



# SREE VIDYANIKETHAN ENGINEERING COLLEGE

(AUTONOMOUS)

Sree Sainath Nagar, Tirupati

Department of Electrical and Electronics Engineering

## Approved Course Structure

Program: B.Tech.- Electrical and Electronics Engineering

Regulations: SVEC-19

Mandatory Induction Program	03 weeks duration
Induction program offered before commencement of the I-Semester course work	Physical activity
	Creative Arts
	Universal Human Values
	Literary
	Proficiency Modules
	Lectures by Eminent People
	Visits to local Areas
	Familiarization to Department/Branch and Innovations

### I B.Tech.- I Semester

Sl. No.	Course Code	Course Title	Contact Periods per week				Credits (C)	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT1BS01	Differential Equations and Multivariable Calculus	3	1	-	4	4	40	60	100
2.	19BT1BS02	Biology for Engineers	2	-	-	2	2	40	60	100
3.	19BT1BS03	Engineering Physics	3	-	-	3	3	40	60	100
4.	19BT10341	Basic Civil and Mechanical Engineering	3	-	-	3	3	40	60	100
5.	19BT10201	Basic Electrical and Electronics Engineering	3	-	-	3	3	40	60	100
6.	19BT1BS31	Engineering Physics Lab	-	-	2	2	1	50	50	100
7.	19BT10231	Basic Electrical and Electronics Engineering Lab	-	-	2	2	1	50	50	100
8.	19BT20331	Engineering Workshop	-	-	2	2	1	50	50	100
			<b>14</b>	<b>1</b>	<b>6</b>	<b>21</b>	<b>18</b>	<b>35</b>	<b>450</b>	<b>800</b>
9.	19BT1AC01	Spoken English	<b>2</b>	-	-	<b>2</b>	-	-	-	-

**I B.Tech.- II Semester**

Sl. No.	Course Code	Course Title	Contact Periods per week				Credits (C)	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT2BS01	Transformation Techniques and Linear Algebra	3	1	-	4	4	40	60	100
2.	19BT1BS04	Engineering Chemistry	3	-	-	3	3	40	60	100
3.	19BT1HS01	Communicative English	3	-	-	3	3	40	60	100
4.	19BT10501	Programming for Problem Solving	3	1	-	4	4	40	60	100
5.	19BT20201	Electric Circuits	3	1	-	4	4	40	60	100
6.	19BT1BS32	Engineering Chemistry Lab	-	-	2	2	1	50	50	100
7.	19BT1HS31	Communicative English Lab	-	-	2	2	1	50	50	100
8.	19BT10331	Computer Aided Engineering Drawing	-	1	2	3	2	50	50	100
9.	19BT10531	Programming for Problem Solving Lab	-	-	2	2	1	50	50	100
10.	19BT20231	Electric Circuits Lab	-	-	2	2	1	50	50	100
<b>Total:</b>			<b>15</b>	<b>4</b>	<b>10</b>	<b>29</b>	<b>24</b>	<b>450</b>	<b>550</b>	<b>1000</b>

**II B.Tech.- I Semester**

Sl. No.	Course Code	Course Title	Contact Periods per week				Credits (C)	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT3BS02	Special Functions and Complex Analysis	3	1	-	4	4	40	60	100
2.	19BT30402	Electronic Devices and Circuits	3	-	-	3	3	40	60	100
3.	19BT30201	Electrical Machines-1	3	1	-	4	4	40	60	100
4.	19BT30202	Electromagnetic Fields	3	-	-	3	3	40	60	100
5.	19BT30203	Signals and Networks	3	-	-	3	3	40	60	100
6.	19BT3HS31	Soft Skills Lab	-	-	2	2	1	50	50	100
7.	19BT30432	Electronic Devices and Circuits Lab	-	-	2	2	1	50	50	100
8.	19BT30231	Electrical Machines-1 Lab	-	-	2	2	1	50	50	100
9.	19BT30232	Signals and Networks Lab	-	-	2	2	1	50	50	100
<b>Total:</b>			<b>15</b>	<b>2</b>	<b>8</b>	<b>25</b>	<b>21</b>	<b>400</b>	<b>500</b>	<b>900</b>
10.	19BT3MC01	Environmental Science	2	-	-	2	-	40	-	40

