GMR Institute of Technology
An Autonomous Institute Affiliated to JNTU-GV

GMRIT Training Tomorrow's Engineers Today

1.3.2(B) Brochure and Course content or syllabus along with course outcome of Value-added courses offered

Department of Electrical and Electronics Engineering
Index

GMRIT Training Tomorrow's Engineers Today

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

IEEE Advancing Technology for Humanity

The Department of EEE, IEEE Transportation Electrification Council, and IEEE Systems Council Student Branch Chapters at GMRIT Jointly organizes a 30 Hours ADD-ON Course on

MODELING, SIMULATION AND MACHINE LEARNING APPLICATIONS IN ENGINEERING USING ADVANCED PROGRAMMING

Dr. K. Karthick
Associate Professor
EEE

Dr. N. V. A. Ravikumar
Sr. Assistant Professor
EEE

- **Eligibility: All Branches**
- **Course Commences on: 18.03.2025**
- **Course Fee(Phonepe: 8309748184)**
  - Rs. 500/- (Non-IEEE Members)
  - Rs. 300/- (IEEE Members only)
- **Registration Link & QR Code:**
  https://forms.gle/598ZBRZitxFbM2kQ6

TOPICS

1. CONTROL SYSTEM DESIGN FOR ENGINEERING SYSTEMS
2. LQR CONTROLLER DESIGN FOR ENGINEERING SYSTEMS
3. ROBUST CONTROLLER DESIGN FOR ENGINEERING SYSTEMS
4. DATA COLLECTION AND PREPROCESSING FOR ENGINEERING SYSTEMS
5. SUPERVISED LEARNING MODELS FOR PREDICTIVE ENGINEERING SYSTEMS
6. REGRESSION AND CLASSIFICATION MODEL

MATLAB

MATLAB and control systems are significantly important in wind turbine design and operation because they allow engineers to accurately model and simulate the complex dynamics of a wind turbine, enabling the development and optimization of control strategies to maximize power generation.

MACHINE LEARNING

Machine learning engineering (MLE) involves the use of various skills and technologies—including machine learning techniques, tools, and principles, and software engineering—for the purpose of designing and building complex computing systems.

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ravikumar.nva@gmrit.edu.in 8309748184

ADD-ON COURSE

Modelling, Simulation and Programming for Engineering Applications using Advanced Softwares

SCHEDULE

Lecture No.	WEEK NO.	DAY	DATE	TIME	FACULTY
1	WEEK - 01	Tuesday	18-03-25	04:00 to 05:00 pm	Dr. N. V. A. Ravikumar
2		Wednesday	19-03-25	04:00 to 05:00 pm	Dr. K. Karthick
3		Thursday	20-03-25	04:00 to 05:00 pm	Dr. N. V. A. Ravikumar
4		Friday	21-03-25	03:00 to 04:00 pm	Dr. K. Karthick
5		Friday	21-03-25	04:00 to 05:00 pm	Dr. N. V. A. Ravikumar
6	WEEK - 02	Tuesday	25-03-25	04:00 to 05:00 pm	Dr. K. Karthick
7		Wednesday	26-03-25	04:00 to 05:00 pm	Dr. N. V. A. Ravikumar
8		Thursday	27-03-25	04:00 to 05:00 pm	Dr. K. Karthick
9		Friday	28-03-25	03:00 to 04:00 pm	Dr. N. V. A. Ravikumar
10		Friday	28-03-25	04:00 to 05:00 pm	Dr. K. Karthick
11	WEEK - 03	Tuesday	01-04-25	04:00 to 05:00 pm	Dr. N. V. A. Ravikumar
12		Wednesday	02-04-25	04:00 to 05:00 pm	Dr. K. Karthick
13		Thursday	03-04-25	04:00 to 05:00 pm	Dr. N. V. A. Ravikumar
14		Friday	04-04-25	03:00 to 04:00 pm	Dr. K. Karthick
15		Friday	04-04-25	04:00 to 05:00 pm	Dr. N. V. A. Ravikumar
16	WEEK - 04	Tuesday	08-04-25	04:00 to 05:00 pm	Dr. K. Karthick
17		Wednesday	09-04-25	04:00 to 05:00 pm	Dr. N. V. A. Ravikumar
18		Thursday	10-04-25	04:00 to 05:00 pm	Dr. K. Karthick
19		Friday	11-04-25	03:00 to 04:00 pm	Dr. N. V. A. Ravikumar
20		Friday	11-04-25	04:00 to 05:00 pm	Dr. K. Karthick
21	WEEK - 05	Tuesday	15-04-25	04:00 to 05:00 pm	Dr. N. V. A. Ravikumar
22		Wednesday	16-04-25	04:00 to 05:00 pm	Dr. K. Karthick
23		Thursday	17-04-25	04:00 to 05:00 pm	Dr. N. V. A. Ravikumar
24		Friday	18-04-25	03:00 to 04:00 pm	Dr. K. Karthick
25		Friday	18-04-25	04:00 to 05:00 pm	Dr. N. V. A. Ravikumar
26	WEEK - 06	Tuesday	22-04-25	04:00 to 05:00 pm	Dr. K. Karthick
27		Wednesday	23-04-25	04:00 to 05:00 pm	Dr. N. V. A. Ravikumar
28		Thursday	24-04-25	04:00 to 05:00 pm	Dr. K. Karthick
29		Friday	25-04-25	03:00 to 04:00 pm	Dr. N. V. A. Ravikumar
30		Friday	25-04-25	04:00 to 05:00 pm	Dr. K. Karthick

