

NIRMA UNIVERSITY
Institute of Technology
Electrical Engineering Department
(Semester - I/II)

w.e.f.: Academic Year 2018-19

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Course Code	EE105
Course Title	Introduction to Electrical Engineering

Course Learning Outcomes:

At the end of the course, students will be able to -

1. relate the importance of engineering in day to day life,
2. exemplify the role of electrical engineering in other domains,
3. interpret the opportunities and future trends of electrical engineering,
4. recognize the role of electrical engineer in industry.

Syllabus

**Teaching
Hours**

UNIT-1: About Engineering

About engineering, history of engineering, social relevance of engineering, role of engineering in human life

1

UNIT-2: Introduction to Electrical Engineering

Introduction to different domains of electrical engineering; electrical power system, power electronics, electrical machines, diversity of electrical engineering

3

UNIT-3: Aspects of Electrical Engineering

Productivity, profitability, efficiency, safety, optimization, environmental concerns, societal needs, user friendliness

2

UNIT-4: Emerging Trends

Electricity generation using renewable sources, distributed power generation, power quality, restructured power system, concept of smart grid, HVDC transmission, concept of electric vehicle

3

UNIT-5: Interdisciplinary Approach

Need of electrical engineering in other branches of engineering, role of different branches of engineering in electrical engineering, different possibilities of interdisciplinary research and development, challenges and possible solutions

2

UNIT-6: Career Opportunities

Role and responsibilities of Electrical Engineer in various verticals of industries like design industry, manufacturing industry, testing and maintenance industry, research and power sector, infrastructure development, transportation industry and military applications

2

UNIT-7: Case Studies

Interpreting the tenders, Role of Electrical Engineering in noteworthy industrial developments

2

Self-Study:

- (1) Important milestones in the field of electrical engineering
- (2) Contribution of different scientists – past and present

Suggested Readings:

1. Electrical India, magazine on power and electrical products industry
2. Literature from Bureau of Energy Efficiency (www.beeindia.gov.in), Ministry of Power, Government of India.
3. IEEE xplore digital library – ieeexplore.ieee.org
4. Ashfaq Hussain, Fundamentals of Electrical Engineering, Dhanpat Rai and Co.
5. Electrical Engineering related informative videos/movies
6. IEEE spectrum - spectrum.ieee.org