One Week Short Term course on
Advance Manufacturing Technologies
11th-15th December, 2023

Jointly Organized by

Department of Mechanical Engineering
Punjab Engineering College, Chandigarh,
INDIA
&
Central Scientific Instruments Organization,
Chandigarh, INDIA

Patron:	Prof. Baldev Setia, Director, PEC.
Coordinator:	Dr. Sanjeev Kumar, Professor
Co-Coordinator:	Dr. P.J Singh, Professor.
	Er. Narinder Jassal, CSIO.
Convenor:	Dr. Sarbjit Singh, Professor.
Co-convenor:	Dr. M P Garg, Associate Professor.
	Dr. Viveksheel, Assistant Professor.

INSTITUTE DETAILS (PEC)

Punjab Engineering College (Deemed to be University) (PEC) having its roots in Lahore as Mugalpura Engineering College since 1921, moved to its present campus in 1953 as PEC affiliated to Panjab University, Chandigarh. The institute became Deemed to be University in 2003 through a MHRD notification. It is a Grant-in-Aid institution under administration of Union Territory of Chandigarh, Government of India. The institute has 146 acres sprawling and pious campus. The academic and administrative processes are similar to IITs in the country. The institute offers 8 Undergraduate (B. Tech.) Programmes and 13 Post graduate (M. Tech.) Programmes in various disciplines of Engineering and Technology. After becoming University, the institute has also started PhD programme in various disciplines of engineering, sciences, management, humanities and social sciences. The admission to UG and PG programmes are made through national level examinations namely JEE (Mains) and GATE respectively. There are nine academic departments and four centres of excellence in the institute.

INSTITUTE DETAILS (CSIO)

The Central Scientific Instruments Organisation (CSIO) is a premier national laboratory located in Chandigarh, India. CSIO was established on October 27, 1959, as a laboratory dedicated to the development and research of scientific instruments and equipments. Over the years, it has grown to become one of India's leading research and development organization in the field of instrumentation and allied technologies. CSIO is known for its contributions to various scientific and industrial sectors, including healthcare, agriculture, defence, and more. CSIO's mission is to conduct cutting-edge research and development in the field of scientific instrumentation and technology. The organization strives to develop innovative and high-quality instruments that can address the needs of various sectors, improve the quality of life, and contribute to the advancement of science and technology in India and beyond.

ABOUT THE COURSE

Advanced manufacturing technology encompass the use of innovative technology to improve products or processes that drive innovation. It covers two types of technologies: process technology that is used to produce any of other advanced technologies, and process technology that is based on robotics, automation technology or computer-integrated manufacturing. For the former, such process technology typically relates to production apparatus, equipment and procedures for the manufacture of specific materials and components. For the latter, process technology includes measuring, control and testing devices for machines, machine tools and various areas of automated or IT-based manufacturing technologies.

Manufacturing has come a long way from its humble origins, and the industry is constantly evolving to meet the demands of a changing world. Advanced manufacturing processes have emerged as the driving force behind this evolution, reshaping the way products are designed, produced, and delivered. In this short-term course, we will explore several advanced manufacturing processes that are revolutionizing the manufacturing landscape such as different machining processes (Electro-chemical discharge machining, Ultra-sonic machining, Water jet-machining etc.) and additive manufacturing processes (Fused-Deposition Modelling, Stereolithography, etc.) Additive manufacturing, popularly known as 3D printing, is a game-changer in the world of production. Instead of subtracting material from a larger block, 3D printing creates objects layer by layer, offering unprecedented freedom in design and production. This technology spans various industries, including aerospace, healthcare, automotive, and consumer goods. 3D printing not only reduces material waste but also allows for rapid prototyping and the production of complex geometries that were earlier very challenging.

Therefore, in the ever-evolving scenarios of modern manufacturing, staying up-to-date with the latest technologies and processes is paramount for professionals and aspiring engineers.

This Short-Term Course on Advanced Manufacturing Processes is designed to equip participants with comprehensive knowledge and practical skills related to cutting-edge manufacturing techniques and their real-world utilization.

COURSE CONTENTS

- Abrasive flow machining
- Ultrasonic machining process
- Micro USM and Advances in USM
- Electric Discharge Machining Process
- Die-Sinker EDM and WEDM Process
- Electro Chemical Discharge Machining (ECDM)
- Laser Beam Machining
- Electro Chemical Machining
- Advanced Solid state welding processes
- Rapid Prototyping Technology
- Microwave processing of materials
- Processing of Smart Materials
- Friction Stir welding
- Advanced solid state welding technologies

DATES TO REMEMBER:

Receipt of application: Nov 25, 2023

Information to selected candidates: Nov 30, 2023 (By email)

Final registration cum submission of fee: Dec 05, 2023

Short Term Course duration: Dec 11, 2023 to Dec 15, 2023

ADDRESS FOR CORRESPONDENCE:

Dr. Sarbjit Singh (Professor)
B. Tech, (MD&AE), M. Tech. (Prod.), Ph.D. (IITR)
Department of Mechanical Engineering,
Punjab Engineering College
(Deemed to be University), Chandigarh -160012
Email: sarbjitsingh@pec.edu.in

Dr. M.P. Garg (Associate Professor)
B. Tech, (Mech), M.Tech.(CAD/CAM & Robotics), Ph.D. (NITK)
Department of Mechanical Engineering,
Punjab Engineering College
(Deemed to be University), Chandigarh -160012
Email: mpgarg@pec.edu.in

TARGET PARTICIPANTS:

The course is exclusively designed for young faculty and budding research scholars keen to pursue research in the innovative field of advanced manufacturing technologies. The participants will be able to understand challenges and opportunities posed by the primary and secondary processes. The course will provide them a deep understanding of advanced manufacturing technologies and application of these materials in different fields etc. The participants will be provided shared accommodation in the institute guest house/ hostel.

REGISTRATION FEES:

International participants	300 USD (Including Boarding & Lodging)
International Students	200 USD (Including Boarding & Lodging)
Participants  *Includes GST	6000/- (Including Boarding & Lodging) *
	4500/- (Without Boarding & Lodging) *
	2000/- (For Students without Boarding & Lodging) *

Google location:
https://maps.app.goo.gl/dsRETQwe9GSPKaje6

ACCOUNT DETAILS:

Account No. 39083056639
IFSC Code: SBIN0002452
Branch: State Bank of India, PEC
Sector 12, Chandigarh

REGISTRATION LINK:

https://forms.gle/RmSDQcG6mKN4c8SR7

(20 seats are available and it will be allotted on first come first serve system)