nature of the Instructor

HoD-EEE

ADD-ON COURSE

Modelling, Simulation and Programming for Engineering Applications using Advanced Softwares

S.No.	JNTU No.	Name of the Candidate (Full Name as per 10th Class Certificate)	Department	Year of Study	Section	WhatsApp Mobile No.	e-mail id
1	23341A0208	Ankamreddy Raghu Vardhan	EEE	Second B.Tech.	A	7075590320	raghuvardhan2006@gmail.com
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9	23341A0278	Mittana Vamsi Krishna	EEE	Second B.Tech.	B	7780540677	vamsikrishnamittana@gmail.com
10	23341A0281	Muddana Chaitanya	EEE	Second B.Tech.	B	7816096146	chaitanyamca46@gmail.com
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14	23341A0292	Panasa Mounika	EEE	Second B.Tech.	B	9392344410	monikapanasa30@gmail.com
15	23341a0299	Peddinti Jyothsna	EEE	Second B.Tech.	B	8179254493	vimalajyothsna4755@gmail.com
16	23341A02A5	Rakoti Nandini	EEE	Second B.Tech.	B	9030772229	nandinirakoti@gmail.com
17	23341A02A6	Ravinni Desowja	EEE	Second B.Tech.	B	7989011311	desowjaravinni12@gmail.com
18	23341A02A8	Rowtu Venkatesh	EEE	Second B.Tech.	B	9347860314	rowtuvenkatesh@gmail.com
19	23341A02A9	Saini Sushma	EEE	Second B.Tech.	B	9989811935	23341A02A9@gmrit.edu.in
20	23341A02B0	Sanapala Purnima	EEE	Second B.Tech.	B	7997115548	gopikapurnima87@gmail.com
21	23341A02B1	Sanjay Sai Parasana	EEE	Second B.Tech.	B	9391545019	sanjaysai939154@gmail.com
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23	23341A02B4	Singarapu Suresh	EEE	Second B.Tech.	B	8688261748	sureshsingarapu30@gmail.com
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ATTENDANCE SHEET

A 30-Hours

ADD-ON COURSE

Modelling, Simulation, and Programming for Engineering Applications using Advanced Programming

Instructor: Dr N V A Ravi Kumar / Dr K Karthi

S.No.	JNTU No.	Name of the Candidate (Full Name as per 10th Class Certificate)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
			NVA	KK	NVA	NVA	KK	KK	NVA	NVA	KK	NVA	NVA	KK	NVA	KK	NVA	NVA	KK	KK	NVA	KK	NVA	KK	NVA	KK	NVA	KK				
			18/3/25	19/3/25	20/3/25	21/3/25	24/3/25	25/3/25	26/3/25	27/3/25	1.4.25	2.4.25	3.4.25	4.4.25	4.4.25	7.4.25	9.4.25	10.4.25	11.4.25	15.4.25	16.4.25	17.4.25	18.4.25	21.4.25	22.4.25	23.4.25	24.4.25	25.4.25				
1	23341A0208	Ankamreddy Raghu Vardhan	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	A	P	P	P	A	P	P	P				
2	23341A0211	B. Pavan Sai Santhosh	A	P	P	P	P	A	A	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	A	P	P				
3	23341A0222	B. Lakshmi Prasad	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P				
4	23341A0257	Karri John Zechariah	P	P	P	P	P	A	P	P	P	A	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P				
5	23341A0266	Korrai Rajesh	A	P	P	P	P	P	P	P	P	P	A	P	P	A	P	P	P	P	P	P	P	A	P	P	P	P				
6	23341A0270	Kottisa Poli Naidu	P	P	P	P	A	P	P	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	A	P	P	A				
7	23341A0276	Laveti Sai Chaitanya	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	A	A				
8	23341A0277	Losu Shanmukha Priya	P	P	P	P	P	P	P	P	P	A	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A				
9	23341A0278	Mittana Vamsi Krishna	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A	A	P	A	P	A	P				
10	23341A0281	Muddana Chaitanya	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P				
11	23341A0284	Narayanasetti Pragnya	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P				
12	23341A0289	Palisetti Ratna Kumari	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P				
13	23341A0291	P. Ravitreyani	P	P	P	P	P	P	P	P	A	P	A	A	P	A	P	P	P	P	P	P	A	P	P	P	P	P				
14	23341A0292	Panasa Mounika	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P				
15	23341a0299	Peddinti Jyothsna	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P				
16	23341A02A5	Rakoti Nandini	P	P	P	P	P	P	P	P	P	P	P	A	P	P	A	P	P	P	P	P	P	P	P	P	P	A				
17	23341A02A6	Ravinni Desowja	P	P	P	P	P	P	P	P	P	A	P	A	P	P	P	P	P	P	P	A	P	P	P	P	P	A				
18	23341A02A8	Rowtu Venkatesh	P	P	P	P	P	P	P	P	A	P	P	P	P	P	A	P	A	P	P	P	A	P	P	P	A	P				

