National Institute of Technical Teachers' Training and Research, Kolkata

Newsletter

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Message from Director

I am glad to learn that all of you have come back to our institute after a long time with new energy and vigour as result of unlock process. I feel that your very presence in the campus has reverberated again with eternal music of life. The butterfly has started flying with her tiny bur colourful wings spreading the message of freedom and birds has singing the song of love with dance of your *karma on* the backdrop of cloud speckled sky creating symphony of joy. Some of you might be getting frightened and embroiled with pandemic Covid, a virus of nano size which has created the havoc on the minds of millions of people across the globe. However, our Indian scripture says, we are the eternal beings and need not harbour any trace of fear if we are educated at all. Unfortunately, we are not aware of powerful words of wisdoms of our ancestors due to prevailing inhumanistic education system. We should not get bogged down by nano size virus that has caused dreadful death to thousands of people. Of course anybody who has taken birth has to die one day. As we believe in rebirth, then we need not worry about death if it is inevitable because we will take birth again with a new body as enshrined in our scripture;

जातस्य हि ध्रुवो मृत्युर्ध्रुवं जन्म मृतस्य च।
तस्मादपरिहार्येऽर्थे न त्वं शोचितुमर्हसि।।

Death is certain indeed for anyone who has taken birth and birth is certain for what is dead. Hence you should not cry over a thing as it is unavoidable. However, one has to take all precautions to avoid any contact with deadly corona virus. We do intercourse with millions of viruses of different kinds in everyday without much botheration. Unfortunately, with this advent of Covid virus, we are dying every minute with frightful fear of death which is unavoidable. Therefore, we need not live a frightened life as it can impair our immunization system succumbing stupidly to awful attack of Covid virus instead of fighting it bravely powered with infinite potent of our mind.

I take this opportunity to call upon to work like a brave warrior to fight with power of mind and demonstrating the infinitude of soul that we epitomize as a human being in this beautiful earth.

ॐ शांतिः शांतिः शांतिः

Prof. Debi Prasad Mishra
Director, NITTTR, Kolkata

Design Thinking to Rethink Instruction

Dr. Habiba Hussain
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Introduction

Teaching is very much affected by the VUCA (volatile, uncertain, complex & ambiguous) world. Applying the chaos theory to classroom teaching, teachers can prepare themselves for any uncertainty and unpredictability that are inevitable. But, the situation becomes too complex when such factors are manifold; and, here comes design thinking much to the aid of teachers. As design thinking focuses on the present, it becomes imperative to discuss on this.

Design thinking

Design thinking is an iterative process driven primarily by empathy & ideation, followed by prototyping and testing to create products that deliver improved user experience. Evolution of design thinking dates back to the 50s & early 60s as per the available literature.
Let us consider two situations that call for creating solutions analysing new teaching-learning deliveries for keeping students in a consistently flexible mind-set to move from real classrooms to virtual ones, addressing the following challenges.

a) Nurturing learners' passions and emotions and attention spans in a heterogeneous class.
b) Engaging students in a laboratory/practical class, where they get the feel of learning hands-on, even learning from mistakes they do in an offline/face-t-face lab class?

Design thinking can be used to address both given situations.

As it is used to understand the user, challenge assumptions and redefine problems, it would certainly prove effective in moving to online from offline, now being practiced nation-wide due to the pandemic.

Teachers are great artists who can create engaging learning environment in real classrooms (face-to-face or contact mode), but moving to virtual learning environment unprepared would require creative endeavour on the part of teachers.

The Process

Let us reflect as to whether the design thinking process suits well to address this situation. We shall adopt the 5 steps of design thinking process, which are as follows (figure taken from google images):

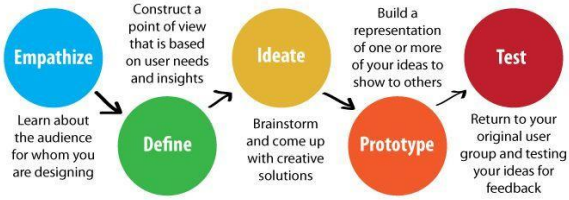


Fig. 1: Design thinking Process

Analysing the (a) classroom teaching or engaging students in (b) laboratory/practical classes, it is well understood that these 5 steps can prove useful to redesign our teaching.

1) Empathize

The first step allows the teachers to keep aside their assumptions. Empathising would help the teachers/instructors in understanding the learners better. As teachers, we can realise that the students are also passing through this period of uncertainty and are equally anxious about their return to their college premises. Shifting the learning situation altogether to a different mode brings in several problems and apprehensions. This applies both to the learners and teachers.

2) Define

Once the problem is identified, it has to be defined very clearly and objectively. We have to collate the information received in the previous step regarding students' needs, the challenges in the shift, etc. This would help in defining the problem with a human-centred approach. Here the problem could be defined as designing an engaging pedagogy for both theory & lab. Classes. Hence, one can take care of both the given situations, i.e., nurturing learners' passions, emotions and attention spans in a heterogeneous class of average, below average and above average students; as also suggesting ways to engage in a laboratory/practical class, where students get the feel of learning hands-on, even learning from mistakes they do in an offline lab class.

3) Ideate

Looking for alternative ways of viewing the problem would be the next step of ideating. The design thinking process is a team effort, hence, in this step, the team

members can brainstorm themselves to come out with ideas and suggest alternatives to arrive at feasible solutions. These would then be investigated so as to plan the best way to solve the problem.

4) Prototype

Once the problem is identified, it has to be defined very clearly and objectively. We can develop a proof of concept (POC) to test the design idea or assumption. The main purpose of the POC would be to demonstrate the functionality and to verify the design that can be achieved in development. As this is the case of a teaching scenario, POC has been considered to be more apt than prototyping. On the one hand, it would serve in studying the feasibility of the design & on the other hand, making the limitations visible.

5) Test

A pilot test can be carried out to confirm the best alternative as the solution. As is evident from figure 2, design thinking would help in utilising both convergent & divergent thinking processes.

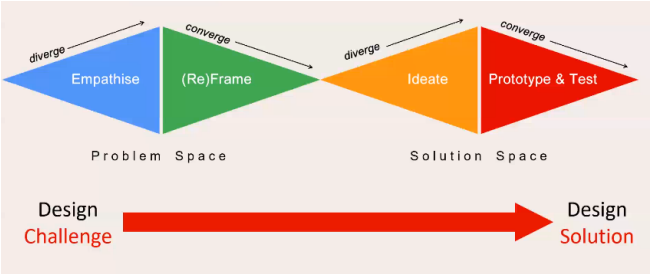


Fig. 2: Design challenge to design solution

Suggestions

For situation (a), regarding nurturing learners' passions and emotions and attention spans in a heterogeneous class of average, below average and above average students, teachers can use a variety of techniques, like blended learning, flipped classroom, active learning etc., primarily to engage and involve students in learning. Students have to be engaged in dialogue and discussion, role plays, case studies depending upon the nature of content.

