

EEPW 3258	Machines and Drives		3 Credit Hours
Prerequisites:	EEPW 2251	Co-requisites	EEPW 3257
Goal	To provide the student with the concepts, techniques and application of machines and drives.		
Objectives		Outcomes	
<p>This course should enable the student to:</p> <ol style="list-style-type: none"> 1. Understand the concepts of variable-speed drives and design gating circuits. 2. Know different drive analysis in motor and regeneration modes. 3. Understand the concepts of control speed and torque independently via field oriented control. 4. Know the parameters of adjustable-speed drives and efficiency. 		<p>A student who satisfactory complete the course should be able to:</p> <ol style="list-style-type: none"> 1. Describe different methods of controlling DC drives like rectifier control, chopper control and two and four quadrant controls. 2. Describe the structure and operation of induction machines. 3. Describe the structure and operation of synchronous machines. 4. Design the rotor for given starting torque and output power. 5. Analyze the steady-state equivalent circuit and near synchronous speed equivalent circuit. 6. Measure the parameters of both induction and synchronous machines. 7. Differentiate between different variable control operations in induction drives like variable-voltage operation, variable-frequency operation, variable-current operation and variable-voltage-frequency operation. 8. Explain the effects of voltage harmonics space harmonics. 9. Describe the structure of different synchronous drives like switched reluctance motor drives and stepper motor drives. 10. Differentiate between different variable-frequency synchronous motor drives systems like open-loop drive system, self-contained drive systems. 	