



# **SREE VIDYANIKETHAN ENGINEERING COLLEGE**

(AUTONOMOUS)

SREE SAINATH NAGAR, A. RANGAMPET-517 102

## **Department of Electrical & Electronics Engineering**

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### **Agenda for 13<sup>th</sup> Meeting of Board of Studies for**

### **B. Tech. (Electrical and Electronics Engineering)**

**on10-07-2021 @ 09.30AM**

1. Action taken report on minutes/resolutions of 11<sup>th</sup>& 12<sup>th</sup> BOS meetings.
2. Report on implementation of Autonomy with respect to syllabi & academic regulations for II B.Tech (under SVEC-19) and I B.Tech (under SVEC-20 regulations).
3. Course Structure, Syllabi with Course Objectives, Course Outcomes, for the Courses of III & IV B.Tech including Minor & Honors Degrees (Under SVEC-19).
4. Course Structure, Syllabi with Course Objectives, Course Outcomes, for the Courses of II, III & IV B.Tech (under SVEC-20) and Course structure of Minor & Honors Degrees (under SVEC-20).
5. Regulation-wise, list of courses in which the content of the syllabus is changed more than 20%.
6. List of new courses introduced in SVEC-19 and SVEC-20.
7. Detailed syllabus of courses.
8. Panel of Examiners for Question paper setting.
9. Substitute Courses.
10. Appraisal on research, teaching, extension and other academic activities, achievements of the Department.
11. Any other item.

**Dr.T. NAGESWARA PRASAD**  
**Chairperson, BOS (EEE)**

**Department of Electrical & Electronics Engineering**

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**Meeting of Board of Studies in**  
**B.Tech. Electrical and Electronics Engineering**

**on**

**10<sup>th</sup> July 2021**

**Minutes of meeting:**

**BoS Members:**

<b>S. No.</b>	<b>Name</b>	<b>Designation</b>
1.	<b>Dr. T. Nageswara Prasad</b> Professor, SVEC	Chairman
2.	<b>Dr. S. Sivanagaraju</b> Professor, Department of EEE, JNTUK College of Engineering, Kakinada.	External Member (Academics)
3.	<b>Dr. G. V. Marutheswar</b> Professor, Department of Electrical Engineering, SV University College of Engineering, Tirupathi	External Member (Academics)
4.	<b>Mr. V. Sreedeeep</b> Senior Lead Engineer, Intel India Pvt. Ltd., Bangalore	External Member (Industry)
5.	<b>Mr. P. Sessa Sai Kumar</b> Research Engineer, Rolls-Royce EPL-SG Lab, Singapore	Alumni (Industry)
6.	<b>Dr. M.S. Sujatha</b> Professor and Head, Dept. of EEE, SVEC	Internal Member
7.	<b>Dr. P. Umapathi Reddy</b> Professor, Dept. of EEE, SVEC	Internal Member
8.	<b>Dr. S. Hema Chandra</b> Professor, Dept. of EEE, SVEC	Internal Member
9.	<b>Dr. T. Devaraju</b> Professor, Dept. of EEE, SVEC	Internal Member
10.	<b>Dr. N.M.G. Kumar</b> Professor, Dept. of EEE, SVEC	Internal Member
11.	<b>Dr. S. Farook</b> Assoc. Professor, Dept. of EEE, SVEC	Internal Member
12.	<b>Dr. E. Parimala Sundar</b> Assoc. Professor, Dept. of EEE, SVEC	Internal Member
13.	<b>Dr. G. Hari Krishnan</b> Assoc. Professor, Dept. of EEE, SVEC	Internal Member
14.	<b>Dr. V. Arun</b>	Internal Member

S. No.	Name	Designation
	Assoc. Professor, Dept. of EEE, SVEC	
15.	<b>Dr. I. Kumara Swamy</b> Assoc. Professor, Dept. of EEE, SVEC	Internal Member
16.	<b>Dr. D. Suresh Babu</b> Assoc. Professor, Dept. of EEE, SVEC	Internal Member
17.	<b>Dr. K. Suresh</b> Asst. Professor, Dept. of EEE, SVEC	Internal Member
18.	<b>Dr. S. Prabhu</b> Asst. Professor, Dept. of EEE, SVEC	Internal Member
19.	<b>Dr. B. Hemanth Kumar</b> Asst. Professor, Dept. of EEE, SVEC	Internal Member
20.	<b>Mr. M. Manohara</b> Assoc. Professor, Dept. of EEE, SVEC	Internal Member

### 1. Action Taken Report on minutes/ resolutions of 12<sup>th</sup> BoS Meeting

The Chairman, BoS Dr. T. Nageswara Prasad presented the action taken report on resolutions of BoS meeting held on 9<sup>th</sup> January, 2021. After deliberations the members have ratified the report. **(Annexure-I)**

### 2. Report on implementation of Autonomy with respect to syllabi & academic regulations for II-B.Tech (under SVEC-19) and I B.Tech (under SVEC-20 regulations).

