



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 2016/2017
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 2016/2017):

نتيجة جامعة للترم الصيفي مع الفصل الدراسي الأول للعام الأكاديمي 2017/2016
قسم هندسة القوى الميكانيكية
دبلوم تطبيقات التحكم الأوتوماتيكي في نظم القوى

الحالة	التقدير	المعدل التراكمي	مجموع النقاط الكلية	إجمالي الساعات المكتسبة	عدد الفصول الدراسية	(مك) (590 نقل الحرارة والتفتة	(مك) (571 تطبيقات المعامل الأثرية في التحكم في أنظمة تكييف الهواء المركزية	(مك) (567 تطبيقات متقدمة لتكنولوجيا PLC في نظم التحكم الأوتوماتيكي	(مك) (566 تطبيقات متقدمة للبريد الإلكتروني في نظم التحكم الأوتوماتيكي	(مك) (562 استخدام الدوائر الهيدروليكية في نظم التحكم الأوتوماتيكي	(مك) (561 التحكم الأوتوماتيكي - النظرية والتطبيق في نظم القوى الميكانيكية	(مك) (560 أجهزة الجسيم والاختبارات والتحكم في نظم القوى الميكانيكية	(مك) (599 المشروع	اسم الطالب
خريج	+C	2.6	76.8	30	4								C	محمد إبراهيم بومى إبراهيم
مستمر	F	0	0	0	3									إبراهيم المرسي المرسي محمد
مستمر	+B	3.4	90.9	27	3	+B								أحمد شوقي سعيد عبد الشافي عزاله
خريج	+B	3.3	100	30	3								+B	شادي يوسف محمود قطب
مستمر	+C	2.5	45.9	15	3	C								عبد الرحمن عمرو عبدالمتمحم حامد
خريج	+B	3.4	102	30	3								+B	عمرو محمد محب عبدالحاميد السنياطي
خريج	+B	3.3	99.6	30	3								A	مصطفى فؤاد حسين الورداني
مستمر	+C	2.6	61.8	21	3		+C						F	علاء الدين عادل محمد اسماعيل
مستمر	+B	3.6	65.4	18	2									اسحق إبراهيم زكي واصف
مستمر	-B	2.8	51	18	2									بلال عبدالعظيم أبوالمحسن سنجاب
خريج	B	3.1	93.3	30	2		+C						-B	جوليد عبدي احمد
خريج	+B	3.5	106	30	2		+B						A	محمود نبيل عبد العزيز هوله
مستمر	+C	2.6	54	27	1		معادلة						F	دينيا محمد عبدالناصر عبدالفتاح محمد
مستمر	-B	2.9	35.1	9	1	-C								سمير أحمد محمد حسين
مستمر	B	3.2	29.1	9	1									سعد مجدى سعد حسن
مستمر	F	0	0	0	1	F								محمود محمد عبد الفتاح على
مستمر	-A	3.9	23.1	6	1									يوسف سالمان محمد عبدالله محمدخايل
مستمر	+C	2.4	21.3	6	1									محمد محمود عبد الرحمن محمود
مستمر	+C	2.5	15	6	1									حسام نبيل محمود محمد
مستمر	-A	3.9	23.1	6	1									محمد حسان محمود عبد الحليم
مستمر	F	0	0	0	1									محمود عبد العظيم هلال
مستمر	F	0	0	0	1	F								ناصر وحيد ناصر عامر
مستمر	-B	2.9	35.1	12	1	C								إبراهيم شكرى محمد علي المحلاوى

نتيجة جامعة للفصل الصيفي 2016 والفصل الدراسي الأول للعام الأكاديمي 2017/2016
قسم هندسة القوى الميكانيكية
تأهلي ماجستير هندسة القوى الميكانيكية

