ROBOTICS

GENERAL

SCHOOL
SCHOOL OF ENGINEERING

SEIMAPRT
COMPUTER ENGINEERING INFORMATICS

LEVEL OF COURSE
UNDERGRADUATE

COURSE CODE
CEID_ΝΣ04

SEMESTER OF STUDIES
8th

COURSE TITLE
Robotics

INDEPENDENT TEACHING ACTIVITIES

<table>
<thead>
<tr>
<th></th>
<th>TEACHING HOURS PER WEEK</th>
<th>ECTS CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures and Laboratory Sessions</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

PROSPECTIVE STUDENTS

H. The organogramme of didactic and didactic methods of which the examinations are performed are perfumed in an analytical way in 4.

COURSE TYPE
Scientific discipline

PREREQUISITE COURSES:

- Υποθέσεις, Γενικές Γνώσεις,
- Επιστημονικής Περιοχής, Ανάπτυξης
- Δεξιοτήτων

TEACHING AND ASSESSMENT LANGUAGE:
Greek

THE COURSE IS OFFERED TO ERASMUS STUDENTS
Yes

COURSE WEBPAGE (URL)
https://eclass.upatras.gr/courses/MECH1134/

LEARNING OUTCOMES

The course constitutes a first, comprehensive, introduction to the basic notions of the theory and practice of robotic systems. Upon successful completion of the course the student will be in position to:

- Understand the concept of kinematic problem and space transformations.
- Solve the forward and inverse kinematic problem of robotic arms.
- Study and analyze the arm’s velocities, forces and trajectories.
- Design controllers and motion systems.
- Understand and study force sensors, force control algorithms and hybrid position/force control.
- Programming industrial robots.
- Design robotic systems and cells in simulation environments.

General Abilities

- Αναλύση, ανάλυση και σύνθεση δεδομένων και πληροφοριών
- Σχεδιασμός και διαχείριση έργων

- Με τη χρήση και των απαραίτητων
- Σεβασμός στη διαφορετικότητα και στην πολυπολιτισμικότητα

- Περιληπτικός Οδηγός
- Σεβασμός στο φυσικό περιβάλλον

- Σχεδιασμός και διαχείριση έργων
- Επίδειξη κοινωνικής, επαγγελματικής και ηθικής υπευθυνότητας και ευαισθησίας σε δέματα φύλου
### COURSE CONTENT


Along with the course, students practice on laboratory exercises that include programming robots, design and programming robotic cell in simulation. In addition, students prepare a project in small groups.

### TEACHING AND LEARNING METHODS - ASSESSMENT

<table>
<thead>
<tr>
<th>Teaching Method</th>
<th>Semester Workload</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures</td>
<td>39</td>
</tr>
<tr>
<td>Laboratory Sessions</td>
<td>4</td>
</tr>
<tr>
<td>Preparation of Laboratory Reports</td>
<td>13</td>
</tr>
<tr>
<td>Independent study</td>
<td>64</td>
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<tr>
<td><strong>Total number of hours for the Course</strong></td>
<td><strong>120</strong></td>
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</tbody>
</table>

**STUDENT ASSESSMENT**

1. Written examination (70%). The written examination includes theory, analysis and design aspects.
2. Laboratory Reports and project report/presentation (30%).

The assessment tools, as well as the overall organization of the course, are described in the Course Organization Pack which is available at the beginning of the semester and is continuously accessible on the course page on the eclass platform.
RECOMMENDED LITERATURE