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Message from Director



Namaskar !!

I have assumed the charge of the office of the Director of this institute on 8th June 2020 at the behest of Govt. of India, MHRD, Dept. of Higher Education. Owing to prevalent pandemic COVID-19 environment, I was not allowed to interact with you in the formal way. Of course, the interaction with you carried out on virtual mode. All the members of NITTTR family members is quite exciting and productive for taking the flag to our institute to greater height. However, it is our endeavour to run the institute on virtual mode as per the Govt. directive(s) issued from time-to-time.

It is a great pleasure to learn that the newsletter of any institute is going to be published after gap of 9 years and

released on occasion of 73rd Independence Day of our glorious nation. Although the threat of Pandemic COVID-19 is prevailing over us, but we must muster courage and vigour to fight with it while working under this challenging situation to work hard not only for the progress and prosperity of NITTTR, Kolkata but also for our emerging mother land.

I take this opportunity to appreciate the hard work carried out by Prof. Samir Roy and his entire editorial team members to bring out it with an attractive get-up and wider coverage and congratulate them. I am sure that they will take no stone unturned to publish this Newsletter in future as it is an effective tool for making a chronical of its day to day developmental activities.

I am very confident that we will work vigorously and diligently with new dimension and horizons that can usher a new aura in the horizon of Technician Education System of India of which NITTTR, Kolkata has been playing a pivotal role since its inception. I would like to convey my best wishes for upcoming Independence Day celebration and urge all of you to dedicate for reviving and reestablishing glorious Indian culture and tradition.

I remain with mind opening thought process of our ancestor.

ॐ असतो मा सद्गमय ।
तमसो मा ज्योतिर्गमय ।
मृत्योर्मा अमृतं गमय ।

Prof. Debi Prasad Mishra
Director, NITTTR, Kolkata

What Do We Know about COVID-19?

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1 What is COVID-19 and SARS-CoV-2?

Nowadays, it is known that COVID-19 is a disease caused by a Novel Coronavirus called Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2). This disease was initially informed to the World Health Organization (WHO) on 31st December 2019 (Zhu et al., 2020) after detecting few pneumonia cases in Wuhan City, Hubei province of China. Subsequently, on 7th January 2020, Chinese authority identified a novel virus as a cause of this disease. Later, on 11th February 2020, WHO and International Committee on Taxonomy of Viruses declared the name of this virus as SARS-CoV-2 (Zhu et al., 2020). The impact of this virus since its inception is not unknown. As a consequence, WHO declared COVID-19 to be a pandemic on 11th March, 2020 while India imposed lockdown on 25th March, 2020. The novel coronavirus belongs to the family of Coronaviridae which includes SARS-CoV-1 and MERS-CoV. Moreover, it belongs to the category of genus betacoronavirus (Zhu et al., 2020), which also covers other subgenus coronaviruses with an evolutionary relationship among each other. The length of the complete SARS-CoV-2 genome varies between 29 to 30 kilobase pair (kbp). According to a recent study (Zhang and Holmes, 2020), SARS-CoV-2 shows ~79% similarity with SARS-CoV-1 while the envelope and nucleocapsid coding regions of SARS-CoV-2 are the two most conserved regions with a sequence similarity of ~96% and ~85%, respectively to SARS-CoV-1. On the other hand, MERS-CoV belongs to different subgenus Merbecovirus which was noticed only in Arabian Peninsula. Compared to SARS-CoV-1 and MERS-CoV, SARS-CoV-2 is much more infectious and has shown a higher number of infected cases. Regarding the origin of SARS-CoV-2, recent studies show that the virus might be of bat or pangolin origin (Zhou et al., 2020; Andersen et al., 2020). The transmission dynamics of this virus has been studied and shown in Figure 1 (A). Moreover, recent metagenomic study reveals that the SARS-CoV-2 is a single stranded RNA virus which consists of 11 coding regions, among which ORF1ab occupies majority of the genome whereas Spike (S), Envelope (E), Membrane (M), Nucleocapsid (N) and 6 other regions such as ORF3a, ORF6, ORF7a, ORF7b, ORF8 and ORF10 occupy the rest of the genome. The genomic structure of the virus is shown in Figure 1 (B).

2 What happens in COVID-19?

SARS-CoV-2 is extremely contagious and an infected person may show some common symptoms such as fever, cough, shortness of breath, muscle ache, dyspnoea, headache, sore throat etc. Chest CT imaging of patients have revealed the impacts of SARS-CoV-2 on the respiratory system in the form of unilateral, bilateral pneumonia and even pleural thickening and pleural effusion in lower lobe in some cases. Apart from the developing respiratory illness, one can also notice gastrointestinal symptoms which is a result of direct viral damage to the intestine. Few may also suffer from hypogeusia which is a loss of sense of taste and hyposmia, a reduced ability to smell and to detect odours. The impact of the virus is usually expanded into a wide range of problems starting from asymptomatic to serious life-threatening issues depending on certain factors, e.g. age (60 and above), whether the person is already suffering from other diseases such as diabetes, cardiovascular disease, hypertension, obesity etc. and the sex of the person (among the population infected, ~73% are males) (Huang et al., 2020). Moreover, recent studies (Chen et al., 2020) have also shown that the virus may also affect different organs such as liver, heart, nervous and urinary systems as well and depicted in Figure 1 (C)-(D).

