomaterials in various fields • explain the nano toxicology and nano safety etc.
43.	CU43	Laboratory Experimentation in Engineering Chemistry	Sailendra Nath Mandal	16.07.2018	20.07.2018	1	After attending the programme the participants will be able to gain and develop– <ul style="list-style-type: none"> • knowledge of 'modern principles of laboratory experimentation' in engineering chemistry, • skill of handling 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, related to engineering chemistry, • attitude of hands-on-working in the laboratory/field. (Plant Visit)
44.	CU44	Data Analysis using MATLAB	Indrajit Saha	16.07.2018	20.07.2018	1	After attending the program, the participants will be able to <ul style="list-style-type: none"> • analyze the data using various statistical methods • visualize the data for better understanding • develop prediction model for real-life data driven problems
45.	CU45	Measurement and Control for Industrial Automation	Sagarika Pal	16.07.2018	20.07.2018	1	After completing the course the participant will be able to <ul style="list-style-type: none"> • explain Conventional control techniques for industrial automation • describe complex controls such as ratio, cascade, feed forward etc. • develop programme on PLC and DCS for process automation • explain SCADA systems for various process control systems
46.	CU46	Thesis and Research Paper Writing	Rayapati Subbarao	16.07.2018	20.07.2018	1	At the end of the programme, the participants will be able to: <ul style="list-style-type: none"> • describe the steps involved in writing a thesis. • identify the scope of a thesis. • construe the results in a better way. • derive conclusions from the plots and contours made. • discover the ways of writing a research paper.
47.	CU47	Recent Trends in Optimization Theory and Applications	Kinsuk Giri	23.07.2018	27.07.2018	1	After attending the program, the participants will be able to <ul style="list-style-type: none"> • understand various types of optimization problems • apply optimization techniques in different fields • solve some basic problems using SCILAB
48.	CU48	Modelling & Simulation of Mechatronics System	Prasanta Sarkar	23.07.2018	27.07.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • Develop mathematical model of electrical system, Electro-mechanical system, active and passive electrical network etc. • Develop mathematical model of mechanical system, Fluid, Thermal and Hydraulic system. • Familiarize with actuators and controllers • Analysis, design and integration of dynamic system.

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49.	CU49	Power System Instrumentation	Subrata Chattopadhyay	23.07.2018	27.07.2018	1	<p>After attending the course the participants will be able to</p> <ul style="list-style-type: none"> • Understand electrical equipment used in power system • Know instrument transformers [CT & PT] and their applications • Familiar with measurement and instrumentation in power system • Classify the Different types of transducers and fundamental of pressure, flow, temperature, level, velocity, acceleration, vibration, position, displacement measuring transducers used in power system. • Application of PLC & DCS in power system • Apply SCADA and power system automation • Design boiler, furnace instrumentation and control • Know hazardous area classification
50.	CU50	Computer Fundamentals for Faculty and Staffs	Arpan Kumar Mondal	23.07.2018	03.08.2018	2	<p>After attending the programme the participants will be able to</p> <ul style="list-style-type: none"> • Understanding the computer hardware • Know about basic computer applications and operating systems used in engineering education and office management. • Practice session on MS Word, Power Point, Excel, specialized graph plotting software, Open office. • Have exposure on handling various operating systems. • Have an exposure on various OS and applications. <p>*Candidates have to bring their own laptop with latest OS and MS Office installed.</p>
51.	CU51	Laboratory Experiments in Electrical and Electronics Engineering	Soumitra Kumar Mandal	30.07.2018	03.08.2018	1	<p>After attending the programme, the participants will be able to</p> <ul style="list-style-type: none"> • Choose experiments from the detailed curriculum • Perform the experiments • Record & analyze the experimental data • Write the instruction manual for students • Evaluate the laboratory performance of students
52.	CU52	Application of MATLAB Control System, Image Processing and Fuzzy Logic Toolbox	Sagarika Pal & Urmila Kar	30.07.2018	10.08.2018	2	<p>After attending the programme, participants will be able to:</p> <ul style="list-style-type: none"> • demonstrate application of MATLAB programming, SIMULINK, Control System and Image Processing Toolbox with example. • analyze control systems using Control System Toolbox Commands. • solve engineering problems using SIMULINK Modeling. • apply Fuzzy Logic Toolbox and Image Processing Toolbox commands.
53.	CU53	Power Generation from Energy Resources	Sheela Yadav Rai	06.08.2018	10.08.2018	1	<p>After attending the programme the participants will be able to</p> <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
54.	CU54	Engineering Thermodynamics and its Applications	Rayapati Subbarao	06.08.2018	10.08.2018	1	<p>At the end of the programme, the participants will be able to:</p> <ul style="list-style-type: none"> • paraphrase the basics of thermodynamics. • apply laws of thermodynamics in various problems. • appreciate more about entropy and the processes of perfect gases. • identify and analyze thermodynamic air cycles. • familiarize the basics of fuels and combustion.
55.	CU55	Functional Textiles and Protections	Subrata Mondal	06.08.2018	10.08.2018	1	<p>After attending this program, participants would be able to:</p> <ul style="list-style-type: none"> • explain the concept of functional textiles. • explain heat and moisture management in the clothing. • explore the UV blocking textiles. • describe the nanotechnology applications for the functional textiles. • explore the medical textile etc.

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56.	CU56	Fundamentals of Manufacturing System	Nirmal Kumar Mandal	20.08.2018	25.08.2018 (including Saturday)	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> Classify manufacturing system. Describe different types of automation in manufacturing system.
57.	CU57	Development of Interactive Presentation using Multimedia Tools	Indrajit Saha	20.08.2018	31.08.2018	2	After attending the program, the participants will be able to <ul style="list-style-type: none"> describe the multimedia components get exposure in various multimedia related software prepare a small computer based training material
58.	CU58	Testing of Concrete Materials & Design of Concrete Mixes	Jagat Jyoti Mandal	27.08.2018	31.08.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> Guide students & conduct different tests on concrete materials <ul style="list-style-type: none"> ✓ Cement ✓ Aggregates ✓ Water Carry out design of Concrete mixes
59.	CU59	Laboratory Practice on Concrete	Mithu Dey & Uday Chand Kumar	27.08.2018	31.08.2018	1	After attending the program, participants are expected to be able to <ul style="list-style-type: none"> Explain the physical significance of laboratory tests on Concrete Materials. Demonstrate to the students on different tests of Concrete Materials Understand the concrete mix design
60.	CU60	Laboratory Experiment on Electrical Machine and Power System	Prasanta Sarkar	27.08.2018	31.08.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> Familiar with the electrical machine and power system equipment's. Perform experiment on electrical machine and power system Determine the characteristic of electrical machine and power system.
61.	CU61	Laboratory methods for Water and Air Quality Analysis	Sailendra Nath Mandal	27.08.2018	07.09.2018	2	After attending the programme the participants will be able to acquire – <ul style="list-style-type: none"> knowledge of different measuring equipment, methods of air and water quality, different parameters and impact on human health, skill of handling different device, 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 water and petrochemical testing laboratory, attitude of hand-on working in the laboratory/field (Plant Visit)
62.	CU62	Hands on Practice on PLC Programming	Sagarika Pal	27.08.2018	07.08.2018	2	After completing the course the participant will be able to <ul style="list-style-type: none"> explain working principle of PLC describe architecture of PLC system develop PLC programmes run PLC programmes apply PLC in various automation systems.
63.	CU63	Thermal Engineering Systems	Rayapati Subbarao	03.09.2018	07.09.2018	1	At the end of the programme, the participants will be able to: <ul style="list-style-type: none"> understand the working principle and features of steam engines, turbines and condensers. Solve problems in I.C. Engines and analyze the performance. Assess various processes in compressors and turbines.
64.	CU64	Waste Water Treatment: Pollution Control and Reuse	Subrata Mondal	03.09.2018	07.09.2018	1	After attending this program, participants would be able to: <ul style="list-style-type: none"> explain the characterizations of wastewater. explore the characteristics of various industrial wastewater. describe the wastewater treatment using low cost adsorbents and nano sized adsorbents. describe the wastewater treatment using membrane technology etc.
65.	CU65	Drawing, Analysis and Design of Structures by Limit State Method using Software	Mithu Dey	03.09.2018	14.09.2018	2	After attending the program, participants are expected to be able to <ul style="list-style-type: none"> Appreciate the importance of the Limit State Method. Compare with Working Stress Method. Understand the different methods of structural analysis Design the different structural elements (RCC & Steels structures) by Limit State Method. Use of software to drawing analysis and design the different Structural elements.

