Cairo University
Faculty of Engineering

Department of Aerospace Engineering

Annual Course Report

Program(s) on which this course is given	M. Sc. – Flight Mechanics and Control Specialization
Department offering the program	Aerospace Engineering
Department offering the course	Aerospace Engineering
Academic Level	Graduate- M. Sc.
Date	
Semester(based on final exam timing)	☐ Fall ☐ Spring

A - Basic Information

1. Title:	**Systems and Measuring Instruments in Flying Vehicles**		**Code:**			AER **691**			
2. Units/Credit hours:	Lectures	2	Tutorial	1	Practical	--	Total	3	
3. Names of lecturers /TAs contributing to the delivery of the course:	**Prof. Mohamed Bahey Argoun**								
4. Course coordinator:	**Prof. Mohamed Bahey Argoun**		**External evaluator:**						

B- Professional Information

1. Course Teaching:

• **Topics actually taught**	**No. of hours**	**Lecture**	**Tutorial/ Practical**	**Lecturer**
1- Forces and disturbances affecting space and atmospheric flight;Magnetic field, Solar wind, Aerodynamic forces, Gravity force.	6	4	2	
2-Space vehicle attitude sensing and measurement-Development of satellite attitude dynamic model.	9	6	3	
3-Design and Operation of Attitude Sensors: Sun Sensors, Earth and Horizon Sensors, Solar Sensors.	9	6	3	
4- Measurement and actuation using magnetic field, magnetometers and magnetic torque rods. Laws governing magnetic torque.	6	4	2	
5-Sensors measuring velocity and angular velocity-AVM devices.	3	2	1	
6- Spacecraft Actuation and Control Devices, Reaction wheels, magnetorquers and thrusters. , Selection and Sizing of Reaction wheels	9	6	3	
7-Other sensors, pressure, temperature, GPS.	3	2	1	
• **Topics taught as a percentage of the content specified:**	√>90%	☐70-90%	☐<70%	
• **Reasons in detail for not teaching any topic:**				

• **If any topics were taught which are not specified, give reasons in detail:**			
2.Teaching and Learning Methods:	Lectures (√)	Practical Training/ Laboratory()	Seminar/Workshop ()
	Class Activity ()	Case Study ()	Projects ()
	E-learning ()	Assignments /Homework (√)	Other: _____
If teaching and learning methods were used other than those specified, list and give reasons:			
3. Student Assessment:			
• **Method of Assessment**	**Percentage of total**		
- Written examination	60%		
-Midterm examination (written)	15%		
- Practical/laboratory work	15 %		
-Class Test (s)	10%		
-Total	100%		
• **Members of Examination Committee:**	**Prof. Mohamed Bahey Argoun**		
• **Role of external evaluator:**	Review program ILOs		
4. Facilities and Teaching Materials:	☐ Totally adequate √ Adequate to some extent ☐ Inadequate		
List any inadequacies:			

5. Exams/ILOs Matrix

- **ILOs/Evaluation Source Matrix**

	Source of Evaluation									
ILOs	**Assignments**	**Quizzes**	**Experiments**	**Lab Exam**	**Midterm Exam**	**Projects**	**Term Papers/Reports**	**Final Exam**	**Others 1**	**Others 2**
A1Knowledge and Understanding of the forces and disturbances affecting satellite and aircraft motion. Knowledge of the physical laws underlying these forces.	*				*			*		
B1Ability to design the sensors based on the physical principles studied in the course.	*				*			*		
C1Principles and methodologies for Design, building and testing of instrumentation	*				*			*		
D1Matlab (mathematical programming tool) - Simulations- SplidWorks software	*				*			*		

- **Midterm Exam**

Question	ILOs									
	1	2	3	4	5	6	7	8	9	10
1. (problem 1)		*	*		*					
2. (problem 2)	*	*		*	*					

- **Final Exam**

Question	ILOs									
	1	2	3	4	5	6	7	8	9	10
1. (problem 1)		*	*		*					
2. (problem 2)	*	*		*	*					
3. (problem 3)				*	*					
4. (problem 4)			*	*						

6. Administrative Constraints:
List any difficulties encountered:

C-Course Assessment

1- Statistical Information

a. No. of students attending the course:						
b. No. of students completing the course:						
c. Results:	3.a. Passed			3.b. Failed		
d. Grading of successful students:	4.a. Excellent			4.b. Very Good		
	4.c. Good			4.d. Pass		
Response of Course Team (if needed)						

2. Student Evaluation of the Course:	
a- ILO's Exit survey report as attached	
List any criticisms	**Response of Course Team**
1. The feedback from the students is…... 2. The survey conducted by the faculty quality assurance unit scored …%. 3. The results of the survey offered by the department: ILO's (…./5) Comment: …….	1. …… 2. …… 3. ……

3. Comments from external evaluator(s):	**Response ofCourse Team**

4. Course Enhancement:		
Progress on actions identified in the previous year's action plan:		
Action	**State whether or not completed and give reasons for any non-completion**	
5. Action Plan for Academic Year		
Actions Required	**Completion Date**	**Person Responsible**
▪ **Increasing number of the teaching assistants** ▪ **Decreasing number of students in tutorial and lab sessions** ▪ **Dividing students in more groups to decrease number of students per lectures** ▪ **Increasing number of experiment setups in the Lab.** ▪ **Upgrading the laboratory by introducing new experiments**		
Course Coordinator:	**Prof. Mohamed Bahey Argoun**	
Signature:	**Prof. Mohamed Bahey Argoun**	