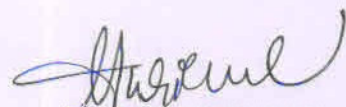


**Agenda for 11<sup>th</sup> Meeting of Board of Studies for B. Tech. (Mechanical Engineering) on 10-07-2021 at 10:00 AM**

1. Action taken report on minutes/resolutions of 10<sup>th</sup> BOS meeting.
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. Panel of Examiners for Question paper setting.
8. Substitute Courses.
9. Appraisal on research, teaching, extension and other academic activities, achievements of the Department.
10. Any other item.



**Dr. T. HARIPRASAD**

Chairperson, BOS (Dept.)

**Dr. T. HARIPRASAD**  
Professor & BOS Chairman  
Department of Mechanical Engineering  
**SREE VIDYANIKETHAN ENGINEERING COLLEGE**  
(Autonomous)  
Sree Sainath Nagar, TIRUPATI-517 102.  
Chittoor District, Andhra Pradesh, INDIA.

# **SREE VIDYANIKETHAN ENGINEERING COLLEGE**

**(AUTONOMOUS)**

Sree Sainath Nagar, Tirupati – 517 102, A.P.

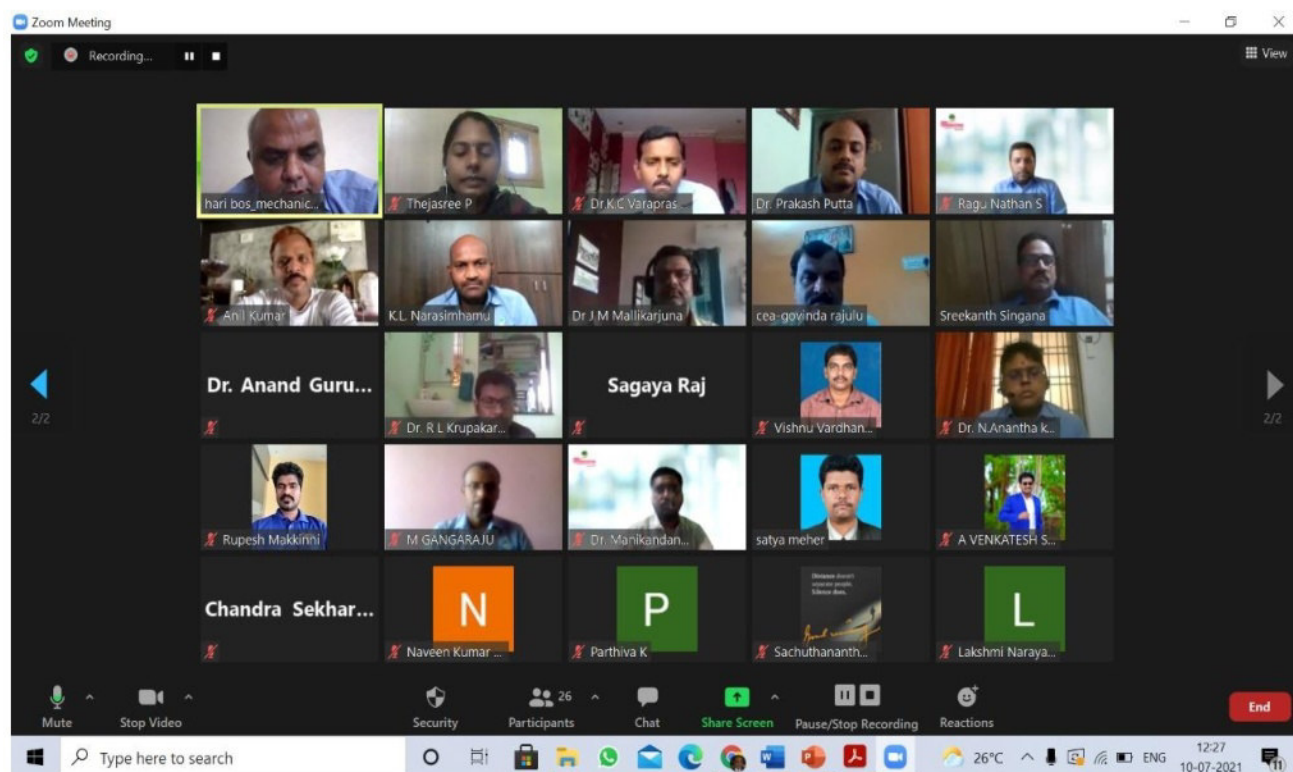
## **11<sup>th</sup> Meeting of the Board of Studies in Mechanical Engineering held on 10<sup>th</sup> July, 2021**