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66.	CU66	Theory and Practices on Various Advanced Welding Processes & Testing of Welds	Arpan Kumar Mondal	03.09.2018	14.09.2018	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> Classify various welding processes and their applications. Understand the principles of various welding processes. Understand the fundamentals of testing of welds. Perform independently various welding processes and testing of welds.
67.	CU67	Application of MATLAB in Engineering	Prasanta Sarkar	10.09.2018	14.09.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> 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 problem
68.	CU68	Analysis of Nonlinear Control Systems	Urmila Kar	10.09.2018	14.09.2018	1	After attending this programme, the participants will be able to <ul style="list-style-type: none"> explain fundamentals nonlinear control systems explain the need for analysis of nonlinear control systems explain types of commonly available nonlinearities and their representation identify approaches for analysis of nonlinear control systems select techniques for analyzing stability of nonlinear control systems simulate models for analysis of nonlinear control systems using MATLAB programming / SIMULINK use MATLAB control system tool box for designing experiments on nonlinear control systems
69.	CU69	Product Design	Samiran Mandal	10.09.2018	14.09.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> identify customer needs establish product function carry out product teardown and benchmarking select concepts perform concept embodiment design for X develop analytical, numerical and physical models
70.	CU70	Environmental Awareness	Sailendra Nath Mandal	10.09.2018	21.09.2018	2	After attending the programme the participants will be able to gain and develop <ul style="list-style-type: none"> knowledge of basic awareness Air pollution, water pollution, noise pollution, light pollution and impact on human health, skill of handling 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, attitude of hands-on-working in the laboratory/field. (Plant Visit)
71.	CU71	PLC Architecture, Programming and its applications in Measurement & Control	Subrata Chattopadhyay	17.09.2018	22.09.2018 (including Saturday)	1	After attending the course the participants will be able to <ul style="list-style-type: none"> Familiar with the architecture of PLC system. Understand the working principle of PLC Describe and develop interfacing of input output devices with PLC Write and run PLC programme on a PLC system Implement the PLC in Measurement & Control System and its trouble shooting Apply PLC in DCS.
72.	CU72	Image Processing using MATLAB	Indrajit Saha	17.09.2018	28.09.2018	2	After attending the program, the participants will be able to <ul style="list-style-type: none"> describe the fundamentals of image processing (IP) apply MATLAB commands to do IP explain image processing in classroom
73.	CU73	Concept Teaching in Fluid Mechanics	Dipankar Bose	24.09.2018	28.09.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> Understand the idea of concept teaching Identify the major concepts in fluid mechanics Work out a strategy for teaching fluid mechanics

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
74.	CU74	Advanced Materials Science and Engineering	Subrata Mondal	24.09.2018	28.09.2018	1	After attending this program, participants would be able to: <ul style="list-style-type: none"> • explain the structure sensitive properties of polymers, metals and alloys. • explain the fundamental of nanomaterials, types of nanomaterials, principle methods of nanomaterials preparation, properties and applications. • explain types, manufacturing process, properties and applications of metal matrix, ceramic matrix and polymer matrix composites/nanocomposites. • explain biocompatible and biodegradable materials, characteristics and applications for various biomaterials.
75.	CU75	Problem Solving Using SCILAB	Kinsuk Giri	01.10.2018	12.10.2018	2	After attending the program, the participants will be able to <ul style="list-style-type: none"> • understand and explain the different aspects of SCILAB • apply SCILAB to solve for mathematical, statistical and optimization problems • use SCILAB for graphics and visualization
76.	CU76	IP Networking	Rajeev Chatterjee	01.10.2018	12.10.2018	2	After going through this program the participants will be able to: <ul style="list-style-type: none"> • explain the concept of networking and internetworking, • explain the working of Internet, • explain the role of RIR and other regulatory bodies, • explain the various protocols in Routing, Switching, • design campus wide network, • configure switches and routers, • explain the concept and working principles of firewall , • explain the various technologies related to Wi. Fi. networks , • explain the working of Mobile IP networks, and • explain the concept of identity management & access management
77.	CU77	Modern Welding Processes, NDT, CNC and Mechanical Testing	Arpan Kumar Mondal	01.10.2018	12.10.2018	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Define different terms and concepts of the modern welding. • State different laws and principles of Modern Welding methods. • Know the recent developments in the field of welding.
78.	CU78	Bio Medical Instrumentation	Subrata Chattopadhyay	08.10.2018	12.10.2018	1	After attending the course the participants will be able to <ul style="list-style-type: none"> • Understand Cells, Digestive System, Excretory System, Endocrinology • Describe Origins of electro-physiological signal and their characteristics • Design practical clinical sensors and transducers • Understand the operation of X-ray, Fluoroscopy and Radiography, Pacemaker, Magnetic Resonance Imaging etc. • Explain Electric shock hazards and safety devices
79.	CU79	PLC Programming and Interfacing	Soumitra Kumar Mandal	22.10.2018	26.10.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • Describe the architecture of PLC • Develop PLC Programs • Run PLC Programs • Apply PLC in Industrial Automation
80.	CU80	Experimentation and Experimental Data Analysis	Nirmal Kumar Mandal	22.10.2018	26.10.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Explain Design of Experiment • Develop Response surface • Explain Analysis of Variance

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
81.	CU81	Analysis & Disposal of Solid Waste and Wastewater	Sailendra Nath Mandal	22.10.2018	02.11.2018	2	After attending the programme the participants will be able to acquire – <ul style="list-style-type: none"> • knowledge of basic concept of solid waste, wastewater, sampling, preservation, analysis, interpretation of result and disposal of wastewater, Solid waste, impact on human health , • skill of handling 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 solid waste, wastewater analysis/ treatment laboratory, • attitude of hand-on working in the laboratory/field (Plant Visit)
82.	CU82	Concept Teaching in Engineering Mechanics	Dipankar Bose & Samiran Mandal	22.10.2018	02.11.2018	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Understand the idea of concept teaching • Identify the major concepts in engineering mechanics • Work out a strategy for teaching engineering mechanics
83.	CU83	Analysis and Design of Seismic Resistant Buildings using STAAD.Pro with an Introduction to Shake Table Testing	Santanu Bhanja	29.10.2018	02.11.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • Understand the advanced features of the software for seismic analysis • Understand the new Codal clauses as per revised Indian Standards • Procure hands on Training on application of Shake Table in Seismic analysis • Analyse and design real-life civil engineering structures as per relevant recently revised Indian Standards <p>Participants will be awarded a complete unlimited licenced version of STAAD.Pro v8i & Staad.foundation Advanced v8i for personal use on their PC's for full one year for academic purpose</p>
84.	CU84	An Outline of the Theory of Computation	Samir Roy	29.10.2018	02.11.2018	1	After successful completing the course the participant will be able to <ul style="list-style-type: none"> • apply Formal languages and Automata in computation. • implement Formal languages and Automata in software • explain Formal Languages and Automata in classroom
85.	CU85	Power Plant Engineering	Rayapati Subbarao	29.10.2018	02.11.2018	1	At the end of the programme, the participants will be able to: <ul style="list-style-type: none"> • understand the need and importance of alternative fuels in power section. • recognize the necessity of newer fuels in transportation. • analyze alternative sources of energy. • explore the possibilities in making modifications to power plant scenario. • investigate about various alternative fuels available.
86.	CU86	Introduction to ETABS - Structural Analysis and Design Software for Buildings	Santanu Bhanja	12.11.2018	16.11.2018	1	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 and design like IS 456, 1893, 875 etc. • Know the basic features of a universally accepted software - ETABS
87.	CU87	Computer Programming using PYTHON	Kinsuk Giri	12.11.2018	16.11.2018	1	After attending the program, the participants will be able to <ul style="list-style-type: none"> • understand and explain the different aspects of PYTHON • apply PYTHON to solve problems • use PYTHON for graphics and visualization
88.	CU88	Software Modeling with Unified Modeling Language (UML)	Samir Roy	12.11.2018	16.11.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • create Software Models using UML • use UML models for the purpose of software design • explain software modeling techniques in classroom
89.	CU89	Exposure on MATLAB	Prasanta Sarkar	12.11.2018	16.11.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • 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 problem

