

## **AICTE SPONSORED CONFERENCE**



Estd. in 2001







Dr. B. K. Mishra Programme Chair





Zagdu Singh Charitable Trust's (Regd.)

### **THAKUR COLLEGE OF ENGINEERING & TECHNOLOGY**

**Autonomous College Affiliated to University of Mumbai** 

Approved by All India Council for Technical Education(AICTE) and Government of Maharashtra A - Block, Thakur Educational Campus, Shyamnarayan Thakur Marg, Thakur Village, Kandivali (East), Mumbai - 400 101 Tel.: 022-6730 8000 / 8106 / 8107 Telefax: 022-2846 1890 • Email: tcet@thakureducation.org

### **MULTICON-W 2021 HOST INSTITUTE**



#### **VISION**

Thakur College of
Engineering and
Technology will excel in
Technical Education to
become an internationally
renowned premier
Institute of Engineering
and Technology.

- Integrity & Accountability
- Respect for each Individual
- Sensitive towards Social Responsibilities
- Unfettered spirit of learning, Exploration, Rationality & Enterprise
- Exploration & Enterprise for both Faculty and Students

**CORE VALUES** 



To provide state-of-the-art infrastructure and right academic ambience for developing professional skills as well as an environment for growth of leadership and managerial skills to students which will make them competent engineers to deliver quality results in the industry



Estd. in 2001

- Structured & Guided
   Teaching Learning
   Methodology Maintaining
   Academic Rigor
- System Driven Student -Centric Services
  - Proactive Student
     Professional and Personality
     Development Programmes
    - State of the art Infrastructure meeting International Standards

CORE COMPETENCIES



### Technocrat Partner Institutes





#### Other Partners



**Print Media** 

#### Collaborators





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# Messages



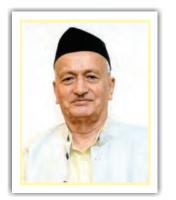


#### BHAGAT SINGH KOSHYARI GOVERNOR OF MAHARASHTRA



RAJ BHAVAN Malabar Hill Mumbai 400 035

Tel. : 022-2363 2660 Fax. : 022-2368 0505



21 December 202

### MESSAGE

I am pleased to know that the Thakur College of Engineering & Technology (TCET) is organizing MULTICON-W on 26-27 January 2021.

It is gratifying to note that four conferences and three workshops with multiple track are being organized as part of MULTICON-W.

I wish and hope that MULTICON-W 2021 will serve as a useful platform for interaction, idea exchange and networking on a range of issues associated with the theme subject.

I congratulate the Thakur College of Engineering & Technology for its initiative in organizing MULTICON-W 2021 and wish all the participants fruitful deliberation.

(Bhagat Singh Koshyari)





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• ISO 9001:2015 Certified • Programmes Accredited by National Board of Accreditation (NBA), New Delhi Institute Accredited by National Assessment and Accreditation Council (NAAC), Bangalore

### Chairman's Message



As we are aware that the mankind is amid a crisis like no other due to pandemic. The pandemic has changed the global economy, living, and learning patterns upside down. Despite the fact, as envisioned Thakur College of Engineering and Technology, an autonomous, premier technical institute has proven its prowess by providing multidisciplinary technical education to the young minds to make them versatile professionals to find the solutions to the worldly problems for the well-being of the mankind. Since its inception in 2001, the institute has achieved excellence in academics with its globally applicable and locally relevant curriculum to make competent engineers with emphasis on equal development in co-curricular and extra-curricular

In this era of rapid technological development and advancement, research, innovations, and inventions play crucial role to get competitive edge to the learners. Following this eternal truth, TCET has always hosted many events like seminars, conferences, workshops, symposiums for the intellectual pursuit. One of the intellectual fests is Multicon-W, the platform for multiple conferences and workshops to deliberate and discuss the recent trends in science and technology to critique the problems and solutions in these areas. This conference would serve as an effective platform for academic staff, researchers, industry experts, and engineers to learn, network, share and to create an environment for intellectual exchanges with the ideas of recent advances in various technical areas.

I congratulate all the participants and delegates and assure you that TCET will provide the best academic ambience to enrich your knowledge by exchanging the innovative ideas. I hope that the researchers and authors will contribute their valuable views and research work. I am sure that the platform of Multicon-W will be worth remembering. With these words, I once again welcome all.

I wish your deliberations all success!







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Institute Accredited by National Assessment and Accreditation Council (NAAC), Bangalore

## Secretary's Message



While societies grapple with self-isolation and social distancing due to covid-19 pandemic, Thakur College of Engineering and Technology, an autonomous premier technical institute situated in the heart of financial capital of India, aims to bring people around the world closer together through the simple power of speech. Under the roof of Multicon-W, the platform for multiple conferences and workshops, TCET has been creating a worldwide community of people who wish to share and exchange ideas on recent trends in science and technology by organizing various intellectual gatherings in the form of seminars, conferences, symposium and workshops for research students, academicians, industry experts and professionals.

This Technical International Conference will provide a prestigious international platform by bringing together local and overseas technical researchers and students to exchange their experienced knowledge and expertise issues relating to the dominating technology trends The Conference aims to bring different ideologies under one roof and provide opportunities to exchange ideas face to face, to establish research relations and to find global partners for future collaboration. The themes and sub-themes for this conference are indicative of relevant research areas to give the prospective authors innovative prepositions about the ambit of discussion.

Therefore, TECT welcomes the best ideas and thinking from all people across diverse disciplines, organisations, and geographies and hope that this conference will act as a medium for all of us present here to ponder upon the topic of discussion, challenge us to strive towards it and inspire us at the same time.

Thank you!

Mrs. Karishmma Mangal Secretary

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### **CEO's Message**



In an ever-changing, increasingly complex world, it is more important than ever that our nation's youth are prepared to bring knowledge and skills to solve problems, make sense of information, and know how to gather and evaluate evidence to make decisions. These are the kinds of skills that students develop in science, technology, engineering, and math, including computer science—disciplines. If we want a nation where our future leaders, neighbours, and workers can understand and solve some of the complex challenges of today and tomorrow, and to meet the demands of the dynamic and evolving workforce, building students' skills, content knowledge, and literacy is essential.

With the mission to address these, Thakur College of Engineering and Technology, an autonomous, premier technical institute aims at facilitating and promoting studies, research, technology incubation, product innovation and extension work in science and technology for achieving excellence in technical education. TCET emphasises the holistic student development with multidisciplinary co-curricular and extra-curricular activities. The technical institute contributes to quality education in all major disciplines of engineering education that to meet the needs arising due to an ever-changing global society. The institute has continued to impart its skills and knowledge by successfully completing virtual teaching learning process during the crisis of Covid-19 pandemic.

As a part of this journey, the annual intellectual fest of TCET is Multicon-W- the platform for multiple conferences and workshops. This intellectual fest has borne the mantle of excellence, committed to ensure academic staff, researchers, industry experts, and engineers their own space to learn, grow and broaden their horizon of knowledge by indulging into diverse spheres of learning. Through this conference, we would like to engage all of you in an open and constructive dialogue about recent trends in science and technology and its application to real life problems that humanity is facing across the globe. I wish everyone a successful, safe, and fruitful conference.

**Karan Singh** 



## **TSAP Principal's Message**



At the outset we would wish to congratulate you and your team for yet another successful organization of Multicon W 2021. Following is the message for the event:

It gives us immense pleasure to Congratulate the team of TCET, for yet another successful organization of the MULTICON in a progressive curve. The milestone achievement is an inspiration that continues to catalyze research attitude and enables a strong platform for interaction amongst diverse backgrounds bringing about interdisciplinary interaction. The overwhelming participation from Researchers has reinforced the role of TCET as a centre of excellence. The Team of TSAP wishes all the participants of the MULTICON 2021 a grand success. We at TSAP look forward for outcomes, that shall shape the future trajectories of research and take deep delve dive towards improving overall quality of life and Nation Building.

Ar .Dhiraj N. Salhotra,
Principal.
Thakur School of
Architecture & Planning, TSAP
(Received via e-mail)



## **TPOLY Principal's Message**



I take this opportunity to present in brief my views for conducting the International Technical paper presentation and project exhibition, ICWET-2021 and Technofest-2021 at our institute.

It gives me immense pleasure to declare that, owing to the overwhelming response for the papers and the projects from the various parts of the states, the thirst of knowledge is still growing in the upcoming generation, which is observed in the past Eleven years.

Engineering is the profession in which knowledge of the mathematical and natural science are gained by study, experience and practice. "Science can amuse and fascinate us all but it is engineering that changes the world". A good engineer is a person who develops ways to utilize economically the materials and forces of nature for the benefit of mankind. In developing society they make the attempt to predict how well their designs will perform to their specifications prior to full scale production, so to merge the Artistic and Engineering creativity ICWET is creating a bridge for our upcoming Engineers.

I am very thankful to MSBTE and other sponsors for the sponsorship as well as for their continual and timely assistance and express my gratitude towards my management for the encouragement they have provided, whenever needed. Also, I would like to appreciate all the staff members for the hard work & dedication they have devoted for the past years and hope will continue to make this event a grand success.

I am sure that the participants will definitely gain knowledge and will get a glimpse of the industrial requirement which will be beneficial for them in the future, not only in India but also abroad.

I congratulate the editor and the proceeding team for a job well done and wish them success in their future endeavour on this momentous occasion.

I wish all the very best to all those contributing towards the success of such event.

Dr. S. M. GANECHARI,
Principal.
Thakur Polytechnic (TPOLY)
(Received via e-mail)



## **TIMSR Director Message**



The World is facing an unprecedented crisis due to the COVID-19, which has disrupted human life due to the isolations and lock downs throwing a challenge to the professionals to guide the population to forge ahead in the pursuit of development. The engineers, managers, technologists and scientists in the country have to meet this challenge with existing and newer communication systems, platforms for meeting, conferences, seminars etc. without having to venture out. The MULTICON - 2021 organised by the Thakur College of Engineering and Technology at this juncture is therefore a right step for professionals to discuss ways and means to ensure the world to forge ahead to salvage its economic prosperity and growth. India has to make its mark in remaining abreast with the international community to ensure the welfare of our generations by chalking out a path for continuous progress on all fronts.

I wish the organizers and the participants' success in the venture.

**Dr. Pankaj Ramesh Natu,**Director, Thakur Institute of
Management Studies & Research (TIMSR)

(Received via e-mail)





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## Programme Chair's Message



A very warm welcome to all the participants in the 12<sup>th</sup> edition of International conferences and workshops - MULTICON-W 2021. Thakur College of Engineering and Technology, an autonomous, premier technical institute has been always proactive to impart holistic education to its budding engineers with its multidisciplinary curriculum emphasising extra-curricular and co-curricular activities. Excellency in any work can be achieved with utmost dedication, hard work, and perseverance for lifelong learning. We, at TCET, have made this dictum our motto and our way of life in every single activity in the campus contributes to nurture the young minds.

Institute believes that research and development are the path to finding solutions to local challenges leading to innovative solutions. The holistic multidisciplinary education of TCET is aptly aligned with the national education policy 2020's objective of research and development which emphasises research and innovation through start-up incubation centres, technology development centres, centres in frontier areas of research, greater industry-academic linkages and inter-disciplinary research including humanities/social science research. To meet the objective, TCET provides a dynamic platform by organizing various events like seminars, conferences, and workshops in collaboration with institutes, industries, and government for all the stakeholders.

The platform initiated by TCET in the form of Multicon-W 2021 will provide an opportunity for long-term research planning for a sustainable future and better investment in research and education to speed the transformation from a resource- to a knowledge-based society. I congratulate all the participants and delegates and assure you that TCET will provide the best academic ambiance in the form exchange of ideas, points of view, inventions, and innovations through this virtual conference. I take this opportunity to extend my best wishes to all the research scholars and the participants. I am confident that MULTICON W 2021 will provide a unique opportunity to the researchers and participants for a healthy interaction.

Wish you all the best!!

Dr. B. K. Mishra
Principal, TCET

Programme Chair, Multicon-W 2020





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### Programme Co-Chair's Message



It is my pleasure to welcome you all to Multicon-W 2021, the 12<sup>th</sup> National and International Conferences and Workshops that will be conducted by Thakur college of Engineering and Technology. As an autonomous institute, TCET plays a vital role in facilitating the exchange of innovative ideas and technical advancement by conducting seminars, conferences, and workshops since 2010 in the form of International Conference and Workshop on Emerging Trend (ICWET).

Research is a never-ending process, which makes us think and rethink about the updating skills, product, services, and technology. It gives an opportunity to contribute to the developmental change in society. The research and development department of every organization is a symbol of progress and sustainable development. These days graph of technology has been steep. Hence, in the name of MULTICON-W TCET provides an incomparable platform for intellectual exchanges and mobilizing the planning, execution, and monitoring of scientific inquiry and action in the fields of Engineering and Technology.

