College	Engineering and Technology		
Department	Electrical Engineering Department		
Program			
Course Title	**Electrical Measurements**	**Course Number:**	**12110312**
Year		**Semester:**	
Prerequisite(s)	**Electronics 2, Electrical Circuits 2**		
Instructor	Dr. Wael Salah		
Instructor's e-mail	***w.salah@ptuk.edu.ps***		
Office Hours	SUN,TUE,THU (9-10) MON,WED (10-11)		
Class Time	SUN/TUE/THU: 1-2	**Class Room:**	**H120**
Course description	This course aims to provide students with the principles of Measurement and error. Systems of units measurements. Standards of measurements. Electromechanical indicating instruments such as multi-meter design. Bridge measurements as ac and dc bridge. Study the construction and working of Oscilloscope. Signal generation. Transducers. Signal Analysis		
Course Intended Learning Outcomes (CILOs)	**A) Knowledge and understanding** 1- Demonstrate knowledge of the fundamental and constituent of electronics and their applications. 2- Apply engineering principles including design, analysis, and validation. **B) Intellectual/Cognitive skills** 1- Design an effective electronics circuit based on simulation, components, and sub-system. 2- Evaluate specifications, define and solve problems. 3- Work effectively as part of a team and learn independently. 4- Organize works and apply project management. **C) Subject specialization and practical skills** 1- Consider and assess a variety of methods and tools in the electronics world. 2- Know state-of-the-art-in this area. **D) General and transferable skills**		

	1- Resolving problems, issues, challenges, and be able to troubleshoot successfully.
Textbook(s)	**Modern Electronic Instrumentation and Measurement Techniques, A.D. Helfrick, W. D. Cooper, 2008.**
Other required material (References):	**1. Electronic Instrumentation H.S. Kalsi , 2nd edition , 2004.** **2. Electronic Instrumentation and Measurements, David A Bell, 2nd edition, 2003.** **3. Measurements and Instrumentation U. A. Bakshi, A. V. Bakshi, echnical Publications, 2009.**
Other Resources used (e.g. e-learning, field visits, periodicals, software, etc.)	

Academic Quality Assurance Department

Course Syllabus Form

Course Teaching Methods	
Teaching Method	**CILOs**
Interactive lectures	Knowledge and understanding
Discussion + Problem based learning	Intellectual/Cognitive skills
Tutorials + Simulations	Subject specialization and practical skills
Problem solving	General and transferable skills

Assessment Type	**Details/Explanation of assessment in relation to CILOs**	**Weight**	**Date(s)**
First Exam		**30**	5th – 7th Week
Second Exam		**30**	9th – 11th Week
Quizzes			
Assignments			
Project			
Laboratory/Practical			
Final Exam		**40**	16th Week
Total		**100%**	

Course Intended Learning Outcomes (CILOs)				
CILOs	**Mapping to Program ILOs**			
On successful completion of the course, students will be able to:	**a**	**b**	**c**	**d**
Design instrumentation systems	√			
Apply knowledge of statistical analysis to engineering	√	√	√	√
Introduce the student to electrical/mechanical systems	√	√	√	√
Apply knowledge of math to engineering	√	√	√	√
Study and apply control system using sensors and transducers	√	√	√	√

Course Weekly Breakdown					
Week	**Date**	**Topics Covered**	**CILOs**	**Lab**	**Assessment**
1,2,3		**Measurements and Error**	A		First Exam
4		**System of Units**	A,B,C,D		
5		**Standard of Measurements**	A,B,C,D		
6,7,8		**Electromechanical Indicating Instruments**	A,B,C,D		Second Exam
9,10		**Bridge Measurements**	A,B,C,D		
11,		**Oscilloscope**	A,B,C,D		Final Exam
12,13		**Signal generation**	A,B,C,D		
14,15, 16		**8- Transducers as input Elements to Instrumentation Systems**	A		

Prepared by:	**Dr. Wael Salah**	**Signature**	
Head of Department	**Dr. Bassam AL-Qadi**	**Signature**	
Date			