

TABLE -1 First Engineering _Structure for Semester-I

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credits			
		Theory	Practical	Tutorial	ISE	ESE	TW	PR	OR	Total	TH	PR	TUT	Total
107001	Engineering Mathematics-I	03	--	01	30	70	25	--	--	125	03	--	01	04
107002/ 107009	Engineering Physics / Engineering Chemistry	04	02	--	30	70	--	25	--	125	04	01	--	05
102003	Systems in Mechanical Engineering	03	02	--	30	70	--	25	--	125	03	01	--	04
103004 / 104010	Basic Electrical Engineering / Basic Electronics Engineering	03	02	--	30	70	--	25	--	125	03	01	--	04
110005/ 101011	Programming and Problem Solving / Engineering Mechanics	03	02	--	30	70	--	25	--	125	03	01	--	04
111006	Workshop [@]	--	02	--	--	--	--	25	--	25	--	01	--	01
Total		16	10	01	150	350	25	125	--	650	16	05	01	22
101007	Audit Course 1 ^{&}	02	Environmental Studies-I											

Induction Program : 2 weeks at the beginning of semester-I and 1 week at the beginning of semester-II

TABLE -2 First Engineering _Structure for Semester-II

Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credits			
		Theory	Practical	Tutorial	ISE	ESE	TW	PR	OR	Total	TH	PR	TUT	Total
107008	Engineering Mathematics-II	04	--	01	30	70	25	--	--	125	04	--	01	05
107002/ 107009	Engineering Physics/ Engineering Chemistry	04	02	--	30	70	--	25	--	125	04	01	--	05
103004 / 104010	Basic Electrical Engineering / Basic Electronics Engineering	03	02	--	30	70	--	25	--	125	03	01	--	04
110005/ 101011	Programming and Problem Solving / Engineering Mechanics	03	02	--	30	70	--	25	--	125	03	01	--	04
102012	Engineering Graphics ^Ω	01	02	01	--	50	25		--	75	01	01		02
110013	Project Based Learning [§]	--	04	--	--	--	25	50	--	75	--	02	--	02
Total		15	12	02	120	330	75	125	--	650	15	05	02	22
101014	Audit Course 2 ^{&}	02	Environmental Studies-II											
107015		--	Physical Education-Exercise and Field Activities											

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 &	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		16	10	01	150	350	75	100	25	700	16	05	01	22

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 ⁿ	-	04				50		-	50		02		02
204201	Mandatory Audit Course 4 ^{&}	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		14	14	01	120	280	175	50	75	700	14	07	01	22

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)

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	Discrete Mathematics	03	-	-	30	70	-	-	-	100	03	-	-	03
210242	Fundamentals of Data Structures	03	-	-	30	70	-	-	-	100	03	-	-	03
210243	Object Oriented Programming (OOP)	03	-	-	30	70	-	-	-	100	03	-	-	03
210244	Computer Graphics	03	-	-	30	70	-	-	-	100	03	-	-	03
210245	Digital Electronics and Logic Design	03	-	-	30	70	-	-	-	100	03	-	-	03
210246	Data Structures Laboratory	-	04	-	-	-	25	50	-	75	-	02	-	02
210247	OOP and Computer Graphics Laboratory	-	04	-	-	-	25	25	-	50	-	02	-	02
210248	Digital Electronics Laboratory	-	02	-	-	-	25	-	-	25	-	01	-	01
210249	Business Communication Skills	-	02	-	-	-	25	-	-	25	-	01	-	01
210250	Humanity and Social Science	-	-	01	-	-	25	-	-	25	-	-	01	01
210251	Audit Course 3													
Total Credit											15	06	01	22
Total		15	12	01	150	350	125	75	-	700	-	-	-	-

