Course Syllabus

Course Code and Name	**EE 26462 – Electrical Machines – 2**
Credit and contact hours	**3 (2, 1, 1) (Lecture, Tutorial, Lab)**
Required or Elective	**Required**
Level / Year	**Level (8) / Year (4)**
Course Prerequisite	**EE 26361 Electrical Machines – 1**
Textbook	Stephen Chapman, "Electric Machinery Fundamentals", 5th ed., McGraw-Hill Science, 2012.
Course Description	This course covers the following topics: Three-phase induction machines (construction, operation, equivalent circuit, performance calculations, starting of induction motors, speed control), small AC motors (single-phase induction motors, reluctance, and hysteresis motors. Synchronous machines (Theory of operation, Construction, and types) – Equivalent circuit, phasor diagram, performance of turbo-alternator, generator operating alone, parallel operation of AC generators), synchronous machine dynamics: the swing equation, steady state and transient stability. Universal motors, Servo motors, Stepper motors.
Brief List of Topics to be Covered	1- Introduction to three-phase machines, 3-phase Windings, EMF and MMF of 3-phase machines MMF waveform 2- Induction Motor (construction, operation, and equivalent circuit) 3- Torque Equation and torque speed c/s. of induction motor. 4- Synchronous machines (theory of operation, Construction, and types) 5- Synchronous machines Equivalent circuit, phasor diagram, performance of turbo-alternator. 6- Parallel operation of 3-phase synchronous generators 7- Connection of synchronous generator to the main grid 8- Stepper Motors and its Applications - Universal Motors and its Applications - Reluctance Motors and its Applications.
Course is prerequisite for	• EE26564 Electric Drive Systems