

**Faculty of Science and Technology  
Savitribai Phule Pune University  
Maharashtra, India**



<http://unipune.ac.in>

**Curriculum  
for  
Second Year of Computer Engineering  
(2019 Course)  
(With effect from 2020-21)**

**Savitribai Phule Pune University**  
**Second Year of Computer Engineering (2019 Course)**  
 (With effect from Academic Year 2020-21)

**Semester-III**

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total
210241	<a href="#">Discrete Mathematics</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210242	<a href="#">Fundamentals of Data Structures</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210243	<a href="#">Object Oriented Programming (OOP)</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210244	<a href="#">Computer Graphics</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210245	<a href="#">Digital Electronics and Logic Design</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210246	<a href="#">Data Structures Laboratory</a>	-	04	-	-	-	25	50	-	75	-	02	-	02
210247	<a href="#">OOP and Computer Graphics Laboratory</a>	-	04	-	-	-	25	25	-	50	-	02	-	02
210248	<a href="#">Digital Electronics Laboratory</a>	-	02	-	-	-	25	-	-	25	-	01	-	01
210249	<a href="#">Business Communication Skills</a>	-	02	-	-	-	25	-	-	25	-	01	-	01
210250	<a href="#">Humanity and Social Science</a>	-	-	01	-	-	25	-	-	25	-	-	01	01
210251	<a href="#">Audit Course 3</a>													
<b>Total Credit</b>											<b>15</b>	<b>06</b>	<b>01</b>	<b>22</b>
<b>Total</b>		<b>15</b>	<b>12</b>	<b>01</b>	<b>150</b>	<b>350</b>	<b>125</b>	<b>75</b>	<b>-</b>	<b>700</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

**Semester-IV**

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total
207003	<a href="#">Engineering Mathematics III</a>	03	-	01	30	70	25	-	-	125	03	-	01	04
210252	<a href="#">Data Structures and Algorithms</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210253	<a href="#">Software Engineering</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210254	<a href="#">Microprocessor</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210255	<a href="#">Principles of Programming Languages</a>	03	-	-	30	70	-	-	-	100	03	-	-	03
210256	<a href="#">Data Structures and Algorithms Laboratory</a>	-	04	-	-	-	25	25	-	50	-	02	-	02
210257	<a href="#">Microprocessor Laboratory</a>	-	02	-	-	-	25	-	25	50	-	01	-	01
210258	<a href="#">Project Based Learning II</a>	-	04	-	-	-	50	-	-	50	-	02	-	02
210259	<a href="#">Code of Conduct</a>	-	-	01	-	-	25	-	-	25	-	-	01	01
210260	<a href="#">Audit Course 4</a>													
<b>Total Credit</b>											<b>15</b>	<b>05</b>	<b>02</b>	<b>22</b>
<b>Total</b>		<b>15</b>	<b>10</b>	<b>02</b>	<b>150</b>	<b>350</b>	<b>150</b>	<b>25</b>	<b>25</b>	<b>700</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>

**Faculty of Science & Technology**  
**Savitribai Phule Pune University, Pune**  
**Maharashtra, India**



**Curriculum**  
**for**  
**Second Year of Information Technology**  
**(2019 Course)**  
**(With effect from AY 2020-21)**

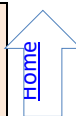
Savitribai Phule Pune University														
Second Year of Information Technology Engineering(2019 Course)														
(With effect from Academic Year 2020-21)														
Semester-III														
Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial	IN-Sem	End-Sem	TW	PR	OR	Total	TH	PR	TUT	Total
<a href="#">214441</a>	Discrete Mathematics	03	-	01	30	70	25	-	-	125	03	--	01	04
<a href="#">214442</a>	Logic Design and Computer Organization	03	-	-	30	70	-	-	-	100	03	-	-	03
<a href="#">214443</a>	Data Structures and Algorithms	03	-	-	30	70	-	-	-	100	03	-	-	03
<a href="#">214444</a>	Object Oriented Programming	03	-	-	30	70	-	-	-	100	03	-	-	03
<a href="#">214445</a>	Basics of Computer Network	03	-	-	30	70	-	-	-	100	03	-	-	03
<a href="#">214446</a>	Logic Design Computer Organization Lab	-	02	-	-	-	25	25	-	50	-	01	-	01
<a href="#">214447</a>	Data Structures and Algorithms Lab	-	04	-	-	-	25	25	-	50	-	02	-	02
<a href="#">214448</a>	Object Oriented Programming Lab	-	04	-	-	-	25	25	-	50	-	02	-	02
<a href="#">214449</a>	Soft Skill Lab	-	02	-	-	-	25	-	-	25	-	01	-	01
<a href="#">214450</a>	Mandatory Audit Course 3	-	-	-	-	-	-	-	-	-	Non Credit			-
Total		15	12	01	150	350	125	75	--	700	15	06	01	22

**Abbreviations:**  
 TH: Theory      TW: Term Work      PR: Practical  
 OR: Oral      TUT: Tutorial

**Note: Students of S.E. (Information Technology) can opt any one of the audit course from the list of audit courses prescribed by BoS (Information Technology)**

#Mandatory Audit Course 3:

[214450A](#)- Ethics and values in IT[214450B](#) - Quantitative Aptitude and Logical Reasoning[214450C](#)- Language Study- Japanese- Module[214450D](#)-Cyber Security and Law



Savitribai Phule Pune University, Pune														
Second Year of Information Technology Engineering (2019 Course)														
(With effect from Academic Year 2020-21)														
Semester-IV														
Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial	IN-Sem	End-Sem	TW	PR	OR	Total	TH	PR	TUT	Total
<a href="#">207003</a>	Engineering Mathematics- III	03	-	01	30	70	25	-	-	125	03	-	01	04
<a href="#">214451</a>	Processor Architecture	03	-	-	30	70	-	-	-	100	03	-	-	03
<a href="#">214452</a>	Database Management System	03	-	-	30	70	-	-	-	100	03	-	-	03
<a href="#">214453</a>	Computer Graphics	03	-	-	30	70	-	-	-	100	03	-	-	03
<a href="#">214454</a>	Software Engineering	03	-	-	30	70	-	-	-	100	03	-	-	03
<a href="#">214455</a>	Programming Skill Development Lab	-	02	-	-	-	25	25	-	50	-	01	-	01
<a href="#">214456</a>	Database Management System Lab	-	04	-	-	-	25	25	-	50	-	02	-	02
<a href="#">214457</a>	Computer Graphics Lab	-	02	-	-	-	-	25	-	25	-	01	-	01
<a href="#">214458</a>	Project Based Learning	-	04	-	-	-	50	-	-	50	-	02	-	02
<a href="#">214459</a>	Mandatory Audit Course 4	-	-	-	-	-	-	-	-	-	Non Credit			-
<b>Total</b>		<b>15</b>	<b>12</b>	<b>01</b>	<b>150</b>	<b>350</b>	<b>125</b>	<b>75</b>	<b>-</b>	<b>700</b>	<b>15</b>	<b>06</b>	<b>01</b>	<b>22</b>

