



Annual Course Report

Program on which this course is given:	Diploma of Applications of Automatic Control of Mech. Power Systems
Department offering the program:	Mechanical Power Engineering Department - ACC control Lab
Department offering the course:	Mechanical Power Engineering Department - ACC control Lab
Academic Level:	Mandatory Course- 1 st Term of the Diploma of Graduate Studies
Date	1 st Term 2014/2015
Semester (based on final exam timing)	<input checked="" type="checkbox"/> Fall <input type="checkbox"/> Spring

A - Basic Information

1. Title:	Instrumentations for Measurements, Tests & Control in Mechanical Power Systems						Code:	MEP 560		
2. Units/Credit hrs per week:	Lectures	3 Credit hours per week	Tutorial	--	Practical	--	Total	3		
3. Names of lecturers contributing to the delivery of the course: • Associate Professor Dr. Mohsen S. Soliman										
4. Course coordinator:		Associate Professor Dr. Mohsen S. Soliman				External evaluator:		NA at this time		

B- Statistical Information (for 2014/2015)

See the Next Tables for all Grades and statistics for the last term and the one before it

جامعة القاهرة - كلية الهندسة
قسم هندسة القوى الميكانيكية
نتيجة الفصل الدراسي الأول للعام الأكاديمي 2014/2015
دبلوم تطبيقات التحكم الأوتوماتيكي في نظم القوى - طلاب تم تسجيلهم حسب اللائحة الجديدة 2015

رقم الطالب	مق (560) أجهزة القياس والاختبارات والتحكم في نظم القوى الميكانيكية	(مق 561) التحكم الأتوماتيكي - النظرية والتطبيق في نظم القوى الميكانيكية	(مق 562) استخدام الدوائر الهيدروليكية في نظم التحكم الأتوماتيكي	(مق 571) تطبيقات المعامل الافتراضية في التحكم في أنظمة تكيف الهواء المركزية	(مق 590) انتقال الحرارة والكتلة	عدد الفصول الدراسية المكتسبة	إجمالي الساعات	مجموع النقاط الكلية	المعدل التراكمي	التقدير	الحالة
1	-A	A	A		+B	1	12	45	3.8	-A	مستمر
2	-B	B	+B		C	1	12	33	2.8	-B	مستمر
3	A	A	+A	+C		1	12	43	3.6	+B	مستمر
4	B	+B	-A	B		1	12	39	3.3	+B	مستمر
5	B	B	B		-B	1	12	35	2.9	-B	مستمر
6	+C	+B	-A		F	1	9	28	2.3	+C	مستمر
7	+B	-A	-A		+C	1	12	39	3.3	+B	مستمر
8	+B	+B		-B		1	9	28	3.1	B	مستمر
9	A	A	A			1	9	36	4	+A	مستمر
10	-A	-A	-A		F	1	9	33	2.8	-B	مستمر
11	-A	B	B		-B	1	12	37	3.1	B	مستمر
12	-A	-A	A	C		1	12	40	3.4	+B	مستمر
13	+B	+B	A	+C		1	12	39	3.2	B	مستمر
14	C	-B	C			1	9	20	2.2	C	مستمر
15	A	+B	A		D	1	9	37	3.1	B	مستمر
16	+C	-A	+B	B		1	12	37	3.1	B	مستمر
17	+C	-A	+A		-B	1	12	38	3.2	B	مستمر
18	A	A	+A	+B		1	12	46	3.8	-A	مستمر
19	-A	A	+B		B	1	12	42	3.5	+B	مستمر
20		-B	-A	+C		1	9	26	2.9	-B	مستمر
21	-A	A	+B	B		1	12	42	3.5	+B	مستمر



جامعة القاهرة كلية الهندسة - قسم هندسة القوى الميكانيكية

نتيجة الفصل الدراسي الأول للعام الأكاديمي 2014/2015

دبلوم تطبيقات التحكم الأوتوماتيكي في نظم القوى - طلاب تم تسجيلهم حسب اللائحة القديمة

