

Course unit title:	<i>Freshman Electrical Engineering</i>		
Course unit code:	AEEE170		
Type of course unit:	Compulsory		
Level of course unit:	Bachelor (1st Cycle)		
Year of study:	1		
Semester when the unit is delivered:	1 (Fall)		
Number of ECTS credits allocated :	5		
Name of lecturer(s):	Dr. Alexis Polycarpou		
Learning outcomes of the course unit:	<ol style="list-style-type: none"> 1. Distinguish the principal system components. Perform rectangular and polar conversions. 2. Identify and calculate critical path and duration of a project using PERT diagrams. 3. Make power consumption and energy dissipation calculations. Compute energy costs of electrical appliances. 4. Recognize simple resistor topologies. Analyzing series and parallel circuits. Use of voltage and current divider rule. Analyze resistor topologies circuits using Kirchhoff's Law. 5. Identify sinusoidal signals, frequency, amplitude, period, peak, average and RMS values. 6. Use different types of components to construct flow charts describing a function. 7. Recognise binary numbers and the various functions of logic gates. 8. Identify the general operation of various RES used. 		
Mode of delivery:	Face-to-face		
Prerequisites:	None	Co-requisites:	None
Recommended optional program components:	None		
Course contents:	<ul style="list-style-type: none"> ● Introduction, Major Specialization areas of EE, How various engineering trades interact in CY (Electrical, mechanical, civil, computer, etc.) ● System components: Generator, Load, Transmission line, Transformer, Fuses, Electricity generation in Cyprus. ● DC and AC waveforms, sinusoidal wave period, frequency Peak, average and RMS values , Basic electrical quantities and units, resistance, current, voltage, power energy efficiency, Ohms law, prefixes ● Resistors in parallel and series, voltage and current divider. ● Design and Modelling, Health and Safety, Engineering standards (ISO, IEC, ITU etc.). ● Binary numbers, logic gates OR, NOT, AND ● Renewable Energy Sources (solar wind biomass tidal wave. ● Vectors, real, imaginary, Rectangular and polar notation, Active power calculation for resistive circuits ● Problem solving procedure through flow charts ● Construction of the Design project circuit and Voltage and Current Measurement using instruments 		

	<ul style="list-style-type: none"> • Time plan of an engineering project, PERT, Critical path, Time management.
Recommended and/or required reading:	PPT presentations provided by the lecturer.
Textbooks:	Hambley AR, Electrical Engineering: Principles & Applications, Third Edition, Prentice-Hall, 2005
References:	Hughes E, Smith I M, Hiley J, Brown K, Electrical and Electronic Technology, 9th Edition, Prentice Hall, 2005
Planned learning activities and teaching methods:	<p>Students are taught the course through lectures (3 hours lecture and 1 hour laboratory, per week) in classrooms or lectures theatres, by means of traditional tools or using computer demonstration.</p> <p>Auditory exercises, where examples regarding matter represented at the lectures, are solved and further, questions related to particular open-ended topic issues are compiled by the students and answered, during the lecture or assigned as homework.</p> <p>Topic notes are compiled by students, during the lecture which serve to cover the main issues under consideration and can also be downloaded from the lecturer's webpage. Students are also advised to use the subject's textbook or reference books for further reading and practice in solving related exercises. Tutorial problems are also submitted as homework and these are solved during lectures or privately during lecturer's office hours. Further literature search is encouraged by assigning students to identify a specific problem related to some issue, gather relevant scientific information about how others have addressed the problem and report this information in written or orally.</p> <p>Students are assessed continuously and their knowledge is checked through tests with their assessment weight, date and time being set at the beginning of the semester via the course outline.</p> <p>Students are prepared for final exam, by revision on the matter taught, problem solving and concept testing and are also trained to be able to deal with time constraints and revision timetable.</p> <p>The final assessment of the students is formative and summative and is assured to comply with the subject's expected learning outcomes and the quality of the course.</p>
Assessment methods and criteria:	<ul style="list-style-type: none"> • Tests 25% • Laboratory 15% • Final Exam 60%
Language of instruction:	English
Work placement(s):	No