SRI VENKATESWARA COLLEGE OF ENGINEERING

(AUTONOMOUS)

Karakambadi Road Tirupati - 517 507

B.Tech EEE

Course Structures and Syllabus under

R20 Regulations

Electrical and Electronics Engineering

Semester - I (Theory - 6, Lab - 4)					
S. No	**Course No**	**Course Name**	**Category**	**L-T-P/D**	**Credits**
1.	MA20ABS101	Linear Algebra and Calculus	BS	3-0-0	3
2.	PH20ABS103	Applied Physics	BS	3-0-0	3
3.	EG20AHS101	Communicative English	HS	3-0-0	3
4.	EE20AES103	Fundamentals of Electrical Circuits	ES	3-0-0	3
5.	ME20AES102	Engineering Drawing	ES	1-0-0/2	2
6.	ME20AES103	Engineering Graphics Lab	ES	0-0-2	1
7.	PH20ABS104	Applied Physics Lab	BS	0-0-3	1.5
8.	EG20AHS102	Communicative English Lab	HS	0-0-3	1.5
9.	EE20AES104	Fundamentals of Electrical Circuits Lab	ES	0-0-3	1.5
10.	MA20AMC101	Logical Skills for Professionals-I	MC	2-0-0	0.0
				Total	**19.5**

Semester – II (Theory – 6, Lab – 5)					
S. No	**Course No**	**Course Name**	**Category**	**L-T-P**	**Credits**
1.	MA20ABS201	Differential Equations and Vector Calculus	BS	3-0-0	3
2.	CH20ABS103	Chemistry	BS	3-0-0	3
3.	CS20AES101	Problem Solving using C	ES	3-0-0	3
4.	EE20AES201	Electrical Circuit Analysis	ES	3-0-0	3
5.	ME20AES101	Engineering Workshop	ES	0-0-3	1.5
6.	CS20AES103	IT Workshop	ES	0-0-3	1.5
7.	CS20AES102	Problem Solving using C Lab	ES	0-0-3	1.5
8.	CH20ABS104	Chemistry Lab	BS	0-0-3	1.5
9.	EE20AES202	Electrical Circuit & Simulation Lab	ES	0-0-3	1.5
10.	CH20AMC201	Environmental Science	MC	2-0-0	0.0
11.	EG20AMC101	Speech & Oral Communication	MC	2-0-0	0.0
				Total	**19.5**

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Semester -III (Theory - 7, Lab - 4) (Second Year)					
S. No	**Course No**	**Course Name**	**Category**	**L-T-P/D**	**Credits**
1.	MA20ABS302	Complex Variables & Transforms	BS	3-0-0	3
2.	EE20APC301	Control Systems	PC	3-0-0	3
3.	EE20APC302	DC Machines & Transformers	PC	3-0-0	3
4.	EC20APC307	Semiconductor Devices and Circuits	PC	3-0-0	3
5.	BA20AHS301 BA20AHS302 BA20AHS303	**Humanities Elective-I** Managerial Economics and Financial Analysis Business Environment Organizational Behavior	HS	3-0-0	3
6.	EE20APC303	DC Machines &Transformers Lab	PC	0-0-3	1.5
7.	EC20APC308	Semiconductor Devices and Circuits Lab	PC	0-0-3	1.5
8.	EE20APC304	Control Systems & Simulation Lab	PC	0-0-3	1.5
9.	IT20ASC301	Application Development using Python	SC	1-0-2	2
10.	CH20AMC301	Biology For Engineers	MC	2-0-0	0.0
11	MA20AMC301	Logical Skills for Professionals-II	MC	2-0-0	0.0
12	EG20AMC301	Enhancing English Language Skills (Only for Lateral Entry Students)	MC	2-0-0	0.0
				Total	**21.5**

Semester – IV (Theory – 7, Lab – 4) (Second Year)					
S. No	**Course No**	**Course Name**	**Category**	**L-T-P**	**Credits**
1.	CS20AES401	Data Structures using C	ES	3-0-0	3
2.	MA20ABS401	Numerical Methods, Probability & Statistics	BS	3-0-0	3
3.	EE20APC401	Rotating AC Machines	PC	3-0-0	3
4.	EC20AES301	Digital Electronics & Microprocessors	PC	3-0-0	3
5.	EE20APC402	Electromagnetic Field Theory	PC	3-0-0	3
6.	CS20AES402	Data Structures Lab	ES	0-0-3	1.5
7.	EC20AES302	Digital Electronics & Microprocessors Lab	PC	0-0-3	1.5
8.	EE20APC403	AC Machines Lab	PC	0-0-3	1.5
9.	EG20ASC301	Soft Skills	SC	1-0-2	2
10	*BA20AHS201	Universal Human Values	HS	2-0-0	*3
11	SH20AAC401	Extra Academic Activities (NSS/Yoga/Cultural/Games and Sports/ Societal Relationship)	AC	2-0-0	0.0
12.	MA20AMC401	Engineering Mathematics (Only for Lateral Entry Students)	MC	2-0-0	0.0
				Total	**24.5**
	Community Service Project – After the end of IV Semester – 4 Weeks – 1.5 Credits				
	Honors / Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)			4-0-0	4

