



MMMUT CHRONICLES

Quarterly Newsletter of Madan Mohan Malaviya University of Technology, Gorakhpur

तकनीकी शिक्षा की तपस्थली

Volume 5, Issue 2, October- December 2020

Chief Editor: Dr Abhijit Mishra, Assistant Professor

FROM VICE CHANCELLOR'S DESK

Madan Mohan Malaviya University of Technology is consistently working towards its vision of being a world-class educational center of knowledge generation, acquisition, and dissemination. We made notable progress during the period of October-December 2020. It is my pleasure to share with you the next issue of 'MMMUT Chronicles' which covers the important achievements/progress made by the University during this period. The University is making efforts to establish a Centre for Excellence in various areas with the help of ARM Ltd., UK. In view of growing popularity of B Tech Computer Science and B Tech IT programmes of the University, we have decided to increase seats in both the programmes to cater to the growing demand. The University has also adopted AICTE's provisions of Minor Degree Programme under which, students of B Tech Computer Science and B Tech IT, shall now be able to earn specializations in different areas such as Artificial Intelligence, Block Chain Technology, Cyber Security, and Internet of Things etc. In view of UP Govt's objective to develop Gorakhpur as textile hub, the University also plans to start B Tech programme in Textile Engineering in near future. Admission process was successfully completed in a transparent manner and the academic activities of the session 2020-21 started as per academic calendar notified by the University. Taking a unique step towards student welfare, the University has established Malaviya Chartra Kalyan Nidhi to provide financial assistance to the students or his/her parents in case of disability/ death of the student or the earning parent during the studies of the student. Steps are being taken by the University to digitize its library thereby providing 24x7 access to e-books and e-contents to the students and faculty from numerous reputed publishers. To promote sports culture in the campus, the University has decided to handover its newly built Shaheed Bandhu Singh Stadium to the Sports Authority of India (SAI) under the 'Khelo India' Scheme of the Govt. of India. After handing over, SAI shall not only look after the maintenance of the stadium but also provide its expertise in coaching students and local public for various sports. I am confident that the University will continue to grow with time and will achieve its vision of being a leading institution of technical education and a world class center of knowledge creation and dissemination.



- Prof J P Pandey
Vice Chancellor

UNIVERSITY LEVEL ACTIVITIES/ACHIEVEMENTS



Gandhi & Shastri Jayanti Celebrations

The University reverently remembered India's two great nationalists Mahatma Gandhi and Shri Lal Bahadur Shastri on their birth anniversary on October 2nd, 2020. Dean of Alumni & External Affairs Prof K G Upadhyay hoisted the tricolor as Chief Guest of the function. Before flag hoisting, Chief Guest also garlanded the statues of Goddess Saraswati and Pt. Madan Mohan Malaviya. In his address, Prof Upadhyay said that both Gandhiji and Shastri ji were living representations of simplicity, self-control, and spontaneity. Our nation and generations to come will forever be indebted to the contribution of these great men. Prof B K Pandey welcomed the gathering as also read the message of Hon'ble Vice Chancellor. Deans, Heads, faculty members, officers and staff of the University were present during the ceremony.

Seminar on 'Women Health & Hygiene Issues in India'

Women Welfare Cell organized a one-day online seminar on 'Women Health & Hygiene Issues in India' on October 31st, 2020. Hon'ble Vice Chancellor Prof J P Pandey inaugurated the seminar while Smt. Saroj Pandey, President, Women's Club, MMMUT graced the seminar as Chief Guest. Other eminent speakers of the seminar included Dr Anju Mishra, Laparoscopic Surgeon and Dr Reeta Mishra, Gynecologist who talked about a whole range of issues covering women health and hygiene. They also addressed the queries of the audience. More than 80 female students and staff of the University were present during the seminar. Chairman of Women Welfare Cell Smt. Meenu and members Dr Swati Gangwar, Dr Reena Banka, Dr Jyoti, Dr Priyanka Raj, and Dr Kahkashan Khan contributed towards successful organization of the event.



Demonstration of Drone Based Agricultural Equipment

Department of Electronics & Communication Engineering organized a demonstration of Drone based agricultural monitoring equipment on November 9th, 2020 at village Jungle Ram Lakhna, Khorabar. Prof A P Rao, Director (Extension), Acharya Narendra Dev University of Agriculture & Technology, Ayodhya was Chief Guest on the occasion while Hon'ble Vice Chancellor Prof J P Pandey presided over the programme. Shri Vipin Singh, Hon'ble MLA, Gorakhpur Rural graced the occasion as Guest of Honour. It is pertinent to mention that the Department of Electronics & Communication Engineering is working on a Govt. of India funded research project aimed at developing Drone, Sensor, & IoT based agricultural monitoring system. Funding to the tune of Rs. 2.97 Crores has been committed by the Ministry of Electronics & Information Technology for this project. On this occasion, a Memorandum of Understanding (MoU) was also signed for cooperation between MMMUT and Acharya Narendra Dev University of Agriculture and Technology. Chief Investigator of this project Prof S K Soni, Co-Chief Investigators Prof Brijesh Kumar, Dr Rajan Mishra, & Dr Prabhakar Tiwari explained the villagers that the project is using drone and IoT technology which will help in getting accurate health status of the soil and monitoring moisture/pesticides requirement to prevent crops. All this information would be available on the smartphone of the farmer thanks to this technology. Prof R K Chauhan, Head of Electronics Department; Deans and Registrar of the University; Shri K C Verma, Gram Pradhan, and numerous villagers were present during the function. It also needs to be highlighted that village Jungle Ram Lakhna is one of the five villages adopted by the University for overall development support.



Foundation Day Celebrations



To commemorate 7th Anniversary & Foundation Day of the University, a one-day Webinar was organized on December 1st, 2020. Hon'ble Vice Chancellor Prof J P Pandey inaugurated the Webinar as Chief Guest while notable alumni of the University Dr Jitendra Mohan Bharadwaj, Sr. Vice President, Coforge Ltd. (alumnus 1990) and Shri A K Singh, President, Micro Mac Engineers & Unitrans Power Ltd. (alumnus 1974) graced the webinar as Keynote Speakers. In his address, Hon'ble Vice Chancellor congratulated entire MMMUT family and highlighted major achievements of the University in the past few years. Addressing the audience, Dr Bhardwaj spoke about the importance of cyber security in the future world and stressed the need for training students in cyber security. Shri A K Singh spoke about the need to focus on renewable energy because it is the future. Both speakers also addressed various queries raised by the audience. Prof S K Srivastava, Dean of Alumni Affairs delivered welcome address while Prof U C Jaiswal, Dean of Faculty Affairs delivered vote of thanks. Prof V K Dwivedi and Dr Abhijit

Mishra contributed towards successful organization of the event. All departments also organized Webinar on this occasion.

