



Course Specifications

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|---|---|
| Program(s) on which this course is given: | Electronics & Electrical Communications Engineering |
| Major or Minor element of programs: | Major |
| Department offering the program: | Electronics & Electrical Communications |
| Department offering the course: | Electronics & Electrical Communications |
| Academic year / Level: | Fourth year |
| Date of original/modified specification approval: | 2003/ |
| Semester of course offering: | First semester |

A- Basic Information

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|---------------------------------|---------------------|---|---------------|------------|----------------|---|------------|---|
| 1.a. Title: | Systems Engineering | | | 1.b. Code: | ELC 307A | | | |
| 2. Units/Credit hours per week: | 2.a. Lectures | 2 | 2.b. Tutorial | 2 | 2.c. Practical | - | 2.d. Total | 4 |

B- Professional Information

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|---|--|--|--|--|--|--|--|--|
| 1. Overall Aims of the Course: | The course aims at modeling of systems, analysis of the dynamic behavior and describing interactions between subsystems. | | | | | | | |
| 2. Intended Learning Outcomes of Course (ILOs): | a) Knowledge and Understanding | | | | | | | |
| | 1. Identify the fundamental aspects of continuous control systems. (1.1, 1.2) . | | | | | | | |
| | 2. Describe various physical systems by a mathematical model (1.1). | | | | | | | |
| | b) Intellectual Skills | | | | | | | |
| | 1. Analyze different techniques to achieve required system performance. (3.1). | | | | | | | |
| | c) Professional and Practical Skills | | | | | | | |
| | 1. Interact between existing systems and get familiar with them (2.1). | | | | | | | |
| | 2. Build control systems by block diagrams and signal flow graphs (2.4). | | | | | | | |
| | 3. Decompose systems (2.2). | | | | | | | |
| | 4. Use the information given in the course in designing systems and control of systems (2.1). | | | | | | | |
| | d) General and Transferable Skills | | | | | | | |
| | 1. Manage Tasks (4.4). | | | | | | | |

3. Contents

| Topic | Total hours | Lectures | Tutorial/ Practical |
|---|--------------------|------------------------------------|----------------------|
| Block diagram | 12 | 6 | 6 |
| Signal flow graph | 8 | 4 | 4 |
| State space | 12 | 6 | 6 |
| System properties Stability, Controllability and observability | 24 | 12 | 12 |
| 4. Teaching and Learning Methods | Lectures (Y) | Practical Training/ Laboratory (N) | Seminar/Workshop (N) |
| | Class Activity (Y) | Case Study (Y) | Projects (Y) |
| | E-learning (N) | Assignments /Homework (Y) | Other: |

5. Student Assessment Methods

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| 5.a. Method | To assess (with reference to the ILOs) |
| -Class quiz | a1, a2, b1, c1-c4. |
| -Mid-term exam | a1, a2, b1, c1-c4. |
| -Class assignments | a1, a2, b1, c1-c4, d1. |
| 5.b. Assessment Schedule | Week |
| -Assessment 1; Class Quiz | 10 |
| -Assessment 2; Mid-term exam | 8 |
| -Assessment 3; Class Assignments | 4,6 |
| -Assessment 4; Final Exam | 15 |
| 5.c. Weighting of Assessments | |
| -Mid-Term Examination | 20 % |
| -Final-term Examination | 70 % |
| -Class assignment and quiz | 10 % |
| -Total | 100 % |
| 6. List of References | |
| 6.a. Course Notes | |
| 6.b. Essential Books (Text Books) | |
| <ul style="list-style-type: none"> • K.,Ogata, "Modern Control Engineering". | |
| 6.c. Recommended Books. | |
| N/A | |
| 6.d. Periodicals, Web Sites, ... etc | |
| 7. Facilities Required for Teaching and Learning | |
| N/A | |
| Course Coordinator: | Dr Hanan Ahmed Kamal |
| Head of Department: | Prof. Mahmud El Hadidi |
| Date: | June, 2011 |