澳門大學
UNIVERSIDADE DE MACAU
UNIVERSITY OF MACAU

Major Programme:	Bachelor of Science in Electrical and Computer Engineering		
Course Type:	□ CM – Compulsory Major □ CPE – Community and Peer Education □ GE – General Education □ MI – Minor ☑ RE – Required Elective □ L&S – Languages and Skills □ FE – Free Elective		

GE Area in 2017/2018 model (applicable to students admitted in academic year 2017/2018 onwards)

□ Science and Technology, FHS
□ Society and Behaviour, FSS
□ Literature and Humanities, FAH
□ Global Awareness, FSS

Equivalent to 2011/2012 GE model (applicable to students admitted in academic year 2016/2017 or before)

□ Area 1 – English Language
□ Area 2 – Chinese/Foreign Language
□ Area 3 – Communication
□ Area 4 – Mathematics/Quantitative Reasoning
□ Area 5 – Information Technology and Knowledge Society
□ Area 6 – Physical Science and the World
□ Area 7 – Life Science, Health and the Human Condition
□ Area 8 – World Histories and Cultures
□ Area 9 – Macao, China and other Societies
□ Area 10 – Values, Ethics and Meaning of life
□ Area 11 – Physical Education
□ Area 12 – Visual and Performing Arts
□ Area 13 – University Life

Course Title: (in English, Chinese and Portuguese)	Power Electronics 電力電子學 Electrónica de Potência		
Course code	ECEN3007	Credit Units:	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:		English	
Text Book and Reference	• "Power Electronics: Converters, Applications, and Design", Mohan / Undeland / Robbins , Wiley . • "Power Electronics: Circuits, Devices, and Applications " , M. H. Rashid , Prentice-Hall International • "Power Electronics---A First Course" Mohan, Wiley.		
Course Description:	The course includes operating characteristics of power semiconductor devices, such as Bipolar Junction Transistors, IGBTs, MOSFETs and Thyristors, and fundamentals of power converter circuits including dc/dc converters, ac/dc rectifiers, dc/ac inverters and ac/ac converters.		
Course Content	1. Introduction of Power Electronics and Its applications 2. Power Semiconductor Switches 3. Uncontrollable and Controllable Rectifiers 4. DC Choppers		
Course Intended	CILO 1: Ability to apply knowledge of mathematics, science and engineering.		

Learning Outcomes (CILO):	CILO 2: Ability to identify, formulate and solve engineering problems. CILO 3: Ability to use the techniques, skills and modern engineering tools necessary for engineering practice. CILO 4: Ability to design and conduct experiments. CILO 5: Ability to design a system, component or process to meet desired needs. CILO 6: Ability to function on multidisciplinary teams. CILO 7: Understanding of professional and ethical responsibility. CILO 8: Ability to communicate effectively.												
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%								✓						
Quiz 30%								✓					✓	
Final 40%													✓	