3 Strategies to Prevent COVID-19

To contain the spread of SARS-CoV-2, social distancing and phases of lockdown are being adopted throughout the globe. These strategies have been of some help but they have not been able to contain the virus. As of now, the standard procedure for the diagnosis of COVID-19 is Reverse Transcription Polymerase Chain Reaction (RT-PCR) (Chen et al., 2020) in which an oropharyngeal or a nasopharyngeal swab is used to collect the specimen of a suspected person to determine the virus nuclei acid in the sputum. Though, due to its high false positive rate, resampling of the suspected person is suggested by the World Health Organisation. Impact of COVID-19 is disastrous predominantly due to the unavailability of any vaccine or any specific antiviral treatment. As different vaccines are going through their trial phases, the only available treatments provided for the patients are the oxygen therapy or mechanical ventilation in case of respiratory failure and haemodynamic support in case of any septic shock. Currently, many drugs such as Ribavirin, Sofosbuvir, Faviriv, Dexamethasone, Baricitinib etc. are being recommended in order to limit the impact of COVID-19 to a certain extent in an infected individual. However, the efficacy of these above drugs are still doubtful in the scientific community. Furthermore, as human response towards the virus is different for every affected individual, not all of them require

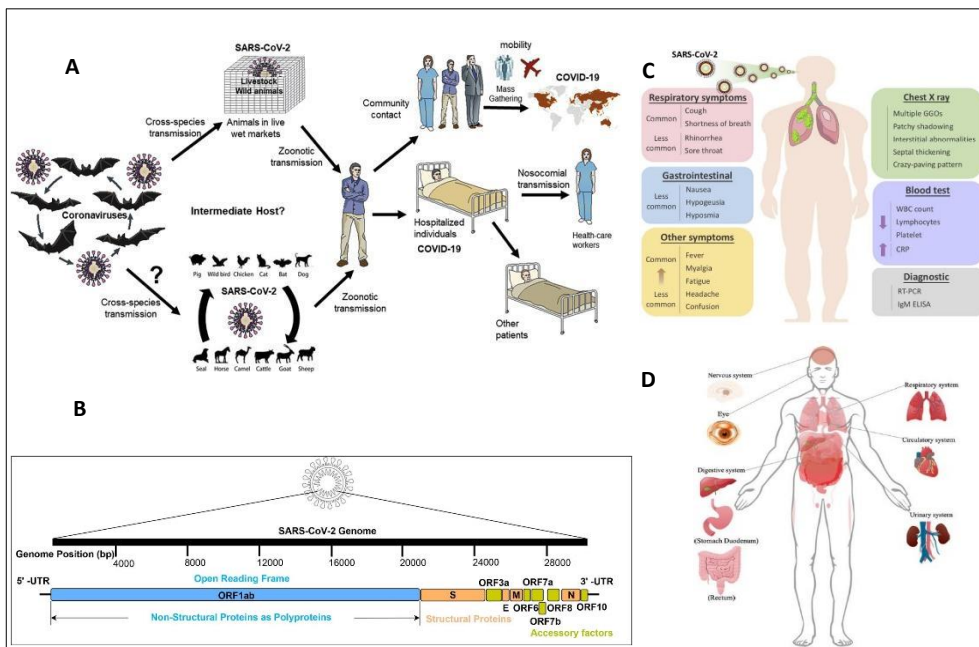


Figure 1: (A) The emergence of SARS-CoV-2 from the bat origin species and the outbreak in the entire population (Zowalaty et al., 2020) (B) The genomic orientation of SARS-CoV-2 (Saha et al., 2020) (C) Characteristics findings from COVID-19 infected patients (Tu et al., 2020) (D) Organ involvement confirmed by clinical features or biopsy of patients with COVID-19 (Wang et al., 2020)

clinical assistance. This is precisely why infected carriers with even paucisymptomatic behaviour are recommended to put themselves into strict home quarantine to avoid any further transmission. However, there are cases where an infected person may be asymptomatic as well. This is the main point of concern as unknowingly that person may spread the disease to others. Increasing evidence has shown that asymptomatic individuals can spread the virus efficiently, and the emergence of these silent spreaders of SARS-CoV-2 has caused difficulties in the control of the pandemic (Long et al., 2020). To limit the spread of COVID-19 in a susceptible cluster, it is advised to use face masks, disinfectant and follow all other precautionary measures such as regular washing of hands, avoiding mass gatherings, avoiding touching of hands directly to the mouth, eyes, nose etc.

4 Current Status of Vaccine

In the current scenario, there is no such vaccine that has been developed for SARS-CoV-2 and almost every research in pharmaceutical industries and laboratories are focused on finding the cure against this virus. Recently, The University of Oxford has completed its phase 3 trial of the designed ChAdOx1 COVID-19 vaccine candidate (Folegatti et al., 2020) for neutralising antibodies targeting different epitopes of the Spike glycoprotein. Other vaccines (Mullard, 2020) in different countries which are being designed to fight against SARS-CoV-2 e.g. Covaxin (Sponsored by Bharat Biotech in collaboration with Indian Council of Medical Research (ICMR) and National Institute of Virology (NIV)), MRNA-1273 (Sponsored by Moderna

and being designed at Kaiser Permanente Washington Health Research Institute), INO-4800 (Sponsored by Inovio Pharmaceuticals and being designed at Center for Pharmaceutical Research, Philadelphia), BNT162 (Sponsored by Pfizer, BioNTech and being designed at multiple study sites in Europe), BBIBP-CORV (Sponsored by Beijing Institute of Biological Products and being designed at Hunan Provincial Centre for Disease Control and Prevention) and AD5-NOV (Sponsored by CanSino Biologics and being designed at Tongji Hospital, Wuhan, China), CORONAVAC (Sponsored and being designed by Sinovac Research and Development), NVXCOV2373