**II B.Tech.- II Semester**

Sl. No.	Course Code	Course Title	Contact Periods per week				Credits (C)	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT40441	Analog Electronics	3	-	-	3	3	40	60	100
2.	19BT40201	Digital Electronics	3	-	-	3	3	40	60	100
3.	19BT40202	Electrical Machines-2	3	1	-	4	4	40	60	100
4.	19BT40203	Electrical Measurements	3	-	-	3	3	40	60	100
5.	19BT40204	Transmission and Distribution	3	-	-	3	3	40	60	100
6.	<b>Open Elective-1</b>		3	-	-	3	3	40	60	100
7.	19BT40231	Digital Electronics Lab	-	-	2	2	1	50	50	100
8.	19BT40232	Electrical Engineering Workshop	-	-	2	2	1	50	50	100
9.	19BT40233	Electrical Machines-2 Lab	-	-	2	2	1	50	50	100
<b>Total:</b>			<b>18</b>	<b>1</b>	<b>6</b>	<b>25</b>	<b>22</b>	<b>390</b>	<b>510</b>	<b>900</b>
10.	19BT315AC	Design Thinking	2	-	-	2	-	-	-	-

**III B.Tech.- I Semester**

Sl. No.	Course Code	Course Title	Contact Periods per week				Credits (C)	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT40403	Linear and Digital IC Applications	3	-	-	3	3	40	60	100
2.	19BT50201	Control Systems	3	-	-	3	3	40	60	100
3.	19BT50202	Switchgear and Protection	3	-	-	3	3	40	60	100
4.	<b>Professional Elective-1</b>									
	19BT50203	Electrical Machine Design	3	-	-	3	3	40	60	100
	19BT50204	Energy Systems								
	19BT50205	Instrumentation								
	19BT50206	PIC Microcontrollers								
5.	<b>Open Elective-2</b>		3	-	-	3	3	40	60	100
6.	<b>Inter Disciplinary Elective-1</b>									
	19BT50442	Principles of Communications	3	-	-	3	3	40	60	100
	19BT71002	PLC and SCADA								
	19BT51041	Sensors and Signal Conditioning								
	19BT50207	Computer Organization and Architecture								

7.	19BT61531	Internet of Things (IoT) Lab	-	1	2	3	2	50	50	100
8.	19BT40433	Linear and Digital IC Applications Lab	-	-	2	2	1	50	50	100
9.	19BT50231	Socially Relevant Project-1	-	-	-	-	1	50	50	100
<b>Total:</b>			<b>18</b>	<b>1</b>	<b>4</b>	<b>23</b>	<b>22</b>	<b>390</b>	<b>510</b>	<b>900</b>
10.	19BT503AC	Foundations of Entrepreneurship	2	-	-	2	-	-	-	-

**III B.Tech.- II Semester**

Sl. No.	Course Code	Course Title	Contact Periods per week				Credits (C)	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT6HS01	Principles of Business Economics and Accountancy	3	-	-	3	3	40	60	100
2.	19BT60201	Power Electronics	3	-	-	3	3	40	60	100
3.	19BT60202	Power System Analysis	3	-	-	3	3	40	60	100
4.	<b>Professional Elective-2</b>									
	19BT60203	Advanced Control Systems								
	19BT60204	Digital Signal Processing for Electrical Engineering	3	-	-	3	3	40	60	100
	19BT60205	Energy Audit Conservation and Management								
	19BT60206	High Voltage Engineering								
5.	<b>Professional Elective-3</b>									
	19BT50403	VLSI Design								
	19BT60207	Design and Estimation of Electrical Systems	3	-	-	3	3	40	60	100
	19BT60208	Distributed Generation and Microgrid								
	19BT60209	Smart Grid Technology								
6.	<b>Inter Disciplinary Elective-2</b>									
	19BT50406	FPGA Architectures and Applications								
	19BT60407	Image Processing	3	-	-	3	3	40	60	100
	19BT61003	Industrial Data Communication								
	19BT50408	Microelectromechanical Systems								
7.	19BT60231	Electrical CAD Lab	-	-	2	2	1	50	50	100
8.	19BT60232	Power Systems-1 Lab	-	-	2	2	1	50	50	100
9.	19BT60233	Socially Relevant Project-2	-	-	-	-	1	50	50	100
<b>Total:</b>			<b>18</b>	<b>0</b>	<b>4</b>	<b>22</b>	<b>21</b>	<b>390</b>	<b>510</b>	<b>900</b>
10.	19BT5MC01	Universal Human Values	2	-	-	2	-	40	-	40

**IV B.Tech.- I Semester**

Sl. No.	Course Code	Course Title	Contact Periods per week				Credits (C)	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT6HS02	Organizational Behavior	3	-	-	3	3	40	60	100
2.	19BT70201	Power System Operation and Control	3	-	-	3	3	40	60	100
3.	19BT70202	Solid State Drives	3	-	-	3	3	40	60	100
4.	<b>Professional Elective-4</b>									
	19BT70401	Embedded Systems								
	19BT70203	Analysis of Power Electronic Converters	3	-	-	3	3	40	60	100
	19BT70204	Electric Vehicles								
	19BT70205	Power System Automation								
5.	<b>Professional Elective-5</b>									
	19BT70206	HVDC and FACTS								
	19BT70207	Power Electronics for Renewable Energy Systems	3	-	-	3	3	40	60	100
	19BT70208	Soft Computing Techniques								
	19BT70209	Special Electrical Machines								
6.	19BT7MOOC	MOOC	-	-	-	-	3	-	100	100
7.	19BT70231	Power Electronics and Drives Lab	-	-	2	2	1	50	50	100
8.	19BT70232	Power Systems-2 Lab	-	-	2	2	1	50	50	100
9.	19BT70233	Internship	-	-	-	-	2	--	100	100
<b>Total:</b>			<b>15</b>	<b>0</b>	<b>4</b>	<b>19</b>	<b>22</b>	<b>300</b>	<b>600</b>	<b>900</b>
10.	19BT702AC	Probability and Statistics	2	-	-	2	-	-	-	-