***UHV is considered as credit based course from 2021 batch**

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Semester - V (Theory - 7, Lab - 3) (Third Year)					
S.No	**Course No**	**Course Name**	**Category**	**L-T-P/D**	**Credits**
1.	EC20APC403	Linear & Digital IC Applications	PCC	3-0-0	3
2.	EE20APC501	Power Electronics	PCC	3-0-0	3
3.	EE20APC502	Power System Architecture	PCC	3-0-0	3
4	EE20APE501 EE20APE503 EE20APE504	**Professional Elective Courses-I** • Advanced Control systems • Programmable Logic Controllers • Smart Grid & Electric Vehicles	PEC-I	3-0-0	3
5	CS20AOE501 EC20AOE501 AM20A0E501 CE20AOE502 AM20AOE503	**Open Elective Course/ Job oriented elective-I** • Computer Applications using programming Tools • Basic VLSI Design • Introduction to Operating Systems • Principles of Waste Management • Soft Computing Techniques	OEC-I	3-0-0	3
6.	EC20APC405	Linear & Digital IC Applications Lab	PCC LAB	0-0-3	1.5
7.	EE20APC503	Power Electronics & Simulation Lab	PCC LAB	0-0-3	1.5
8.	EE20ASC501	Software tools for Electrical Applications development	SC	1-0-2	2
9.	BA20AMC501	Constitution of India	MC	2-0-0	0.0
10	EE20ATS501	Technical Seminar Presentation-I	TS	0-0-0	0.5
11	IT20AMC501	Problem Solving & Programming (Only for Lateral Entry Students)	MC	2-0-0	0.0
12	EE20AIP501	Evaluation of Community Service Project (Completed after the end of IV Semester with 4 Weeks duration)	IP	0-0-0	1.5
				Total	**22**
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)				4-0-0	**4**
MOOCS/NPTEL					**2**

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Semester - VI (Theory - 7, Lab - 4) (Third Year)					
S.No	**Course No**	**Course Name**	**Category**	**L-T-P**	**Credits**
1.	EE20APC601	Electrical Measurements & Sensors	PCC	3-0-0	3
2.	EE20APC602	Power System Analysis	PCC	3-0-0	3
3.	EE20APC603	Power System Protection	PCC	3-0-0	3
4.	EE20APE601 EE20APE602 EE20APE603	**Professional Elective Courses-II** • Applications of Power Electronics to Renewable Energy Source • Battery Technologies • Energy Auditing & Energy Conservation	PEC-II	3-0-0	3
5.	CS20AOE601 CE20AOE601 CS20AOE602 EC20AOE602 ME20AOE502	**Open Elective Course/ Job oriented elective-II** • Data Analysis Using R • Disaster Management • JAVA Programming • Signal Processing • Solar & Wind Energy Systems	OEC-II	3-0-0	3
6	EE20APC604	Electrical Measurements & Sensors Lab	PCC LAB	0-0-3	1.5
7.	EE20APC605	Power Systems & Protection Lab	PCC LAB	0-0-3	1.5
8.	EE20APC606	Power Systems Simulation Lab	PCC LAB	0-0-3	1.5
9.	EC20ASC601	Graphical System Design Using LabVIEW/ MOOCS/NPTEL	SC	1-0-2	2
10.	BA20AMC502	Intellectual Property Rights & Patents	MC	2-0-0	0
11	EE20ATS601	Technical Seminar Presentation-II	TS	0-0-0	0.5
12	AM20AMC601	AI Tools, Techniques and Applications (Only for Lateral Entry Students)	MC	2-0-0	0
				Total	**22**
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)				4-0-0	**4**
Mini Project minimum of 4 weeks (Mandatory) during summer vacation					
MOOCS/NPTEL					**2**