GMR Institute of Technology
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Department of EEE

Academic Year: 2024-25

Event Report

Title: 30-Hour **Add-On Course** on *Modeling, Simulation and Machine Learning Applications in Engineering using Advanced Programming*

Host Department: Department of Electrical & Electronics Engineering, GMRIT
In association with: IEEE Transportation Electrification Council (TEC) & IEEE Systems Council Student Branch Chapters, GMRIT

Duration: 30 hours (18 Mar 2025 – 25 Apr 2025 - total planned 30 sessions)

Resource Persons:

- Dr. K. Karthick, Associate Professor, EEE
- Dr. N. V. A. Ravikumar, Sr. Assistant Professor, EEE

Eligibility: Students from All branches

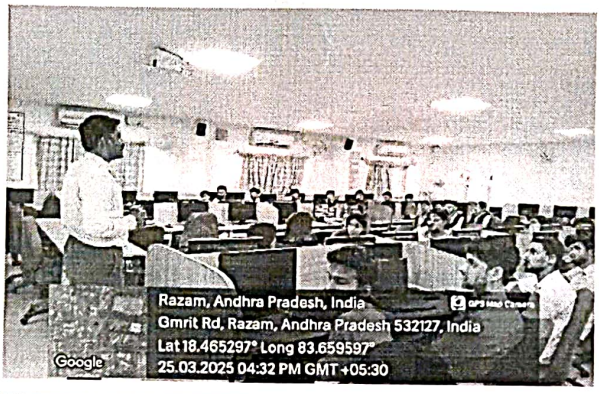
Objectives

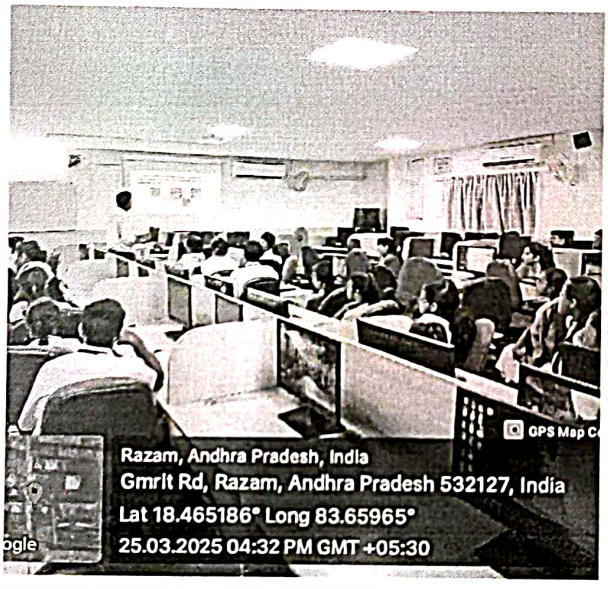
1. Introduce modern control-system design workflows and simulation practices.
2. Build foundations in data collection/preprocessing for engineering systems.
3. Apply supervised ML models (regression & classification) to predictive engineering tasks.
4. Familiarize learners with MATLAB and machine-learning engineering (tools, techniques, and software practices).

