



ESTD : 1946

2022
OBE & CBCS

CURRICULUM

POSTGRADUATE PROGRAMME

**Power Systems
&
Computer Applications in Industrial Drives**

**Department of Electrical &
Electronics Engineering
(2024 -2026)**

THE NATIONAL INSTITUTE OF ENGINEERING

(An Autonomous Institute under Visvesvaraya Technology University, Belagavi)

Recognised by AICTE, New Delhi



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

Programme Educational Objectives

- PEO1.** Graduates will be competitive and have a successful career in the Electric Power industry and other organizations.
- PEO2.** Graduates will excel as academicians and contribute to research and development.
- PEO3.** Graduates will demonstrate leadership qualities with professional standards for sustainable development of society.

Programme Outcomes

Students graduating from M. Tech. - Power Systems of department of Electrical & Electronics Engineering shall have the ability to:

- PO1:** Independently carry out research/ investigation and development work to solve practical problems in the field of Power Systems and Power Electronics engineering.
- PO2:** Write and present a substantial technical report/document.
- PO3:** Demonstrate a degree of mastery in the field of Power Systems and Power Electronics engineering in a technologically changing scenario.
- PO4:** Demonstrate managerial and financial skills.
- PO5:** Demonstrate concern for the safety and environment for sustainable development of society

TABLE OF SCHEME AND EXAMINATION FOR III SEMESTER (2024-26 Batch)

Sl. No	Type of Course	Course Code	Course Title	Teaching Department (TD)	Question Paper setting Board (PSB)	Teaching Hrs/Week				Examination				Credits
						L	T	P	S	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
1	PEC	MPS311/ MCD311	Professional Elective – IV (MOOC)	EEE	EEE	3	0	0	0	3	100	-	100	3
2	PEC	MPS312/ MCD312	Professional Elective – V (MOOC)	EEE	EEE	3	0	0	0	3	100	-	100	3
3	INT	MINT383	Research Internship /Industry-Internship leading to project work/ Startup	Two-semester duration, SEE in the IV semester which leads to project work /start-up						3	100	-	100	4
4	PROJ	MPRJ384	Project Phase-I							3	100	-	100	2
Total											400		400	12

TABLE OF SCHEME AND EXAMINATION FOR IV SEMESTER (2024-26 Batch)

Sl. No	Type of Course	Course Code	Course Title	Teaching Department (TD)	Question Paper setting Board (PSB)	Teaching Hrs/Week				Examination				Credits
						L	T	P	S	Duration in Hours	CIE Marks	SEE Marks	Total Marks	
1	IPCC	MINT481	Research Internship /Industry-Internship leading to project work/ Startup	Two-semester duration, SEE in the IV semester which leads to project work /start-up				3	100	100	200	12		
2	PCC	MPRJ482	Project Phase-II					3	100	100	200	16		
Total									200	200	400	28		



**M.Tech in
Power Systems
&
Computer Applications in Industrial Drives
(2024-2026)**

Syllabus – III Semester

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



Course Code: MPS311/MCD311
Credits: 3
CIEE: 100% Marks
SEE Hours: -

Course Name: Professional Elective IV (Online Course)
L:T:P:S : 3:0:0:0
SEE: -
Max. Marks: 100

Prerequisites if any	Nil
Learning objectives	1. To be provided by the course instructor – NPTEL

Course Outcomes:

On the successful completion of the course, the student will be able to

COs		Bloom's level
CO1	Apply the knowledge of Power Systems and Power Electronics to solve real world problems and design solutions.	Apply

Mapping with POs and PSOs:

COs	PO1	PO2	PO3	PO4	PO5
CO1	2	-	3	-	-

Mapping Strength: **Strong– 3** **Medium – 2** **Low – 1**

MOOC courses of 12 weeks duration are the courses suggested by the Board of Studies of the University and will be displayed on www.online.vtu.ac.in. The online courses selected should not be the same as those studied in the first and second semesters of the program. The student will not be eligible to get their degree if they unintentionally select online courses that match previously finished courses. These courses are not considered for vertical progression; however, qualifying for these courses and earning the credits is a must for the award of the degree. It is permitted to complete these online MOOC courses either in 3rd semester or in 4th semester.

