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:	Elective Course-2nd Term of the Diploma of Graduate Studies
Date	Summer Term at end of 2015/2016
Semester (based on final exam timing)	☐ Fall ☐ Spring √ Summer

A - Basic Information

1.Title:	Advanced Applications of PLCs in Automatic Control Systems				Code:	MEP 567
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 Summer 2015/2016)

جامعة القاهرة   نتيجة الفصل الدراسى الصيفى 215/2016 ويتم ضمها مع نتيجة الفصل الدراسى الأول لعام ٢٠١٧/٢٠١٦   قسم
كلية الهندسة   دبلوم تطبيقات التحكم الأوتوماتيكى فى نظم القوى   هندسة القوى الميكانيكية

الحالة	التقدير	المعدل التراكمى	مجموع النقاط الكلية	إجمالى الساعات المكتسبة	عدد الفصول الدراسية	(مكر ٥٦٠) التحكم الحرارة والتكيف	(مكر ٥٦٧) مقدمة التكنولوجيا PLC فى نظم التحكم تطبيقات	(مكر ٥٦١) مقدمة للدوائر	الهيدروليكية فى نظم	(مكر ٥٦٢) إستخدام الدوائر الهيدروليكية	(مكر ٥٦٩) فى نظم التحكم	(مكر ٥٩٩) المشروع	اسم الطالب
			٣٥.١	١٢									أحمد محمد عبد الحى أحمد فوده
			٤٢.٩	١٢									آلاء الله أسامة عبد الرؤوف
			٤٣٨	١٢									ريهام حسن طه
خريج	-B	٢.٧	٧٩.٨	٣٠	٤						B		محمد إبراهيم بيومى إبراهيم
			٣٨	٦									محمد أحمد محمود أحمد صالح
			٣٧.٨	١٢									محمد مرسى عوض الله مرسى
			٤٨.٢	١٦									مصطفى هانى محمد فريد
مستمر	+B	٣.٤	٩٠.٩	٢٧	٣	+B	-A	+B					أحمد شوقى سعيد عبد الشافى غزاله
خريج	+B	٣.٣	١٠٠	٣٠	٣		-B	+B		+B			شادى يوسف محمود قطب
خريج	+B	٣.٤	١٠٢	٣٠	٣		-B	+B		+B			عمرو محمد محب عبدالحميد السنباطى
خريج	+B	٣.٣	٩٩.٦	٣٠	٣		B	+B		A			مصطفى فؤاد حسين الوردانى
مستمر	+B	٣.٦	٤٣.٢	١٢	٢			-A	-A				اسحق ابراهيم زكى واصف
مستمر	B	٣.١	٥٥.٢	١٨	٢		-A	+B					جوليد عبدى احمد
مستمر	-B	٢.٩	٦٠	١٨	٢		+B	-B			F		محمود نبيل عبد العزيز السيد هوله
مستمر	C	٢.١	١٨.٩	٦	١		+B	B			F		دينا محمد عبد الناصر عبد الفتاح محمد

-Statistical Information (for Summer 2014/2015)

جامعة القاهرة كلية الهندسة   دبلوم تطبيقات التحكم الأوتوماتيكى فى نظم القوى   قسم هندسة القوى الميكانيكية
نتيجة الفصل الدراسى الأول للعام الأكاديمى ٢٠١٦/٢٠١٥ (ملاحظة يتم ضم نتيجة إمتحان الترم الصيفى 2014/2015 مع نتيجة الترم الأول 2015/2016)

الحالة	التقدير	المعدل التراكمى	مجموع النقاط الكلية	إجمالى الساعات المكتسبة	عدد الفصول الدراسية	(مكر ٥٧٩) الصناعى	(مكر ٥٦٧) مقدمة التكنولوجيا PLC فى نظم التحكم تطبيقات	(مكر ٥٦١) فى نظم التحكم	الدوائر الهيدروليكية	(مكر ٥٦٢) إستخدام الدوائر الهيدروليكية	(مكر ٥١١) والتطبيقى - التحكم الإلكتروني فى نظم	(مكر ٥٦٩) أجهزة فى نظم التحكم	(مكر ٥١٠) والتحكم والإختبار فى نظم	(مكر ٥٩٩) المشروع	اسم الطالب
خريج	B	٣	٨٩.١	٣٠	٢	+B								-B	أمير ميخائيل على ميخائيل
خريج	+B	٣.٥	١١٥	٣٣	٣	-A	A							-B	ابراهيم فاضل جرجس ابراهيم
خريج	٣.١	٩٣.٩	٣٠	٣	+B								B	احمد السيد ابراهيم جاد
خريج	B	٣.١	٩٢.١	٣٠	٣	-B								B	احمد مدحت فؤاد عبد الشافى
خريج	B	٣.٢	٩٤.٨	٣٠	٢	B								B	خالد محمد محمد محمد عبود
مستمر	+B	٣.٥	٩٥.١	٢٧	٢	-B	+B	+A						-B	شريف حسن حافظ محمد حافظ
خريج	٢.٩	٩٤.٥	٣٠	٢	-B	-A							+C	عبد الرحمن محمد جمال عبد الرازق
خريج	+B	٣.٣	٩٧.٥	٣٠	٢		-A							B	عبدالفتاح عمر عثمان احمد
خريج	B	٣.٢	٩٥.٤	٣٠	٢	B								-B	عذير السيد صلاح الدين عبد الحميد احمد
خريج	B	٣	١٠٠	٣٠	٢	B	B							-B	محمد عادل سيد حسين
خريج	-B	٢.٧	٨٩.٤	٣٠	٣	+C	C							+C	محمد على عبد الرحمن سليمان
خريج	٢.٧	٩٦.٢	٣٠	٢	B								B	محمد نبيل عبد الغفور القهوجى
خريج	+B	٣.٣	٩٨.٧	٣٠	٢	+B	+B							+C	إبراهيم أحمد عيسى سعيد
مستمر	-B	٢.٩	٤٢.٨	١٢	٢	+B									ريهام حسن طه
مستمر	-B	٢.٧	٦٤.٨	٢٤	٢	+C	+C	B	+B	B					محمد إبراهيم بيومى إبراهيم