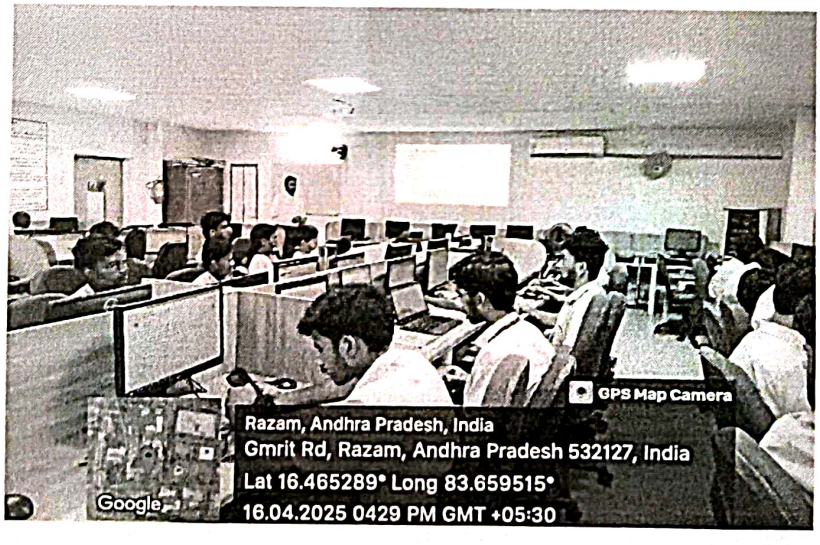
Topics Covered (module map)

1. Control System Design for Engineering Systems
2. LQR Controller Design for Engineering Systems
3. Robust Controller Design for Engineering Systems

Geotag Photos







Institute Vision

- To be among the most preferred institutions for engineering and technological education in the country
- An institution that will bring out the best from its students, faculty and staff – to learn, to achieve, to compete and to grow – among the very best
- An institution where ethics, excellence and excitement will be the work religion, while research, innovation and impact, the work culture

Institute Mission

- To turnout disciplined and competent engineers with sound work and life ethics
- To implement outcome based education in an IT-enabled environment
- To encourage all-round rigor and instill a spirit of enquiry and critical thinking among students, faculty and staff
- To develop teaching, research and consulting environment in collaboration with industry and other institutions

Department Vision

To be a preferred department of learning for students and teachers alike, with a commitment towards academics & research, serving the students in an atmosphere of innovation, critical thinking and making them industry ready.

Department Mission

M1. To provide adaptable education in a collaborative and innovative environment in skilling the graduates to solve real world problems in the field of Electrical & Electronics Engineering.

M2. To prepare the students as critical thinking professionals with multidisciplinary research orientation and Innovation.

M3. To instill ethical values and nurture the graduates who will be able to contribute to the society.

Program Educational Objectives (PEOs)

1. Employ logical and analytical skills in solving complex real-world engineering problems in the areas of Electrical & Electronics Engineering and allied fields.
2. Adaptable to emerging technologies with enhanced professional skills and ability towards continuous learning, facilitating higher studies and research.
3. Demonstrate professional ethics, leadership qualities and promote inclusive and collaborative growth with human values towards societal interest.

Program Outcomes (POs):

Engineering graduate will be able to:

PO 1: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. (Engineering knowledge)

PO 2: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. (Problem analysis)

PO 3: 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. (Design/development of solutions)

PO 4: 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. (Conduct investigations of complex problems)

PO 5: 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. (Modern tool usage)

PO 6: 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. (The engineer and society)

PO 7: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. (Environment and sustainability)

PO 8: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. (Ethics)

PO 9: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. (Individual and team work)

PO 10: 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. (Communication)

PO 11: 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. (Project management and finance)

PO 12: 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. (Life-long learning)

Program Specific Outcomes (PSOs):

Engineering graduate will be able to:

PSO#1: Apply principles of electrical and electronics engineering to design and develop reliable, efficient systems, circuits, and devices for diverse applications.

PSO#2: Utilize modern tools and emerging technologies, including electrical mobility, smart grids, and renewable energy systems, to foster energy-efficient and sustainable solutions.

Department of Electrical & Electronics Engineering
Minimum Credits to be earned: 160 (for Regular Students)
127 (for Lateral Entry Students)

