

**B.E: Electrical and Electronics
Engineering
(2021-2022)
Batch: 2019-23**

**Curriculum Structure
&
Syllabus
(5th & 6th semesters)**

**Department of Electrical and Electronics Engineering
The National Institute of Engineering
Mysuru-570 008**

Department of Electrical and Electronics Engineering

Department Vision

The department will be an internationally recognized centre of excellence imparting quality education in electrical engineering for the benefit of academia, industry and society at large.

Department Mission

M1: Impart quality education in Electrical and Electronics Engineering through theory and its applications by dedicated and competent faculty.

M2: Nurture creative thinking and competence leading to innovation and technological growth in the overall ambit of Electrical Engineering

M3: Strengthen industry-institute interaction to inculcate best engineering practices for sustainable development of the society

Program Educational Objectives

PEO1: Graduates will be competitive and excel in Electrical industry and other organizations.

PEO2: Graduates will pursue higher education and will be competent in their chosen domain.

PEO3: Graduates will demonstrate leadership qualities with professional standards for sustainable development of society.

PROGRAM OUTCOMES

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety and the cultural, societal and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work:** Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes

Our Electrical and Electronics Engineering graduates will have the ability to:

- **PSO1:** Apply the knowledge of Basic Sciences, Electrical and Electronics Engineering and Computer Engineering to analyze, design and solve real world problems in the domain of Electrical Engineering.
- **PSO2:** Use and apply state-of-the-art tools to solve problems in the field of Electrical Engineering.
- **PSO3:** Be a team member and leader with awareness to professional engineering practice and capable of lifelong learning to serve society.

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING							
SCHEME OF TEACHING							
V SEMESTER							
Sl. No	Subject code	Subject	Category	Contact Hrs./Week			No. of Credits
				L	T	P	
1	EE5C01	Microcontrollers	GC	3	2	0	4
2	EE5C02	Control Systems – I	GC	3	2	0	4
3	EE5C03	Power System Analysis	FCP	4	0	0	4
4	EE5C04	Digital Signal Processing*	GC	3	0	0	3
5	EE5MXX	MOOC Elective	GC	3	0	0	3
6	EE5C05	Engineering Management and Entrepreneurship	GC	3	0	0	3
7	EE5L01	Microcontroller Lab	-	0	0	3	1.5
8	EE5L02	Induction Machines and Synchronous Machines Lab	GC	0	0	3	1.5
9	MA5CL1	Applied Mathematics - II [#]	GC	3	0	0	3
TOTAL				29/32			24/27

MOOC Elective						
Sl. No.	Subject Code	Subject	L	T	P	Cr.
1	EE5M05	Design of photovoltaic systems	3	0	0	3
2	EE5M06	Introduction to robotics	3	0	0	3
3	EE5M07	Op-Amp Practical Applications: Design, Simulation and Implementation.	3	0	0	3
4	EE5M08	Introduction to Industry 4.0 and Industrial Internet of Things	3	0	0	3
5	EE5M09	Semiconductor Devices and Circuits	3	0	0	3

*Pre-requisite: Signals & Systems (EE04C02)

**Pre-requisite: Electrical and Electronic Measurements (EE3C03)

***Pre-requisite: Digital Electronics (EE3C02)

For Lateral Entry Students

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
SCHEME OF TEACHING
VI SEMESTER

Sl. No.	Subject Code	Subject	L	T	P	Cr.
1	EE6C01	Computer Applications to Power System Studies	3	2	0	4
2	EE6C02	Electrical Machine Design *	3	0	0	3
3	EE6C03	Power Electronics	3	0	0	3
4	EE6C04	Switchgear and Protection	3	0	0	3
5	EE6C05	Engineering Economics	3	0	0	3
6	EE6E1XX	Dept. Elective – 1	3	0	0	3
7	EE6L01	Control Systems Lab	0	0	3	1.5
8	EE6L02	Power Electronics Lab	0	0	3	1.5
9	EE6C06	Minor Project	0	0	-	1
Total			26			23

Dept. Elective – 1

Sl. No.	Subject Code	Subject	L	T	P	Cr.
1	EE6E101	Embedded Systems	3	0	0	3
2	EE6E102	Fundamentals of Digital Communication	3	0	0	3
3	EE6E103	Object Oriented Programming with C++	3	0	0	3
4	EE6E104	Advanced Microcontrollers**	3	0	0	3
5	EE6E105	Industrial Control and Automation	2	0	2	3
6	EE6E106	Python Programming	2	0	2	3
7	EE6E107	Energy Audit, Management and Conservation	3	0	0	3
8	EE6E108	Introduction to Battery Management Systems	3	0	0	3
9	EE6E109	Control Systems – II	3	0	0	3

10	EE6E110	Machine Learning	3	0	0	3
11	EE6E111	Renewable Energy Sources	3	0	0	3

*Pre-requisite : DC Machines and Transformers (EE3C05) and Induction Machines
& Synchronous Machines (EE4C05)

**Pre-requisite : Microcontrollers (EE5C01)