The Chairman BOS appraised the board on the implementation of autonomy with respect to syllabi and regulations of SVEC-19, II year B. Tech., and regulations of SVEC-20, I B.Tech. The board perused the report and ratified the report. The board congratulated the college authorities for successful implementation of II Year B.Tech of SVEC-19 regulations and I Year B. Tech of SVEC-20 regulations. **(Annexure-II)**

### 3. Course Structure, Syllabi with Course Objectives, Course Outcomes, for the Courses of III & IV B.Tech including Minor & Honors Degrees (Under SVEC-19).

BoS Chairman Dr T. Nageswara Prasad has presented the course structure and detailed syllabus of the courses of SVEC-19. The following are the remarks and comments suggested by the BoS members.

1. Suggested to reconsider the places of *Power System Operation and Control* in IV-I and the course power system analysis, switchgear and protection appropriately upon discussions.
2. Suggested to introduce the course *Utilization of Electrical Energy* in to the B. Tech curriculum which was introduced in Minors degree program.

3. Suggested to rename the course *Utilization of Electrical Energy* as Basics of utilization of electrical energy in minor program.
4. Suggested to reconsider the unit III and unit IV of control system and to balance the weightage of the two chapters, it is suggested to dedicate a unit for frequency domain and a unit for time domain analysis exclusively.
5. Suggested to modify the course content of the course *Power System Operation and Control* keeping the average students into consideration. Suggested to remove the topics related to voltage control from fourth unit and split the fifth unit into two parts consisting of concepts of AGC appropriately. Include the start-up and shut down constraints into the constraints and also include reserve concepts into the constraints; remove the optimal control concepts in LFC of chapter-V.
6. Suggestion given for the course for the course *Energy Systems*:
  - a. to clarify site selection topic for respective hydro and thermal plants.
  - b. suggested to introduce working principle of power plants into the curriculum.
  - c. suggested to change the effects of conventional sources starting with hydro then thermal and nuclear plants.
  - d. suggested to confirm the syllabus as the contents are covering broader aspects which could be difficult for the student.
  - e. suggested to confirm upto renewable energy sources and emphasis more on them.
7. Suggestion given for the course for the course *Digital Signal Processing for electrical engineering*
  - a. Suggested to change the title
  - b. The applications of DSP should come after the completion of the course Power electronics, it's suggested to place the course appropriately in the structure.
  - c. Also suggested to reconsider the content in the chapter applications.
8. Suggested to reconsider the place of the course *PLC and SCADA*.
9. Suggested to introduce the text book of the author Doblin in the course *Sensors and Signal Conditioning*.
10. Suggested to reconsider the place of the course *Power Electronics* into earlier semesters.
11. Suggested to review the content of the syllabus of the course *Power System Analysis* and has given the following suggestions:
  - a. To exclude the Z-bus topic with mutual coupling and confirm to without mutual coupling only.

- b. To rearticulate the second unit Load flow analysis logically.
  - c. Exclude flow charts for the algorithms.
  - d. Exclude line flow and line losses
  - e. Swap unit III and Unit IV
  - f. Exclude the item Synchronous machine connected to infinite bus (SMIB) as it is inherently will be in the syllabus
  - g. Rearrange the item applications as Equal area applications.
  - h. Clearly mention Methods to improve transient and steady state stability in unit-V.
12. Advised to convert the heading introduction to non-linear system into a topic in the unit-I, unit-II and unit-III of the syllabus and exclude popov's criteria in the last unit in the course *Advanced Control Systems*.
  13. Suggested to increase the number of hours for the unit-II for the course *Switchgear and Protection*.
  14. Suggested to review the content of the course *Solid State Drives* as the content looks heavy for an average student. Also review the text book of the author Vedam subramanyam.
  15. Suggested to place *Electrical vehicles* course after the course *Solid State Drives*.
  16. Suggested to go with either *HVDC* or with *FACTS* as an exclusive courses, suggested to exclude *HVDC* and to go with *FACTS controllers*.
  17. In the course *Soft Computing Techniques*, genetic algorithms and particle swarm algorithms units should be kept as first and second units.
  18. Suggested rename the *Power System -I Lab* and *Power System-I* labs appropriately.
  19. Change the title of the course *Electrical Safety and Safe Practices* minor degree course with the same title of with courses having same content.
  20. Suggested to remove the subheadings in second chapter of the course *Sustainable Energy Systems*.
  21. Suggested to replace the content of soft switching with appropriate relevant content in the course *Power Electronics Converters*.
  22. Suggested to review the second unit content in the course security and state estimate and suggested to specify the number of busses in the third unit.
- The suggestions given by the board for improvement of curriculum of svec-19 regulations were implemented appropriately following the logically and satisfying the required pre-requisites. **(Annexure-III)**

