

澳門大學 UNIVERSIDADE DE MACAU UNIVERSITY OF MACAU

Major Programme:	Bachelor of Science in Electrical and	l Cor	nputer Engineering							
Course Trees	CM – Compulsory Major CPE – Community an	Education	\Box MI – Minor							
Course Type:	☐ RE – Required Elective □ L&S – Languages and	\Box FE – Free Elective	FE – Free Elective							
GE Area in 2017/2018 model (applicable to students admitted in academic year 2017/2018 onwards)										
□ Science and Techn	ology, FHS	□ Society and Behaviour, FSS								
□ Literature and Hun	nanities, FAH		Global Awareness, FSS							
Equivalent to 2011/2012 GE model (applicable to students admitted in academic year 2016/2017 or before)										
□ Area 1 – English L	anguage	$\Box A$	□ Area 8 – World Histories and Cultures							
□ Area 2 – Chinese/F	Foreign Language	$\Box A$	□ Area 9 – Macao, China and other Societies							
🗆 Area 3 – Communi	cation	$\Box A$	\Box Area 10 – Values, Ethics and Meaning of life							
□ Area 4 – Mathemat	tics/Quantitative Reasoning	Area 11 – Physical Education								
□ Area 5 – Informatio	on Technology and Knowledge Society	$\Box A$	□ Area 12 – Visual and Performing Arts							
□ Area 6 – Physical S	Science and the World	$\Box A$	□ Area 13 – University Life							
□ Area 7 – Life Science, Health and the Human Condition										
Course Title:	Introduction to Biomedical Engineering									
(in English, Chinese and Portuguese)	生物醫學工程導論									
	Introdução à Engenharia Biomédica		Credit Units:							
Course code	ECEN3003			3						
Duration:	Semester Course □ Yearly Course		Suggested Year of Study:	Year 3						
Grading System:	✓ Letter Grade □ P/NP	Pre-requisite: (if any)	None							
Medium of Instruction	n:		English							
	1. Carr, Brown, J. M., Brown, J. M.	, & 1	Brown, J. M. (John M. (2001)	. Introduction to						
Text Book and	biomedical equipment technology (4th ed.). Prentice Hall.									
Reference	2. Webster (Ed.). (2020). Medical instrumentation : application and design (Fifth edition.).									
	Wiley. This is an introductory course to the fundamentals of Biomedical Engineering from the view									
Course Description:	point of Electrical and Electronics Engineering for senior undergraduate students. It emphasizes									
	general concepts and techniques of biomedical engineering. Topics include overview of human									
	body, biomedical electrodes, sensors and transducers, biomedical signals and its measurement									
	techniques, biomedical electronics, electrical safety, and embedded system in biomedical equipment.									
	1. Introduction									
Course Content	2. Biomedical sensors and electrodes									
	3. Bioelectric amplifiers									
	4. Biosignal acquisition									

	5. Bic	medic	al sign	al analy	zsis									
	5. Biomedical signal analysis6. Electrical safety													
	7. Bioelectrcity													
	8. Biomedical Signals & Processing													
	9. Examples of biomedical signals													
	10. M	10. Medical Imaging												
		CILO 1: Ability to design and conduct experiments.												
	CILO 2: Ability to design a system, component or process to meet desired need								needs.					
	CILO 3: Ability to function on multidisciplinary teams. CILO 4: Understanding of professional and ethical responsibility. CILO 5: Knowledge of contemporary issues.													
Course Intended	CILO 6: Ability to apply knowledge of mathematics, science and engineering.													
Learning Outcomes		CILO 7: Ability to identify, formulate and solve engineering problems.												
(CILO):				comm				_						
						sary to	under	stand t	he imp	pact of	engine	ering	solution	ns in
				contex		1.0								
	CILO 10: Recognition of the need for and an ability to engage in life-long learning. CILO 11: Ability to use the techniques, skills and modern engineering tools necessary							C						
			•		the tech	iniques	, skills	and m	lodern	engine	ering to	ools ne	ecessar	y for
		eering			0	0	~	П	S		П	\sim		
Major Assessment Methods:	Case Study	Role Playing	Student Presentation	Individual project / paper	Group project / paper	Group discussions	Writing Assignment	Exercises & problems	Service learning	Internship	Field study	Company visits	Reading & Writing Assessments / tests	Listening & Oral Assessments / tests
Assignment(s) 30%					1									
Quiz 30%								1					1	
Final 40%													1	