(Sponsored and being designed by Novavax), MRNA-based vaccine (Sponsored and being designed by CurevAC), Self-Amplifying RNA vaccine (Sponsored and being designed by Imperial College of London) and AD26.COVID-2-S (Sponsored and being designed by Johnson & Johnson) are in the advanced phases of their trials. Many more researchers around the globe are working around the clock to find a vaccine against SARS-CoV-2 for its diverse genetic characteristics.

5 Nutrition and Lifestyle

It is a known fact that aged individuals or people suffering from health issues are more vulnerable to the SARS-CoV-2 virus. Hence, maintenance of health through ones diet and nutrition for a strong immune system should be of utmost concern in fighting against any kind of viruses, not only SARS-CoV-2. A healthy immune system can be attributed to specific nutrients and their combinations through cell activation, modifying the production of molecule and gene expression (Naja and Hamadeh, 2020). On the other hand, a low immune system is more susceptible to diseases. A balanced intake of iron, zinc, and vitamins A, E, B6, and B12 is somewhat sufficient for the maintenance of immune functions. Hence, it is important to consume a healthy diet which promotes the synthesis of serotonin and melatonin. Plant species including roots, leaves, fruits, and seeds such as nuts, bananas and oats contain melatonin and/or serotonin which play a vital role in boosting immunity. Along with these, protein enriched diets such as lean meat, fish, egg, milk and milk products can also work as a major immunity booster. Even if someone is quarantined or

experiencing mild symptoms, she/he should maintain a healthy and nutritious diet to promote micronutrients in the body providing vitamin E, vitamin C, betacarotene, antioxidants etc. Apart from this, according to experts, regular exercises should also be part of a healthy lifestyle in order to boost the immune system.

6 Our Research Activity

My research group consists of Dr. Nimisha Ghosh and Nikhil Sharma as core team members while I have foreign collaborators from Italy and Poland. Our contributions toward the fight against COVID-19 are mainly focused on the analysis of the SARS-CoV-2 genomes in the world, including India. We have recently developed SARS-CoV-2 predictor and estimate the cases of COVID-19 using Deep Learning techniques. Moreover, we are now working on the genomic analysis (Saha et al., 2020) of the SARS-CoV-2 genomes of different countries to understand the types of mutations across the globe, along with the differences and similarities among them so that the same vaccine can be used for different countries with similar sequences as well as we are putting emphasis on personalised vaccine through this research. Apart from genomic study, our work is also focused on the synthetic vaccine design from the most conserved regions of the virus genome. We are also working on protein-protein interaction (PPI) in order to understand the molecular function so that drug repurposing and side-effects of the disease can be explored. Above all, our research have been funded by short term Core Research Grant from Science and Engineering Research Board (SERB), Department of Science and Technology (DST), Government of India.

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Teachers’ Training

During the period of April to June 2020, a total of 4978 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 (April to June 2020)

Sl. No.	Prog. Coordinator	Prog. Code	Prog. Title	From	To
1	Arpan Kumar Mondal	ICT16	Introduction of Accreditation Mechanism-NBA Approach	04/05/2020	08/05/2020
2	Arpan Kumar Mondal	ICT21	Advanced Welding Processes and Physics of Welding	11/05/2020	15/05/2020
3	Arpan Kumar Mondal	PS05	Problem Based Learning (2 Weeks)	18/05/2020	29/05/2020
4	Chandan Chakraborty	MGT01	Research Methodology and Intellectual Property Right (IPR) (2 Weeks)	13/04/2020	24/04/2020
5	Chandan Chakraborty	ICT29	Research Methodology and Intellectual Property Right (IPR)	18/05/2020	22/05/2020
6	Chandan Chakraborty	G UW04	Choice Based Credit System (CBCS) and Student’s Performance Evaluation	01/06/2020	05/06/2020

