ANIL NEERUKONDA INSTITUTE OF TECHNOLOGY & SCIENCES (AUTONOMOUS)

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING -CURRICULUM

REGULATIONS – R20

1st Year

Semester – I

Course Code	Title of the course	Category	Periods						Sessional Marks	Semester end Exam marks	Total Marks	Credits
			L	T	P	E	O	Total				
EEE111	Engineering Mathematics – I	BS	3	0	0	1	6	10	40	60	100	3
EEE112	Engineering Physics	BS	3	0	0	1	4	8	40	60	100	3
EEE113	Engineering Chemistry	BS	3	0	0	1	4	8	40	60	100	3
EEE114	Engineering Drawing	ES	2	0	3	1	2	8	40	60	100	3.5
EEE115	Digital Logic Design	ES	2	1	0	1	5	9	40	60	100	3
EEE116	Engineering Physics Lab	BS	0	0	3	0	1	4	50	50	100	1.5
EEE117	Engineering Chemistry Lab	BS	0	0	3	0	1	4	50	50	100	1.5
EEE118	Engineering Workshop	ES	0	0	3	0	1	4	50	50	100	1.5
EEE119	Human Values and Professional Ethics (Mandatory Non-Credit Course)	HS	3	0	0	0	1	4	50	0	50	-
Total			**16**	**1**	**12**	**5**	**25**	**59**	**400**	**450**	**850**	**20**

Semester – II

Course Code	Title of the course	Category	Periods						Sessional Marks	Semester end Exam marks	Total Marks	Credits
			L	T	P	E	O	Total				
EEE121	Engineering Mathematics-II	BS	3	0	0	1	6	10	40	60	100	3
EEE122	Communicative English	HS	3	0	0	1	3	7	40	60	100	3
EEE123	Basics of Electronics Engineering (BEE)	ES	3	0	0	1	5	9	40	60	100	3
EEE124	Fundamentals of Electrical Engineering (FEE)	ES	2	1	0	1	5	9	40	60	100	3
EEE125	Problem solving with C	ES	3	0	0	0	3	6	40	60	100	3
EEE126	Language Laboratory	HS	0	0	3	0	1	4	50	50	100	1.5
EEE127	Problem solving with C– Laboratory	ES	0	0	3	0	3	6	50	50	100	1.5
EEE128	Environmental Science (Mandatory non-credit course)	BS	3	0	0	0	1	4	50	0	50	-
Total			**17**	**1**	**6**	**4**	**27**	**55**	**350**	**400**	**750**	**18**

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2nd Year

Semester - I

Course Code	Title of the course	Category	Periods						Sessional Marks	Semester end Exam marks	Total Marks	Credits
			L	T	P	E	O	Total				
EEE211	Engineering Mathematics – III	BS	3	0	0	1	5	9	40	60	100	3
EEE212	Engineering Mechanics & Strength of Materials	ES	2	1	0	1	5	9	40	60	100	3
EEE213	Network Theory	PC	2	1	0	1	5	9	40	60	100	3
EEE214	Electrical Measurements	PC	3	0	0	1	5	9	40	60	100	3
EEE215	Electronics Circuits and Analysis	PC	3	0	0	1	4	8	40	60	100	3
EEE216	Microprocessors and Micro Controllers	PC	3	0	0	1	4	8	40	60	100	3
EEE217	Networks & Measurements Laboratory	PC	0	0	3	0	1	4	50	50	100	1.5
EEE218	Electronics Laboratory -I	PC	0	0	3	0	1	4	50	50	100	1.5
Total			**16**	**2**	**6**	**6**	**30**	**60**	**340**	**460**	**800**	**21**

