Course Specifications

Program(s) on which this course is given:	M.Sc.
Department offering the program:	Aerospace engineering
Department offering the course:	Aerospace engineering
Academic Level:	Post graduate
Date	March 2015
Semester (based on final exam timing)	☐ Fall ☐ Spring✓

A- Basic Information

1. Title:	Jet Engines			**Code:**	AER 675			
2. Units/Credit hours per week:	Lectures	3	Tutorial	---	Practical	---	Total	3

B- Professional Information

1. Course description:	This course introduces advanced techniques that deal with jet engines performance related problems.
2. Intended Learning Outcomes of Course (ILOs):	**a) Knowledge and Understanding**
	Predict off design performance of multi spool jet engines
	Apply linearized techniques to investigate multi fault engine conditions
	Apply linearized techniques to predict jet engine transients
	b) Intellectual Skills
	Hypothesizing and synthesizing the modeling process at steady state and transient
	Analyze results
	c) Professional and Practical Skills
	Apply existing scientific research techniques
	d) General and Transferable Skills
	Select and/or Construct suitable mathematical models
	Devise a solution methodology

3. Contents

Topic	Total hours	Lectures hours	Tutorial/ Practical hours
Two spool gas generator off design performance	6	6	-
Error technique for multi spool turbofan engines	6	6	-
Linearized off design analysis techniques	6	6	-
Engine sizing	6	6	-
Gas path analysis technique	6	6	-
Surge prediction	6	6	-
Transient modeling	6	6	-

4. Teaching and Learning Methods	Lectures (✓)	Practical Training/ Laboratory ()	Seminar/Workshop ()
	Class Activity ()	Case Study ()	Projects (✓)
	E-learning (✓)	Assignments /Homework ()	Other:

5. Student Assessment Methods	
• **Assessment Schedule**	**Week**
-Assessment 1; Project Assignment	6
-Assessment 2; Project Assignment	10
-Assessment 4; Final Exam	15
• **Weighting of Assessments**	
-Mid-Term Examination	
-Final-term Examination	70%
-Project	30%
-Class Test	
-Presentation	
-Total	100

6. List of References

Many papers, research reports/postgraduate theses as related to various topics (to be made available to students)

Aircraft Engine Design, J.D.Mattingly, W.H.Hieser, D.H.Daley, AIAA education series, 2002

7. Facilities Required for Teaching and Learning

Data show-laptop-internet

Course Coordinator:	Prof. A.A.Hashem
Head of Department:	Prof. A.H.Kasem