Sl. No.	Prog. Coordinator	Prog. Code	Prog. Title	From	To
7	Chandan Chakraborty	ICT45	Probability and Statistics (2 Weeks)	22/06/2020	02/07/2020
8	Dipankar Bose	ICT18	Management of Laboratory and Workshop Classes	04/05/2020	08/05/2020
9	Dipankar Bose	CU20	Fluid Power	11/05/2020	15/05/2020
10	Dipankar Bose	ICT22	Skill Assessment in Laboratory and Workshop	18/05/2020	22/05/2020
11	Dipankar Bose	ICT37	Development of Laboratory Instruction	08/06/2020	12/06/2020
12	Dipankar Bose	ICT44	Concept Teaching in Fluid Mechanics	22/06/2020	26/06/2020
13	Habiba Hussain	ICT26	1) Evaluating Students' Performance	25/05/2020	29/05/2020
14	Habiba Hussain	ICT31	2) Evaluating Students' Performance	08/06/2020	12/06/2020
15	Habiba Hussain	PS08	Student Mentorship	22/06/2020	26/06/2020
16	Indrajit Saha	ICT12	Network Security	27/04/2020	01/05/2020
17	Indrajit Saha	PS05	Problem Based Learning (2 Weeks)	18/05/2020	29/05/2020
18	Indrajit Saha	ICT41	Machine Learning using MATLAB	15/06/2020	19/06/2020
19	Jagat Jyoti Mandal	ICT23	Fundamental Concepts of Geotechnical Engineering	15/06/2020	19/06/2020
20	Kinsuk Giri	ICT07	1) Numerical and Statistical Methods with PYTHON	27/04/2020	01/05/2020
21	Kinsuk Giri	ICT07 (II)	2) Numerical and Statistical Methods with PYTHON	04/05/2020	08/05/2020
22	Kinsuk Giri	PS05	Problem Based Learning (2 Weeks)	18/05/2020	29/05/2020
23	Kinsuk Giri	ICT53	Introduction to PYTHON Programming	22/06/2020	26/06/2020
63	Mithu Dey	ICT19	Organizational Behaviour	11/05/2020	15/05/2020
64	Mithu Dey	ICT48	Earthquake Resistant Structures	15/06/2020	19/06/2020
65	Mithu Dey	ICT51	Professional Values Ethics and Sustainability Development	29/06/2020	03/07/2020
67	Nirmal Kumar Mandal	ICT08	CAD/CAM	27/04/2020	01/05/2020
68	Nirmal Kumar Mandal	ICT39	Development of Laboratory Instructions	15/06/2020	19/06/2020
24	Prasanta Sarkar	ICT24	1) Electricity Act, Rules & Code of Practices	18/05/2020	22/05/2020
25	Prasanta Sarkar	ICT43	2) Electricity Act, Rules & Code of Practices	15/06/2020	19/06/2020
69	Rajeev Chatterjee	ICT02	Programming in C++ Methodologies	20/04/2020	24/04/2020
70	Rajeev Chatterjee	ICT30	Network Infrastructure and Cloud Security	18/05/2020	22/05/2020
26	Ranjan Dasgupta	ICT16	Introduction of Accreditation Mechanism-NBA Approach	04/05/2020	08/05/2020
27	Ranjan Dasgupta	ICT30	Network Infrastructure and Cloud Security	18/05/2020	22/05/2020
28	Rayapati Subbarao	ICT03	1) NBA Accreditation and SAR Preparation	20/04/2020	24/04/2020
29	Rayapati Subbarao	ICT03 (II)	2) NBA Accreditation and SAR Preparation	27/04/2020	01/05/2020
30	Rayapati Subbarao	ICT03 (III)	3) NBA Accreditation and SAR Preparation	04/05/2020	08/05/2020
31	Rayapati Subbarao	ICT38	4) NBA Accreditation and SAR Preparation	15/06/2020	19/06/2020
32	Rayapati Subbarao	ICT47	How to Write Thesis and Research paper	22/06/2020	26/06/2020
33	Sagarika Pal	ICT05	Skill Assessment in Laboratory and Guiding Students' Project	20/04/2020	24/04/2020
34	Sagarika Pal	ICT09	Measurement and Control of Industrial Automation	27/04/2020	01/05/2020
35	Sagarika Pal	PS05	Problem Based Learning (2 Weeks)	18/05/2020	29/05/2020
36	Sagarika Pal	ICT13	Induction Training	25/05/2020	29/05/2020
37	Sagarika Pal	ICT32	Programming and Automation using PLC	08/06/2020	12/06/2020
38	Sailendra Nath Mandal	ICT06	Environmental Pollution and Health	27/04/2020	01/05/2020
39	Sailendra Nath Mandal	CU11	Testing & Purification of Drinking Water and Health (2 Weeks)	11/05/2020	22/05/2020
40	Sailendra Nath Mandal	ICT36	Purification of Drinking Water and Health	08/06/2020	12/06/2020
41	Sailendra Nath Mandal	ICT46	Water and Wastewater Treatment and Health	22/06/2020	26/06/2020
42	Samir Roy	ICT02	Programming in C++ Methodologies	20/04/2020	24/04/2020
43	Samir Roy	ICT17	1) Artificial Intelligence	04/05/2020	08/05/2020
44	Samir Roy	ICT42	2) Artificial Intelligence	15/06/2020	19/06/2020
45	Samiran Mandal	ICT15	Concept Mapping in Teaching Learning	27/04/2020	01/05/2020
46	Samiran Mandal	ICT37	Development of Laboratory Instruction	08/06/2020	12/06/2020
47	Santanu Bhanja	ICT11	Philosophy of Design as per IS: 456-2000	27/04/2020	01/05/2020
48	Santanu Bhanja	ICT49	Short course on IS:456-2000 Interpretation, Application, Limitations and Software Application	22/06/2020	26/06/2020
66	Sheela Yadav Rai	ICT28	Renewable Energy Sources and Emerging Technologies	25/05/2020	29/05/2020
49	Soumitra Kumar Mandal	ICT27	Refresher course on Analog & Digital Electronics	04/05/2020	08/05/2020
50	Soumitra Kumar Mandal	ICT33	Power Electronics in Power System	25/05/2020	29/05/2020
51	Soumitra Kumar Mandal	ICT50	Digital System & Programmable Logic Control (PLC)	22/06/2020	26/06/2020
52	Subrata Chattopadhyay	ICT09	Measurement and Control of Industrial Automation	27/04/2020	01/05/2020
53	Subrata Chattopadhyay	ICT13	Induction Training	25/05/2020	29/05/2020
54	Subrata Chattopadhyay	ICT32	Programming and Automation using PLC	08/06/2020	12/06/2020
55	Subrata Mondal	ICT14	Laboratory Safety Management	27/04/2020	01/05/2020
56	Subrata Mondal	ICT40	Induction Training	15/06/2020	19/06/2020
57	Sukanta Kumar Naskar	ICT10	HRD through Training and Development	27/04/2020	01/05/2020
58	Sukanta Kumar Naskar	PS04	Institutional Development	08/06/2020	12/06/2020

