

COURSE	Name : Electric Machines
	Code : EE184512
	Credits : 4
	Semester : V

Description of Course

Electric machine courses generally discuss about the principle of electric energy conversion machine. In detail describes the principles of electromagnetic, construction and operational transformer, design and calculation of voltage generated in a rotating electric engine. Features and characteristics of synchronous machines, construction and analysis of induction motors, construction and analysis of dc machine.

Learning Outcomes

KNOWLEDGE

(P02) Mastering the concepts and principles of engineering, and implementing them in the form of procedures for analysis and design in power systems, control systems, multimedia telecommunications, or electronics.

SPECIFIC SKILL

(KK01) Able to formulate engineering problems in power systems, control systems, multimedia telecommunications, or electronics.

(KU11) Able to implement sustainability principles and develop knowledge.

GENERAL SKILL

(KU12) Able to implement information and communication technology (ICT) in the context of implementation of his/her work.

(S06) Working together, having social sensitivity and caring for community and environment.

ATTITUDE

(S09) Demonstrating attitude of responsibility on work in his/her field of expertise independently.

(S12) Working together to be able to make the most of his/her potential.

Course Learning Outcomes

KNOWLEDGE

Mastering the basic concepts of electrical machinery and electrical machine characteristics.

SPECIFIC SKILL

Able to analyze the parameters in an electric machine and able to calculate the need of electric machines in the power system.

Main Subjects

1. The concept of electromagnetism, the basis of electrical machinery, understands the role of magnets in electric machines, the basics of analysis, the signs of machine variables.
2. Basic concepts, constructions and various transformations in electric power systems and their operations in electrical systems.
3. The concept of a rotating magnetic field in an electric machine, winding construction and the process of voltage generation in rotating electrical machine.

4. Construction and synchronous machine features and their operations.
5. Determination of equivalence circuit, analysis of parameters of synchronous machine.
6. Construction and operation of induction machines
7. Induction motor performance analysis.
8. Construction of dc machine and its operation.
9. Characteristics of dc machine.

Reference(s)

- [1] J. Chapman, "Electric Machinery Fundamentals", McGraw-Hill, Inc., New York, St. Louis, San Francisco, Auckland, Bogotá, Caracas, Hamburg, Lisbon, London, Madrid, Mexico, Milan, Montreal, New Delhi, Paris, San Juan, São Paulo, Singapore, Sydney, Tokyo, Toronto, 1991.
 - [2] S.K. Sen, "Electrical Machinery" Khanna Publishers, New Delhi, 1993.
- B.S. Guru & H.R. Hiziröglu, " Electric Machinery and Transformers" Harcourt Brace Javanovich, Publishers, Technology Publications, San Diego, New York, Chicago, Austin, Washington DC, London, Tokyo, Toronto, 1988.

Prerequisite(s)

EE184402 Introduction to power system