Similarly, situation (b) to engage in a laboratory/practical class, where students get the feel of learning hands-on, class can be handled using simulation & modelling as per the task to be carried out. Let the learning from mistakes they do in an offline laboratory class (face-to-face interaction) be also highlighted. Programmed instruction can also be used to guide students in a step-by-step manner so that they can imitate the demonstration by the teacher, articulate and reach perfection.

Whatever be the strategy, approach or design, it all depends on the implementation.

Implementation

The implementation of the design of teaching solution would be based on six-hat thinking as it helps to analyse the problem from different perspectives. Obviously, the information would be collected from different stakeholders (white hat) before implementing the design. This would certainly call for a mixed bag of feelings (red hat). One can expect certain cautions and limitations to be pointed out by some of the team members (black hat). The benefits would certainly be looked into (green hat) and new ideas of implementation would crop up (yellow hat). All said and done, these have to be put together to begin with (blue hat).

There is a good mix of cognitive and affective domain when we talk about design thinking to improve training, for. Design thinking starts with empathy. Hence, it takes into consideration, the human element in design, the shift is obviously to a learner-centred instruction. Moreover, the collaborative team effort in implementation is encouraging.

Conclusion

To conclude, one must realise that it's high time that we think differently. If implemented in its right spirit, design thinking process can certainly transform the teacher to a transformer, a catalyst and a facilitator in its true sense. However, it is very crucial to understand that for implementing whatever has been discussed, one essentially requires the design thinking mindset. An effort has been made to provide a bird's eye view of relevance of design thinking in the arena of instruction. This article is being forwarded to the current issue of this newsletter with a transferrable essence.

Bibliography:

- Brown, T (2008). Design Thinking. Harvard Business Review
- Brad Hokanson, Andrew Gibbons (Eds.) (2014). Design in Educational Technology - Design Thinking, Design Process, and the Design Studio, Springer International Publishing Switzerland
- Idris Mootee (2013). Design Thinking for Strategic Innovation, John Wiley & Sons Inc., New Jersey.

Teachers' Training

During the period of July to September 2020, a total of 6288 technical teachers have been trained, through short-term training programmes, broadly in the areas of content updating, management, pedagogy and professional skill development. Due to lockdown situation these programmes have been conducted primarily in online mode. Details of the programmes are given below.

List of Programmes (July to September 2020)

Sl. No.	Programme Co-ordinator(s)	Prog. Code	Programme Title	From	To
1.	Chandan Chakraborty & Kinsuk Giri	ICT54	Big Data Analytics	06/07/2020	10/07/2020
2.	Jagat Jyoti Mandal, Dipankar Bose & Samiran Mandal	ICT55	Concept Teaching in Engineering Mechanics	06/07/2020	17/07/2020
3.	Nirmal Kumar Mandal	ICT56	Theory of CNC Machines	06/07/2020	10/07/2020
4.	Rajeev Chatterjee	ICT57	Advance Programming in C	06/07/2020	10/07/2020
5.	Ranjan Dasgupta & Arpan Kumar Mondal	ICT58	Introduction of Accreditation Mechanism - NBA Approach	06/07/2020	10/07/2020
6.	Sagarika Pal & Subrata Chattopadhyay	ICT59	Theory, Operation and Experimentation on Sensors, Transducers & Actuators	06/07/2020	10/07/2020
7.	Urmila Kar	ICT60	Designing Teaching under Outcome Based Education	06/07/2020	10/07/2020
8.	Habiba Hussain	ICT61	Leadership & Team Building in Academia	13/07/2020	17/07/2020
9.	Prasanta Sarkar	ICT62	Engineering Capstone Project	13/07/2020	17/07/2020
10.	Sheela Yadav Rai	ICT74	Power Generation from Energy Resources	13/07/2020	17/07/2020
11.	Chandan Chakraborty	ICT63	Pattern Recognition: Theory and Applications	20/07/2020	24/07/2020
12.	Rayapati Subbarao	ICT64	NBA Accreditation and SAR preparation	20/07/2020	24/07/2020
13.	Sagarika Pal & Subrata Chattopadhyay	ICT65	Induction Training	20/07/2020	24/07/2020
14.	Sailendra Nath Mandal	ICT66	Laboratory Experimentation in Engineering Chemistry	20/07/2020	24/07/2020
15.	Sukanta Kumar Naskar	ICT67	Essentials of Strategic Management	20/07/2020	24/07/2020
16.	Uday Chand Kumar	ICT68	Library Management	20/07/2020	24/07/2020
17.	Urmila Kar	ICT69	Induction Training - Phase I	20/07/2020	24/07/2020
18.	Indrajit Saha	ICT70	Fundamentals of Network Security	27/07/2020	31/07/2020
19.	Kinsuk Giri	ICT71	Problem Solving with SCILAB	27/07/2020	31/07/2020
20.	Subrata Mondal	ICT72	Fundamental and Applications of Nanomaterials	27/07/2020	31/07/2020
21.	Santanu Bhanja	ICT73	Modelling, Analysis and Design of structures using latest version of STAAD	27/07/2020	31/07/2020
22.	Sheela Yadav Rai	ICT75	Role of Technical Institutions in Community Development	27/07/2020	31/07/2020
23.	Soumitra Kumar Mandal	ICT76	Electrical and Electronics Circuit Analysis using MATLAB	27/07/2020	31/07/2020
24.	Dipankar Bose	ICT77	Fluid Machines	03/08/2020	07/08/2020
25.	Habiba Hussain	ICT78	Writing Research Proposals	03/08/2020	07/08/2020
26.	Jagat Jyoti Mandal	ICT79	Settlement & Bearing Capacity Analysis of Shallow Foundations	03/08/2020	07/08/2020
27.	Rajeev Chatterjee & Ranjan Dasgupta	ICT80	Network Infrastructure and Cloud Security	03/08/2020	07/08/2020
28.	Sagarika Pal	ICT81	Skill Assessment in Laboratory and Guiding Students'	03/08/2020	07/08/2020
29.	Samiran Mandal	ICT82	Instructional Planning	03/08/2020	07/08/2020
30.	Urmila Kar	ICT83	Induction Training - Phase II	03/08/2020	07/08/2020
31.	Sheela Yadav Rai	ICT84	Estimating & Costing of Non-conventional Energies	10/08/2020	14/08/2020
32.	Chandan Chakraborty	ICT85	Data Science with R programming	10/08/2020	21/08/2020
33.	Uday Chand Kumar	ICT86	Construction Management	10/08/2020	14/08/2020
34.	Mithu Dey	ICT88	Introduction to IS 1893-2016	17/08/2020	21/08/2020
35.	Nirmal Kumar Mandal	ICT89	Automated Manufacturing Systems	17/08/2020	21/08/2020
36.	Rayapati Subbarao	ICT90	How to Write Thesis and Research paper	17/08/2020	21/08/2020
37.	Sagarika Pal	ICT91	PLC Programming and its Applications	17/08/2020	21/08/2020
38.	Sailendra Nath Mandal	ICT92	Environmental Consciousness	17/08/2020	21/08/2020
39.	Subrata Chattopadhyay	ICT93	Medical Electronics	17/08/2020	21/08/2020
40.	Sukanta Kumar Naskar	ICT94	Effective Training	17/08/2020	21/08/2020
41.	Indrajit Saha	ICT87	Technology Enable Learning	24/08/2020	28/08/2020
42.	Sheela Yadav Rai	ICT95	Community Development through Technical Institutes	24/08/2020	28/08/2020
43.	Prasanta Sarkar	ICT96	Application of MATLAB in Engineering	24/08/2020	28/08/2020
44.	Samir Roy	ICT97	Design and Analysis of Algorithms	24/08/2020	28/08/2020
45.	Santanu Bhanja	ICT98	Philosophy of Ductility RCC Design as per IS: 13920-2016	24/08/2020	28/08/2020
46.	Habiba Hussain	ICT99	Fundamentals of OBE	31/08/2020	04/09/2020
47.	Mithu Dey	ICT100	Introduction to IS 800-2007	31/08/2020	04/09/2020
48.	Rajeev Chatterjee	ICT101	Introduction to Coding Theory	31/08/2020	04/09/2020
49.	Subrata Mondal	ICT102	Polymer Composites and Nanocomposites	31/08/2020	04/09/2020
50.	Kinsuk Giri	ICT104	Engineering Optimization	31/08/2020	04/09/2020
51.	Uday Chand Kumar	ICT104	Rural Development and Role of Technical Institution	07/09/2020	11/09/2020
52.	Urmila Kar	ICT105	Outcome Based Accreditation and NBA	07/09/2020	11/09/2020
53.	Sukanta Kumar Naskar	ICT106	Essentials of Strategic Management	07/09/2020	11/09/2020
54.	Sagarika Pal	ICT107	Industrial Automation using PLC, DCS and SCADA	07/09/2020	11/09/2020