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	Engineering Mathematics III	03	-	01	30	70	25	-	-	125	03	-	01	04
210252	Data Structures and Algorithms	03	-	-	30	70	-	-	-	100	03	-	-	03
210253	Software Engineering	03	-	-	30	70	-	-	-	100	03	-	-	03
210254	Microprocessor	03	-	-	30	70	-	-	-	100	03	-	-	03
210255	Principles of Programming Languages	03	-	-	30	70	-	-	-	100	03	-	-	03
210256	Data Structures and Algorithms Laboratory	-	04	-	-	-	25	25	-	50	-	02	-	02
210257	Microprocessor Laboratory	-	02	-	-	-	25	-	25	50	-	01	-	01
210258	Project Based Learning II	-	04	-	-	-	50	-	-	50	-	02	-	02
210259	Code of Conduct	-	-	01	-	-	25	-	-	25	-	-	01	01
210260	Audit Course 4													
Total Credit											15	05	02	22
Total		15	10	02	150	350	150	25	25	700	-	-	-	-

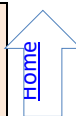
Savitribai Phule Pune University														
Second Year of Information Technology Engineering(2019 Course)														
(With effect from Academic Year 2020-21)														
Semester-III														
Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial	IN-Sem	End-Sem	TW	PR	OR	Total	TH	PR	TUT	Total
214441	Discrete Mathematics	03	-	01	30	70	25	-	-	125	03	--	01	04
214442	Logic Design and Computer Organization	03	-	-	30	70	-	-	-	100	03	-	-	03
214443	Data Structures and Algorithms	03	-	-	30	70	-	-	-	100	03	-	-	03
214444	Object Oriented Programming	03	-	-	30	70	-	-	-	100	03	-	-	03
214445	Basics of Computer Network	03	-	-	30	70	-	-	-	100	03	-	-	03
214446	Logic Design Computer Organization Lab	-	02	-	-	-	25	25	-	50	-	01	-	01
214447	Data Structures and Algorithms Lab	-	04	-	-	-	25	25	-	50	-	02	-	02
214448	Object Oriented Programming Lab	-	04	-	-	-	25	25	-	50	-	02	-	02
214449	Soft Skill Lab	-	02	-	-	-	25	-	-	25	-	01	-	01
214450	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
207003	Engineering Mathematics- III	03	-	01	30	70	25	-	-	125	03	-	01	04
214451	Processor Architecture	03	-	-	30	70	-	-	-	100	03	-	-	03
214452	Database Management System	03	-	-	30	70	-	-	-	100	03	-	-	03
214453	Computer Graphics	03	-	-	30	70	-	-	-	100	03	-	-	03
214454	Software Engineering	03	-	-	30	70	-	-	-	100	03	-	-	03
214455	Programming Skill Development Lab	-	02	-	-	-	25	25	-	50	-	01	-	01
214456	Database Management System Lab	-	04	-	-	-	25	25	-	50	-	02	-	02
214457	Computer Graphics Lab	-	02	-	-	-	-	25	-	25	-	01	-	01
214458	Project Based Learning	-	04	-	-	-	50	-	-	50	-	02	-	02
214459	Mandatory Audit Course 4	-	-	-	-	-	-	-	-	-	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 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, 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 &	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		15	10	01	150	350	50	125	25	700	-			-
Total Credit											15	05	01	21

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 &	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		12	10	00	120	280	125	75	100	700				
Total Credit											12	05	04	21

Abbreviations:

In-Sem: In semester

End-Sem: End semester

TH: Theory

TW : Term Work

PR: Practical

OR: Oral

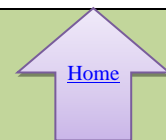
TUT: Tutorial

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

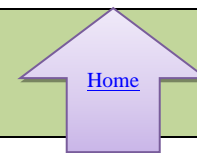
Savitribai Phule Pune University
Third Year of Computer Engineering (2019 Course)
 (With effect from Academic Year 2021-22)