This program fascinates many academic and industrial people to discuss and share their ideas on various topics that cover well-established research agendas as well as emerging issues in the technology at large. The aim of MULTICON-W Conferences is to present a dynamic platform to discuss research problems from the panoramic perspective at the global level. I congratulate all the participants and delegates and assure you that TCET will provide the best academic ambiance to deliberate on research in the first of its virtual conferences. I hope that the researchers and authors will contribute their valuable views and research work. With these words, I once again welcome all.

I wish your deliberations all success!

Dr. Deven Shah

Vice-Principal, TCET Programme Co-Chair, Multicon-W 2020



### **Programme Technical Chair's Messages**



Research is the key for the advancement of technology and education. It develops critical thinking and creates a new base for future studies. Conference is such an opportunity where researchers can present their new ideas and innovative thinking in order to get some insights to the next generation.

Keeping this vision in mind, Thakur College of Engineering and Technology has taken a strong step in organizing an international and national conferences and workshops annually with grand success. Multicon-W 2021 provides an exemplary platform for budding engineers and academicians to put forward their thoughts and domain knowledge to the international engineering fraternity.

I congratulate all the participants of Multicon-W 2021 for attending this event which will prove to be a source of inspiration and energy to upcoming technocrats and entrepreneurs, and definitely bring about all round growth.

Dr. Kamal Shah
Dean - R&D, TCET
Programme Technical Chair,
Multicon-W 2020



### **Programme Technical Chair's Messages**



Multicon-W is a research journey to transform and to stimulate for further research in engineering, technology and holistic development of youths. It is proud and honor for TCET to serve the best recent developments in the relevant field to you through this exciting platform. As rightly said that research is never ending process; TCET has been conducting this conference since 2010 for all stakeholders in order to present new research ideas for shaping their career.

We are firmly committed to excel in technical education and research, and are fully aware of the challenges of the future. Apart from strengthening the teaching-learning process, research and extension programmes, special focus on extra-curricular, sports and other similar activities to foster global competencies among the students is our priority. TCET continues to provide a congenial environment for the holistic growth and all round development of the students through suitably designed teaching learning processes. Conference is an annual research event where technical discussions with different perspectives are developed and enormous possibilities are created to provide the human resource for sustainable development. I wish all the researchers a very great learning experience ahead.

**Dr. Lochan Jolly**Dean - SSW, TCET
Programme Technical Chair,
Multicon-W 2020



### **About Conference**

India is attempting to enhance its global footprint through various national initiative programs which will ensure imbibing quality education from primary to Ph.D. education. India has a rich demographic dividend and that, if harnessed successfully, can contribute to the country's economic growth. However, the Indian education system needs an overhaul which will benefit for the growth of each sector. Indian education policy from decades has taken academics and research as two different domains but in the new National Education Policy (NEP) of India, research is integrated with academics. The NEP 2020 highlights research as one of the important parameters of education system. It focuses on strategies needed to promote research and innovation across all disciplines along with inter-disciplinary research and make India a global hub of R&D. The Policy envisions a new entity called the 'National Research Foundation'. Under which, the institutions would be given an annual grant of Rs 20,000 crores, which is approximately 0.1 percent of the GDP. This will help in addressing the issues related to lack of research at most universities and colleges, and transparent and competitive peer-reviewed research funding across disciplines. These will primarily promote multidisciplinary approach to education and research.

Prof. Jayant Narlikar, a renowned astrophysicist, once said, "The reason of decline of science in India is the lack of experimentation as part of learning science." It means that you cannot separate research from the regular academics. Therefore, it is essential that students be inducted in the culture of research as early as pedagogically possible in the undergraduate level to overcome the problem of reproducing textbooks in examinations. This is true for both science and technology. One way is by introducing research in the higher education system during UG along with PG and Ph.D. If students are systematically taught competent research at the undergraduate level, they will get interested in the subject and might become more inclined to take up research-intensive academic programs and careers in the future. This will meet the expected outcomes of NEP 2020 as well.

In such a current pandemic situation of Covid-19 where the world is facing economic instability, engineering education can be a savior in bringing back the potential of nations. Thus, engineering and technology education needs an evolutionary change to be compatible with the requirements of the 21st century education and research, and meet the needs of the various stakeholders, especially industry and society. Several behaviors such as an innovation mindset, agility, societal responsibility and system-based thinking are required to be embedded in the teaching-learning practices to bring about transformation. To ensure that Thakur College of Engineering and Technology (TCET) initiated organizing of Conferences and Workshops (CAW) as a yearly event since 2010 to incorporate active research as an integral part of engineering education. TCET has been inculcating research culture in the campuses of Higher and Technical Education through conferences, workshops and various academic activities which is widely being discussed in the new National Education Policy 2020 for Higher Education.

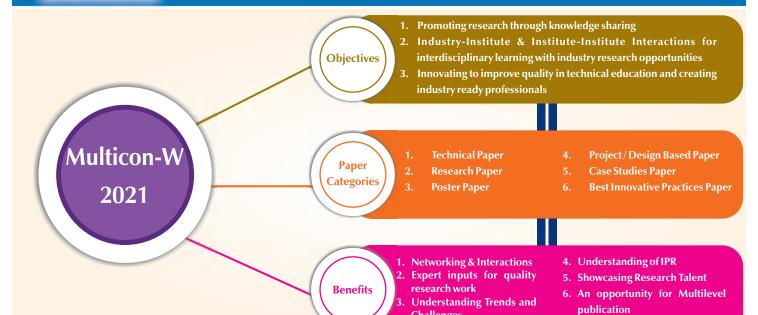
The first edition of "International Conference and Workshop on Emerging Technologies" (ICWET) was organized in 2010 and continued till 2012. The Second edition of Multicon-W began in 2013 where multiple conferences and workshops were organized to offer the platform for various research domains. Till date under the banner of ICWET and Multicon-W more than 50 conferences, over 250 tracks and 3500 papers have been presented and published in the Proceedings with ISBN numbers. Over 2000 of these papers are published in Scopus and UGC approved journals. Many of these papers are also available in the world's leading digital libraries viz. ACM, IET, IEEE, Springer etc. There are more than 100,000 downloads for these papers. As far as the workshop is concerned, more than 100 tracks of IOTW for students from other institutes and 60 tracks for in-house students are conducted. It speaks about the success and grandness of the event in the past.

Considering the consistent success of the event, Multicon-W 2021, the 12<sup>th</sup> event in a row will be organized on 26<sup>th</sup> & 27<sup>th</sup> February 2021. The event will consist of four conferences and three workshops with multiple tracks. Around 5000 participants and delegates are expected to attend the two days' programme. While, till date, conferences at TCET focused on research papers based on original research work and through the current conferences, we will diversify the scope to include papers based on experiential learning and organizational & professional practices. In the conferences, one can prepare research papers and depending upon the novelty and quality of the content, the papers will be published in the Multicon Proceedings and Conference Proceedings with an ISBN number.

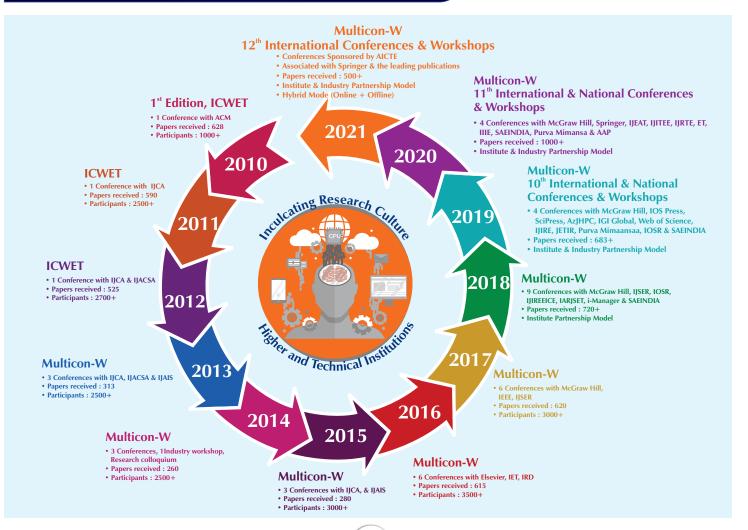


## MULTICON-W 2

**Challenges** 



## Journey of ICWET & Multicon-W





### Multicon-W 2021 Activities



#### IC-ICN - 2021

International Conference on Intelligent Computing and Networking



#### IC-TELCON - 2021

International Conference on Trends in Electronics & Communication



#### IC-AMCE - 2021

International Conference on Advances In Mechanical & Civil Engineering



#### IC-HSTE - 2021

Conference on Humanities, Science and Technical Education



#### EC - 2021

Engineering Colloquium Post Graduate Students & Doctoral Scholars



#### 10TW - 2021

Industry Oriented Technology Workshop



#### PBW - 2021

Professional Body Workshop



# MULTICON-W 202

### International Conference on Intelligent Computing and Networking (IC-ICN - 2021)





#### About the Conference

The 12<sup>th</sup> Annual International Conference, IC-ICN 2021 serves as a premier platform that gathers all academicians, researchers and professionals, in the relevant engineering disciplines and domains, to present their research contributions and share their thoughts. TCET has successfully held eleven international events in a row. ICWET 2010-2012 and Multicon-W 2013-2020 in association with international reputed publications (viz. ACM, Springer, IEEE, Elsevier etc.) in IT industry with an objective to reach new horizons. IC-ICN 2021 has got affiliation of Springer. IC-ICN 2021 aims to bring forward quality research in the field of Intelligent Computing and Networking. In order to adapt the rapid development changes in Intelligent Computing and Networking, we provide platform for in-depth exchange of Ideas between researchers, scientific & technical personnel. We specifically invite papers on a wide range of research topics spanning both theoretical & experimental research. The topics of interest for the conference tracks include (but are not limited to) the following:

### Intelligent Computing

- **Expert System**
- Robotics
- Machine Learning
- Big Data Analytics
- ٠ Data Science
- **Data Engineering**
- \* Deep Learning
- ٠ **Natural Language Processing**
- **Human Machine Interaction**
- Applications of Intelligent Computing (Agriculture, Health Care, Education, Recommender System, Transportation, Finance, etc).
- Predictive Analysis,
- **Cognitive Computing**
- **Pervasive Computing**

#### Communication Networks

- **Expert System**
- Wireless Sensor Networks
- Ad-hoc Network
- **Network Security**
- Cryptography
- Internet of Things
- Mobile sensing
- **Pervasive Computing**
- Traffic analysis & engineering
- Information & content centric networks
- Internet of Things (IOT)
- Cloud Computing & Security
- Software Defined Network
- Blockchain
- **Energy efficient communications**
- Caching and content delivery system

### Paper Catepories

#### Category - I

- · Technical Paper
- · Research Paper

#### Category - II

- Poster Paper
- Case Studies Paper
- Project/Design Based Paper
   Best & Innovative Practices Paper

#### **Publication Details**

All selected quality papers will be published in ICICN Proceedings or Multicon-W 2021 Proceedings with ISBN and few quality papers with  $modification \, of \, 30\text{-}40\% \, shall \, be \, recommended \, for \, publication \, in \, Springer-$ Lecture Notes in Network & Systems (LNNS) Series.



## MULTICON-W 2021 Aphiliple Conferences and Workshops

### International Conference on Trends in Electronics & Communication - (IC-TELCON-2021)



#### About the Conference

The year 2020 was a completely different experience for everyone all around the world. The word that pricked every individual's nerve is "CORONA VIRUS". But because of this Corona Virus pandemic, the world is very much digitized. Even small vendors are using online payment mode nowadays, kids are well aware of online classes and gadgets. The world is now dependent on Electronic gadgets and devices to make life easier and ensure seamless connectivity. The world is offering challenging opportunities for engineers. Electronics and Communication Engineering plays a very vital role in the revolution as it is the amalgamation of the VLSI, Devices and Modelling, Nano-technology, Automation, Robotics and Control, Embedded systems and IoT, Communication and Antennas and Signal Processing. To deliberate on these emerging technologies, TCET has successfully held eleven international events in rows ICWET 2010, 11, 12 and MULTICON W 2013, 14, 15, 16, 17, 18,19 & 20 in association with international journals of repute and multinationals in the IT industry with an objective to reach a new horizon. This year also we propose to organize MULTICON-W 2021 during 26th & 27th February 2021. It is an initiative of TCET, offers multiple platforms for all the stake holders under one roof to contribute their original research work.

International Conference on Trends in Electronics and Communication (ICTELCON) aims to bring together researchers, engineers and scholar students to exchange and share their experiences, new ideas and research results about all aspects in the field of Electronics Engineering and Communication.

Department of Electronics and Communication and Department of Electronics Engineering of Thakur College of Engineering and Technology, Mumbai takes immense pleasure to invite your contributions for Conference on Trends in Electronics & Communication (IC-TELCON-2021) during February  $26^{\text{th}}$ - $27^{\text{th}}$  2021.

