Course Syllabus

Course Code and Name	**EE 26361 – Electrical Machines – 1**
Credit and contact hours	**3 (2, 1, 1) (Lecture, Tutorial, Lab)**
Required or Elective	**Required**
Level / Year	**Level (6) / Year (3)**
Course Prerequisite	**EE 26323 Electric Circuits -2** **EE 26325 Electromagnetic Fields -1**
Textbook	A. Fitzgerald, C. Kingsley and S. Umans, "Electric Machinery", 6th Ed., McGraw-Hill, 2003
Course Description	This course covers the following topics: Magnetic circuits transformers – Single phase power transformer – Theory of operation – Construction and types – Equivalent circuit – efficiency – voltage regulation – phasor diagram and experimental No load, Short Circuit, and load tests. Three phase transformer – Connection diagram – tap changing – Auto transformer, voltage and current transformers – Saudi Building Code requirements – DC Machines – Theory of operation – Construction and Types – Commutation in DC machines – Torque Speed and Torque Current Characteristics – Speed control of DC machine.
Brief List of Topics to be Covered	1- Magnetic circuits transformers. 2- Single phase power transformer – Theory of operation – Construction and types 3- Transformer Equivalent circuit – efficiency – voltage regulation – phasor diagram and experimental No load, Short Circuit and load tests. 4- Transformer Tests (No Load and Short Circuit) 5- Three phase transformer – Connection diagram – tap changing – Auto transformer, voltage and current transformers. Transformer Load Tests. 6- Saudi Building Codes requirements for transformer. 7- DC Machines – Theory of operation – Construction and Types. 8- Commutation in DC machines – Torque Speed and Torque Current Characteristics. 9- Speed control of DC machine.
Course is prerequisite for	• EE26462 Electrical Machines – 2