- The board has gone through the course structure, course objectives, course outcomes, syllabus and Lesson Plan of III Year, IV B.Tech. courses of SVEC-19 regulations and has approved them. **(Annexure-IV)**
- The board congratulated the department for the efforts put in by the members in articulating the course objectives and course outcomes, the methodology followed in mapping of COs to POs and PSOs, and also exercising the number of hours required with the help of Lesson Plan.
- The board also approved the Model Question Papers of the courses that are in-line with the one suggested by AICTE under Examination Reforms.
- The board has also reviewed the course structure and syllabus content of Minor and Honor degree programs in Electrical Engineering as suggested in the earlier meeting and has apprised the members for framing the syllabus meeting the need of the stake holders. The board has also approved the course structure and syllabus, lesson plan, modal question paper of Minor and Honor degree program in Electrical engineering of SVEC-19 regulations. BoS chairman is authorized to amend the courses and course structure considering the suggestions made by the BoS members. **(Annexure-IV)**

#### **4. Course Structure, Syllabi with Course Objectives, Course Outcomes, for the Courses of II, III & IV B.Tech (under SVEC-20) and Course structure of Minor & Honors Degrees (under SVEC-20).**

- The board has gone through the course structure, course objectives, course outcomes, syllabus and Lesson Plan of II Year, III Year and IV B.Tech. courses of SVEC-20 regulations and has approved them. **(Annexure-V)**
- The board also approved the Model Question Papers of the courses that are in-line with the one suggested by AICTE under Examination Reforms.
- The board has also reviewed the course structure and syllabus content of Minor and Honor degree programs in Electrical Engineering and approved them for implementation in SVEC-20 regulations. BoS chairman is authorized to amend the courses and course structure considering the suggestions made by the BoS members. **(Annexure-V)**

#### **5. Regulation-wise, list of courses in which the content of the syllabus is changed more than 20%.**

The Chairman, BoS Dr. T. Nageswara Prasad presented the list of courses in which, more than 20% changes in the content of the syllabus were made and the board has pursued the content and approved the changes for implementation. **(Annexure-VI)**

#### **6. List of new courses introduced in SVEC-19 and SVEC-20.**

The Chairman, BoS Dr. T. Nageswara Prasad presented the list of new courses introduced in SVEC-19 and SVEC-20 regulations, and the board has pursued the courses and approved them for implementation. **(Annexure-VII)**

### **7. Detailed syllabus of courses.**

The detailed syllabus of various courses of SVEC-19 and SVEC-20 regulations were pursued and appropriate suggestions were made in respective courses for implementation.

### **8. Panel of Examiners for Question paper setting.**

The board has apprised the philosophy of constituting the panel of examiners, and selection process of examiners for setting the question paper for external examinations and shall be furnish to the Chairman, Academic Council for further action. **(Annexure-VIII)**

### **9. Substitute Courses.**

The board authorized the Chairman, BoS to prepare the substitute Courses to be studied by the students, if any, Re-joining B.Tech. but falling under SVEC-19 and SVEC-20 regulations. The same shall be submitted to the Chairman, Academic Council for approval. **(Annexure-IX)**

### **10. Appraisal on research, teaching, extension and other academic activities, achievements of the Department.**

- The Chairman BOS has briefed the members about the state-of-the art equipment procured for research purpose, proposals submitted by the faculty for research funding and the publications made by the faculty and students of EEE department. The members appreciated the efforts made by the faculty and department. **(Annexure-X)**
- The Chairman BoS presented the teaching, learning and evaluation practices followed in the department. The members of BOS appreciated the good practices being followed by the department. **(Annexure-XI)**
- The members have perused, noted and appreciated the efforts of department / college in organizing professional, technical and community development activities. The BoS members have suggested continuing the same. They suggested to encourage students to participate in more number of community activities so that they get integrated with society. **(Annexure-XII)**
- The Chairman appraised the board about the FDPs attended, FDPs organized, and student feedback on faculty. The members appreciated the efforts of the department and suggested to scale-up the number for enhanced outcomes. The

Chairman BoS assured the members that the efforts in this direction will be intensified. **(Annexure-XIII)**

- The members noted the information on good practices. The board congratulated the department for organizing good number of programs for students by IEEE and ISTE chapters, ETA (Electrical Technical Association), Entrepreneurship Cell, NSS unit etc. The members have perused, noted and appreciated the efforts of Mentors for counselling the students on academic, career opportunities and personal issues. **(Annexure-XIV)**