### **MINUTES**

#### **Members Present:**

1.	Dr. T. Hariprasad	Professor & BOS Chairman Mechanical Engineering	Chairman
2.	Dr.J.M. Mallikarjuna	Professor, Mechanical Engineering, IITM, Chennai	Member
3.	Prof. K. Govindarajulu	Professor, Mechanical Engineering, JNTUCE, Anantapuramu.	Member
4.	Dr. Anil Kumar E	Dean (Industrial Research), Mechanical Engineering, IITT, Tirupati.	Member
5.	Dr. Anand Gurupatham	DGM, Renault – Nissan Technology Business Centre, Chennai .	Member
6.	Mr.M.Rupesh	Design Engineer, WEIR EnSci, WEIR Group, Bengaluru.	Member
7.	Dr. K.C. Varaprasad	Professor & Head, Mechanical Engineering	Member
8.	Dr. A.K.Damodaram	Professor of ME	Member
9.	Dr. R. Satya Meher	Professor of ME	Member
10.	Dr. K. Lakshmi Narashimhamu	Professor of ME	Member
11.	Dr. N. Manikandan	Associate Professor of ME	Member
12.	Dr. S. Raghunathan	Associate Professor of ME	Member
13.	Dr. R.L. Krupakaran	Associate Professor of ME	Member
14.	Dr. N. Anantha Krishna	Associate Professor of ME	Member
15.	Dr. A. Gnana Sagaya Raj	Associate Professor of ME	Member
16.	Dr. P. Prakash	Assistant Professor of ME	Member
17.	Mr.S. Sreekanth	Assistant Professor of ME	Member
18.	Mr.M. Gangaraju	Assistant Professor of ME	Member

11<sup>th</sup> Meeting of Board of Studies of Mechanical Engineering (ME) was conducted through online video conferencing using ZOOM platform. The screenshot taken during the meeting is shown below:



The BOS Chairman welcomed the Members for the 11<sup>th</sup> meeting of the Board of Studies in Mechanical Engineering and the BOS discussed and resolved the following agenda items:

**1. Action taken report on minutes/ resolutions of 10<sup>th</sup> BOS meeting held on 09.01.2021.**

The action taken report on the suggestions made by the honorable members in the 10<sup>th</sup> BOS meeting held on 09<sup>th</sup> January 2021 was presented. The members agreed with proceedings and approved the action taken against the suggestions made in the previous meeting.

**2. Report on implementation of Autonomy with respect to syllabi & academic regulations for II-B.Tech (under SVEC19) and I B.Tech (under SVEC-20 regulations).**

In implementation of autonomy with respect to syllabi & academic regulations for II B.Tech under SVEC-19 regulation, the teaching and learning practice of theory and laboratory courses in online & offline mode were conveyed to the members. The members expressed satisfaction over it.

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

The members agreed with proceedings and approved syllabi and course structure for the Courses of III & IV B.Tech including Minor & Honors Degrees (Under SVEC-19) with the following suggestions:

### **III B.Tech, I sem(ME)**

#### **Automobile Engineering**

- Replace Unit-III with Electrical and Electronic systems

#### **Artificial Intelligence and Robotics**

- Introduce AI, machine learning and Data analytics in the curriculum.

#### **Automotive Electronics**

- Introduce demonstration on sensors, microcontrollers and circuits.

#### **Soft Computing Techniques in Mechanical Engineering**

- Introduce hands-on exercises.

#### **Thermal Engineering Lab**

- Rearrange the order of Lab exercises.

### **III B.Tech. – II Semester**

#### **Design of Machine Elements**

- Rethink the number of hours allotted for basic design concepts

#### **Heat Transfer**

- Suggested to rearrange the order of topics and units.

#### **Internal Combustion Engines**

- Incorporate significance of emissions from SI and CI engines
- Internal Combustion Engines: A Reference Book for Designers, Operators, Engineers, and Students by William Manville Hogle may be added as a reference book.

#### **Instrumentation and Control systems**

- Introduce uncertainty in measurements.

### **IV B.Tech. – I Semester**

#### **Project Management**

- Introduce agile management.

#### **MOOC**

- For three credits, minimum 12 week course is mandatory.

#### **Industrial Automation and Robotics Lab**

- Introduce theoretical concepts of automation and robotics in core subject.

#### **Simulation and Analysis Lab**

- Number of experiments may be reduced.

## **Minor & Honors Degrees (Under SVEC-19).**

- Minor in Robotics and Honors in Mechanical engineering is the correct terminology and it should not be Honors in Robotics.
- Pre-requisite courses are to be mentioned for Minor courses with emphasis on mandatory courses.

## **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).**

Hon'ble members approved the syllabus and course structure after discussions subjected to the following minor changes:

- For HVAC lab, the number of exercises may be reduced.

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

- Members noted the list and appreciated the efforts.

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

- Members noted the list of new courses introduced and suggested to introduce AI and Machine learning as a new course.

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

- Members resolved to authorize the Chairman, BOS in Mechanical Engineering to finalize the panel of examiners for Question paper setting as and when required and forward the same to the Chairman, Academic Council for further action.

## **8. Substitute Courses.**

- Members resolved to authorize the Chairman, BOS in Mechanical Engineering to finalize the substitute subjects as and when required and forward the same to the Chairman, Academic Council for further action.