**Abbreviations:**  
 TH: Theory      TW: Term Work      PR: Practical  
 OR: Oral      TUT: Tutorial

**Note: Students of S.E. (Information Technology) can opt any one of the audit course from the list of audit courses prescribed by BoS ( Information Technology)**

#Mandatory Audit Course 4:

[214459A](#) - Water Supply and Treatment[214459B](#) - Language Study- Japanese- Module II[214459C](#) - Waste Management and Pollution Control[214459D](#) - Intellectual Property Rights

# **Savitribai Phule Pune University**

## **Faculty of Science & Technology**



Curriculum/Syllabus  
for  
**Second Year**  
**Bachelor of Engineering**  
**(Choice Based Credit System)**  
**Mechanical Engineering and Automobile Engineering**  
**(2019 Course)**

**Board of Studies - Automobile and Mechanical Engineering**  
(With Effect from Academic Year 2020-21)

**Savitribai Phule Pune University**  
**Board of Studies - Automobile and Mechanical Engineering**  
**Undergraduate Program - Automobile Engineering & Mechanical Engineering (2019 pattern)**

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		TH	PR	TUT	ISE	ESE	TW	PR	OR	TOTAL	TH	PR	TUT	TOTAL
<b>Semester-III</b>														
202041	Solid Mechanics	4	2	-	30	70	-	50	-	150	4	1	-	5
202042	Solid Modeling and Drafting	3	2	-	30	70	-	50	-	150	3	1	-	4
202043	Engineering Thermodynamics	3	2	-	30	70	-	-	25	125	3	1	-	4
202044	Engineering Materials and Metallurgy	3	2	-	30	70	25	-	-	125	3	1	-	4
203156	Electrical and Electronics Engineering	3	2	-	30	70	25	-	-	125	3	1	-	4
202045	Geometric Dimensioning and Tolerancing Lab	-	2	-	-	-	25	-	-	25	-	1	-	1
202046	Audit Course - III	-	-	-	-	-	-	-	-	-	-	-	-	-
	<b>Total</b>	<b>16</b>	<b>12</b>	<b>-</b>	<b>150</b>	<b>350</b>	<b>75</b>	<b>100</b>	<b>25</b>	<b>700</b>	<b>16</b>	<b>6</b>	<b>-</b>	<b>22</b>
<b>Semester-IV</b>														
207002	Engineering Mathematics - III	3	-	1	30	70	25	-	-	125	3	-	1	4
202047	Kinematics of Machinery	3	2	-	30	70	-	-	25	125	3	1	-	4
202048	Applied Thermodynamics	3	2	-	30	70	-	-	25	125	3	1	-	4
202049	Fluid Mechanics	3	2	-	30	70	-	-	25	125	3	1	-	4
202050	Manufacturing Processes	3	-	-	30	70	-	-	-	100	3	-	-	3
202051	Machine Shop	-	2	-	-	-	50	-	-	50	-	1	-	1
202052	Project Based Learning - II	-	4	-	-	-	50	-	-	50	-	2	-	2
202053	Audit Course - IV	-	-	-	-	-	-	-	-	-	-	-	-	-
	<b>Total</b>	<b>15</b>	<b>12</b>	<b>1</b>	<b>150</b>	<b>350</b>	<b>125</b>	<b>-</b>	<b>75</b>	<b>700</b>	<b>15</b>	<b>6</b>	<b>1</b>	<b>22</b>
<p><b>Abbreviations:</b> TH: Theory, PR: Practical, TUT: Tutorial, ISE: In-Semester Exam, ESE: End-Semester Exam, TW: Term Work, OR: Oral</p>														
<p><b>Note:</b> Interested students of SE (Automobile Engineering and Mechanical Engineering) can opt for any one of the audit course from the list of audit courses prescribed by BoS (Automobile and Mechanical Engineering)</p>														
<p><b>Instructions</b></p> <ul style="list-style-type: none"> <li>• Practical/Tutorial must be conducted in three batches per division only.</li> <li>• Minimum number of required Experiments/Assignments in PR/ Tutorial shall be carried out as mentioned in the syllabi of respective subjects.</li> <li>• Assessment of tutorial work has to be carried out as a term-work examination. Term-work Examination at second year of engineering course shall be internal continuous assessment only.</li> <li>• Project based learning (PBL) requires continuous mentoring by faculty throughout the semester for successful completion of the tasks selected by the students per batch. While assigning the teaching workload of 2 Hrs/week/batch needs to be considered for the faculty involved. The Batch needs to be divided into sub-groups of 5 to 6 students. Assignments / activities / models/ projects etc. under project based learning is carried throughout semester and Credit for PBL has to be awarded on the basis of internal continuous assessment and evaluation at the end of semester.</li> <li>• Audit course is mandatory but non-credit course. Examination has to be conducted at the end of Semesters for award of grade at institute level. Grade awarded for audit course shall not be calculated for grade point &amp; CGPA.</li> </ul>														

# **Savitribai Phule Pune University**

## **Faculty of Science and Technology**



### **Syllabus for**

**S.E (Electronics / Electronics & Telecommunication Engineering)**

**(Course 2019)**

**(w.e.f. June 2020)**

**Savitribai Phule Pune University, Pune**  
**S.E. (Electronics / E&TC Engineering) 2019 Course**  
 (With effect from Academic Year 2020-21)

**Semester-III**

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial	In-Sem	End-Sem	TW	PR	OR	Total	TH	PR	TUT	Total
207005	Engineering Mathematics III	04	-	01	30	70	25	-	-	125	04	-	01	05
204181	Electronic Circuits	03	-	-	30	70	-	-	-	100	03	-	-	03
204182	Digital Circuits	03	-	-	30	70	-	-	-	100	03	-	-	03
204183	Electrical Circuits	03	-	-	30	70	-	-	-	100	03	-	-	03
204184	Data structures	03	-	-	30	70	-	-	-	100	03	-	-	03
204185	Electronic Circuit Lab	-	02	-	-	-	-	50	-	50	-	01	-	01
204186	Digital circuits Lab	-	02	-	-	-	-	50	-	50	-	01	-	01
204187	Electrical Circuit Lab	-	02	-	-	-	25	-	-	25	-	01	-	01
204188	Data Structures Lab	-	02	-	-	-	-	-	25	25	-	01	-	01
204189	Electronic Skill Development	-	02	-	-	-	25	-	-	25	-	01	-	01
204190	Mandatory Audit Course 3 &	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>		<b>16</b>	<b>10</b>	<b>01</b>	<b>150</b>	<b>350</b>	<b>75</b>	<b>100</b>	<b>25</b>	<b>700</b>	<b>16</b>	<b>05</b>	<b>01</b>	<b>22</b>

**Savitribai Phule Pune University, Pune**  
**S.E. (Electronics / E&TC Engineering) 2019 Course**  
 (With effect from Academic Year 2020-21)