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
90.	CU90	Solar Energy and Smart Grid	Soumitra Kumar Mandal	12.11.2018	16.11.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> Describe the principles of Solar Cell Identify the various parameters of Solar PV Module Develop an in-depth knowledge about Solar PV Module by performing basic experiments & through field visit Understand fundamentals of Smart grid
91.	CU91	Thermodynamics	Rayapati Subbarao	12.11.2018	16.11.2018	1	At the end of the programme, the participants will be able to: <ul style="list-style-type: none"> paraphrase the basics of thermodynamics. apply laws of thermodynamics in various problems. appreciate more about entropy and the processes of perfect gases. identify and analyze thermodynamic air cycles. familiarize the basics of fuels and combustion.
92.	CU92	Design of Payroll Systems using ORACLE	Ranjan Dasgupta	19.11.2018	30.11.2018	2	After attending the course the participants will be able to <ul style="list-style-type: none"> get exposure in various process of Payroll Systems get exposure in designing the processes using Software Engineering approach design & develop the system
93.	CU93	Experiments on Sensors & Transducers	Sagarika Pal	26.11.2018	30.11.2018	1	After completing the course the participant will be able to <ul style="list-style-type: none"> explain working principle of different types of sensors and transducers Mount sensors for various measurements Measure different types of parameters Design & simulate signal conditioning circuit for different types of sensors Implement signal conditioning circuit for sensor in hardware
94.	CU94	Estimating & Costing of Non-Conventional Energies	Sheela Yadav Rai	26.11.2018	30.11.2018	1	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
95.	CU95	CAD/CAM	Nirmal Kumar Mandal	26.11.2018	30.11.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> Define automation. Classify automation. Operate automated system.
96.	CU96	Engineering Metrology	Dipankar Bose & Samiran Mandal	26.11.2018	07.12.2018	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> State the definition of metrology Define various measuring standards List functions of various instruments List sources of errors while using measuring instruments Explain in his own word the working principles of the various instruments
97.	CU97	Designing Teaching using MATLAB as Teaching Tool for Electrical Engineering	Urmila Kar	03.12.2018	14.12.2018	2	After attending the programme, participants will be able to: <ul style="list-style-type: none"> analyse selected course content identify intended learning outcomes for MATLAB assisted teaching decide strategy and technique for teaching selected topic decide learning activities plan related instructions design assessment techniques and tools for constructive alignment
98.	CU98	Analysis and Design of Steel Structures using Software	Mithu Dey	10.12.2018	14.12.2018	1	After attending the program, participants are expected to be able to <ul style="list-style-type: none"> Appreciate the understanding principles on plastic analysis of Steel structures. Design the different structural elements as per new codes: Familiar with the new code IS 800 : 2007

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
99.	CU99	Mix Design of Concrete theory and Practice	Uday Chand Kumar	10.12.2018	14.12.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Guide students in conducting different test on concrete materials • Cement • Aggregates • Water • Carry out design of Concrete mixes
100.	CU100	Advanced Process Control using PLC, DCS and SCADA	Sagarika Pal	10.12.2018	14.12.2018	1	After completing the course the participant will be able to <ul style="list-style-type: none"> • explain Conventional control techniques for industrial automation • describe complex controls such as ratio, cascade, feed forward etc. • develop programme on PLC and DCS for process automation • explain SCADA systems for various process control systems
101.	CU101	LABVIEW & MATLAB Applications in Engineering	Soumitra Kumar Mandal	10.12.2018	21.12.2018	2	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
102.	CU102	Surveying by Total Station with an Introduction to GPRS	Santanu Bhanja	17.12.2018	21.12.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • Be introduced to Total Station • Understand the processes involved in operating Total Station • Carry out different tasks using Total Station • Assimilate and store data from site and plot the same • Be introduced to GPRS
103.	CU103	Renewable Energy Sources and Emerging Technologies	Sheela Yadav Rai	17.12.2018	21.12.2018	1	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
104.	CU104	Laboratory Manual Preparation	Dipankar Bose	17.12.2018	21.12.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Classify various skills involved in laboratory practices • Know various categories of laboratory experiments • Write laboratory instruction sheets by conducting hands on practices on mechanical engineering • Know evaluation technique
105.	CU105	Engineering Optimization with MATLAB	Nirmal Kumar Mandal	17.12.2018	28.12.2018	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Model a physical system • Explain linear and nonlinear regression • Optimise a function
106.	CU106	Introduction to Concepts of Machining Science	Samiran Mandal	24.12.2018	29.12.2018 (Including Saturday)	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • explain the geometry of cutting tools • explain mechanism of chip formation • analyse the cutting forces in machining • explain the thermal aspects in machining • analyse machinability of materials • select tool materials for machining

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
107.	CU107	Mathematics and Computations	Samir Roy & Kinsuk Giri	31.12.2018	11.01.2019	2	After successful completion of the program, the participants will be able to <ul style="list-style-type: none"> • explain mathematical/logical foundation of computations • model computational tasks in terms of mathematical formalism • apply appropriate mathematical tools to solve computational problem
108.	CU108	Mechanical Measurements and Control	Samiran Mandal	07.01.2019	11.01.2019		After attending the programme, the participants will be able to <ul style="list-style-type: none"> • explain the principles of measurement of physical quantities in mechanical engineering applications • explain the basic principles of control system.
109.	CU109	Testing of Pavement Materials	Jagat Jyoti Mandal	07.01.2019	11.01.2019	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Explain basic concepts on tests of different material required for construction of Subgrade, Base, Sub base and bituminous layer of pavements
110.	CU110	LABVIEW and MATLAB Application in Engineering	Sagarika Pal	07.01.2019	11.01.2019	1	After completing the course the participant will be able to <ul style="list-style-type: none"> • understand fundamentals of LABVIEW and graphical programming approach • develop programme in LABVIEW • implement LABVIEW applications in hardware • illustrate applications of MATLAB in Engineering
111.	CU111	8085 & 8086 Microprocessor	Soumitra Kumar Mandal	07.01.2019	11.01.2019	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • Describe Architecture and working principles of 8085 & 8086 Microprocessor • Describe addressing mode & instruction sets of 8085 & 8086 Microprocessor • Write assembly language programs
112.	CU112	Advanced Manufacturing Processes	Dipankar Bose	07.01.2019	18.01.2019	2	After attending the programme the participants will be able to : <ul style="list-style-type: none"> • Know recent advancement in manufacturing processes • State working principles of different advanced manufacturing processes • Describe various applications of advanced manufacturing processes
113.	CU113	Health Assessment and Rehabilitation of RCC Structures	Santanu Bhanja & Uday Chand Kumar	14.01.2019	18.01.2019	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • be acquainted with causes for deterioration of RCC structures • know the importance of non-destructive and semi-destructive testing • understand repair, rehabilitation and retrofitting measures • be exposed to hands-on demonstration of various Instruments • know the methods of Repair and Rehabilitation
114.	CU114	Power System Protection	Sheela Yadav Rai	14.01.2019	18.01.2019	1	After attending the programme the participants will be able to : <ul style="list-style-type: none"> • Describe the structure of Power System • Understand power system protective relays • Know protection of Alternators & Transformers • Understand the various types of protection system of Bus-bars & Lines
115.	CU115	Introduction to Soft Computing	Samir Roy & Indrajit Saha	14.01.2019	25.01.2019	2	After successful completion of the program, the participants will be able to <ul style="list-style-type: none"> • explain the concepts of soft computing in classroom • apply soft computing techniques to solve complex computational problems • implement soft computing techniques for intelligent systems
116.	CU116	Modelling and Optimization of Engineering Systems	Nirmal Kumar Mandal	14.01.2019	25.01.2019	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Model a system. • Analyse the system • Optimize the performance of the system
117.	CU117	Introduction to DBMS	Ranjan Dasgupta	21.01.2019	01.02.2019	2	After attending the course the participants will be able to <ul style="list-style-type: none"> • get acquainted with Database Management System • get exposure in database design theory • design and develop database application

