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	
Semester (based on final exam timing)	☐ Fall ■ Spring

A- Basic Information

1. Title:	Aero-elasticity			**Code:**		**AER 643**		
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**
	Understand hazards of aeroelastic phenomena.
	b) Intellectual Skills
	Analyze an important static and dynamic aeroelastic phenomena.
	c) Professional and Practical Skills
	Design aircraft structures to avoid dangerous aeroelasticphneomena.
	d) General and Transferable Skills

3. Contents

Topic	Total hours	Lectures hours	Tutorial/ Practical hours
Definition of important aero elastic phenomen.	2		
Statical analysis of slender wings	6		
Steady aerodynamics of unswept wings	4		
Lift redistribution in dive manner	2		
Wing divergence	2		
Lift redistribution in rolling manner	2		
Reduction of aileron effectiveness	2		
Dynamical analysis of slender wings	6		
Unsteady aerodynamics of slender wings	2		

Wing flutter	2		
Paul flutter	2		
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 1Attendence	
-Assessment 2; Homework	
-Assessment 3; Final Exam	
• **Weighting of Assessments**	
-Attendance	10%
-Final-term Examination	70%
-Homework	20%

6. List of References
Bisplinghoff –Ashley- Halfman “Aeroelasticity”
Bisplinghoff –Ashley- Hoffman “Principles of Aeroelasticity”
Seanlan- Rosanbaum “Aircraft vibration and Flutter”
Fung, “An Introduction to the theory of Aeroelasticity”
Dowell, “A Modern Course in Aeroelasticity “
Negm, “Course notes”
7. Facilities Required for Teaching and Learning
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Course Coordinator:	**Prof. Hani M.Negm**
Head of Department:	**Prof. Hani M.Negm**