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	Database Management Systems	03	-	-	30	70	-	-	-	100	03	-	-	03	
310242	Theory of Computation	03	-	-	30	70	-	-	-	100	03	-	-	03	
310243	Systems Programming and Operating System	03	-	-	30	70	-	-	-	100	03	-	-	03	
310244	Computer Networks and Security	03	-	-	30	70	-	-	-	100	03	-	-	03	
310245	Elective I	03	-	-	30	70	-	-	-	100	03	-	-	03	
310246	Database Management Systems Laboratory	-	04	-	-	-	25	25	-	50	-	02	-	02	
310247	Computer Networks and Security Laboratory	-	02	-	-	-	25	-	25	50	-	01	-	01	
310248	Laboratory Practice I	-	04	-	-	-	25	25	-	50	-	02	-	02	
310249	Seminar and Technical Communication	-	-	01	-	-	50	-	-	50	-	-	01	01	
Total		15	10	01	150	350	125	50	25	700	15	05	01	21	
310250	Audit Course 5											Grade			
Total Credit											15	05	01	21	
310245 Elective I Options:						310250 Audit Course 5 Options:									
310245(A) Internet of Things and Embedded Systems						310250 (A) Cyber Security									
310245(B) Human Computer Interface						310250 (B) Professional Ethics and Etiquettes									
310245(C) Distributed Systems						310250 (C) Learn New Skills									
310245(D) Software Project Management						310250 (D) Engineering Economics									
						310250 (E) Foreign Language									
Laboratory Practice I															
Assignments from Systems Programming and Operating System and Elective I															

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	Data Science and Big Data Analytics	04	-	-	30	70	-	-	-	100	03	-	-	03	
310252	Web Technology	04	-	-	30	70	-	-	-	100	03	-	-	03	
310253	Artificial Intelligence	04	-	-	30	70	-	-	-	100	03	-	-	03	
310254	Elective II	04	-	-	30	70	-	-	-	100	03	-	-	03	
310255	Internship**	-	-	-	-	-	100**	-	-	100	-	-	-	04**	
310256	Data Science and Big Data Analytics Laboratory	-	04	-	-	-	50	25	-	75	-	02	-	02	
310257	Web Technology Laboratory	-	02	-	-	-	25	-	25	50	-	01	-	01	
310258	Laboratory Practice II	-	04	-	-	-	50	25	-	75	-	02	-	02	
Total		12	10	-	120	280	225	50	25	700	12	09	-	21	
310259	Audit Course 6											Grade			
Total		12	09	-											21
310254 Elective II Options:						310259 Audit Course 6 Options:									
310254(A) Information Security						310259(A) Digital and Social Media Marketing									
310254(B) Augmented and Virtual Reality						310259(B) Sustainable Energy Systems									
310254(C) Cloud Computing						310259(C) Leadership and Personality Development									
310254(D) Software Modeling and Architectures						310259(D) Foreign Language									
						310259(E) Learn New Skills									
Laboratory Practice II:															
Assignments from Artificial Intelligence and Elective II .															
** Internship:															
Internship guidelines are provided in course curriculum sheet.															
\$\$ Hours/Week for Theory Course in Third Year of Engineering, Semester VI:															
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. 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. 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. So it is almost imperative that the commencement of VI Semester need to be approx. 3 weeks beyond the schedule.															

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
314441	Theory of Computation	03	-	-	30	70	-	-	-	100	3	-	-	3
314442	Operating Systems	03	-	-	30	70	-	-	-	100	3	-	-	3
314443	Machine Learning	03	-	-	30	70	-	-	-	100	3	-	-	3
314444	Human Computer Interaction	03	-	-	30	70	-	-	-	100	3	-	-	3
314445	Elective-I	03	-	-	30	70	-	-	-	100	3	-	-	3
314446	Operating Systems Lab	-	04	-	-	-	25	25	-	50	-	2	-	2
314447	Human Computer Interaction- Lab	-	02	-	-	-	-	-	50	50	-	1	-	1
314448	Laboratory Practice-I	-	04	-	-	-	25	25	-	50	-	2	-	2
314449	Seminar	-	01	-	-	-	50	-	-	50	-	1	-	1
314450	Audit Course 5	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Credit											15	06	-	21
Total		15	11	-	150	350	100	50	50	700	15	06	-	21
Abbreviations: TH: Theory, TW: Term Work, PR: Practical , OR: Oral ,TUT: Tutorial														
Elective-I:							Audit Course 5:							
314445A - Design and Analysis of Algorithm							314450A -Banking and Insurance							
314445B - Advanced Database and Management System							314450B -Startup Ecosystems							
314445C - Design Thinking							314450C - Foreign Language–(Japanese Language- III)							
314445D - Internet of Things														
Laboratory Practice-I:														
Assignment from Machine Learning and Elective I														
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)														