Previous Statistics: See the Next Tables for all Grades and statistics for the last summer term 2013/2014

جامعة القاهرة كلية الهندسة ـ قسم هندسة القوى الميكانيكية

نتيجة الفصل الدراسى الأول للعام الأكاديمى 2014/2015

دبلوم تطبيقات التحكم الأوتوماتيكى فى نظم القوى - **طلاب تم تسجيلهم حسب اللائحة القديمة**

الحالة	التقدير	المعدل التراكمى	مجموع النقاط	ايجمالى الساعات	عدد المقررات	مكق 571 تطبيقات الافتراضية فى التحكم فى أنظمةتكييف الهواءالمركزية	مكق 567 تطبيقات متقدمة لتكنولوجيا PLC فى نظم التحكم الأتوماتيكى	مكق 599 المشروع	مكق 562 استخدام الدوائرالهيدروليكية فى نظم التحكم الآتوماتيكى	مكق 561 التحكم الأتوماتيكى-النظرية والتطبيق فى نظم القوى الميكانيكية	مكق 560 أجهزة القياس والاختبارات والتحكم فى 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
Review of terminology of Hardware and Accessories of several types of industrial PLCs –Review of several types of discrete or analog Input/ output signals and associated I/O modules- Review of operation modes and technical differences between PLC systems and expansion parts/ devices- Selection of proper PLC expansion module for analog/digital system and special functions parts- Review of terminology of Software and Simulators for PLC automatic control systems- Getting proper reference &technical manual for selection, programming, configuration and for installation of PLC unit and accessories- Review of various parts of PLC languishes for LAD, FBD, STL programs & Block functions-Performing actual working and detailed steps to plan, design, install, build, configure, program, test, debug, trouble-shooting and finally to run a practical PLC project- Applications and Practical Examples for using PLC units in Automatic Control of Mech. Power Systems-Various Examples and Applications for the Ladder Diagrams, Function Charts, and Statement Lists--Applications on PC using PLC simulation and Computer Programs.	**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 ❖ Knowledge and Understanding ❖ Intellectual Skills ❖ Professional and Practical Skills ❖ General and Transferable Skills	Source of Evaluation									
	Assignments	Quizzes	Experiments	Lab Exam	Midterm Exam	Projects	Term Papers/Reports	Final Exam	Others 1	Others 2
a) Knowledge and Understanding: -Advanced hardware and software components of many practical and industrial PLC systems. -Advanced applications and detailed examples for all working steps showing how to design, build, configure, program, test, trouble-shooting and finally to run a PLC project. -Typical PLC design projects to show the LAD, FBD and STL programs and to give the students skills and knowledge to solve some practical and actual PLC examples and control projects.	√	√	-	-	-	-	√	√	-	-
b) Intellectual Skills: -Select and apply appropriate technical and optimum method in doing engineering design and analysis of automatic control problems. -Searching for scientific information and adopting automatic control self-E-learning capabilities. -Analyze and compare the component effects, performance, and efficiency of different types of advanced PLC automatic control systems. -Analyze and compare the component effects, performance, and efficiency of different types of advanced PLC automatic control systems. -Analyze and compare the component effects, performance, and efficiency of different types of advanced PLC automatic control systems. -Apply the concept of software simulation for analysis, diagnostics & operation of various types of advanced PLC automatic control systems. -Compare between various types of advanced PLC components, and complete systems. - Apply scientific and engineering analysis for advanced PLC circuits/systems.-Apply scientific and engineering analysis for proportional & Servo hydraulic circuits/systems.	√	√	-	-	-	-	√	√	-	-

c) Professional and Practical Skills: -Identify several types of automatic control problems using advanced PLC circuits/systems which are essential for the design and operation of mechanical power systems and energy transfer processes. -Perform professional design and modelling for automatic control problems using advanced PLC circuits/systems -Suggest possible alternative solutions for various types of components for automatic control problems using advanced PLC circuits/systems. -Diagnose efficiency and performance of different types of advanced PLC automatic control circuits/systems. - Analyze different types of automatic control problems using advanced PLC circuits/systems.	√	√	-	-	-	-	√	√	-	-
d) General and Transferable Skills: Having successfully completed this course, the student should have the ability to do: -Perform eng. assembly of different advanced PLC circuits & components in one control system. -Transfer knowledge, Work in group and Communicate in written and oral forms, in English. - Use IT& evolutionary technological tools& PC applications (Excel, Mat lab, Virtual labs, .etc). - Prepare&write reports, Manipulate&sort data, Think logically, and continuous self-E-learning. -Identify practical problems and compare between different technologies used for advanced PLC circuits for automatic control systems. -Organise & manage time & resources effectively; for short-term and longer-term commitments.	√	√	-	-	-	-	√	√	-	-

- **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 2016 – 2017	

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 2017	Administration and Members of The Examination Committee
Course Coordinator:	Associate Professor Dr. Mohsen S. Soliman	
Signature:		

Date: September 2016