

**Proceedings of**  
**International Conference on**  
**Innovations in Science and Technology**  
**for Sustainable Development**

**ICISTSD 2020**

**November 23-24th, 2020**

**Sponsored by**

**TEQIP II**

**Organised by**  
**Department of Computer Science and Engineering**  
**&**  
**Department of Mechanical Engineering**



**College of Engineering**  
**PERUMON**

**College of Engineering Perumon**

**(Under CAPE, Government of Kerala)**

**Kollam, Kerala,**

**India**

**PIN- 691601**



**INTERNATIONAL CONFERENCE**  
**on**  
**“Innovations in Science and Technology for**  
**Sustainable Development”**

**ICISTSD-2020**  
**November 23rd & 24th, 2020**

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**Department of Computer Science & Engineering**  
**&**  
**Department of Mechanical Engineering**



**COLLEGE OF ENGINEERING PERUMON**  
**(UNDER CAPE, ESTD. BY GOVT. OF KERALA)**  
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## Preface

*'International Conference on Innovations in Science and Technology for Sustainable Development (ICISTSD-2020)'* has received an overwhelming response on call for papers and over 80 papers from all over India and abroad were received. We must appreciate the untiring contribution of the members of the organizing committee and reviewers who worked hard to review the papers and finally recommended for publication in the conference proceedings. A wide range of topics on different areas of current research trends in engineering have been accepted for presentation. We are grateful to **Dr. Shantam Sukla** for giving his kind consent to inaugurate the conference and to deliver his valuable keynote address in the same. We are also thankful to TEQIP II, for providing funds to organize the conference. We are also thankful to the contributors whose active interest and participation to ICISTSD-2020 have made the conference a glorious success.

Finally, so many people have extended their helping hands in many ways for organizing the conference successfully. We are especially thankful to them.

*Dr. Bejoy Abraham, Dr. Dileep Lal J  
Conference Chairs, ICISTSD 2020*

## Message from Chairman, Board of Governors (BoG)



I am happy to send this message to the conference chair of "*International Conference on Innovations in Science and Technology for Sustainable Development' (ICISTSD 2020)*", sponsored by TEQIP-II during **23rd and 24th** of November, 2020 organized jointly by the Department of Computer Science & Engineering and the Department of Mechanical Engineering, College of Engineering, Perumon, Kollam (Under CAPE, Established by Govt. of Kerala).

I am very much delighted to see the conference theme which is very much relevant to Innovation and Green manufacturing giving importance to sustainability. This area is presently focused by the researchers in the International/National level.

This Conference will give an opportunity for the participants to share their experiences and research output in the areas as mentioned above. This will also create a platform for researchers, academicians and industry personal to discuss on new direction in their research areas and networking. I am sure that the researchers and engineers will be benefitted on attending ICISTD 2020 and go back to their routine with nice memories both academically or otherwise.

I am very happy and place on record my best wishes to Principal, HoDs, faculty and other staff members of the College of Engineering for organizing this conference by ONLINE to their effort during this pandemic situation

I also appreciate the authors for submitting their technical papers and reviewers for their assistance in reviewing these papers.

I congratulate the members of the advisory committee and organizing committee for their effort in making this conference a grand success. I wish the organizers a grand success in their endeavor. I also wish the college authority and Faculty to conduct more conferences in the years to come.

***Dr. L. VIJAYARAGHAVAN***  
***Chairman, Board of Governors***  
***College of Engineering, Perumon***

## Message from Director, CAPE



The International Conference '*International Conference on Innovations in Science and Technology for Sustainable Development (ICISTSD-2020)*' organized by Department of Computer Science and Department of Mechanical Engineering together is a milestone in the journey towards the academic excellence of College of Engineering, Perumon. I am confident that the conference discussions and the publication of the conference proceedings will bring opportunities among the academicians, corporate delegates, research scholars and students to present their innovative ideas, most up-to-date findings, and technical proficiency in the various fields of Engineering. I convey my blessings and best wishes to the organizers of **ICISTSD-2020** and I wish this event will be a great success.

*Dr. R Sasikumar*  
*Director*  
*CAPE, Kerala*

## Message from Principal



I am delighted to note that the Department of Computer Science & Engineering and Department of Mechanical Engineering department are jointly organizing an “*International Conference on innovation in science and technology for sustainable development ( ICISTSD 2020 )*” on 23rd & 24th November 2020.

I appreciate the HODs, faculty and students of the two departments for choosing such a relevant topic and for organising an international conference which will benefit academicians, researchers and corporates to a large extent.

It is also an attempt to live with the pandemic and productively utilise the time by creating a platform for deliberating on innovation in science and technology .

Confluence of technocrats to liberate thoughts of innovation will only lead to sustainable development.

The unexpected pandemic and the learning we had from it has brought transformation in the outlook and approach of mankind across world. I am sure this conference will be an enabler for the students, faculty ,researchers and corporates to learn, unlearn and relearn in this difficult times. The proceedings of the conference will be a permanent reference for enriching the students, faculty, researchers in the field of sustainable development. This will be another feather to the cap of CEP in its journey for excellence.

I wish the conference all success.

***Dr.Z.A Zoya***  
***Principal***  
***College of Engineering***  
***Perumon***

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Prof.Saranya R.S, Assistant Professor, CE Perumon.

## **Keynote Address**

- 1. “Rethinking Innovation for Sustainable Development”-Dr.Shantam Sukla , Lead Innovation Officer, Forbs Marshall**
- 2. “An Introspection on Innovation challenges to Sustainable Development”- Prof.(Dr.)Christabell P J, University of Kerala**
- 3. “Post Covid Emerging Technology Scenarios”- Prof.(Dr.)Smiju Sudevan, Modern College of Business and Science, Muscat, Oman.**
- 4. “Introduction to Pattern Classification”- Prof.(Dr.)Sudhish N George, National Institute of Technology, Calicut**

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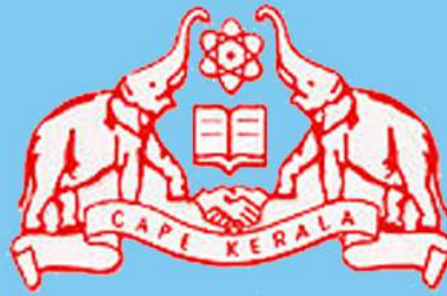
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