## Next Generation Telecommunication: The Convergence of Technologies

- Optical Communications & Networking
- Wireless Communications & Networking
- Wireless Sensor Networks
- Mobile Networks & Services
- Cognitive Radio Networks
- \* RF Circuit/ Narrow and UWB Antenna Design
- MEMS/NANO Technology Antennas
- Wearable, Implanted & Encapsulated Antennas
- Deep Space and Satellite Communication
- Geo Information System

#### Signal Processing & Applications (SPA)

- Image and Video Processing
- Audio Signal Processing
- Speech Processing
- Radar & Sonar Signal Processing
- Augmented Reality
- Computer Vision
- Biomedical Signal Processing and Application
- Statistical Signal Processing
- Information & Data Processing

### Embedded System & Internet of Thinos

- Analog/Digital/Mixedsignal Circuits
- Sensors, Tranducers,
   Optoelectronic Devices &
   MEMS
- Application areas in IoT: Energy Mangemaent, Military Applications & Education Sector
- IoT and Altricial Intelligence

- Database Management in Iot
- Green Iot: Sustainable Design & Technologies
- VLSI and DSP
- High end Embedded system and Designing aspects
- Modern Embedded Software and Real Time Application
- Designing & Simulations for Electric vehicles

#### Paper Catepories

• Technical Paper

Category - I

• Research Paper

Category - II

• Poster Paper

· Case Studies Paper

• Project/Design Based Paper

• Best & Innovative Practices Paper

#### **Publication Details**

All selected quality papers will be published in IC-TELCON-2021 proceeding or Multicon-W 2021 proceeding with ISBN & few quality papers with modification of 30-40% will be recommended for publication in reputed journals.



#### International Conference On Advances In Mechanical & Civil Engineering - 2021



#### About the Conference

IC-AMCE 2021 is the forum for the presentation of advances and research results in the fields of Mechanical and Civil Engineering. The conference will bring together leading researchers, engineers and scientists to share their original research work, practical challenges, recent innovations, trends and to explore methods of application of research to the technological development leading to social welfare.

Advances in mechanical and civil engineering are the order of the day with rapid industrialization and urbanization seen in developed and developing nations. Innovative designed and construction practices are challenging task to the engineers to meet ever growing demands of society. The conference is the premium forum for presentation of new advances and research results in the field of mechanical and civil engineering.

All honorable authors are encouraged to contribute their research through submission of abstracts, papers and e-posters. Also, high quality research contributions describing original and unpublished results of conceptual, constructive, empirical, experimental or theoretical work in all areas of Mechanical Engineering are cordially invited for presentation at the conference

#### Manufacturing and Automation

All honorable authors are kindly encouraged to contribute to and help shape the conference through submissions of their research abstracts, papers in areas of:

- Quality Engineering
- Quality Management
- Supply Chain Management
- Machine Design
- Industrial Automation
- \* Material Science
- Metallurgy
- Composite Materials
- FEM modeling and simulation
- Mechatronics

#### Thermal Engineering

- Thermal & Fluid Power
- Heat Transfer
- Air conditioning
- Internal Combustion Engine
- Refrigeration
- Computational fluid dynamics
- Renewable energy
- Cryogenics

#### Water Resources Engineering

- Fluid Mechanics/ Hydraulics
- Environmental Engineering
- Impact assessment
- Industrial waste management
- Water/ Sewage treatment
- Water shed management

#### **Structures**

- Transportation Engineering
- Construction Management
- Quantity surveying and valuation
- Building risk assessment
- Soil mechanics
- Structural Engineering

#### Paper Categories

• Technical Paper

Category - I

• Research Paper

Category - II

- Poster Paper
- Project/Design Based Paper
- Case Studies Paper
- Best & Innovative Practices Paper

#### **Publication Details**

#### **Conference Proceedings:**

**All selected quality papers will be published in IC-AMCE-2021** proceeding or Multicon-W 2021 proceeding with ISBN and few quality papers with modification of 30-40% will be recommended for publication in reputed journals. The list of journals is as follows:

#### **UGC Care Journal**:

Indian Institute of Industrial Engineering (IIIE)



## MULTICON-W 2

#### International Conference on Humanities, Sciences and Technical Education - 2021





#### About the Conference

To foster the lifelong learning among graduates and professionals, there is an enormous need to incorporate interdisciplinary learning. To meet these requirements, the National Education Policy 2020 has incorporated Science, Technology, Engineering and Mathematics (STEM) education along with Humanities. The Policy prescribes the need to facilitate universal access to quality holistic education to all students. It has provided flexibility in their choice of subjects and there will be no firm division between arts, academic, curricular, extra-curricular or vocational streams as the objective is to ensure holistic development. To augment innovation, adaptability, and productivity, there is a need to create platforms for multidisciplinary learning.

IC-HSTE under the aegis of MULTICON-W is such platform which was initiated by Thakur College of Engineering and Technology (TCET) a few years back to provide a platform to discuss all the upcoming research related to humanities, sciences and technical education. IC-HSTE-2021 is a specially designed cluster conference and would lay interdisciplinary platform for the interaction among researchers, educators to present and discuss the recent innovations and trends as well as practical challenges faced and solutions adopted in the field of Humanities, Sciences and Technical Education. We hope that conference results in significant contribution to the knowledge in various domains which will enhance our problem solving skills and nurture our creativity. The conference also attempts to bring together the experience of these varied yet related fields of knowledge with the hope that this confluence will contribute to mutual growth.

#### Engineering Sciences & Humanities

- Research in COVID-19
- **Electricity and Photonics**
- Nano-material, Nano-composites and Novel Materials
- Mathematical Modelling
- Synthetic Green Chemistry
- **Environmental Science**
- Business Communication, Managerial Competency & Linguistics
- ٠
- National Education Policy (NEP) 2020

#### Technical Education

- Challenges and Opportunities in Technical Education
- Bridging Gaps between Education and Employment
- Implementation of Recent Trends in Teaching-Learning Process
- Best Practices in Skill Development
- Inclusive and Sustainable Growth through Training and Skill Development
- Industry- Institute Interface
- \* Enhancing Employability Skills among youth
- \* Role of Technical Education in Development of Indian Economy
- Value based education for holistic development

#### Evaluation & Assessment



- Online examination and Innovations
- Modes and matrices for setting of question papers
- Design of experiment for conduct of laboratory examination, oral & practical examination
- Evaluation and Assessment matrices (parameters)
- Evaluation tools and impact on its stake holders
- Standards to be followed for evaluation
- Program outcome attainment through effective measures
- Use of Technology (Digital transformation)
- Integration of E&A techniques for improving results
- Adopting new standards for E&A
- Quality Assurance

#### Paper Categories

Category - I

- Technical Paper
- Category II
- Poster Paper •Project/Design Based Paper
- · Research Paper
- Case Studies Paper
- Best & Innovative Practices Paper

#### **Publication Details**

All selected quality papers will be published in IC-CHSTE Proceedings or Multicon-W 2021 proceedings with ISBN and a few quality papers with modification of 30-40% will be recommended for publication in affiliated journal.



#### **Engineering Colloquium (EC - 2020)**



#### About the Conference

Colloquium for Post-Graduate Students and Doctoral Scholars was introduced in the year 2012 with the intent of giving direction and focus to their research. Invited speakers from institute and industry conduct sessions to help participants identify research areas, provide guidelines for thesis writing, technical paper writing, explain procedure for filing patents and give information about various funding agencies. In order to enrich this event, it was felt that there is a need for creating a platform for research students to present their research proposals. The objective of the  $9^{\rm th}$  Colloquium is two fold: to invite speakers to guide students on their research and encourage students to submit their research proposals. Best proposal award will be given in each category and track.

#### Guidelines and Elipibility For submissions

Original research proposals are invited from candidates who are pursuing research (experimental / fundamental / application / product development). The research proposal document should not exceed 2000 words and abstract, not exceeding  $100\,\mathrm{words}$ .

Title page should clearly indicate title of the proposal, track, name of the author, affiliation, contact details and email ids. Formatting Guideline: Microsoft word document, Margin 2.5 cms or 1 inch, Font Times New Roman, 12 points, Line spacing 1.5.

Eligibility for submission or research proposal: Students who are currently enrolled in Masters or Doctoral courses in Engineering, Science and Technology Management.

#### Seminar Topics

The Contents to be covered during the seminar will include the following topics:

- $1. \ \ Research design and Methodology.$
- $2. \ \ Familiarization with the trends in Engineering and Technology.$
- 3. Domain specialization.
- 4. Identification of Project topics, seminar topic etc.
- $5. \ \ Focus \, on \, doing \, the \, research \, based \, project \, work \, effectively.$
- Guidelines for thesis writing technical paper writing, research paper writing as per International standards.
- $7. \ \ Guidelines for patent, copyright and handling plagiarism is sues.$
- 8. Knowledge sharing about research funding agencies and proposal.

#### **Benefits**

- ★ Platform to interact with industry
- ★ Certificate (with all conference logos)
- ★ Knowledge sharing with fellow participants
- ★ Inputs for fast track completion of thesis

#### Speakers

Experts from IITs, reputed R&D institutes, Industry and senior professors from renowned affiliated institutes of University of Mumbai including host institutes and other universities

#### Who should attend

- ★ Post graduate (M.E. / M.Tech.) scholars
- ★ Ph.D. (Engg. / Tech.) scholars
- ★ Delegates from academic and industry institutions
- ★ Final Year UG students aspiring for higher studies in Engineering & Technology

#### Paper Catepories

#### Category - I

- Technical Paper
- Research Paper

#### Category - II

- Poster Paper
- Case Studies Paper
- •Project/Design Based Paper
- Best & Innovative Practices Paper

#### **Publication**

All Selected quality papers will be published in respective conference proceeding or Multicon-W 2021. Proceeding with ISBN & few quality papers with modification of 30-40% will be recommended for publication in Scopus & UGC Care journals.



#### **Industry Oriented Technology Workshop (IOTW - 2021)**



#### About the Propramme

India is one of the fastest growing economies in the world and according to the United Nations Report, 356 million youth are in the age group of 10-24 years which constitute 28% youth of the country's population and by 2021, India will become the world's youngest country with 64 percent of its population in the working age group, says a report in The Hindu. This demography will be actively looking for employment, and can potentially drive global demands. To meet the global requirements, technical education plays a vital role in providing the technical human resource. This encouraged many institutes to establish and meet this huge demand. To sustain in the competition, institutes need to constantly evolve themselves to understand the industry requirements and implement the teaching-learning process as per the need.

Looking into these challenges, TCET's Training & Placement (T&P) is organizing Industry Oriented Technology Workshop (IOTW) 2019 to provide identify industry required skills and meet the local and global requirements.

#### Data Science

- Concept of Data Science
- Programming Tools for Data Science
- Toolkits and Visualizing Data
- Working with Data
- Data Science Application

#### Artificial Intelligence & Machine Learning (AIML)

- Concept of AI
- Search Algorithms
- Probabilistic Learning
- Basic of ML
- Concept of Data & its Collections

#### Web Designing

- Introduction to Website Design
- Learning Of HTML & its Tags
- Introduction to CSS
- Learning of Bootstrap

### Cyber Security

- Cyber Security Concepts
- Open Source/ Free/ Trial Tools
- Cryptography and Cryptanalysis
- Cyber Security Vulnerabilities & Safe Guards
- Cyber Laws and Forensics

#### Internet of Thinos (IoT)

- Architectural Overview
- M2M and IoT Technology Fundamentals
- Hardware Components
- Software Components
- IoT Application Development

#### Digital Marketing

- Introduction to <u>Digital</u> <u>Marketing</u>.
- Learning of SEO
- Learning Of SEM
- Logo Designing via Canva
- Website Design via WIX

#### Embedded System

- Learning C
- Basics Of Electronics
- Understanding The Hardware Components
- Real Time Control Systems
- Applications

### Geographic Information System

- Introduction to ArcGIS
- Hardware and Software Sytems
- Collecting and Analysing Data
- Realtime Projects
- Applications and Future Scope



### **Technical & Social Webinars**

**Organized by TCET - ISTE Student's Chapter** 

01

Introduction to Specialization Courses as per TCET Autonomy Scheme

02

Students personal learning network - Benefits, Tools & Tactics

03

**Enchanting the New High** 

04

Life in TCET beyond Engineering



### **Inhouse Workshops**

### **Professional Body Workshop**

01

TCET - IEEE

02

**TCET - IETE** 

03

**TCET - ASME** 

04

TCET - ACM

05

TCET - CSI

06

**TCET - ASCE** 



## MULTICON-W 2021 Aphiliple Conferences and Workshops

## Important Date

#### Conference

Announcement to organize the conference 29-02-2020 Conference Pre-announcement 07-09-2020 **Brochure and Poster Printing** 09-09-2020 Website Launch 20-09-2020 Website Redevelopment 05-10-2020 **Publicity** 12-11-2020 Abstract Submission 01-12-2020 Paper Submission deadline 15-12-2020 Paper Selection Notification 05-01-2021 Registration deadline 15-01-2021 Camera Ready Submission deadline 20-01-2021

Paper submission deadline:31-01-2021 (Extended)Paper acceptance deadline:05-02-2020 (Extended)Date of registration:10-02-2020 (Extended)Camera Ready Copy (CRC) submission:10-02-2020 (Extended)

