Sri Srinivasa Educational & Charitable Trust

SAPTHAGIRI COLLEGE OF ENGINEERING

(Affiliated to VTU, Belagavi, and Recognized by AICTE, New Delhi)
(Accredited by NAAC with "A" grade)
(ISO-9001-2015 & ISO-14001-2015 certified institute)

14/5, Chikkasandra, Hesaraghatta Main Road, Bengaluru-560057

Consolidated report on open elective opted by the 6th semester students for the AY 2020-21

SI No	Name of the open elective opted	Sub Code (Open elective)	Number of students opted department wise							Total students
			CSE	ISE	ECE	EEE	ME	CV	BT	
1	Biology for Engineers	18BT651	77	36	02	09	11	19	--	154
2	Renewable energy system	18EE653	30	06	12	--	72	25	--	145
3	Non-Conventional Energy Sources	18ME651	18	70	02	22	--	06	32	150
4	Remote Sensing and GIS	18CIV651	15	14	02	08	06	--	--	45
5	Advanced Materials Technology	18ME654	--	--	--	--	--	--	--	--
6	Introduction to data structures and Algorithms	18CS652	--	--	20	47	05	01	--	73
7	Mobile application development	18CS651	--	--	48	03	03	08	--	62
8	Programming in JAVA	18CS653	--	--	44	25	11	03	17	100
9	Signal Processing	18EC651								--
10	Sensors and signal conditioning	18EC652								--
11	Chemistry for Engineers	18CHE652							32	
	Total number of students									**729**

Note: Students not opted open electives: ME:02 & Civil: 07

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

Programme: BIOTECHNOLOGY

VI SEMESTER (continued)

SEE for Mini-project:
(i) Single discipline: Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted at the department.
(ii) Interdisciplinary: Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belongs to.
Internship: All the students admitted to III year of BE/B.Tech. Shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared as failed and shall have to complete during subsequent University examination after satisfying the internship requirements.

Professional Elective -1

Course code under18BT64X	Course Title
18BT641: Food Process Engineering	
18BT642: Phyto-Chemistry and Phyto-Harmones	
18BT643: Human Physiology	

Open Elective –A

18BT651: Biology for Engineers (Modified)
18BT652:Biomaterials (Modified)
18BT653: Nano-biotechnology (Modified)

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18BT65X).Selection of an open elective shall not be allowed if,
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- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.
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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
CIVIL ENGINEERING
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture L	Tutorial T	Practical/Drawing P	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18CV61	Design of Steel Structural Elements	Civil Engg.	3	2	--	03	40	60	100	4
2	PCC	18CV62	Applied Geotechnical Engineering	Civil Engg.	3	2	--	03	40	60	100	4
3	PCC	18CV63	Hydrology and Irrigation Engineering	Civil Engg.	3	2	--	03	40	60	100	4
4	PEC	18CV64X	Professional Elective -1	Civil Engg.	3	--	--	03	40	60	100	3
5	OEC	18CV65X	Open Elective -A	Civil Engg.	3	--	--	03	40	60	100	3
6	PCC	18CVL66	Software Application Laboratory	Civil Engg.	--	2	2	03	40	60	100	2
7	PCC	18CVL67	Environmental Engineering Laboratory	Civil Engg.	--	2	2	03	40	60	100	2
8	EP	18CVEP68	Extensive Survey project	Civil Engg.	--	2	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
			TOTAL		15	12	06	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1

Course code under18CV64X	
18CV641	Matrix Method of Structural Analysis

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18CV642	Solid Waste Management
18CV643	Alternate Building Materials
18CV644	Ground Improvement Techniques
18CV645	Railway, Harbours, Tunnelling & Airports
Open Elective -A	
Course code under18CV65X	
18CV651	Remote Sensing & GIS
18CV652	Traffic Engineering
18CV653	Occupational Health & Safety
18CV654	Sustainability Concepts in Civil Engineering
18CV655	**Intelligent Transportation Systems**
18CV656	**Conservation of Natural Resources**

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VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Choice Based Credit System (CBCS) AND Outcome Based Education (OBE)
(Effective from the academic year 2018 – 19)

VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	PCC	18CS61	System Software and Compilers	CS / IS	3	2	--	03	40	60	100	4
2	PCC	18CS62	Computer Graphics and Visualization	CS / IS	3	2	--	03	40	60	100	4
3	PCC	18CS63	Web Technology and its applications	CS / IS	3	2	--	03	40	60	100	4
4	PEC	18CS64X	Professional Elective -1	CS / IS	3	--	--	03	40	60	100	3
5	OEC	18CS65X	Open Elective –A	CS / IS	3	--	--	03	40	60	100	3
6	PCC	18CSL66	System Software Laboratory	CS / IS	--	2	2	03	40	60	100	2
7	PCC	18CSL67	Computer Graphics Laboratory with mini project	CS / IS	--	2	2	03	40	60	100	2
8	MP	18CSMP68	Mobile Application Development	CS / IS	--	--	2	03	40	60	100	2
9	INT	--	Internship	(To be carried out during the intervening vacations of VI and VII semesters)	--			--	--	--	--	--
			TOTAL		15	10	06	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project, INT: Internship.

Professional Elective -1

Course code under18XX64X	Course Title
18CS641	Data Mining and Data Warehousing
18CS642	Object Oriented Modelling and Design
18CS643	Cloud Computing and its Applications
18CS644	Advanced JAVA and J2EE
18CS645	System Modelling and Simulation
Open Elective –A (Not for CSE / ISE Programs)	
18CS651	Mobile Application Development
18CS652	Introduction to Data Structures and Algorithms
18CS653	Programming in JAVA
18CS654	Introduction to Operating System

Students can select any one of the open electives offered by any Department (Please refer to the list of open electives under 18CS65X).
Selection of an open elective is not allowed provided,
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- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.
Registration to electives shall be documented under the guidance of Programme Coordinator/ Adviser/Mentor.

Mini-project work: Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary Mini- project can be assigned to an individual student or to a group having not more than 4 students.
CIE procedure for Mini-project:
(i) **Single discipline:** The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide. The CIE marks awarded for the Mini-project work, shall be based on the evaluation of project report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.
(ii) **Interdisciplinary:** Continuous Internal Evaluation shall be group wise at the college level with the participation of all the guides of the college. The CIE marks awarded for the Mini-project, shall be based on the evaluation of project report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.
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Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
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VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18IS61	File Structures	CS / IS	3	2	--	03	40	60	100	4
2	PCC	18IS62	Software Testing	CS / IS	3	2	--	03	40	60	100	4
3	PCC	18CS63	Web Technology and its applications	CS / IS	3	2	--	03	40	60	100	4
4	PEC	18CS64X	Professional Elective -1	CS / IS	3	--	--	03	40	60	100	3
5	OEC	18CS65X	Open Elective –A	CS / IS	3	--	--	03	40	60	100	3
6	PCC	18ISL66	Software Testing Laboratory	CS / IS	--	2	2	03	40	60	100	2
7	PCC	18ISL67	File Structures Laboratory with mini project	CS / IS	--	2	2	03	40	60	100	2
8	MP	18CSMP68	Mobile Application Development	CS / IS	--	--	2	03	40	60	100	2
9	INT	--	Internship	(To be carried out during the intervening vacations of VI and VII semesters)	--			--	--	--	--	--
				TOTAL	**15**	**10**	**06**	**24**	**320**	**480**	**800**	**24**

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project, INT: Internship.

Professional Elective -1

Course code under18XX64X	Course Title
18CS641	Data Mining and Data Warehousing
18CS642	Object Oriented Modelling and Design
18CS643	Cloud Computing and its Applications
18CS644	Advanced JAVA and J2EE
18IS645	Information Management System

Open Elective –A (Not for CSE / ISE Programs)

18CS651	Mobile Application Development
18CS652	Introduction to Data Structures and Algorithms
18CS653	Programming in JAVA
18CS654	Introduction to Operating System

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Programme: B.E: Electronics & Communication Engineering

VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	PCC	18EC61	Digital Communication		3	2	--	03	40	60	100	4
2	PCC	18EC62	Embedded Systems		3	2	--	03	40	60	100	4
3	PCC	18EC63	Microwave and Antennas		3	2	--	03	40	60	100	4
4	PEC	18XX64X	Professional Elective -1		3	--	--	03	40	60	100	3
5	OEC	18XX65X	Open Elective -A		3	--	--	03	40	60	100	3
6	PCC	18ECL66	Embedded Systems Laboratory		--	2	2	03	40	60	100	2
7	PCC	18ECL67	Communication Laboratory		--	2	2	03	40	60	100	2
8	MP	18ECMP68	Mini-project		--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
			TOTAL		15	10	6	24	320	480	800	24

