**MECE 401 SYLLABUS (2017-2018 Fall)**

MECE 401 Introduction to Robotics (3 2 4) (5 ECTS)

Lecturer: Ulaş Beldek (Room: L-327)

Lab assistant: Hilal Bingöl (Room: L-325)

Course web site: <http://mece401.cankaya.edu.tr>

|  |  |
| --- | --- |
| **Course Outline**  *List the topics covered within each week.* | |
| Week | Topic(s) |
| 1 | Robot types and their characteristics, Homogeneous Transformations |
| 2 | Homogeneous Transformations |
| 3 | Homogeneous Transformations |
| 4 | Kinematic Equations and Their Solutions |
| 5 | Kinematic Equations and Their Solutions |
| 6 | Kinematic Equations and Their Solutions |
| 7 | Differential Relationships |
| 8 | Differential Relationships |
| 9 | Dynamics |
| 10 | Dynamics |
| 11 | Static Forces |
| 12 | Control |
| 13 | Control |
| 14 | Motion Trajectories |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Textbook**(s)  *List the textbook(s), if any, and other related main course materials.* | | | | |
| Author(s) | Title | Publisher | Publication Year | ISBN |
| Richard P. Paul | Robot Manipulators: Mathematic, Programming and Control | The MIT Press | 1981 | 0-262-16082-X |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Reference Book**s  *List the reference books as supplementary materials, if any.* | | | | |
| Author(s) | Title | Publisher | Publication Year | ISBN |
| K. S. Fu  R. C. Gonzalez  C. S. G. Lee | Robotics: Control, Sensing, Vision, and Intelligence | McGraw-Hill | 1987 | **0-07-022626-1** |
| S. B. Niku | Introduction to robotics: analysis, control, applications | John Wiley & Sons | 2011 | 978-0-470-60446-5 |

**Attendance:** 60% attendance for the theoretical lecture hours is compulsory, 80% attendance for the practical lecture hours is compulsory.

**Grading Policy:**

10% Attendance to the theoretical lecture hours.

30% Laboratory Applications: Attendance to the laboratory, performance, weekly lab reports, quiz, lab exam, lab project. All these sub items corresponding to grading of laboratory applications will be determined by Hilal Bingöl.

35% Final Exam

25% Midterm Exam