الحالة	التقدير	المعدل التراكمي	مجموع النقاط الكلية	إجمالي الساعات المكتسبة	عدد الفصول الدراسية	مق 571 تطبيقات المعامل الافتراضية في التحكم في أنظمة تكييف الهواء المركزية	مق 567 تطبيقات متقدمة لتكنولوجيا PLC في نظم التحكم الأتوماتيكي	مق 599 المشروع	مق 562 استخدام الدوائر الهيدروليكية في نظم التحكم الأتوماتيكي	مق 561 التحكم الأتوماتيكي - النظرية والتطبيق في نظم القوى الميكانيكية	مق 560 أجهزة القياس والاختبارات والتحكم في نظم القوى الميكانيكية	رقم الطالب
خريج	B	3.1	92.7	30	3		+B	+B				1
خريج	-B	2.7	82.2	30	3		+B	-A				2
خريج	+B	3.6	107	30	3		-A	+B				3
خريج	+B	3.5	104	30	3		A	+B				4
خريج	+B	3.4	101	30	3		+B	A				5
خريج	+B	3.3	99.3	30	3		-A	A				6
خريج	B	3.2	96.3	30	3		-A	A				7
خريج	B	3.1	92.7	30	2	+C	-A	-B	+B	-A	+B	8
خريج	+B	3.6	109	30	2	-B	-A	-A	-A	A	-A	9
مستمر	-A	3.9	81	21	2	+B	A		A	A	A	10

C- Professional Information

1. Course Teaching:

• Topics actually taught	No. of hrs	Lecture	Tutorial/ Practical	Lecturer
- Introduction to basic definitions of instrumentation and engineering measurement –Definitions of accuracy, error-propagation & performing uncertainty analysis of output data experimental measurements. - Concept and importance of calibration, types of calibration methods, static and dynamic responses. – Mathematical methods of statistical analysis of data and graphical presentation of experimental results –Typical examples & Practical applications of measurement transducers, devices, electrical instruments, and signal conditioning devices. –Using of Personal Computers in data accusation, processing & analysis during and after experimental measurements. -Methods, transducers and devices used for measurement of pressure, temperature, flow rate, fluid velocity, force. - Control of Pressure, temperature, and flow rate.	36 hrs	3 hrs/ week for 12 weeks before the final term exam	---	Associate Professor Dr. Mohsen S. Soliman

• Topics taught as a percentage of the content specified: >90% 70-90% <70%

• Reasons in detail for not teaching any topic:

- Reducing the number of weeks/ Semester for many social and political reasons

- Many mandatory vacations as per requirements of the university management. The term is only 12 weeks.

• If any topics were taught which are not specified, give reasons in detail:

Non

2. Teaching and Learning Methods:

Lectures	Practical/ Training	Seminar/ Workshop	Class Activity	Case Study	Projects	Laboratory	E-learning	Assignments /Homework	Other: Submitting reports
(√)	()	()	(√)	(√)	()	()	(√)	(√)	

If teaching and learning methods were used other than those specified, list and give reasons: Non



3. Student Assessment:	
• Method of Assessment	Percentage of total
-All in-term works, sheets, and Reports	30%
-Final-term formal, written Examination	70%
-Total	100%
• Members of Examination Committee:	Associate Professor Dr. Mohsen S. Soliman & Assistance Professor Dr. Amro Abdel-Raouf
• Role of external evaluator:	Review program ILOs
4. Facilities and Teaching Materials:	<input type="checkbox"/> Totally adequate <input checked="" type="checkbox"/> Adequate to some extent <input type="checkbox"/> Inadequate
List any inadequacies:	
Classes are not totally suits the Multi-Media Facilities Classroom has no white screen for the data show and it needs more ventilation fans.	