Course Code: MPS312/MCD312
Credits: 3
SEE: 100% Marks
SEE Hours: -

Course Name: Professional Elective V (Online Course)
L:T:P:S:0:0:0:3
CIE: -
Max. Marks: 100

Prerequisites if any	Nil
Learning objectives	1. To be provided by the course instructor – NPTEL

Course Outcomes:

On the successful completion of the course, the student will be able to

COs		Bloom's level
CO1	Apply the knowledge of Power Systems and Power Electronics to solve real world problems and design solutions.	Apply

Mapping with POs and PSOs:

COs	PO1	PO2	PO3	PO4	PO5
CO1	2	-	3	-	-

Mapping Strength: **Strong– 3** **Medium – 2** **Low – 1**

MOOC courses of 12 weeks duration are the courses suggested by the Board of Studies of the University and will be displayed on www.online.vtu.ac.in. The online courses selected should not be the same as those studied in the first and second semesters of the program. The student will not be eligible to get their degree if they unintentionally select online courses that match previously finished courses. These courses are not considered for vertical progression; however, qualifying for these courses and earning the credits is a must for the award of the degree. It is permitted to complete these online MOOC courses either in 3rd semester or in 4th semester.

Course Code: MINT383**Credits: 4****SEE: -****SEE Hours: -****Course Name: Research Internship /Industry-Internship leading to project work/ Startup****L:T:P:S : -****CIE: 100% Marks****Max. Marks: 100**

Prerequisites if any	Nil
Learning objectives	1. Gain field experience in the relevant discipline. 2. Connect the theory with practice. 3. Present and document the training experience. 4. Acquire knowledge by introspection.

Course Outcomes:*On the successful completion of the course, the student will be able to*

COs		Bloom's level
CO1	Gain field experience in the relevant discipline	Apply
CO2	Present and document the training experience	Apply
CO3	Apply modern tools for Engineering Applications	Apply
CO4	Understand the ethical practices adapted for sustainable development	Understand

Mapping with POs and PSOs:

COs	PO1	PO2	PO3	PO4	PO5
CO1	1	-	3	-	1
CO2	2	3	3	-	1
CO3	1	-	3	-	1
CO4	2	3	3	-	1

Mapping Strength: Strong– 3 Medium – 2 Low – 1**Instructions:**

- **Industry Internship:** The main objective of the industry internship is to ensure that the intern is exposed to a real-world environment and gain practical experience. Often, it may be a practical exposure to the theory that has been learned during the academic period.
- **Research Internship:** These internships can take place in academic institutions, research organizations, government agencies, or private companies
- **Internship Leading to Start-up:** An internship that leads to a startup is an exciting pathway, blending real-world experience with entrepreneurial ambition. Here's a comprehensive guide to transitioning an internship experience into launching your startup: 1) Maximize your internship experience, 2) Identifying Viable Business Ideas, 3) Research and Validation 4) Building a Business Plan 5) Networking and Mentorship 6) Securing Funding 7) Establishing Startup 8) Launching and Marketing. By following these steps, you can effectively transition from an internship to launching a successful startup. This journey requires dedication, resilience, and a willingness to learn and adapt.

Evaluation:

The continuous internal evaluation will be done in two phases using appropriate rubrics, the final evaluation will be done at the end of the IV semester with industry experts and the internship supervisor.

**Course Code: MPRJ384****Credits: 4****SEE: -****SEE Hours: -****Course Name: Project Phase - I****L:T:P:S : -****CIE: 100% Marks****Max. Marks: 100**

Prerequisites if any	Nil
Learning objectives	<ol style="list-style-type: none"> 1. Identify the topic of relevance within the discipline 2. Carry out literature survey 3. Formulate the problem, Identify the objectives and develop solution methodology 4. Inculcate ethical practices. 5. Present and document the preliminary project work. 6. Acquire knowledge by introspection.