**Semester-IV**

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial	In-Sem	End-Sem	TW	PR	OR	Total	TH	PR	TUT	Total
204191	Signals & Systems	03	-	01	30	70	25	-	-	125	03	-	01	04
204192	Control Systems	03	-		30	70		-	-	100	03	-	-	03
204193	Principles of Communication Systems	03	-	-	30	70	-	-	-	100	03	-	-	03
204194	Object Oriented Programming	03	-	-	30	70	-	-	-	100	03	-	-	03
204195	Signals & Control System Lab		02				50			50		01		01
204196	Principle of Communication Systems Lab	-	02	-	-	-	-	50	-	50	-	01	-	01
204197	Object Oriented Programming Lab	-	02	-	-	-	-	-	50	50	-	01	-	01
204198	Data Analytics Lab		02				-		25	25		01		01
204199	Employability Skill Development	02	02	-	-	-	50	-	-	50	02	01	-	03
204200	Project Based Learning <sup>¶</sup>	-	04				50		-	50		02		02
204201	Mandatory Audit Course 4 <sup>&amp;</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>		<b>14</b>	<b>14</b>	<b>01</b>	<b>120</b>	<b>280</b>	<b>175</b>	<b>50</b>	<b>75</b>	<b>700</b>	<b>14</b>	<b>07</b>	<b>01</b>	<b>22</b>

**Abbreviations:**

In-Sem: In semester

End-sem: End semester

TH : Theory

TW : Term Work

PR : Practical

OR : Oral

TUT : Tutorial

**Note: Interested students of S.E. (Electronics/E&TC) can opt any one of the audit course from the list of audit courses prescribed by BoS (Electronics & Telecommunications Engineering)**

**Curriculum  
for  
Third Year of Computer Engineering  
(2019 Course)**

**(With effect from 2021-22)**

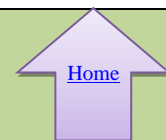


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**Faculty of Science and Technology**

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Maharashtra, India**

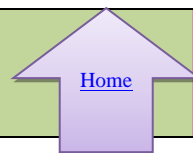
**Savitribai Phule Pune University**  
**Third Year of Computer Engineering (2019 Course)**  
 (With effect from Academic Year 2021-22)



**Semester V**

Course Code	Course Name	Teaching Scheme (Hours/week)			Examination Scheme and Marks						Credit Scheme				
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total	
310241	<a href="#">Database Management Systems</a>	03	-	-	30	70	-	-	-	100	03	-	-	03	
310242	<a href="#">Theory of Computation</a>	03	-	-	30	70	-	-	-	100	03	-	-	03	
310243	<a href="#">Systems Programming and Operating System</a>	03	-	-	30	70	-	-	-	100	03	-	-	03	
310244	<a href="#">Computer Networks and Security</a>	03	-	-	30	70	-	-	-	100	03	-	-	03	
310245	<a href="#">Elective I</a>	03	-	-	30	70	-	-	-	100	03	-	-	03	
310246	<a href="#">Database Management Systems Laboratory</a>	-	04	-	-	-	25	25	-	50	-	02	-	02	
310247	<a href="#">Computer Networks and Security Laboratory</a>	-	02	-	-	-	25	-	25	50	-	01	-	01	
310248	<a href="#">Laboratory Practice I</a>	-	04	-	-	-	25	25	-	50	-	02	-	02	
310249	<a href="#">Seminar and Technical Communication</a>	-	-	01	-	-	50	-	-	50	-	-	01	01	
<b>Total</b>		<b>15</b>	<b>10</b>	<b>01</b>	<b>150</b>	<b>350</b>	<b>125</b>	<b>50</b>	<b>25</b>	<b>700</b>	<b>15</b>	<b>05</b>	<b>01</b>	<b>21</b>	
310250	<a href="#">Audit Course 5</a>											<b>Grade</b>			
<b>Total Credit</b>											<b>15</b>	<b>05</b>	<b>01</b>	<b>21</b>	
<b>310245 Elective I Options:</b>						<b>310250 Audit Course 5 Options:</b>									
310245(A) <a href="#">Internet of Things and Embedded Systems</a>						310250 (A) <a href="#">Cyber Security</a>									
310245(B) <a href="#">Human Computer Interface</a>						310250 (B) <a href="#">Professional Ethics and Etiquettes</a>									
310245(C) <a href="#">Distributed Systems</a>						310250 (C) <a href="#">Learn New Skills</a>									
310245(D) <a href="#">Software Project Management</a>						310250 (D) <a href="#">Engineering Economics</a>									
						310250 (E) <a href="#">Foreign Language</a>									
<b>Laboratory Practice I</b>															
Assignments from <b>Systems Programming and Operating System</b> and <b>Elective I</b>															

**Savitribai Phule Pune University**  
**Third Year of Computer Engineering (2019 Course)**  
 (With effect from Academic Year 2021-22)



**Semester VI**

Course Code	Course Name	Teaching Scheme (Hours/week)			Examination Scheme and Marks						Credit Scheme				
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total	
310251	<a href="#">Data Science and Big Data Analytics</a>	04	-	-	30	70	-	-	-	100	03	-	-	03	
310252	<a href="#">Web Technology</a>	04	-	-	30	70	-	-	-	100	03	-	-	03	
310253	<a href="#">Artificial Intelligence</a>	04	-	-	30	70	-	-	-	100	03	-	-	03	
310254	<a href="#">Elective II</a>	04	-	-	30	70	-	-	-	100	03	-	-	03	
310255	<a href="#">Internship**</a>	-	-	-	-	-	100**	-	-	100	-	-	-	04**	
310256	<a href="#">Data Science and Big Data Analytics Laboratory</a>	-	04	-	-	-	50	25	-	75	-	02	-	02	
310257	<a href="#">Web Technology Laboratory</a>	-	02	-	-	-	25	-	25	50	-	01	-	01	
310258	<a href="#">Laboratory Practice II</a>	-	04	-	-	-	50	25	-	75	-	02	-	02	
<b>Total</b>		<b>12</b>	<b>10</b>	<b>-</b>	<b>120</b>	<b>280</b>	<b>225</b>	<b>50</b>	<b>25</b>	<b>700</b>	<b>12</b>	<b>09</b>	<b>-</b>	<b>21</b>	
310259	<a href="#">Audit Course 6</a>											<b>Grade</b>			
<b>Total</b>											<b>12</b>	<b>09</b>	<b>-</b>	<b>21</b>	
<b>310254 Elective II Options:</b>						<b>310259 Audit Course 6 Options:</b>									
310254(A) <a href="#">Information Security</a>						310259(A) <a href="#">Digital and Social Media Marketing</a>									
310254(B) <a href="#">Augmented and Virtual Reality</a>						310259(B) <a href="#">Sustainable Energy Systems</a>									
310254(C) <a href="#">Cloud Computing</a>						310259(C) <a href="#">Leadership and Personality Development</a>									
310254(D) <a href="#">Software Modeling and Architectures</a>						310259(D) <a href="#">Foreign Language</a>									
						310259(E) <a href="#">Learn New Skills</a>									
<b>Laboratory Practice II:</b>															
Assignments from <b>Artificial Intelligence</b> and <b>Elective II</b> .															
<b>** Internship:</b>															
<b>Internship</b> guidelines are provided in course curriculum sheet.															
<b>\$\$ Hours/Week for Theory Course in Third Year of Engineering, Semester VI:</b>															
As per the apex bodies' recommendations and guidelines, it is need of the day to train the pre-final year students for the industrial readiness through internship. As per the guidelines of AICTE, the duration of internship is 4-6 weeks after completion of semester V and before commencement of semester VI, so it is apparent that the contact hours of the TE students need to be managed meticulously. It becomes mandatory as per the structure that 4 credits for internship must be earned by the students. <b>Per semester, 15 weeks duration that is suggested ideally by the affiliated university will eventually reduce to fruitful 12 weeks after the implementation of the revised curriculum (2019 Course). With the evaluatory introduction of internship in the structure, we are left with the choice of 4 theory courses in the sixth semester with 12 weeks instead of traditional 15 weeks.</b> To balance the credits and to achieve the minimum required contact hours, it is the reasonable choice to allot 4 hours / week for each theory course of the sixth semester of Third year of Engineering. The additional one lecture/ week will definitely be instrumental in achieving the largest of minimum contact hours. As such there is no correspondence of weekly load and credits earned, the credit allotted per course remain intact despite of the change. <b>So it is almost imperative that the commencement of VI Semester need to be approx. 3 weeks beyond the schedule.</b>															