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
118.	CU118	MATLAB and Simulink Fundamentals	Urmila Kar	28.01.2019	01.02.2019	1	After attending the programme, participants will be able to: <ul style="list-style-type: none"> • use MATLAB as calculator • use mathematical functions of MATLAB • demonstrate the use of MATLAB as graphic tools • use MATLAB for solving problems involving matrix operations, array operations, linear equations, differential equations • write script files for solving engineering problems • demonstrate use of Simulink for solving engineering problems
119.	CU119	Basics of Thermodynamics and Lab	Rayapati Subbarao	28.01.2019	01.02.2019	1	At the end of the programme, the participants will be able to: <ul style="list-style-type: none"> • Understand the basics of thermodynamics. • Apply laws of thermodynamics in various problems. • Experiment engines with respect to performance. • Exposure to various thermal systems. • Prepare lab handouts for various experiments in thermal lab.
120.	CU120	Power System Analysis	Sheela Yadav Rai	04.02.2019	08.02.2019	1	After attending the programme the participants will be able to : <ul style="list-style-type: none"> • Describe the structure of Power System • Understand the parameters of transmission line • Represent power system components • Know symmetrical & unsymmetrical faults
121.	CU121	Automobile Engineering	Samiran Mandal	04.02.2019	08.02.2019	1	After attending the course the participants will be able to <ul style="list-style-type: none"> • classify the Automobiles • describe the construction of Automobiles • explain the principle of working of different subsystems of Automobiles.
122.	CU122	Total Station Survey and Introduction to GPS	Jagat Jyoti Mandal & Uday Chand Kumar	04.02.2019	15.02.2019	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Explain basic features of a Total station • Carryout survey by using Total Station • Guide students in conducting survey by using Total station • Participants will be introduced to GPS
123.	CU123	MATLAB & LABVIEW Applications in Electrical, Electronics and Instauration Engineering	Soumitra Kumar Mandal	04.02.2019	15.02.2019	2	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • 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 • Understand fundamentals of LABVIEW • Implement LABVIEW Applications in Engineering
124.	CU124	Discrete Mathematics	Kinsuk Giri	11.02.2019	15.02.2019	1	After attending the program, the participants will be able to <ul style="list-style-type: none"> • understand the fundamentals of discrete mathematics • solve problems in various areas of discrete mathematics • apply SCILAB to solve few discrete math problems
125.	CU125	Application of AutoCAD in Engineering & Basic Sciences	Mithu Dey & Uday Chand Kumar	18.02.2019	22.02.2019	1	After attending the program, participants are expected to 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.
126.	CU126	Design and Development of MOOC based e-content	Ranjan Dasgupta	18.02.2019	01.03.2019	2	After attending the course the participants will be able to <ul style="list-style-type: none"> • get exposure in MOOC / SWAYAM platform • get exposure in different equipment related to e-content develop • get exposure in design and develop of e-content.

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
127.	CU127	Skill Development in Workshops and Laboratories	Dipankar Bose	18.02.2019	01.03.2019	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Classify various skills involved in laboratory and workshop practices • Prepare instruction sheets by conducting hands on practices on laboratory workshop jobs • Know evaluation techniques
128.	CU128	Laboratory Practices on Civil Engineering Materials (Road Material)	Mithu Dey & Uday Chand Kumar	04.03.2019	08.03.2019	1	After attending the program, participants are expected to be able to <ul style="list-style-type: none"> • Develop Skill & Knowledge on the fundamentals involved in testing of various ingredients of Civil Engg. Materials. • Familiar with the use of NDT equipment's
129.	CU129	Power Generation from Energy Resources	Sheela Yadav Rai	04.03.2019	08.03.2019	1	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
130.	CU130	Computer Aided Design with Ansys	Nirmal Kumar Mandal	04.03.2019	08.03.2019	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Explain a mechanical system. • Use of software packages to analyse mechanical system.
131.	CU131	Operation and Maintenance of Environmental Pollution Monitoring Equipment	Sailendra Nath Mandal	04.03.2019	15.03.2019	2	After attending the programme the participants will be able to acquire – <ul style="list-style-type: none"> • knowledge of operation and maintenance of different water, wastewater, solid waste, Noise, air pollution testing equipment, and impact on human health, • skill of handling different 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 water, wastewater, solid waste, air pollution testing laboratory, • attitude of hand-on working in the laboratory/field (Plant Visit)
132.	CU132	Teaching – Learning of Computer Science and Engineering in Indian Context	Samir Roy & Rajeev Chatterjee	18.03.2019	22.03.2019 (Including Saturday)	1	After successful completion of the programme, the participants will be able to <ul style="list-style-type: none"> • set instructional objectives in CSE area • plan effective teaching of Computer Science in Indian context • deliver content in the area of CSE to Indian students
133.	CU133	Topics on Computer Architecture & Organization (Theoretical Discussion)	Ranjan Dasgupta	25.03.2019	29.03.2019	1	After attending the program, the participants will be able to <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

II. MANAGEMENT (MGT)

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
1.	MGT01	Essentials of Strategic Management	Sukanta Kumar Naskar	01.05.2018	05.05.2018	1	After attending the programme participants will be able to: <ul style="list-style-type: none"> • Appreciate importance of strategic management in organizational context • Define strategy and strategic management • Identify components of strategic management process • Apply strategic management principles in respective organization • Initiate strategic planning process
2.	MGT02	Human Resource Management - Issues in Technical Education System	Sukanta Kumar Naskar	11.06.2018	15.06.2018	1	After attending the programme participants will be able to: <ul style="list-style-type: none"> • Identify the scopes of HRM in technical education system • Understand the functions of HRM in appropriate field • Apply functions of HRM in technical education system • Identify roles of HR manager
3.	MGT03	Laboratory Safety Management	Subrata Mondal	18.06.2018	29.06.2018	2	After attending this program, participants would be able to: <ul style="list-style-type: none"> • demonstrate the proper housekeeping in the laboratory area. • explain various personal protective equipment for the laboratory works. • evaluate the risk assessment for the hazardous laboratory works. • identify the emergency equipment for the laboratory work area. • explain the hazardous waste management for the laboratory etc.
4.	MGT04	Materials and Stores Management	Sukanta Kumar Naskar	06.08.2018	10.08.2018	1	After attending the programme participants will be able to: <ul style="list-style-type: none"> • Be acquainted with stores management & operations • Know materials identification system • Identify appropriate material handling system • Identify safety and security measures related to materials handling • Appreciate purchasing principles
5.	MGT05	Research Methodology in Management	Sukanta Kumar Naskar	22.10.2018	26.10.2018	1	After attending the programme participants will be able to: <ul style="list-style-type: none"> • Identify components of research • Appreciate the need of Research methodology in management • Develop research proposal & report • Select appropriate tools for data analysis for research
6.	MGT06	Training & Placement Cell Management	Arpan Kumar Mondal	18.02.2019	22.02.2019	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Understand the fundamental procedure for managing a training & placement cell. • Learn the steps involved in T&P procedure. • Learn the tools for managing the T&P cell. <p>* Practice based training, candidates have to bring their own laptop with latest OS and MS Office installed.</p>

III. PROFESSIONAL SKILL DEVELOPMENT (PS)

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
1.	PS01	How to Make Effective Presentation (practice based)	Sekhar Chakraborty	09.04.2018	13.04.2018	1	The training will enable the participants to; <ul style="list-style-type: none"> • plan a presentation judiciously • make presentation effectively in any kind of situation
2.	PS02	Assessment and Evaluation under Outcome Based Education	Urmila Kar	09.04.2018	20.04.2018	2	After attending this programme, the participants will be able to <ul style="list-style-type: none"> • identify features of Outcome Based Education (OBE) • distinguish between assessment and evaluation • explain the importance of assessment and evaluation under OBE • plan assessment under OBE • design assessment tools under OBE
3.	PS03	Problem Solving and Decision Making	Sukanta Kumar Naskar	16.04.2018	20.04.2018	1	After attending the programme participants will be able to: <ul style="list-style-type: none"> • Identify step by step process of problem solving • Appreciate different factors for effective decision making • Apply different conflict management styles • Identify common management tools for problem solving and decision making • Apply tolls for problem solving and decision making
4.	PS04	Research Methodology in Technical Education	Habiba Hussain & Samiran Mandal	07.05.2018	18.05.2018	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> • identify the components of research • develop research proposal • analyze research data • develop research report
5.	PS05	Techniques of Developing and Implementing a Staff Training Programme	Sekhar Chakraborty	14.05.2018	18.05.2018	1	The Training will enable the participants: <ul style="list-style-type: none"> • Identify the importance of training activity in the context of HRD in the changing scenario • Conduct needs assessment among fellow colleagues • enlist various role dimensions of a trainer iv) Chose training methods in accordance with the need & present context • Develop step-by –step approach towards planning and implementing a training program • Evaluate the effectiveness of a training program by applying standard tool
6.	PS06	Outcome Based Assessment	Habiba Hussain	21.05.2018	25.05.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • explore basic principles of assessment • distinguish between traditional & outcome based assessment • review existing criteria of assessment • design tool for measuring learning outcome
7.	PS07	Induction Training	Habiba Hussain	28.05.2018	08.06.2018	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> • analyse the components of LT system • identify principles of designing curriculum • explore motivational techniques • demonstrate effective communication • correlate teaching and assessment
8.	PS08	Problem Based Learning	Indrajit Saha, Kinsuk Giri, Sagarika Pal & Arpan Kumar Mondal	04.06.2018	15.06.2018	2	After attending the course the participants will be able to <ul style="list-style-type: none"> • explain the basic problem solving strategies in class room • solve problems in Mechanical Engineering • identify specific problems covering a particular area of learning • get the benefits associated with PBL in Mathematics