Workshop

Announcement to organize the Workshop : 29-02-2020
Poster Design & Printing : 04-10-2020
Publicity : 15-11-2020
Registration Deadline : 15-02-2021

Registration Deadline : 25-02-2021 (Extended)

## Highlights of ICWET 2010, 2011, & 2012 & Multicon 2013-2020

Patriculars	No. of papers	No of participants conference of work-	No. of Train	No. of papers	Full Length	Short Length	Poster Paper.	/	a de la composição de l
ICWET - 2010	628	1000+	08	318	113	109	96	ACM-222 Poster-96	
ICWET - 2011	590	2500+	10	495	173	180	84	ACM-290 IJCA-212 Poster-84	
ICWET - 2012	517	2700+	10	308	103	122	87	IJCA-108 IJACSA-8	
Multicon-W 2013	313	2500+	23	206	107	97	02	IJCA-43 IJAIS-41 IJSCSA-8	2021
Multicon-W 2014	260	2500+	06	192	81	111	Nil	IJCA-38 IJAIS-43	3
Multicon-W 2015	280	3000+	06	225	94	131	Nil	IJCA-33 IJAIS-45	1
Multicon-W 2016	615	3500+	16	460	323	137	Nil	Elsevier-130 IET-29 IRD-40	rico
Multicon-W 2017	620	3000+	31	441	254	187	Nil	McGraw Hill-53 IEEE-23 IJSER-20	Multicon-W
Multicon-W 2018	655	3500+	34	519	335	184	Nil	McGraw Hill-65 i-manager-23 IJSER-SAE India-30 IARJSET-12, IOSR-17	
Multicon-W 2019	676	3500+	35	558	305	253	Nil	McGraw Hill-61 Special issues IDP 04, SCI press IJET 05, IOSR 44, JETIR 86	
Multicon-W 2020	866	3750+	40	786	287	499	Nil	McGraw Hill-38 Special issues CRC, apple press-21, springer LNNS-27	



## Outreach of Previous 11 Conferences



Well supported by faculty, research scholars, P.G. and U.G. Students



Recent 4 Proceeding published by McGraw Hill Education with ISBN



Participation of more than 31000 delegates and 1300 resource persons over 11 years



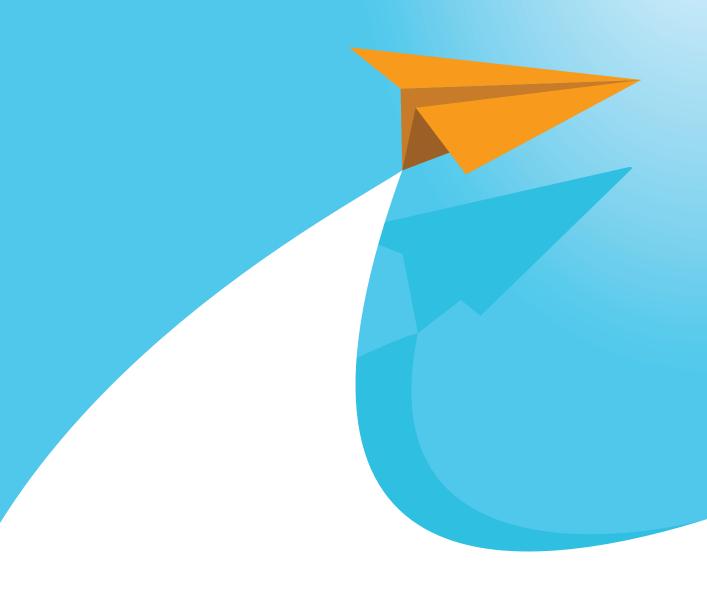
More than 4600 publications with 1700 papers in world's leading digital libraries



More than 1.45 lacs downloads with rich citation and indexing



More than 650 P.G. and Ph.D. scholars published papers for the award of degrees



## ICWET 2010 - 2012

&

MULTICON-W 2013 - 2020

Remembrance



#### Background

## **ICWET 2010**

The International Conference and Workshop on Emerging Trends in Technology (ICWET 2010) held on February 26-27, 2010 was committed to provide a common platform to the researchers, industry experts, professionals, delegates and scholars to the upcoming challenges in the area of cutting – edge technology. The conference was jointly organized by TEG institutions i.e. TIMSR, TIMSCDR, TPOLY, TCSC and hosted by TCET in cooperation with Association for Computing Machinery (ACM), New York, U.S.A.



#### **Dignitaries**

Dr. V. N. Magare : Chief Guest
Dr. D. J. Shah : Guest of Honour
Dr. Prachi Gharpure : Keynote Speaker

#### Overall response

Total delegates : 668 % turn out : 87.20%

Total resource persons 30 (3 from outside Mumbai ) (1 from Goa, 1 from Jalgaon, 1 from Tamil Nadu)

#### Foreign Delegates

Poland: 1
Australia: 1
Malaysia: 1
Bangladesh: 1

#### Registration break - up

#### Conference

Non-TEG : 256 attended out of 330 registered (77.6%) TEG : 141 attended out of 153 registered 92.2%)

Total : 397 (82.2%)

#### **Events Organised**

Paper presentation : 222 papers (25 sessions)
Poster exhibition : 96 posters (11 sessions)

Workshop : 10 sessions
Panel discussion : 1 session

#### Workshop

Non-TEG : 33 attended out of 41 registered (80.5%)
TEG : 29 attended out of 33 registered (87.8%)

TCET student : 209 attended out of 209 registered (100%) Workshop

#### **Feedback**

Rated very high with the following remarks from the delegates:

• Has set new standards • Great hospitality • State-of-the-art infrastructure • Cooperative staff members • Shown interest in our future programmes

Quality of Proceedings / Souvenir was highly appreciated by the resource persons as well as delegates



#### Background

### **ICWET 2011**

The International Conference and Workshop on Emerging Trends in Technology (ICWET 2011) held on February 25-26, 2011 was committed to provide a common platform to the researchers, industry experts, professionals, delegates and scholars to the upcoming challenges in the area of cutting – edge technology. The conference was jointly organized by TEG institutions i.e. TIMSR, TIMSCDR, TPOLY, TCSC and hosted by TCET in cooperation with Association for Computing Machinery (ACM), New York, U.S.A., and International Journal of Computer Application (IJCA)

: Chief Guest

: Guest of Honour

: Key Note Speakers





#### Dignitaries

Mr. M. K. Singh Mr. Dalbir Singh Virdi

Mr. M. M. Shah

Shri J. J. Tibrewala Mr. Rajiv Vaishnav

Mr. Ravi Ippaturi Dr. Abhay Wagh

Dr. A. Deshpande

#### Registration break - up

#### Conference

Non-TEG: 230 attended out of 293 registered

(78.50%)

TEG: 130 attended out of 150 registered

(86.67%)

Total : 360 (81.26%)

#### Overall response

Total delegates : 656 % turn out : 88.20% Total resource persons = 30

#### **Events Organised**

Paper presentation : 292 papers (35 sessions) Poster exhibition : 84 posters (16 sessions)

Workshop : 10 sessions Panel discussion : 1 session

#### Foreign Delegates

Australia : 1

#### Workshop

Non-TEG : 23 attended out of 23 registered (100%) TEG : 93 attended out of 105 registered (88.57%)

TCET student : 1059 attended out of 1200 registered (88.25%) Workshop

#### **Feedback**

Rated very high with the following remarks from the delegates:

- Achieved new standards
   Awesome hospitality
   State-of-the-art infrastructure
- Cooperative staff members Well managed tracks• Shown interest in our future programmes

Quality of Proceedings / Souvenir was highly appreciated by the resource persons as well as delegates



## **ICWET 2012**

#### **Background**

The International Conference and Workshop on Emerging Trends in Technology (ICWET 2012) held on February 24-25, 2012 was committed to provide a common platform to the researchers, industry experts, professionals, delegates and scholars to the upcoming challenges in the area of cutting – edge technology. The conference was jointly organized by TEG institutions i.e. TIMSR, TIMSCDR, TPOLY, TCSC and hosted by TCET in co-operation with International Journal of Computer Application, USA &The Science & Information Organization, USA





#### **Dignitaries**

Dr. P. Chakrabarti : Chief Guest
Mr. Dalbir Virdi : Distinguished Guest
Dr. S. K. Ukarande : Guest of Honour

Mr. John Kuriakose

Dr. D. J. Shah : Keynote Speakers

Dr. Ashok Deshpande

#### Overall Response

Participation	Participants / Delegates			
Event	Day 1	Day 2	Day 1 + Day 2	Resource Persons
Conference Presentation	90	52	142	31
Conference Workshop	148	152	300	16
Industrial Workshop	398	350	748	06
In-house Workshop	418	390	808	04
Colloquium	80	78	158	11
Inaugural & Valedictory Function				06
Total	1134	1022	2156	74

#### Workshop

Non-TEG : 15 attended out of 15

registered (100 %)

TEG : 28 attended out of

30 registered (93.33 %)

TCET student : 43 attended out of

45 registered. (95.55%)

ICWET Colloquium : 4 sessions

#### Registration break - up

#### Conference

Non-TEG:164 attended out of 204 registered

(80.39%)

TEG: 87 attended out of 104 registered

(83.65%)

Total: 308 registered

#### **Events Organised**

Paper presentation : 142 papers (17 sessions)
Poster exhibition : 87 posters (7 sessions)

Workshop : 10 sessions Panel discussion : 1 session

#### Feedback

Rated very high with the following remarks from the delegates:

- · Great hospitality
- Knowledge hub
- Excellent infrastructure
- Friendly and helpful staff members
- Shown interest in our future programmes



## Multicon-W 2013

#### **Background**

Multicon-W 2013, a new initiative of TCET, was a platform for all the stake holders to contribute their original research work in three emerging areas: ICWET for Electronics and Telecommunication; ICWAC for Computer and Information Technology and ICWAM for Mechanical. In addition, Industry Workshops, Research Colloquium, Innovation in Technical education were other special features of Multicon-W 2013.





#### **Dignitaries**

Shri Durga Maruwada : Chief Guest

Dr. P. Chakrabarti : Distinguished Guest Dr. S. K. Ukarande : Guest of Honour

Mr. Rajul Master Dr. Ashok Deshpande

Mr. Parthasarathi Banerjee : Keynote Speakers

Dr. D. J. Shah

#### Overall Response

Participation	Participants / Delegates			
Event	Day 1	Day 2	Day 1 + Day 2	Resource Persons
Conference Presentation	87	101	188	23
Conference Workshop	330	330	660	11
In-house Workshop	540	540	1080	16
Colloquium	40	30	70	08
Inaugural & Valedictory Function				06
Total	997	971	1998	64

#### Workshop

Non-TEG : 20 attended out of

20 registered (100 %)

TEG : 30 attended out of

35 registered (93.33 %)

TCET student : 40 attended out of

45 registered (95.55%)

Colloquium : 4 sessions

#### Registration break - up

#### Conference

Non-TEG: 85 attended out of 99 registered

(85.8%)

TEG : 103 attended out of 105 registered

(98.1%)

Total : 204 registered

#### **Events Organised**

Paper presentation : 188 papers (23 sessions)

Workshop : 28 sessions

#### Feedback

The overall feedback received from delegates contained following major points :

- Excellent arragement
- Good Hospitality
- Co-operative faculty & Staff
- Good experience & knowledge gain in respective domain



## Multicon-W 2014



#### Background

Multicon-W 2013, a new initiative of TCET, was a platform for all the stake holders to contribute their original research work in three emerging areas: ICWET for Electronics and Telecommunication; ICWAC for Computer and Information Technology and ICWAM for Mechanical. In addition, Industry Workshops, Research Colloquium, Innovation in Technical education were other special features of Multicon-W 2013.



#### **Dignitaries**

Dr. N.D. Desai : Chief Guest

Dr. P. Chakrabarti : Distinguished Guest Dr. S. K. Ukarande : Guest of Honour

Dr. Ashok Deshpande

Mr. Parthasarathi Banerjee : Keynote Speakers

Dr. D. J. Shah

#### Overall Response

Participation	Participants / Delegates			
Event	Day 1	Day 2	Day 1 + Day 2	Resource Persons
Conference Presentation	107	125	232	23
Conference Workshop	330	330	660	11
In-house Workshop	540	540	1080	16
Colloquium	40	30	70	08
Inaugural & Valedictory Function				06
Total	1017	1025	2042	64

#### Workshop

Non-TEG : 20 attended out of

20 registered (100 %)

TEG : 30 attended out of

35 registered (93.33 %)

TCET student : 40 attended out of

45 registered (95.55%)

Colloquium : 4 sessions

#### Registration break - up

#### Conference

Non-TEG : 127 attended out of 159 registered

(79.9%)

TEG : 163 attended out of 170 registered

(95.8%)

Total : 329 registered

#### **Events Organised**

Paper presentation : 132 papers (27 sessions)

Workshop : 28 sessions

#### **Feedback**

The overall feedback received from delegates contained following major points :

- Good Infrastructure
- Good Hospitality
- Co-operative faculty & Staff
- Very informative sessions



## Multicon-W 2015



#### Background

Multicon-W 2015, 4th Multiple conference organized by TCET, was a platform for all the stake holders to contribute their original research work in three emerging areas: ICWET for Electronics and Telecommunication; ICWAC for Computer and Information Technology and ICWAM for Mechanical. In addition, Industry Workshops, Research Colloquium, Innovation in Technical education were other special features of Multicon-W 2015.