**Faculty of Science & Technology**  
**Savitribai Phule Pune University,**  
**Pune, Maharashtra, India**



**Curriculum For**  
**Third Year of Information Technology**  
**(2019 Course)**  
**(With effect from AY 2021-22)**

Savitribai Phule Pune University														
Third Year of Information Technology (2019 course)														
(With effect from Academic Year 2021-22)														
Semester-V														
Course Code	Course Name	Teaching Scheme (Hours/ week)			Examination Scheme and Marks						Credit Scheme			
		Theory	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total
<a href="#">314441</a>	Theory of Computation	03	-	-	30	70	-	-	-	100	3	-	-	3
<a href="#">314442</a>	Operating Systems	03	-	-	30	70	-	-	-	100	3	-	-	3
<a href="#">314443</a>	Machine Learning	03	-	-	30	70	-	-	-	100	3	-	-	3
<a href="#">314444</a>	Human Computer Interaction	03	-	-	30	70	-	-	-	100	3	-	-	3
<a href="#">314445</a>	Elective-I	03	-	-	30	70	-	-	-	100	3	-	-	3
<a href="#">314446</a>	Operating Systems Lab	-	04	-	-	-	25	25	-	50	-	2	-	2
<a href="#">314447</a>	Human Computer Interaction- Lab	-	02	-	-	-	-	-	50	50	-	1	-	1
<a href="#">314448</a>	Laboratory Practice-I	-	04	-	-	-	25	25	-	50	-	2	-	2
<a href="#">314449</a>	Seminar	-	01	-	-	-	50	-	-	50	-	1	-	1
<a href="#">314450</a>	Audit Course 5	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Credit</b>											<b>15</b>	<b>06</b>	<b>-</b>	<b>21</b>
<b>Total</b>		<b>15</b>	<b>11</b>	<b>-</b>	<b>150</b>	<b>350</b>	<b>100</b>	<b>50</b>	<b>50</b>	<b>700</b>	<b>15</b>	<b>06</b>	<b>-</b>	<b>21</b>
<b>Abbreviations: TH: Theory, TW: Term Work, PR: Practical , OR: Oral ,TUT: Tutorial</b>														
<b>Elective-I:</b>							<b>Audit Course 5:</b>							
<a href="#">314445A</a> - Design and Analysis of Algorithm							<a href="#">314450A</a> -Banking and Insurance							
<a href="#">314445B</a> - Advanced Database and Management System							<a href="#">314450B</a> -Startup Ecosystems							
<a href="#">314445C</a> - Design Thinking							<a href="#">314450C</a> - Foreign Language–(Japanese Language- III )							
<a href="#">314445D</a> - Internet of Things														
<b>Laboratory Practice-I:</b>														
<b>Assignment from Machine Learning and Elective I</b>														
<b>Note: Students of T.E. (Information Technology) can opt any one of the audit course from the list of audit courses prescribed by BoS (Information Technology)</b>														

Savitribai Phule Pune University														
Third Year of Information Technology (2019 Course)														
(With effect from Academic Year 2021-22)														
Semester-VI														
Course Code	Course Name	Teaching Scheme (Hours/week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term Work	Practical	Oral	Total	Lecture	Practical	Tutorial	Total
<a href="#">314451</a>	Computer Networks & Security	03	-	-	30	70	-	-	-	100	03			03
<a href="#">314452</a>	Data Science and Big Data Analytics	03	-	-	30	70	-	-	-	100	03			03
<a href="#">314453</a>	Web Application Development	03	-	-	30	70	-	-	-	100	03			03
<a href="#">314454</a>	Elective-II	03	-	-	30	70	-	-	-	100	03			03
<a href="#">314455</a>	Internship	-	04	-	-	-	100	-	-	100		04		04
<a href="#">314456</a>	Computer Networks & Security-Lab	-	04	-	-	-	25	-	50	75		02		02
<a href="#">314457</a>	DS & BDA-Lab	-	02	-	-	-	25	25	-	50		01		01
<a href="#">314458</a>	Laboratory Practice-II	-	04	-	-	-	50	25	-	75		02		02
<a href="#">314459</a>	Audit Course 6	-	-	-	-	-	-	-	-	-		-	-	-
<b>Total</b>											<b>12</b>	<b>09</b>	<b>-</b>	<b>21</b>
<b>Total</b>		<b>12</b>	<b>14</b>	<b>-</b>	<b>120</b>	<b>280</b>	<b>200</b>	<b>50</b>	<b>50</b>	<b>700</b>	<b>12</b>	<b>09</b>	<b>-</b>	<b>21</b>
<b>Abbreviations: TH: Theory, TW: Term Work, PR: Practical, OR: Oral, TUT: Tutorial</b>														
<b>Elective-II:</b>					<b>Audit Course 6:</b>									
<a href="#">314454A</a> - Artificial Intelligence					<a href="#">314459A</a> - Green and Unconventional Energy									
<a href="#">314454B</a> - Cyber Security					<a href="#">314459B</a> - Leadership and Personality Development									
<a href="#">314454C</a> -Cloud Computing					<a href="#">314459C</a> - Foreign Language-(Japanese Language- IV)									
<a href="#">314454D</a> - Software Modeling and Design														
<b>Laboratory Practice-II:</b>														
<b>Assignments from Web Application Development and Elective-II.</b>														
<b>Note: Students of T.E. (Information Technology) can opt any one of the audit course from the list of audit courses prescribed by BoS (Information Technology)</b>														