5. Exams/ILOs Matrix

• ILOs/Evaluation Source Matrix

ILOs	Source of Evaluation									
	Assignments	Quizzes	Experiments	Lab Exam	Midterm Exam	Projects	Term Papers/Reports	Final Exam	Others 1	Others 2
<ul style="list-style-type: none"> ❖ Knowledge and Understanding ❖ Intellectual Skills ❖ Professional and Practical Skills ❖ General and Transferable Skills 										
a) Knowledge and Understanding: a1- Basics of Instrumentation and measurement definitions such as: transducer, uncertainty, accuracy, random or biased errors, various types of hysteresis, impedance matching, ...etc. a2- Functions & importance of measurements as feed-back processes in closed-loop automatic control systems. a3- Concepts & important methods of instrument calibration, static response and dynamic response of a measurement system. a4- Uncertainty analysis and statistical calculations of experimental measurement outputs, and graphical presentation of final results. a5- Types of practical measurement transducers & sensors, various signal conditioning devices, data acquisition hardware and software systems, and data output processing and displaying tools. a6- Basic equations used for investigation of experimental error propagation and data uncertainty analysis. a7- Structure, function, and theory of different types of transducers and sensors used for measurement of electric signals, pressure, temperature, flow rate, flow velocity, force,etc.	√	√	-	-	-	-	√	√	-	-



<p>b) Intellectual Skills: b1- Select & apply appropriate mathematical, and technical methods to model and analyze measurement problems relevant to automatic control. b2- Verify accuracy and validity of calibration of different types of transducers and measurement devices. b3-Search for scientific and technical information and adopt control self-learning capabilities. b4- Analyze and compare performance and time response of different types of transducers and measurement devices. b5- Compare between practical measurement devices, transducers & several methods for signal conditioning, data acquisition, & different output displaying and processing systems. b6-Solve numerical examples on uncertainty analysis&error propagation in measurement systems. b7- Study, and compare between different methods for measurement of pressure, temperature, flow rate, flow velocity, and force ...etc.</p>	√	√	-	-	-	-		√	-	-
<p>c) Professional and Practical Skills: c1- Identify types of measurement problems essential for operation & control of mech. power systems & energy transfer processes. c2- Perform professional design for different measurement and data acquisition/processing systems. c3- Use, apply & calibrate different types of measurement & data acquisition/processing systems. c4- Diagnose accuracy, uncertainty, & error propagation problems of measurement and signal conditioning devices. c5-Assess the performance & compare technical specifications of many types of measurement, data acquisition & processing systems. c6- Suggest possible alternatives for various types of transducers and measurement devices.</p>	√	√	-	-	-	-	√	√	-	-
<p>d) General and Transferable Skills: d1- Perform eng. calculations, draw feed-back control circuits, block diagrams, graphical presentation of experimental data & perform data-regression analysis. d2- Transfer knowledge, Work in group, & Communicate in written & oral forms, in English. d3- Use IT and evolutionary technological tools& PC applications (Excel, Mat lab, Virtual labs, .etc). d4- Prepare &write reports, Manipulate & sort data, Think logically, and continuous self-E-learning. d5- Identify practical control problems, compare between different technologies for measurement systems. d6-Organise & manage time & resources effectively; for short-term and longer-term commitments.</p>	√	√	-	-	-	-	√	√	-	-

- Midterm Exam: No Midterm Exam for graduate studies programs

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



• Final Exam:

Different parts of the ILOs are evaluated adequately through-out various part of the 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)							√	√	√	√
5. (problem 5)								√	√	√

6. Administrative Constraints: Reducing the number of the weeks per semester

▪ List any difficulties encountered:

- Reducing the number of weeks/ Semester for many social and political reasons
- Many mandatory vacations as per requirements of the university management. The term is only 12 weeks.

7. Comments from external evaluator(s):	Response of Course Team
Not available in writing for instructors to respond to	None
8. Comments from Students:	Response of Course Team
Done but not available in writing for instructors to respond to	None
9. 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
Upgrading Teaching facilities Supply visual aids for the classrooms Maintenance of classrooms	Not completed due to administrative problems
10. Action Plan for Academic Year 2014 – 2015	

Actions Required	Completion Date	Person Responsible
Upgrading Teaching facilities Supply visual aids Maintenance of classrooms Incorporate more practical materials & measurement experimental labs in the course Make a Mat lab programs to illustrate the basic ideas of each topic with graphs	End of 2015	Administration and Members of The Examination Committee
Course Coordinator:	Associate Professor Dr. Mohsen S. Soliman	
Signature:		