Experimental Demonstration of Drone Based Agricultural Equipment

Department of Electronics & Communication Engineering organized an experimental demonstration of the drone based agricultural monitoring developed by it on December 18th, 2020 at village Jungle Ram Lakhna, Khorabar. Hon'ble Vice Chancellor Prof J P Pandey graced the occasion as Chief Guest. University's team of researchers used drone and IoT technology to spray fertilizers and pesticides on a patch of land to experimentally test the efficacy and utility of the systems developed by it. The experimental demonstration was under the aegis of Ministry of Electronics & Information Technology funded research project awarded to the department. A component of this project also involves training the local youth so that they can use these technologies on their own without the need of experts every time. Technical experts present at the site also told the benefits and details of these technologies to the local youth. Chief Investigator of this project Prof S K Soni; Co-Chief Investigators Prof Brijesh Kumar, Dr Rajan Mishra, & Dr Prabhakar Tiwari; Prof R K Chauhan, Head of Electronics Department; Deans of the University; Shri Satya Dev Tripathi, and numerous local youngsters were also present during the function.



Development of Effective Organic Fertilizer by MMMUT Student

Akshay Srivastava, student of B Tech Chemical Engineering and Young Scientist at University's Design Innovation & Incubation Centre has developed organic fertilizer which is three times more effective than the traditional organic fertilizers. He also won First Prize in Agri Tech Startup Pitch Fest- 2020 and was awarded with a cash prize of Rs. 1 Lakhs.

Development of Battery-Operated Mini Tractor

Rahul Singh, Young Scientist working in the Design, Incubation, and Innovation Centre of the University under the guidance of Prof Jeeoot Singh has developed a battery-operated mini tractor. The mini tractor is especially beneficial for small farmers for various reasons- cheaper than traditional tractors, compact design, low operating and maintenance cost, non-polluting, easy operation etc. Rahul Singh won First Prize during India International Science Festival- 2020 for his mini tractor.



Establishment of Centre of Excellence

The University has decided to establish a Centre for Excellence and to run various job oriented futuristic courses through this Centre. The University is in touch with UK based semiconductor and software design company ARM Ltd. for establishment of this Centre. Once the terms of agreement are finalized and the University gets go ahead from the Govt., the Centre will start functioning.

Ms Falak Naz, B Tech Chemical Engineering (Batch 2020) has been offered PhD programme at CSIR National Chemical Laboratory.

Establishment of Malaviya Chatra Kalyan Nidhi

The University has taken a unique initiative of establishment of 'Malaviya Chatra Kalyan Nidhi' (MCKN). MCKN will be corpus fund which will provide limited financial assistance to the students or his/her parents in case of disability/ death of the student or the earning parent during studies of the student. Entire fee of the student, whose earning parent dies during his studies in the University, shall be borne by the University out of the MCKN. Rules/ Regulations for MCKN have already been approved by the statutory bodies of the University and will come into effect from academic session 2021-22. MCKN shall be constituted from the amount collected from the students as Student Welfare Fee. There will be Governing Body for MCKN which will look after the maintenance and disbursement of assistance from MCKN.

STUDENT ACTIVITIES

Fit India Programme

1UP EME COY NCC, MMMUT organized Fit India Programme on October 1st & 2nd 2020, for the students and NCC cadets of the University to celebrate the spirit of fit and healthy India. Numerous students and NCC cadets participated in the programme. Lt. K. B. Sahay coordinated the event.

Hacktoberfest GIT

Robotics Club, under the aegis of Technical Sub Council, CSA, organized an online GitHub Workshop on October 4th, 2020. Shri Praveen Ojha, Software Engineer, Zeta (Nova) and alumnus of the University was present as Resource Person of the Workshop. Shri Ojha enriched the students with knowledge about GitHub platform.

Hackerearth Recruit-a-thon

A team of MMMUT students ranked 6th in a National Level Technical Hackathon 'Recruit-a-thon' organized by leading tech solutions company Hackerearth.com. Team 'Green IO' comprising of four university students namely Rohit Verma, Abhijeet Singh, Ritwik and Akshat Singh developed an AI based placement and salary prediction application 'Prognosis'. This application can suggest most suitable companies to the students based on their academic record and work experience and can also predict their average expected salary package. This application is based on Google's Flutter Framework. Nearly two thousand students from various technical institutions in the country participated in this event.

Poster Making Competition

IEEE Student Branch of MMMUT organized a weeklong poster making competition on the theme 'Is Work-Life Balance an Illusion or Possibility for Female Engineers?' during October 4th – 11th, 2020. Participants were expected to make a painting or poster on the given theme. Students from various technical institutions across Uttar Pradesh participated in the event. Charu Singh of MMMUT bagged 1st position while Priyanshi Nagpal of Dayalbagh Educational Institute, and Akshita of Amity University stood 2nd & 3rd respectively in the competition. Alisha Singh and Pratyakshya Srivastava, both from MMMUT were awarded Consolation Prize. Posters/ painting presented by various participants were uploaded on social media page of IEEE Student Branch of MMMUT.

Closing Ceremony of Rendezvous

Society for Automotive Engineers (SAE) Collegiate Club, MMMUT chapter organized a series of webinars titled 'Rendezvous' during which eminent people from various walks of life guided the students regarding their career options and how to prepare for them. Speakers of this webinar series included Mr. Agam Jain, IPS; Mr. Sonam Verma, IES & alumnus 2017 batch; Mr. Ravi Saharan, Indian Air Force; Mr. Ashish Pandey, Imperial College, London, and alumnus 2016 batch; Mr. Rishi Mittal, IIM Bangalore (scored 100 percentile in CAT). Closing ceremony of Rendezvous took place October 7th, 2020 during which Mr. Mohit Aggarwal, IPS & alumnus 1992 interacted with students and guided them about preparations for UPSC Civil Service Exams. He stressed on the need to always have a backup plan in life. He also counseled students about various other career options. The event was coordinated by Prof B K Pandey, Chairman CSA; Dr Dharmendra Kumar, Faculty In-charge, Technical Sub Council; and Shri Dharendra Singh, Faculty Advisor, SAE Collegiate Club.