# Savitribai Phule Pune University

## Faculty of Science & Technology



Curriculum/Syllabus

For

**Third Year**

**Bachelor of Engineering  
(Choice Based Credit System)**

**Mechanical Engineering  
(2019 Course)**

**Board of Studies – Mechanical and Automobile Engineering  
(With Effect from Academic Year 2021-22)**

**Savitribai Phule Pune University**  
**Board of Studies - Automobile and Mechanical Engineering**  
**Undergraduate Program - Mechanical Engineering (2019 pattern)**

Course Code	Course Name	Teaching Scheme (Hrs./week)			Examination Scheme and Marks						Credit			
		TH	PR	TUT	ISE	ESE	TW	PR	OR	Total	TH	PR	TUT	Total
<b>Semester-V</b>														
302041	Numerical & Statistical Methods	3	-	1	30	70	25	-	-	125	3	-	1	4
302042	Heat & Mass Transfer	3	2	-	30	70	-	50	-	150	3	1	-	4
302043	Design of Machine Elements	3	2	-	30	70	-	-	25	125	3	1	-	4
302044	Mechatronics	3	2	-	30	70	-	-	25	125	3	1	-	4
302045	Elective I	3	-	-	30	70	-	-	-	100	3	-	-	3
302046	Digital Manufacturing Laboratory	-	2	-	-	-	50	-	-	50	-	1	-	1
302047	Skill Development	-	2	-	-	-	25	-	-	25	-	1	-	1
302048	Audit course - V <sup>s</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>		<b>15</b>	<b>10</b>	<b>1</b>	<b>150</b>	<b>350</b>	<b>100</b>	<b>50</b>	<b>50</b>	<b>700</b>	<b>15</b>	<b>5</b>	<b>1</b>	<b>21</b>
<b>Semester-VI</b>														
302049	Artificial Intelligence & Machine Learning	3	2	-	30	70	-	-	25	125	3	1	-	4
302050	Computer Aided Engineering	3	2	-	30	70	-	50	-	150	3	1	-	4
302051	Design of Transmission Systems	3	2	-	30	70	-	-	25	125	3	1	-	4
302052	Elective II	3	-	-	30	70	-	-	-	100	3	-	-	3
302053	Measurement Laboratory	-	2	-	-	-	50	-	-	50	-	1	-	1
302054	Fluid Power & Control Laboratory	-	2	-	-	-	50	-	-	50	-	1	-	1
302055	Internship/Mini project *	-	4	-	-	-	100	-	-	100	-	4	-	4
302056	Audit course - VI <sup>s</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>		<b>12</b>	<b>14</b>	<b>-</b>	<b>120</b>	<b>280</b>	<b>200</b>	<b>50</b>	<b>50</b>	<b>700</b>	<b>12</b>	<b>9</b>	<b>-</b>	<b>21</b>
<b>Elective-I</b>						<b>Elective-II</b>								
302045-A	Advanced Forming & Joining Processes				302052-A	Composite Materials								
302045-B	Machining Science & Technology				302052-B	Surface Engineering								
<b>Abbreviations:</b> TH: Theory, PR: Practical, TUT: Tutorial, ISE: In-Semester Exam, ESE: End-Semester Exam, TW: Term Work, OR: Oral														
<b>Note:</b> Interested students of TE (Automobile Engineering and Mechanical Engineering) can opt for any one of the audit course from the list of audit courses prescribed by BOS (Automobile and Mechanical Engineering)														
<b>Instructions:</b>														
<ul style="list-style-type: none"> <li>• Practical/Tutorial must be conducted in FOUR batches per division only.</li> <li>• Minimum number of Experiments/Assignments in PR/Tutorial shall be carried out <b>as mentioned in the syllabi</b> of respective courses.</li> <li>• Assessment of tutorial work has to be carried out similar to term-work. The Grade cum marks for Tutorial and Term-work shall be awarded on the basis of <b>continuous evaluation</b>.</li> <li>• <sup>s</sup>Audit course is mandatory but non-credit course. Examination has to be conducted at the end of Semesters for award of grade at institute level. Grade awarded for audit course shall not be calculated for grade point &amp; CGPA.</li> </ul>														

**Savitribai Phule Pune University**  
**Faculty of Science and Technology**



**Syllabus for**

**T.E (Electronics & Telecommunication Engineering)**

**(Course 2019)**

**(w.e.f. June 2021)**

**Savitribai Phule Pune University, Pune**  
**T.E. (Electronics & Telecommunication Engineering) 2019 Course**  
 (With effect from Academic Year 2021-22)

**Semester-V**

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial	In-Sem	End-Sem	TW	PR	OR	Total	TH	PR	TUT	Total
304181	Digital Communication	03	-	-	30	70	-	-	-	100	03	-	-	03
304182	Electromagnetic Field Theory	03	-	01	30	70	25	-	-	125	03	-	01	04
304183	Database Management	03	-	-	30	70	-	-	-	100	03	-	-	03
304184	Microcontrollers	03	-	-	30	70	-	-	-	100	03	-	-	03
304185	Elective - I	03	-	-	30	70	-	-	-	100	03	-	-	03
304186	Digital Communication Lab	-	02	-	-	-	-	50	-	50	-	01	-	01
304187	Database Management Lab	-	02	-	-	-	-	-	25	25	-	01	-	01
304188	Microcontroller Lab	-	02	-	-	-	-	50	-	50	-	01	-	01
304189	Elective I Lab	-	02	-	-	-	-	25	-	25	-	01	-	01
304190	Skill Development	-	02	-	-	-	25	-	-	25	-	01	-	01
304191A	Mandatory Audit Course 5 &	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>		<b>15</b>	<b>10</b>	<b>01</b>	<b>150</b>	<b>350</b>	<b>50</b>	<b>125</b>	<b>25</b>	<b>700</b>	-			-
<b>Total Credit</b>											<b>15</b>	<b>05</b>	<b>01</b>	<b>21</b>

**Elective -I**

- 1) Digital Signal Processing
- 2) Electronic Measurements
- 3) Fundamentals of JAVA Programming
- 4) Computer Networks

**Savitribai Phule Pune University, Pune**  
**T.E. (Electronics & Telecommunication Engineering) 2019 Course**  
 (With effect from Academic Year 2021-22)

**Semester-VI**

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial	In-Sem	End-Sem	TW	PR	OR	Total	TH	PR	TUT	Total
304192	Cellular Networks	03	-	-	30	70	-	-	-	100	03	-	-	03
304193	Project Management	03	-	-	30	70	-	-	-	100	03	-	-	03
304194	Power Devices & Circuits	03	-	-	30	70	-	-	-	100	03	-	-	03
304195	Elective-II	03	-	-	30	70	-	-	-	100	03	-	-	03
304196	Cellular Networks Lab	-	02	-	-	-	-	-	50	50	-	01	-	01
304197	Power Devices & Circuits Lab	-	02	-	-	-	-	50	-	50	-	01	-	01
304198	Elective-II Lab	-	02	-	-	-	-	25	-	25	-	01	-	01
304199	Internship**	-	-	-	-	-	100	-	-	100	-	-	04	04
304200	Mini Project	-	04	-	-	-	25	-	50	75	-	02	-	02
304191 B	Mandatory Audit Course 6 &	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>		<b>12</b>	<b>10</b>	<b>00</b>	<b>120</b>	<b>280</b>	<b>125</b>	<b>75</b>	<b>100</b>	<b>700</b>				
<b>Total Credit</b>											<b>12</b>	<b>05</b>	<b>04</b>	<b>21</b>