#### **Dignitaries**

Mr. Sunil Khanna : Chief Guest (Industry)Dr. S. K. Ukarande : Chief Guest (Academia)Mr. Jaywant Gawande : Distinguished GuestDr. Vivek Bhartiya : Guest of Honour

Mr. Ramani Iyer

#### Overall Response

Participation	Participants / Delegates			
Event	Day 1	Day 2	Day 1 + Day 2	Resource Persons
Conference Presentation	79	147	226	30
Industrial Oriented Workshop	401	401	800	15
EWPPC-2015	608	608	1216	15
Colloquium	50	50	100	06
Inaugural & Valedictory Function	350	440	790	14
Total	1488	1646	3132	80

#### Workshop

Non-TEG : 290 attended out of

210 registered (100 %)

TEG : 111 attended out of

111 registered (100 %)

TCET student : 120 attended out of

74 registered (98.38%)

Colloquium : 4 sessions

#### Registration break - up

#### Conference

Non-TEG : 137 attended out of 150 registered

TEG : 69 attended out of 76 registered

Total : 226 registered

#### **Events Organised**

Paper presentation : 226 papers (20 sessions)

Workshop : 39 sessions

#### Feedback

- Rated very high with the following notes from the delegates:
  - a) Wide coverage of Topics, Good Technical Presentation
  - b) Great hospitality and excellent transportation arrangement
  - c) State -of-the-art infrastructure,
- d) Cooperative staff members
- e) Good Quality of Proceedings, Complementary Distribution of Proceedings is welcomed by authors.
- f) Colloquium was a great source of knowledge
- g) Should have more Affiliations in future



# MULTICON-W 2021 A platform for Multiple Conferences and Workshops

## Multicon-W 2016

#### **Background**

Multicon-W 2016, 5th Multiple conference organized by TCET, was a platform for all the stake holders to contribute their original research work in six emerging areas: ICWET for Electronics and Telecommunication; ICCCV for Computer and Information Technology, ICWDMA for Mechanical, ICACE for Civil, NCASH for Humanities and Sciences and LCCP for Librarianship. In addition, Industry Workshops, Research Colloquium, Innovation in Technical education were other special features of Multicon-W 2016.





#### **Dignitaries**

Dr. P. Chakrabarti : Chief Guest

Mr. Krishna Iyer : Distinguished Guest

Dr. S.K. Ukarande

### Overall Response

Participation	Partici	Participants / Delegates		
Event	Day 1	Day 2	Day 1 + Day 2	Resource Persons
Conference Presentation	123	154	277	52
Industrial Oriented Workshop	350	350	700	15
EWPPC-2016	623	623	1246	15
Colloquium	50	50	100	04
Inaugural & Valedictory Function	350	237	587	16
Total	1496	1414	2910	102

#### Workshop

Non-TEG : 350 attended out of

350 registered (100 %)

TEG : 623 attended out of

623 registered (100 %)

TCET student : 50 attended out of

50 registered (100%)

Colloquium : 4 sessions

#### Registration break - up

#### Conference

Non-TEG : 250 attended out of 290 registered

TEG : 76 attended out of 99 registered

Total : 389 registered

#### **Events Organised**

Paper presentation : 326 papers (25 sessions)

Workshop : 84 sessions

- Rated very high with the following notes from the delegates:
  - a) Wide coverage of Topics, Good Technical Presentation
  - b) Great hospitality and excellent transportation arrangement
  - c) State -of-the-art infrastructure,
  - d) Good Quality of Proceedings, Complementary Distribution of Proceedings is welcomed by authors
  - e) Colloquium was a great source of knowledge
  - f) Should have more Affiliations in future



# MULTICON-W 2021 A playform for Multiple Conferences and Workshops

## Multicon-W 2017

#### Background

Multicon-W 2016, 5th Multiple conference organized by TCET, was a platform for all the stake holders to contribute their original research work in six emerging areas: ICWET for Electronics and Telecommunication; ICCCV for Computer and Information Technology, ICWDMA for Mechanical, ICACE for Civil, NCASH for Humanities and Sciences and LCCP for Librarianship. In addition, Industry Workshops, Research Colloquium, Innovation in Technical education were other special features of Multicon-W 2016.



#### **Dignitaries**

Dr. B. Satyanarayana : Chief Guest

Mr. Krishna Iyer : Distinguished Guest

Dr. P. Chakrabarti

#### Overall Response

Participation	Partici	Participants / Delegates		
Event	Day 1	Day 2	Day 1 + Day 2	Resource Persons
Conference Presentation	166	177	343	53
Industrial Oriented Workshop	350	350	700	15
EWPPC-2017	638	638	1276	15
Colloquium	50	50	100	06
Inaugural & Valedictory Function	350	237	587	14
Total	1554	1442	3006	103

#### Workshop

Non-TEG : 350 attended out of

350 registered (100 %)

TEG : 638 attended out of

638 registered (100 %)

TCET student : 50 attended out of

50 registered (100%)

Colloquium : 4 sessions

#### Registration break - up

#### Conference

Non-TEG : 205 attended out of 287 registered

TEG : 137 attended out of 255 registered

Total : 542 registered

#### **Events Organised**

Paper presentation :343 papers (25 sessions)

Workshop : 84 sessions

#### Feedback

Rated very high with the following notes from the delegates:

- a) Wide coverage of Topics, Good Technical Presentation
- b) Great hospitality and excellent transportation arrangement
- c) State -of-the-art infrastructure,
- d) Cooperative staff members
- e) Appreciation of Initiatives for publication of Proceedings with McGraw Hill Education
- f) 1st time advertisement done through whatsapp & images
- g) Should have more Affiliations in future



# MULTICON-W 2021 A platform for Multiple Conferences and Workshops

## Multicon-W 2018

### Background

Multicon-W 2018, 9<sup>th</sup> Multiple conference organized by TCET, was a platform for all the stake holders to contribute their original research work in six emerging areas: ICWET for Electronics and Telecommunication; ICCCV for Computer and Information Technology, ICWDMA for Mechanical, ICACE for Civil, NCASH for Humanities and Sciences and LCCP for Librarianship. In addition, Industry Workshops, Research Colloquium, Innovation in Technical education were other special features of Multicon-W 2018.





## THAKUR COLLEGE OF ENGINEERING & TECHNOLOGY Chapman A ACT TO COLLEGE OF ENGINEERING A TECHNOLOGY Chapman A ACT TO COLLEGE OF ENGINEERING A TECHNOLOGY

#### **Dignitaries**

Dr. D. K. Paliwal : Chief Guest

Dr. K. G. Narayankhedkar : Distinguished Guest

Dr. P. Chakrabarti

Dr. Subhlakshmi Kher : Guest of Honour

Dr. S. K. Ukrande

#### Overall Response

Participation	Participants / Delegates			
Event	Day 1	Day 2	Day 1 + Day 2	Resource Persons
Conference Presentation	161	173	334	62
Industrial Oriented Workshop	350	350	700	15
EWPPC-2018	623	623	1246	15
Colloquium	30	30	60	04
Inaugural & Valedictory Function	350	237	587	16
Total	1514	1413	2927	112

#### Workshop

Non-TEG : 350 attended out of

350 registered (100 %)

TEG : 623 attended out of

623 registered (100 %)

TCET student : 30 attended out of

30 registered (100%)

Colloquium : 4 sessions

#### Registration break - up

#### Conference

Non-TEG : 253 attended out of 290 registered

TEG : 184 attended out of 287 registered

Total : 577 registered

#### **Events Organised**

Paper presentation : 334 papers (25 sessions)

Workshop : 84 sessions

- Rated very high with the following notes from the delegates:
  - a) Wide coverage of Topics, Good Technical Presentation
  - b) Great hospitality and excellent transportation arrangement
  - c) State -of-the-art infrastructure,
  - d) Cooperative staff members
  - e) Appreciation of proceeding published with McGraw Hill Publishers
  - f) Delegates has appreciated the advertisement of Multicon by small videos
  - g) Should have more Affiliations in future



# MULTICON-W 2021 A playform for Multiple Goyferences and Workshops

## Multicon-W 2019



#### Background

Multicon-W 2019, 10<sup>th</sup> Multiple conference organized by TCET, TCET is hosted 10<sup>th</sup> conference in a row and has planned four conferences (IC-ISCN, IC-TELECON, IC-AMCE & CHSTE) and three workshops under **Multicon-W2019**. During the long journey of one decade of Multicon-W, we have seen the growth of participation from outside India to make it widely known among the researchers and technocrats. Multicon-W 2019 is conducted with the theme inculcating research culture in the campuses.



#### **Dignitaries**

Dr. Abhay Wagh : Chief Guest

Prof. (Dr.) Ganpati D. Yadav

Dr. K. G. Narayankhedkar : Distinguished Guest

Dr. S. K. Ukarande Dr. Shrihari Honwad

#### Overall Response

Participation	Partici	Participants / Delegates		
Event	Day 1	Day 2	Day 1 + Day 2	Resource Persons
Conference Presentation	242	242	484	31
Industrial Oriented Workshop	255	255	510	10
EWPPC-2019	542	542	1084	15
Colloquium	40	40	80	02
Inaugural & Valedictory Function	350	237	587	14
Total	1429	1316	2745	72

#### Workshop

Non-TEG : 316 attended out of

343 registered (92.12%)

TEG : 603 attended out of

603 registered (100 %)

TCET student : 111 attended out of

111 registered (100%)

Colloquium : 4 sessions

#### Registration break - up

#### Conference

Non-TEG: 102 attended out of 116 registered

TEG : 163 attended out of 337 registered

Total : 453 registered

#### **Events Organised**

Paper presentation : 373 papers (26 sessions)

Workshop : 100 sessions

- Rated very high with the following notes from the delegates:
  - a) Delegates appreciated planning an execution of the event
- b) Reviewer has appreciated the quality of the articles
- c) Wide varity of research topic and category of papers have been appreciated
- d) Cooperative staff members
- e) Appreciation of proceeding published with McGraw Hill Publishers
- f) The effort of the advertising by small videos has been taken positively by the delegates



# MULTICON-W 2021 - A platform for Multiple Gonferences and Workshops

## Multicon-W 2020

## 2020

#### Background

Multicon-W 2020, 11<sup>th</sup> Multiple conference organized by TCET, TCET is hosted 11<sup>th</sup> conference in a row and has planned four conferences (IC-ISCN, IC-TELECON, IC-AMCE & CHSTE) and three workshops under **Multicon-W 20**20. During the long journey of one decade of Multicon-W, we have seen the growth of participation from outside India to make it widely known among the researchers and technocrats. Multicon-W 2020 is conducted with the theme inculcating research culture in the campuses.