Sl. No.	Prog. Coordinator	Prog. Code	Prog. Title	From	To
59	Uday Chand Kumar	ICT25	An Introductory course on Ecology and Environmental Studies	25/05/2020	29/05/2020
60	Uday Chand Kumar	ICT52	Community Development through Technical Institutes	29/06/2020	03/07/2020
61	Urmila Kar	ICT04	1) Outcome Based Accreditation and NBA	20/04/2020	24/04/2020
62	Urmila Kar	ICT04 (II)	2. Outcome Based Accreditation and NBA	11/05/2020	15/05/2020

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 NITTR, 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, NITTR, Kolkata has acted as Coordinator of the seminar.

Publications

A number of research papers authored by the faculty members have been published in various international/ national journals, and conference proceedings. Several book chapters were also published. A list of such publications are given below.

Journal Papers

- Ganguli, S., Kaur, G., **Sarkar, P.**, & Rajest, S. S. (2020). "An Algorithmic Approach to System Identification in the Delta Domain Using FADFPA Algorithm". In *Business Intelligence for Enterprise Internet of Things*, (pp. 203-211). Springer, Cham.
- Ganguli, S., Kaur, G., & **Sarkar, P.**, "Performance analysis of some new hybrid metaheuristic algorithms for high dimensional optimization problems". Accepted for publication in *Electrical and Electronic Devices, Circuits and Materials: Technological challenges and Solutions*, Scrivener Publishing, Wiley.
- M. Bandyopadhyay, **S. Chattopadhyay**, G. Roy, N. Mandal and S. C. Bera, "Low Cost System of Direct Measurement of Dissipation Factor for High Voltage Electrical Machine", IEEE, "*Transaction on Instrumentation and Measurement*", USA, vol. 69, no.4, pp. 1547-1555, April 2020, ISSN Information: 0018-9456, DOI: 10.1109/ TIM.2019. 2916241. [SCI]
- Amar Mahato, and **Subrata Mondal**, "Fabrication and Microstructure of Micro and Nano Silicon Carbide Reinforced Copper Metal Matrix Composites/Nanocomposites", *Silicon*, (2020). <https://doi.org/10.1007/s12633-020-00491-5>, SCI, Impact Factor: 1.499.
- D. Kr Singh, K. Sengupta, S. Karmakar, **Arpan Kr. Mondal**, **D. Bose**, "Effect of different tool pin diameter on mechanical properties of friction stirred welded AISI 304 stainless steel plate", *Materials Today: Proceedings*, In Press, DOI: 10.1016/j.matpr.2020.06.31

6. Jogendra Kumar, Rajesh Kumar Verma, **Arpan Kumar Mondal**, "Predictive modelling and machining performance optimization during drilling of polymer nanocomposites reinforced by graphene oxide/carbon fiber", *Achieve of Mechanical Engineering*, PAN Journals, PAS, Volume 67, No. 2, 2020, Pages 229-258. DOI: 10.24425/ame.2020.131692
7. K. Sengupta, D. Kr Singh, **A. K. Mondal, D. Bose**, Biswajit Ghosh, "Analysis of mechanical property of electrically assisted friction stir welding to enhance the efficiency of joints", *Materials Today: Proceedings*, In Press: 10.1016/j.matpr.2020.06.32
8. **Rayapati Subbarao** and M. Govardhan, "Identification of Flow Structure in a Counter Rotating Turbine", *Journal of Applied Fluid Mechanics*, 2020, vol. 13(3), pp. 767-777.
9. **Rayapati Subbarao** and Rathijit Dey, "Selection of Lathe Spindle Material Based On Static and Dynamic Analysis Using Finite Element Method", *Materials Today: Proceedings*, 22P4 (2020) pp. 1642-1653.
10. **Rayapati Subbarao** and Satya Vart Gupta, "Thermal and structural analyses of an internal combustion engine piston with suitable different super alloys", *Materials Today: Proceedings* 22P4 (2020) pp. 2901-2907.
11. Sibabrata Mondal, **Dipankar Bose**, "Formation of smallest cylindrical geometries by wire electrical discharge turning process", *Materials Today: Proceedings* 26 (2020) 1500–1505 <https://doi.org/10.1016/j.matpr.2020.02.310>
12. **Subrata Mondal**, "Aluminium or Its Alloy Matrix Hybrid Nanocomposites", *Metals and Materials International*, (2020). <https://doi.org/10.1007/s12540-020-00750-5>, SCI, Impact Factor: 1.990.
13. V.Dhana Raju, P.S. Kishore, **R. Subbarao**, "Investigations on the Effects of Diethyl Ether as Fuel Additive in Diesel Engine Fuelled with Tamarind Seed Methyl Ester", *Advances in Energy Research*, Springer Proceedings in Energy, 2020, Vol. 2 pp 447-456.
14. **Indrajit Saha** and N. Ghosh and D. Maity and N. Sharma and J. P. Sarkar and K. Mitra, "Genome-wide analysis of Indian SARS-CoV-2 genomes for the identification of genetic mutation and SNP", *Infection, Genetics and Evolution*, pp. 104457, 2020.

