# Course Syllabus

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| **Course ID** | 0902310 |
| **Course Title** | Measurements And Instruments |
| **Prerequisite** | **0902303 (2) Electronics** |
| **Time & Date** | |
| **Coordinator** | - |
| **Instructor** | Dr.<br>Faculty of Engineering<br>E-mail:<br>Telephone: ext. |
| **Office hours** | |
| **Course Description** | Measurement and errors. Units and standards. Analog meters. Potentiometers. DC e AC bridge and instruments. Transformers. Electronics measuring instruments. Oscilloscope. 090090 Sensitivity of wheatstome bridge. Wien bridge. Capacitance measurement. FM |
| **Course Objectives** | 1. Study mechanical transducers ( strain gauge, LVDT, capacitive)<br>2. Study temperature transducers (Thermistors, Platinum probe, thermocouples).<br>3. Study photoelectric transducers<br>4. Construct analog meters using PMMC movement |
| **Course Outcomes** | |
| **Course Topics** | 1. Strain gauges<br>2. The linear variable differential transformer<br>3. The thermistor<br>4. The thermocouple<br>5. On/Off temperature control<br>6. Resistance thermometers<br>7. Closed loop temperature control<br>8. Capacitive transducers<br>9. Phototransducer<br>10. Analog voltmeter, ammeter, Ohmmeter using PMMC<br>Computer Usage CASSY lab |

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| **Course Text Book** | 1. J. P. Holman:" Experiential methods for engineers", Seventh edition, McGraw Hill Co., 2001. |
| **Course References** | 1. A. D. Helfrick and W. D. Cooper, "Modern electronic instrumentation and measurement techniques", Prentice-Hall, 1990. |
| **Course delivery** | Lectures<br>Tutorial<br>Lab<br>Homework<br>Project<br>Computer<br>Internet<br>Industrial Visit |
| **Course Assessment** | Assignments & short reports…….. 10%<br>2 exams @ 20% each ……. 40%<br>Final exam …….. 50% |
| **Updated** | **Dr. Takialddin AL-Smadi 10/2009** |

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## ABET a-k Engineering and Technology program outcome

(a) An ability to apply knowledge of mathematics, science, and engineering
(b) An ability to design and conduct experiments, to analyze and interpret data
(c) An ability to design a system, component, or process to meet desired needs
(d) An ability to function on multi-disciplinary teams
(e) An ability to identify, formulate, and solve engineering problems
(f) An understanding of professional and ethical responsibility
(g) An ability to communicate effectively
(h) The broad education necessary to understand the impact of engineering solutions in a global and societal context
(i) A recognition of the need for, and an ability to engage in life-long learning
(j) A knowledge of contemporary issues
(k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

**Plagiarism**

Deliberate plagiarism is a serious act of academic misconduct. Students may be suspended from the University if they are found to have plagiarized their course work. Whether inadvertent or deliberate, plagiarism includes the following:

(a) word-for-word copying of sentences or whole paragraphs or presenting of substantial extracts from either paper-based or electronic sources the work or data of others that are published or unpublished (such as books, internal reports, and lecture notes or tapes) without clearly indicating their origin;
(b) using very close paraphrasing of sentences or whole paragraphs without due acknowledgement in the form of reference to the original work;
(c) submitting another student's work in whole or in part;
(d) using of another person's ideas, work or research data without acknowledgement;
(e) copying computer files, algorithms or computer code without clearly indicating their origin;
(f) submitting work that has been written by someone else on the student's behalf; and
(g) submitting work that has been derived, in whole or in part, from another student's work by a process of mechanical transformation (e.g., changing variable names in computer programs).