



SHRI SANT GAJANAN MAHARAJ COLLEGE OF ENGINEERING, SHEGAON

DEPARTMENT OF MECHANICAL ENGINEERING

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COURSE OUTCOMES OF ALL COURSES OF FIRST SEMESTER

ME MECHANICAL ENGINEERING

ADVANCED MANUFACTURING AND MECHANICAL SYSTEM DESIGN

**1MMD1 Advanced Manufacturing Processes**

After successfully completing the course, students will be able to:

- 1 Understand the mechanics of metal machining processes.
- 2 Apply the concept of computer numerical control technology.
- 3 Understand various metal casting processes.
- 4 Distinguish the various welding processes.
- 5 Analyze various metal forming processes.
- 6 Apply various unconventional machining processes.

**1MMD2 Advanced Machine Design**

After successfully completing the course, students will be able to:

- 1 Apply failure theories to ductile and brittle materials
- 2 Apply Stress-Life approach
- 3 Apply Strain-Life approach
- 4 Apply LEFM approach
- 5 Apply fatigue from variable amplitude loading and statistical aspects
- 6 Apply surface failure approach in mechanical design

**1MMD3 Computer Aided Design and Engineering**

After successfully completing the course, students will be able to:

- 1 Illustrate concept of CAD/ CAM and CIM.
- 2 Apply knowledge using CAD modeling for component design.
- 3 Illustrate the fundamentals of finite element analysis
- 4 Apply FEA techniques to analyze problems in stress on beams, three dimensional frames, heat transfer and fluid flow.

#### **1MMD4 Design for Material Handling Equipments**

After successfully completing the course, students will be able to:

- 1 Selection of a proper material handling system
- 2 Awareness about the specifications of the elements of a material handling system like ropes, chains, pulleys, sheaves etc. for Hoist.
- 3 Forces involved with in material handling like load lifting, buckets, belts etc.
- 4 Types of conveyors and the Safety associated with it.
- 5 Selection of Drives and Grabbing and Arresting Mechanism Attachments for materials handling

#### **1MMD5 Lean Manufacturing**

After successfully completing the course, students will be able to:

- 1 Explain the concept, history and applications of lean manufacturing
- 2 Interpret different elements of Toyota Production System,
- 3 Interpret different tools of lean production processes
- 4 Apply cellular systems for production.
- 5 Apply the concepts of TPM for quality improvement.
- 6 Apply the concepts of Lean Manufacturing for sustaining improvements