Conference

1. N. Sahay, **S. Chattopadhyay** and T. Chowdhury, "Simulation of Robot Arm Dynamics Using N-E Method of 2-Link Manipulator", *5th International Conference on Inventive Computation Technologies (IEEE-ICICT, 2020)*, Date added to IEEE Explore Digital Library: 9th June 2020, pp. 982 - 984, ISBN NO: 978-1-7281-4685-0, DOI:10.1109/ICICT48043.2020.9112436, India. [SCOPUS].
2. Pritisha Sarkar & **Kinsuk Giri**, "An Intelligent Technique to Find Bi-cliques and its Application to Optimum Matching Problem", *IC-ETITE, IEEE*, April 2020, DOI : 10.1109/ic-ETITE47903.2020.61
3. S. Chowdhury Koley, **S. Chattopadhyay** and M. Bandyopadhyay, "Design and Development of SS Reversible Logic Gate and its Application as Adder & Subtractor", *5th International Conference on Inventive Computation Technologies (IEEE-ICICT, 2020)*, Date added to IEEE Explore Digital Library: 9th June 2020, pp. 977 - 981, ISBN NO: 978-1-7281-4685-0, DOI: 10.1109/ICICT48043.2020.9112514, India. [SCOPUS]
4. S. Chowdhury Koley, **S. Chattopadhyay**, "Implementation of Digital Inverter Circuit using HCS Macro Model Technique", *National Conference on Emerging Trends on Sustainable Technology and Engineering Applications (IEEE-NCETSTE, 2020)*, Date added to IEEE Explore Digital Library: 18th June 2020, DOI: 10.1109/NCETSTE48365.2020.9119929, India. [SCOPUS]
5. N. Ghosh, **Indrajit Saha**, D. Maity, A. Seal and D. Plewczynski, "Deep Learning for the Prediction of Novel Coronavirus", in Poster of *28th International Conference on Intelligent Systems for Molecular Biology (ISMB)*, July, 2020

Book Chapter

1. **Mondal A.K.**, Rajput A.S., Prasad D., **Bose D.**, Chapter 9: "Magnetic Field Assisted Finishing Processes. In Advances in Abrasive Based Machining and Finishing Processes", *Materials Forming, Machining and Tribology*, ds.: Das S., Kibria G., Doloi B., Bhattacharyya B., 2020, Springer,
2. M. Bandyopadhyay and **S. Chattopadhyay**, "Wireless Medicine Searching System Using GSM Modem", Book - *Advancements in Instrumentation and Control in Applied System Applications*, IGI Global Publishing, Chapter 9, Pages: 17, DOI: 10.4018/978-1-7998-2584-5.ch009, 2020, USA. [SCOPUS]

3. N. Sahay and **S. Chattopadhyay**, “Characteristic Behaviour of PVDF-Compliant Structure as an End Effector Using Creo Element/Pro Release 5.0”, Book - *Advancements in Instrumentation and Control in Applied System Applications*, IGI Global Publishing, Chapter 12, Pages: 10, DOI: 10.4018/978-1-7998-2584-5.ch012, 2020, USA. [SCOPUS]
4. **Subrata Mondal**, Chapter 10: “Phase change fibers”, In *Handbook of Fibrous Materials*, Eds: Jinlian Hu, Bipin Kumar, and Jing Lu, 2020, Wiley-VCH.
5. **Subrata Mondal**, Chapter 11: “Nanocellulose reinforced polymer nanocomposites for sustainable packaging of foods, cosmetics, and pharmaceuticals”, In *Sustainable Nanocellulose and Nanohydrogels from Natural Sources: A volume in Micro and Nano Technologies*, Eds: Faruq Mohammad, Hamad A. Al-Lohedan and Mohammad Jawaid, 2020, Elsevier.

Post Graduate Programmes

NITTTR, Kolkata is offering four AICTE approved, two year (four semester) M. Tech Programmes in Manufacturing Technology (being run by the Mechanical Engineering Department), Multimedia & Software Systems (being run by the Computer Science & Engineering Department), and Mechatronics Engineering (being run by the Electrical Engineering Department) and Structural Engineering (being run by the Civil Engineering Department). All these programmes are affiliated to the Maulana Abul Kalam Azad University of Technology (MAKAUT), West Bengal, formerly West Bengal University of Technology (WBUT). Due to situations arising out of COVID-19 pandemic, academic activities related to M. Tech, including classes and assessment, have been carried out in online mode.

Laboratory/Infrastructure Development

In addition to the existing recording facilities at Institute of Future Learning (IFL) studio, two more makeshift e-classrooms has been created for MOOC video shooting and similar video lecture recording. These are housed at the previous board rooms situated in new Academic and Administrative building.