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

- The members appreciated progress made by the department in research, teaching, extension and other academic activities, achievements.

## **10. Any other item.**

- The Board authorized the chairman BOS to effect any minor changes as per the need in syllabi and later intimate these changes to the members of the BOS.

The chairman BOS profusely thanked the members for their support and guidance.

  
(Dr. T. Hariprasad)  
Chairman, BOS (ME)

Dr. T. HARIPRASAD  
Professor & BOS Chairman  
Department of Mechanical Engineering  
SREE VIDYANIKETHAN ENGINEERING COLLEGE  
(Autonomous)  
Sree Sainath Nagar, TIRUPATI-517 102  
Chittoor District, Andhra Pradesh  
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**SVEC-19 CURRICULUM**  
**Course Structure for B.Tech Program**  
(Effective from the Academic year 2019-20 onwards)

**MECHANICAL ENGINEERING**

<b>Mandatory Induction Program</b>	<b>03 weeks duration</b>
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

**COURSE STRUCTURE**  
**MECHANICAL ENGINEERING**  
**I B.Tech. – I Semester**

S.No.	Course Code	Course Title	Contact Periods per week				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.	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.	19BT1BS32	Engineering Chemistry Lab	-	-	2	2	1	50	50	100
6.	19BT1HS31	Communicative English Lab	-	-	2	2	1	50	50	100
7.	19BT10331	Computer Aided Engineering Drawing	-	1	2	3	2	50	50	100
8.	19BT10531	Programming for Problem Solving Lab	-	-	2	2	1	50	50	100
<b>Total:</b>			<b>12</b>	<b>3</b>	<b>8</b>	<b>23</b>	<b>19</b>	<b>360</b>	<b>440</b>	<b>800</b>

### I B.Tech. – II Semester

S. No.	Course Code	Course Title	Contact Periods per week				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.	19BT1BS02	Biology for Engineers	2	-	-	2	2	40	60	100
3.	19BT2BS02	Applied Physics	3	-	-	3	3	40	60	100
4.	19BT10201	Basic Electrical and Electronics Engineering	3	-	-	3	3	40	60	100
5.	19BT20301	Basic Engineering Mechanics	3	1	-	4	4	40	60	100
6.	19BT20302	Material Science and Engineering	3	-	-	3	3	40	60	100
7.	19BT2BS31	Applied Physics Lab	-	-	2	2	1	50	50	100
8.	19BT10231	Basic Electrical and Electronics Engineering Lab	-	-	2	2	1	50	50	100
9.	19BT20331	Engineering Workshop	-	-	2	2	1	50	50	100
10.	19BT20332	Material Science and Engineering Lab	-	-	2	2	1	50	50	100
<b>Total:</b>			<b>17</b>	<b>2</b>	<b>8</b>	<b>27</b>	<b>23</b>	<b>440</b>	<b>560</b>	<b>1000</b>
11.	19BT1AC01	Spoken English	2	-	-	2	-	-	-	-

## II B.Tech. – I Semester

S.No.	Course Code	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT3BS01	Numerical Methods, Probability and Statistics	3	1	-	4	4	40	60	100
2.	19BT30301	Engineering Thermodynamics	3	1	-	4	4	40	60	100
3.	19BT30302	Kinematics of Machinery	3	-	-	3	3	40	60	100
4.	19BT30303	Manufacturing Technology	3	-	-	3	3	40	60	100
5.	19BT30304	Strength of Materials	3	-	-	3	3	40	60	100
6.	19BT3HS31	Soft Skills Lab	-	-	2	2	1	50	50	100
7.	19BT30132	Strength of Materials Lab	-	-	2	2	1	50	50	100
8.	19BT30331	Computer Aided Machine Drawing	-	-	2	2	1	50	50	100
9.	19BT30332	Manufacturing Technology 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.	19BT315AC	Design Thinking	2	-	-	2	-	-	-	-

## II B.Tech. – II Semester

S. No.	Course Code	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT40301	Dynamics of Machinery	3	1	-	4	4	40	60	100
2.	19BT40302	Engineering Metrology	3	-	-	3	3	40	60	100
3.	19BT40303	Fluid Mechanics and Hydraulic Machinery	3	-	-	3	3	40	60	100
4.	19BT40304	Metal Cutting and Machine Tools	3	-	-	3	3	40	60	100
5.	19BT40305	Thermal Engineering-I	3	-	-	3	3	40	60	100
6.	<b>Open Elective-2</b>		3	-	-	3	3	40	60	100
7.	19BT40132	Fluid Mechanics and Hydraulic Machinery Lab	-	-	2	2	1	50	50	100
8.	19BT40331	Dynamics of Machinery Lab	-	-	2	2	1	50	50	100
9.	19BT40332	Engineering Metrology and Machine Tools 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.	19BT3MC01	Environmental Science	2	-	-	2	-	40	--	40