55.	Nirmal Kumar Mandal	ICT108	Engineering System Modelling	07/09/2020	11/09/2020
56.	Rayapati Subbarao	ICT109	NBA Accreditation and SAR Preparation for Engineering Institutes	07/09/2020	11/09/2020
57.	Samiran Mandal	ICT110	Development of Mechanical Engineering Laboratory Experiments and Instruction Sheets	07/09/2020	11/09/2020
58.	Dipankar Bose	ICT111	Effective Modes of Student Assessment and Evaluation	07/09/2020	11/09/2020
59.	Ranjan Dasgupta & Samir Roy	ICT112	Concepts of Software Engineering	07/09/2020	11/09/2020
60.	Jagat Jyoti Mandal	ICT113	Design & Detailing of Reinforced Concrete Structural Elements	07/09/2020	11/09/2020
61.	Prasanta Sarkar	ICT114	Control Engineering with MATLAB	07/09/2020	11/09/2020
62.	Sailendra Nath Mandal	ICT115	Testing and Health Benefits of Drinking Water	07/09/2020	18/09/2020
63.	Sheela Yadav Rai	ICT116	Renewable Energy Sources and Emerging Technologies	07/09/2020	11/09/2020
64.	Subrata Chattopadhyay	ICT117	Advanced Process Control using PLC DCS and SCADA	07/09/2020	11/09/2020
65.	Soumitra Kumar Mandal	ICT118	Linear Control System Analysis and Fuzzy Logic Control Using MATLAB	14/09/2020	18/09/2020
66.	Chandan Chakraborty	ICT119	Applied Machine Learning	14/09/2020	25/09/2020
67.	Santanu Bhanja	ICT120	Application of Software for analysis and Design using IS:456-2000 and IS:13920-2016	14/09/2020	18/09/2020
68.	Mithu Dey	ICT121	AutoCAD for Engineers	14/09/2020	18/09/2020
69.	Urmila Kar	ICT122	Active Learning under engineering education	21/09/2020	25/09/2020
70.	Indrajit Saha	ICT123	Data Analysis using MATLAB	21/09/2020	25/09/2020
71.	Habiba Hussain	ICT124	Leadership & team building in academia	21/09/2020	25/09/2020
72.	Sukanta Kumar Naskar	ICT125	Essentials of HRM	21/09/2020	25/09/2020
73.	Sagarika Pal	ICT126	Applications of MATLAB in Control System, Image Processing, Fuzzy Logic and GUI	21/09/2020	25/09/2020
74.	Samir Roy	ICT127	Design & Analysis of Algorithms	21/09/2020	25/09/2020
75.	Subrata Chattopadhyay	ICT128	Power Plant Instrumentation	21/09/2020	25/09/2020
76.	Rayapati Subbarao	ICT129	Thesis and Research paper writing	21/09/2020	25/09/2020
77.	Samiran Mandal	ICT130	Assessment and Evaluation of student's Performance	21/09/2020	25/09/2020
78.	Dipankar Bose	ICT131	Hydraulics	21/09/2020	25/09/2020
79.	Prasanta Sarkar	ICT132	Electricity Rules and Code of Practices	21/09/2020	25/09/2020
80.	Arpan Kumar Mondal	ICT133	Introduction to Welding Processes	21/09/2020	25/09/2020
81.	Sheela Yadav Rai	ICT134	Power Generation from Energy Resources	21/09/2020	25/09/2020
82.	Nirmal Kumar Mandal	ICT136	CNC Machines	28/09/2020	02/10/2020
83.	Indrajit Saha	ICT137	Fundamentals of Network Security	28/09/2020	02/10/2020
84.	Kinsuk Giri	ICT138	Numerical and Statistical Methods with SCILAB	28/09/2020	02/10/2020
85.	Soumitra Kumar Mandal	ICT139	Refresher course on Digital Electronics	28/09/2020	02/10/2020
86.	Uday Chand Kumar	ICT140	Managing Learning Resources	28/09/2020	02/10/2020
87.	Santanu Bhanja	ICT141	Design of Earthquake Resistant RCC Buildings using Fundamental Principles of Limit State Method and beyond	28/09/2020	02/10/2020

