**Cairo University**
**Faculty of Engineering**

**Aerospace Engineering Department**

# Course Specifications

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|---|---|
| **Program(s) on which this course is given:** | Aerospace Engineering Department |
| **Department offering the program:** | Aerospace Engineering Department |
| **Department offering the course:** | Aerospace Engineering Department |
| **Academic Level:** | Master |
| **Date** | April 2015 |
| **Semester (based on final exam timing)** | ■ Fall ☐ Spring |

## A- Basic Information

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|---|---|---|---|---|---|---|---|---|
| **1. Title:** | **Recognition, estimation and precise control** | | | **Code:** | | **AER750** | | |
| **2. Units/Credit hours per week:** | Lectures | 2 hrs | Tutorial | | Practical | | Total | 2 hrs |

## B- Professional Information

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| **1. Course description:** | The course aims to teaching students the followings: Guidance kinematics, Command guidance, Homing guidance, Three dimensional pure pursuit, Three dimensional constant bearing, Three dimensional proportional navigation. |
| **2. Intended Learning Outcomes of Course (ILOs):** | **a) Knowledge and Understanding** |
| | 1. Students will be able to understand the fundamental concepts of Guidance.<br>2. Students will be able to understand the Guidance kinematics. |
| | **b) Intellectual Skills** |
| | 1. Students will be able to understand the Command guidance and the Homing guidance. |
| | **c) Professional and Practical Skills** |
| | 1. Students will be able to understand the three dimensional pure pursuit. |
| | **d) General and Transferable Skills** |

**3. Contents**

| **Topic** | **Total hours** | **Lectures hours** | **Tutorial/ Practical hours** |
|---|---|---|---|
| Evaluation of precise control parameters | 4 | 4 | |
| self consistent control systems | 6 | 6 | |
| stability, robustness, convergence, random precise control | 4 | 4 | |
| coefficients tabulation | 4 | 4 | |
| alternatives of precise control | 6 | 6 | |
| | Lectures (√ ) | Practical Training/Laboratory ( √) | Seminar/Workshop ( ) |
| | Class Activity ( ) | Case Study () | Projects () |

| | | | |
|---|---|---|---|
| | E-learning ( ) | Assignments/Homework (√) | Other: |

**5. Student Assessment Methods**

| • **Assessment Schedule** | **Week** |
|---|---|
| Assignment 1 | Week 2 |
| Assignment 2 | Week 5 |
| Assignment 3 | Week 7 |
| Assignment 4 | Week 11 |
| • **Weighting of Assessments** | |
| Assignments | 25% |
| Attendance | 5% |
| Final-term Examination | 70% |

**6. List of References**

**6.1- Course Notes**

**6.2- Essential Books (Text Books)**

1. Guided Weapon Control Systems.
2. Missile Guidance And Control Systems

**6.3- Recommended Books**

1. Feedback Control Systems [John Van De Vegte].

**7. Facilities Required for Teaching and Learning**

. Data Show , Screen.

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| **Course Coordinator:** | **Prof. Sayed Desoky** |
| **Head of Department:** | **Prof. Ayman H. Kassem** |