**Manufacturing Engineering II (MEng 3192)**

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| 1 | Department/School | School of Mechanical & Industrial Engineering |
| **2** | Program | B.Sc. in Mechanical Engineering |
| 3 | Course Title | Manufacturing Engineering II  |
| 4 | Course Number | MEng 3192 |
| 5 | ECTS | 5 |
| 6 | Contact Hrs | 2 lecture, 3tutorial, 0 lab, 3 Home study (HS) |
| 7 | Duration | 1 Semester |
| 8 | Number of Students Taking the Module |  |
| 9 | Module description**Production Engineering II**: Includes basic concepts of casting process, design, casting defect and their remedies. Fundamental of shearing and metal forming process. Principles of Selected Joining and Assembly Process in welding. |
| 10 | Prerequisite | Manufacturing Engineering I |
| 11 | Learning Outcome**The course enables the students to understand:*** Basic concept of casting process, design of cast, casting defect and their remedies.
* Basic principles and mechanisms of shearing and metal-forming process of selected processes;
* Material consumption, forces and work done on selected machines and die design;
* Principles of assembly and joining process in assembly;
* Principles and operation of arc, gas, resistance, and other welding and joining processes.
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| 12 | Module Content |
| Academic content of the module | Time allotted |
| Lecture | Introduction to basic casting process.Design of cast.Casting defect and their remedies.Basic principles and mechanisms of shearing and metal forming processes.Principles and operations of arc, gas, resistance, and other welding and joining processes. |  |
| Tutorial | Casting processPrinciples and mechanisms of shearing and metal forming processes.Principles and operations of welding and joining process. |  |
| 13 | Learning activity and teaching methods | Lecture and Tutorial |
| 14 | Learning resources / inputs and use of instructional technology  | Books, power points and videos. |
| 15 | Role of Instructor and Students |  |
| Instructor and Student | Activities |
| Instructor | Gives lecture, guides and moderates the students. He/She will help the students to clearly visualize problems and show methods to tackle them. |
| Students | Students will participate in lecture, but the students are expected to participate actively in the class during tutorial and lab hours by asking and solving problems. |
| 16 | Assessment criteria and grading system |  |
| Assessment criteria | * 3 Assignments(4 mark each):12%
* 4 Quizzes (5 mark each): 20%
* 3 Intermediate exams(IM): 23%
* Final Examination: 45%
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| Grading system | Refer to section 4-7 Grading system and ECTS Grading system of the document ‘REVISED PROGRAMS IN MECHANICAL ENGINEERING’ |
| 17 | Modular requirement | * Minimum of 75% attendance during both tutorial and lecture hours.
* Presence during final examinations.
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| 18 | Modular Calendar |  |
| Activities | Weeks per semester |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Lecture hours | 4 | 1 | 2 | 2 | 3 | 2 | 2 | -- | 2 | 2 | 2 | 2 | 3 | 2 | Final Exam Period |
| Tutor hours | 1 | 4 | 3 | 2/IM | 2 | 3 | 2 | 3/ IM | 3 | 1/ IM | 3 | 3 | 2 | 3 |
| 19 | Reading Materials |
| References | * Mikell P. Groover, “Fundamentals of modern manufacturing”, John Wiley & Sons, Inc, 4th ed.
* Beddoes J., Principles of Metal Manufacturing processes, John Wiles & Sons Inc . New York , 1999
* Lawrence E . Doyle , Manufacturing Process and Materials for Engineering , Prince Hall , Inc . , 1969
* Myron L. Begeman , Manufacturing Processes , John wiley ans Sons, Inc. new York , 1969
* Rao P. N., Manufacturing Technology , second edition , Tata McGraw Hill Publishing Company Limited , New Delhi , 1998
* Richard W. Heine , Prinicples of Metal Casting , McGraw –Hill Book Company , USA , 1967
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