**Abbreviations:**

In-Sem: In semester

End-Sem: End semester

TH: Theory

TW : Term Work

PR: Practical

OR: Oral

TUT: Tutorial

**Note: Students of T.E. (Electronics & Telecommunications) have to opt any one of the audit course from the list of audit courses prescribed by BoS (Electronics & Telecommunications Engineering)**

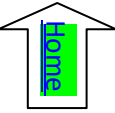
**Elective -II**

- 1) Digital Image Processing
- 2) Sensors in Automation
- 3) Advanced JAVA Programming
- 4) Embedded Processors
- 5) Network Security

**Faculty of Engineering  
Savitribai Phule Pune University, Pune  
Maharashtra, India**



**Curriculum  
for  
Fourth Year of Computer Engineering  
(2019 Course)  
(With effect from 2022-23)**



## BE Computer Engineering 2019 Course tentative Curriculum structure:

Savitribai Phule Pune University Fourth Year of Computer Engineering (2019 Course) (With effect from Academic Year 2022-23)														
Semester VII														
Course Code	Course Name	Teaching Scheme (Hours/week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral/Pre	Total	Lecture	Practical	Tutorial	Total
410241	<a href="#">Design and Analysis of Algorithms</a>	03	-	-	30	70	-	-	-	100	3	-	-	3
410242	<a href="#">Machine Learning</a>	03	-	-	30	70	-	-	-	100	3	-	-	3
410243	<a href="#">Blockchain Technology</a>	03	-	-	30	70	-	-	-	100	3	-	-	3
410244	<a href="#">Elective III</a>	03	-	-	30	70	-	-	-	100	3	-	-	3
410245	<a href="#">Elective IV</a>	03	-	-	30	70	-	-	-	100	3	-	-	3
410246	<a href="#">Laboratory Practice III</a>	-	04	-	-	-	50	50	-	100	-	2	-	2
410247	<a href="#">Laboratory Practice IV</a>	-	02	-	-	-	50	-	-	50	-	1	-	1
410248	<a href="#">Project Stage I</a>	-	02	-	-	-	50	-	-	50	-	2	-	2
<b>Total Credit</b>											<b>15</b>	<b>05</b>	<b>-</b>	<b>20</b>
<b>Total</b>		<b>15</b>	<b>08</b>	<b>-</b>	<b>150</b>	<b>350</b>	<b>150</b>	<b>50</b>	<b>-</b>	<b>700</b>	<b>15</b>	<b>05</b>	<b>-</b>	<b>20</b>
410249	<a href="#">Audit Course 7</a>										<b>Grade</b>			
<b>Elective III</b>					<b>Elective IV</b>									
<a href="#">410244(A) Pervasive Computing</a> <a href="#">410244(B) Multimedia Techniques</a> <a href="#">410244(C) Cyber Security and Digital Forensics</a> <a href="#">410244(D) Object Oriented Modeling and Design</a> <a href="#">410244(E) Digital Signal Processing</a>					<a href="#">410245(A) Information Retrieval</a> <a href="#">410245(B) GPU Programming and Architecture</a> <a href="#">410245(C) Mobile Computing</a> <a href="#">410245(D) Software Testing and Quality Assurance</a> <a href="#">410245(E) Compilers</a>									
<b>Laboratory Practice III:</b> Laboratory assignments Courses- 410241, 410242, 410243					<b>Laboratory Practice IV:</b> Laboratory assignments Courses- 410244, 410245									
<b>Audit Course 7(AC7) Options:</b> <a href="#">AC7- I MOOC- Learn New Skills</a> <a href="#">AC7- II Entrepreneurship Development</a> <a href="#">AC7- III Botnet of Things</a> <a href="#">AC7- IV 3D Printing</a> <a href="#">AC7- V Industrial Safety and Environment Consciousness</a>														



Savitribai Phule Pune University														
Final Year of Computer Engineering (2019 Course)														
(With effect from Academic Year 2022-23)														
Semester VIII														
Course Code	Course Name	Teaching Scheme (Hours/week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Term work	Practical	Oral/Pre	Total	Lecture	Practical	Tutorial	Total
410250	<a href="#">High Performance Computing</a>	03	-	-	30	70	-	-	-	100	03			03
410251	<a href="#">Deep Learning</a>	03	-	-	30	70	-	-	-	100	03			03
410252	<a href="#">Elective V</a>	03	-	-	30	70	-	-	-	100	03			03
410253	<a href="#">Elective VI</a>	03	-	-	30	70	-	-	-	100	03			03
410254	<a href="#">Laboratory Practice V</a>	-	02	-	-	-	50	50	-	100		01		01
410255	<a href="#">Laboratory Practice VI</a>	-	02	-	-	-	50	-	-	50		01		01
410256	<a href="#">Project Stage II</a>	-	06	-	-	-	100	-	50	150		06		06
<b>Total Credit</b>											<b>12</b>	<b>08</b>	<b>-</b>	<b>20</b>
<b>Total</b>		<b>12</b>	<b>10</b>	<b>-</b>	<b>120</b>	<b>280</b>	<b>200</b>	<b>50</b>	<b>50</b>	<b>700</b>	<b>12</b>	<b>08</b>	<b>-</b>	<b>20</b>
410257	<a href="#">Audit Course 8</a>										<b>Grade</b>			
<b>Elective V</b>					<b>Elective VI</b>									
<a href="#">410252(A) Natural Language Processing</a> <a href="#">410252(B) Image Processing</a> <a href="#">410252(C) Software Defined Networks</a> <a href="#">410252(D) Advanced Digital Signal Processing</a> <a href="#">410252(E) Open Elective I</a>					<a href="#">410253(A) Pattern Recognition</a> <a href="#">410253(B) Soft Computing</a> <a href="#">410253(C) Business Intelligence</a> <a href="#">410253(D) Quantum Computing</a> <a href="#">410253(E) Open Elective II</a>									
<b>Lab Practice V:</b> Laboratory assignments Courses- 410250, 410251					<b>Lab Practice VI:</b> Laboratory assignments Courses- 410252, 410253									
<b>Audit Course 8(AC8) Options:</b> <a href="#">AC8- I Usability Engineering</a> <a href="#">AC8- II Conversational Interfaces</a> <a href="#">AC8- III Social Media and Analytics</a> <a href="#">AC8- IV MOOC- Learn New Skills</a> <a href="#">AC8- V Emotional Intelligence</a>														