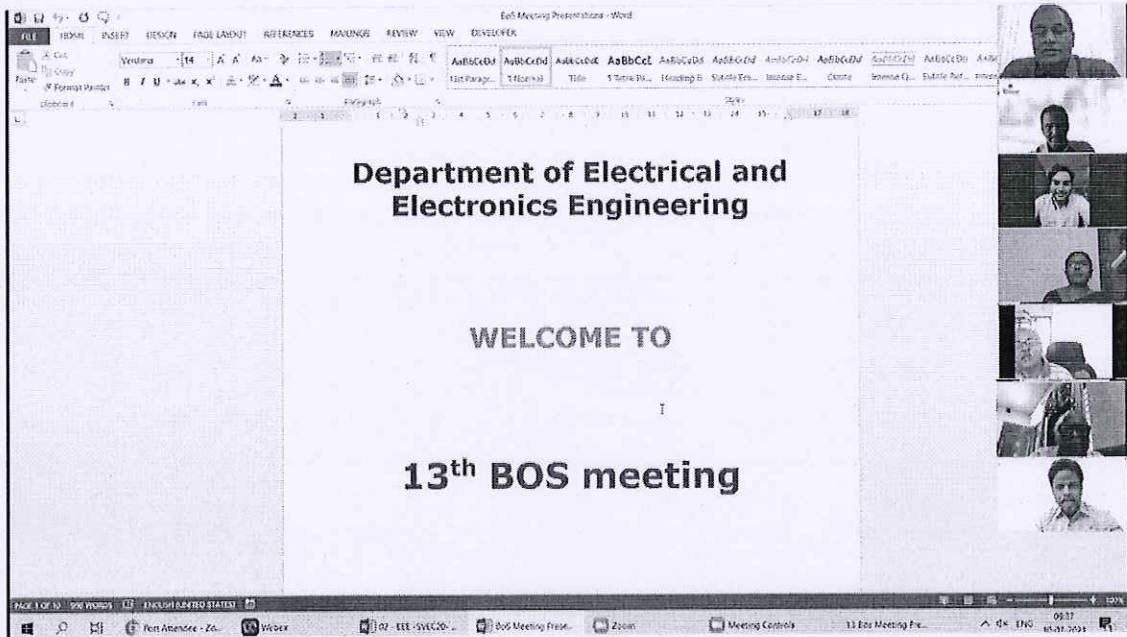
**11. Any other item.**

- The amendments made for MOOC courses in SVEC-19 and SVEC-20 regulations of B. Tech. EEE programs shall be submitted to the Chairman, Academic Council for approval. **(Annexure-XV)**
- The board has suggested to conduct skill oriented courses to bridge the gaps in curriculum.
- Organize more number of certificate programs.
- Members appreciated the pro-active approach of college management and efforts taken by department for the growth of the department and college.



**Members Present: On ZOOM platform in on-line mode**

<b>S. No.</b>	<b>Name</b>	<b>Designation</b>
1.	<b>Dr. T. Nageswara Prasad</b> Professor, SVEC	Chairman
2.	<b>Dr. S. Sivanagaraju</b> Professor, Department of EEE, JNTUK College of Engineering, Kakinada.	External Member (Academics)
3.	<b>Dr. G. V. Marutheswar</b> Professor, Department of Electrical Engineering, SV University College of Engineering, Tirupathi	External Member (Academics)
4.	<b>Mr. P. Sesha Sai Kumar</b> Research Engineer, Rolls-Royce EPL-SG Lab, Singapore	Alumni (Industry)
5.	<b>Dr. M.S. Sujatha</b> Professor and Head, Dept. of EEE, SVEC	Internal Member
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17.	<b>Dr. S. Prabhu</b> Asst. Professor, Dept. of EEE, SVEC	Internal Member
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19.	<b>Mr. M. Manohara</b> Assoc. Professor, Dept. of EEE, SVEC	Internal Member



