

EXPERT DETAILS

DR. DEBAJYOTI RAY
MECHANICAL ENGINEERING
23 YEARS OF EXPERIENCE

DR. ABHIJIT BISWAS
MECHANICAL ENGINEERING
13 YEARS OF EXPERIENCE

COURSE IS FOR

B.Tech
Diploma
ITI Students and
Professionals

REGISTRATION FEES

Rs. 350/-

ABOUT THE COURSE

This workshop provides a deep dive on the understanding of the principles and practices of machining science and also an in-depth knowledge and practical understanding on the key areas of metrology such as, linear & angular measurements, gear and screw thread measurements and limits, fits, tolerances, etc. Participants will gain practical experience with industry-standard tools and equipment, enhancing their technical skills and understanding on the key concepts, critical to manufacturing and industrial applications.

COURSE HIGHLIGHTS

- A 5-day tailored course focusing on the fundamentals of machining science and metrology.
- Key aspects of machining processes and metrology techniques related to precision manufacturing.
- Hands-on experience in metal cutting, metrology, and fluid control systems.
- Course delivered by experts with extensive industrial experience.
- Certification awarded upon successful completion.

CONTACT DETAILS :

Dr. Abhijit Biswas
Mobile No. : 7980641189
E-mail : abhijitz.2023@gmail.com

Dr. Debajyoti Ray
Mobile No. : 9933359060
E-mail : debajyotiray2013@gmail.com

REGISTRATION

Scan the QR Code for Registration



www.icampus.setgoi.ac.in

SHORT TERM CERTIFICATE COURSE

“
**Exploring Machining
Science & Metrology
Through Practice**
”



**SANAKA EDUCATIONAL
TRUST'S GROUP
OF INSTITUTIONS**

DURGAPUR

A UNIT OF SANAKA EDUCATIONAL TRUST

MALANDIGHI, DURGAPUR - 713212

DEPARTMENT OF
MECHANICAL ENGINEERING

NBA ACCREDITED

Day 1

Machining Techniques: Single Point Metal Cutting Operations

• **Fundamentals of Machining**

- Understanding the geometry and mechanism of the cutting operation.
- Understanding the set-up and interaction of the work piece for single point metal cutting operations.
- Understanding the influence of the cutting parameters on the cutting performances.

• **Hands-On Machining Session**

- Practical session on basic machining techniques using conventional equipment (Single Point Metal Cutting Operations).

Day 2

Introduction to Multi Point Metal Cutting Operations

• **Fundamentals of Machining**

- Understanding the geometry and mechanism of the cutting operation.
- Understanding the set-up and interaction of the work piece for multi-point metal cutting operations.
- Understanding the influence of the cutting parameters on the cutting performances

• **Hands-On Machining Session**

- Practical session on basic machining techniques using conventional equipment (Multi-Point Metal Cutting Operations).

Day 3

Fundamentals of Metrology

• **Introduction to Engineering Metrology**

- Significance of metrology in manufacturing and quality control.
- Understanding on salient aspects of metrology.
- Understanding surface texture, roughness parameters, and their significance in manufacturing.
- Understanding & use of various linear and angular measurement techniques.

• **Hands-on Practice: Linear and Angular Measurements, Limit fits and tolerances.**

- Use of Vernier calipers, micrometers, and gauge blocks on components.
- Angular measurement using sine bars and bevel protractors.
- Measuring critical dimensions in machined parts.

Day 4

Understanding on Gear and Screw Thread Measurement

• **Metrology of Gear & Screw Thread**

- Importance of accurate gear measurement in industrial applications.
- Measurement of gear tooth dimensions: pitch, lead, and profile.
- Measurement of screw threads: pitch, lead, major and minor diameters.

• **Hands-on Practice: Measurement of Gears and Screw Threads**

- Practical exercises on gear measurement using gear tooth verniers and gauges.
- Measurement of screw threads using thread micrometer and wire gauges.
- Practical session on surface roughness measurements.

Day 5

Introduction to Hydraulic and Pneumatic Controls

• **Hydraulic & Pneumatic Control Systems**

- Overview of hydraulic fluids and their properties.
- Introduction to hydraulic & pneumatic controls: components, principles of operation, and applications.

• **Hands-On Session: Practice on Hydraulic & Pneumatic Trainer Kit**

- Hands-on experience with hydraulic trainer kit: assembling basic circuits.
- Practical session on assembling and operating basic pneumatic circuits.