Seminars

National Seminar (web) on "Entrepreneurship Development for North Eastern States"

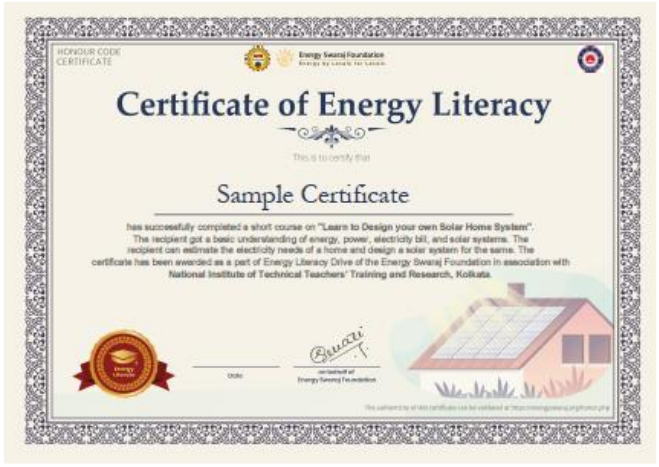
Under the patronage of the Director, Prof. Debi Prasad Mishra, the National Seminar (web) on "Entrepreneurship Development for North Eastern States" was organized on 19th September 2020 by a team of the National Institute of Technical Teachers' Training and Research (NITTTR) Kolkata, Coordinated by Dr. Subrata Mondal, Dept. of ME, NITTTR Kolkata. The programme started at 10:00 A.M., and Prof. Mishra, the Director, NITTTR Kolkata welcomed the guests and participants. The Chief Guest of the programme His Excellency Shri. Temjen Imna Along, Hon'ble Minister for the Higher Education & Technical Education, Tribal Affairs, Govt. of Nagaland discussed diversity of North Eastern States and market gap in this region as compared with rest of the country. Hon'ble Minister also stressed on chain of entrepreneurships and importance of this kind web seminar. In the presentation and discussion session, Prof. Mishra, the Director, NITTTR Kolkata discussed entrepreneurship development programme in Humanistic approaches. Humanistic approach of entrepreneurship has been embedded in the ancient system of Indian culture which inculcates in true sense an increased entrepreneurship skill. The said entrepreneurship skill advocates the welfare of mankind. The market economy thwarts welfare and creates unrest in the society. The western approach to the entrepreneurship has many lacuna and that in true sense, it is degenerating to the society to large extent. If these novel humanistic approach of entrepreneurship is properly practised, it will nurture and foster the environment as performed by our ancestors and will pave the way for the welfare of Bharat as well as the entire mankind. The last speaker

of the programme, Dr. Subrata Mondal, the Coordinator of the web seminar programme discussed outcome of skill and innovation contests for the polytechnics organized by NITTTR Kolkata, and also introduced Institute's entrepreneurship development project for the youths of North Eastern States. The last event in the programme was panel discussion on "Entrepreneurship Development for North Eastern States: Challenges and opportunities", and the panellists were Dr. Prasanta Sarkar, Professor, Dept. of EE, Dr. Chandan Chakraborty, Professor, Dept. of CSE, Dr. Santanu Bhanja, Professor, Dept. of CE, and Dr. Subrata Mondal, Coordinator of the programme. Prof. Sarkar highlighted integration of traditional technology with the modern science and technology which are available, and required infusion of new technologies. Entrepreneurship opportunities for the applications of data science in the fields of agriculture and health pointed out by Prof. Chakraborty. Prof. Bhanja stressed on entrepreneurship prospects in traditional construction materials such as bamboo, timber, rocks etc., earthquake resistant structures and skilled construction workers. While, Dr. Mondal highlighted entrepreneurship opportunities in the socio-business ventures using an eco-system in traditional areas and tourism. Prof. Sarkar was the moderator of the panel discussion group. The programme ended with vote of thanks. More than seven hundred participants from all over the country registered for the programme. The National Seminar (web) was successfully organized with active support and valuable contributions by Dr. Sukanta Kumar Naskar, Associate Prof., Dept. of EM, Dr. Kinsuk Giri, Assistant Prof., Dept. of CSE, Dr. Arpan Kumar Mondal, Assistant Prof., Dept. of ME, and Shri. Nirmal Kumar Mandal, Associate Prof., Dept. of ME.

National Seminar (Web) on "Advances on Machining"

The Department of Mechanical Engineering have conducted a National Seminar (Web) titled 'Advances on Machining' on 26th September 2020 in collaboration with State Project Implementation Unit, Uttar Pradesh. The programme started at 9.30 am. and the Director Prof. Debi Prasad Mishra welcomed the guests and participants. The Chief Guest of the programme Shri Sankar Ghosh, GM – QA &QC, Haldyn Heinz Fine Glass Ltd. addressed the participants in the arena of advancement of manufacturing applied to the industrial world. Prof. Debi Prasad Mishra, the Director, NITTTR, Kolkata was the first speaker and discussed on the machining aspects of ceramics by Electric Discharge Method. The next speaker Prof. Subhasis Bhaumik, Dean R & C, IIEST Shibpur has enlightened the participants in the field of Industry 4.0. After his presentation Dr. Manas Das, Associate Professor, ME Department IIT, Guwahati has elaborated the application of micromachining in the area surface finishing. The last speaker Shri Nirmal Kumar Mandal, Associate Professor, ME Department, NITTTR Kolkata discussed about the various aspects of high speed machining. The programme ended with vote of thanks. The programme was jointly coordinated by Shri Nirmal Kumar Mandal and Dr. Arpan Kumar Mondal on behalf of the Department of Mechanical Engineering. Total 822 participants attended the programme through WEB.

Energy Literacy Drive by NITTTR Kolkata in collaboration with Swaraj Energy Foundation



Under the patronage of the Director, Prof. Debi Prasad Mishra the Natural Resource Harvesting Team (NRHT) of the institute lead by Prof. Prasanta Sarkar, Chairman, NRHT conducted a three hours video awareness programme on "Learn to Design your own Solar Home System" in collaboration with Swaraj Energy Foundation. The course certification was free till 15th August 2020 on qualifying quiz. This was an important awareness programme on the renewable energy in the current scenario of Green House emission and subsequent climate change and our commitment towards reduction of 30% of greenhouse gases by 2030. The course was open to all disciplines and supported by the All India Council for Technical Education (AICTE). After wide publicity by team members among our

trainees, current and past students with the help of Dr. Indrajit Saha, the team member of Web Management Team, and Dr. Rayapati Subbarao, then the PG Coordinator, a total six hundred nine (609) participants have registered for the programme. Among all registered participants, two hundred eleven (211) participants have been certified after successfully reaching the qualifying marks. Dr. Subrata Mondal, Secretary, NRHT Coordinated the programme placing the Institute in the forefront of Energy Swaraj movement.

