



Sample Brief Course Description

Course title	Biomedical Instrumentations
Course code	BME 321
College	Engineering
Department / Program	Biomedical Engineering
Year/ Level	4/11th
Course Type	A. <input type="checkbox"/> University <input type="checkbox"/> College <input checked="" type="checkbox"/> Department <input type="checkbox"/> Others b. <input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective
Credited Hours	4
Contact Hours	(LT: 3, LB: 2, TR: 0)
Pre-requisites (if any)	BME 320
Co-requisites (if any)	---



<p>Course description</p>	<p>Topics include : Recording Systems(Basic recording system, General considerations for signal conditioners, preamplifiers, sources of noise in low level measurements, main amplifier and driver stage, bio potential amplifiers, writing systems, inject recorder, potentiometric recorder, digital recorder). Biomedical Recorders (ECG, VCG, PCG, EEG, EMG, Digital Sythoscope). Patient Monitoring Systems (Instruments cardiac monitor, Bedside patient monitoring system, central monitors, measurement of Heart RATE, measurement of pulse rate, measurement of respiration rate). Therapeutic Equipment and Patient Safety :Electro Surgical unit: Short wave and microwave diathermy – Laser surgical unit – Defibrillators – Pacemaker – Heart Lung machine – Dialyser – Anesthesia machine – Ventilators – Nerve stimulators – Total artificial heart (TAH) – Patient Safety. Electric Clinical Laboratory Instruments :Clinical Flame photometer – Spectrophotometer – Colorimeter – Chromatography–Blood Gas Analyzer – Blood pH Measurement– Measurement of Blood pCO₂– Blood pO₂ Measurement– Blood Cell Counters: Types and Methods of cell counting.</p>
<p>Course Main Objectives</p>	<p>impart knowledge on</p> <ol style="list-style-type: none"> 1. Concepts of physiological parameters measurement. 2. Various medical instruments for biomedical applications.
<p>Learning Outcomes</p>	<p>Knowledge and Skills:--</p> <ol style="list-style-type: none"> 1. Select the suitable acquisition method for analysing biomedical signal and vital parameters measurement. <p>Skills:---</p> <ol style="list-style-type: none"> 1. Apply the knowledge of biomedical instruments to practical applications. 2. Categorize the parameter monitoring techniques based on the application and relevance. 3. Design the various structure for patient safety 4. Develop systems for real time bio signal acquisition and processing. <p>Values:---</p> <ol style="list-style-type: none"> 1. Communicate effectively and write lab report.



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وكالة الجامعة للشؤون التعليمية
لجنة تطوير البرامج الأكاديمية

الإصدار الأول
محرم 1441 هـ