*T. Nageswara Prasad*

**Dr T Nageswara Prasad**  
**BoS Chairman, EEE Dept.**

**APPROVED COURSE STRUCTURE**

**Program:** B.Tech.- Electrical and Electronics Engineering

**Regulations:** SVEC-19

**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	Power System Operation and Control	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	Energy Audit, Conservation and Management								
	19BT50206	Instrumentation								
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
	19BT51041	PLC and SCADA								
	19BT51042	Sensors and Signal Conditioning								
	19BT50207	Computer Organization and Architecture								
7.	19BT61531	Internet of Things 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-I	-	-	-	-	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	3	-	-	3	3	40	60	100
	19BT60204	High Voltage Engineering								
	19BT60205	Special Electrical Machines								
	19BT60206	PIC Microcontrollers								
5.	<b>Professional Elective-3</b>									
	19BT50403	VLSI Design	3	-	-	3	3	40	60	100
	19BT60207	Design and Estimation of Electrical Systems								
	19BT60208	Distributed Generation and Microgrid								
	19BT60209	Power System Automation								
6.	<b>Inter Disciplinary Elective-2</b>									
	19BT50406	FPGA Architectures and Applications	3	-	-	3	3	40	60	100
	19BT60407	Image Processing								
	19BT50408	Micro electromechanical Systems								
	19BT61003	Industrial Data Communication								
7.	19BT60231	Electrical CAD Lab	-	-	2	2	1	50	50	100
8.	19BT60232	Electrical Power Systems Lab	-	-	2	2	1	50	50	100
9.	19BT60233	Socially Relevant Project-II	-	-	-	-	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	Solid State Drives	3	-	-	3	3	40	60	100
3.	19BT70202	Switchgear and Protection	3	-	-	3	3	40	60	100
4.	<b>Professional Elective-4</b>									
	19BT70401	Embedded Systems	3	-	-	3	3	40	60	100
	19BT70203	Analysis of Power Electronic Converters								
	19BT70204	Electric Vehicles								
	19BT70205	Flexible AC Transmission System								
5.	<b>Professional Elective-5</b>									
	19BT70206	Digital Signal Processing for Electrical Engineering	3	-	-	3	3	40	60	100
	19BT70207	Soft Computing Techniques								
	19BT70208	Smart Grid Technology								
	19BT70209	Power Electronics for Renewable Energy Systems								
6.	19BT7MOOC	MOOC	-	-	-	-	3	-	100	100
7.	19BT70231	Power Electronics and Drives Lab	-	-	2	2	1	50	50	100
8.	19BT70232	Power System Simulation 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	Electrical safety and safety management	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



**Dr.T. NAGESWARA PRASAD**  
Chairperson, BOS (EEE)

**HONORS DEGREE PROGRAM**  
**IN**  
**ELECTRICAL AND ELECTRONICS ENGINEERING**

**Honors degree in a discipline:** a student has to earn 18 extra credits from the core courses of the **honors** discipline.

**Honors – (18 Credits) SIX Theory Courses**

Seme ster	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
III-I	19BT50208	Dynamics of Electrical Machines	3	-	-	3	3	40	60	100
	19BT50209	Machine Learning for Electrical Engineering	3	-	-	3	3	40	60	100
	19BT50210	Reactive Power Compensation and Management	3	-	-	3	3	40	60	100
III-II	19BT60210	Controllers for Power Applications	3	-	-	3	3	40	60	100
	19BT60211	Power Semiconductor Devices and Modeling	3	-	-	3	3	40	60	100
	19BT60212	Power System Reliability	3	-	-	3	3	40	60	100
IV-I	19BT70210	Digital Control of Power Electronic and Drive Systems	3	-	-	3	3	40	60	100
	19BT70211	Power System Deregulation	3	-	-	3	3	40	60	100
	19BT70212	Power System Security and State Estimation	3	-	-	3	3	40	60	100

**Note:** If any student has chosen a course from the above list in their regular curriculum then, he/she is not eligible to opt the same course/s for the Honors degree. It is the responsibility of the student to acquire/complete prerequisite before taking the respective course.



**Dr.T. NAGESWARA PRASAD**  
**Chairperson, BOS (EEE)**

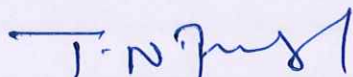
**MINOR DEGREE PROGRAM  
IN  
POWER SYSTEMS AND DRIVES**

Minor degree in a discipline: a student has to earn 18 extra credits from the core courses of the minor discipline.

Minor – (18 Credits) FIVE theory & THREE laboratory courses or SIX Theory Courses

Semester	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
III-I	19BT50211	Electrical Engineering Materials	3	-	-	3	3	40	60	100
	19BT50212	Electricity Safety and Practices	3	-	-	3	3	40	60	100
	19BT50213	Sustainable Energy Systems	3	-	-	3	3	40	60	100
	19BT50232	Electrical workshop Practice	-	-	2	2	1	50	50	100
III-II	19BT60213	Principles of Energy Auditing and Conservation	3	-	-	3	3	40	60	100
	19BT60214	Special Machines and their controllers	3	-	-	3	3	40	60	100
	19BT60215	Utilization of Electrical Energy	3	-	-	3	3	40	60	100
	19BT60234	Auditing and conservation Practice lab	-	-	2	2	1	50	50	100
IV-I	19BT70213	Power Electronic Converters	3	-	-	3	3	40	60	100
	19BT70214	Fundamentals of Electric Vehicles	3	-	-	3	3	40	60	100
	19BT70215	Protection of Electrical systems	3	-	-	3	3	40	60	100
	19BT70234	Simulation of electrical systems lab	-	-	2	2	1	50	50	100

**Note:** If any student has chosen a course from the above list in their regular curriculum then, he/she is not eligible to opt the same course/s for the Minor degree. It is the responsibility of the student to acquire/complete prerequisite before taking the respective course.