Photoshop Classes

Cultural Sub Council, under the aegis of Council of Student Activities organized a three-day online Photoshop Training Programme during October 15th – 17th, 2020. Students were told about various minute details of poster making and photoshop software. Large number of students from MMMUT as well as other institutions benefitted from the programme.



Awareness Programme

Different Sub Councils of the Council of Student Activities (CSA) organized online awareness programmes through social media platforms on National Cancer Awareness Day on November 7th, 2020; Education Day on November 11th, 2020; and Children's Day on November 14th, 2020. Students shared posters and information on social media platforms about the relevance of these days and to create awareness.

Avlamban

Association of Civil Engineers, MMMUT; under its 'Avlamban' series, organized online interaction with Dr P V Venkitakrishnan, Director (CBPO), Indian Space Research Organization on November 17th, 2020. The interactive session was telecasted live on the Facebook page of 'Avlamban'. In his address, Dr Venkitakrishnan shared information and his views with students about India's space programme, about various technologies currently used by ISRO, as well as the successful space missions conducted by ISRO till now. Dr Venkitakrishnan also addressed numerous queries and curiosities of students during the session.

Webinar on Data Science

IEEE Student Branch of MMMUT, in association with Department of Electronics & Communication Engineering and Nextwing Infotech Pvt. Ltd., organized a one-day Webinar on 'Data Science (Artificial Intelligence & Machine Learning)' on December 6th, 2020. Eminent speakers of the Webinar included various industry experts such as Shri Abhishek Kumar (Data Scientist), Shri Samarth Malik (Sr. Product Manager), Shri K Narasimha Rao (HR Manager), and Shri Ankit Pandey (Training Manager). Huge number of students enthusiastically participated in the Webinar. Prof R K Chauhan, Head of Department of Electronics & Communication Engineering, Prof S K Soni, and Prof Brijesh Kumar, Faculty Adviser, IEEE Student Branch of MMMUT were also amongst the attendees of the Webinar.

Awareness Programme

Different Sub Councils of the Council of Student Activities (CSA) organized online awareness programmes through social media platforms on the occasion of International Human Rights Day on December 10th, 2020. Students shared posters and information on social media platforms about the importance of human rights, and legal provisions related to these rights to create awareness about these issues.

Teachings and life of Bharat Ratna

1UP EME COY NCC, MMMUT organized a one-day Webinar on 'Teachings & life of Bharat Ratna' on December 25th, 2020 to commemorate the 159 Birth Anniversary of Bharat Ratna Pandit Madan Mohan Malaviya. Numerous students and NCC cadets participated in the programme Lt. K. B. Sahay coordinated the event.

STUDENT PLACEMENTS DURING OCTOBER-DECEMBER 2020

The University witnessed a surge in placements during this period. A total of 174 students were offered campus placement as per following break-up:-

| Month | Name of Company/Employer | Number of Students Placed |
|--------------------|-------------------------------------|---------------------------|
| October 2020 | Tata Consultancy Services Digital | 5 |
| | Tata Consultancy Services Ninja | 16 |
| | Jaro Education Ltd. | 3 |
| November 2020 | Infosys Ltd. | 26 |
| | Pie Info com Ltd. | 3 |
| | Daffodil Software Pvt. Ltd. | 8 |
| | Cognizant Ltd. | 54 |
| December 2020 | Tata Consultancy Services Ninja | 41 |
| | Prism Johnson Ltd. | 4 |
| | Humming Wave Technologies Pvt. Ltd. | 14 |
| Grand Total | | 174 |

INVITED TALK/ EXPERT LECTURE DELIVERED BY MMMUT FACULTY

1. Prof V K Giri delivered expert talk on 'Fundamentals of Measurement & Instrumentation' on October 18th, 2020 during AICTE ATAL Academy sponsored online FDP on 'Recent Advances in Control Systems organized by MMMUT, Gorakhpur.
2. Prof S K Srivastava delivered expert lecture on 'Particulate Wood Polymer Composites: Processing, Properties and Applications' on October 29th, 2020 during online FDP on 'Emerging Trends in Thermal, Design and Manufacturing' organized by Mechanical Engineering Department, MMMUT.
3. Prof Brijesh Kumar delivered expert lecture on 'Recent Development in Organic Material based Devices and Circuits and its Applications' on November 25th, 2020 during Dr APJ Abdul Kalam Technical University, Lucknow sponsored online FDP on 'Recent Trends in Microwave Engineering & Its Industrial Application' organized by KIT, Kanpur.
4. Dr Awadhesh Kumar delivered expert lecture on 'Smart Sensors: A Control Perspective' on December 24th, 2020 during online STTP on 'Machine Vision, Data Acquisition System and Smart Sensors' organized by Department of Electrical Engineering, REC Banda.
5. Dr Awadhesh Kumar delivered expert lecture on 'Suboptimal Control Design through Robust Reduction Technique' on November 28th, 2020 during AICTE sponsored online STTP on 'Fractional Order Robust Control System Design' organized by Department of Electrical and Electronics Engineering, Vardhman College of Engineering, Hyderabad.
6. Dr Awadhesh Kumar delivered expert lecture on 'Variable Frequency Transformer: An Introduction & Future Direction' on October 1st, 2020 during TEQIP-III sponsored online FDP on 'Power Electronics for Electric Vehicles and Energy Systems' jointly organized by Department of Electrical Engineering, SVNIT Surat and MMMUT, Gorakhpur.
7. Dr B P Pandey delivered expert lecture on 'Nano-Gas sensor using 2D nanomaterials' on December 23rd, 2020 organized by SVNIT, Surat.
8. Dr Harish Chandra delivered invited talk on 'LaTeX: A Document Preparation and Typesetting System' on November 25th, 2020 during 'Guru Dakshta' (Faculty Induction Programme) organized by HRDC, University of Lucknow.
9. Dr Navdeep Singh delivered expert lecture during online FDP on 'Power Electronics for Electric Vehicles and Energy Systems' jointly organized by Department of Electrical Engineering, SVNIT Surat and MMMUT, Gorakhpur.
10. Dr Rajesh Singh delivered invited lecture during one day Webinar on 'Start UP and Employment Opportunities in present Scenario' organized by JS University, Shikohabad on October 30th, 2020.
11. Dr Swati Gangwar delivered expert lecture on 'Insight of Composites for Necessity in Life' on December 12th, 2020 organized by Department of Mechanical Engineering, SRMSCET, Bareilly.
12. Dr V K Mishra delivered invited lecture on 'Multidisciplinary Research Innovation in Engineering, Science and Technology for Sustainable Development' on October 26th, 2020 organized by BTKIT, Dwarahat, Uttarakhand.
13. Shri Dheerendra Singh delivered expert lecture on 'Solar Drying Technologies' on October 30th, 2020 during online FDP on 'Emerging Trends in Thermal, Design and Manufacturing' organized by Mechanical Engineering Department, MMMUT, Gorakhpur.
14. Shri Prashant Saini delivered expert lecture on 'Solar Energy Utilization and its Application' on October 29th, 2020 during online FDP on 'Emerging Trends in Thermal, Design and Manufacturing' organized by Mechanical Engineering Department, MMMUT, Gorakhpur.
15. Shri Ram Bilas Prasad delivered expert lecture on 'Robotic Manipulator' on October 27th, 2020 during online FDP on 'Emerging Trends in Thermal, Design and Manufacturing' organized by Mechanical Engineering Department, MMMUT, Gorakhpur.
16. Shri Sunil Kumar Yadav delivered expert lecture on 'Hybrid Machining Processes' on October 28th, 2020 during online FDP on 'Emerging Trends in Thermal, Design and Manufacturing' organized by Mechanical Engineering Department, MMMUT, Gorakhpur.