National Seminar (Web) on "Atmanirbhar Bharat : Environmental Sustainability"

The 3rd National Seminar (web) on Atmanirbhar Bharat: Environment Sustainability was organized by National Institute of Technical Teachers' Training and Research with SPIU, Uttar Pradesh on 16th August, 2020 . The seminar started with chanting of Saraswati Stotram. Prof. Debi Prasad Mishra ,Director of NITTTR Kolkata welcomed the Chief Guest Dr. Anil Prakash Joshi, Guest of Honour Dr. Ravi Kant Pathak and the participants.

The Chief Guest Dr. Joshi Indian green activist, social worker, botanist and the founder of Himalayan Environmental Studies and Conservation Organization was the first speaker. He explained how rampant economic development is abusing the environment creating an overall deterioration in the society. In the name of economic development the only consideration is GDP which does not reflect the deterioration in air, water and ecology. He also stressed that to save life we have to be with the nature i.e. to preserve air, water, forest and hills . The consumer of the nature should be contributor to the nature.

Prof. Devi Prasad Mishra the second speaker said that the self-reliance in Atma Nirbhar Bharat was part of our culture. But we have forgotten our culture now we have to think of self-reliance . He gave some instances how pollution in rivers, in the Himalayan region, in the sea brought about deterioration in the environmental condition. The term sustainability came to wide use from 1972. The accelerated economic growth is harmful because of greediness. We want more than the requirement and this causes unbalance. The environment can be sustainable if economic growth is normal.

The last speaker was Dr. Ravi Kanta Mishra Senior Lecturer & Atmospheric Scientist in the department of Chemistry & Molecular Biology, University of Gothenburg, Sweden. He explained, how economic development means reduction in manpower and increase in mechanization hits the environment but now people are busy in harming the nature in name of development. Earlier we used to work holistically as there was complete harmony in all our activities. With rapid industrialization and urbanization there is air pollution, water pollution, high energy demand, black carbon generation from incomplete combustion of fuel ,misuse of water, use of pesticides and chemical for green revolution. Once climate changes there are different threats in water security, food security and energy security. The air around us is a self-created chemical soup creating different health hazards.

The last event was the panel discussion where the participants showed interest in the topic through interesting questions. Dr. Anil Kumar State Project Administrator, SPIU U.P. proposed vote of thanks. The whole programme was anchored by Dr. Kinshuk Giri. The seminar was attended by 600 participants.

Webinar on "Ancient Indian Science & Technology"

The 9th National Seminar (web) on Ancient Indian Science and Technology was organized on 13th, July 2020 by National Institute of Technical Teachers' Training and Research in collaboration with State Project Implementation Unit, Uttar Pradesh. The programme started at 9.30 A.M. and the Director Prof. Debi Prasad Mishra welcomed the guests and

participants. The Chief Guest of the programme Prof. Anil Sahasrabudhe discussed about the importance of the seminar and also highlighted the different initiatives taken by MHRD and AICTE. Prof. C.K. Raju. Eminent Mathematician and Computer scientist was the Guest of Honour was the first speaker and discussed about the History and Philosophy of Science. The next speaker Prof. Debi Prasad Mishra discussed in detail about the relevance of Ancient Indian Science and Technology today in the face deterioration of human values and western education system. The last speaker Dr. Kinsuk Giri, Assistant Professor, CSE Department of NITTTR, Kolkata discussed about the ancient mathematics where he explained how different mathematical concepts originated in different times of the history. The last event was the panel discussion. The programme ended with vote of thanks. More than thousand participants attended the seminar through web. Professor Samiran Mandal, ME Department, NITTTR, Kolkata was the Coordinator of the seminar and Dr. Arpan Kumar Mandal acted as anchor of the whole programme

List of talks delivered by Prof. Debi Prasad Mishra, Director, NITTTR, Kolkata

A. In programmes organized by NITTTR, Kolkata

1. 9th national level Webinar on Ancient Indian Science and Technology on 13th July, 2020 from 09:15 AM to 5:15 PM at NITTTR Kolkata by Arpan Kumar Mondal
2. Invitation for 74th Independence Day Celebration through Google meet 15-08-2020 at NITTTR Kolkata
3. Online In-house seminar -15.8.2020 at NITTTR Kolkata from 10: am to 2:00 pm by Dr. Sukanta Kumar Naskar
4. National Webinar on "3rd National Seminar(web) on "Atmanirbhar Bharat: Environmental Sustainability on 16-08-2020 from 9:15 AM to 2:00 PM at NITTTR Kolkata by Dr. Kinsuk Giri
5. Online In-House Seminar "Evolving of NITTTR, Kolkata and Future Strategy in line with NEP 2020" on 5th September, 2020 at 10:30 am to 2:30 PM at NITTTR Kolkata by Urmila Kar, Samir Roy
6. International Literacy Day on 08 September 2020 at 5:15 pm to 6:15 pm at NITTTR Kolkata
7. [Webinar] National Seminar (web) on Entrepreneurship Development for North Eastern States 19 September, 2020 at 10:00 am to 2:00 pm by Dr. Subrata Mondal Chief Guest Shri Temjen Imna Along, Hon'ble Minister for Higher Education & Technical Education, Tribal Affairs, Govt. of Nagaland
8. National Seminar (web) on Advances in Machining on 26th September 2020 at 9:30 am to 2:00 pm by N K Mondal and Arpan Kumar Mondal
9. Celebration Official Language (Hindi) on 30-09-2020 at 5:00 pm (web)

B. In programmes organized by other institutions

1. Short Term Course on 'Blockchain and Machine Learning' on 3rd July 2020 organized by CSE Department, Gurukula Kangri Vishwavidyalaya
2. Webinar on 'Scientific dimensions of Indian Culture' on 3rd July 2020 organized by Ek Bharat Shreshta Bharat Cell of Dr. B R A Government Girls PG College, Fatehpur
3. National webinar on "What do we teach, what do they learn" on 18th July 2020 organized by Raja Balwant Singh Engineering Technical Campus, Bichpuri, Agra
4. Corona Ki Sankat Ghari may Bharat Ki Atmanirbhar Ki Disha on 1st August, 2020
5. Rashtriya Sanskrit Manch, Assam Prant & Department of Sanskrit, B. Borooah College, Guwahati, Assam "Ayurveda and Vedic Wisdom: Its Relevance to Present day Contex"on 12th August, 2020
6. 'राष्ट्रवादी लेखक संघ' द्वारा आयोजित ई-विमर्श 'प्राचीन भारत में विज्ञान', 23 अगस्त, 2020, रविवार को प्रातः 11:00 बजे, गूगल मीट, Webinar
7. Shiksha Sanskriti Utthan Nyas, Paschimbanga Prant National Webinar on Implications of Technology Centric Education for making a Self-Reliant India on 4th September, 2020 at 7:00 pm
8. National Education Policy 2020 Addressing Economic Issues and Challenges for Atmanirbhar Bharat on 7th September, 2020 at 10:00 AM organize by SPIU, Uttar Pradesh
9. एक दिवसीय वेबिनार राष्ट्रीय चरखा दिवस के अवसर पर प्राकृतिक रेशा आधारित आजीविका संभावनाएं चुनोती औऱ नवाचार dt. 25-09-2020 at 4:30 pm to 6:00 pm