الحالة	التقدير	المعدل التراكمي	مجموع النقاط الكلية	إجمالي الساعات المكتسبة	عدد الفصول الدراسية	(مك) (590 نقل الحرارة والتفتة	(مك) (571 تطبيقات المعامل الأثرية في أنظمة تكييف الهواء المركزية	(مك) (567 تطبيقات متقدمة لتكنولوجيا PLC في نظم التحكم الأوتوماتيكي	(مك) (566 تطبيقات متقدمة للبريد الإلكتروني في نظم التحكم الأوتوماتيكي	(مك) (562 استخدام الدوائر الهيدروليكية في نظم التحكم الأوتوماتيكي	(مك) (561 التحكم الأوتوماتيكي - النظرية والتطبيق في نظم القوى الميكانيكية	(مك) (560 أجهزة الجسيم والتحكم في نظم القوى الميكانيكية	اسم الطالب	
مستمر	-B	2.9	35.1	12	1									ساجد جبر محمود
مستمر	+B	3.4	90.9	27	1									منار كاتلم جعفر احمد
مستمر	B	3	33.3	9	1									عمرو عبدالنبي سليمان الأبيض
مستمر	+B	3.6	42.2	12	1									شيماء خمدى إبراهيم محمد متولى
مستمر	-C	1.7	20.1	3	1	C								عمرو محمد كمال طهيرة
مستمر	+B	3.5	52	12	1									حسان أحمد ياسين
مستمر	C	2.1	12.9	9	1									جمال عبدالرحمن حسن سليم
مستمر	+B	3.2	29	9	1		+C							عبدالرحمن عبود عبدالعالم
مستمر	B	3.1	27.8	9	1		+C							إسلام تيسير مراد احمد
مستمر	+B	3.2	19.8	6	1									مصطفى محمد حسين على
مستمر	+B	3	26	6	1									عادل ربيع محمد عبد الصمد
مستمر	+B	3.2	32	6	1									احمد فتحي محمود سليم
مستمر	+B	3.2	19.2	6	1									سعد وادى وطنى
مستمر	+B	3.2	28.1	12	1									يوسف احمد محمد عبد الوهاب
مستمر	F	0	0	0	1	F								محمد محمد موسى الزويد



Cairo University
Faculty of Engineering

CUFE Two-Semester System

Information Technology Unit
(ITU)



Students' Survey Forms Summary and Results

Department **MEP**

Fall 2016-2017

Course Code And Title **MEP 560 & Instrumentations for Measurements, Tests**

Venue 19208

Number of sample students 26

Number of Comment 0

No. of students 19

Instructor-1 (I-1):	Prof Dr.	Dr. Mohsens. Soliman
Instructor-2 (I-2):	Prof Dr.	
Teaching Assistant 1 (TA-1):	Eng.	
Teaching Assistant 2 (TA-2):	Eng.	

[A] Instructors Evaluations

Instructors
A1 Explains concepts clearly and delivers information easily.
A2 Encourages discussion and holds a professional attitude.
A3 Is well prepared and focused on the subject.
A4 Is able to manage the class.
A5 Is punctual, starts, and ends on time.
A6 Is available for consultation outside the class.
A7 Is able to connect the course to the practical aspects of the field.

Dr. Mohsens. Soliman						
E	V	G	F	P	M	S
8	6	5	0	0	4.2	0.8
13	4	2	0	0	4.6	0.7
7	7	2	1	0	4.2	0.9
10	4	4	0	0	4.3	0.8
12	4	1	2	0	4.4	1.0
10	5	2	0	0	4.5	0.7
12	3	3	0	0	4.5	0.8

E	V	G	F	P	M	S
0	0	0	0	0	0.0	0.0
0	0	0	0	0	0.0	0.0
0	0	0	0	0	0.0	0.0
0	0	0	0	0	0.0	0.0
0	0	0	0	0	0.0	0.0
0	0	0	0	0	0.0	0.0
0	0	0	0	0	0.0	0.0

Average 4.4

Average 0.0

[B] TAs Evaluations

Teaching Assistants
B1 Is helpful and provides needed assistance.
B2 Speaks and writes clearly.
B3 Is punctual, and available for consultation outside the class.

E	V	G	F	P	M	S
0	0	0	0	0	0.0	0.0
0	0	0	0	0	0.0	0.0
0	0	0	0	0	0.0	0.0

E	V	G	F	P	M	S
0	0	0	0	0	0.0	0.0
0	0	0	0	0	0.0	0.0
0	0	0	0	0	0.0	0.0

Average 0.0

Average 0.0

[C] Course Evaluations

Course Material and Textbook
C1 Course material, textbook, handouts, ppts are clear and available.
C2 Tests and assignments are sufficient and related to the course.
C3 Effective teaching techniques are used.

E	V	G	F	P	M	S
10	6	2	0	0	4.4	0.7
10	7	1	0	0	4.5	0.6
8	4	4	2	0	4.0	1.1

Average 4.3

Average All

4.4

[D] Venue Evaluations

Venue, Logistics, and Support Services
D1 Classroom is well-equipped and clean.
D2 Seating and space are adequate.
D3 WC, cafeteria, and recreation area are clean.