### III B.Tech. – I Semester

S. No.	Course Code	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT50301	Computer Aided Design and Manufacturing	3	-	-	3	3	40	60	100
2.	19BT50302	Operations Research	3	-	-	3	3	40	60	100
3.	19BT50303	Thermal Engineering -II	3	-	-	3	3	40	60	100
4.	<b>Professional Elective-1</b>		3	-	-	3	3	40	60	100
	19BT50304	Automobile Engineering								
	19BT50305	Compressible Fluid Flow								
	19BT50306	Engineering Metallurgy								
	19BT50307	Statistical Inference and Modeling								
	19BT50308	Tool Design								
	19BT50309	Tribology								
5.	<b>Open Elective-1</b>		3	-	-	3	3	40	60	100
6.	<b>Inter Disciplinary Elective-1</b>		3	-	-	3	3	40	60	100
	19BT50310	Artificial Intelligence and Robotics								
	19BT50311	Automotive Electronics								
	19BT50312	Industrial Automation and Control Systems								
	19BT50313	Non-Conventional Energy Sources								
	19BT50314	Programmable Logic Controller in Automation								
	19BT50315	Soft Computing Techniques in Mechanical Engineering								
7.	19BT50331	Computer Aided Design and Manufacturing Lab	-	-	2	2	1	50	50	100
8.	19BT50332	Thermal Engineering Lab	-	-	2	2	1	50	50	100
9.	19BT50333	Socially Relevant Project-1	-	-	-	-	1	50	50	100
<b>Total:</b>			<b>18</b>	<b>-</b>	<b>4</b>	<b>22</b>	<b>21</b>	<b>390</b>	<b>510</b>	<b>900</b>
10.	19BT503AC	Foundations of Entrepreneurship	2	-	-	2	-	-	-	-

### **III B.Tech. – II Semester**

S. No	Course Code	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT60301	Industrial Engineering and Management	3	-	-	3	3	40	60	100
2.	19BT60302	Design of Machine Elements	3	-	-	3	3	40	60	100
3.	19BT60303	Heat Transfer	3	-	-	3	3	40	60	100
4.	<b>Professional Elective-2</b>		3	-	-	3	3	40	60	100
	19BT60304	Casting and Welding Technology								
	19BT60305	Composite Materials								
	19BT60306	Gas Turbines and Jet Propulsion								
	19BT60307	Internal Combustion Engines								
	19BT60308	Mechanical Vibrations								
5.	<b>Professional Elective-3</b>		3	-	-	3	3	40	60	100
	19BT60310	Automotive Fuels and Combustion								
	19BT60311	Design of Pressure Vessels and Piping Systems								
	19BT60312	Mechanical Behavior of Materials								
	19BT60313	Non Traditional Machining process								
	19BT60314	Optimization Techniques								
6.	<b>Inter Disciplinary Elective-2</b>		3	-	-	3	3	40	60	100
	19BT50408	Microelectromechanical Systems								
	19BT60316	Instrumentation and Control systems								
	19BT60317	Hydraulics and Pneumatics								
	19BT60318	Industrial Internet of Things								
	19BT60319	Machinery Fault Diagnosis and Signal Processing								
7.	19BT60320	Mechatronics								
7.	19BT61531	Internet of Things (IoT) Lab	-	1	2	3	2	50	50	100
8.	19BT60331	Heat Transfer Lab	-	-	2	2	1	50	50	100
9.	19BT60332	Socially Relevant Project-2	-	-	-	-	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.	19BT5MC01	Universal Human Values	2	-	-	2	-	40	-	40

### IV B.Tech. – I Semester

S. No.	Course Code	Course Title	Contact Periods per week				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.	19BT70301	Design of Transmission Systems	3	-	-	3	3	40	60	100
3.	19BT70302	Operations Management	3	-	-	3	3	40	60	100
4.	<b>Professional Elective-4</b>		3	-	-	3	3	40	60	100
	19BT70303	Computational Fluid Dynamics								
	19BT70304	Finite Element Method								
	19BT70305	Material Processing Techniques								
	19BT70306	Power Plant Engineering								
	19BT70307	Supply Chain Management								
	19BT70308	Sustainable Manufacturing								
5.	<b>Professional Elective-5</b>		3	-	-	3	3	40	60	100
	19BT70309	Cryogenics								
	19BT70310	Design of Automotive components								
	19BT70311	Project Management								
	19BT70312	Rapid Prototyping								
	19BT70313	Surface Engineering								
	19BT70314	Hybrid and Electric Vehicles								
6.	19BT7MOOC	Open Elective-5 (MOOC)	-	-	-	-	3	-	100	100
7.	19BT70331	Industrial Automation and Robotics Lab	-	-	2	2	1	50	50	100
8.	19BT70332	Simulation and Analysis Lab	-	-	2	2	1	50	50	100
9.	19BT70333	Internship	-	-	-	-	2	--	100	100
<b>Total:</b>			<b>15</b>	<b>-</b>	<b>4</b>	<b>19</b>	<b>22</b>	<b>300</b>	<b>600</b>	<b>900</b>
10.	19BT703AC	MATLAB for Mechanical Engineers	2	-	-	2	-	-	-	-

**IV B.Tech. – II Semester**

Sl. No.	Course Code	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	19BT80331	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

## **HONORS DEGREE and MINOR DEGREE**

In addition to the Major Degree, Students have an opportunity to pursue either Minor Degree or Honors Degree as per the eligibility criteria mentioned in Academic Regulations Point No.: 14 & 15.