**Faculty of Science & Technology**  
**Savitribai Phule Pune University**  
**Pune, Maharashtra, India**



**Curriculum for**  
**Final Year of Information Technology**  
**(2019 Course)**  
**(With effect from AY 2022-23)**

Savitribai Phule Pune University Final Year of Information Technology (2019 Course) (With effect from Academic Year 2022-23)														
Semester VII														
Course Code	Course Name	Teaching Scheme(Hours/week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Termwork	Practical	Oral	Total	Lecture	Practical	Tutorial	Total
414441	Information and Storage Retrieval	03	-	-	30	70	-	-	-	100	3	-	-	3
414442	Software Project Management	03	-	-	30	70	-	-	-	100	3	-	-	3
414443	Deep Learning	03	-	-	30	70	-	-	-	100	3	-	-	3
414444	Elective III	03	-	-	30	70	-	-	-	100	3	-	-	3
414445	Elective IV	03	-	-	30	70	-	-	-	100	3	-	-	3
414446	Lab Practice III	-	04	-	-	-	25	-	25	50	-	2	-	2
414447	Lab Practice IV	-	02	-	-	-	25	25	-	50	-	1	-	1
414448	Project Stage-I	-	-	02	-	-	50	-	-	50	-	-	2	2
414449	Audit Course7													
<b>Total Credit</b>											<b>15</b>	<b>03</b>	<b>02</b>	<b>20</b>
<b>Total</b>		<b>15</b>	<b>06</b>	<b>02</b>	<b>150</b>	<b>350</b>	<b>100</b>	<b>25</b>	<b>25</b>	<b>650</b>	<b>15</b>	<b>03</b>	<b>02</b>	<b>20</b>
<b>Elective III:</b> <ul style="list-style-type: none"> <li>• Mobile Computing</li> <li>• High Performance Computing</li> <li>• Multimedia Technology</li> <li>• Smart Computing</li> </ul>					<b>Elective IV:</b> <ul style="list-style-type: none"> <li>• Bioinformatics</li> <li>• Introduction to DevOps</li> <li>• Computer Vision</li> <li>• Wireless Communications</li> </ul>									
<b>Lab Practice-III:</b> It is based on subjects: <ul style="list-style-type: none"> <li>• Information and Storage Retrieval</li> </ul>					<b>Lab Practice-IV:</b> It is based on subjects: <ul style="list-style-type: none"> <li>• Deep Learning</li> </ul>									
<b>Audit Courses 7:</b> <ul style="list-style-type: none"> <li>• 414449A: Copyrights and Patents</li> <li>• 414449B: Stress Management by Yoga</li> <li>• 414449C: English for Research Paper Writing</li> </ul>														

Savitribai Phule Pune University Final Year of Information Technology (2019 Course) (With effect from Academic Year 2022-23)														
Semester VIII														
Course Code	Course Name	Teaching Scheme (Hours/week)			Examination Scheme and Marks						Credit Scheme			
		Lecture	Practical	Tutorial	Mid-Sem	End-Sem	Teamwork	Practical	Oral	Total	Lecture	Practical	Tutorial	Total
414450	Distributed Systems	03	-	-	30	70	-	-	-	100	03			03
414451	Elective V	03	-	-	30	70	-	-	-	100	03			03
414452	Elective VI	03	-	-	30	70	-	-	-	100	03			03
414453	Startup and Entrepreneurship	-	-	03	-	-	50	-	-	50	-	-	03	03
414454	Lab Practice V	-	04	-	-	-	50	25	-	75		02		02
414455	Lab Practice VI	-	02	-	-	-	25	-	50	75		01		01
414456	Project Stage II	-	10	-	-	-	100	-	50	150		05		05
414457	Audit Course 8													
<b>Total Credit</b>											<b>09</b>	<b>08</b>	<b>03</b>	<b>20</b>
<b>Total</b>		<b>09</b>	<b>16</b>	<b>03</b>	<b>90</b>	<b>210</b>	<b>225</b>	<b>50</b>	<b>75</b>	<b>650</b>	<b>09</b>	<b>08</b>	<b>03</b>	<b>20</b>
<b>Elective V:</b> <ul style="list-style-type: none"> <li>• Software Defined Networks</li> <li>• Social Computing</li> <li>• Natural Language Processing</li> <li>• Soft Computing</li> <li>• Game Engineering</li> </ul>					<b>Elective VI:</b> <ul style="list-style-type: none"> <li>• Ethical Hacking and Security</li> <li>• Augmented and Virtual Reality</li> <li>• Business Analytics and Intelligence</li> <li>• Blockchain Technology</li> </ul>									
<b>Lab Practice V:</b> It is based on subjects: <ul style="list-style-type: none"> <li>• Distributed Systems</li> </ul>					<b>Lab Practice VI:</b> It is based on subjects: <ul style="list-style-type: none"> <li>• Elective VI</li> </ul>									
<b>Audit Courses 8:</b> <ul style="list-style-type: none"> <li>• 414457A: Functional Programming in Haskell</li> <li>• 414457B: Cyber Laws and Use of Social Media</li> <li>• 414457C: Constitution of India</li> </ul>														

# Savitribai Phule Pune University

## Faculty of Science & Technology



Curriculum/Syllabus

For

**Fourth Year**

**Bachelor of Engineering**

**(Choice Based Credit System)**

**Mechanical Engineering**

**(2019 Course)**

**Board of Studies – Mechanical and Automobile Engineering**

**(With Effect from Academic Year 2022-23)**

**Savitribai Phule Pune University**  
**Board of Studies - Mechanical and Automobile Engineering**  
Undergraduate Program – Final Year Mechanical Engineering (2019 pattern)

