Sample Brief Course Description	
Course title	Introduction to Biomedical Optics
Course code	BME 452
College	Engineering
Department / Program	Biomedical Engineering
Year/ Level	5/13th
Course Type	A. ☐ University ☐ College ■ Department ☐ Others b. ☐ Required ■ Elective
Credited Hours	4
Contact Hours	(LT:4, LB:0,TR:0)
Pre-requisites (if any)	---
Co-requisites (if any)	---
Course description	As an introductory course in biomedical optics, this course recalls the concept of optical imaging and detection of optical image. The course provides different topics of applied optics in medicine and biology such as fluorescence microscopy, confocal microscopy, ophthalmic optical equipment (ophthalmoscopes, slit lamp, fundus camera, refractometers, and corneal topography) and introduction to optical coherence tomography. It also recalls the concept of total internal reflection and provide the details of medical endoscopy. This course

	also introduces laser physics, medical laser systems, introduction to laser-tissue interaction, clinical uses of laser and laser safety rules.
Course Main Objectives	Studying this course, the graduates will gain the required knowledge in the field of biomedical optics that enable her to: • Design diagnostic and therapeutic optical systems. • Assess, maintain, and take percussions when dealing with optical systems in the medical field. • Start graduate studies in the field of biomedical optics.
Learning Outcomes	**Knowledge and Understanding:** 1. Outline the recent trends and technology of medical optical systems.
	Skills: 1. Identify, formulate, and solve problems in optics to produce medical diagnostic optical systems. . 2. Design a diagnostic medical optical system that meets the desired needs of health, safety, and economy. . 3. Identify, formulate, and solve problems in laser physics to produce medical therapeutic laser systems. 4. Design a medical laser system that meets the desired needs of health, safety, and economy.
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