Y	N
16	0
16	0
15	1

[E] ILOs Evaluation

	E	V	G	F	P	M	S
Define the importance of measurements in a closed-loop automatic control system	10	6	1	0	0	4.5	0.6
Introduce main basic measurement definitions as: transducers, uncertainty accuracy, random/biased error, hysteresis, impedance matching ...etc	9	7	0	1	0	4.4	0.8
Define the concepts and importance of Calibration, static response & dynamic response	9	6	2	1	0	4.3	0.9
Define uncertainty analysis & statistical calculations of experimental measurements and Show graphical data presentation methods	7	6	2	2	0	4.1	1.0
Study some practical measurement devices/transducers and several methods for signal conditioning, data acquisition, and for output processing systems	11	5	0	2	0	4.4	1.0
Solve some numerical examples on uncertainty analysis and on error propagation	7	8	1	2	0	4.1	1.0
Study and describe many methods for measurement of pressure temperature, flow rate, flow velocity, and force ...etc	10	6	2	0	0	4.4	0.7

Average All

4.3

NB: Shown numbers are Survey Counts or Response Frequencies. Note that some survey sheets maybe missing or corrupt.

[E=Excellent=5, V = Very Good=4, G = Good=3, F = Fair=2, P = Poor=1, M=Mean, S=Standard Deviation]

Administration Comments

Course Coordinator: Please take action plan for unsatisfactory items above

NB: An item is unsatisfactory if M < 3.0



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, temp., flow rate, fluid velocity, force.- Control of Pressure, temperature,& 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: Totally adequate Adequate to some extent 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 Paper/Report	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.										



<p>a2- Functions & importance of measurements as feed-back processes in closed-loop automatic control systems.</p> <p>a3- Concepts & important methods of instrument calibration, static response and dynamic response of a measurement system.</p> <p>a4- Uncertainty analysis and statistical calculations of experimental measurement outputs, and graphical presentation of final results.</p> <p>a5- Types of practical measurement transducers & sensors, various signal conditioning devices, data acquisition hardware and software systems, and data output processing and displaying tools.</p> <p>a6- Basic equations used for investigation of experimental error propagation and data uncertainty analysis.</p> <p>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>	√	√	-	-	-	-	√	√	-	-
<p>b) Intellectual Skills:</p> <p>b1- Select & apply appropriate mathematical, and technical methods to model and analyze measurement problems relevant to automatic control.</p> <p>b2- Verify accuracy and validity of calibration of different types of transducers and measurement devices.</p> <p>b3-Search for scientific and technical information and adopt control self-learning capabilities.</p> <p>b4- Analyze and compare performance and time response of different types of transducers and measurement devices.</p> <p>b5- Compare between practical measurement devices, transducers & several methods for signal conditioning, data acquisition, & different output displaying and processing systems.</p> <p>b6-Solve numerical examples on uncertainty analysis & error propagation in measurement systems.</p> <p>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:</p> <p>c1- Identify types of measurement problems essential for operation & control of mech. power systems & energy transfer processes.</p> <p>c2- Perform professional design for different measurement and data acquisition/processing systems.</p> <p>c3- Use, apply & calibrate different types of measurement & data acquisition/processing systems.</p> <p>c4- Diagnose accuracy, uncertainty, & error propagation problems of measurement and signal conditioning devices.</p> <p>c5-Assess the performance & compare technical specifications of many types of measurement, data acquisition & processing systems.</p> <p>c6- Suggest possible alternatives for various types of transducers and measurement devices.</p>	√	√	-	-	-	-	√	√	-	-
<p>d) General and Transferable Skills:</p> <p>d1- Perform eng. calculations, draw feed-back control circuits, block diagrams, graphical presentation of exp. data & perform data-regression analysis.</p> <p>d2- Transfer knowledge, Work in group, & Communicate in written & oral forms, in English.</p> <p>d3- Use IT and evolutionary technological tools & PC applications (Excel, Mat lab, Virtual labs, .etc).</p> <p>d4- Prepare & write reports, Manipulate & sort data, Think logically, and continuous self-E-learning.</p> <p>d5- Identify practical control problems, compare between different technologies for measurement systems.</p> <p>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 2017 – 2018	

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 2018	Administration and Members of The Examination Committee
Course Coordinator:	Associate Professor Dr. Mohsen S. Soliman	
Signature:		

Date: February 2017