#### **Dignitaries**

Dr. P. Chakrabarti : Chief Guest

Mr. Ashok Shahane

Mr. P. N. Jumle : Guest of Honour

Dr. D. G. Wakde Dr. S. V. Rasal

#### Overall Response

Participation	Participants / Delegates			
Event	Day 1	Day 2	Day 1 + Day 2	Resource Persons
Conference Presentation	352	392	744	45
Industrial Oriented Workshop	468	468	936	17
EWPPC-2020	580	580	1160	15
Colloquium	35	35	70	02
Inaugural & Valedictory Function	385	290	675	09
Total	1820	1765	3585	88

#### Workshop

Non-TEG : 478 attended out of

490 registered (97.55%)

TEG : 558 attended out of

558 registered (100 %)

TCET student : 90 attended out of

90 registered (100%)

Colloquium : 4 sessions

#### Registration break - up

#### Conference

Non-TEG : 94 attended out of 112 registered
TEG : 650 attended out of 674 registered

Total : 786 registered

#### **Events Organised**

Paper presentation : 463 papers (45 sessions)

Workshop : 112 sessions

- Rated very high with the following notes from the delegates:
  - a) Delegates appreciated planning an execution of the event
  - b) Reviewer has appreciated the quality of the articles
  - c) Wide varity of research topic and category of papers have been appreciated
  - d) Cooperative staff members
  - e) Appreciation of proceeding published with McGraw Hill Publishers
  - f) The proposal of partnership and collaboration has been appreciated by the delegates

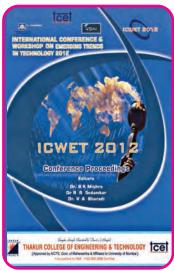


### **Glimpses of Conference Publications**



























A platform for Multiple Conferences and Workshops

## Glimpses of ICWET 2010













Glimpses of ICWET 2011













**Glimpses of ICWET 2012** 















A platform for Multiple Conferences and Workshops











































































































































































































































































## Glimpses of Past few years Student Workshop of IOW







































## Glimpses of Past few years Student Workshop of IOTW 2019













































































## Glimpses of Past few years Student Workshop of IOW







































## Glimpses of Past few years Student Workshop of IOTW 2020







































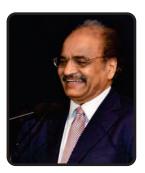
#### **Eminent Personalities Visited to The Institute**



**Dr. Abhay Wagh**Director, Directorate of Technical Education,
Maharashtra State, Mumbai, India



**Dr. D. K. Paliwal**Former Member Secretary NBA &
Deputy Educational Advisor, Govt. of India.



Prof. (Dr.) Ganapati D. Yadav Vice Chancellor, ICT, Mumbai, India (Renowned Researcher)



**Dr. P. Chakrabarti**Director, IIEST, Shibpur
Professor, Administration
Howrah, West Bengal, India



**Shri. D. Maruwada**Lead-Head, Public Services & Director of Deliveries Technology, Accenture, Mumbai, India



**Dr. Shubhlakshmi Kher**Director and Professor of
Electrical Engineering
Arkansas State University (USA)



**Dr. V. N. Magare**Board of College and
University Development



**Mr. Dalbir Virdi**Strategic Advisor to the Chairman Datamatics Group of Companies



**Dr. K. G. Narayankhedker** Chancellor at MGM Institute of Health Sciences



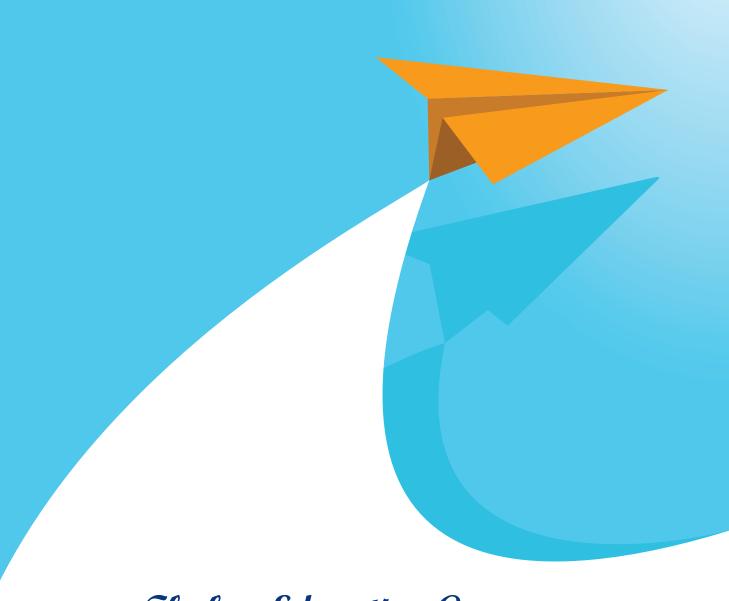
Mr. Sunil Khanna
President & Managing Director - Vertiv
Energy Pvt Ltd , India
& Chairman - CII (WR) Skill Devep



**Dr. Satyanarayana Bheesette**Scientific Officer (H),
Department of High Energy Physics,
Tata Institute of Fundamental Research



Late Dr. N. D. Desai President, D.D. Foundation Gujarat, India



Thakur Education Group
The Host Institute,

Partner Institutions

Collaborators



# MULTICON-W 2021 A platform for Multiple Conferences and Workshops



## **Thakur Education Group**

The Thakur Education Group (TEG), Mumbai is a premier educational group committed to deliver quality education. The Group continuously adds to the national intellectual wealth by training generations that exude our rich culture, human values, discipline, social responsibilities and national pride. TEG has constantly created assets that our society will always be proud of and cherish for a long time to come. Today, TEG comprises of three Trusts, 19 educational institutes on 8 spacious campuses with state-of-the-art infrastructure, accommodating over 50,000 students and over 3500 employees.

### **Institutes Managed by TEG**





#### **Host Institute**



The **Thakur College of Engineering & Technology (TCET)**, an Autonomus Hindi Linguistic Minority Institute established in the AY 2001-02 with a clear objective of providing quality technical education in tune with international standards and contemporary global requirements. TCET offers 6 UG, 3 PG and 3 Ph.D. (Tech.) programmes. TCET is an **ISO 9001:2015** certified Institute. Certification has helped Institute to develop a process driven student centric system required for quality education in 21<sup>st</sup> century. As a result Institute is accredited by **NAAC with "A" grade** for five years and programmes are **accreditated by NBA** for three Years.

In the last decade the institute has put its best efforts to focus on outcome based education leading to holistic student development as per international graduate attributes (GA). Based on our strengths, the University Grants Commission (UGC) has conferred "Autonomous Status" for 10 years under the revised UGC graded Autonomy Scheme 2018.

As per the mandate of UGC under Graded Autonomy Scheme, TCET aspires to strengthen its program offerings to develop budding Engineers "Globally Competent, Locally Relevant and Skill Oriented" through:

- + Cutting-edge Curriculum focused on Industry & Research needs with Innovative Teaching Learning Methodology.
- ◆ Specialization Courses in emerging technologies offered by the departments.
- ♦ Panoramic blend of academic and industry meets for domain research and specialization.
- + Holistic approach for lifelong learning with Employability Skill Development (ESD) Curriculum.

#### **Programmes offered Undergraduate (B.E.) Programmes**

O O		O	
Programmes	Current intake	Year of Starting the Course	NBA Accreditation Status
B.E Computer Engineering (COMP)	180	2001	3 <sup>rd</sup> time accredited UG Level
B.E Electronics & Telecommunication Engineering (E&TC)	120	2001	programmes for COMP, E&TC & IT (3 years w.e.f. 01.7.2019)
B.E Information Technology (IT)	120	2001	Permanent affiliated UG programme w.e.f. A.Y. 2015-16 onwards
B.E Electronics Engineering (ELEX)	60	2008	2 <sup>nd</sup> time accredited UG Level Programme (3 years w.e.f. 01.7.2019) Permanent affiliated UG programme w.e.f. A.Y. 2017-18 onwards
B.E Mechanical Engineering (MECH)	120	2012	Applied for Accreditation in A.Y. 2019-20
B.E Civil Engineering (CIVIL)	120	2014	Applied for Accreditation in A.Y. 2019-20
B.Tech - Artificial Intelligence and Data Science	60	2020	New Course, Under Emerging areas A.Y. 2020-21
B.Tech - Internet of Things (IoT)	30	2020	New Course, Under Emerging areas A.Y. 2020-21
B.Tech - Artificial Intelligence and Machine Learning	60	2020	New Course, Under Emerging areas A.Y. 2020-21

In addition there is Supernumerary seats viz TFWS, J&K quota, GOI quota and these seats are filled up by AICTE / DTE.

#### POSTGRADUATE COURSES (M.E. DEGREE)/ Ph.D. (TECHNOLOGY) (DEGREE)

Programmes	Current intake	Year of Starting the Course	Award (Degree)
Electronics & Telecommunication Engineering (E&TC)	18	2008	M.E.
Information Technology (IT)	18	2011	M.E.
Computer Engineering (COMP)	18	2011	M.E.
Electronics & Telecommunication Engineering (E&TC)	10	2014	Ph.D. (Technology)
Computer Engineering	10	2016	Ph.D. (Technology)
Information Technology	10	2017	Ph.D. (Technology)



#### **Technocrat Partner Institutes**



### Muthayammal Engineering College (Autonomous), Tamil Nadu

Muthayammal Engineering College, an Autonomous Institution affiliated to Anna University, Chennai, was established in the year 2000 under the aegis of Muthayammal Educational Trust and Research Foundation with the motto to uplift the rural community through Technical Education. The College has grown as a reputed Institution in the past 20 years and progressing with the aim to become Centre of Excellence in Engineering Education, Research and Development. MEC started 3 Under Graduate Programmes in Engineering in the year 2000 and presently offers 14 Under Graduate and 6 Post Graduate Programmes. Based on the quality of Teaching, Research and Placement Records, the Institution is Accredited by NAAC and the Undergraduate Programmes are accredited by NBA. Anna University has also recognized Four of our Departments as Research Centres to conduct Ph.D. and M.S. (By Research) Programmes. The college is granted 12(b) and 2(f) status by UGC. Anna University, Chennai has also granted Permanent Affiliation for 10 Programmes.

#### The salient features of the Muthayammal Engineering College

- Well experienced and dedicated Faculty Members
- Research Centres with Advanced Facilities
- NAAC Accredited Institution
- NBA Accredited Departments
- Accredited by Tata Consultancy Services (TCS) and Wipro Technologies
- MoUs with reputed Academic Institutions and Industries for collaborative activities in Research and other Academic Interactions
- Industry Linked Laboratories for equipping students with the Industry needed Technologies
- Entrepreneurship Development Cell and Technology Learning Centres
- Exclusive Cell for Higher Studies, Women Empowerment and Yoga
- Dedicated Placement Cell and well designed Sandwiched Training
- Technology Learning Groups (TLeG) formed with students to learn Emerging Technologies
- Student's participation in Conference, Symposium, Project Competitions and On-line International Certifications
- Proven track records by students in National Competitions
- More Innovative student Projects and Products
- Student Centric Learning with Practical Training



Vardhaman College of Engineering was established in 1999 by the Vardhaman Educational Society. The heights of educational endeavor reached Autonomous status in 2014. With sustained and dedicated efforts Vardhaman is a leading hub of education, offering graduate, postgraduate engineering, and post-graduate management programs. Recognized as Research Centre by JNTUH, accredited by NAAC with A+ Grade, NBA tier-1 accreditation for UG Programs, Secured NIRF ranking 143 for the year 2020, and recognized as College with potential excellence (CPE).



### **Previous Technocrat Partner Institutes**



### **Thakur Institute of Management Studies & Research**

Thakur Institute of Management Studies & Research (TIMSR) was set up by the Thakur Education Group, under the aegis of Zagdu Singh Charitable Trust, in the year 2002 with the approval of the State Government and AICTE and is affiliated to the University of Mumbai for conduct of full time post graduate MMS Degree Programme and part time Programmes viz. MMM, MIM, MFM and MHRDM. The Institute also conducts its flagship full time PGDM Programme and certificate courses in collaboration with industry in specialized topics with commitment to train students with a special focus on ethical leadership and innovative entrepreneurship. The Institute has a vision of emerging as world class management institute and the mission to train students with an attitude of continuous learning, strong social commitment and ethical values for nurturing mindful leaders and entrepreneurs. The National Assessment and Accreditation Council (NAAC) has accredited TIMSR with A+ Grade for five years. The Institute has been ranked among Top 100 B-Schools by Times B School Survey at National level.

The Management's commitment for excellence is reflected in the marvellous infrastructure that is comparable to the finest institutions of its type in the country. The sprawling green campus with lawns, gardens, parking areas, hostel accommodation ensures academic ambience suitable for a center of higher education. With its world class infrastructure; qualified and experienced faculty members; well-equipped computer centre; well stocked library with books, journals, e-journals and having research section, reading room; Research & Development Cell, Student Development Cell and Industry Institution Interaction, the Institute offers quality management education through its Programmes. The students are given preplacement training in relevant areas in the industry orientation sessions. The industries are invited to conduct campus interviews for short term internship and final placements. The Institute has signed number of MOUs with foreign institutions for faculty and student interaction, etc.



### Mithibai College of Arts, Chauhan Institute of Science & Amrutben Jivanlal College of Commerce and Economics

Shri Vile Parle Kelavani Mandal is a Public Charitable Trust registered under the Society's Registration Act and Bombay Public Trust Act. From its humble beginnings in 1934, when it took over the Rashtriya Shala, a school established in 1921 in the wake of the National Movement, the Mandal today has grown into a big educational complex imparting high-level education to more than 35,000 students. The ethos of the Mandal, is marked by patriotic fervor, selfless service and a spirit of indigenous enterprise. These values permeate all the institutions set up by the Mandal and are the guiding principles for all of them. Over the past 77 years, the Mandal has developed a large educational complex in Vile Parle, in Suburban Mumbai and has spread its wings to metro cities like, Bangalore, Hyderabad, Chandigarh, Ahmedabad, Navi Mumbai, etc., SVKM today is proud of some of the finest educational institutes in the country like NMIMS deemed to be University, N.M. College of Commerce and Economics, Mithibai College, D. J. Sanghvi College of Engineering, Bhagubhai Mafatlal Polytechnic – to name a few. It has also in its family schools from Nursery to Secondary, Jr. College providing ICSE or IB, IGCSE curriculum or CBSE curriculum. With a strong vision and passion for being the pioneers of the modern education system, all SVKM institutes are state of the art, with ever expanding facilities and infrastructure.

From its beginning with the Swadeshi Movement, the Mandal has now grown into an educational foundation promoting global thinking consistent with national interest and promoting the values, professionalism, social sensitivity and dynamic entrepreneurship.





