Alanya Alaaddin Keykubat University | Rafet Kayış Faculty of Engineering
Mechanical Engineering Department

**SYLLABUS**

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| **Code/Name** | MCE 307/ Manufacturing Processes I |
| **Type** | Required |
| **Credit/ECTS** | 3/4 |
| **Hour per Week** | 3 (3+0+0) |
| **Level/Year** | Undergraduate/3 |
| **Semester** | Fall |
| **Classroom** | D204 |
| **Content** | Classifications of processes in manufacturing. Basics of material processing and manufacturing techniques. Machine tool elements and mechanics of machine tools. Metal cutting tools. Manufacturing methods of turning, milling, drilling, shaping, grinding, and sawing. Gear and thread cutting. Forming, machining, and powder metallurgy. Manufacturing of polymer and composites. Metrology and quality control principles. |
| **Prerequisites** | |
| **Textbooks** | ***Primary***<br>Mikell P. Groover, Fundamentals of Modern Manufacturing: Materials, Processes, and Systems, 4th edition, 2010<br>***Supplementary***<br>- S. Kalpakjian and S.R. Schmid, Manufacturing Processes for Engineering Materials, Prentice Hall, 2003. |
| **Objectives** | This course is designed for undergraduate students to (i) develop an understanding of particle and planar rigid body kinematics and kinetics (ii) obtain an understanding of Newton's Laws of Motion, and (iii) gain the ability to apply energy and momentum methods to particles and rigid bodies in planar motion. |
| **Course Outcomes** | In this course you will be able to:<br>CO1 Understand the effect of material properties on the manufacturing<br>CO2 Get an ability to model metal forming processes<br>CO3 Model the metal cutting processes<br>CO4 Model metal chip removal processes<br>CO5 Be able to analyze metal cutting economy |

**Weekly Schedule of Topics**

| W | Topic |
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| 1 | Overview and introduction |
| 2 | Material Properties and product attributes |
| 3 | Engineering Materials |
| 4-6 | Solidification Processes |
| 7-8 | Metal Forming and Sheet Metalworking |
| 9-11 | Material Removal Processes |
| 12-13 | Particulate Processing of Metals and Ceramics |
| 14 | Property Enhancing and Surface Processing Operations |

**Contribution to Program Outcomes***

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 3 | 3 | 3 | 1 | 3 | 1 | 2 | 2 | 0 | 3 | 2 |
| CO2 | 3 | 3 | 3 | 1 | 3 | 1 | 2 | 2 | 0 | 3 | 3 |

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| CO3 | 3 | 3 | 3 | 1 | 3 | 1 | 3 | 0 | 0 | 4 | 1 |
| CO4 | 3 | 3 | 3 | 1 | 3 | 1 | 1 | 0 | 0 | 2 | 0 |
| CO5 | 3 | 3 | 3 | 1 | 3 | 1 | 4 | 2 | 0 | 5 | 0 |

* Contribution Level | 0: None | 1: Very Low | 2: Low | 3: Medium | 4: High | 5: Very High

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| **Special Conditions** | • Students work in groups for presentation and assignment.<br>• The consequence of violation of the attendance rule is to receive a grade of **NA.** |
| **Requirements** | Basic knowledge of a dynamic analysis software |
| **Evaluation** | Midterm Exam 25%<br>Quizzes 25%<br>Final Exam 50%<br>Total 100% |
| **Course Policy** | 1. You must attend at least 70% of the sessions including add-drop period.<br>2. Be in the class on time.<br>3. English should always be used to communicate with one another.<br>4. Mobile phone should be switched off and put away during the class.<br>5. You cannot talk to your friends during class no matter what the subject is. |
| **Cheating & Plagiarism** | • Copying or letting someone to copy your work on exams, assignments, or reports is cheating.<br>• Cutting and pasting text, figures and tables from the web sources or any other electronic source is plagiarism.<br>• The consequence of academic dishonesty is to receive a grade of **F** for the course. |

**Instructor**


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| Name/Surname | Bertan Beylergil | Email | bertan.beylergil@alanya.edu.tr |
| Room | 233 | Office Hours | |


Prepared by Bertan Beylergil