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1

Course code under 18XX64X	Course Title
18EC641	Operating System
18EC642	Artificial Neural Networks
18EC643	Data Structures using C++
18EC644	Digital System Design Using Verilog
18EC645	Nanoelectronics
18EC646	Python Application Programming

OPEN ELECTIVE group-B	
18EC651	Signal Processing
18EC652	Sensors &Signal Conditioning
18EC653	**Virtual Instrumentation**
18EC654	**Microcontrollers**
18EC655	**Basic VLSI Design**

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VI SEMESTER

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1	PCC	18 EE61	Control Systems	EEE	3	2	--	03	40	60	100	4
2	PCC	18 EE62	Power System Analysis – 1	EEE	3	2	--	03	40	60	100	4
3	PCC	18 EE63	Digital Signal Processing	EEE	3	2	--	03	40	60	100	4
4	PEC	18 EE64X	Professional Elective -1	EEE	3	--	--	03	40	60	100	3
5	OEC	18 EE65X	Open Elective -A	EEE	3	--	--	03	40	60	100	3
6	PCC	18 EEL66	Control System Laboratory	EEE	--	2	2	03	40	60	100	2
7	PCC	18 EEL67	Digital Signal Processing Laboratory	EEE	--	2	2	03	40	60	100	2
	MP	18 EEMP68	Mini-project		--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
			TOTAL		15	10	06	24	320	480	800	24

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Professional Elective -1

Course code under18XX64X	Course Title
18 EE641	Introduction to Nuclear Power
18 EE642	Electrical Engineering Materials
18 EE643	Computer Aided Electrical Drawing
18 EE644	Embedded System
18 EE645	Object Oriented Programming using C++
18EE646	**Electric Vehicles Technologies**
18EE647	**Sensors and Transducers**

Open Elective -A

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B.E ELECTRICAL AND ELECTRONICS ENGINEERING
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
SEMESTER - VI

OPEN ELECTIVE - A

Course Code	18EE65X	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

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Sl No	Board and the Department offering the Electives	Sl No	Course code under 18EE65X	Course Title
	Electrical and Electronics Engineering	1	18EE651	Industrial Servo Control Systems
		2	18EE652	PLC and SCADA
		3	18EE653	Renewable Energy Resources
		4	**18EE654**	**Introduction to Data Analytics**

B.E ELECTRICAL AND ELECTRONICS ENGINEERING Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
SEMESTER - VII

OPEN ELECTIVE - B

Course Code	18EE75X	CIE Marks	40
Teaching Hours/Week (L:T:P)	(3:0:0)	SEE Marks	60
Credits	03	Exam Hours	03

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Sl No	Board and the Department offering the Electives	Sl No	Course code under 18EE75X	Course Title
	Electrical and Electronics Engineering	1	**18EE751**	**Carbon Capture and Storage**
		2	18EE752	Electric Vehicles
		3	**18EE753**	**Disasters Management**
		4	18EE754	Electrical Energy Conservation and Auditing

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VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	**T**	**P**					
1	PCC	18ME61	Finite Element Methods		3	2	--	03	40	60	100	4
2	PCC	18ME62	Design of Machine Elements II		3	2	--	03	40	60	100	4
3	PCC	18ME63	Heat Transfer		3	2	--	03	40	60	100	4
4	PEC	18ME64X	Professional Elective -1		3	--	--	03	40	60	100	3
5	OEC	18ME65X	Open Elective -A		3	--	--	03	40	60	100	3
6	PCC	18MEL66	Computer Aided Modelling and Analysis Lab		--	2	2	03	40	60	100	2
7	PCC	18MEL67	Heat Transfer Lab		--	2	2	03	40	60	100	2
8	MP	18MEMP68	Mini-project		--	--	2	03	40	60	100	2
9	Internship	--	Internship	To be carried out during the vacation/s of VI and VII semesters and /or VII and VIII semesters.								
			TOTAL		**15**	**10**	**06**	**24**	**320**	**480**	**800**	**24**

Note: PCC: Professional core, PEC: Professional Elective, OE: Open Elective, MP: Mini-project.