Semester - II

Course Code	Title of the course	Category	Periods						Sessional Marks	Semester end Exam marks	Total Marks	Credits
			L	T	P	E	O	Total				
EEE221	Engineering Mathematics – IV	BS	3	0	0	1	6	10	40	60	100	3
EEE222	Thermo Dynamics and Mechanics of Fluids	ES	2	1	0	1	5	9	40	60	100	3
EEE223	Signals & Systems	PC	3	0	0	1	4	8	40	60	100	3
EEE224	Electromagnetics	PC	3	0	0	1	4	8	40	60	100	3
EEE225	Performance of DC Machines and Transformers	PC	2	1	0	1	5	9	40	60	100	3
EEE226	Electrical Power Generation and Utilization	PC	3	0	0	1	4	8	40	60	100	3
EEE227	Electrical Machine Laboratory-1	PC	0	0	3	0	1	4	50	50	100	1.5
EEE228	Digital Electronics, Micro Processors and Controllers Laboratory	PC	0	0	3	0	1	4	50	50	100	1.5
Total			**16**	**2**	**6**	**6**	**30**	**60**	**340**	**460**	**800**	**21**

Value Added Course: Data Structures (2-1)

Value Added Course: Introduction to MATLAB/PSPICE etc. (2-2)

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3rd Year

Semester - I

Course Code	Title of the course	Category	Periods						Sessional Marks	Semester end Exam marks	Total Marks	Credits
			L	T	P	E	O	Total				
EEE311	Open Elective-I	OE	3	0	0	1	3	7	40	60	100	3
EEE312	Embedded Systems	SC	3	0	0	1	3	7	40	60	100	3
EEE313	Pulse, Digital and Integrated Circuits	PC	3	0	0	1	3	7	40	60	100	3
EEE314	Linear Control Systems	PC	2	1	0	1	3	7	40	60	100	3
EEE315	Performance of Induction and Synchronous Machines	PC	2	1	0	1	3	7	40	60	100	3
EEE316	Power Transmission and Distribution	PC	2	1	0	1	3	7	40	60	100	3
EEE317	Quantitative Aptitude –I / Verbal Aptitude-I	HS	0	0	3	0	3	6	100	0	100	1.5
EEE318	Design Thinking	SC	2	0	2	0	0	4	0	0	0	0
EEE319	Embedded Systems Laboratory	PC	0	0	3	0	2	5	50	50	100	1.5
EEE3110	Electronics Laboratory –II	PC	0	0	3	0	2	5	50	50	100	1.5
EEE3111	Summer Internship	PR	0	0	0	0	0	0	0	0	0	2
Total			**15**	**3**	**9**	**6**	**25**	**62**	**440**	**460**	**900**	**24.5**

Open Elective-I	
S. No.	**Name of the Course**
1.	**Python - The Practical and Hands-on approach**
2.	Introduction to Java
3	Competitive Programming
4.	Computer Architecture and Organization
	Infosys Springboard Courses
4.	Computational Problem Solving
5.	Programming Fundamentals using Python - Part 1
6.	Data Structures and Algorithms: The Complete Master class
7.	Data Structures and Algorithms using Python - Part 1
8.	Machine Learning, NLP & Python
9.	Data Analysts Toolbox: Excel, Python, Power BI
10.	Advanced Python Concepts
11.	Programming Fundamentals using Python - Science Graduates - Foundation Program
12.	Hands-On Deep Learning on Artificial Neural Networks
13.	Learn Python and Ethical Hacking from Scratch
14.	Data Structures and Algorithms using Java

Value Added Course: Introduction to MATLAB/PSPICE etc. (3-1)

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3rd Year

Semester - II

Course Code	Title of the course	Category	Periods						Sessional Marks	Semester end Exam marks	Total Marks	Credits
			L	T	P	E	O	Total				
EEE321	**Open Elective-II**	OE	3	0	0	1	2	6	40	60	100	3
EEE322	**Professional Elective –I**	PE	3	0	0	1	3	7	40	60	100	3
EEE323	**Professional Elective –II**	PE	3	0	0	1	3	7	40	60	100	3
EEE324	Power Electronics	PC	3	0	0	1	5	9	40	60	100	3
EEE325	Power System Analysis	PC	2	1	0	1	6	10	40	60	100	3
EEE326	Engineering Economics & Management	HS	2	1	0	1	6	10	40	60	100	3
EEE327	Quantitative Aptitude –II / Soft Skills	HS	0	0	3	0	2	5	100	0	100	1.5
EEE328	Research Methodology	SC	2	0	0	0	0	2	0	0	0	0
EEE329	Control Systems Lab	PC	0	0	3	0	1	4	50	50	100	1.5
EEE3210	Electrical Machines Lab – II	PC	0	0	3	0	1	4	50	50	100	1.5
Total			**16**	**2**	**9**	**6**	**29**	**62**	**440**	**460**	**900**	**22.5**