S.No	Course Code	Course Name	POs	Contact Hours			
				L	T	P	C
First Semester							
1	21HSX01	Communicative English	1,6,10,11,12	2	-	-	2
2	21MAX01	Engineering Mathematics I	1,2,3,12,PSO1,PSO2	3	-	-	3
3	21PYX01/ 21CYX01	Engineering Physics / Engineering Chemistry	1 ,2,3,6,7,12/ 1 ,2,3,6,7,12	3/3	-	-	3/3
4	21BEX01/ 21BEX06	Basics of Engineering /IT Workshop	1 ,2,3,6,7,12 PSO1,PSO2/3,4,5,6,7,8,9,10,11,12	3/ -	-	-/ 3	3/1.5
5	21BEX02	Problem Solving and Programming Skills	1,2,3,6,12	3	-	-	3
6	21BEX03	Problem Solving and Programming Skills Lab	1,2,3,4,5,9,11,12	-	-	3	1.5
7	21BEX04/ 21BEX05	Engineering Drawing / Engineering Workshop	1,2,3,4,5,9,10,11,12/1,2,3,4,9,10,11,12	-	-	3/3	1.5/1.5
8	21PYX02/ 21CYX02	Engineering Physics Lab / Engineering Chemistry Lab	1,2,3,4,5,9,11,12/1,2,3,4,5,7,9,11,12	-	-	3/3	1.5/1.5
9	21HSX02	Communicative English Lab	1.4.5.9,10,11,12	-	-	3/-	1.5/-
			Total	**14/11**	**-**	**12/12**	**20/17**
Second Semester							
1		Language Elective	6,9,10,11,12	2	-	-	2
2	21MAX02	Engineering Mathematics II	1,2,3,12, PSO1,PSO2	3	-	-	3
3	21CYX01/ 21PYX01	Engineering Chemistry / Engineering Physics	1 ,2,3,6,7,12/ 1 ,2,3,6,7,12	3/3	-	-	3/3
4	21BEX01/ 21BEX06	Basics of Engineering / IT Workshop	1 ,2,3,6,7,12 PSO1,PSO2/3,4,5,6,7,8,9,10,11,12	-/3	-	3/-	1.5/3
5	21BEX07	Python Programming	1,2,3,12	3	-	-	3
6	21BEX08	Python Programming Lab	2,3,4,5,12	-	-	3	1.5
7	21BEX05/ 21BEX04	Engineering Workshop / Engineering Drawing	1,2,3,4,5,9,10,11,12/1,2,3,4,9,10,11,12	-	-	3/3	1.5/1.5
8	21CYX02/ 21PYX02	Engineering Chemistry Lab / Engineering Physics Lab	1,2,3,4,5,9,11,12/1,2,3,4,5,7,9,11,12	-	-	3/3	1.5/1.5
9	21HSX02	Communicative English Lab	1.4.5.9,10,11,12	-	-	-/3	-/1.5
			Total	**11/14**	**-**	**12/12**	**17/20**
Third Semester							
1	21MA302	Engineering Mathematics III	1,2,3,4,5,9,11,12,PSO1,PSO2	3	-	2	4
2	21EE302	DC Machines and Transformers	1,2,3,6,12,PSO1,PSO2	3	-	-	3
3	21EE303	Electrical Circuit Analysis	1,2,3,6,7,12,PSO1,PSO2	3	-	-	3
4	21EE304	Electromagnetic Field Theory	1,2,3,6,7,12,PSO1,PSO2	3	-	-	3
5	21EE305	Measurements and Instrumentation	1,2,3,6,12,PSO1,PSO2	3	-	-	3
6	21EE306	Semiconductor Devices and Circuits	1,2,3,4,5,6,12,PSO1,PSO2	3	-	2	4
7	21EE307	DC Machines Lab	1,2,3,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
8	21EE308	Electrical Circuits and Simulation Lab	1,2,3,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5

9	21ESX01	Employability Skills I	1,2,3,4,5,9,10,11,12	-	-	2	-
10	21HSX11	CC & EC Activities I	9,10,12	-	-	1	-
			Total	**18**	**-**	**13**	**23**
Fourth Semester							
1	21EE401	AC Machines	1,2,3,6,12,PSO1,PSO2	3	-	-	3
2	21EE402	Linear and Digital Integrated Circuits	1,2,3,4,5,6,9,11,12,PSO1,PSO2	3	-	2	4
3	21EE403	Power Electronics	1,2,3,6,12,PSO1,PSO2	3	-	-	3
4	21EE404	Power Generation, Transmission and Distribution	1, 2,3,6,7,8,12, PSO1,PSO2	3	-	-	3
5	21EE405	Signals and Systems Theory	1,2,3,6,12,PSO1,PSO2	3	-	-	3
6	21EE406	AC Machines Lab	1,2,3,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
7	21EE407	Measurements and Instrumentation Lab	1,2,3,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
8	21ESX01	Employability Skills I	1,2,3,4,5,9,10,11,12	-	-	2	2
9	21HSX11	CC & EC Activities I	9,10,12	-	-	1	1
			Total	**15**	**-**	**11**	**22**
Fifth Semester							
1	21IT306	Fundamentals of Object Oriented Programming	1,2,3,4,5,6,9,12	3	-	2	4
2	21EE502	Control Systems	1,2,3,4,5,6,9,12,PSO1,PSO2	3	-	2	4
3	21EE503	Electrical Drives	1,2,3,6,12,PSO1,PSO2	3	-	-	3
4	21EE504	Power System Protection	1,2,3,6,7,8,12,PSO1,PSO2	3	-	-	3
5		Elective I (Professional Elective)		3	-	-	3
6		Elective II (Open Elective I)		3	-	-	3
7	21EE507	Power Electronics and Drives Lab	1,2,3,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
8	21TPX01	Term Paper	1,2,4,5,8,9,10,11,12,PSO2	-	-	3	1.5
9	21ESX02	Employability Skills II	1,2,3,4,5,9,10,11,12	-	-	2	-
10	21HSX12	CC & EC Activities II	9,10,12	-	-	1	-
11	21SIX01	Summer Internship I	1,2,3,6,7,8,9,10,11,12,PSO1,PSO2				1
			Total	**18**	**-**	**13**	**24**
Sixth Semester							
1	21HSX10	Engineering Economics and Project Management	1,2,3,4,5,6,7,8,9,10,11,12	3	-	-	3
2	21EE602	Power System Analysis and Control	1,2,3 ,6,7,8,12,PSO1,PSO2	3	-	-	3
3	21EE603	Utilization of Electrical Energy	1,2,3 ,6,7,12,PSO1,PSO2	3	-	-	3
4		Elective III (Professional Elective)		3	-	2	4
5		Elective IV (Open Elective II)		3	-	-	3
6	21EE606	Power Systems Lab	1,2,3 ,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
7	21MPX01	Mini Project	1 to12,PSO1,PSO2	-	-	3	1.5
8	21ESX02	Employability Skills II	1,2,3 ,4,5,9,10,11,12	-	-	2	2
9	21HSX12	CC & EC Activities II	9,10,12	-	-	1	1
10	21ATX01	Environmental Studies	1,3,6,7	-	-	-	-
11	21ATX02	Professional Ethics and Human Values	-----	-	-	-	-
12	21ATX---	Audit Course	-----	-	-	-	-
			Total	**15**	**-**	**11**	**22**
Seventh Semester							
1		Elective V (Professional Elective)		3	-	-	3