Mr Sarvjeet Verma, B.Tech Chemical Engineering (Batch 2020) has been offered Research Apprenticeship by National Fertilizers Limited, Nangal.

PUBLICATIONS

1. Chauhan, P. S., Kumar, S., & Soni, S. K. (In press). Performance Analysis of Non-identical Cascaded α - μ Fading Channels. *Wireless Personal Communication*. (SCI indexed)
2. Gangwar, D. S., Tyagi, S., & Soni, S. K. (In press). The Impact of Deployment Pattern and Routing Scheme on the Lifetime in Multi-Sink Wireless Sensor Network. *Wireless Personal Communication*. (SCI indexed)
3. Gangwar, S., & Pathak, V. K. (2020). Dry sliding wear characteristics evaluation and prediction of vacuum casted marble dust (MD) reinforced ZA-27 alloy composites using hybrid improved bat algorithm and ANN. *Materials Today Communications*.
4. Gangwar, S., & Pathak, V. K. (2020). A critical review on tribological properties, thermal behavior, and different applications of industrial waste reinforcement for composites. *Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications*.
5. Gangwar, S., Sharma, S., & Pathak, V. K. (2020). Preliminary Evaluation and Wear Properties Optimization of Boron Carbide and Molybdenum Disulphide Reinforced Copper Metal Matrix Composite Using Adaptive Neuro-fuzzy Inference System. *Journal of Bio-Tribo Corrosion*, 7 (4).
6. Jaiswal, S. K., & Kumar, D. (2020). An experimental assessment of bio-mixed-phase-change material in a light weight compartment and its potential as latent energy storage in north east climate of India. *Energy Sources, Part A : Recovery, Utilization and Environmental Effects*. <https://doi.org/10.1080/15567036.2020.1850928>
7. Khan, M. Z. R., Srivastava, S. K., & Gupta, M. K. (In press). Enhancement of the properties of hybrid woods polymer composites by Chemical pre-treatment. *Proceedings of the Institution of Mechanical Engineers, Part L: Journal of Materials: Design and Applications*, 0(0), 1-14 <https://doi.org/10.1177%2F1464420720980033>
8. Kumar, J., & Verma, R. K. (2020). Experimental investigation for machinability aspects of graphene oxide/carbon fiber reinforced polymer nanocomposites and predictive modeling using hybrid approach. *Defence Technology*. <https://doi.org/10.1016/j.dt.2020.09.009>
9. Kumar, J., Verma, R. K., & Mondal, A. K. (In press). Taguchi- Grey theory-based Harmony search algorithm (GR-HSA) for predictive modeling and multi-objective optimization in drilling of polymer composites. *Experimental Techniques*. <https://doi.org/10.1007/s40799-020-00428-y>
10. Kumar, K., & Prasad, R. B. (2020). Stress analysis of cortical bone of human femur. *Materials Today's Proceedings*.
11. Kumar, P., & Singh, D. (2020). Advanced technologies and performance investigations of solar dryers: A review. *Renewable Energy Focus*, 35, 148-158. <https://doi.org/10.1016/j.ref.2020.10.003>
12. Kumari, P., Varma, A. K., Shankar, R., Thakur, L. S., & Mondal, P. (2020). Phycoremediation of wastewater by *Chlorella Pyrenoidosa* and utilization of its biomass for biogas production. *Journal of Environmental Chemical Engineering*, 104974.
13. Mishra, G.P., Kumar, D., Chaudhary, V. S., & Murmu, G. (2020). Cancer cell detection by a heart-shaped dual-core photonic crystal fiber sensor. *Applied Optics*, 59 (33), 10321-10329.
14. Mishra, R. K., & Mishra, V. K. (2020). Impact of cost of substitution and joint replenishment on inventory decisions for joint substitutable and complementary items under asymmetrical substitution. *WPOM-Working Papers on Operations Management*, 11(2), 1-26. <https://doi.org/10.4995/wpom.v11i2.13730>
15. Mishra, S., Singh, P. K., Yadav, R. K., Umar, A., Lohia, P., & Dwivedi, D. K. (2020). Investigation of glass forming ability, linear and non linear optical properties of Ge-Se-Te-Sb thin films. *Chemical Physics*, 541, 111021. <https://doi.org/10.1016/j.chemphys.2020.111021>
16. Negi, S., Mittal, P., & Kumar, B. (2020). Numerical Modelling and Parameters Extraction of Novel Triple Hole Block layer based Organic Light Emitting Diode for Display. *Journal of the Society for Information Display*, 28 (12), 956-964. <https://doi.org/10.1002/jsid.952>
17. Pal, S., & Kumar, B. (In press). Impact of Different Gate Dielectrics on OTFT Driven Active-Matrix OLED Pixel Circuits. *Semiconductor*.
18. Rao, P. K., Yadav, A. R. & Mishra, R. (2020). AMC-based antenna sensor for breast tumors detection. *International Journal of Microwave and Wireless Technologies*, 1-8. <https://doi.org/10.1017/S1759078720001609>
19. Saini, P., Singh, J., & Sarkar, J. (2020). Thermodynamic, economic, and environmental analyses of a novel solar energy driven small-scale combined cooling, heating, and power system. *Energy Conversion and Management*, 226, 113542.
20. Saxena, P., Singh, N., & Pandey, A. K. (In Press). Investigating the Frequency Fault Ride through Capability of Solar Photovoltaic System: Replacing Battery via Virtual Inertia Reserve. *International Transaction on Electrical Energy Systems*.
21. Saxena, P., Singh, N., & Pandey, A. K. (In Press). Self-Regulated Solar Power System: Replacing Battery via Virtual Inertia Reserve. *IEEE Transaction on Energy Conversion*.
22. Shukla, V., & Singh, J. (In press). Buckling behaviour of rectangular angle ply laminated composite plates subjected to thermal and mechanical loads using meshfree method. *International Journal of Computational Material Science and Engineering*. <https://doi.org/10.1142/S2047684120500219>
23. Singh, A. P., & Singh, D. K. (2020). Multi response optimization for micro-EDM machining of AISI D2 die steel using RSM and neural network. *Materials Today's Proceedings*.
24. Singh, B., Verma, A., & Giri, V. K. (2020). Control of Three Phase Two Stage LCL Type Grid Interfaced PV Inverter. *Journal of Electrical and Electronics Engineering*, 13(2), pp. 91-96.
25. Singh, C., Kumar, A., Yadav, R. K., Gole, V. L., & Dwivedi, D. K. (In Press). Photocatalyst-Enzyme Coupled Artificial Photosynthetic System That Uses Solar Light in 1, 4-NADH Regeneration and L-glutamate Production. *Vietnam Journal of Chemistry*.
26. Singh, R. K., Singh D. K., & Gangwar S. (2020). On the temperature analysis of magnetic abrasive finishing of Aluminium 6060 using finite element method. *Machining Science and Technology*.
27. Singh, R. K., Singh, D. K., & Gangwar, S. (2020). On the temperature analysis of magnetic abrasive finishing of Aluminium 6060 using finite element method. *Machining Science and Technology*.
28. Singh, R., & Mishra, V. K. (In press). Sustainable optimal ordering quantity for non-instantaneous deteriorating items under joint replenishment with substitution and carbon emission, *Kybernetes*.
29. Singh, S. N. (2020). Impact of Nonverbal Signals in Business Communication. *Sambodhi Journal*. 43 (4).
30. Singh, S. N. (2020). Technology, New Media & ELT. *Sambodhi Journal*. 43 (4)(IV).
31. Singh, V. K., Singh, J., Rao, K. V., & Chaudhary, V. (In press). Elastic behavior Control of smart material integrated shallow spherical composite panel using HOSDT kinematics. *Composite Structures*.