Professional Elective -1

Course code under 18XX64X	Course Title	Course code under 18XX64X	Course Title
18ME641	**Non-Traditional Machining**	18ME644	**Vibrations and Noise Engineering**
18ME642	**Refrigeration and Air conditioning**	18ME645	**Composite Materials Technology**
18ME643	**Theory of Elasticity**	18ME646	**Entrepreneurship Development**

Open Elective -A

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (Please refer to the list of open electives under 18XX65X).

Selection of an open elective shall not be allowed if,

- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Mini-project work:

Based on the ability/abilities of the student/s and recommendations of the mentor, a single discipline or a multidisciplinary Mini- project can be assigned to an individual student or to a group having not more than 4 students.

CIE procedure for Mini-project:

(i) Single discipline: The CIE marks shall be awarded by a committee consisting of the Head of the concerned Department and two senior faculty members of the Department, one of whom shall be the Guide.

The CIE marks awarded for the Mini-project work, shall be based on the evaluation of project report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.
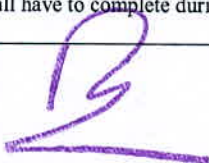
(ii) Interdisciplinary: Continuous Internal Evaluation shall be group wise at the college level with the participation of all the guides of the college. The CIE marks awarded for the Mini-project, shall be based on the evaluation of project report, project presentation skill and question and answer session in the ratio 50:25:25.The marks awarded for the project report shall be the same for all the batch mates.

SEE for Mini-project:

(i) Single discipline: Contribution to the Mini-project and the performance of each group member shall be assessed individually in the semester end examination (SEE) conducted at the department.

(ii) Interdisciplinary: Contribution to the Mini-project and the performance of each group member shall be assessed individually in semester end examination (SEE) conducted separately at the departments to which the student/s belongs to.
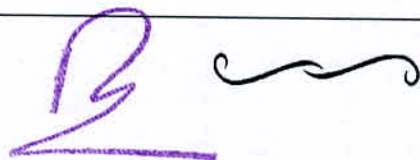
Internship: All the students admitted to III year of BE/B. Tech shall have to undergo mandatory internship of 4 weeks during the vacation of VI and VII semesters and /or VII and VIII semesters. A University examination shall be conducted during VIII semester and the prescribed credit shall be included in VIII semester. Internship shall be considered as a head of passing and shall be considered for the award of degree. Those, who do not take-up/complete the internship shall be declared fail and shall have to complete during subsequent University examination after satisfying the internship requirements.

Principal
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Bengaluru - 560 057

B.E. Mechanical Engineering
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
SEMESTER - VI
OPEN ELECTIVE - A

Course Code	18ME65X	CIE Marks	40
Teaching Hours/Week (L:T:P)	3:0:0	SEE Marks	60
Credits	03	Exam Hours	03

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (For syllabus, please refer to the concerned programme syllabus book or VTU website vtu.ac.in may be visited.).
Selection of an open elective shall not be allowed if,
- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Sl. No.	Board and the Department offering the Electives		Course Sl. No.	code under 18XX65X	Course Title
1	ME	Mechanical Engineering	1	18ME651	Non-Conventional Energy Sources
			2	18ME652	World Class Manufacturing
			3	18ME653	Supply Chain Management
			4	18ME654	Advanced Materials Technology

B.E Mechanical Engineering
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)
SEMESTER - VII
OPEN ELECTIVE - B

Course Code	18ME75X	CIE Marks	40
Teaching Hours/Week (L:T:P)	3:0:0	SEE Marks	60
Credits	03	Exam Hours	03

Students can select any one of the open electives offered by other Departments expect those that are offered by the parent Department (For syllabus, please refer to the concerned programme syllabus book or VTU website vtu.ac.in may be visited.).
Selection of an open elective shall not be allowed if,
- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of the Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator/ Advisor/Mentor.

Sl NO	Board and the Department offering the Electives		Course Sl No	code under 18XX75X	Course Title
2	ME	Mechanical Engineering	1	18ME751	Energy and Environment
			2	18ME752	Automotive Engineering
			3	18ME753	Industrial Safety
			4	18ME754	Optimization Techniques

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