2		Elective VI (Professional Elective)		3	-	-	3
3		Elective VII (Open Elective III)		3	-	-	3
4	21SIX02	Summer Internship II	1 to 12,PSO1,PSO2	-	-	-	1
5	21PWX01	Project	1 to 12,PSO1,PSO2	-	-	16	8
			Total	**9**	**-**	**16**	**18**
Eighth Semester							
1		Elective VIII (Professional Elective)		-	-	-	3
2		Elective IX (Open Elective IV)		-	-	-	3
3	21FIX01	Full Semester Internship (FSI)	1 to 12,PSO1,PSO2	-	-	-	8
			Total	**-**	**-**	**-**	**14**

List of Electives

Language Electives							
No.	**Course Code**	**Course**	**POs**	**Contact Hours**			
				L	**T**	**P**	**C**
1	21HSX03	Advanced Communicative English	6,9,10,11,12	2	-	-	2
2	21HSX04	Communicative German		2	-	-	2
3	21HSX05	Communicative French		2	-	-	2
4	21HSX06	Communicative Japanese		2	-	-	2
5	21HSX07	Communicative Spanish		2	-	-	2
6	21HSX08	Communicative Korean		2	-	-	2
7	21HSX09	Communicative Hindi		2	-	-	2
Elective I							
Career Path I, II, III and Other Core Electives							
1	21EEC11	Electrical Vehicle Technologies	2,3,4,7,12,PSO1,PSO2	3	-	-	3
2	21EEC21	Green Energy Technologies	1,2,3,6,7,12,PSO1,PSO2	3	-	-	3
3	21EEC31	Micro and Smart Grid Technologies	2,3,6,7,12,PSO1,PSO2	3	-	-	3
4	21EE004	Electrical Machine Design	1,2,3,8,12,PSO1,PSO2	3	-	-	3
5	21EE005	High Voltage DC Transmission	1,2,3,6,7,12,PSO1,PSO2	3	-	-	3
6	21EE006	Special Electrical Machines	1,2,3,7,12,PSO1,PSO2	3	-	-	3
Elective III							
Career Path I, II, III and Other Core Electives							
1	21EEC12	Electric Vehicle Drive Train Systems	1,2,3 ,4,5,6,7,9,12,PSO1,PSO2	3	-	2	4
2	21EEC22	Power Electronic Applications to Green Energy Systems	1,2,3 ,4,5,6,7,9,12,PSO1,PSO2	3	-	2	4
3	21EEC32	Control and Instrumentation of Smart Grid Systems	1,2,3 ,4,5,6,7,12,PSO1,PSO2	3	-	2	4
4	21EE007	Advanced Control Systems	1,2,3 ,4,5,6,12,PSO1,PSO2	3	-	2	4
5	21EE008	Discrete Signal Processing	1,2,3 ,4,5,6,12,PSO1,PSO2	3	-	2	4
6	21EE009	Machine Modelling and Steady State Analysis	1,2,3 ,4,5,6,8,12,PSO1,PSO2	3	-	2	4
Elective V							
Career Path I, II, III and Other Core Electives							
1	21EEC13	Battery Management Systems	1,2,3,6,7,12, PSO1,PSO2	3	-	-	3
2	21EEC23	Hybrid Renewable Energy Systems Design	1,2,3,6,7,12, PSO1,PSO2	3	-	-	3
3	21EEC33	Communication and Security in Smart Grid	1,2,3,6,7,8,12, PSO1,PSO2	3	-	-	3
4	21EE010	Electrical Distribution Systems	1,2,3,6,7,8,12, PSO1,PSO2	3	-	-	3
5	21EC401	Analog and Digital Communications	1,2,3,6,7,12, PSO1,PSO2	3	-	-	3
6	21IT304	Database Management Systems	1,2,3,6,8,12	3	-	-	3
Elective VI							
1	21EE011	Energy Audit, Conservation and Managaement	1,2,3,6,7,8,12, PSO1,PSO2	3	-	-	3
2	21EE012	Microprocessors and Microcontroller Interfacing	1,2,3,6,12, PSO1,PSO2	3	-	-	3
3	21EE013	Programmable Logic Controllers	1,2,3,6,12, PSO1,PSO2	3	-	-	3
Elective VIII (Professional Elective)							
1	21EE014	Power System Deregulation	1,2,3,6,7,12, PSO1,PSO2	-	-	-	3
2	21EE015	Power System Dynamics & Control	1,2,3,8,12, PSO1,PSO2	-	-	-	3
3	21EE016	High Voltage Engineering	1,2,3,6,8,12, PSO1,PSO2	-	-	-	3
Elective II, IV, VII							
(List of Open Electives)							
No.	**Course Code**	**Course**	**POs**	**L**	**T**	**P**	**Credits**
1	21CE001	Disaster Management	2,7	3	-	-	3
2	21EE001	Electrical Installation, Safety and Auditing	1,2,3,6,7,8,12	3	-	-	3
3	21ME001	Fundamentals of Optimization Techniques	1,2,3,5	3	-	-	3
4	21EC001	Sensors for Engineering Applications	1	3	-	-	3
5	21CS001	Fundamentals of Artificial Intelligence	1,2,3	3	-	-	3
6	21CH001	Energy Conversion and Storage Devices	1,3,6,7	3	-	-	3
7	21IT001	Fundamentals of Multimedia	3,5,7	3	-	-	3