Semester - VII (Theory – 6 Lab-1) (Fourth Year)					
S.No	**Course No**	**Course Name**	**Category**	**L-T-P**	**Credits**
1.	EE20APE701 EE20APE702 EE20APE703	**Professional Elective-III** • Power Quality • Power System Operation & Control • Switched mode Power Converters	PEC-III	3-0-0	3
2.	EE20APE704 EE20APE705 EE20APE706	**Professional Elective-IV** • Design of Photovoltaic Systems • Power semiconductor Drives • Utilization of Electrical Energy	PEC-IV	3-0-0	3
3.	EE20APE707 EE20APE708 EC20APC603	**Professional Elective-V** • Electrical & Electronics Instrumentation • HVDC and FACTS • Introduction to Digital Signal Processing	PEC-V	3-0-0	3
4.	CE20AOE701 AM20A0E702 CS20AOE701 EC20AOE702 ME20AOE602	**Open Elective Course/ Job oriented elective-III** • Air Pollution and Quality Control • Introduction of Computer Networks • Mobile Application Development Using Android • Principles of Communication Engineering • Power Generation Technologies	OEC-III	3-0-0	3
5.	AM20AOE701 CE20AOE704 EC20AOE704 ME20AOE703 CS20AOE702 AM20AOE601	**Open Elective Course/ Job oriented elective-IV** • Cyber Security & Techniques • Environmental Impact Analysis & Management • Internet of Things • Introduction to Industrial Engineering • Mobile Computing Techniques • Machine Learning & Techniques	OEC-IV	3-0-0	3
6.	BA20AHS702 BA20AHS703 BA20AHS705	**Humanities Elective-II** • E BUSINESS • Entrepreneurship & Incubation • Management science	HS	3-0-0	3
7.	EE20ASC701	Energy Conservation and Audit MOOCS/NPTEL	SC	1-0-2	2
8	EE20ATS701	Technical Seminar Presentation-III	TS	0-0-0	0.5
9	EE20APW701	Project Work Stage-I	PW	0-0-0	2
10	EE20AIP701	Evaluation of Industrial/Research Mini Project	IP	0-0-0	3
				Total	**25.5**
Honors/Minor courses (The hours distribution can be 3-0-2 or 3-1-0 also)				**4-0-0**	**4**

Semester –VIII (Fourth year)					
S.No	**Course No**	**Course Name**	**Category**	**L-T-P**	**Credits**
1.	EE20APW801	Project Work Stage-II/ Full Internship in Industry	PW	0-0-0	8.5
				Total Credits	**8.5**

Note:

- Eligible and interested students can register either for Honors or for Minors in IV Semester as per the guidelines
- Students shall register for NCC/NSS/NSO activities and will be required to participate in an activity for two hours in a week during the semester.
- Lateral entry students shall undergo a bridge course in Mathematics during third Semester.

B.Tech Honors Degree in EEE Course Code	B.Tech Honors Degree in EEE Course Name
IV Semester(Track-I)	**IV Semester(Track-I)**
EE20DPE105	Modern Control Engineering & Principles Of Optimal Control
EE20DPC101	Power Quality
EE20DPE107	Power System Wide Area Monitoring and Control
EE20DPE208	Smart Grid Technologies
V Semester(Track-II)	**V Semester(Track-II)**
EE20DPC102	Advanced Power System Protection
EE20DPE301	Distributed Generation & Micro Grid Control
VI Semester(Track-III)	**VI Semester(Track-III)**
EE20DPE103	HVDC & EHVAC Transmission Systems
EE20DPE108	Optimization & Heuristic search Techniques
VII Semester(Track-IV)	**VII Semester(Track-IV)**
EE20AOE701	Embedded Systems
EE20DPC201	Power System Stability & Control

B. Tech Minor Degree in EEE Course Code	B. Tech Minor Degree in EEE Course Name
IV Semester(Pool-I)	**IV Semester(Pool-I)**
EE20APC302	DC Machines & Transformers
EE20APC401	Rotating AC Machines
V Semester (Pool-II)	**V Semester (Pool-II)**
EE20APC501	Power Electronics
EE20APC502	Power System Architecture
VI Semester (Pool-III)	**VI Semester (Pool-III)**
EE20APE603	Energy Auditing & Energy Conservation
EE20APE504	Introduction to Smart Grid & Electric vehicles
VII Semester (Pool-IV)	**VII Semester (Pool-IV)**
EE20AOE701	Embedded Systems
EE20APE706	Utilization of Electrical Engineering

** B.Tech(Honors) & B.Tech(Minors) students must complete TWO MOOCs Courses before VIII Semester.