



PSG INSTITUTE OF TECHNOLOGY AND APPLIED RESEARCH
Coimbatore – 641 062
Department of Mechanical Engineering

“ICMDMSE 2022 Conference” Report

Date 11-03-2022, 12-03-2022.

Venue (Physical mode): E6 – Mechanical Seminar hall

Venue(Online) : Zoom Platform

PSG iTech aims to realize its objective of enhancing youth empowerment through Technical Education. This Institute caters to various Engineering disciplines, focusing on learning, industry engagement of students, innovative and inclusive pedagogy and ethics. The institute has fully equipped laboratories with sophisticated equipment that help practical training, research and consultancy activities. Institute envision at producing engineers with strong interpersonal skills and societal consciousness. The second international Conference on Materials, Design and Manufacturing for Sustainable Environment (ICMDMSE 2022) organized by the Department of Mechanical Engineering, PSG iTech along UCSI Malaysia.

About UCSI University

Built on the principles of audacity, perseverance, integrity and excellence, UCSI University is a leading institution of higher learning with campuses in Kuala Lumpur, Springhill (Port Dickson), Kuching and Terengganu, Malaysia. Our faculties, equipped with state-of-the-art facilities to meet student needs offer a wide spectrum of academic programmes, ranging from Medicine, Pharmacy, Nursing, Engineering and Architecture to Music, Multimedia, Education, Liberal Arts and Hospitality. UCSI University is a vibrant community of learning and scholarship.

Schedule of Events

Day 1 (11.03.2022)

9:00 am-10:00 am	Inauguration
10:00 am-10:30 am	High Tea
10:30 am-11:30 am	Keynote Lecture 1 Dr C Balaji , Professor, Department of Mechanical Engineering, IIT Madras
11:45 pm-12:45 pm	Keynote Lecture 2 Dr. Lim Wei Hong, Deputy Dean, Faculty of Engineering, Technology and Built Environment, UCSI University, Malaysia
12:45 pm - 2:00 pm	Lunch Break
2:00 pm-3:00 pm	Keynote Lecture 3 Dr A Senthilkumar Associate Professor, Manufacturing, NUS, Singapore
3:15 pm-4:45 pm Technical Sessions (Parallel)	Track 1- Materials for Sustainability
	Track 2 - Design of Materials for Sustainability

Day 2 (12.03.2022)

9:00 am-10:00 am	Keynote Lecture 4 Dr. L Ashokkumar, Professor, Department of Electrical and Electronics Engineering, PSG CT, CBE
10:15 am-11:15 am	Keynote Lecture 5 Dr P Manojkumar, Associate Professor, Department of Mechanical Engineering, PSGiTech
11:30 am - 01:00 pm Technical Sessions (Parallel)	Track 1- Materials for Sustainability
	Track 2 - Design of Materials for Sustainability
	Track 3- Manufacturing and Industrial Engineering
	Track 4 - Thermal and Fluid Sciences for Sustainability
01:00 pm - 2:00 pm	Lunch Break
2:00 pm-3:30 pm Technical Sessions (Parallel)	Track 3- Manufacturing and Industrial Engineering
	Track 4 - Thermal and Fluid Sciences for Sustainability
4:00 pm-4:30 pm	Valedictory function

Day 1 – 11.3.22

The inauguration was held at Mechanical Seminar hall, PSG iTech. Dr.G.Chandramohan, Principal, PSG iTech welcomed the gathering and Dr.P.V Mohanram, Secretary, rendered the felicitation address. Dr.R.Ramesh, Professor of Mechanical Engineering narrated about the theme: Digital Solutions for Sustainable Earth. He also furnished the schedule of activities and importance of the conference with relevance to the contemporary issues.

Dr.Krishnakanth Pulicherla, Scientist D, Technology Development & Transfer Division (TDT), Department of Science and Technology, Govt. of India was the chief guest for the function. He highlighted on the importance of taking up R&D jobs in collaboration with Industries instead of service oriented jobs. He also emphasized the importance of Industry supported higher studies and the student participation in the same. Finally, Dr.D.Elangovan, Professor of Mechanical Engineering proposed the vote of thanks.

Total number of paper received: 90

Total number of papers accepted for Conference: 65



Fig 1 Release of ICMDMSE 2022 Conference Souvenir by Dr.Krishnakanth Pulicherla, Scientist D, Technology Development & Transfer Division (TDT), Department of Science and Technology, Govt. of India along with Dr P V Mohanram, secretary, PSG Itech, Dr G Chandramohan, Principal, PSG ITech and Mechanical department faculty members.

Keynote Lecture – Foundations of Data Science and Machine Learning for Mechanical Engineers

Dr C Balaji,

Professor, Department of Mechanical Engineering, IIT Madras

Time - 10.30 am to 11.30 am

Dictionaries define “data” as plural form of “datum” the latter being “something given or admitted especially as a basis for reasoning on inference”. For practical purposes, data can be considered as both plural and singular. What is science? According to the Oxford dictionary “Science is a systematic study of the structure and behavior of the physical and natural world.” In view of the above definition, data science can be defined (Shah(2020)) as follows “Data science is a field of study and practice that involves the collection, storage and processing of data in order to derive important insights into a problem or a phenomenon”. According to Shah (2020), three Vs are the reasons Velocity: The speed at which data is accumulated. Volume: The size and scope of the data Variety: The massive array of data and types (structured and unstructured). Each of these Vs has dramatically increased in recent years. For example, even a desktop has more than 1 TB storage these days. If each person in the world has 5 TB of data associated with him/her and with a population of 8 billion, the total data volume is expected to be 40 Zettabytes (1 ZB = 109 TB = 1012 GB).