8	21BS001	Nano Materials and Technology	1,12	3	-	-	3
9	21DS001	Fundamentals of Data Science	1,2	3	-	-	3
10	21CE002	Air Pollution and Environmental Impact Assessment	6,7,12	3	-	-	3
11	21EE002	Renewable Energy Sources	1,2,3,6,7,12	3	-	-	3
12	21ME002	Principles of Entrepreneurship	1,5,8,11	3	-	-	3
13	21EC002	Electronics for Agriculture	1,2	3	-	-	3
14	21CS002	Fundamentals of Machine Learning	2,5	3	-	-	3
15	21CH002	Industrial Safety and Hazard Management	1,2,3,6,8	3	-	-	3
16	21IT002	Fundamentals of Cloud Computing	2,6,7,8,12	3	-	-	3
17	21BS002	Advanced Numerical Techniques	1,2	3	-	-	3
18	21BS003	Functional Materials and Applications	1,7	3	-	-	3
19	21CE003	Solid Waste Management	3,7,12	3	-	-	3
20	21EE003	Fundamentals of Electrical Vehicle Technology	1,2,3,6,7,12	3	-	-	3
21	21ME003	Industrial Engineering and Management	1,11	3	-	-	3
22	21EC003	Interfacing and Programming with Arduino	1,2	3	-	-	3
21	21CS003	Data Science for Engineering Applications	2,3,4	3	-	-	3
24	21CH003	Industrial Ecology for Sustainable Development	2,6,7	3	-	-	3
25	21IT003	Fundamentals of Mobile Computing	1,7	3	-	-	3
26	21BS004	Advanced Materials of Renewable Energy	1,7	3	-	-	3
27	21BS005	Applied Linear Algebra for Engineers	1,12	3	-	-	3
28	21CE019	Green Buildings	1,7,12	3	-	-	3
29	21EE017	Sustainable Energy	1,2,3,6,7,12	3	-	-	3
30	21ME019	Total Quality Management	1,11	3	-	-	3
31	21EC011	Communication Technologies	1,2	3	-	-	3
32	21CS020	Applications of Artificial Intelligence	2,3,6,7	3	-	-	3
33	21CH016	Green Technologies	2,6,7	3	-	-	3
34	21IT015	Human Computer Interaction	1,7	3	-	-	3
35	21BS006	Handling of Industrial waste and waste water	1,7	3	-	-	3
36	21OE001	Robotics and Automation	5,6,7	3	-	-	3
37	21OE002	Introduction to IoT	1,2	3	-	-	3
38	21OE003	Fundamentals of Image processing	1,2	3	-	-	3
39	21OE004	Fundamentals of Data Acquisition systems	1,2	3	-	-	3
40	21OE005	Airport Operations Management	2,4,11,12	3	-	-	3
41	21OE006	Fundamentals of Embedded Systems	1,2	3	-	-	3
42	21OE007	Remote Sensing and GIS	1,2,5,7,10	3	-	-	3
43	21OE008	Big Data Analytics	1,7	3	-	-	3
44	21OE009	Fundamentals of Cyber Security	3,6,8	3	-	-	3
45	21OE010	Smart Cities	7,12	3	-	-	3
46	21OE011	Nano Materials and Thin Film Technology	1,12				
47	21CSMC1	Cloud computing	2,3	3	-	-	3
48	21CSMC2	Ethical Hacking	1,2,3	3	-	-	3
49	21CSMC3	Fundamentals of Web Development	2,3,5	3	-	-	3
50	21OE012	Business Intelligence & Analytics	2,3,5	3	-	-	3
51	21OE013	Introduction To Industry 4.0 And Industrial IoT	2,3	3	-	-	3
52	21OE014	Natural Language Processing	2,3	3	-	-	3
Audit Course							
1	21AT001	Communication Etiquette in Workplaces	-	-	-	-	-
2	21AT002	Contemporary India: Economy, Policy and Society	-	-	-	-	-
3	21AT003	Design The Thinking	-	-	-	-	-
4	21AT004	Ethics and Integrity	-	-	-	-	-
5	21AT005	Indian Heritage and Culture	-	-	-	-	-
6	21AT006	Intellectual Property Rights and Patents	-	-	-	-	-
7	21AT007	Introduction to Journalism	-	-	-	-	-
8	21AT008	Mass Media Communication	-	-	-	-	-
9	21AT009	Science, Technology and Development	-	-	-	-	-
10	21AT010	Social Responsibility	-	-	-	-	-
11	21AT011	The Art of Photography and Film Making	-	-	-	-	-
12	21AT012	Gender Equality for Sustainbility	-	-	-	-	-