Invited Lectures by faculty members

1. Dr. Chandan Chakraborty, Professor of CSE, delivered an invited lecture entitled "*Fundamentals of Machine Learning & Deep Learning*" on 21-09-2020, in the AICTE Sponsored Online Short-Term Training Programme (STTP) on "Research Avenues in Machine Learning Approaches for Pattern Recognition", organized by Mahatma Gandhi Institute of Technology (MGIT), Hyderabad.

2. Dr. Habiba Hussain delivered invited lecture in an Online Faculty Development Program (eFDP) on "National Education Policy 2020 to strengthen the Roles of Pharmacy Teachers, Students & Research Scholars" on 26th September 2020, organised by College of Pharmaceutical Sciences, Puri in association with Jadavpur University, Kolkata & Utkal University, Bhubaneswar, Odisha.

3. Dr. Habiba Hussain delivered invited lecture in a 5 day FDP on "Online Assessment and pedagogy" held during 24-28 August 2020, organised by DUIET, Dibrugarh University under TEQIP III.

4. Dr. Habiba Hussain delivered a talk in the Webinar on NEP 2020 on 8th September 2020, organised by GLA University, Mathura, U.P.

5. Dr. J. J. Mandal delivered lecture in Webinar on "Road Construction: Opportunities and Challenges" organized by Dr. B. C. Roy Engineering College, Durgapur in association with Institution of Engineers (India), Durgapur Local chapter on 21st September, 2020. His deliberation was on "SUBGRADE AND ITS CHARACTERISTICS FOR PAVEMENT"

6. Dr. Kinsuk Giri delivered an invited talk on "Unsupervised Learning with PYTHON Hands-on", AICTE-ATAL FDP on "Application of Artificial Intelligence and Machine Learning in Engineering Problems", Sept 15, 2020, NERIST, Nirjuli, India.

7. Dr. Kinsuk Giri delivered an invited talk on "Supervised Learning with PYTHON Hands-on", AICTE-ATAL FDP on "Application of Artificial Intelligence and Machine Learning in Engineering Problems", Sept 14, 2020, NERIST, Nirjuli, India

8. Dr. Kinsuk Giri delivered an invited talk on "Graphical Demonstration as Teaching Aid in Connection with Graduate Level Mathematics", A Special Webinar offered from Dept. of Mathematics, August 8, 2020, Asutosh College, Kolkata, India

9. Dr. Sukanta Kumar Naskar delivered Invited lecture on "Industry Institute Interaction" in the webinar organised by Government Womens Polytechnics, Hapania, Tripura on 31st August, 2020.

10. Dr. Sukanta Kumar Naskar delivered Invited lecture on "Generic NEP 2020" in the webinar organised by GLA University,Mathura on 5th September 2020

11. Dr. Sukanta Kumar Naskar delivered Invited lecture on "NEP-2020 with respect to higher & technical education perspectives" in the webinar organised by Gomoti District Government Polytechnic, Tripura on 20th September 2020

12. Dr. Urmila Kar delivered an Invited lecture on "Impact of National Education Policy (NEP) 2020 on Higher Education" in the webinar organised by GLA University, Mathura on 15th September 2020.

13. Dr. Samir Roy, Professor and Head, CSE Dept. delivered an invited talk on the topic "Philosophical and Ethical issues of Artificial Intelligence" on 12th September 2020 in the AICTE sponsored faculty development programme on Intelligent Computing organized by MAKAUT, West Bengal

Publications

- **Debi Prasad Mishra**, Sanjay Vasanth, "Why is Space Debris a Threat to Us?" in the "Science Horizon", Vol. 5 Issue 5, pp.10, 2020, http://obaebook.in/ebooks/science-horizon-may-2020/
- Samirsinh P. Parmar, **Debi Prasad Mishra**, "Fractal Geometry in Water Conservation Structures: Step Wells and Tanks in India" in the "Indian Journal of History of Science", Vol 55.2, pp.139, 2020, https://insa.nic.in/writereaddata/UpLoadedFiles/IJHS/Vol55_2_2020_Art04.pdf
- B. K. Jha and **S. Bhanja**, "Modifications suggested in the forthcoming revision of IS:456-2000 with respect to design of sections in flexure", in the proceeding of 1st online international conference on "Recent advances in computational & experimental mechanics 2020" (ICRACEM), IIT Kharagpur, 4-6 September, 2020.
- **I. Saha**, N. Ghosh, D. Maity, N. Sharma and K. Mitra, "Inferring the genetic variability in Indian SARS-CoV-2 genomes using consensus of multiple sequence alignment techniques", "Infection, Genetics and Evolution", Vol. 75, pp. 104522, 2020. [Impact Factor: 2.77]
- J. Bhattacharya and **S. N. Mandal,** "Batch adsorption study on removal of Nitrate from aqueous solution by Darjeeling Tea Ash": *J. Environ. Protection*, Vol. 40, No.8, pp. 787-798 (2020).
- J. P. Sarkar, **I. Saha**, A. Lancucki, N. Ghosh, M. Wlasnowolski, G. Bokota, A. Dey, P. Lipinski and D. Plewczynski, "Identification of miRNA Biomarkers for Diverse Cancer Types using Statistical Learning Methods at the Whole Genome Scale", Frontiers in Genetics, 2020. (https://www.frontiersin.org/articles/10.3389/fgene.2020.00982/abstract) [Impact Factor: 3.26]
- **P. Sarkar**, A. Hazra and A. Mondal "A unified approach for PI controller design in delta domain for indirect field-oriented control of induction

motor drive ", Journal of Engg. Research, Vol. 8 No. (3) September 2020 pp. 118-134 (SCIE, Scopus).