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
9.	PS09	Effective Teaching	Habiba Hussain	18.06.2018	29.06.2018	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> • analyse the components of effective teaching • plan instruction • apply appropriate instructional strategy • monitor students' learning
10.	PS10	Evaluating Students' Performance & Designing Question Papers	Habiba Hussain	02.07.2018	13.07.2018	2	After attending the programme, participants are expected to be able to <ul style="list-style-type: none"> • identify the principles of evaluation • distinguish between types of evaluation • design a plan for question paper • develop questions
11.	PS11	Effective Training	Sukanta Kumar Naskar	16.07.2018	20.07.2018	1	After attending the programme participants will be able to: <ul style="list-style-type: none"> • Conduct need assessment for organizing training programme • Identify stages for designing a training programme • Select appropriate training methodology • Understand different models for evaluating training
12.	PS13	Student Friendly Methods of Instruction	Uday Chand Kumar	06.08.2018	10.08.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Identify attributes of student friendly instruction • Design instruction • Plan student friendly activities • Demonstrate student friendly instruction
13.	PS12	Quality Improvement in Institutional Activities	Sekhar Chakraborty	06.08.2018	10.08.2018	1	The training will enable the participant to: <ul style="list-style-type: none"> • identify quality parameters in all institutional activities • explain principles underlying QMS • use basic management tools for day to day quality problem solving • develop a road map for quality improvement in the Institute
14.	PS14	Role of Polytechnics in implementing Governmental Scheme e.g. CDTP, PWD, Community College, Unnata Bharat Abhiyan	Uday Chand Kumar	10.09.2018	14.09.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Understand the activities of the various scheme. • Aware the role of polytechnic in implementing the various scheme. • Prepare project report. • Prepare action plan of the scheme. • Involve PRI /NGO in implementing the scheme.
15.	PS15	Designing Teaching under Outcome Based Education	Urmila Kar	08.10.2018	12.10.2018	1	After attending the programme, participants will be able to: <ul style="list-style-type: none"> • analyze features of Outcome Based Education(OBE) • identify learning-teaching system for OBE • identify teaching skill components • select appropriate teaching strategies • select appropriate teaching techniques • prepare plan for specific instruction • demonstrate teaching as per plan
16.	PS16	Development & Implementations of Technical Curricula	Sukanta Kumar Naskar	12.11.2018	16.11.2018	1	After attending the programme participants will be able to: <ul style="list-style-type: none"> • Distinguish between curricula & syllabus • Identify different stages of developing curricula • Appreciate different approaches for developing curricula • Identify factors for effective implementation of technical curricula

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
17.	PS17	Preparation of Effective Report and Presentations	Arpan Kumar Mondal	03.12.2018	07.12.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Learn effective report writing. • Improve his / her presentation skill. • Fundamentals of tools for preparation of effective report and presentations. * Practice based training, candidates have to bring their own laptop with latest OS and MS Office installed
18.	PS18	Leadership & Team Building in Academia	Habiba Hussain	10.12.2018	21.12.2018	2	After attending the programme the participants will be able to <ul style="list-style-type: none"> • analyse the leadership attributes of teachers • identify teacher's role as a leader in the classroom • develop learning team in the classroom
19.	PS19	Research Methodology in Engineering and Technical Writing using LaTeX	Kinsuk Giri & Indrajit Saha	17.12.2018	28.12.2018	2	After attending the program, the participants will be able to <ul style="list-style-type: none"> • get exposure in Research Methodology • describe the fundamentals LaTeX programming • apply LaTeX commands for preparing scientific and non-scientific documents
20.	PS20	Effective Communication	Habiba Hussain	07.01.2019	11.01.2019	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Analyse the essential components of communication • Distinguish between organisational & classroom communication • Demonstrate a few communication skills
21.	PS21	Design and Implementation of Outcome Based Curriculum	Urmila Kar	04.02.2019	15.02.2019	2	After attending the programme, participants will be able to: <ul style="list-style-type: none"> • explain the need for Outcome Based Education (OBE) • identify features of OBE • develop Educational objectives and Outcomes of specific programme • decide courses under a specific programme • develop content of specific course • design scheme of study and assessment • identify strategies and issues related to Outcome Based Curriculum (OBC) implementation • identify parameters for designing effective learning-teaching process of OBC
22.	PS22	Teaching Methodologies	Arpan Kumar Mondal	25.03.2019	29.03.2019	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Understand the fundamentals of various teaching methodologies. • Perform individual and group task to demonstrate various teaching styles.

B. E-LEARNING PROGRAMME (ON-LINE PROGRAMME DELIVERY THROUGH ICT MODE):

Government of India has approved two projects National Mission on Education through Information and Communication Technology (NME-ICT) (mission document at www.sakshat.ac.in) and the National Programme on Technology Enhanced Learning' (NPTEL) in order to leverage the potential of ICT in providing high quality personalized and interactive knowledge modules over the internet to offer short term training programmes in cutting edge technologies for the faculty of polytechnics and engineering colleges. In order to assist the Government in realizing the goals of these two Missions, NITTTR, Kolkata has decided to offer programmes throughout 2018-2019. A list of the training programmes the Institute proposes to offer through ICT Mode is provided below:

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
1.	ICT01	Laboratory and Workshop Management Issues	Dipanakar Bose	09.04.2018	13.04.2018	1	After attending the programme the participant will be able to <ul style="list-style-type: none"> • Know nature of learning process in laboratory and workshop • Prepare laboratory log book • Explain the role of instructor for laboratory/workshop, and issues of laboratory and workshop development • State management Issues such as management of students, their attitude, diversity, timings • Know assessment procedures of students for laboratory and workshop class • State the steps of procurement of laboratory items • Suggest the training modules for laboratory /workshop personnel
2.	ICT02	Arc Welding Processes & Physics of Welding	Arpan Kumar Mondal	06.08.2018	10.08.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Classify various arc-welding processes. • Explain the principles of arc welding processes • Understand the physics of welding. • Know the recent developments in the field of welding.
3.	ICT03	Static And Dynamic Analysis of Seismic Resistant RCC Buildings with an Introduction to Load and Capacity Design	Santanu Bhanja	10.09.2018	14.09.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • Appreciate the underlying principles of earthquake resistant design of RC buildings for strength, stiffness and ductility • Differentiate between Static and Dynamic analysis and know the domain of their application • Use software in Seismic Analysis of RC Buildings • Be familiar with the relevant clauses of IS:1893, IS:4326 and IS:13920 • Understand the difference between load and capacity design
4.	ICT04	Outcome Based Education and Accreditation	Urmila Kar	24.09.2018	28.09.2018	1	After attending the programme, participants will be able to: <ul style="list-style-type: none"> • explain the need for and features of Outcome Based Education (OBE) • justify the requirement of Outcome Based Accreditation (OBA) • identify parameters for OBA • illustrate steps for developing Outcome Based Curriculum (OBC) • identify outcome based learning-teaching and assessment processes • explain the process of preparing self-assessment report (SAR) for Accreditation by NBA
5.	ICT05	Environmental Pollution: Causes, Effects and Control Measures	Sailendra Nath Mandal	01.10.2018	05.10.2018	1	After attending the programme the participants will be able to acquire – <ul style="list-style-type: none"> • knowledge of basic concept of Air quality, drinking water quality, wastewater, construction water, noise quality, intensity of light and impact of each quality parameter on human health, • skill of handling conventional & modern sophisticated equipment, performing related experiments in the laboratory, interpreting experimental results, preparing related test-reports with remarks/comments (if any), • attitude of hand-on working
6.	ICT06	Concept of Basic Mechanical Engineering	Samiran Mandal	29.10.2018	02.11.2018	1	After attending the program, participants are expected to be able to <ul style="list-style-type: none"> • explain basic concepts of thermodynamics, engineering mechanics, materials, materials processing. • solve simple problems on basic mechanical engineering.