  
**Dr.T. NAGESWARA PRASAD**  
**Chairperson, BOS (EEE)**





**SREE VIDYANIKETHAN ENGINEERING COLLEGE**  
(AUTONOMOUS)

Sree Sainath Nagar, Tirupati


**Department of Electrical and Electronics Engineering**

**LIST OF NEW COURSES INTRODUCED**

**Program: B.Tech.- Electrical and Electronics Engineering**

**Regulations : SVEC-19 (III to IV Year)**

S. No.	Course Code	Name of the course
1.	19BT50208	Intellectual Property Rights
2.	19BT51041	PLC and SCADA
3.	19BT50231	Socially Relevant Project-I
4.	19BT61531	Internet of Things Lab
5.	19BT503AC	Foundations of Entrepreneurship
6.	19BT60206	PIC Microcontrollers
7.	19BT60208	Distributed Generation and Microgrid
8.	19BT50406	FPGA Architectures and Applications
9.	19BT61003	Industrial Data Communication
10.	19BT60231	Electrical CAD Lab
11.	19BT60233	Socially Relevant Project-II
12.	19BT5MC01	Universal Human Values
13.	19BT70204	Electric Vehicles
14.	19BT70209	Power Electronics for Renewable Energy Systems
15.	19BT70233	Internship
16.	19BT702AC	Electrical safety and safety management

  
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**APPROVED COURSE STRUCTURE**

**Program:** B.Tech.- Electrical and Electronics Engineering

**Regulations:** SVEC-20

**II B.Tech I-Semester**

S. 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.	20BT3BS02	Special Functions and Complex Analysis	3	0	0	3	3	30	70	100
2.	20BT30402	Electronic Devices and Circuits	3	0	0	3	3	30	70	100
3.	20BT30201	Electromagnetic Fields	3	0	0	3	3	30	70	100
4.	20BT30202	Electrical Machines-I	3	0	0	3	3	30	70	100
5.	20BT30203	Signals and Networks	3	0	0	3	3	30	70	100
6.	20BT3HS31	Soft Skills Lab	0	1	2	3	2	30	70	100
7.	20BT30432	Electronic Devices and Circuits Lab	0	0	3	3	1.5	30	70	100
8.	20BT30231	Electrical Machines-I Lab	0	0	3	3	1.5	30	70	100
9.	20BT30232	Signals and Networks Lab	0	0	3	3	1.5	30	70	100
<b>Total</b>			<b>15</b>	<b>1</b>	<b>11</b>	<b>27</b>	<b>21.5</b>	<b>270</b>	<b>630</b>	<b>900</b>
10.	20BT3MC01	Environmental Science	2	-	-	2	-	30	-	30

## II B.Tech II-Semester

S. 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.	20BT40441	Analog Electronics	3	0	0	3	3	30	70	100
2.	20BT40201	Control Systems	3	0	0	3	3	30	70	100
3.	20BT40202	Digital Electronics	3	0	0	3	3	30	70	100
4.	20BT40203	Electrical Machines-II	3	0	0	3	3	30	70	100
5.	20BT40204	Electrical measurements	2	0	0	2	2	30	70	100
6.	<b>Open Elective-1 (CE, ME, ECE,EEE &amp; EIE)</b>		3	0	0	3	3	30	70	100
7.	20BT40451	Analog Electronics Lab	0	0	3	3	1.5	30	70	100
8.	20BT40231	Digital Electronics Lab	0	0	3	3	1.5	30	70	100
9.	20BT40232	Electrical Machines-II Lab	0	0	3	3	1.5	30	70	100
<b>Total</b>			<b>15</b>	<b>1</b>	<b>11</b>	<b>26</b>	<b>21.5</b>	<b>270</b>	<b>630</b>	<b>900</b>
10.	20BT315AC	Design Thinking	2	-	-	2	-	-	-	-