Several equipment were purchased by the Dept. of Computer Science & Engineering during this quarter which include equipment for Network Laboratory

under the supervision of Mr. Rajeev Chatterjee. This purchase was planned long back but could not be completed. However, this time with cooperation from all corners this was made possible. This is almost a 90 lakh order and once operational, teachers of Polytechnic & Engineering Colleges will get exposure in state of art network equipment like firewall, router, switch, wireless device etc. which is eventually one of the essential requirements for the students with CSE/IT background. Among other purchases, the Dept. of CSE procured SPSS, a world famous statistical software which was initiated by Prof. Chandan Chakraborty. Two new e-class rooms were established recently.



e-classroom No. 1



e-classroom No. 2

Invited Lectures

Prof. Debi Prasad Mishra, Director of NITTTR, Kolkata has delivered several lectures in recent past. These are given below:

1. Webinar on “Role of Technologies in Rural Areas for Skill Development, Livelihood towards Atmanirbhar Bharat”, on 16th June 2020.
2. Addressed “International Yoga Divas” on 21st June 2020 organized by Gurukul Kangri Vishwadalaya.
3. Webinar on “Relevance of Ancient Indian Technology in Modern Era” on 27th June 2020 organized by ICAI University, Tripura.
4. Short Term Course on “Blockchain and Machine Learning” on 3rd July 2020 organized by CSE Department, Gurukula Kangri Vishwavidyalaya.
5. 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.

6. 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.

Moreover, the faculty members of NITTTR, Kolkata have delivered several invited talks in various platforms. These include the following:

- Dr. Arpan Kumar Mondal, Assistant Professor, M.E Department acted as Guest of honour as well as keynote speaker for Webinar on “NBA & NAAC ACCREDITATION”. Baghmundi Govt. Polytechnic, Purulia, West Bengal 723152 on 25/07/2020.
- Dr. Kinsuk Giri has delivered a talk on the topic “Problem Based Learning (PBL)” at Special Webinar Series, Adamas University, Kolkata, India on June 28, 2020.
- Dr. Kinsuk Giri has delivered a talk on the topic "Ancient Indian Mathematics", at 9th National Seminar (web) on Ancient Indian Science and Technology jointly conducted by NITTTR, Kolkata and SPIU Uttar Pradesh, July, 13, 2020.
- Dr Urmila Kar has delivered an invited talk through webinar on “Pedagogy for 21st Century Learners” for the faculty members of Regent Education and Research Foundation, Barrakpore on 17th July 2020.
- Dr Subrata Chattopadhyay of Electrical Engineering Department have delivered a Webinar Lecture on 8th June 2020 in 4-weeks Webinar Lecture series in ROBOTICS during 1st June, 2020 to 25th June, 2020, organised by The Robotics Society (TRS), RCC Institute of Information Technology (RCCIIT), Kolkata, India.

Research

Doctoral Programme Under AICTE QIP Scheme

Few years back, NITTTR, Kolkata has been recognized by the AICTE as a centre for pursuing Ph. D by in-service technical teachers under QIP scheme. At present four QIP Ph. D scholars are attached to the institute. The details are here.

Mr. Suman Kumar Bhattacharya has completed two years of his Ph.D and is into third year under the guidance of Dr. Sagarika Pal of EE Dept. Mrs. Snigdha Chowdhury Kolay and Mrs. Geetika Kumari Salwan have completed their pre-Ph.D works successfully and will be joining in the regular Ph.D programme soon in the departments of EE and ME respectively.

Research Grant

A short-term Core Research Grand (CRG) on COVID-19 has been received (Principal Investigator – Dr Indrajit Saha, Department of Computer Science and Engineering) on 26/06/2020 from Science and Engineering Research Board (SERB), Department of Science and Technology (DST), Government of India,

Celebration of International Day of Yoga – 2020



The 6th International Yoga Day with the theme “Yoga for health – Yoga at Home” on 21st June was celebrated from the home of respective employees of the Institute amidst the pandemic COVID 19 to adhere to Government Directives issued in this regard. In his maiden address to the employees of the Institute Online Professor Debi Prasad Mishra, Director of the Institute emphasized the need of Yoga and its impact. He traced back the

Yoga in the ancient India where it was used to stay healthy both physically and mentally. He also lamented that today's Yoga practice in the artificial environment in studio is not effective as it was in the yesteryears where this was a regular practice in the natural environment of GURUKUL. He strongly advocated practicing Yoga in natural environment to keep one healthy and mentally strong. The members of faculty and staff practiced Yoga from their home only. Some photographs are appended below to depict postures of YOGA by the employees of the Institute. The Programme was coordinated by Dr. Kinsuk Giri, Assistant Professor and Shri Avijit Kundu, Technical Officer.

Miscellaneous

- Dr U Kar has recorded an Introductory video of the MOOC course entitled ‘Essentials of Pedagogy, Part-I’

- Dr. Jagat Jyoti Mandal was the external examiner for evaluation of Project thesis and Grand viva of Post graduate in “Geotechnical Engineering” of IEST, Shibpur, held on 28.07.2020
- Dr Habiba Hussain has chaired a session in the International conference “Learning Diversity 2020” organised by Manochetna Academic and Research Center, Manovikas Kendra & Education Department, Calcutta University on 28-29, July 2020.
- Prof. Dipankar Bose has been nominated as “University Nominee of MAKAUT for Board of studies (BOS) in the Department of Automobile Engineering of MCKV Institute of Engineering, Autonomous Status under UGC ACT ,1956, NAAC Accredited Grade “A” Institute, Liluah, Howrah, West Bengal.
- Dr. Subrata Mandal of ME department have been nominated as a member of Departmental Research Committee (DRC), Department of Mechanical Engineering, Aliah University (UGC, AICTE, NCTE Approved Autonomous Institutions under the Department of Minority Affairs and Madrasah Education, Government of West Bengal), Kolkata, West Bengal.

