Course Specifications

Program(s) on which this course is given:	Aircraft Structures
Department offering the program:	Aerospace Engineering
Department offering the course:	Aerospace Engineering
Academic Level:	M.Sc.
Date	2015
Semester (based on final exam timing)	☐ Fall ☐ Spring

A- Basic Information

1. Title:	Analysis And Design Of Composite Materials			**Code:**	AER633			
2. Units/Credit hours per week:	Lectures	2	Tutorial	1	Practical		Total	3

B- Professional Information

1. Coursedescription:	
2. Intended Learning Outcomes of Course (ILOs):	**a) Knowledge and Understanding**
	Realize the advantages and disadvantages of composite materials
	b) Intellectual Skills
	Determine the characteristics of composite materials
	Analyze simple composite structures
	c) Professional and Practical Skills
	Design aircraft structures using composite materials
	d) General and Transferable Skills
	Solve problems

3. Contents

Topic	Total hours	Lectures hours	Tutorial/ Practical hours
Types of composite materials	2		
Advantages and disadvantages of composite materials	2		
Characteristics of fibers and matrices	2		
Derivation of the characteristics of composite lamina	6		
Kinematical equations of a composite lamina	2		
Kinematical equations of a composite laminate	4		
Computing behavior of a composite laminate	4		
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;Attendance			
-Assessment 2;Home work			
-Assessment 3; Final Exam		15	
• **Weighting of Assessments**			
-Final-term Examination		70%	
- Home work Assignment		20%	
- Attendance		10%	
-Total		100%	
6. List of References			
1-Ashton – Halpin - Petit, “A primer on composite materials Analysis ”			
2-Jones, “Mechanics of Composite Materials”			
3-Barbero, “ Introduction to Composite Materials Design ”			
4-Colcote, “The Analysis Of Laminated Composite Structures”			
5-Hoskin, “Composite Materials For Aircraft Structures ”			
6-Reddy, “Mechanics Of Laminated Composite Plates And Shells”			
7. Facilities Required for Teaching and Learning			
Course Coordinator:	**Prof. Hani M.Negm**		
Head of Department:	**Prof. Hani M.Negm**		