### III B.Tech I-Semester

S. 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.	20BT5HS02	Principles of Business Economics and Accountancy	3	0	0	3	3	30	70	100
2.	20BT40403	Linear and Digital IC Applications	3	0	0	3	3	30	70	100
3.	20BT50201	Transmission and Distribution	3	0	0	3	3	30	70	100
4.	<b>Open Elective-2 (CE, ME,ECE,EEE &amp; EIE)</b>		3	0	0	3	3	30	70	100
5.	<b>Professional Elective-1</b>									
6.	20BT50202	Energy Audit, Conservation and Management	3	0	0	3	3	30	70	100
7.	20BT50203	Electrical Machine Design								
8.	20BT50204	Energy Systems								
9.	20BT50205	Instrumentation								
10.	20BT50432	Linear and Digital IC Applications Lab	0	0	3	3	1.5	30	70	100
11.	20BT50231	Electrical workshop Practice	0	0	3	3	1.5	30	70	100
12.	20BT50232	Electrical Auditing and conservation Practice lab	0	1	2	3	2	30	70	100
13.	20BT50233	Summer Internship-I	-	-	-	-	1.5	-	100	100
<b>Total</b>			<b>15</b>	<b>1</b>	<b>8</b>	<b>24</b>	<b>21.5</b>	<b>240</b>	<b>660</b>	<b>900</b>
14.	20BT503AC	Foundations of Entrepreneurship	2	-	-	2	-	-	-	-

### III B.Tech II-Semester

S. 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.	20BT5HS01	Organizational Behaviour	3	0	0	3	3	30	70	100
2.	20BT60201	Power Electronics	3	0	0	3	3	30	70	100
3.	20BT60202	Power System Operation and Control	3	0	0	3	3	30	70	100
4.	<b>Professional Elective-2</b>									
5.	20BT60203	Advanced Control Systems								
6.	20BT60204	High Voltage Engineering								
7.	20BT60205	PIC Microcontrollers and Applications	3	0	0	3	3	30	70	100
8.	20BT60206	Special Electrical Machines								
9.	<b>Professional Elective-3</b>									
10.	20BT60442	VLSI Design								
11.	20BT60207	Design and Estimation of Electrical Systems	3	0	0	3	3	30	70	100
12.	20BT60208	Distributed Generation and Microgrid								
13.	20BT60209	Smart Grid Technology								
14.	<b>Inter Disciplinary Elective-1</b>									
15.	20BT50442	Principles of Communications								
16.	20BT60410	Micro electro mechanical Systems	3	0	0	3	3	30	70	100
17.	20BT61041	Sensors and Signal Conditioning								
18.	20BT60210	Computer Organization and Architecture								
19.	20BT60231	Electrical CAD lab	0	0	3	3	1.5	30	70	100
20.	20BT60232	Electrical Power Systems Lab	0	0	3	3	1.5	30	70	100
21.	20BT60233	ARM Processor and its Interfacing Lab	0	1	2	3	2	30	70	100
<b>Total</b>			<b>18</b>	<b>1</b>	<b>8</b>	<b>27</b>	<b>23</b>	<b>270</b>	<b>630</b>	<b>900</b>
22.	20BT5MC01	Professional Ethics	2	-	-	2	-	30	-	30

**IV B.Tech I–Semester**


S. 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.	20BT70201	Power System Analysis	3	0	0	3	3	30	70	100
2.	20BT70202	Solid State Drives	3	0	0	3	3	30	70	100
3.	20BT70203	Switchgear and Protection	2	0	0	2	2	30	70	100
4.	<b>Professional Elective-4</b>									
5.	20BT70401	Embedded Systems								
6.	20BT70203	Analysis of Power Electronic Converters	3	0	0	3	3	30	70	100
7.	20BT70204	Electric Vehicles								
8.	20BT70205	Flexible AC transmission system								
9.	<b>Professional Elective-5</b>									
10.	20BT70206	Digital Signal Processing for Electrical Engineering								
11.	20BT70207	Power System Automation								
12.	20BT70208	Power Electronics for Renewable Energy Systems	3	0	0	3	3	30	70	100
13.	20BT70209	Soft Computing Techniques								
14.	<b>Inter Disciplinary Elective-2</b>									
15.	20BT50403	FPGA Architectures and Applications								
16.	20BT60406	Image Processing	3	0	0	3	3	30	70	100
17.	20BT61003	Industrial Data Communication								
18.	20BT71041	PLC and SCADA								
19.	20BT70231	Power electronics and drives lab	0	0	3	3	1.5	30	70	100
20.	20BT70232	Power System Simulation Lab	0	0	3	3	1.5	30	70	100
21.	20BT70233	Summer Internship-II	-	-	-	-	1.5	-	100	100
<b>Total</b>			<b>15</b>	<b>1</b>	<b>8</b>	<b>23</b>	<b>21.5</b>	<b>240</b>	<b>660</b>	<b>900</b>
22.	20BT702AC	Electrical safety and safety management	2	-	-	2	-	-	-	-

