



Sample Brief Course Description	
Course title	Electric Machines
Course code	ECE 331
College	Engineering
Department / Program	Electrical Engineering/ Electronics +Communications +Renewable Engineering
Year/ Level	4/7
Course Type	A. <input type="checkbox"/> University <input type="checkbox"/> College <input checked="" type="checkbox"/> Department <input type="checkbox"/> Program <input type="checkbox"/> Others b. <input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective
Credited Hours	3 credit hours
Contact Hours	(LT:3, LB:0 ,TR:0)
Pre-requisites (if any)	ECE 211
Co-requisites (if any)	None
Course description	Conventional and renewable energy sources and their environmental consequences; overview of power systems structure-generation, transmission, and distribution- and its changing landscape; review of phasors and three-phase electric circuits; fundamental principles in magnetic theory; principle and



	structure of transformers; principles of electromechanical energy conversion; theory and operation of induction machines; synchronous generators and motors; theory and operation of dc motor.
Course Main Objectives	<ul style="list-style-type: none"> - understand the basic concepts of generation plants - understand basic concepts of electrical machines and transmission lines - will learn how to operate an electrical machine - learn the details of construction of different types of electrical machines - learn how to analyze the performance and design the components - learn how to perform experimentation with electrical machines
Learning Outcomes	<p>Knowledge and Understanding</p> <p>Understand single and three phase AC circuits analysis Match the fundamentals of the working principle of some important power engineering devices such as transformer, DC machine, Induction machine and Synchronous machine Recognize the practical limitations and aspects of the engineering devices such as transformer, DC machine, Induction machine and Synchronous machine Identify and compare the theory of operation of engineering devices</p>
	<p>Skills:</p> <p>Evaluate, review literature, analyze, and then design solutions for complex electrical engineering problems Be capable of selecting, and designing these devices for real-life practical experience in the performance and operation of these important power engineering devices. Evaluate the failure of components of the engineering devices</p>
	<p>Values:</p>

References:

- P.C. Sen, “Principles of Electric Machines and Power Electronics “ John Wiley 2016
- Ned Mohan “Electric Machines & drives” John Wiley 2016