Mr Brijesh K Maurya, B.Tech Chemical Engineering (Batch 2020) has been offered Research Apprenticeship by Bharat Petrochemicals Ltd., Noida.

32. Srivastava, A., Yadav, S. K., & Singh, D. K. (2020). Modeling and Optimization of Electric Discharge Machining Process Parameters in machining of Al 6061/SiCp Metal Matrix Composite. *Materials Today's Proceedings*.
33. Suman, S. K., & Kumar, A. (In press). Linear System of Order Reduction using a Modified Balanced Truncation Method. *Circuits, Systems, and Signal Processing*.
34. Tripathi, S., Kumar, B., & Dwivedi, D. K. (2020). Numerical simulation of non-toxic In₂S₃/SnS₂ buffer layer to enhance CZTS solar cells efficiency by optimizing device parameters. *Optik*, 227, 166087. <https://doi.org/10.1016/j.ijleo.2020.166087>
35. Varma, A. K., Lal, N., Rathor, A., Katiyar, R., Thakur, L. S., Shankar, R., & Mondal, P. (2020). Thermal, kinetic, and thermodynamic study for co-pyrolysis of pine needles and styrofoam using thermogravimetric analysis. *Energy*, 119404.
36. Yadav, M. & Singh, N. (In press). Small Signal Modelling Based Hybrid Optimized Current and Voltage Controller For Unbalanced DC Microgrid. *Int Trans Electr Energ Syst*.
37. Yadav, P. K., & Jayswal, S. C. (In press). Experimental Study and Optimization using Multi-Objective Optimization based on Ratio Analysis and Harmony Search Algorithm in Magnetic Abrasive Flow Finishing Process. *Advanced Science, Engineering and Medicine*.

RESEARCH PROJECTS AWARDED

1. Dr Prateek Khare, Department of Chemical Engineering has been awarded research project titled '*Application of thermo-power plant bagasse-based waste carbon as an efficient electro-catalyst for electrochemical oxidation process*' (Amt. Rs. 30.12 Lakhs) by Science & Engineering Research Board, New Delhi under SRG scheme.

INVITED/EXPERT LECTURES ORGANIZED

1. Prof A K Sahoo, DTU, Delhi delivered online expert lecture on 'Microscopic Study of Fine Grain Soil' on October 8th, 2020 organized by Department of Civil Engineering.
2. Shri Satyakam, Ernst and Young delivered online invited lecture on 'Blockchain Ecosystem in India' on October 28th, 2020 organized by Training & Placement Cell.
3. Shri Rajesh Srivastava, Director (DDT), Wipro Ltd. delivered invited online lecture on 'Corporate to Campus' on November 21st, 2020 organized by Training & Placement Cell.
4. Shri Rajesh Prasad Joshi, Honeywell Product & Manufacturing Ltd., Pune delivered invited online lecture on 'Distillation Column Design and Simulation' on November 26th, 2020 jointly organized by MMMUT Student Chapter of Indian Institute of Chemical Engineers (IICHe) and Department of Chemical Engineering.