Open Elective-II	
S. No.	**Name of the Course**
1.	**DBMS/SQL**
2.	Competitive Programming
3.	Introduction to Java
4.	Computer Architecture and Organization
	Infosys Springboard Courses
5.	Computational Problem Solving
6.	Programming Fundamentals using Python - Part 1
7.	Python - The Practical and Hands-on approach
8.	Data Structures and Algorithms: The Complete Master class
9.	Data Structures and Algorithms using Python - Part 1
10.	Machine Learning, NLP & Python
11.	Data Analysts Toolbox: Excel, Python, Power BI
12.	Advanced Python Concepts
13.	Programming Fundamentals using Python - Science Graduates - Foundation Program
14.	Hands-On Deep Learning on Artificial Neural Networks
15.	Learn Python and Ethical Hacking from Scratch
16.	Data Structures and Algorithms using Java

Professional Elective –I
1. **Advanced Control Systems**
2. HVDC
3. VLSI
4. Electrical Engineering Materials

Professional Elective –II
1. **Power System Protection**
2. Electrical Drives & Traction
3. Digital Control Systems
4. Digital Signal Processing

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4th Year

Semester – I

Course Code	Title of the course	Category	Periods						Sessional Marks	Semester end Exam marks	Total Marks	Credits
			L	T	P	E	O	Total				
EEE411	**Open Elective-III**	OE	3	0	0	1	2	6	40	60	100	3
EEE412	**Professional Elective –III**	PE	3	0	0	1	2	6	40	60	100	3
EEE413	**Professional Elective –IV**	PE	3	0	0	1	2	6	40	60	100	3
EEE414	**Professional Elective –V**	PE	3	0	0	1	2	6	40	60	100	3
EEE415	Power Electronics Laboratory	PC	0	0	3	0	1	4	50	50	100	1.5
EEE416	Power Systems Simulation Laboratory	PC	0	0	3	0	1	4	50	50	100	1.5
EEE417	Project -I	PR	0	0	3	0	1	4	100	0	100	2
EEE418	Summer Internship	PR	0	0	0	0	1	1	100	0	100	2
Total			**12**	**0**	**9**	**4**	**15**	**40**	**460**	**340**	**800**	**19**

Open Elective-III	
S. No.	**Name of the Course**
1.	DBMS/SQL
2.	Competitive Programming
3.	**Introduction to Java**
4.	Computer Architecture and Organization
	Infosys Springboard Courses
1.	Computational Problem Solving
2.	Programming Fundamentals using Python - Part 1
3.	Python - The Practical and Hands-on approach
4.	Data Structures and Algorithms: The Complete Master class
5.	Data Structures and Algorithms using Python - Part 1
6.	Machine Learning, NLP & Python
7.	Data Analysts Toolbox: Excel, Python, Power BI
8.	Advanced Python Concepts
9.	Programming Fundamentals using Python - Science Graduates - Foundation Program
10.	Hands-On Deep Learning on Artificial Neural Networks
11.	Learn Python and Ethical Hacking from Scratch
12.	Data Structures and Algorithms using Java

Professional Elective –III
1. **Electric Hybrid Vehicles**
2. Nonlinear Systems
3. Smart Grid
4. HVDC & FACTS

Professional Elective –IV
1. **Energy Management & Control**
2. Electrical Engineering Drawing
3. AI Techniques in Electrical Engineering
4. E H V A C

Professional Elective –V
1. Renewable Energy Technologies
2. Advanced Power Electronic Converters
3. Process Control & Automation
4. Modern Industrial Drives