*\* Student shall undertake the Industrial Training/Internship/Research Projects in National Laboratories/Academic Institutions for a minimum period of 4 weeks.*

**IV B.Tech.- II Semester**

Sl. No	Course Code	Course Title	Contact Periods per week				Credits (C)	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT80231	Project Work	-	-	-	-	10	100	100	200
<b>Total:</b>			-	-	-	-	<b>10</b>	<b>100</b>	<b>100</b>	<b>200</b>

**LIST OF COURSES FOR**

**OPEN ELECTIVE-1 and OPEN ELECTIVE-2**

Course Code	Open Elective -1	Course Code	Open Elective -2
19BT4BS01	Material Science	19BT4HS01	Banking and Insurance
19BT4HS02	Business Communication and Career Skills	19BT4HS03	Cost Accounting and Financial Management
19BT4HS04	Entrepreneurship for Micro, Small and Medium Enterprises	19BT4HS05	Gender and Environment
19BT4HS06	German Language	19BT4HS07	Indian Economy
19BT4HS08	Indian History	19BT4HS09	Life Skills
19BT4HS10	Personality Development	19BT4HS11	Professional Ethics
19BT4HS12	Women Empowerment	19BT4HS13	Indian Tradition and Culture
19BT4HS14	Constitution of India	19BT40106	Disaster Mitigation and Management
19BT40205	Reliability and Safety Engineering	19BT40107	Sustainable Engineering
19BT50107	Environmental Pollution and Control	19BT40108	Contract Laws and Regulations
19BT50108	Planning for Sustainable Development	19BT40306	Global Strategy and Technology
19BT50109	Rural Technology	19BT40307	Management Science
19BT50505	Ethical Hacking	19BT40504	Cyber Laws and Security
19BT51207	AI in Healthcare	19BT50208	Intellectual Property Rights
19BT51506	Bioinformatics	19BT50409	Green Technologies

**MINOR/HONORS DEGREE PROGRAM**  
**IN**  
**ELECTRIC VEHICLES**

Semester	Course Code	Course Title	Minor/Honors	Contact Periods per week				Credits (C)	Scheme of Examination Max. Marks		
				L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
	19BT50209	Fundamentals of Power Electronics and Drives	M	3	-	-	3	3	40	60	100
	19BT50210	Propulsion Machines in Electric Vehicles	M/H	3	-	-	3	3	40	60	100
	19BT50342	Vehicle Dynamics	M/H	3	-	-	3	3	40	60	100
	19BT50232	Power Electronics Lab	M	-	-	2	2	1	50	50	100
	19BT60210	Controllers for Power Electronic and Drive Systems	M	3	-	-	3	3	40	60	100
	19BT60211	Energy Storage Devices	M/H	3	-	-	3	3	40	60	100
	19BT60212	Switched Mode Power Supplies	M/H	3	-	-	3	3	40	60	100
	19BT60234	Finite Element Analysis for Propulsion Motor Lab	M/H	-	-	2	2	1	50	50	100
	19BT70210	Advanced Electric Drives	M/H	3	-	-	3	3	40	60	100
	19BT70211	Energy Management and Optimization Techniques	M/H	3	-	-	3	3	40	60	100
	19BT70212	Intelligent Controllers for Electric Vehicles	M/H	3	-	-	3	3	40	60	100
	19BT70234	Control of Electric Vehicles Lab	M/H	-	-	2	2	1	50	50	100

**Note:** If the student has already pursued a course from the above list in their curriculum then he/she is NOT eligible to opt for the same in Minor/Honor Degree.

**Honors - 6T + 2L (20 Credits)**

**Minor - 5T + 3L (18 Credits)**



**DEAN (Academics)**

**Dean (Academics)**

**Sree Vidyanikethan Engg. College**  
**Sree Sainath Nagar**  
**TIRUPATI - 517 102, A.P., India.**



**PRINCIPAL**  
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**SREE VIDYANIKETHAN ENGINEERING COLLEGE**  
**(AUTONOMOUS)**  
**Sree Sainath Nagar, A. RANGAMPET**  
**Chittoor (Dist.) - 517 102, A.P., INDIA.**