13	21AT013	Women in Leadership	-	-	-	-	-
14	21AT014	Introduction to Research Methodology	-	-	-	-	-
15	21AT015	Climate Chnages and Circular Economy					
B. Tech. (Honors)							
Domain I: AI in Electrical and Electronics Engineering							
01	21EEH11	Computational Intellegence in Electrical Engineering	1,2,3,6,12,PSO1,PSO2	4	-	-	4
02	21EEH12	Data analytics in Electrical Engineering	1,2,3,6,7,12,PSO1,PSO2	4	-	-	4
03	21EEH13	Internet of Things in Electrical Engineering	1,2,3,6,7,12,PSO1,PSO2	4	-	-	4
04	21EEH14	Introduction to Smart Cities	1,2,3,6,7,12,PSO1,PSO2	4	-	-	4
Domain II: Power Systems							
01	21EEH21	Design and Layout of Power Systems	1,2,3,6,7,12,PSO1,PSO2	4	-	-	4
02	21EEH22	Distributed Generation Technologies	1,2,3,6,7,11,12,PSO1,PSO2	4	-	-	4
03	21EEH23	Distribution System Planning and Automation	1,2,3,6,7,8,12,PSO1,PSO2	4	-	-	4
04	21EEH24	Power Quality	1,2,3,6,7,8,12,PSO1,PSO2	4	-	-	4
Domain III: Control Systems							
01	21EEH31	Adaptive Control Systems	1,2,3,12,PSO1,PSO2	4	-	-	4
02	21EEH32	Introduction to Autonomous Vehicles	1,2,3,6,12,PSO1,PSO2	4	-	-	4
03	21EEH33	Introduction to Robust Control Systems	1,2,3,6,12,PSO1,PSO2	4	-	-	4
04	21EEH34	Optimal Control Systems	1,2,3,6,12,PSO1,PSO2	4	-	-	4
Domain IV: Power Electronics and Drives							
01	21EEH41	Advanced Power Electronics	1,2,3,6,12,PSO1,PSO2	4	-	-	4
02	21EEH42	Flexible AC Transimission Systems	1,2,3,6,12,PSO1,PSO2	4	-	-	4
03	21EEH43	Power Electronic Control of DC Drives	1,2,3,6,12,PSO1,PSO2	4	-	-	4
04	21EEH44	Power Electronic Control of AC Drives	1,2,3,6,12,PSO1,PSO2	4	-	-	4
B. Tech. (Minors)							
Electrical and Electronics Engineering							
01	21EEM01	Electrical Machines	1,2	4	-	-	4
02	21EEM02	Power Systems	1,2,3,PSO1	4	-	-	4
03	21EEM03	Power Electronics and Drives	2,3,PSO1,PSO2	4	-	-	4
04	21EEM04	Electrical Measurements and Instrumentation	1,2,3	4	-	-	4