



Syllabus for Master of Technology in
Production Engineering



UNIVERSITY OF ENGINEERING & MANAGEMENT, JAIPUR

M.Tech Specialization in Production Engineering

Program Objective

The objective of this course is to facilitate the students to pursue their specialization in the area of Production Engineering. This course curriculum enhances the student knowledge and their exposure in the area of machining science and production technology. The content and syllabus of the course are shaped based on the need for industry and research. The course structure provides in-depth knowledge building in machining principles and production technology by keeping machining tools, welding equipments and metal forming processes. To develop the capability to analyze and design the production engineering equipments with knowledge of machining principles, rake angles, welding equipments are also included in the curriculum. The program caters to its students with experienced academician, state-of-the-art laboratories and projects.

Vision of the Department

To emerge as a renowned center in mechanical engineering by following the best practices in teaching, learning and research

Mission of the Department

1. Provide good academic environment for pursuing high quality undergraduate, Post graduate and Doctoral programmes in mechanical engineering that will prepare our graduates for outstanding professional careers
2. Provide service to practicing engineers, industry, government, educational and technical societies through effective engagement with these groups and by providing professional knowledge.
3. Ensure that our students are well trained in interpersonal skills, team work, professional ethics, practical industrial training and participate in professional society activities.
4. Conduct and proliferate high quality research work to students for lifetime of learning.

Program Outcomes for M.Tech Production Engineering Programme

At the end of the M. Tech. Production Engineering programme, the post graduate will be able to acquire:

Programme Outcomes:

- PO1.** Apply knowledge of production engineering and management principles to design and evaluate Production systems.
- PO2.** Analyze problems of manufacturing and industrial systems to formulate the design requirements for production systems.
- PO3.** Design, implement, and evaluate advanced manufacturing systems and processes, with appropriate consideration for public health and safety, cultural, societal and environmental considerations.
- PO4.** Design, conduct and analyze experiments using domain knowledge and concepts of design of experiments to arrive at valid conclusions.
- PO5.** Use state of the art IT tools and techniques for design and operation of advanced manufacturing systems.
- PO6.** Develop sustainable and eco-friendly manufacturing systems using the knowledge of contemporary issues.
- PO7.** Apply professional, ethical, legal, security and social issues in the design of manufacturing systems.
- PO8.** Function effectively, individually and in teams, on diverse and multidisciplinary to accomplish common goals
- PO9.** Communicate effectively with diversified groups to motivate and exhibit leadership qualities in the management of an enterprise.
- PO10.** Apply the principles of project management for effective execution of manufacturing projects.
- PO11.** Pursue life-long learning as a means of enhancing the knowledge and skills.

First Year – First Semester

| S.No | Sub Code | Subjects | Contact Hours / Week | | | |
|------------------------|----------|---|----------------------|---|---|-------|
| | | | L | T | P | Total |
| 1 | PE101 | Machining Science – I | 3 | 1 | 0 | 4 |
| 2 | PE102 | Machining Science – II | 3 | 1 | 0 | 4 |
| 3 | PE103 | Metal Forming | 3 | 1 | 0 | 4 |
| 4 | PE104 | Metrology and Computer Aided Inspection | 3 | 1 | 0 | 4 |
| Total Theory | | | | | | 16 |
| | | | Contact Hours / Week | | | |
| S.No | Sub Code | Subjects | L | T | P | Total |
| 5 | PE191 | Manufacturing Lab | 0 | 0 | 3 | 3 |
| Total Practical | | | | | | 3 |
| Total Semester | | | 12 | 4 | 3 | 19 |

First Year – Second Semester

| S.No | Sub Code | Subjects | Contact Hours / Week | | | |
|------------------------|----------|---|----------------------|---|---|-------|
| | | | L | T | P | Total |
| 1 | PE201 | Advanced Optimization Techniques | 3 | 1 | 0 | 4 |
| 2 | PE202 | Mechatronics | 3 | 1 | 0 | 4 |
| 3 | PE203 | Machine Tool Design | 3 | 1 | 0 | 4 |
| 4 | PE204 | Computer Integrated Manufacturing Systems | 3 | 1 | 0 | 4 |
| Total Theory | | | | | | 16 |
| | | | Contact Hours / Week | | | |
| S.No | Sub Code | Subjects | L | T | P | Total |
| 5 | PE291 | CAM Lab | 0 | 0 | 3 | 3 |
| Total Practical | | | | | | 3 |
| Total Semester | | | 12 | 4 | 3 | 19 |

Second Year – Third Semester Production Engineering

| S.No | Sub Code | Subjects | Contact Hours / Week | | | |
|------------------------|----------|---|----------------------|---|----|--------|
| | | | L | T | P | Total |
| 1 | PE301 | Nanotechnology | 3 | 1 | 0 | 4 |
| 2 | PE302 | Advanced Welding Technology | 3 | 1 | 0 | 4 |
| Total Theory | | | | | | 8 |
| | | | Contact Hours / Week | | | |
| S.No | Sub Code | Subjects | L | T | P | Total |
| 3 | PE391 | Seminar-I | 0 | 2 | 0 | 1 |
| 4 | PE392 | Project – Part 1 (Dissertation I + Defence of Project - I) | 0 | 0 | 18 | 4+8=12 |
| Total Practical | | | | | | 13 |
| Total Semester | | | | | | 21 |

Second Year – Fourth Semester

| S.No | Sub Code | Subjects | Contact Hours / Week | | | |
|--------------|----------|--|----------------------|---|----|---------|
| | | | L | T | P | Total |
| 1 | PE491 | Project–Part II (Dissertation II + Defence of Project - II) | 0 | 0 | 24 | 6+18=24 |
| Total | | | | | | 24 |