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
314451	Computer Networks & Security	03	-	-	30	70	-	-	-	100	03			03
314452	Data Science and Big Data Analytics	03	-	-	30	70	-	-	-	100	03			03
314453	Web Application Development	03	-	-	30	70	-	-	-	100	03			03
314454	Elective-II	03	-	-	30	70	-	-	-	100	03			03
314455	Internship	-	04	-	-	-	100	-	-	100		04		04
314456	Computer Networks & Security-Lab	-	04	-	-	-	25	-	50	75		02		02
314457	DS & BDA-Lab	-	02	-	-	-	25	25	-	50		01		01
314458	Laboratory Practice-II	-	04	-	-	-	50	25	-	75		02		02
314459	Audit Course 6	-	-	-	-	-	-	-	-	-		-	-	-
Total											12	09	-	21
Total		12	14	-	120	280	200	50	50	700	12	09	-	21
Abbreviations: TH: Theory, TW: Term Work, PR: Practical, OR: Oral, TUT: Tutorial														
Elective-II: 314454A - Artificial Intelligence 314454B - Cyber Security 314454C -Cloud Computing 314454D - Software Modeling and Design Laboratory Practice-II:					Audit Course 6: 314459A - Green and Unconventional Energy 314459B - Leadership and Personality Development 314459C - Foreign Language-(Japanese Language- IV)									
Assignments from Web Application Development and Elective-II.														
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)														

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	-	-	-	-	-	-	-	-	-	-	-	-	-
Total		15	10	-	150	350	100	50	50	700	-	-	-	-
Total Credits											15	05	-	20

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

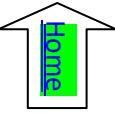
Mandatory Audit Course - 7
1. Management Information System
2. Patent Search & Analysis
3. Knowledge Management
4. Energy Economics & Policy
5. Educational Leadership
6. Human Resource Development

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

Semester-VIII

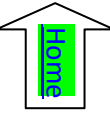
Course Code	Course Name	Teaching Scheme (Hours/Week)			Examination Scheme and Marks						Credit			
		Theory	Practical	Tutorial	In-Sem	End-Sem	TW	PR	OR	Total	TH	PR	TUT	Total
404190	Fiber Optic Communication	03	-	-	30	70	-	-	-	100	03	-	-	03
404191	Elective - 5	03	-	-	30	70	-	-	-	100	03	-	-	03
404192	Elective - 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
Total		09	14	04	90	210	250	50	100	700	-	-	-	-
Total Credits											09	07	04	20

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



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	Design and Analysis of Algorithms	03	-	-	30	70	-	-	-	100	3	-	-	3
410242	Machine Learning	03	-	-	30	70	-	-	-	100	3	-	-	3
410243	Blockchain Technology	03	-	-	30	70	-	-	-	100	3	-	-	3
410244	Elective III	03	-	-	30	70	-	-	-	100	3	-	-	3
410245	Elective IV	03	-	-	30	70	-	-	-	100	3	-	-	3
410246	Laboratory Practice III	-	04	-	-	-	50	50	-	100	-	2	-	2
410247	Laboratory Practice IV	-	02	-	-	-	50	-	-	50	-	1	-	1
410248	Project Stage I	-	02	-	-	-	50	-	-	50	-	2	-	2
Total Credit											15	05	-	20
Total		15	08	-	150	350	150	50	-	700	15	05	-	20
410249	Audit Course 7										Grade			
Elective III						Elective IV								
410244(A) Pervasive Computing 410244(B) Multimedia Techniques 410244(C) Cyber Security and Digital Forensics 410244(D) Object Oriented Modeling and Design 410244(E) Digital Signal Processing						410245(A) Information Retrieval 410245(B) GPU Programming and Architecture 410245(C) Mobile Computing 410245(D) Software Testing and Quality Assurance 410245(E) Compilers								
Laboratory Practice III: Laboratory assignments Courses- 410241, 410242, 410243						Laboratory Practice IV: Laboratory assignments Courses- 410244, 410245								
Audit Course 7(AC7) Options: AC7- I MOOC- Learn New Skills AC7- II Entrepreneurship Development AC7- III Botnet of Things AC7- IV 3D Printing AC7- V Industrial Safety and Environment Consciousness														



