

One Week
ONLINE

Short Term Course (E-STC)

on

Smart Manufacturing Practices for Industry 4.0: Potential and Challenges

(SMPI4.0-2024)

01– 05th April 2024
(Five-Days)



Organized by

Department of Mechanical Engineering



**National Institute of Technology
Kurukshetra, Haryana-136119**
(Institution of National Importance)

www.nitkkr.ac.in

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Organizing Committee

All the Faculty and Staff Members of Mechanical
Engineering Department, NIT Kurukshetra

INSTITUTE: NIT Kurukshetra

VISION

“To be a role-model in technical education and research,
responsive to global challenges”.

MISSION

“To impart quality technical education that develops
innovative professionals and entrepreneurs”.

“To undertake research that generates cutting-edge
technologies and futuristic knowledge, focusing on the
socio-economic needs”.



ABOUT

National Institute of Technology (formerly known as
Regional Engineering College, Kurukshetra in 1963) was
conferred upon the status of Institution of National
Importance (Deemed University) on June 26, 2002. The
Institute has B.Tech., M.Tech, MBA and MCA courses in
various disciplines with annual intake of about 1500
students. Institute also offers excellent facilities for
advanced research in the emerging areas of Science and
Technology leading to Ph.D. degree. The institute has well-
qualified and dedicated faculty along with splendid
supporting staff, laboratories, and other infrastructure. The
infrastructure is geared to enable the institute to produce
technical personnel of high quality.

DEPARTMENT: Mechanical Engineering

The Department of Mechanical Engineering started its illustrious journey in 1963. It can boast of one of the most talented faculty among the engineering institutes. There are various research and development projects in Mechanical Engineering that are strongly supported by the institute. Since the inception of the department, it has been the source of attraction for meritorious UG, PG and PhD students. The departmental labs are equipped with a wide range of machines, tools and equipment to broaden the practical knowledge of students. It also incorporates labs to carry out design, simulation and development on latest computer systems. The department lays strong emphasis on helping students acquire practical knowledge. It has played a key role in motivating and assisting the students to freely explore the departmental resources and carry out academic activities.

Overview of the Course

It is imperative that people comprehend and implement Smart Manufacturing Practices (SMP), particularly in the context of Industry 4.0. The collaborative manufacturing systems that use internet-integrated machinery to track production processes in real time are causing a massive revolution in the manufacturing industry as a whole. Smart manufacturing practices, often associated with Industry 4.0, involves the integration of advanced technologies such as additive manufacturing, the internet of things, artificial intelligence, hybrid manufacturing, decision making through big data analytics, 4D printing, micro-nano level machining processes, advanced industrial robotics, etc. to improve efficiency, productivity, and flexibility in manufacturing processes.

The prime goal of this online short-term course (E-STC) to share with the participants the cutting-edge research and development, carried out / observed, by the speakers/experts in the domain of smart manufacturing, for making "Self-reliant India" (Atma Nirbhar Bharat).

All the aspects of these emerging manufacturing practices for Industry 4.0 will be targeted in this online STC with interactive lectures from the subject experts.

Objectives of the Course

This ONLINE STC (E-STC) is specially designed to impart knowledge and skills related to all the recent and latest research trends, practices, various opportunities and associated challenges in the overall development of smart manufacturing practices in the present scenario of Industry 4.0. The real-life case studies based on these traits will also be the prime focus of this online short-term course.

Course Contents

- Overview of Smart Manufacturing Practices
- Scenario of Industry 4.0 and Industry 5.0
- Industrial Robotics & Automation
- Cloud computing in the Era of Industry 4.0
- Big data and Data processing in Manufacturing Systems
- Simulation of Additive Manufacturing Processes
- Recent Trends in 3D and 4D Printing Methods
- Open-source software for 3D printing
- Modelling & Simulation for Industry 4.0
- Significance of smart decision making in Industry 4.0
- Real life case studies on modelling and optimization of different smart manufacturing processes and their integration towards Industry 4.0

Resource Persons

Faculty/Experts from IITs / IIITs / NITs / CFTIs and reputed institutions / organizations / industries who are well known experts in the domain of Smart Manufacturing for Industry 4.0 and recent advancements in the area will be the resource persons.

Important dates

Registration Deadline: **27th March 2024**
E-STC dates : **01 – 05th April 2024**

**All correspondence/clarifications should be addressed to the coordinators via, E-mail: stc.med.nitkkr@gmail.com*

Who should attend?

This Online Short-Term Course (E-STC) is open to the UG / PG students, PhD scholars, Faculty from relevant engineering disciplines, and Industry professionals. The programme will be conducted in online mode, and a e-certificate will be provided to all the participants who register and attend the programme (minimum 75% attendance is compulsory).

Registration Fee

The registration fee structure is as follows:

| Participant | Registration Fee (in Rs.) |
|--------------------------|---------------------------|
| UG Students | 200/- |
| PG/PhD Scholars | 500/- |
| Faculty Members | 1000/- |
| Industrial Professionals | 2000/- |

** The registration is compulsory for all the participants. The registration fee is completely non-refundable.*

How to Apply?

The interested participants must deposit the registration fee through **SBI Collect** with the following the steps as given below:

Step 1: <https://www.onlinesbi.sbi/sbicollect/icollecthome.htm>

Step 2: Select **Educational Institutions**.

Step 3: Select State **Haryana** and search for **DIRECTOR NIT KURUKSHETRA** in search bar. Then Select **DIRECTOR NIT KURUKSHETRA** option at the bottom.

Step 4: Select Payment Category (**SMPI 2024**)

Step 5: Proceed (Fill the requested details & submit).

▪ Generate the Payment Slip and attach it with the Registration Form using the following link <https://forms.gle/12xDGaZEBV2Cgrhb6>