**Honors Degree:** Honors degree is awarded to the students who has undergone additional learning for 18 credits in the same discipline..

### **HONORS DEGREE IN MECHANICAL ENGINEERING**

Semester	Course Code	Course Title	Contact Periods per week				C	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
III B.Tech. I Semester	19BT50316	Computer Intergrated Manufacturing	3	-	-	3	3	40	60	100
	19BT50317	CNC Programming	3	-	-	3	3	40	60	100
	19BT50318	Introduction to Mechanical systems	3	-	-	3	3	50	50	100
III B.Tech. II Semester	19BT60321	Principles of Industrial Automation	3	-	-	3	3	40	60	100
	19BT60322	Principles of Robotics	3	-	-	3	3	40	60	100
	19BT60323	Robot Kinematics and Dynamics	3	-	-	3	3	40	60	100
IV B.Tech. I Semester	19BT70315	Applied and Industrial Robotics	3	-	-	3	3	40	60	100
	19BT70316	Robot Programming	3	-	-	3	3	40	60	100
	19BT70317	Sensors and Vision Systems	3	-	-	3	3	40	60	100

**Minor Degree:** Minor degree is awarded to the students who has undergone additional learning for 18 credits in any discipline other than parent discipline.

### **MINOR DEGREES OFFERED UNDER SVEC-19 REGULATIONS**

Offering Department	Title of the Minor	Students of Eligible Branches
CSE	Artificial Intelligence and Machine Learning	All branches except CSE, IT and CSSE
IT	Internet of Things	All branches except IT
CSSE	Cyber Security	All branches except CSE, IT and CSSE
ECE	VLSI and Embedded Systems	All branches except ECE
EEE	Power Systems and Drives	All branches except EEE
EIE	Instrumentation and Control Engineering	All branches except EIE
ME	Robotics	All branches except ME
CE	Sustainable Engineering	All branches except CE

## **SVEC20 CURRICULUM**

### **Course Structure for B.Tech. in Mechanical Engineering**

(Effective from the Academic year 2020-21 onwards)

<b>Mandatory Induction Program</b>	<b>03 Weeks Duration</b>
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

# SREE VIDYANIKETHAN ENGINEERING COLLEGE

Sree Sainath Nagar, Tirupati - 517 102.

## SVEC20 - B. Tech. (ME) Course Structure

### I B.Tech. - I Semester

Sl. No.	Subject Code	Course Title	Course Category	Contact Periods per week				C	Scheme of Examination Max. Marks		
				L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	20BT1BS01	Differential Equations and Multivariable Calculus	BS	3	-	-	3	3	30	70	100
2.	20BT1BS02	Engineering Chemistry	BS	3	-	-	3	3	30	70	100
3.	20BT10201	Basic Electrical and Electronics Engineering	ES	3	-	-	3	3	30	70	100
4.	20BT10301	Material Science and Engineering	ES	3	-	-	3	3	30	70	100
5.	20BT1BS31	Engineering Chemistry Lab	BS	-	-	3	3	1.5	30	70	100
6.	20BT10331	Computer Aided Engineering Drawing	ES	-	1	4	5	3	30	70	100
7.	20BT10332	Engineering Workshop	ES	-	-	3	3	1.5	30	70	100
8.	20BT10333	Material Science and Engineering Lab	ES	-	-	3	3	1.5	30	70	100
9.	20BT1HSAC	Spoken English (Audit Course)	AC1	2	-	-	2	-	-	-	-
<b>Total:</b>				<b>14</b>	<b>1</b>	<b>13</b>	<b>28</b>	<b>19.5</b>	<b>240</b>	<b>560</b>	<b>800</b>

### I B.Tech. - II Semester

Sl. No.	Subject Code	Course Title	Course Category	Contact Periods per week				C	Scheme of Examination Max. Marks		
				L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	20BT2BS01	Transformation Techniques and Linear Algebra	BS	3	-	-	3	3	30	70	100
2.	20BT1BS04	Applied Physics	BS	3	-	-	3	3	30	70	100
3.	20BT1HS01	Communicative English	HS	3	-	-	3	3	30	70	100
4.	20BT20541	Programming in C and Data Structures	ES	3	-	-	3	3	30	70	100
5.	20BT20301	Basic Engineering Mechanics	ES	3	-	-	3	3	30	70	100
6.	20BT1BS33	Applied Physics Lab	BS	-	-	3	3	1.5	30	70	100
7.	20BT1HS31	Communicative English Lab	HS	-	-	3	3	1.5	30	70	100
8.	20BT20551	Programming in C and Data Structures Lab	ES	-	-	3	3	1.5	30	70	100
9.	20BT1MC01	Universal Human Values (Mandatory Course)	MC	2	-	-	2	-	30	-	30
<b>Total:</b>				<b>17</b>	<b>-</b>	<b>09</b>	<b>26</b>	<b>19.5</b>	<b>270</b>	<b>560</b>	<b>830</b>