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	High Performance Computing	03	-	-	30	70	-	-	-	100	03			03
410251	Deep Learning	03	-	-	30	70	-	-	-	100	03			03
410252	Elective V	03	-	-	30	70	-	-	-	100	03			03
410253	Elective VI	03	-	-	30	70	-	-	-	100	03			03
410254	Laboratory Practice V	-	02	-	-	-	50	50	-	100		01		01
410255	Laboratory Practice VI	-	02	-	-	-	50	-	-	50		01		01
410256	Project Stage II	-	06	-	-	-	100	-	50	150		06		06
Total Credit											12	08	-	20
Total		12	10	-	120	280	200	50	50	700	12	08	-	20
410257	Audit Course 8										Grade			
Elective V					Elective VI									
410252(A) Natural Language Processing 410252(B) Image Processing 410252(C) Software Defined Networks 410252(D) Advanced Digital Signal Processing 410252(E) Open Elective I					410253(A) Pattern Recognition 410253(B) Soft Computing 410253(C) Business Intelligence 410253(D) Quantum Computing 410253(E) Open Elective II									
Lab Practice V: Laboratory assignments Courses- 410250, 410251					Lab Practice VI: Laboratory assignments Courses- 410252, 410253									
Audit Course 8(AC8) Options: AC8- I Usability Engineering AC8- II Conversational Interfaces AC8- III Social Media and Analytics AC8- IV MOOC- Learn New Skills AC8- V Emotional Intelligence														

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 Storage and 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													
Total Credit											15	03	02	20
Total		15	06	02	150	350	100	25	25	650	15	03	02	20
Elective III: <ul style="list-style-type: none"> • Mobile Computing • High Performance Computing • Multimedia Technology • Smart Computing 					Elective IV: <ul style="list-style-type: none"> • Bioinformatics • Introduction to DevOps • Computer Vision • Wireless Communications 									
Lab Practice-III: It is based on subjects: <ul style="list-style-type: none"> • Information Storage and Retrieval 					Lab Practice-IV: It is based on subjects: <ul style="list-style-type: none"> • Deep Learning 									
Audit Courses 7: <ul style="list-style-type: none"> • 414449A: Copyrights and Patents • 414449B: Stress Management by Yoga • 414449C: English for Research Paper Writing 														

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	Teamwor	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	AuditCourse8													
Total Credit											09	08	03	20
Total		09	16	03	90	210	225	25	100	650	09	08	03	20
Elective V: <ul style="list-style-type: none"> Software Defined Networks Social Computing Natural Language Processing Soft Computing Game Engineering 					Elective VI: <ul style="list-style-type: none"> Ethical Hacking and Security Augmented and Virtual Reality Business Analytics and Intelligence Blockchain Technology 									
Lab Practice V: It is based on subjects: <ul style="list-style-type: none"> Distributed Systems 					Lab Practice VI: It is based on subjects: <ul style="list-style-type: none"> Elective VI 									
Audit Courses 8: <ul style="list-style-type: none"> 414457A: Functional Programming in Haskell 414457B: Cyber Laws and Use of Social Media 414457C: Constitution of India 														

**M.E. (Electronics and Telecommunications-
VLSI and Embedded Systems)**

**2017 Pattern
Syllabus Structure**

First Year – Semester I

Sr.No.	Subject Code	Subject	Examination Scheme						Credits
			L/P	Paper		TW	OR	Total	
				ISA	ESA				
1	504201	Digital CMOS Design	4	50	50	-	-	100	4
2	504202	Reconfigurable Computing	4	50	50	-	-	100	4
3	504203	Embedded System Design	4	50	50	-	-	100	4
4	504204	Research Methodology	4	50	50	-	-	100	4
5	504205	Elective I	5	50	50	-	-	100	5
6	504206	Lab. Practice I	4	-	-	50	50	100	4
		Total	25	250	250	50	50	600	25

Elective I:

1. Micro Electromechanical Systems
2. Nano Technology
3. Processor Design
4. Wireless Sensor Networks
5. MOS Device Modeling and Characterization