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
7.	ICT07	Organizational Behaviour	Mithu Dey	12.11.2018	16.11.2018	1	After attending the program, participants are expected to be able to <ul style="list-style-type: none"> Understand how to behave with the others Set the goal Manage the stress at workplace Communicate with the others person Work within the group Learn to appreciate the others opinion Understand the important of self-existence
8.	ICT08	Indian Electricity Rule and Code of Practices	Prasanta Sarkar	26.11.2018	30.11.2018	1	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.
9.	ICT09	Introduction to Network Security	Indrajit Saha	03.12.2018	07.12.2018	1	After attending the program, the participants will be able to <ul style="list-style-type: none"> describe the fundamentals of Cyber Security demonstrate how to maintain the privacy of computer data explain cyber security in classroom
10.	ICT10	Problem Solving and Decision Making	Sukanta Kumar Naskar	31.12.2018	04.01.2019	1	After attending the programme participants will be able to: <ul style="list-style-type: none"> Identify step by step process of problem solving Appreciate different factors for effective decision making Apply different conflict management styles Identify common management tools for problem solving and decision making Apply tolls for problem solving and decision making
11.	ICT11	Advanced Process Control & Instrumentation System	Subrata Chattopadhyay	07.01.2019	11.09.2019	1	After attending the course the participants will be able to <ul style="list-style-type: none"> Familiar with closed loop control system Understand the pressure, Temperature, Flow & Level Measurement system Know hazardous area classification Utilize the electrical instruments in hazardous area in process plant Design the conventional complex control system like ratio, cascade, feed forward, selective, override etc. Apply the control system in distillation column in industry Know the fundamental of PLC, DCS and SCADA
12.	ICT12	Development of Laboratory Instruction and Manual	Subrata Mondal	04.02.2019	08.02.2019	1	After attending this programme, participants would be able to: <ul style="list-style-type: none"> explore the role of laboratory in student learning explore development of laboratory exercise explore writing of laboratory report explore standard operating procedure (SoP) in laboratory explore safety management in laboratory etc.
13.	ICT13	Modern Manufacturing Systems	Nirmal Kumar Mandal	18.02.2019	22.02.2019	1	After attending the programme the participants will be able able to <ul style="list-style-type: none"> Explain Automation Analyse the performance of Automated Manufacturing System
14.	ICT14	Evaluating Students' Performance & Designing Question Papers	Habiba Hussain	25.02.2019	01.03.2019	2	After attending the programme, participants are expected to be able to <ul style="list-style-type: none"> identify the principles of evaluation distinguish between types of evaluation design a plan for question paper develop questions

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
15.	ICT15	Engineering Thermodynamics	Rayapati Subbarao	04.03.2019	08.03.2019	1	At the end of the programme, the participants will be able to: <ul style="list-style-type: none"> • paraphrase the basics of thermodynamics. • apply laws of thermodynamics in various problems. • appreciate more about entropy and the processes of perfect gases. • identify and analyze thermodynamic air cycles. • familiarize the basics of fuels and combustion.
16.	ICT16	Measurement and Control for Industrial Automation	Sagarika Pal	11.03.2019	15.03.2019	1	After completing the course the participant will be able to <ul style="list-style-type: none"> • explain Conventional control techniques for industrial automation • describe complex controls such as ratio, cascade, feed forward etc. • develop programme on PLC and DCS for process automation • explain SCADA systems for various process control systems
17.	ICT17	Renewable Energy Sources and Emerging Technologies	Sheela Yadav Rai	25.03.2019	29.03.2019	1	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

PROCEDURE:

The proposed programmes will be hosted in the Institutes' website along with the dates of their commencement. Any technical institute can select the programme it wants to participate and write directly to NITTTR, Kolkata for the programme and its date of commencement. In order to participate in the e-Learning programme an Institute should have the following accessories as given in the next page.

GENERAL INSTRUCTIONS FOR ICT BASED TRAINING PROGRAMME:

1. Participating Institutes should ensure that ICT/e-class room is available and equipped with necessary hardware and software components and inform the status to NITTTR, Kolkata well in advance.
2. Minimum 75% attendance for each session is required for obtaining certificates
3. Attendance sheet has to be certified by the co-ordinator/Head of the Institute
4. After completion of the ICT based programme, all relevant documents (hard copies) such as, registration sheet, attendance sheet, feedback form etc., should be sent to NITTTR, Kolkata for further action
5. Provision of Tea & Snacks and Working Lunch (as per NITTTR, Kolkata norms) will be made to the participants
6. For any further clarification, kindly contact the programme co-ordinator of NITTTR, Kolkata

LIST OF EQUIPMENT: (Requirement in Polytechnics for Participating in ICT Mode Programmes)

Sl. No.	Item	Configuration	Quantity	Remarks
1.	Workstation / PC	2 GB RAM, Intel Core 2 Duo Processor, Windows XP / Vista / Windows 7 OS, video capture cards	1	Can support up to four displays (1 graphics card has two outs)
2.	LCD Displays	If single display mode: 1 desktop monitor could be used. If multi display mode: Projector (Dell LCD Projector Model 1209)/Big LCD TV (42" recommended) could be used. Note: Projectors should be connected to UPS	As per the availability (1-4)	TVs can have both wall mount and stand facilities To support 4 displays, 2 graphics cards are needed, one can support 2 outs
3.	Camera	Web Camera / Handy Camera	1	It would be better to have a tripod if using Handy Camera
4.	Long cable to connect Camera and PC		1	Cable depends on the output port of camera
5.	Audio Mixer	Yamaha MG-102 Mixer	1	If professional Mike and speaker is being used
6.	Microphone	Professional Mike / headphone Mike according to the audience	As per the need	According to the user, you can have cordless or collar mike
7.	Speakers	Professional speaker / Head Phone	As per the need	According to the audience at teacher side
8.	Long VGA Cables	Length depends on the distance between PC and displays. Should be VGA male and Female connectors	1-4	To connect displays to the PC (If PC is far away from the displays)
9.	Keyboard		1	
10.	Mouse		1	
11.	DVI-VGA Convertors		0-4 (depends on the video card(s) of the PC)	If PC's video card (s) has DVI out for displays. For taking video output from PC to displays.
12.	Audio Cable & Connectors	According to the input / output ports	As needed	To connect microphone and speakers to the mixer
13.	Digital Writing Pad /Notepad	iBall Take Note Premium A4	Optional	For writing on whiteboard of A-VIEW (instead of mouse)

The approximate value in monetary terms of the equipment/accessories excluding the computer and the internet connection would be around Rs. 2.00 to Rs. 3.00 Lakh

C. STATE LEVEL SHORT TERM TRAINING PROGRAMMES AT EXTENSION CENTERS

(i) For participants from Technical Institutions in the State of ODISHA only.

Venue: NITTR Kolkata Extension Centre BHUBANESWAR

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
1.	BBSR01	Control Systems Analysis & Design using MATLAB	Prasanta Sarkar	16.04.2018	20.04.2018	1	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 in simulation
2.	BBSR02	Role of polytechnics in implementing Governmental Scheme e.g. CDTP,PWD, Community College, Unnata Bharat Abhiyan	Uday Chand Kumar	21.05.2018	25.05.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • understand the activities of the various scheme. • aware the role of polytechnic in implementing the various scheme. • prepare project report. • prepare action plan of the scheme. • involve PRI /NGO in implementing the scheme.
3.	BBSR03	Application of Revised Code IS 1893-Part 1: 2016 in Earthquake Resistant Design with an Introduction to Shake Table Testing	Santanu Bhanja	28.05.2018	01.06.2018	1	After attending the programme the participants are likely to be able to — <ul style="list-style-type: none"> • understand the modifications suggested as per the revised (2016) standard of is:1893 • appreciate the underlying principles of earthquake resistant design of r. c. buildings • differentiate between static and dynamic analysis and know the domain of their application • use software in seismic analysis and design as per is 1893-part 1 :2016 • design of rc elements for earthquake resistance and investigate their behaviour up to the failure levels • know the basic features and use of a high end Shake Table and its application in Seismic analysis <p>Participants will be awarded a complete unlimited licenced version of STAAD.Pro v8i & Staad.foundation Advanced v8i for personal use on their PC's for full one year for academic purpose</p>
4.	BBSR04	Induction Training	Subrata Chattopadhyay	04.06.2018	08.06.2018	1	After attending the course the participants will be able to understand the <ul style="list-style-type: none"> • concept of teaching learning • roll of a teacher • instructional objectives & lesson planning • classroom motivation • measurement & evaluation • instructional media & computer assisted instruction(cai) • laboratory development, instruction & evaluation • construction of test items • design and development of projects for students
5.	BBSR05	Designing Assessment Tools for Effective Implementation of Technical Curriculum	Urmila Kar	11.06.2018	15.06.2018	1	After attending this programme, the participants will be able to <ul style="list-style-type: none"> • explain the need for assessment and evaluation • identify Course Outcomes • write Intended Learning Outcomes • identify types of test and test items • prepare specification table • decide tests for skill assessment • design assessment tools