- S. Ghosh, **N. K Mandal**, T. Kar "Investigations on machining performances and tool wear surface characterisation during CNC hard turning of AISI 4140 alloy steel" Journal of Advanced Manufacturing Systems, (Web of Science and Scopus Index) (Accepted)
- Ranjan, A., Chakraborty, S., Kumar, D., & **Bose, D.** (2020). An Investigation on Surfactant Added PMWEDM of Inconel 718. *International Journal of Automotive and Mechanical Engineering*, *17*(3), 8140-8149. https:// doi.org/10.15282 /ijame. 17.3. 2020.07.0611

Research

- Prof. Prasanta Sarkar Jointly with Prof. Lairenlakpam Joyprakash Singh, Professor, Department of Electronics and Communication Engineering, North Eastern Hill University (NEHU), Shillong supervised the PhD work of Shri Jaydeep Swarnakar, registered with the Department of Electronics and Communication Engineering, NEHU, Shillong. The title of the thesis "Modelling and Control of Fractional Order System in Delta Domain" and the degree (provisional) was awarded on 14.9.2020 after oral viva voce examination.
- The in silico research on SARS-CoV-2 virus has been recognized by the funding agency, Science and Engineering Research Board (SERB), Govt. of India and subsequently highlighted by the Press Information Bureau, Govt. of India. This is also published in newspapers like The Times of India and The Economic Times.

  https://dst.gov.in/tracking-global-genetic-variability-predicting-viral-sequences-resolve-covid-19-challenge

  https://pib.gov.in/PressReleseDetailm.aspx?PRID=1653755

  https://timesofindia.indiatimes.com/india/covid-genome-predictor-to-help-fine-tune-vaccine-scientists-find-3514-unique-mutation-points-for-india/articleshow/78070426.cms

  https://economictimes.indiatimes.com/news/science/scientists-working-on-genomic-sequences-of-sars-cov-2-to-find-answer-to-combat-covid-19/articleshow/78090443.cms?from=mdr

- Sri Joydeep Bhattacharya, Lecturer (Selection Grade - II) of Siliguri Govt. Polytechnic, West Bengal has completed his pre-submission seminar and submitted the PhD research work on 'Simultaneous removal of Nitrate and Fluoride from Wastewater by Adsorption process' under the supervision of Dr. S. N. Mandal, Professor, Civil Engineering Department in MAKAUT (Maulana Abul Kalam University of Technology), West Bengal

Miscellaneous

MOOC Related News

The following MOOCs have been successfully run on the SWAYAM platform of Govt. of India. All of these courses are AICTE approved FDP courses.

- **"Problem Based Learning"** (*Coordinators*: Dr. Indrajit Saha, Dr Arpan Kumar Mandal, Dr Kinsuk Giri, Dr Sagarika Pal), *Learners Enrolled*: 680.
- **"Laboratory and Workshop Management"** (*Coordinators*: Prof. D. Bose, Prof. Samiran Mandal, Dr. Subrata Mondal), *Learners Enrolled*: 522.
- **"Academic and Research Report Writing"**, (*Coordinators*: Dr. Samir Roy, Dr. Rayapati Subba Rao, and Dr. Kinsuk Giri), *Learners Enrolled*: 8346.
- **"Laboratory and Workshop Based Instruction and Learning"** (*Coordinators*: Dr. J. J. Mandal, Dr. S. K. Mandal, Dr. S. N. Mandal & Mrs. Mithu dey), *Learners Enrolled*: 334

Educational Resource Developed

One video lecture for GD entitled "Programme Based Learning(PBL)" by Prof. Indrajit Saha was prepared.

Events

Institute organized "Fit India movement" program coordinated by Dr. Rayapati Subba Rao on 29th September, 2020 successfully.

- The Institute celebrated International Literacy Day on 08 September 2020 at 5:15 pm to 6:15 pm at NITTTR Kolkata
- The Institute celebrated Official Language (Hindi) on 30-09-2020 at 5:00 pm (web)

National Eligibility Cum Entrance Test (UG) – 2020

National Institute of Technical Teachers' Training and Research, Kolkata was selected as one of the Centre for conducting the NEET (UG) 2020. The event took place on Sunday, the 13th September, 2020. Total 240 candidates have been allotted by National Testing Agency to sit for the test in our Institute and out of that, 189 candidates were present. Due to pandemic situation a lots of extra precaution to maintain Covid19 Guidelines has been taken for conducting of such offline examination. Around sixty persons were involved to carry out various functionalities for the smooth conduction of the examination as invigilators, support staff, videographer etc. As the Centre Superintendent, Dr. Arpan Kumar Mondal, lead the event. The Entrance Test was successfully completed in time.

In-house design, development and production of face mask, sanitizer dispenser and sanitizer

Keeping in mind the safety measures to avoid the COVID-19 pandemic, Institute designed its own Face Mask & Sanitizer Dispenser in Acharaya Prafulla Chandra Welding Centre with the help of Shri Tapas Sen under the guidance of Dr. Arpan Kumar Mondal, Assistant Professor.

In making the Institute self-reliant, with the help of Shri Souvik Dey, an outsourced employee of the Institute under the guidance of Prof. Debi Prasad Mishra, Director, sanitizer has been made for the use of all the employee. The sanitizer has been made as per the guidelines of World Health Organization (WHO).

Batch manufacturing of Sanitizer Dispenser at Welding Center, NITTTR-Kolkata

Mask in use at NITTTR offices

Memorandum of Understanding (MoU)

During the above stated period, Institute executed Memorandum of Understanding with the following for offering our expertise in developing quality teaching-learning process:

1. Gandhi Institute for Technology, Bhubaneswar, Odisha
2. Gurukula Kangri Vishwavidayalaya, Haridwar, Uttarakhand
3. State Project Implementation Unit, Uttar Pradesh

Memorandum of Understanding (MoU) between M/s. North City Hospital & Neuro Institute pvt. Ltd., 73 & 8IB, Bagmari Road, Kolkata -700 054 and the Institute has been executed for cashless treatment of employees.

Celebration of 74th Independence Day

The 74th Independence Day of our mother land has been celebrated in the Institute amidst the prevailing pandemic COVID-19 and has been graced by the

audience belong to NITTTR family in the virtual mode. This is the first time our endeavour was to invite not only all the members of faculty and staff but also pensioners, ex-Directors and other stake holders of the Institute. So it was very pleasant to see many faces in miniature.

The event started with unfurling of national flag by the Director and singing the national anthem in chorus. The physical presence of handful employees maintaining social distances grace the occasion.

Natioanl Anthem is singing by the employees and the Director, NITTTR, Kolkata after hoisting the National Flag on the eve of 74th Independence Day at NITTTR, Kolkata

Senior Administrative Officer anchored the online programme and announced the slogan **"लोकाहितार्थम ज्ञानार्जनम"** coined by Prof. Debi Prasad Mishra, the Director of the Institute was adjudicated as the best befitting slogans amongst the suggestions received from the members of faculty, staff and students as recommended by an appropriate committee constituted for this purpose.