## 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.	20BT3BS01	Numerical Methods, Probability and Statistics	3	-	-	3	3	30	70	100
2.	20BT30301	Engineering Thermodynamics	3	-	-	3	3	30	70	100
3.	20BT30302	Kinematics of Machinery	3	-	-	3	3	30	70	100
4.	20BT30303	Manufacturing Technology	3	-	-	3	3	30	70	100
5.	20BT30304	Strength of Materials	3	-	-	3	3	30	70	100
6.	20BT40133	Strength of Materials Lab	-	-	3	3	1.5	30	70	100
7.	20BT30331	Computer Aided Machine Drawing	-	-	3	3	1.5	30	70	100
8.	20BT30332	Manufacturing Technology Lab	-	-	3	3	1.5	30	70	100
9.	20BT3HS31	Soft Skills Lab	-	-	1	2	2	30	70	100
<b>Total</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.	20BT4301	Dynamics of Machinery	3	-	-	3	3	30	70	100
2.	20BT40302	Engineering Metrology and Machine Tools	3	-	-	3	3	30	70	100
3.	20BT40303	Fluid Mechanics and Machines	3	-	-	3	3	30	70	100
4.	20BT40304	Thermal Engineering-I	3	-	-	3	3	30	70	100
5.	<b>Open Elective-1</b>		3	-	-	3	3	30	70	100
6.	20BT30132	Fluid Mechanics and Hydraulic Machinery Lab	-	-	3	3	1.5	30	70	100
7.	20BT40331	Engineering Metrology Lab	-	-	3	3	1.5	30	70	100
8.	20BT40332	Machine Tools Lab	-	-	3	3	1.5	30	70	100
9.	20BT40333	MATLAB for Mechanical Engineers Lab	-	1	2	3	2	30	70	100
<b>Total</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.	20BT50301	Design of Machine Elements	3	-	-	3	3	30	70	100
2.	20BT50302	Operations Research	3	-	-	3	3	30	70	100
3.	20BT50303	Thermal Engineering-II	3	-	-	3	3	30	70	100
4.	<b>Open Elective-2</b>						3	30	70	100
5.	<b>Professional Elective- 1</b>									
	20BT50304	Automobile Engineering								
	20BT50305	Compressible Fluid Flow								
	20BT50306	Engineering Metallurgy	3	-	-	3	3	30	70	100
	20BT50307	Statistical Inference and Modeling								
	20BT50308	Tool Design								
	20BT50309	Tribology								
6.	20BT50331	Design and Dynamics Lab	-	-	3	3	1.5	30	70	100
7.	20BT50332	Thermal Engineering Lab	-	-	3	3	1.5	30	70	100
8.	20BT51551	Internet of Things Lab		1	2	3	2	30	70	100
9.	20BT50333	Summer Internship-I	-	-	-	-	1.5	-	100	100
<b>Total</b>							<b>21.5</b>	<b>240</b>	<b>660</b>	<b>900</b>
10.	20BT503AC	Foundations of Entrepreneurship	2	-	-	2	-	-	-	-
11.	20BT4NS01	NCC/NSS Activities	-	-	-	-	-	-	-	-