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
6.	BBSR06	Power System Instrumentation	Subrata Chattopadhyay	02.07.2018	06.07.2018	1	<p>After attending the course the participants will be able to</p> <ul style="list-style-type: none"> • understand electrical equipment used in power system • know instrument transformers [ct & pt] and their applications • familiar with measurement and instrumentation in power system • classify the different types of transducers and fundamental of pressure, flow, temperature, level, velocity, acceleration, vibration, position, displacement measuring transducers used in power system. • application of plc & dcs in power system • apply scada and power system automation • design boiler, furnace instrumentation and control • know hazardous area classification
7.	BBSR07	How to Make Effective Presentation	Sekhar Chakraborty	09.07.2018	13.07.2018	1	<p>The training will enable the participants to;</p> <ul style="list-style-type: none"> • plan a presentation judiciously • make presentation effectively in any kind of situation
8.	BBSR08	Concept Mapping in Teaching Learning	Samiran Mandal	16.07.2018	20.07.2018		<p>After attending the course the participants will be able to understand the</p> <ul style="list-style-type: none"> • explain decimation, generation and concept • analyse a concept • construct a concept map • use concept map in teaching and learning
9.	BBSR09	Bio Medical Instrumentation	Subrata Chattopadhyay	30.07.2018	03.08.2018	1	<p>After attending the course the participants will be able to</p> <ul style="list-style-type: none"> • understand cells, digestive system, excretory system, endocrinology • describe origins of electro-physiological signal and their characteristics • design practical clinical sensors and transducers • understand the operation of x-ray, fluoroscopy and radiography, pacemaker, magnetic resonance imaging etc. • explain electric shock hazards and safety devices
10.	BBSR10	Introduction to Coding Theory	Rajeev Chatterjee	06.08.2018	10.08.2018	1	<p>After going through this program the participants will be able to:</p> <ul style="list-style-type: none"> • explain Information, quality of Information, information entropy, • demonstrate the Working principles and design of AES and DES, • demonstrate various encoding algorithm like Arithmetic Huffman, Hamming, Gray, and • demonstrate the application on various network applications.
11.	BBSR11	Topics in Discrete Mathematics	Kinsuk Giri	27.08.2018	31.08.2018	1	<p>After attending the program, the participants will be able to</p> <ul style="list-style-type: none"> • understand the fundamentals of discrete mathematics • solve problems in various areas of discrete mathematics • apply SCILAB to solve few discrete math problems
12.	BBSR12	Power Generation from Energy Resources	Sheela Yadav Rai	03.09.2018	07.09.2018	1	<p>After attending the programme the participants will be able to</p> <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
13.	BBSR13	Arc Welding Processes	Arpan Kumar Mondal	24.09.2018	28.09.2018	1	<p>After attending the programme the participants will be able to</p> <ul style="list-style-type: none"> • Explain the principles of arc welding processes. • Perform independently various arc welding processes.

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
14.	BBSR14	MATLAB Application in Engineering	Sagarika Pal	29.10.2018	02.11.2018	1	After completing the course the participant will be able to <ul style="list-style-type: none"> • use MATLAB commands • apply Control System Tool Box Commands • illustrate Simulink Modeling techniques • apply Image processing Tool Box Commands • apply Fuzzy Logic Tool Box Commands • explain Arduino Interfacing with MATLAB
15.	BBSR15	Management Issues of Laboratory and Workshop Classes	Dipankar Bose	12.11.2018	16.11.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • know nature of learning process in laboratory and workshop, • prepare laboratory log book • explain the role of instructor for laboratory/workshop, and issues of laboratory and workshop development • state management issues such as management of students, their attitude, diversity, timings • know assessment procedures of students for laboratory and workshop class • state the steps of procurement of laboratory items • suggest the training modules for laboratory /workshop personnel
16.	BBSR16	Safe Drinking Water	Sailendra Nath Mandal	26.11.2018	30.11.2018	1	After attending the programme the participants will be able to acquire – <ul style="list-style-type: none"> • knowledge of basic concept of Drinking Water quality and impact of each quality parameter on human health, testing of drinking water parameters, • skill of handling portable equipment, some kit, performing related experiments, interpreting experimental results, preparing related test-reports with remarks/comments , • attitude of hand-on working in the mobile laboratory/field (Plant Visit)
17.	BBSR17	Development & Implementations of Technical Curricula	Sukanta Kumar Naskar	10.12.2018	14.12.2018	1	After attending the programme participants will be able to: <ul style="list-style-type: none"> • distinguish between curricula & syllabus • identify different stages of developing curricula • appreciate different approaches for developing curricula • identify factors for effective implementation of technical curricula
18.	BBSR18	Research Methodology	Subrata Chattopadhyay	17.12.2018	21.12.2018	1	After attending the course the participants will be able to understand the <ul style="list-style-type: none"> • meaning, objectives and types of research • qualities of researcher • significance of research • research process • research problem • features, importance, characteristics, concepts and types of research design • case study research • hypothesis and its testing • sample survey and Sampling Methods
19.	BBSR19	Developments of Laboratory Instructions	Nirmal Kumar Mandal	31.12.2018	04.01.2019	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Acquire Different types of employable skills. • Assess the performance of learner.
20.	BBSR20	Thesis and Research Paper Writing	Rayapati Subbarao	07.01.2019	11.01.2019	1	At the end of the programme, the participants will be to: <ul style="list-style-type: none"> • identify the structure and scope of the thesis. • interpret research results in a better way. • identify the tools available for making plots.

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
21.	BBSR21	Intelligent Textile Materials	Subrata Mondal	14.01.2019	18.01.2019	1	After attending this program, participants would be able to: <ul style="list-style-type: none"> • describe the concept of intelligent materials and systems. • describe the phase change materials and its applications in the textile fields. • explain the shape memory polymers and its applications in textiles. • explain the electroactive materials and its application in textiles. • explore the intelligent textiles for space, defences etc.
22.	BBSR22	Advanced Control System with MATLAB Simulation	Prasanta Sarkar	21.01.2019	25.01.2019	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • understand the recent trends in automation & control • use modern control technique in controller design • use robust control technique in controller design • implement intelligent control techniques • apply matlab Control System Toolbox
23.	BBSR23	Introduction to Cyber Security	Indrajit Saha	04.02.2019	08.02.2019	1	After attending the program, the participants will be able to <ul style="list-style-type: none"> • describe the fundamentals of Cyber Security • demonstrate how to maintain the privacy of computer data • explain cyber security in classroom
24.	BBSR24	Induction Training	Habiba Hussain	11.02.2019	15.02.2019	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • analyse the components of LT system • identify principles of designing curriculum • explore motivational techniques • demonstrate effective communication • correlate teaching and assessment
25.	BBSR25	Essentials of Strategic Management	Sukanta Kumar Naskar	18.02.2019	22.02.2019	1	After attending the programme participants will be able to: <ul style="list-style-type: none"> • appreciate importance of strategic management in organizational context • define strategy and strategic management • identify components of strategic management process • apply strategic management principles in respective organization • initiate strategic planning process
26.	BBSR26	Analysis and Design of Shallow Foundations	Jagat Jyoti Mandal	04.03.2019	08.03.2019	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • determine settlement and bearing capacity of shallow foundations and deep foundation • design different types of shallow foundations <ul style="list-style-type: none"> ✓ Isolated, ✓ combined footing and ✓ raft foundation and • teach the related topics in more efficient manner
27.	BBSR27	Analysis of Nonlinear Control Systems	Urmila Kar	11.03.2019	15.03.2019	1	After attending this programme, the participants will be able to <ul style="list-style-type: none"> • explain fundamentals nonlinear control systems • explain the need for analysis of nonlinear control systems • explain types of commonly available nonlinearities and their representation • identify approaches for analysis of nonlinear control systems • select techniques for analyzing stability of nonlinear control systems • simulate models for analysis of nonlinear control systems using MATLAB programming / SIMULINK • use MATLAB control system tool box for designing experiments on nonlinear control systems
28.	BBSR28	Engineering Drawing using Software	Mithu Dey	25.03.2019	29.03.2019	1	After attending the program, participants are expected to 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