First Year – Semester II

Sr.No.	Subject Code	Subject	Examination Scheme					Credits	
			Paper						Total
			L/P	ISA	ESA	TW	OR		
1	504207	Analog CMOS Design	4	50	50	-	-	100	4
2	504208	System on Chip	4	50	50	-	-	100	4
3	504209	Embedded Automotive Systems	4	50	50	-	-	100	4
4	504210	Elective II	5	50	50	-	-	100	5
5	504211	Lab. Practice II	4	--	---	50	50	100	4
6	504212	Seminar I	4	-	-	50	50	100	4
		Total	25	200	200	100	100	600	25

Elective II :

1. Embedded Product Design
2. High Speed ICs
3. Mixed Signal IC Design
4. Embedded Signal Processor Architectures
5. Real Time Operating Systems

Second Year – Semester I

Sr.No.	Subject Code	Subject	Examination Scheme					Total	Credits
			Paper						
			L/P	ISA	ESA	TW	OR		
1	604201	Testing and Verification ofVLSI Circuits	4	50	50	-	-	100	4
2	604202	ASIC Design	4	50	50	-	-	100	4
3	604203	Elective III	5	50	50	-	-	100	5
4	604204	Seminar II	4	--	----	50	50	100	4
5	604205	Project Stage I	8	--	---	50	50	100	8
		Total	25	150	150	100	100	500	25

Elective III:

Elective III Topics for 3 Credits

- 1 Value Education, Human Rights and Legislative Procedures
- 2 Environmental Studies
- 3 Renewable Energy Studies
- 4 Disaster Management
- 5 Foreign language
- 6 Knowledge Management
- 7 Economics for Engineers
- 8 Engineering Risk – Benefit Analysis

Elective III Topics for 2 Credits

- 1 Optimization Techniques
- 2 Fuzzy Mathematics
- 3 Design and Analysis of Algorithms
- 4 CUDA

Second Year – Semester II

Sr.No.	Subject Code	Subject	Examination Scheme					Credits	
			Paper			Total			
			L/P	ISA	ESA		TW		OR
1	604206	Seminar III	5	--	----	50	50	100	5
2	604207	Project Stage II	20	--	---	150	50	200	20
		Total	25		--	200	100	300	25

Note: Seminar I, II & III reports should be prepared in Latex.

§ : Mandatory subjects of first, second and third semester must include at least 40 credits for Engineering Physics, Engineering Chemistry, Engineering Mathematics, social science and soft skills
In addition to above credits, there should be audit courses in semester five, six and seven to develop the various skills.

The detail structure is given in Tables

TABLE - 2 Structure for Semester-1

Code	Subjects	Short Name	Weekly Work Load (in Hrs)			Semester Examination Scheme of Marks						Credits
			Lectures	Tutorials	PR/DR G	Theory		TW	PR	OR	Max. Marks	
						In-Semester Exam	End-Semester Exam					
107001	Engineering Mathematics I		4	1	–	50	50	25	–	–	125	5
# 107002 / 107009.	Engineering Physics OR Engineering Chemistry		4	–	2	50	50	25	–	–	125	5
102006	Engineering Graphics I		3	–	2	50	50	–	–	–	100	4
# 103004 / 104012	Basic Electrical Engineering OR Basic Electronics Engineering		3	–	2	50	50	25	–	–	125	4
101005	Basic Civil and Environmental Engineering		3	–	2	50	50	25	–	–	125	4
110003	Fundamentals of Programming Languages I		1	–	2	–	–	–	50*	–	50	2
111007	Workshop Practice		–	–	2	–	–	50	–	–	50	1
Total of Semester I			18	1	12	250	250	150	50	–	700	25

TABLE - 3 Structure for Semester-2

Code	Subjects	Short Name	Weekly Work Load (in Hrs)			Semester Examination Scheme of Marks						Credits
			Lectures	Tutorials	PR/DRG	Theory		TW	PR	OR	Max. Marks	
						In-Semester Exam	End-Semester Exam					
107008	Engineering Mathematics II		4	-	-	50	50	-	-	-	100	4
# 107009 / 107002	Engineering Chemistry OR Engineering Physics		4	-	2	50	50	25	-	-	125	5
102013	Basic Mechanical Engineering		3	-	2	50	50	25	-	-	125	4
101011	Engineering Mechanics		4	-	2	50	50	25	-	-	125	5
# 104012 / 103004.	Basic Electronics Engineering OR Basic Electrical Engineering		3	-	2	50	50	25	-	-	125	4
110010	Fundamentals of Programming Languages II		1	-	2	-	-	-	50*	-	50	2
102014	Engineering Graphics II		-	-	2	-	-	50	-	-	50	1
Total of Semester II			19	-	12	250	250	150	50	-	700	25

