University: Cairo Faculty: Engineering Department: Aerospace Engineering

Course Specifications

Program: Aerospace Engineering
Major Field: Aircraft Control and Stability
Department: Aerospace Engineering Department
Academic Year/Level: Second Year Undergraduate.
Term: Second Term
Year of Approval: 2015

A- Basic Information

Title: System Dynamics
Code: AER207
Credit Hours: 3
Weekly Hours: Lectures 4, Tutorials 2, Total 6
Prerequisite to: AER307a, AER 307b

B-Professional Information

1-Overall Aims of Course

Introduce the student to the basic mathematical models for mechanical, electrical systems, controller design, and mechanical vibration systems.

2-Intended Learning Outcomes

A-Knowledge and Understanding

Upon completion of this course the student should be able to:

- Understand the basic modeling concepts
- Design problems
- Implement basic controllers

B-Intellectual Skills

Upon completion of this course the student should be able to:

- Analyze different control models
- Solve problems

C-Professional and Practical Skills

Upon completion of this course the student should be able to

- Have the ability to identify the problem parameters
- Implement engineering designs

3-Course Contents

Topic	Number	Lecture	Tutorial

	of hours	Hour	Hour
Modeling	28	18	10
Transient Response	10	6	4
Feedback system	20	14	6
Simulation	8	4	4
Mechanical Vibration	14	8	6
Total	82	52	30

4-Teaching and Learning Methods

- Class activities
- Lecture
- Discussions

5-Student Assessment Methods

- Reports to assess problem solving
- Class test to assess understanding
- Mid-term exam to assess gains of completed topics
- Final exam to assess overall material comprehension

Assessment Schedule

Assessment 1	Week: 4,8,10
Assessment 2	Week: 5,11
Assessment 3	Week 9
Assessment 4	At the end of the term

Weighting of Assessments

Mid-Term exam	30%
Final exam	70%

6-List of References

Essential Textbooks

Jon Van Devegte, “Feedback Control Systems”

6-3 Recommended Books

I.J. Nagrath, M.. Gopal, “Control Systems Engineering”

7-Facilities Required for Teaching and Learning

- Data show
- College library

Course Coordinator: Prof. Dr. Mohamed Bayoumi
Head of Department: Prof. Dr. Ayman H. Kassem