(ii) For participants from Technical Institutions in North East States only

Venue: NITTTR Kolkata Extension Centre GUWAHATI

Sl. No	Prog Code	Programme Title	Programme Co-ordinator (s)	Date		Week	Programme Objectives
				From	To		
1.	GUW01	Control Systems Analysis & Design using MATLAB	Prasanta Sarkar	14.05.2018	18.05.2018	1	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 in simulation
2.	GUW02	Outcome Based Education and Accreditation	Urmila Kar	21.05.2018	25.05.2018	1	After attending the programme, participants will be able to: <ul style="list-style-type: none"> • explain the need for and features of Outcome Based Education (OBE) • justify the requirement of Outcome based accreditation(OBA) • identify parameters for OBA • illustrate steps for developing outcome based curriculum (OBC) • identify outcome based learning-teaching and assessment processes • explain the process of preparing self-assessment report (SAR) for Accreditation by NBA
3.	GUW03	MATLAB Application in Engineering	Sagarika Pal	28.05.2018	01.06.2018	1	After completing the course the participant will be able to <ul style="list-style-type: none"> • use MATLAB commands • apply Control System Tool Box Commands • illustrate Simulink Modelling techniques • apply Image processing Tool Box Commands • apply Fuzzy Logic Tool Box Commands • explain Arduino Interfacing with MATLAB
4.	GUW04	Essentials of Strategic Management	Sukanta Kumar Naskar	04.06.2018	08.06.2018	1	After attending the programme participants will be able to: <ul style="list-style-type: none"> • Appreciate importance of strategic management in organizational context • Define strategy and strategic management • Identify components of strategic management process • Apply strategic management principles in respective organization • Initiate strategic planning process
5.	GUW05	Entrepreneurship Development among Students-Role of Teachers	Sekhar Chakraborty	11.06.2018	15.06.2018	1	The training will enable the participants to: <ul style="list-style-type: none"> • identify the importance of entrepreneurship development • inculcate basic entrepreneurial characteristics among students • analyse various stages of entrepreneurial development • help students draw business plan
6.	GUW06	Introduction to Coding Theory	Rajeev Chatterjee	02.07.2018	06.07.2018	1	After going through this program the participants will be able to: <ul style="list-style-type: none"> • explain Information, quality of Information, information entropy, • demonstrate the Working principles and design of AES and DES, • demonstrate various encoding algorithm like Arithmetic Huffman, Hamming, Gray, and • demonstrate the application on various network applications.
7.	GUW07	Modelling of Engineering Systems	Nirmal Kumar Mandal	16.07.2018	20.07.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Model a system. • Analyse the system

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				From	To		
8.	GUW08	Drinking Water and Health Benefits	Sailendra Nath Mandal	30.07.2018	03.08.2018	1	After attending the programme the participants will be able to acquire – <ul style="list-style-type: none"> • knowledge of basic concept of drinking water quality parameter and impact of each parameter on human health, • skill of handling portable equipment, some kit, performing related experiments, interpreting experimental results, preparing related test-reports with remarks/comments (if any), • attitude of hand-on working in the mobile laboratory/field (Plant Visit)
9.	GUW09	Principles of RCC Design up to and beyond Limit States Highlighting the Shortcomings of IS:456-2000 with application of Software	Santanu Bhanja	03.09.2018	07.09.2018	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • Know the history and evolution of reinforced concrete design • Identify the principles underlying the limit state method of reinforced concrete design • Understand the fundamental aspects for design under flexure, shear and compression with reference to earthquake resistant design • Design and detail structures which are expected to overloading • Be familiar to a computer software for design of RC structural elements Participants will be awarded a complete unlimited licenced version of STAAD.Pro v8i & Staad.foundation Advanced v8i for personal use on their PC's for full one year for academic purpose
10.	GUW10	How to Make Effective Presentation (Practice base)	Sekhar Chakraborty	10.09.2018	14.09.2018	1	The training will enable the participants to; <ul style="list-style-type: none"> • plan a presentation judiciously • make presentation effectively in any kind of situation.
11.	GUW11	Student Mentorship	Habiba Hussain	24.09.2018	28.09.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • explain role of a teacher as mentor • analyse mentoring skills • identify mentoring styles
12.	GUW12	Machine Learning and It's Applications	Indrajit Saha	08.10.2018	12.10.2018	1	After attending the program, the participants will be able to <ul style="list-style-type: none"> • describe the fundamentals of Machine Learning (ML) • apply ML for clustering, classification and regression • explain machine learning in classroom
13.	GUW13	Estimating & Costing of Non-Conventional Energies	Sheela Yadav Rai	29.10.2018	02.11.2018	1	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
14.	GUW14	Analysis of Nonlinear Control Systems	Urmila Kar	12.11.2018	16.11.2018	1	After attending this programme, the participants will be able to <ul style="list-style-type: none"> • explain fundamentals nonlinear control systems • explain the need for analysis of nonlinear control systems • explain types of commonly available nonlinearities and their representation • identify approaches for analysis of nonlinear control systems • select techniques for analyzing stability of nonlinear control systems • simulate models for analysis of nonlinear control systems using MATLAB programming / SIMULINK • use MATLAB control system tool box for designing experiments on nonlinear control systems

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				From	To		
15.	GUW15	Bio-Medical Instrumentation	Subrata Chattopadhyay	26.11.2018	30.11.2018	1	After attending the course the participants will be able to <ul style="list-style-type: none"> • understand Cells, Digestive System, Excretory System, Endocrinology • describe Origins of electro-physiological signal and their characteristics • design practical clinical sensors and transducers • understand the operation of X-ray, Fluoroscopy and Radiography, Pacemaker, Magnetic Resonance Imaging etc. • explain Electric shock hazards and safety devices
16.	GUW16	Fundamental Concepts of Geotechnical Engineering	Jagat Jyoti Mandal	10.12.2018	14.12.2018	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • explain basic concepts of Geotechnical Engineering and its applicability in Civil engineering • Apply these concepts to solve practical problems • Impart acquired knowledge to students in a systematic manner
17.	GUW17	Arc Welding Processes	Arpan Kumar Mondal	14.01.2019	19.01.2019	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Explain the principles of arc welding processes. • Perform independently various arc welding processes.
18.	GUW18	Advanced Control System with MATLAB Simulation	Prasanta Sarkar	04.02.2019	08.02.2019	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • Understand the recent trends in automation & control • Use modern control technique in controller design • Use robust control technique in controller design • Implement intelligent control techniques • Apply MATLAB Control System Toolbox
19.	GUW19	Management issues of Laboratory and Workshop Classes	Dipankar Bose	11.02.2019	15.02.2019	1	After attending the programme the participants will be able to <ul style="list-style-type: none"> • Know nature of learning process in laboratory and workshop, • Prepare laboratory log book • Explain the role of instructor for laboratory/workshop, and issues of laboratory and workshop development • State management Issues such as management of students, their attitude, diversity, timings • Know assessment procedures of students for laboratory and workshop class • State the steps of procurement of laboratory items • Suggest the training modules for laboratory /workshop personnel
20.	GUW20	How to write Thesis or Research Paper	Rayapati Subbarao	18.02.2019	22.02.2019	1	At the end of the programme, the participants will be able to: <ul style="list-style-type: none"> • describe the steps involved in writing a thesis. • identify the scope of a thesis. • construe the results in a better way. • derive conclusions from the plots and contours made. • discover the ways of writing a research paper.
21.	GUW21	Waste Water Treatment: Pollution Control and Reuse	Subrata Mondal	25.02.2019	01.03.2019	1	After attending this program, participants would be able to: <ul style="list-style-type: none"> • explain the characterizations of wastewater. • explore the characteristics of various industrial wastewaters. • describe the wastewater treatment using low cost adsorbents and nano sized adsorbents. • describe the wastewater treatment using membrane technology etc.
22.	GUW22	Material Management & Purchase Procedure	Sukanta Kumar Naskar	04.03.2019	08.03.2019	1	After attending the programme participants will be able to: <ul style="list-style-type: none"> • Be acquainted with stores management & operations • Know materials identification system • Identify appropriate material handling system • Identify safety and security measures related to materials handling • Appreciate purchasing principles

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				From	To		
23.	GUW23	Numerical and Statistical Methods Using Software Tools	Kinsuk Giri	11.03.2019	15.03.2019	1	After attending the program, the participants will be able to <ul style="list-style-type: none"> • understand the fundamentals of discrete mathematics • solve problems in various areas of discrete mathematics • use SCILAB to solve few discrete math problems
24.	GUW24	Power Electronics	Soumitra Kumar Mandal	18.03.2019	22.03.2019	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • Study performance characteristics of Power Diode, MOSFET, SCR, IGBT, DIAC and TRIAC • Describe Single Phase and Three Phase Uncontrolled and Controlled Converters • Understand Commutation of SCRs, Inverter, Chopper & Cyclo-converter • Study AC and DC Drives, UPS, Power factor Improvement
25.	GUW25	Instructional Planning	Samiran Mandal	25.03.2019	29.03.2019	1	After attending the programme, the participants will be able to <ul style="list-style-type: none"> • explain different stages in instruction in a class • explain the major steps in lesson planning • describe the outline of lesson plan • construct test items for evaluation of students performance.