### 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

### III B.Tech II-Semester

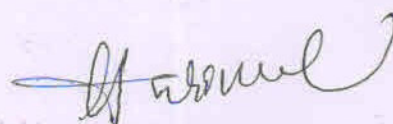
S. No.	Course Code	Course Title	Contact Periods per Week				Credits (C)	Scheme of Examination Max. Marks		
			L	T	P	Total		Int. Marks	Ext. Marks	Total Marks
1.	20BT60301	Computer Aided Design and Manufacturing	3	-	-	3	3	30	70	100
2.	20BT60302	Industrial Engineering and Management	3	-	-	3	3	30	70	100
3.	20BT60303	Heat Transfer	3	-	-	3	3	30	70	100
4.	<b>Professional Elective-2</b>		3	-	-	3	3	30	70	100
	20BT60304	Casting and Welding Technology								
	20BT60305	Composite Materials								
	20BT60306	Design of Transmission systems								
	20BT60307	Gas Turbines and Jet Propulsion								
	20BT60308	Internal Combustion Engines								
	20BT60309	Quality Management and Reliability								
5.	<b>Professional Elective-3</b>		3	-	-	3	3	30	70	100
	20BT60310	Automotive Fuels and Combustion								
	20BT60311	Design of Pressure Vessels and Piping Systems								
	20BT60312	Mechanical Behavior of Materials								
	20BT60313	Non-Traditional machining processes								
	20BT60314	Optimization Techniques								
	20BT60315	Refrigeration and Air Conditioning								
6.	<b>Inter disciplinary Elective-1</b>		3	-	-	3	3	30	70	100
7.	20BT60316	Artificial Intelligence and Robotics								
	20BT60317	Automotive Electronics								
	20BT60318	Industrial Automation and Control Systems								
	20BT60319	Machinery Fault Diagnosis and Signal Processing								
	20BT60320	Non-Conventional Energy Sources								
	20BT60321	Programmable logic controller in Automation								
8.	20BT60331	Computer Aided Design and Manufacturing Lab	-	-	3	3	1.5	30	70	100
9.	20BT60332	Heat Transfer Lab	-	-	3	3	1.5	30	70	100
10.	20BT60333	Simulation and Analysis Lab		1	2	3	2	30	70	100
<b>Total</b>							<b>23</b>	<b>270</b>	<b>630</b>	<b>900</b>
11.	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.	20BT5HS02	Principles of Business Economics and Accountancy	3	-	-	3	3	30	70	100
2.	20BT70301	Operations Management	3	-	-	3	3	30	70	100
3.	<b>Professional Elective-4</b>		3	-	-	3	3	30	70	100
	20BT70302	Computational Fluid Dynamics								
	20BT70303	Finite Element Method								
	20BT70304	Material Processing Techniques								
	20BT70305	Power Plant Engineering								
	20BT70306	Supply Chain Management								
	20BT70307	Sustainable Manufacturing								
4.	<b>Professional Elective-5</b>		3	-	-	3	3	30	70	100
	20BT70308	Cryogenics								
	20BT70309	Design of Automotive components								
	20BT70310	Hybrid and Electric Vehicles								
	20BT70311	Project Management								
	20BT70312	Rapid Prototyping								
	20BT70313	Surface Engineering								
5.	<b>Inter disciplinary Elective-2</b>		3	-	-	3	3	30	70	100
	20BT60410	Microelectromechanical Systems								
	20BT70314	Hydraulics and Pneumatics								
	20BT70315	Industrial Internet of Things								
	20BT70316	Instrumentation and Control systems								
	20BT70317	Mechatronics								
	20BT70318	Soft Computing Techniques in Mechanical Engineering								
6.	20BT70331	Industrial Automation and Robotics Lab	-	-	3	3	1.5	30	70	100
7.	20BT70332	Manufacturing systems and Operations Management Lab	-	-	3	3	1.5	30	70	100
8.	20BT70333	HVAC Lab		1	2	3	2	30	70	100
9.	20BT70334	Summer Internship-II					1.5	-	100	100
<b>Total</b>							<b>21.5</b>	<b>240</b>	<b>660</b>	<b>900</b>
10.	20BT703AC	3D Printing and Design	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
1.	19BT80331	Project Work	-	-	-	-	12	100	100	200
2.	19BT80332	Internship	-	-	-	-	-	-	-	-
Total			-	-	-	-	12	100	100	200

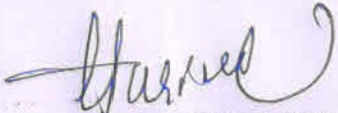


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**List of Courses where syllabus Content has been changed (20% and more)**

S. No.	Course Code	Name of the course	Percentage of Content changed
1.	19BT40305	Thermal Engineering-I	40
2.	19BT10201	Basic Electrical and Electronics Engineering	100
3.	19BT10231	Basic Electrical and Electronics Engineering Lab	100
4.	19BT1AC01	Spoken English	100
5.	19BT1BS02	Biology for Engineers	100
6.	19BT1HS01	Communicative English	20
7.	19BT1BS04	Engineering Chemistry	50
8.	19BT1BS32	Engineering Chemistry Lab	25
9.	19BT2BS02	Applied Physics	100
10.	19BT2BS31	Applied Physics lab	100
11.	19BT2BS01	Transformation Techniques and Linear Algebra	20
12.	19BT4BS01	Material Science	100
13.	19BT4HS05	Gender & Environment	100
14.	19BT4HS09	Life Skills	100
15.	19BT4HS11	Professional Ethics	100
16.	19BT4HS12	Women Empowerment	100
17.	19BT40107	Sustainable Engineering	100
18.	19BT50409	Green Technologies	35
19.	19BT50301	Computer Aided Design and Manufacturing	20
20.	19BT50303	Thermal Engineering -II	40
21.	19BT50304	Automobile Engineering	20
22.	19BT50305	Compressible Fluid Flow	100
23.	19BT50307	Statistical Inference and Modeling	100
24.	19BT50505	Ethical Hacking	100
25.	19BT51207	AI in Healthcare	100
26.	19BT40307	Management Science	100
27.	19BT50310	Artificial Intelligence and Robotics	20
28.	19BT50311	Automotive Electronics	100
29.	19BT50312	Industrial Automation and Control Systems	100
30.	19BT50314	Programmable Logic Controller in Automation	100
31.	19BT50315	Soft Computing Techniques in Mechanical Engineering	100
32.	19BT503AC	Foundations of Entrepreneurship	100