MOOCs

The following MOOCs were run on the GoI SWAYAM platform in recent past.

1. Course Name: **Laboratory and Workshop Management**
 Coordinators: Prof. D. Bose, Prof. Samiran Mandal, Dr. Subrata Mondal
 Category : Teacher Education
 Level : Undergraduate / Postgraduate
 This is an AICTE approved FDP course
 Learners enrolled : 522
2. Course Name: **Academic and Research Report Writing**
 Coordinators: Prof. Samir Roy, Dr. R Subbarao, Dr. Kinsuk Giri
 Category : Teacher Education
 Level : Undergraduate / Postgraduate
 This is an AICTE approved FDP course
 Learners enrolled : 6241.
3. Course Name: **Learning Management System**
 Coordinators : Dr. R. Dasgupta & Mr. R. Chatterjee
 Category : Teacher Education
 Level : Undergraduate / Postgraduate
 Learners enrolled : 561
 This is an AICTE approved FDP course
4. Course Name: **Problem Based Learning**
 Coordinators : Dr. Indrajit Saha, Dr Arpan Kumar Mandal, Dr Kinsuk Giri, Dr Sagarika Pal
 Category : Teacher Education

Level : Undergraduate / Postgraduate
 Learners enrolled : 846

This is an AICTE approved FDP course

Special Training Programme

An ICT based training programme were conducted on High Performance Computing (HPC) by the Dept. of CSE as part of procurement of HPC. Several members of faculty and staff attended the programme from their home/office spread over in six days during the second half of June 2020. Dr. Giri organized the training including identification of topics & sub-topics where experts from the supplier had delivered the lectures as per our plan. The training was quite satisfactory and most of the queries of the participants were dealt with clarity.

Photographs





“Education is the best friend. An educated person is respected everywhere. Education beats the beauty and the youth.”
Chanakya

NATIONAL INSTITUTE OF TECHNICAL TEACHERS’ TRAINING AND RESEARCH, KOLKATA

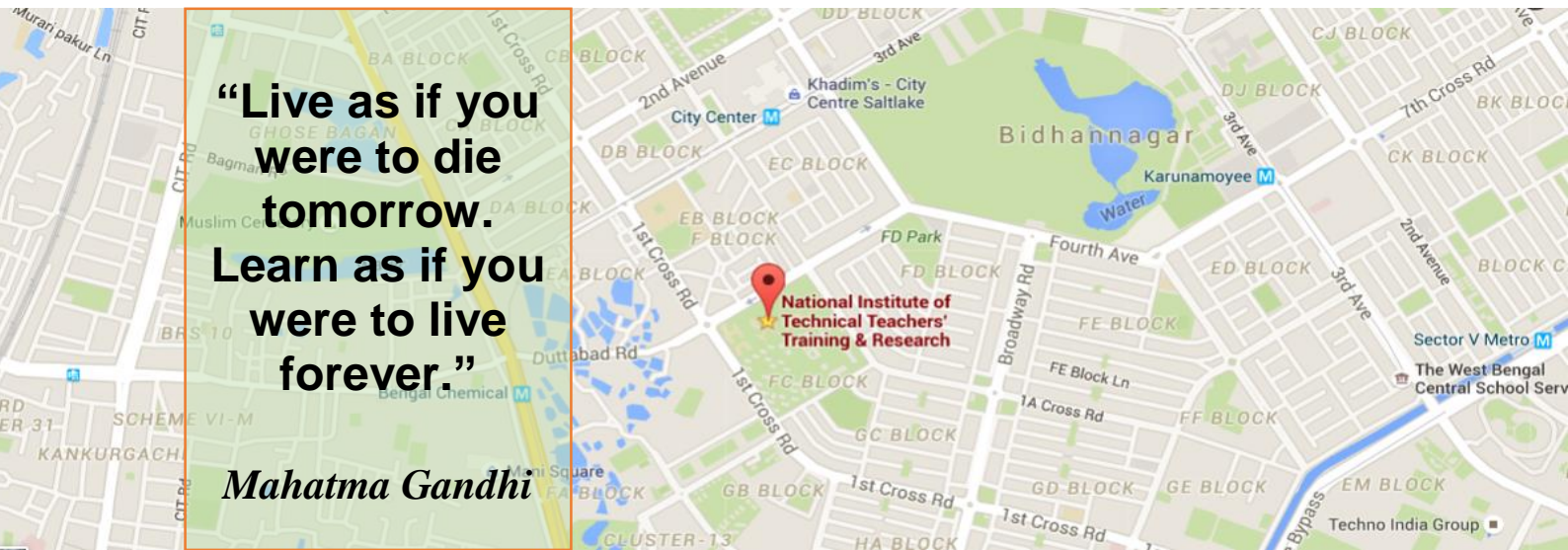
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How to Reach NITTR, Kolkata

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



Distance:

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

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

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