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4th Year											
Semester – II											
Course Code	Title of the course	Category	Periods						Sessional Marks	Semester end Exam marks	Total Marks	Credits
			L	T	P	E	O	Total				
EEE421	**Open Elective-IV**	OE	3	0	0	1	2	6	0	0	100	3
EEE422	Project – II / Internship in Industry	PR	0	0	9	0	2	11	100	100	200	8
Total			**9**	**0**	**9**	**2**	**8**	**28**	**180**	**320**	**500**	**11**

Open Elective-IV	
S. No.	**Name of the Course**
1.	DBMS/SQL
2.	Competitive Programming
3.	Introduction to Java
4.	Computer Architecture and Organization
	Infosys Springboard Courses
1.	Computational Problem Solving
2.	Programming Fundamentals using Python - Part 1
3.	Python - The Practical and Hands-on approach
4.	Data Structures and Algorithms: The Complete Master class
5.	Data Structures and Algorithms using Python - Part 1
6.	Machine Learning, NLP & Python
7.	Data Analysts Toolbox: Excel, Python, Power BI
8.	Advanced Python Concepts
9.	Programming Fundamentals using Python - Science Graduates - Foundation Program
10.	Hands-On Deep Learning on Artificial Neural Networks
11.	Learn Python and Ethical Hacking from Scratch
12.	Data Structures and Algorithms using Java

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Open Electives offered by EEE Department for Other Branches (Except EEE Branch)

Name of the Track	Open Elective-I	Open Elective-II	Open Elective-III	Open Elective-IV
Energy Management	Introduction to Renewable Energy	Utilization and Conservation of Electrical Energy	Basics of Energy Auditing and Management	NPTEL/Coursera

Minor Engineering Courses offered by EEE Department for Other Branches (Except EEE Branch)

TRACK -1 POWER SYSTEMS	TRACK -2 POWER ELECTRONICS & DRIVES	TRACK- 3 CONTROL SYSTEMS	TRACK- 4 ENERGY SYSTEMS
Distribution System Planning & Automation	Advanced Power Electronics	State Estimation & System Identification	Energy Conservation & Audit
Restructured Power Systems	Advanced Electrical Drives	Digital Control Systems	Utilization of Electrical Energy
HVDC & FACTS	HVDC & FACTS	Non Linear Control Systems	Solar & Fuel cell Energy Systems
Power Quality	Power Quality	Optimal Control Systems	Wind & Biomass Energy Systems
Smart Grid Technologies	Hybrid Electrical Vehicles	Adaptive Control Systems	Nuclear, Geothermal & Tidal Energy Systems

Honors Engineering Courses offered by EEE Department (For EEE Branch)

S. No	POOL 1 (2-2)	POOL 2 (3-1)	POOL 3 (3-2)	POOL 4 (4-1)
1	Advanced Network Theory	Medical Electronics	Distribution System Planning & Automation	Grid Integration of Renewable Energy system
2	Advanced Digital Logic Design	Electro Magnetic Interference	Control System Components	Real Time Control of Power systems
3	Solid State Lighting Design	Opto Electronics	Modelling of Electrical Machines	Switched Mode Power Conversion
4	Electronic Measurement	Principles of Electric power Conversion	Design of Electrical Systems	AHVE
5	Electrical Engineering Materials	Illumination Technology	Analog & Digital System Design	AI Techniques in Electrical Engineering
6	Nanotechnology and Applications	Industrial Instrumentation and Automation	Green Technology	Power Semiconductor Drives & Control

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Category wise Credits Distribution

Course Components	Curriculum Content (% of total number of credits of the program)	Total number of contact hours	Total number of credits	AICTE	APSCHE
Humanities and Social Sciences	6.56	38	10.5	12	10
Basic Sciences	13.125	67	21	25	21
Engineering Sciences	15.313	26	24.5	24	24
Program Core	36.56	69	58.5	48	51
Program Electives	9.375	15	15	18	15
Open Electives	7.5	12	12	18	12
Project(s)	8.75	12	14	15	17
Skill Course	2.813	12	4.5	0	10
Total number of Credits			**160**	**160**	**160**