Course Outcomes:*On the successful completion of the course, the student will be able to*

COs		Bloom's level
CO1	Identify the topic of relevance and carry out literature review inculcating ethical practice	Apply
CO2	Formulate the problem, identify the objectives and develop solution methodology	Analyse
CO3	Present and document the project work	Analyse

Mapping with POs and PSOs:

COs	PO1	PO2	PO3	PO4	PO5
CO1	3	-	3	-	1
CO2	3	-	3	-	1
CO3	-	3	3	-	1

Mapping Strength: Strong– 3 Medium – 2 Low – 1



**M.Tech in
Power Systems
&
Computer Applications in Industrial Drives
(2024-2026)**

Syllabus – IV Semester

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

Course Code: MINT481
Credits: 12
SEE: 100 Marks
SEE Hours: 3

Course Name: Research Internship /Industry-Internship leading to project work/ Startup
L:T:P:S : -
CIE: 100 Marks
Max. Marks: 100

Prerequisites if any	Nil
Learning objectives	1. Gain field experience in the relevant discipline. 2. Connect the theory with practice. 3. Present and document the training experience. 4. Acquire knowledge by introspection.

Course Outcomes:

On the successful completion of the course, the student will be able to

COs		Bloom's level
CO1	Gain field experience in the relevant discipline	Apply
CO2	Present and document the training experience	Apply
CO3	Apply modern tools for Engineering Applications	Apply
CO4	Understand the ethical practices adapted for sustainable development	Understand

Mapping with POs and PSOs:

COs	PO1	PO2	PO3	PO4	PO5
CO1	1	-	3	-	1
CO2	2	3	3	-	1
CO3	1	-	3	-	1
CO4	2	3	3	-	1

Mapping Strength: **Strong– 3** **Medium – 2** **Low – 1**

Instructions:

- **Industry Internship:** The main objective of the industry internship is to ensure that the intern is exposed to a real-world environment and gain practical experience. Often, it may be a practical exposure to the theory that has been learned during the academic period.
- **Research Internship:** These internships can take place in academic institutions, research organizations, government agencies, or private companies
- **Internship Leading to Start-up:** An internship that leads to a startup is an exciting pathway, blending real-world experience with entrepreneurial ambition. Here's a comprehensive guide to transitioning an internship experience into launching your startup: 1) Maximize your internship experience, 2) Identifying Viable Business Ideas, 3) Research and Validation 4) Building a Business Plan 5) Networking and Mentorship 6) Securing Funding 7) Establishing Startup 8) Launching and Marketing. By following these steps, you can effectively transition from an internship to launching a successful startup. This journey requires dedication, resilience, and a willingness to learn and adapt.

Evaluation:

The continuous internal evaluation will be done in two phases using appropriate rubrics, the final evaluation will be done at the end of the IV semester with industry experts and the internship supervisor.



Course Code: MPRJ482
Credits: 16
SEE: 100 Marks
SEE Hours: 3

Course Name: Project Phase - II
L:T:P:S : -
CIE: 100 Marks
Max. Marks: 200

Prerequisites if any	Nil
Learning objectives	<ol style="list-style-type: none">1. Implement solution methodology.2. Harness the modern tools.3. Analyse the economic feasibility of projects of social relevance.4. Analyse, interpret the results and establish the scope for future work.5. Present and document the project work. Acquire knowledge by introspection.

Course Outcomes:

On the successful completion of the course, the student will be able to

COs		Bloom's level
CO1	Implement solution methodology by utilising modern tools.	Create
CO2	Analyse the economic feasibility of the project and interpret the results.	Analyse
CO3	Present and document the project work.	Apply

Mapping with POs and PSOs:

COs	PO1	PO2	PO3	PO4	PO5
CO1	3	-	3	-	1
CO2	3	-	3	3	1
CO3	3	3	3	-	1

Mapping Strength: **Strong– 3** **Medium – 2** **Low – 1**