S. No.	Course Code	Name of the course	Percentage of Content changed
33.	19BT60301	Industrial Engineering and Management	20
34.	19BT60304	Casting and Welding Technology	100
35.	19BT60305	Composite Materials	100
36.	19BT60307	Internal Combustion Engines	40
37.	19BT60310	Automotive Fuels and Combustion	100
38.	19BT60311	Design of Pressure Vessels and Piping Systems	100
39.	19BT60312	Mechanical Behavior of Materials	100
40.	19BT60313	Non Traditional Machining process	100
41.	19BT60314	Optimization Techniques	100
42.	19BT50408	Microelectromechanical Systems	100
43.	19BT60316	Instrumentation and Control systems	40
44.	19BT60317	Hydraulics and Pneumatics	20
45.	19BT60318	Industrial Internet of Things	100
46.	19BT60319	Machinery Fault Diagnosis and Signal Processing	100
47.	19BT61531	Internet of Things Lab	100
48.	19BT70302	Operations Management	30
49.	19BT70305	Material Processing Techniques	100
50.	19BT70308	Sustainable Manufacturing	100
51.	19BT70309	Cryogenics	30
52.	19BT70310	Design of Automotive components	100
53.	19BT70313	Surface Engineering	100
54.	19BT70314	Hybrid and Electric Vehicles	100
55.	19BT70331	Industrial Automation and Robotics Lab	80
56.	19BT703AC	MATLAB for Mechanical Engineers	100

  
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### **LIST OF NEW COURSES INTRODUCED**

**Program: B.Tech.- Mechanical Engineering**

**Regulations : SVEC-19** (upto II B.Tech-II semester)

<b>Course Code</b>	<b>Name of the course</b>
19BT10201	Basic Electrical and Electronics Engineering
19BT10231	Basic Electrical and Electronics Engineering Lab
19BT1AC01	Spoken English
19BT1BS02	Biology for Engineers
19BT2BS02	Applied Physics
19BT2BS31	Applied Physics lab
19BT4BS01	Material Science
19BT4HS05	Gender & Environment
19BT4HS09	Life Skills
19BT4HS11	Professional Ethics
19BT4HS12	Women Empowerment
19BT40107	Sustainable Engineering

  
**Chairman, BOS(ME)**

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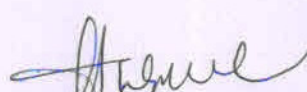
**LIST OF NEW COURSES INTRODUCED**

**Program: B.Tech.- Mechanical Engineering**

**Regulations :SVEC-19**

S. No.	Course Code	Name of the course
1.	19BT315AC	Design Thinking
2.	19BT50305	Compressible Fluid Flow
3.	19BT50307	Statistical Inference and Modelling
4.	19BT50310	Artificial Intelligence and Robotics
5.	19BT50311	Automotive Electronics
6.	19BT50312	Industrial Automation and Control Systems
7.	19BT50314	Programmable Logic Controller in Automation
8.	19BT50315	Soft Computing Techniques in Mechanical Engineering
9.	19BT50333	Socially Relevant Project-1
10.	19BT503AC	Foundations of Entrepreneurship
11.	19BT60304	Casting and Welding Technology
12.	19BT60305	Composite Materials
13.	19BT60310	Automotive Fuels and Combustion
14.	19BT60311	Design of Pressure Vessels and Piping Systems
15.	19BT60312	Mechanical Behavior of Materials
16.	19BT60313	Non Traditional Machining process
17.	19BT60314	Optimization Techniques
18.	19BT50408	Micro electromechanical Systems
19.	19BT60318	Industrial Internet of Things
20.	19BT60319	Machinery Fault Diagnosis and Signal Processing

S. No.	Course Code	Name of the course
21.	19BT61531	Internet of Things (IoT) Lab
22.	19BT60332	Socially Relevant Project-2
23.	19BT5MC01	Universal Human Values
24.	19BT70305	Material Processing Techniques
25.	19BT70308	Sustainable Manufacturing
26.	19BT70310	Design of Automotive components
27.	19BT70311	Project Management
28.	19BT70313	Surface Engineering
29.	19BT70314	Hybrid and Electric Vehicles
30.	19BT70332	Simulation and Analysis Lab
31.	19BT70333	Internship
32.	19BT703AC	MATLAB for Mechanical Engineers

  
**BOS CHAIRMAN**

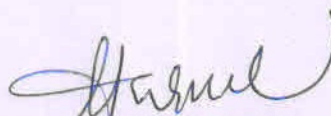
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**LIST OF NEW COURSES INTRODUCED**

**Program: B.Tech.- Mechanical Engineering**

**Regulations :SVEC-20**

S. No.	Course Code	Name of the course
1.	20BT70332	Manufacturing systems and Operations Management Lab
2.	20BT70333	Heating, Ventilation and Air Conditioning Lab
3.	20BT703AC	3D Printing and Design
4.	20BT40333	MATLAB for Mechanical Engineers Lab

  
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