STC/WORKSHOPS/TRAINING PROGRAMMES/CONFERENCES

Power Electronics for Electric Vehicles & Energy Systems

Department of Electrical Engineering, in association with Sardar Vallabhbhai National Institute of Technology, Surat organized a one-week online Faculty Development Programme on 'Power Electronics for Electric Vehicles & Energy Systems' during September 28th -October 3rd, 2020. Eminent speakers of the FDP included Prof R K Pandey, BHU; Prof S Chatterji, NITTTR Chandigarh; Prof Ashwani Kumar, NIT Kurukshetra; Prof Rajesh Gupta; MNNIT Prayagraj; Prof H M Suryavanshi; VNIT Nagpur; Prof K B Mohanty, NIT Rourkela; Dr V N Lal, Dr S K Singh, & Dr N K S Naidu, IIT BHU; Dr S R Arya, Dr Sanjay Tolani, & Dr Mahesh Aeidapu, SVNIT Surat; and Dr Kalpana R, NIT Surathkal. The event was coordinated by Dr Awadhesh Kumar, Dr Navdeep Singh, and Dr Shekhar Yadav. The programme had 72 participants from various institutions.

National Education Policy 2020 : Issues and Challenges in Implementation

Department of Humanities & Management Science in association with Sardar Vallabhbhai National Institute of Technology, Surat organized TEQIP-III sponsored two days International Seminar on 'National Education Policy 2020: Issues and Challenges in Implementation' on October 8th-9th, 2020. Eminent speakers of the seminar included Hon'ble Vice Chancellor of MMMUT Prof J P Pandey; Prof S R Gandhi, Director SVNIT, Surat; Prof R K Anayath, Hon'ble VC, DCRUST; Prof R S Shahi, NEP Steering Committee Member, UP; Prof R Venkat Rao, SVNIT Surat; Shri Shreehari Borikar, ABVP; Dr R M Jha, SB University Ranchi; Ms Santosh Ram, UK; Prof D K Dwivedi, Dr S N Singh, Dr Ravi K Gupta, Dr Priyanka Rai, Dr Bharti Shukla, & Dr Aparna Singh, MMMUT. The programme had 135 participants.

Virtual Labs: Electronics & Communication Engineering

Department of Electronics & Communication Engineering organized a one-week TEQIP-III sponsored online Faculty Development Programme on 'Virtual Labs: Electronics & Communication Engineering' during October 12th - 16th, 2020. Eminent speakers of the FDP included Prof K Balani, IIT Kanpur; Prof Anand Sharman, MNNIT Prayagraj; Dr Jitendra Mishra, IIIT Ranchi; Dr Satish Chandra & Shri Ritesh Kumar, MMMUT. The event was coordinated by Prof R K Chauhan, Shri Anupam Sahu, Dr Satish Chandra, and Shri Ritesh Kumar. The programme witnessed participation of numerous students/ faculty members.

Recent Advances in Control Systems

Department of Electrical Engineering organized a one-week AICTE ATAL Academy sponsored online Faculty Development Programme on 'Recent Advances in Control Systems' during October 17th - 21st, 2020. The FDP was inaugurated by Dr R K Soni, Director, AICTE ATAL Academy, New Delhi. Eminent speakers of the FDP included Prof Radhakant Padhi, IISc Bengaluru; Prof Nischal Verma, IIT Kanpur; Prof Shubhi Purwar, MNNIT Prayagraj; Dr Saurav Patra, IIT Kharagpur; Dr Sandeep Ghosh, Dr Debdas Ghosh & Dr Shyam Kamal, IIT BHU; Dr B B Sharma, NIT Hamirpur; Dr M K Bera, NIT Silchar; Dr Lalit Singh, NPCIL-BARC, DAE; Dr B P Joshi, NPSEI Pithoragarh; and Prof V K Giri, Dr Awadhesh Kumar & Dr Shekhar Yadav, MMMUT. The programme had 150 participants from various institutions.

Emerging Trend in Thermal, Design & Manufacturing

Department of Mechanical Engineering organized a one-week online Faculty Development Programme on 'Emerging Trends in Thermal, Design & Manufacturing' during October 26th- 30th, 2020. Eminent speakers of the FDP included Prof P M Pandey, IIT Delhi; Prof MZK Yusufzai, IIT BHU; Prof R Venkat Rao, SVNIT Surat; Prof Om Prakash, NIT Patna; Dr R G Mote, IIT Bombay; Dr A M Sidpara, IIT Kharagpur; Dr Manabendra Pathak, IIT Patna; and Dr Jahar Sarkar, IIT BHU; The programme had 112 participants from various institutions.

Introduction of Securities Market

Department of Humanities & Management Science in association with Securities & Exchange Board of India, National Securities Depository Ltd., and National Stock Exchange of India, organized a one-day Webinar on 'Introduction of Securities Market' on November 24th, 2020. Eminent speakers of the

webinar included Hon'ble Vice Chancellor of MMMUT Prof J P Pandey; Ms Supriya Kabra, SEBI Lucknow; Ms Himani Lath, Manager NSDL New Delhi; Mr Nishant Srivastava, Dy. Manager, NSE Delhi; and Dr S N Singh, MMMUT. The programme had 150 participants from various institutions.

Managing Job Sustainability and Professional Growth for Future Managers

Department of Humanities & Management Science organized a one-day Webinar on 'Managing Job Sustainability and Professional Growth for Future Managers' on December 1st, 2020 on 7th Foundation Day Function of MMMUT. Eminent speakers of the webinar included Hon'ble Vice Chancellor of MMMUT Prof J P Pandey; Dr Anupam Shukla, ICST SHEPA; Shri Gyanendra Bhaskar, SBI Life Insurance; Shri Praveen Kumar, Havells India Ltd; Shri Prakhar, Marico India Ltd.; Shri Anubhav Srivastava, Nainital Bank Ltd.; Ms Rishija Vatsa, Haier Appliances Ltd.; Ms Avantika Pandey, Akash Educational Services; and Dr S N Singh, MMMUT. The programme had 100 participants.