Applications of data science

1. Finance o financial data scientists capture and analyze new sources of data, build predictive models and run real time simulations of market events. For example, through the mobile number and PAN number of an individual, spending patterns, prompt repayment of previous loans and other data can be easily obtained to check credit worthiness (CIBIL score)
2. Health Care Consider the scans of X-rays, CT and MRI available to a hospital or to Govt. Clinical correlations of these to disease outcomes can be used very effectively in telemedicine. The smart watches give so much data to every individual about their exercise and sleeping habits, calories burned, resting heart rate and so on.

Relationship between data science and other fields

These two are closely related. Some even argue that data science is nothing but statistics in a new avatar. Be that as it may, there is a key difference. Statistics was primarily developed to help people deal with data in a pre-computer era or pre-computer data problem. Often statistics helped in fields like quality control, sample testing, market surveys (of the pre internet era) and so on. Data science on the other hand is the latest field rather a 21st century field, dealing with data problem of this century. Hence data science concerns dealing with large volume of data or big data, harvesting, clean up, solving and post processing them. Hence, computer literacy holds the key to be a successful data scientist.

Keynote Lecture – Additive Manufacturing

Dr. Lim Wei Hong,

Deputy Dean, Faculty of Engineering, Technology and Built Environment,
UCSI University, Malaysia

Time - 11.45 am to 12.45 pm

It is yet, another technological advancement made possible by the transition from analog to digital processes. In recent decades, communications, imaging, architecture and engineering have all underwent their own digital revolutions. Now, AM can bring digital flexibility and efficiency to manufacturing operations. Additive manufacturing uses data computer-aided-design (CAD) software or 3D object scanners to direct hardware to deposit material, layer upon layer, in precise geometric shapes. As its name implies, additive manufacturing adds material to create an object. By contrast, when you create an object by traditional means, it is often necessary to remove material through milling, machining, carving, shaping or other means. Although the terms "3D printing" and "rapid prototyping" are casually used to discuss additive manufacturing, each process is actually a subset of additive manufacturing. While additive manufacturing seems new to many, it has actually been around for several decades. In the right applications, additive manufacturing delivers a perfect trifecta of improved performance, complex geometries and simplified fabrication. As a result, opportunities abound for those who actively embrace additive manufacturing.

Keynote Lecture - "Deep hole drilling"

Dr A Senthilkumar

Associate Professor, Manufacturing, NUS, Singapore

Time – 02:00 am to 03:00 pm

Deep hole drilling also differs from normal drilling in that, depending on the drilling process and the drilling diameter, cooling lubricant must be pumped to the cutting edges in large quantities and under high pressure. This ensures good cooling and at the same time good lubrication of the contact areas between the workpiece and the cutting edge of the tool on the one hand and the workpiece and guide pads of the tool on the other. In addition, the cooling lubricant leads to a constant removal of chips from the cutting zone, which makes surface-damaging and time-consuming chip removal strokes unnecessary and therefore improves the quality of the bore hole and the productivity of the processes. For the production of deep holes, two different tool types are distinguished. On the one hand, there are tools with an asymmetrical single cutting-edge design. These deep hole drilling tools include single-lip deep hole drills, the single-tube system (BTA deep-hole drilling) and the double-tube system (ejector deep-hole drilling), which are referred to as the "classic" deep hole drilling processes. On the other hand, there are tools with symmetrically arranged cutting edges.

THE COVAI MAIL
ENGLISH & TAMIL WEEKLY NEWSPAPER
Date : 12 Mar 2022

International Conference at PSG iTech

Release of ICMDMSE 2022 Conference Souvenir by the hosts and the guests of the conference

The Covai Mail
The Second International Conference on Materials, Design and Manufacturing for Sustainable Environment (ICMDMSE 2022) was organized by the Department of Mechanical Engineering, PSG Institute of Technology & Applied Research in association with UCSI University, Malaysia.
The inauguration was held at Mechanical Seminar hall, PSG

iTech, P.V. Mohanram, Secretary, rendered the felicitation address. R. Ramesh, Professor of Mechanical Engineering narrated the theme: Digital Solutions for Sustainable Earth. He also furnished the schedule of activities and importance of the conference with relevance to contemporary issues.
Krishnakanth Pulicherla, Scientist D, Technology Development & Transfer Division (TDT), Department of Science and Technology, Govt. of India was the chief guest for the function. He highlighted the importance of taking up R&D jobs in collaboration with Industries instead of service-oriented jobs. He also emphasized the importance of Industry supported higher studies and student participation in the same.
Earlier, G.Chandramohan, Principal, PSG iTech welcomed the gathering and at the end of the event D.Elangovan, Professor of Mechanical Engineering proposed the vote of thanks.

COVID-19 IS NOT OVER. FOLLOW THE RULES

Fig 2 Release of ICMDMSE 2022 Conference Souvenir by Dr.Krishnakanth Pulicherla, Scientist D, Technology Development & Transfer Division (TDT), Department of Science and Technology, Govt. of India – Kovai mail news paper