Instructions:

1. PR/Tutorial must be conducted in minimum three batches (batch size 22 maximum) per division
2. Minimum number of required Experiments/Assignments in PR/DRG/Tutorial be carried out as mentioned in the syllabi of related subjects.
3. * for FPL-I and FPL-II: S.P. Pune University Online Practical Examination shall be conducted at the semester end.
4. # Every student should appear for Engineering Physics, Engineering Chemistry, Basic Electronics Engineering and Basic Electrical Engineering during the year.
5. # College is allowed to distribute Teaching Workload of subjects Physics, Chemistry, BEE, BXE in semester I and II by dividing number of FE divisions appropriately in two groups.

Savitribai Phule Pune University, Pune
SE(E&TC/Electronics Engineering) 2015 Course

(With effect from Academic Year 2016-17)

Semester I												
Course Code	Course	Teaching Scheme Hours / Week			Semester Examination Scheme of Marks						Credit	
		Theory	Tutorials	Practicals	In-Sem (On line)	End-Sem (Theory)	TW	PR	OR	Total	TH/TUT	PR+OR
204181	Signals & Systems	3	1	-	50	50	25	-	-	125	4	-
204182	Electronic Devices & Circuits	4	-	2	50	50	-	50	-	150	4	1
204183	Electrical Circuits and Machines	3	-	2	50	50	25	-	-	125	3	1
204184	Data Structures and Algorithms	4	-	2	50	50	-	-	50	150	4	1
204185	Digital Electronics	4	-	2	50	50	-	50	-	150	4	1
204186	Electronic Measuring Instruments & Tools	1	-	2	-	-	50	-	-	50	1	1
204192	Audit Course 1	--	--	--	--	--	--	--	--	--		
Total		19	1	10	250	250	100	100	50	750	20	05
Total Credits											25	

Abbreviations:

Th : Theory
 TW: Term Work
 OR: Oral

TUT : Tutorial
 PR : Practical

Note: Interested students of S.E. (Electronics/E&TC) can opt any one of the audit course from the audit courses prescribed by BoS (Electronics/Computer/IT/Electrical/Instrumentation)

SE(E&TC/Electronics Engineering) 2015 Course**(With effect from Academic Year 2016-17)**

Semester II												
Course Code	Course	Teaching Scheme Hours / Week			Semester Examination Scheme of Marks						Credit	
		Theory	Tutorials	Practicals	In-Sem (on line)	End-Sem (Theory)	TW	PR	OR	Total	TH/TUT	PR+OR
207005	Engineering Mathematics III	4	1	-	50	50	25	-	-	125	5	-
204187	Integrated Circuits	4	-	2	50	50	25	50	-	175	4	1
204188	Control Systems	3	-	-	50	50	-	-	-	100	3	-
204189	Analog Communication	3	-	2	50	50	-	50	-	150	3	1
204190	Object Oriented Programming	3	-	4	50	50	-	-	50	150	3	2
204191	Employability Skill Development	2	-	2	-	-	50	-	-	50	2	1
204193	Audit Course 2	--	--	--	--	--	--	--	--	--		
Total		19	1	10	250	250	100	100	50	750	20	05
Total Credits											25	

Abbreviations:

TH: Theory
 TW: Term Work
 OR: Oral

TUT: Tutorial
 PR: Practical

Note: Interested students of S.E (Electronics/E&TC) can opt any one of the audit course from the audit courses prescribed by BoS (Electronics/Computer/IT/Electrical/Instrumentation)