BBA and MBA in Rural Management

Department of Humanities & Management Science in association with Mahatma Gandhi National Council for Rural Education, Hyderabad organized a one-day online Curriculum Workshop on 'BBA and MBA in Rural Management' on December 10th, 2020. Resource Persons of the workshop included Prof C Chittalkar, & Dr Khushboo Hotchandhani, MGNCRE; and Dr S N Singh, MMMUT. The programme witnessed participation of 100 students/ faculty members.

Human Rights & Higher Education

Department of Humanities & Management Science in collaboration with Bhartiya Charitra Nirman Sansthan, Delhi organized a one-day Webinar on 'Human Rights & Higher Education' on December 16th, 2020. Eminent speakers of the Webinar included Hon'ble Vice Chancellor of MMMUT Prof J P Pandey; Hon'ble Justice Shri Ravi R Tripathi, Chairman, Gujrat State Human Rights Commission; Shri L Venkateswar Lu, Director General, Deen Dayal Upadhyay State Institute for Rural Development; Shri R K Goswami, President, Bhartiya Charitra Nirman Sansthan, Delhi; Prof Jeeoot Singh and Dr S N Singh, MMMUT. The programme witnessed participation of 100 students/ faculty members.

Future Skill Training on Internet of Things

Department of Computer Science & Engineering organized a one-week online Training Programme on 'Future Skill Training on Internet of Things' for students. The event was sponsored by TEQIP-III.

Recent Trends in Sensors Technology and Automation

Department of Electronics & Communication Engineering, MMMUT and Sardar Vallabhbhai National Institute of Technology, Surat jointly organized an online one-week Short Term Training Programme on 'Recent Trends in Sensors Technology and Automation' during December 21st- 25th, 2020. Eminent speakers of the programme included Mr Nisith Bhatt, Design Tech Systems, Pune; Prof Subhas Chandra Mukhopadhyay, Macquarie University, Australia; Mr Rahul Yadav, IMEC, Belgium; Prof Maryam Shojaei, IIT Mumbai; Dr Vinay Palaparthi, DAICT, Gandhinagar; Dr Anindya Bose, Burdwan University, Bardhaman; Prof Piyush N Patel, Prof Anand Darji & Prof Janak Patel, all from SVNIT; and Dr B P Pandey from MMMUT. The programme had 60 participants from various institutions.

FACULTY PARTICIPATION IN OUTSIDE CONFERENCES/ WORKSHOPS/STTP/FDP/TRAINING PROGRAMMES

1. Prof Brijesh Kumar participated in one-week online FDP on 'Power Electronics for Electric Vehicles & Energy Systems' jointly organized by EED, MMMUT & SVNIT, Surat during September 28th – October 3rd, 2020.
2. Maj G.S. Triapthi participated in online FDP on 'Nascent Methodologies, Challenges and Realms of Research' organized by Delhi Technological University during October 3rd – 7th, 2020.
3. Dr Awadhesh Kumar participated in FDP on 'Control and Automation' organized by Department of Avionics, Indian Institute of Space Science & Technology, Thiruvananthapuram during December 15th – 18th, 2020.
4. Dr Awadhesh Kumar participated in one-week online FDP on 'Emerging Pedagogy in Online Teaching Learning' organized by REC, Sonbhadra during October 26th – 30th, 2020.
5. Dr B P Pandey participated in AICTE ATAL Academy and SERB sponsored online FDP on 'Sensors Technology' organized by University of Burdwan during November 3rd-7th, 2020.
6. Dr B P Pandey participated in IEEE, Bangalore Section sponsored online Industrial Training Programme on 'Design and Verification using Verilog' organized by Entuple Technologies Pvt. Ltd. during October 28th- November 30th, 2020.
7. Dr Bharti Shukla participated in AICTE ATAL Academy sponsored one-week online FDP on 'Pedagogical Excellence in Management Class' organized by IMT Nagpur during October 26th – 30th, 2020.
8. Dr Dharmendra Kumar participated in AICTE ATAL Academy sponsored online FDP on 'Photonics' organized by IIIT, Ranchi during November 3rd- 7th, 2020.
9. Dr Dharmendra Kumar participated in AICTE ATAL Academy sponsored online FDP on 'Advanced Optical Access Networks and its Role in Smart Cities' organized by IIIT, Kota during November 23rd- 27th, 2020.
10. Dr Dharmendra Kumar participated in IEEE, Bangalore Section sponsored online Industrial Training Programme on 'Design and Verification using Verilog' organized by Entuple Technologies Pvt. Ltd. during October 28th- November 30th, 2020.
11. Dr Dharmendra Kumar participated in MHRD sponsored TEQIP assisted course on 'Advance Digital Pedagogy and ICT Tools: Challenges and Opportunities in Online Teaching' organized by IIT, Roorkee during November 18th- 22nd, 2020.
12. Dr Dharmendra Kumar participated in QIP sponsored Short-Term Course on 'Optoelectronics and Nanophonics' organized by IIT, Guwahati during November 6th- 7th & 9th-12th, 2020.
13. Dr Dharmendra Kumar participated in two weeks Industrial Training Programme on 'Basic Telecom' organized by BSNL, Gorakhpur during November 16th- 28th, 2020.
14. Dr Kahkashan Khan participated in online Training Workshop on 'Panic-Gogy: Perspectives on Online Teaching' organized by IIT Roorkee during December 14th – 18th, 2020.
15. Dr Kahkashan Khan participated in TEQIP-III sponsored one-week online course on 'Advance Digital Pedagogy and ICT Tools: Challenges and Opportunities in Online Teaching' organized by IIT Roorkee during November 18th-22nd, 2020.

Dr. Satya Pal Singh, Physics & Material Science Department received the 'Elsevier Peer Review Recognition Award' from Elsevier Publications Group.