The Director, Prof. Debi Prasad Mishra in his speech stressed the need to avert fear-psychosis of pandemic COVID-19 after taking due safety measures announced by the Government. He augmented his speech by expressing rich heritage of Indian tradition over western one. He expressed his deep gratitude to martyrs who laid down their lives for to achieve the freedom. He fondly remembered Rishi Aurobindo whose birth anniversary coincides with our independence day.

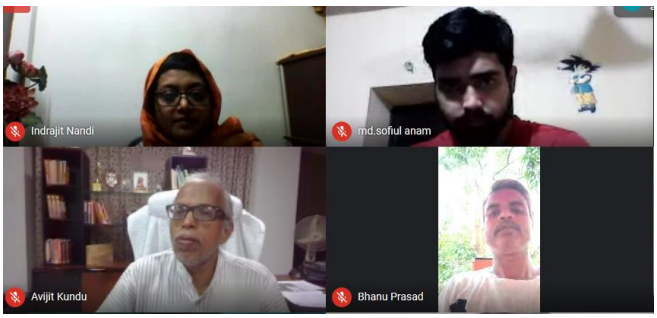
He deplored that till date after 73rd year of freedom, we are dependent to others. Therefore, he stressed the need to be self-reliant and to explore the feasibility of making a corpus fund of the Institute to make ourselves Atmanirbhor in true sense. Home making and Sanitizer Dispenser by the Institute for the consumption of the employees of the Institute are a step towards Atmanirbhorata. One of the important announcement in his speech was re-appearance of Institute Newsletter with the contributions of members of faculty and staff within a very short span of time. He also briefed that the Institute Magazine titled "Bharatiya Kala O Silpo" is being contemplated in near future. He concluded his speech after interacting with the audience and summed up that any suggestion towards the development of the Institute is most welcome.

Another important event of the day was an online In-house Seminar on "Repositioning of NITTTR, Kolkata in line with National Education Policy 2020" with interactive session.

Dr. Debi Prasad Mishra, Director, NITTTR, Kolkata is distributing face mask (prepared by NITTTR, Kolkata) to the employees on the eve of 74th Independence Day

International Literacy Day 2020

International Literacy Day was celebrated in the Institute on 8th September 2020 on virtual mode. Extempore speeches took place and the theme of this year International Literacy Day 2020 would focus on Literacy teaching and learning in the COVID-19 crisis and beyond with a focus on the role of educators and changing pedagogies. The theme would highlight literacy learning in a lifelong learning perspective and therefore mainly focus on youth and adults. Professor Debi Prasad Mishra, Director of the Institute opened up the discussion and advocated that literacy is must for every citizen which can eradicate pandemic COVID 19 by spreading awareness. Dr Ranjan Dasgupta, professor advocated for computer literacy to obviate fraud in making digital India. Dr. Habiba Hussain stressed the role of educators in post COVID 19 and the need for changing pedagogies. Two students spoke about the importance of literacy. In nutshell, it can be summed up as "Education is not preparation for life, education is life itself."



“The highest education is that which does not merely give us information but makes our life in harmony with all existence” -- *R. N. Tagore*

NATIONAL INSTITUTE OF TECHNICAL TEACHERS’ TRAINING AND RESEARCH, KOLKATA
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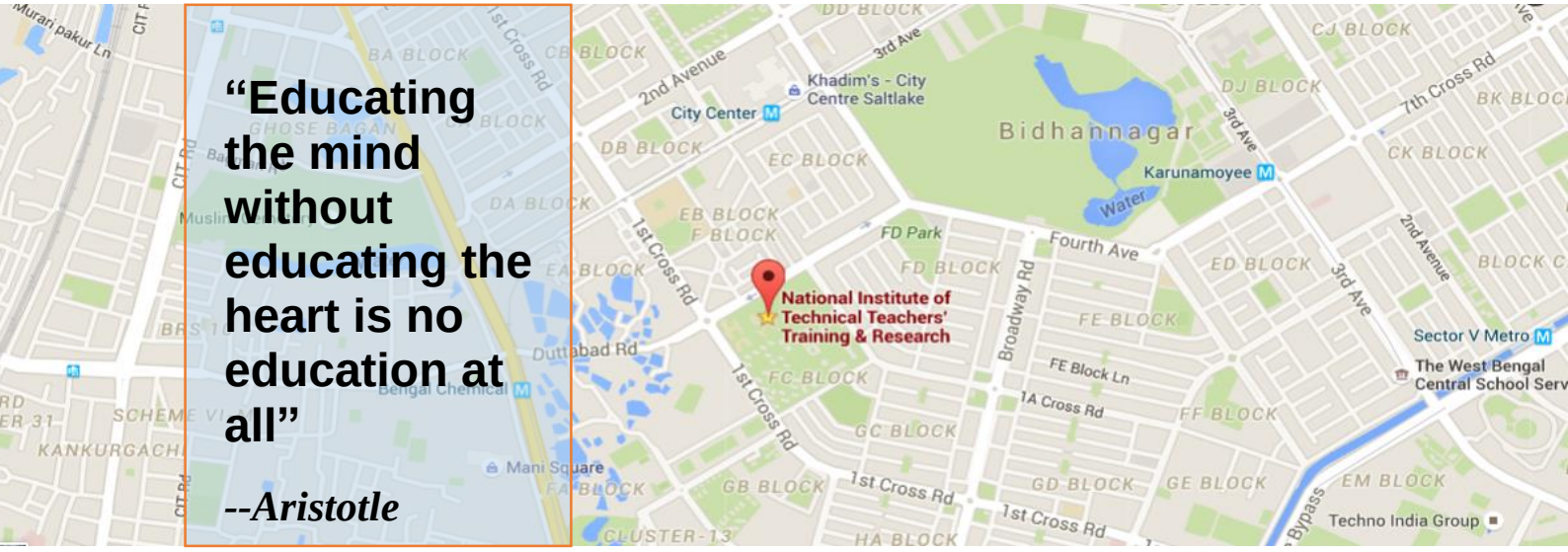
Visit us at www.nitttrkol.ac.in

How to Reach NITTTR, Kolkata

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



Distance:

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

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

NITTTR, Newsletter Committee
Dr. Samir Roy, Chairman, Dr. Habiba Hussain, Member, Shri Utpal Chakraborty, Member
Layout design and DTP work, Shri Utpal Chakraborty, Photo coverage, IFL, NITTTR, Kolkata