Course Code	Course Name	Teaching Scheme (Hrs./week)			Examination Scheme and Marks						Credit			
		TH	PR	TUT	ISE	ESE	TW	PR	OR	TOTAL	TH	PR	TUT	TOTAL
<b>Semester-VII</b>														
<a href="#">402041</a>	Heating Ventilation Air-Conditioning and Refrigeration	3	2	-	30	70	-	-	25	125	3	1	-	4
<a href="#">402042</a>	Dynamics of Machinery	3	2	-	30	70	-	-	25	125	3	1	-	4
<a href="#">402043</a>	Turbomachinery*	2	2	-	-	50	25	-	25	100	2	1	-	3
<a href="#">402044</a>	Elective – III	3	-	-	30	70	-	-	-	100	3	-	-	3
<a href="#">402045</a>	Elective - IV	3	-	-	30	70	-	-	-	100	3	-	-	3
<a href="#">402046</a>	Data Analytics Laboratory	-	2	-	-	-	50	-	-	50	-	1	-	1
<a href="#">402047</a>	Project (Stage - I)	-	4	-	-	-	50	-	50	100	-	2	-	2
<a href="#">402054</a>	Audit Course VII <sup>s</sup>	-	-	-	-	-	-	-	-	-	-	-	-	NC
<b>Total</b>		<b>14</b>	<b>12</b>	<b>-</b>	<b>120</b>	<b>330</b>	<b>125</b>	<b>-</b>	<b>125</b>	<b>700</b>	<b>14</b>	<b>6</b>	<b>-</b>	<b>20</b>
<b>Semester-VIII</b>														
<a href="#">402048</a>	Computer Integrated Manufacturing	3	2	-	30	70	25	-	25	150	3	1	-	4
<a href="#">402049</a>	Energy Engineering	3	2	-	30	70	25	-	25	150	3	1	-	4
<a href="#">402050</a>	Elective - V	3	-	-	30	70	-	-	-	100	3	-	-	3
<a href="#">402051</a>	Elective - VI	3	-	-	30	70	-	-	-	100	3	-	-	3
<a href="#">402052</a>	Mechanical Systems Analysis Laboratory	-	2	-	-	-	25	-	25	50	-	1	-	1
<a href="#">402053</a>	Project (Stage - II)	-	10	-	-	-	100	-	50	150	-	5	-	5
<a href="#">402055</a>	Audit Course VIII <sup>s</sup>	-	-	-	-	-	-	-	-	-	-	-	-	NC
<b>Total</b>		<b>12</b>	<b>16</b>	<b>-</b>	<b>120</b>	<b>280</b>	<b>175</b>	<b>-</b>	<b>125</b>	<b>700</b>	<b>12</b>	<b>8</b>	<b>-</b>	<b>20</b>
<b>Elective-III</b>						<b>Elective-V</b>								
<a href="#">402044A</a>	Automobile Design					<a href="#">402050A</a>	Quality and Reliability Engineering							
<a href="#">402044B</a>	Design of Heat Transfer Equipments					<a href="#">402050B</a>	Energy Audit and Management							
<a href="#">402044C</a>	Modern Machining Processes					<a href="#">402050C</a>	Manufacturing Systems and Simulation							
<a href="#">402044D</a>	Industrial Engineering					<a href="#">402050D</a>	Engineering Economics and Financial Management							
<a href="#">402044E</a>	Internet of Things					<a href="#">402050E</a>	Organizational Informatics							
<a href="#">402044F</a>	Computational Fluid Dynamics					<a href="#">402050F</a>	Computational Multi Body Dynamics							
<b>Elective-IV</b>						<b>Elective-VI</b>								
<a href="#">402045A</a>	Product Design and Development					<a href="#">402051A</a>	Process Equipment Design							
<a href="#">402045B</a>	Experimental Methods in Thermal Engineering					<a href="#">402051B</a>	Renewable Energy Technologies							
<a href="#">402045C</a>	Additive Manufacturing					<a href="#">402051C</a>	Automation and Robotics							
<a href="#">402045D</a>	Operations Research					<a href="#">402051D</a>	Industrial Psychology and Organizational Behavior							
<a href="#">402045E</a>	Augmented Reality and Virtual Reality					<a href="#">402051E</a>	Electrical and Hybrid Vehicle							

<b>Audit Courses</b>			
<a href="#">402054A</a>	Yoga Practices	<a href="#">402054B</a>	Stress Management
<a href="#">402055A</a>	Managing Innovation	<a href="#">402055B</a>	Operations Management

**Abbreviations:** TH: Theory, PR: Practical, TUT: Tutorial, ISE: In-Semester Exam, ESE: End-Semester Exam, TW: Term Work, OR: Oral

- Student can select any elective subjects from the list given as per his/her choice. However, it is advised to select the subjects from within a group identified for specialization.

**Savitribai Phule Pune University**

**Faculty of Science and Technology**



**Syllabus for**

**B.E (Electronics & Telecommunication Engineering)**

**(Course 2019)**

**(w.e.f. June 2022)**

**Savitribai Phule Pune University, Pune**  
**B.E. (Electronics & Telecommunication) 2019 Course**  
 (With effect from Academic Year 2022-23)

**Semester-VII**

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial	In-Sem	End-Sem	TW	PR	OR	Total	TH	PR	TUT	Total
404181	Radiation & Microwave Theory	03	-	-	30	70	-	-	-	100	03	-	-	03
404182	VLSI Design and Technology	03	-	-	30	70	-	-	-	100	03	-	-	03
404183	Cloud Computing	03	-	-	30	70	-	-	-	100	03	-	-	03
404184	Elective - 3	03	-	-	30	70	-	-	-	100	03	-	-	03
404185	Elective - 4	03	-	-	30	70	-	-	-	100	03	-	-	03
404186	Lab Practice - 1 (RMT & Cloud Computing)	-	04	-	-	-	25	-	50	75	-	02	-	02
404187	Lab Practice - 2 (VLSI Design & Elective -3)	-	04	-	-	-	25	50	-	75	-	02	-	02
404188	Project Stage - I	-	02	-	-	-	50	-	-	50	-	01	-	01
404189	Mandatory Audit Course 7	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total</b>		<b>15</b>	<b>10</b>	<b>-</b>	<b>150</b>	<b>350</b>	<b>100</b>	<b>50</b>	<b>50</b>	<b>700</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total Credits</b>											<b>15</b>	<b>05</b>	<b>-</b>	<b>20</b>

Elective - 3	Elective - 4
1. Speech Processing	1. Data Mining
2. PLC SCADA & Automation	2. Electronic Product Development
3. JAVA Script	3. Deep Learning
4. Embedded & RTOS	4. Low Power CMOS
5. Modernized IoT	5. Smart Antennas

Mandatory Audit Course - 7
1. Management Information System
2. Patent Search & Analysis
3. Knowledge Management
4. Energy Economics & Policy
5. Educational Leadership
6. Human Resource Development

**Savitribai Phule Pune University, Pune**  
**B.E. (Electronics & Telecommunication) 2019 Course**  
 (With effect from Academic Year 2022-23)

**Semester-VIII**

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial	In-Sem	End-Sem	TW	PR	OR	Total	TH	PR	TUT	Total
404190	Fiber Optic Communication	03	-	-	30	70	-	-	-	100	03	-	-	03
404191	Elective - 5	03	-	-	30	70	-	-	-	100	03	-	-	03
404192	Elective - 6	03	-	-	30	70	-	-	-	100	03	-	-	03
404193	Innovation & Entrepreneurship	-	-	02	-	-	50	-	-	50	-	-	02	02
404194	Digital Business Management	-	-	02	-	-	50	-	-	50	-	-	02	02
404195	Fiber Optic Lab	-	02	-	-	-	25	-	50	75	-	01	-	01
404196	Lab Practice - 3 (Elective - 5)	-	02	-	-	-	25	50	-	75	-	01	-	01
404197	Project Stage - II	-	10	-	-	-	100	-	50	150	-	05	-	05
<b>Total</b>		<b>09</b>	<b>14</b>	<b>04</b>	<b>90</b>	<b>210</b>	<b>250</b>	<b>50</b>	<b>100</b>	<b>700</b>	-	-	-	-
<b>Total Credits</b>											<b>09</b>	<b>07</b>	<b>04</b>	<b>20</b>

Elective - 5	Elective - 6
1. Biomedical Signal Processing	1. System on Chip
2. Industrial Drives & Automation	2. Nano Electronics
3. Android Development	3. Remote Sensing
4. Embedded System Design	4. Digital Marketing
5. Mobile Computing	5. Open Elective