16. Dr Kakhshan Khan participated in two weeks online International FDP on 'Multidisciplinary Research Innovation in Engineering, Science and Technology for Sustainable Development' organized by BCT KIT, Dwarahat during October 26th - November 7th, 2020.
17. Dr Navdeep Singh participated in two-weeks Industrial Training Programme on 'Transmission Line based Communication Structure' organized by BSNL during November 2020.
18. Dr Priyanka Rai participated in one-day online Webinar on 'Role of Dr B R Ambedkar Ji in Building Modern India' organized by 1UP EME COY NCC, MMMUT on December 6th, 2020.
19. Dr Priyanka Rai participated in online Training Workshop on 'Panic-Gogy: Perspectives on Online Teaching' organized by IIT Roorkee during December 14th–18th, 2020.
20. Dr Priyanka Rai participated in TEQIP-III sponsored one-week online course on 'Advance Digital Pedagogy and ICT Tools: Challenges and Opportunities in Online Teaching' organized by IIT Roorkee during November 18th-22nd, 2020.
21. Dr Rajesh Singh participated in one day online Workshop on 'Simplifying Career' organized by T&P Cell, MMMUT on December 26th, 2020.
22. Dr Rajesh Singh participated in one day Webinar on 'Blockchain Ecosystem in India' organized by T&P Cell, MMMUT on October 28th, 2020.
23. Dr Rajesh Singh participated in TEQIP-III sponsored one-week online FDP on 'Emerging Trends in Thermal, Design and Manufacturing' organized by MED, MMMUT during October 26th–30th, 2020.
24. Dr Ram Keval participated in AICTE ATAL Academy sponsored workshop on 'Control Systems & Sensors Technology' organized by Madan Mohan Malaviya University of Technology, Gorakhpur during October 17th–21st, 2020.
25. Dr Ram Keval participated in online FDP on 'Nascent Methodologies, Challenges and Realms of Research' organized by Delhi Technological University during October 3rd–7th, 2020.
26. Dr Ravi Kumar Gupta participated in one-day online Webinar on 'Role of Dr B R Ambedkar Ji in Building Modern India' organized by 1UP EME COY NCC, MMMUT on December 6th, 2020.
27. Dr Ravi Kumar Gupta participated in one-week online STC on 'Gender Equality and Violence against Women during COVID-19' organized by Dr B R Ambedkar National Institute of Technology, Jalandhar during October 9th–13th, 2020.
28. Dr Ravi Kumar Gupta participated in TEQIP-III sponsored one-week online course on 'Advance Digital Pedagogy and ICT Tools: Challenges and Opportunities in Online Teaching' organized by IIT Roorkee during November 18th-22nd, 2020.
29. Dr Sudhanshu Verma participated in Industrial Training Programme organized by RTTC, BSNL, Lucknow during December 7th–18th, 2020.
30. Dr Sudhanshu Verma participated in one-week online FDP on 'Universal Human Values' organized by NIT Patna during November 23rd-27th, 2020.
31. Dr Sudhir Narayan Singh participated in one-day online Webinar on 'Role of Dr B R Ambedkar Ji in Building Modern India' organized by 1UP EME COY NCC, MMMUT on December 6th, 2020.
32. Dr Sudhir Narayan Singh participated in online Training Workshop on 'Panic-Gogy: Perspectives on Online Teaching' organized by IIT Roorkee during December 14th–18th, 2020.
33. Dr Sudhir Narayan Singh participated in TEQIP-III sponsored one-week online course on 'Advance Digital Pedagogy and ICT Tools: Challenges and Opportunities in Online Teaching' organized by IIT Roorkee during November 18th-22nd, 2020.
34. Dr. Vinay Kumar Yadav participated in one-day online Webinar on 'Role of Dr B R Ambedkar Ji in Building Modern India' organized by 1UP EME COY NCC, MMMUT on December 6th, 2020.
35. Md. Saifullah Khalid participated in one-week FDP on 'Recent Advancement in Mechanical Engineering' organized by Govt. College of Engineering, Keonjhar in association with Institute of Chemical Technology, Mumbai during October 12th-16th, 2020.
36. Ms Rukmani Singh participated in AICTE ATAL Academy sponsored online FDP on 'Photonics' organized by IIIT, Ranchi during November 3rd-7th, 2020.
37. Ms Rukmani Singh participated in MHRD sponsored TEQIP assisted course on 'Advance Digital Pedagogy and ICT Tools: Challenges and Opportunities in Online Teaching' organized by IIT, Roorkee during November 18th-22nd, 2020.
38. Shri Ankit Kumar participated in one-week FDP on 'Recent Advancement in Mechanical Engineering' organized by Govt. College of Engineering, Keonjhar in association with Institute of Chemical Technology, Mumbai during October 12th-16th, 2020.
39. Shri Anupam Sahu participated in Industrial Training Programme organized by RTTC, BSNL, Lucknow during December 7th–18th, 2020.
40. Shri Anupam Sahu participated in TEQIP-III sponsored STC on 'Advances in Electronic and Photonic Devices for Optical Fibre Communication and Bio-chemical Sensing' organized by IIT Indore during November 25th-27th, 2020.
41. Shri Anupam Sahu participated in AICTE ATAL Academy sponsored online FDP on 'Photonics' organized by IIIT, Ranchi during November 3rd-7th, 2020.
42. Shri Bijendra K Pushkar participated in one day Webinar on 'Change in Motor Insurance Norms for New Vehicles' jointly organized by Policy Bazar.com and MoneyMile on October 23rd, 2020.
43. Shri Deepak Kumar participated in online MOOCs course on 'Statistical Signal Processing' offered by IIT Guwahati during December, 2020.
44. Shri GD Bharti participated in two weeks Industrial Training Programme organized by BSNL, Gorakhpur during November 18th-22nd, 2020.
45. Shri S A Siddique participated in 4th International Conference on Optical and Wireless Technologies organized by MNIT, Jaipur on October 4th, 2020.
46. Shri S A Siddique participated in AICTE ATAL Academy sponsored one-week online FDP on 'Lab on Chip' organized by Defence Institute of Advanced Technology, Pune during December 14th-18th, 2020.

Ph D AWARDED

1. Mr Narendra Yadava has been awarded PhD in Electronics & Communication Engineering on his thesis titled '*RF Performance Improvement of Gallium Oxide MOSFET*' supervised by Prof R K Chauhan.
2. Mr P K Kharwar has been awarded PhD in Mechanical Engineering on his thesis '*Development and Experimental Investigation on Machining of Carbon Nanoparticles Reinforced Polymer Nanocomposites*' supervised by Dr R K Verma.
3. Ms Sukriti Yadav has been awarded PhD in Mechanical Engineering on her thesis titled '*A Tribological and Mechanistic Interpretation of a Silane Modified Nano Hydroxyapatite Filled Dental Restorative Composites*' supervised by Dr Swati Gangwar.