### **Previous Technocrat Partner Institutes**



### St. John College of Engineering & Management

St. John College of Engineering and Management (SJCEM) provides facilities for professional education in the rural and tribal area of Palghar District near Mumbai by offering four year Degree Courses in Civil Engineering, Computer Engineering, Electronics and Telecommunications Engineering, Information Technology and Mechanical Engineering and three year Diploma courses in Civil Engineering, Electronics and Telecommunications Engineering and Mechanical Engineering. SJCEM also offers two year Post Graduate Degree Course - Masters of Management Studies. SJCEM is a college run by Aldel Education Trust which is a Christian Religious Minority Institution as notified by the Maharashtra State Minorities Development Department vide Order Dtd July 25, 2008 (Ref.: 2008/310/164/2008/1).

The college is situated within a lush green campus in a serene and quiet ambience at the St John Technical Education Complex, located at Vevoor, Palghar (East), district Palghar in Maharashtra. Palghar is a part of Mumbai Suburban Rail Network which extends up to Dahanu and lies on the Mumbai-Ahmedabad rail route 30 kms north of Virar. The college is on Palghar-Manor road about 1.5 kms from Palghar Railway station and about 18 kms from Manor (Mastaan Naka) on the Mumbai-Ahmedabad Western Express Highway and 105 kms from the Santacruz domestic airport, Mumbai.



### Priyadarshini College of Engineering

Lokmanya Tilak Jankalyan Shikshan Sanstha (LTJSS) was founded in the year 1983 by a creative and dynamic visionary, Dr. Satish Chaturvedi. With his strong will, commitment, strength determination and strategic support of SMT. Abhatai Chaturvedi, the Sanstha has developed from its humble beginning into a mammoth entity.

When it came to the issue of nomenclature, the choice was inevitable. From the silver pages of history, the golden utterances of Lokmanya Bal Gangadhar Tilak - eminent mathematician, great educationist and social reformer who gave magic mantra of 'swaraj' laid the ideological foundation of the genesis of the Sanstha. The Sanstha founded in 1983 has its gargantuan corpus of 25 institutions striving unceasingly towards excellence in education and building the cerebral infrastructure of India as a nation powered with its human resources. Its approach to education is an uncompromising pursuit of excellence through human resources. The Sanstha with its world of academia ranging from kindergarten to post-graduate in engineering, pharmacy, architecture, management institutions, nurtures the fond dream of being the masthead of the journey of the nation from the dark realms of ignorance towards the illuminating energy of knowledge.



# MULTICON-W 2021 A platform for Multiple Conferences and Workshops

### **Collaborators**



Springer is a leading global scientific, technical and medical portfolio, providing researchers in academia, scientific institutions and corporate R&D departments with quality content through innovative information, products and services. Springer has one of the strongest STM and HSS eBook collections and archives, as well as a comprehensive range of hybrid and open access journals and books under the SpringerOpen imprint. Springer is part of Springer Nature, a global publisher that serves and supports the research community. Springer Nature aims to advance discovery by publishing robust and insightful science, supporting the development of new areas of research and making ideas and knowledge accessible around the world. As part of Springer Nature, Springer sits alongside other trusted brands like Nature Research, BMC and Palgrave Macmillan.



SN Computer Science is a broad-based, peer reviewed journal that publishes original research in all the disciplines of computer science including various inter-disciplinary aspects. The journal aims to be a global forum of, for, and by the community and offers rapid peer review under the expert guidance of a global Editorial Board. Opportunities to Societies / Conferences / Institutes / Laboratories / Corporates to 'partner' with the Journal and enjoy the benefit of planning and publishing issues in hot areas of research, without being under the pressure of publishing a full-fledge journal



**Journal of Information Technology Management (JITM)** is open access and a peer-reviewed quarterly journal devoted to the field of IT Management with the aim of developing administration knowledge, identifying the management problems in organizations and presenting the solutions. The journal was established by the Faculty of Management, the University of Tehran in 2009.



**International Journal of Forensic Software Engineering (IJFSE)** proposes and fosters discussions on the definition and identification of methods, techniques, approaches, patterns and tools for systemic analysis and investigation of software failures encompassing the retrospective analysis of the impact on processes for software products and systems specification, design, development and maintenance.



**International Journal of Electronics, Communications, and Measurement Engineering (IJECME)** is a dedicated source for high quality papers in the electronics, communications, and measurement domain.



# MULTICON-W 2021 Aphiliple Conferences and Workshops

#### **Collaborators**



**Anvesha** – A biannual multidisciplinary E-Journal is a brain child of Anvesha publication. It gives an opportunity for innovation and new ideas in emerging trends. Anvesha will provide platform to all researches in various subjects to publish original research work



**Special Issue on Industrial IoT and Future Generation Revolution (IJIN)**: The advent of modern digital technology has sparked the fourth industrial revolution. Known as Industry 4.0. (I4.0), it uses technologies such as Cloud, Big Data Analytics and the Internet of Things (IoT) to capture, connect and analyse data.



**ICTACT:** ICT Academy is an initiative of the Government of India in collaboration with the state Governments and Industries. ICTACT Journals exists for the purpose of providing a quality peer-reviewed platform for Scientists, Researchers, Academicians and Engineers who carry out their original research.



McGraw-Hill is a learning science company and one of the "big three" educational publishers that provides customized educational content, software, and services for pre-K through postgraduate education. The company also provides reference and trade publications for the medical, business, and engineering professions. McGraw-Hill currently operates in 28 countries, has more than 5,000 employees globally, and offers products and services to over 135 countries in 60+ languages.

#### **Print Media Partner**



The Voice of Mumbai

The Free Press Journal is one of the oldest English Daily newspapers from Mumbai with a heritage of more than 88 years. And yet, The Free Press Journal is a contemporary paper and rooted in current urban realities.

In keeping with the international trend, it has reinvented itself in terms of design, get up and content. It means different thing to different people – a platform for the articulate, a trendsetter for the young and a chronicle for the old.

It was at the forefront of freedom struggle against the British and continues with the free and fearless journalism till date. Indeed, the history of The Free Press Journalism mirrors that of Indian independence.





### **Multicon-W 2021 Committees**

#### **Patrons**

#### Chief Patron

Mr. V. K. Singh, Chairman

#### **Patrons**

Mrs. Karishmma Mangal, Secretary Mr. Karan V. Singh, CEO

### Propramme Committee

#### Programme Chair

Dr. B. K. Mishra, Principal, TCET Programme Co-Chair

## Dr. Deven Shah, Vice-Principal, TCET

#### Multicon Convenor

Dr. Vivek Mishra, , Advocacy Outreach & Extension Activity Head

#### Multicon Secretary

Dr. Sangeeta Vhatkar, Associate Professor - Dy. HOD - IT

#### Publication Head

Dr. Vinit kumar Dongre (E&TC) Mr. Hemant P. Kasturiwale, Associate Professor (ELEX) Dr. Sanjeev Chaudhary, Associate Professor (CIVIL) Dr. Anand Khandare, Associate Professor (COMP)

#### **IC-ICN 2021**

Technical Chairs

Dr. Kamal Shah, Dean R & D

Dr. Lochan Jolly, Dean SSW

Dr. R. R. Sedamkar, Director IQAC

Dr. Sanjay Kumar, Professor-MECH

#### Convenor

Dr. Bijith Marakarkandy Professor & HOD-IT

#### Joint Convenor

Dr. Harshali Patil Associate Professor & HOD-COMP

#### Co-Convenors

Dr. Sangeeta Vhatkar, Associate Professor - IT Dr. Anand Khandare, Associate Professor - COMP

#### **IC-TELCON 2021**

#### Convenor

Dr. Pavel Saha Professor & HOD-E&TC

#### Joint Convenor

Dr. S. C. Patil Associate Professor & HOD-ELEX

#### Co-Convenors

Mr. Sanjeev Ghosh, Associate Professor-E&TC Mr. Hemant Kasturiwale, Associate Professor-ELEX

#### **IC-AMCE 2021**

#### Convenor

Dr. Siddesh D. Siddappa Professor & HOD-MECH

#### Joint Convenor

Dr. Seema Jagtap Associate Professor & HOD-CIVIL

#### Co-Convenors

Mr. R. Deshmukh, Assistant Professor-MECH Dr. S. Choudhari, Associate Professor-CIVIL

#### **IC-HSTE 2021**

#### Convenor

Dr. Sunita Pachori Assistant Professor & F.E. Incharge

#### Joint Convenor

Dr. Sanjay Kumar Professor & Controller of Examination Dr. Zahir Aalam Professor & TPO Co-Convenors

Dr. Krishnakant Mishra, Assistant Professor-ES&H Mr. Vijay Kumar Yele, Assistant Professor-IT Dy. Controller of Examination

#### **IOTW 2021**

#### Convenor

Dr. Zahir Aalam Professor & TPO Co-Convenors

Ms. Rupali Mane Assistant Professor - E&TC

#### EC 2021

#### Convenor

Dr. Kamal Shah Professor & Dean R&D

Co-Convenors

Dr. Lochan Jolly, Professor & Dean SSW Dr. Sheetal Rathi, Professor & P.G. HOD - COMP



## Advisory Committee

### **International**

Dr. Amol A. Ambardekar, Microsoft Research, CA, USA

Dr. H. Jafari, University of Mazandaran, Babolsar, Iran

Mr. Ingo Miiler, Dean of Faculty of Engineering, Germany

Dr. John Kuworru, Professor, Asian Institute of Technology, Bangkok, Thailand

Prof. Dr. Ong Seng Huat, University of Malaya, Kuala Lumpur, Malaysia

Dr. Shubalaxmi Kher, Arkansas State University, USA

Professor Okada Hiroshi, Tokyo University of Science, Japan

Prof. Audun Josang's, University of Oslo, Norway

Prof. Hiroaki Kikuchi, Meiji University, Japan

Ankit Sharma, Munich Bavaria, Germany

**Dr. Krishnaswami "Hari" Srihari,** Dean and Distinguished Professor, Thomas J. Watson College of Engineering and Applied Science at Binghamton University

Mr. Rajat N. Khemka, Program Analyst, University of South California, USA

Dr. Anik Islam, Kumoh National Institute of Technology, Gumi, South Korea

Dr. Bruno Justino, Professor, University of Brasilia, Brazil

#### **National**

Dr. P. Chakrabarti, Director IIEST Shibpur, Ex-Director

MNNIT, Allahabad, Uttar Pradesh, India

Dr. S. N. Merchant, Professor, IIT Bombay, Mumbai, India

Dr. Bernard Menezes, Profressor, KReSIT, IIT Bombay, Mumbai, India

Prof. Dr. S. Sundar, IIT Madras, Chennai, India

Prof. Dr. Subir Das, IIT BHU, Uttar Pradesh, India

Dr. Alok Verma, SAMEER, IIT Bombay, Mumbai, India

Dr. Ravindra Gudi, Head of Chemical Engineering Department, IIT Bombay, Mumbai, India

Prof. Ranjit Kumar Upadhyay, Indian Institute of Technology (ISM), Dhanbad, India

Dr. R. B. Lohani, Professor, GEC, Goa, India

Dr. Manoj Kumar Kowar, Professor, Ex-Director, Bhilai Institute of Technology, Durg, Chhattisgarh, India

Dr. Mukesh A. Zaveri, Associate Professor, S. V. National Institute of Technology, Surat, India

Dr. Nalbalwar Sanjay Laxmikant, DBATU, Lonere, Mumbai, India

Prof. Karmeshu, Shiv Nadar University, India

Dr. Arvind W. Kiwelekar, Associate Professor

Dr. DBATU Vidyavihar, Lonere, Dist. Raigad, India

Dr. K C Vora, Sr. Deputy Director & Head, ARAI Academy at ARAI, Pune, India

Dr. Brijesh R. Iyer, Assistant Professor, Dr. BATU Vidyavihar, Lonere, Dist. Raigad, India

### **Industry**

Mr. Saurabh Srivastava, Assistant Vice President, Reliance Jio Infocomm Ltd., Navi Mumbai, India

Mr. Anil Dipnaik, Chief Manager – Product Development, Siemens Ltd., Mumbai, India

Dr. Bhushan Jagyasi, Al scientist & Sr. Manager, Al capability Accenture Adv. Technology Centers in India

Mr. Bashishtha Singh, General Manager Jacobs Engineering India Pvt. Ltd., Mumbai, India

Mr. Rajib K. Jena, General Manager, Bajaj Auto, Pune, India

Mr. Jeevan Kharel, Chief R&D Engineer GoQba Technology Corporation Seoul, South Korea



# MULTICON-W 2021 A platform for Multiple Conferences and Workshops

### **Coordination Committees**

#### **Overall**

- Dr. B. K. Mishra
- Dr. R. R. Sedamkar
- Dr. Siddesh Siddappa
- Dr. S. C. Patil
- Mr. Hemant Kasturiwale
- Dr. Deven Shah
- Dr. Sanjay Kumar
- Dr. Sheetal Rathi
- Dr. Zahir Aalam
- Mr. Vikas Singh
- Dr. Kamal Shah
- Dr. Vivek Mishra
- Dr. Vinitkumar Dongre
- Dr. Sangeeta Vhatkar
- Dr. Lochan Jolly
- Dr. Rajesh Bansode
- Dr. Seema Jagtap
- Mr. Rohit Kumar Singh