**IV B.Tech II-Semester**

S. 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
2.	20BT80231	Project Work	-	-	-	-	12	100	100	200
3.	20BT80232	Internship	-	-	-	-	-	-	-	-
<b>Total</b>			<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>12</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
20BT4BS01	Material Science	20BT4HS01	Banking and Insurance
20BT4HS02	Business Communication and Career Skills	20BT4HS03	Cost Accounting and Financial Management
20BT4HS04	Entrepreneurship for Micro, Small and Medium Enterprises	20BT4HS05	Gender and Environment
20BT4HS06	German Language	20BT4HS07	Indian Economy
20BT4HS08	Indian History	20BT4HS09	Life Skills
20BT4HS10	Personality Development	20BT4HS11	Indian Tradition and Culture
20BT4HS12	Women Empowerment	20BT4HS13	Constitution of India
20BT40205	Reliability and Safety Engineering	20BT50106	Disaster Mitigation and Management
20BT40105	Environmental Pollution and Control	20BT50107	Sustainable Engineering
20BT40106	Planning for Sustainable Development	20BT50108	Contract Laws and Regulations
20BT40107	Rural Technology	20BT50310	Global Strategy and Technology
20BT40305	Human Resource Management	20BT50311	Management Science
20BT50506	Ethical Hacking	20BT40502	Cyber Laws and Security
20BT51205	AI in Healthcare	20BT50206	Intellectual Property Rights
20BT51501	Bioinformatics	20BT50406	Green Technologies

  
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## HONORS DEGREE in ELECTRICAL AND ELECTRONICS ENGINEERING

Semester	COURSE CODE	Course Title	Contact Periods per week				C	Int. Marks	Ext. Marks	Total Marks
			L	T	P	Total				
<b>Pool-1</b> III B.Tech. I-Sem (Any 1 Course)	20BTH0201	Dynamics of Electrical Machines						30	70	100
	20BTH0202	EHV AC Transmission System	3	1	-	4	4	30	70	100
	20BTH0203	Machine Learning for Electrical Engineering						30	70	100
<b>Pool-2</b> III B.Tech. I-Sem (Any 1 Course)	20BTH0204	PCB Design						30	70	100
	20BTH0205	Power Quality	3	1	-	4	4	30	70	100
	20BTH0206	Reactive Power Compensation and Management						30	70	100
<b>Pool-3</b> III B.Tech.II-Sem (Any 1 Course and another 1 course through MOOC )	20BTH0207	Controllers for Power Applications						30	70	100
	20BTH0208	Power Semiconductor Devices and Modeling	3	1	-	4	4	30	70	100
	20BTH0209	Power System Reliability						30	70	100
	20BTHM021	MOOC-I	-	-	-	-	2			
<b>Pool-4</b> IV B.Tech.I-Sem (Any 1 Course and another 1 course through MOOC )	20BTH0210	Digital Control of Power Electronic and Drive Systems						30	70	100
	20BTH0211	Power System Deregulation	3	1	-	4	4	30	70	100
	20BTH0212	Power System Security and State Estimation						30	70	100
	20BTHM022	MOOC-II	-	-	-	-	2			

**Note:** If any student has chosen a course from the above list in their regular curriculum then, he/she is not eligible to opt the same course/s for the Honors degree. It is the responsibility of the student to acquire/complete prerequisite before taking the respective course.

  
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## MINOR DEGREE in POWER SYSTEMS AND DRIVES

	COURSE CODE	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
<b>Minor Pool</b>	20BTM0201	Electrical Engineering Materials	3	1	-	4	4	30	70	100
	20BTM0202	Electrical Safety and Practises	3	1	-	4	4	30	70	100
	20BTM0203	Industrial Electronics and Drives	3	1	-	4	4	30	70	100
	20BTM0204	Protection of Electrical Systems	3	1	-	4	4	30	70	100
	20BTM0205	Special Machines and their Controllers	3	1	-	4	4	30	70	100
	20BTM0206	Utilization of Electrical Energy	3	1	-	4	4	30	70	100
	20BTMM021	MOOC-I								
	20BTMM022	MOOC-II								

		L	T	P	Total	C
III B.Tech. I-Sem	2 Courses from the above list.	3	1	-	4	4
		3	1	-	4	4
III B.Tech.II-Sem	Any one course from the remaining list.	3	1	-	4	4
	MOOC-1	-	-	-	-	2
IV B.Tech.I-Sem	Another one course from the remaining list.	3	1	-	4	4
	MOOC-2	-	-	-	-	2
<b>Total Credits</b>		<b>12</b>	<b>4</b>	<b>-</b>	<b>16</b>	<b>20</b>

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**LIST OF NEW COURSES INTRODUCED**

**Program: B.Tech.- Electrical and Electronics Engineering**

**Regulations : SVEC-20 (I to IV Year)**

S. No	Course Code	Name of the course
1.	20BT50232	Electrical Auditing and conservation Practice Lab
2.	20BT60233	ARM Processor and its Interfacing Lab
3.	20BT50233	Summer Internship-I
4.	20BT70233	Summer Internship-II



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