Cairo University
Faculty of Engineering

Aerospace Engineering Department

Course Specifications

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:	PhD
Date	April 2015
Semester (based on final exam timing)	■ Fall ☐ Spring

A- Basic Information

1. Title:	**Optimization of Aerospace Systems**			**Code:**		**AER762**		
2. Units/Credit hours per week:	Lectures	2 hrs	Tutorial		Practical		Total	2 hrs

B- Professional Information

1. Course description:	The course aims at teaching students the followings:
2. Intended Learning Outcomes of Course (ILOs):	**a) Knowledge and Understanding**
	1. Students will be able to understand the fundamental concepts of Solving convex optimization problems for aerospace systems
	b) Intellectual Skills
	2. Students will be able to understand Applications of optimization principles to the control and performance of aerospace vehicles
	c) Professional and Practical Skills
	3. Students will be able to understand the optimal flight paths, trajectories, and feedback control
	d) General and Transferable Skills

3. Contents

Topic	**Total hours**	**Lectures hours**	**Tutorial/ Practical hours**
Solving convex optimization problems for aerospace systems	6	6	
Applications of optimization principles to the control and performance of aerospace vehicles	8	8	
optimal flight paths, trajectories, and feedback control	8	8	

	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 4
Assignment 3	Week 10
• **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. Foundations of Generic Optimization, Vol 2, Springer (2008),
2. optimal_state_estimation

6.3- Recommended Books

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

7. Facilities Required for Teaching and Learning

. Data Show , Screen.

Course Coordinator:	**Prof. Gamal M. El-Bayumey**
Head of Department:	**Prof. Ayman H. Kassem**