## Sample Brief Course Description

| | |
|---|---|
| **Course title** | Signals and Systems in Biomedical Engineering |
| **Course code** | BME 240 |
| **College** | Engineering |
| **Department / Program** | Biomedical Engineering |
| **Year/ Level** | 3/5 |
| **Course Type** | A. <br> ☐ University <br> ☐ College <br> ■ Department <br> ☐ Others <br> b. <br> ■ Required <br> ☐ Elective |
| **Credited Hours** | 3 |
| **Contact Hours** | (LT: 2, LB: 2, TR: 0) |
| **Pre-requisites (if any)** | ECE 212 |
| **Co-requisites (if any)** | --- |
| **Course description** | This course introduces concepts of signals and systems by studying the following main topics; Continuous-Time Signals. Signal analysis and application to ECG Signal. Continuous-Time Systems. Fourier Analysis for Continuous-Time Signals. Laplace Transform |
| **Course Main Objectives** | • Familiarize the students with the fundamental concepts of continuous and discrete signals and systems and their properties. <br> • Explain the notion of linear time-invariant systems and convolution. <br> • Explain the different transform-domain techniques and their applications. |

جامعة الأميرة نورة بنت عبدالرحمن
وكالة الجامعة للشؤون التعليمية
لجنة تطوير البرامج الأكاديمية

| | |
|---|---|
| | • Acquire skills to simulate and implement basic biomedical signal analysis. |
| **Learning Outcomes** | **Knowledge and Skills:--**<br>1. Understand the concept of a signal and a system, plot continuous-time signals, and evaluate the periodicity of a signal.<br>2. Identify properties of continuous-time systems such as linearity, time invariance, stability and causality.<br>3. Understand the concept of the impulse response function of a linear system, and its use to describe the input/output relationship. |
| | **Skills:---**<br>1. Compute the Fourier series representation of a periodic function.<br>2. Evaluate the Fourier transform of a continuous function, and be familiar with its basic properties.<br>3. Compute the Laplace transform of a continuous function, identify its domain of convergence, and be familiar with its basic properties.<br>4. Simulate biomedical signals to perform signal analysis techniques and write report. |
| | **Values:---**<br>1. Communicate effectively and write lab report. |