#### Registration

- 1. Mr. Vikas Singh (Multicon-W Treasurer)
- 2. Mr. Shailesh Sangle (IC-ICN-COMP)
- 3. Ms. Mary Margarate (IC-ICN-IT)
- 4. Ms. Apeksha Waghmare (IC-ICN-IT)
- 5. Ms. Kalawati Patil (IC-TELCON-E&TC)
- 6. Ms. Archana Deshpande (IC-TELCON-E&TC)
- 7. Mr. Sunil Khatri (IC-TELCON-ELEX)
- 8. Ms. Sujata Alegavi (IC-TELCON-ELEX)
- 9. Mr. Krishna Gaikwad (IC-AMCE-MECH)
- 10. Mr. Yogesh Bhalekar (IC-HSTE-ES&H)

## Venue Arrangement & Valedictory function

#### **Auditorium Arrangement**

- 1. Mr. Manish Rana (IC-ICN-COMP) (Head)
- 2. Mr. Vaibhav Gijare (IC-TELCON-ELEX) (Head)
- 3. Mr. Dinesh Kanswal (IC-TELCON-E&TC)
- 4. Mr. Amol Dapkekar (IC-HSTE-ES&H)

#### **Paper Presentation Venue**

- 5. Ms. Vaishali Nirgude (IC-ICN-COMP)
- 6. Ms. Neha Patwari (IC-ICN-IT)
- 7. Ms. Sarita Tiwari (IC-TELCON-ELEX)
- 8. Mr. Mahendra Shelar (IC-AMCE-MECH)
- 9. Mr. Mukesh Singh (ICHSTE and EWPPC-ES&H)

## Industry Oriented Technical Workshop (IOTW)

- 1. Ms. Rupali Mane (E&TC) (Head)
- 2. Mr. Nitin Harne (COMP)
- 3. Ms. Sonal Barvey (ELEX)
- 4. Ms. Leena Chakraborty (ELEX)
- 5. Mr. Krishna Gaikwad (MECH)
- 6. Mr. Namdeo Badhe (IT)
- 7. Mr. Darshan Mali (CIVIL)
- 8. Ms. Rutuja Shinde (CIVIL)
- 9. Mr. Rajesh Singh (T&P)

#### **Track Managers**

- 1. Dr. Anand Khandare (IC-ICN-COMP) (Head)
- 2. Mr. Aditya Desai (IC-ICN-IT) (Head)
- 3. Ms. Vidyadhari Singh (IC-ICN-COMP)
- 4. Ms. Prachi Janrao (IC-ICN-COMP)
- 5. Ms. Veena Kulkarni (IC-ICN-COMP)
- 6. Ms. Kalpna Gangwar (IC-ICN-COMP)
- 7. Ms. Neha Parwari (IC-ICN-IT)
- 8. Mr. Shridhar Kamble (IC-ICN-IT)
- 9. Ms. Shruti Mathur (IC-ICN-IT)
- 10. Ms. Purnima Chandrasekar (IC-TELCON-E&TC)
- 11. Mr. Shailendra Shastri (IC-TELCON-E&TC)
- 12. Ms. Jalpa Pandya (IC-TELCON-ELEX)
- 13. Mr. Sunil Khatri (IC-TELCON-ELEX)
- 14. Mr. Uddhav Nimbalkar (IC-AMCE-MECH)
- 15. Ms. Prajakta Kamble (IC-AMCE-CIVIL)
- 16. Mr. Ninad Khandare (IC-AMCE-CIVIL)
- 17. Dr. Krishnakant Mishra (IC-HSTE-ES&H)
- 18. Dr. Vinita Agarwal (IC-HSTE-ES&H)

#### **Reception Committee**

- 1. Dr. Sangeeta Vhatkar (Multicon-W Secretary)
- 2. Dr. Megharani Patil (IC-ICN-COMP)
- 3. Ms. Rashmi Thakur (IC-ICN-COMP)
- 4. Ms. Pranjali Kasture (IC-ICN-IT)
- 5. Dr. Sangeeta Mishra (IC-TELCON E&TC)
- 6. Ms. Rajeshware Jaysighani (IC-AMCE-MECH)
- 7. Ms. Rutuja Shinde (IC-AMCE-CIVIL)
- 8. Mr. Swapnil Raut (IC-AMCE-CIVIL)
- 9. Dr. Rajni Bahuguna (IC-HSTE-ES&H)

**Accommodation** 

- 1. Mr. Anil Vasoya (IC-ICN-IT) (Head)
- 2. Mr. Manish Rana (IC-ICN-COMP) (Head)
- 3. Mr. Sunil Khatri (IC-TELCON-ELEX)
- 4. Mr. Mahendra Shelar (IC-AMCE-MECH)
- 5. Mr. Arpit Vyas (IC-AMCE-CIVIL)

#### **EWPPC**

- 1. Mr. Rohit Kumar Singh (ES&H) (Head)
- 2. Dr. Kiran Sanap (ES&H)
- 3. Dr. Neha Mishra (ES&H)
- 4. Dr. Savita Chandel (ES&H)

#### **Food**

- 1. Mr. Vikas Kaul (IT) (Head)
- 2. Ms. Aradhana Manekar (E&TC) (Head)
- 3. Mr. Vijaykumar Yele (IT) (Head)
- 4. Mr. Sandeep Bankar (IT)
- 7. Ms. Sonali Singh (E&TC)
- 10. Mr. Vinay Bhatkar (MECH)
- 11. Mr. Vinayak Bachal (CIVIL)
- 12. Mr. Pritesh Bhana (CIVIL)
- 13. Dr. Satishkumar Singh (ES&H)



### **Coordination Committees**

#### **Grievance Redressal**

- 1. Dr. R. R. Sedamkar (COMP)
- 2. Dr. Kamal Shah (IT)
- Dr. Lochan Jolly (E&TC)
- Dr. Sanjay Kumar (MECH)
- 5. Dr. Zahir Aalam (COMP)
- Dr. Vivek Mishra (ES&H)

#### **Logistics Committee**

- Mr. R. S. Deshmukh (IC-AMCE-MECH) (Head)
- 2. Mr. Vaishali Nirgude (IC-ICN-COMP)
- Ms. Lydia Suganya (IC-ICN-COMP)
- Ms. Neha Patwari (IC-ICN-IT)
- Mr. Sudhir Dhekane (IC-ICN-IT)
- Ms. Sulbha Kashid (IC-TELCON-ELEX)
- 7. Mr. Vinay Bhatkar (IC-AMCE-MECH)
- Mr. Arpit Vyas (IC-AMCE-CIVIL)
- 9. Mr. Sajjan Kumar Lal (IC-HSTE-ES&H)

#### **Engineering Colloquium**

- 1. Dr. Bijith Marakarkandy (IT) (Head)
- 2. Dr. Harshali Patil (COMP)
- 3. Ms. Aradhana Manekar (E&TC)

#### **Quality Assurance**

- 1. Dr. Vivek Mishra (Multicon-W ES&H)
- Dr. Sheetal Rathi (IC-ICN-COMP)
- Dr. Rajesh Bansode (IC-ICN-IT)
- Dr. Vinitkumar Dongre (IC-TELCON-E&TC)
- Dr. Sandhya Save (IC-TELCON-ELEX)
- Dr. Siddesh Siddappa (IC-AMCE-MECH)
- Dr. Seema Jagtap (IC-AMCE-CIVIL)
- Dr. Sunita Pachori (CHSTE-ES&H)
- 9. Dr. Sangeeta Vhatkar (IOTW-IT)
- 10. Mr. Rohit Kumar Singh (EWPPC-ES&H)
- 11. Cdr. Vijay Pratap Singh (IC-TELCON-E&TC)

## **TE Presentation**

1. Dr. Rekha Sharma (COMP) (Head)

S. E. Presentation

- Ms. Sonia Behra (E&TC) (Head)
- 3. Mr. Sandeep Bankar (IT)
- Mr. Bhushan Nemade (IT)
- 5. Mr. Shridhar Kamble(IT)
- Mr. Manoj Chavan (E&TC)
- 7. Mr. Niket Amoda (E&TC)
- 8. Ms. Archana Belge (ELEX)
- 9. Mr. Mahendra Shelar (MECH)
- 10. Ms. Ugandhara Gaikwad (CIVIL)

- 1. Dr. S. C. Patil (ELEX)
- 2. Ms. Shiwani Gupta (COMP)
- Ms. Kalpana Gangwar (COMP)
- Mr. Rahul Neve (IT)
- Ms. Vandana Munde (IT)
- Ms. Neha Kapadiya (IT)
- Ms. Pranjali Kasture (IT)
- Ms. Archana Deshpande (E&TC)
- Mr. Niket Amoda (E&TC)
- 10. Mr. Mahendra Shelar (MECH)
- 11. Ms. Anuj Pawar (CIVIL)

#### **Certificate & Reprint**

- 1. Ms. Anvita Birje (IC-TELCON-E&TC)
- 2. Mr. Ghanshyam Pal (IC-AMCE-CIVIL)
- 3. Ms. Jesal V (IC-ICN-COMP)
- 4. Mr. Sudhir Dhekane (IC-ICN-IT)
- 5. Ms. Megha Gupta (IC-TELCON-E&TC)
- 6. Mr. Pawan Tiwari (IC-AMCE-MECH)
- 7. Ms. Ashwini Shanbagh (IC-AMCE-CIVIL)
- 8. Mr. Vikas Nagve (IC-HSTE-ES&H)
- 9. Mr. Vikas Nagve (IC-HSTE-ES&H)

#### **Professional Body Workshop**

- Dr. Rajni Bahuguna (ES&H) (Head)
- 2. Mrs. Prachi Janrao (COMP)
- Mr. Shailesh Sangle (COMP)
- Mr. Rahul Neve (IT)
- Mr. Sandeep Bankar (IT)
- Ms. Shruti Mathur (IT)
- Ms. Aradhana Manekar (E&TC)
- Mr. Deepak Shete (E&TC)
- Ms. Archana Belge (ELEX)
- 10. Ms. Rutuja Shinde (CIVIL)

#### Valedictory Function

Same as Conference Venue Arrangement

#### **Anchors**

- 1. Mr. Amol Dapkekar (ES&H)
- 2. Mrs. Vidyadhari Singh (COMP)



MULTICON-W 2021

A platform for Multiple Conferences and Workshops

### **Vote of Thanks**

An event of this magnitude would not have been possible without the support of the management in providing the state-of-the-art-infrastructure and all necessary arrangements. I would like to express my sincere thanks to the Chairman, Secretary, Trustees, CEO and COO for their constant encouragement and continued valuable support for organizing programme.

I feel a deep sense of honor and privilege to express my gratitude to the Chief Guests and Guest of honors along with all the resource persons, delegates, and other participants of this conference. The healthy discussions and deliberations by them in each session are going to bring constructive suggestions which certainly improve the understanding about the emerging trends in the field of Engineering & Technology. Their devotion and dedication in their respective fields of expertise has made this conference truly a knowledge hub. I also thank the patrons and the advisory committee for their co-operation and support. I would also like to thank our partner institutes for associating with the event.

In addition to this, I would fail in my duty if I would not appreciate and acknowledge the participants, programme committee, teaching & non-teaching staff members, students, and the support staff for their constant endeavour to make this conference a great success. Organizing any such event is a Herculean task which cannot be accomplished without the support of a strong and motivated team. I really thank them for their involvement and willingness to take on the completion of task beyond their comfort zones.

Lastly, I am indebted to those who directly or indirectly encouraged and supported us to make this conference an event of great learning!

Dr. B. K. Mishra

Principal, TCET
Program Chair, Multicon-W 2020



# MULTICON-W 2021 A playform for Multiple Conferences and Workshops

## Programme Schedule

Day - 1	Conference
07.30 am - 08.30 am	Reporting and Registration
08.45 am - 09.15 am	Assembling in the SH - I
09.30 am - 10.45 am	Inauguration Session
10.45 am - 11.00 am	Tea Break
11.00 am - 01.00 pm	Keynote speech of respective conference & Followed by the paper presentation
	Lunch Break (01.00 pm - 02.00 pm)
02.00 pm - 03.45 pm	Paper Presentation Session
03.45 pm - 04.00 pm	Tea Break
04.00 pm - 05.30 pm	Paper Presentation
Day - 2	Conference
09.30 am - 11.15 am	Paper Presentation
11.15 am - 11.30 am	Tea Break
11.30 am - 01.00 pm	Paper Presentation
	Lunch Break (01.00 pm - 02.00 pm)
02.00 pm - 03.30 pm	Paper Presentation
03.30 pm - 05.00 pm	Valedictory Function

## **Location Plan**