Savitribai Phule University of Pune, Pune												
Second Year of Computer Engineering (2015 Course)												
(With effect from Academic Year 2016-17)												
Semester I												
Course Code	Course Name	Teaching Scheme Hours / Week			Semester Examination Scheme of Marks						Credit	
		Theory	Tutorial	Practical	In-Sem	End-Sem	TW	PR	OR	Total	TH/TW	PR+OR
210241	Discrete Mathematics	04	--	--	50	50	--	--	--	100	04	--
210242	Digital Electronics and Logic Design	04	--	--	50	50	--	--	--	100	04	--
210243	Data Structures and Algorithms	04	--	--	50	50	--	--	--	100	04	--
210244	Computer Organization and Architecture	04	--	--	50	50	--	--	--	100	04	--
210245	Object Oriented Programming	04	--	--	50	50	--	--	--	100	04	--
210246	Digital Electronics Lab	--	--	02	--	--	25	50	--	75	--	01
210247	Data Structures Lab	--	--	04	--	--	25	50	--	75	--	02
210248	Object Oriented Programming Lab	--	--	02	--	--	25	50	--	75	--	01
210249	Soft Skills	--	--	02	--	--	25	--	--	25	--	01
Total											20	05
210250	Audit Course 1	--	--	--	--	--	--	--	--	--	Grade	
Total		20	--	10	250	250	100	150	--	750	25	

Abbreviations:

TW: Term Work
 OR: Oral
 PR: Practical

TH: Theory
 TUT: Tutorial
 Sem: Semester

Savitribai Phule University of Pune, Pune
Second Year of Computer Engineering (2015 Course)
 (With effect from Academic Year 2016-17)
Semester II

Course Code	Course Name	Teaching Scheme Hours / Week			Semester Examination Scheme of Marks						Credit	
		Theory	Tutorial	Practical	In-Sem	End-Sem	TW	PR	OR	Total	TH/TW TUT	PR+OR
207003	Engineering Mathematics III	04	01	--	50	50	25	--	--	125	05	--
210251	Computer Graphics	04	--	--	50	50	--	--	--	100	04	--
210252	Advanced Data Structures	04	--	--	50	50	--	--	--	100	04	--
210253	Microprocessor	04	--	--	50	50	--	--	--	100	04	--
210254	Principles of Programming Languages	03	--	--	50	50	--	--	--	100	03	--
210255	Computer Graphics Lab	--	--	02	--	--	25	50	--	75	--	01
210256	Advanced Data Structures Lab	--	--	04	--	--	25	50	--	75	--	02
210257	Microprocessor Lab	--	--	04	--	--	25	50	--	75	--	02
Total											20	05
210258	Audit Course 2		--	--	--	--	--	--	--	--	Grade	
Total		19	01	10	250	250	100	150	--	750	25	

Abbreviations:

TW: Term Work

TH: Theory

OR: Oral

TUT: Tutorial

PR: Practical

Sem: Semester

S.E. (Information Technology) 2015 Course to be implemented from June 2016**SEMESTER – I**

Subject Code	Subject	Teaching Scheme			Examination Scheme					Total Marks	Credits
		Lecture	Tutorial	Practical	Theory Paper	Theory Online	TW	PR	OR		
214441	Discrete Structures	4	--	--	50	50	--	--	--	100	4
214442	Computer Organization & Architecture	4	--	--	50	50				100	4
214443	Digital Electronics and Logic Design	4	--	--	50	50	--	--	--	100	4
214444	Fundamentals of Data Structures	4	--	--	50	50	--	--	--	100	4
214445	Problem Solving and Object Oriented programming	4	--	--	50	50	--	--	--	100	4
214446	Digital Laboratory	--	--	2	--	--	25	50	--	75	1
214447	Programming Laboratory	--	--	4	--	--	25	50	--	75	2
214448	Object Oriented programming Lab.	--	--	2	--	--	25	50		75	1
214449	Communication Skills	--	--	2	--	--	25	--	--	25	1
	Audit Course	--	--	--	--	--	--	--	--	Grade	
	Total	20	--	10	250	250	100	150	--	750	25
	Total of Part-I	30 Hours			750						

SEMESTER – II

Subject Code	Subject	Teaching Scheme			Examination Scheme					Total Marks	Credits
		Lecture	Tutorial	Practical	Theory Paper	Theory Online	TW	PR	OR		
207003	Engineering Mathematics -III	4	1	--	50	50	25	--	--	125	5
214450	Computer Graphics	3	-	--	50	50	--	--	--	100	3
214451	Processor Architecture and Interfacing	4	-	-	50	50	--	--	--	100	4
214452	Data Structures & Files	4	-	-	50	50	--	--	--	100	4
214453	Foundations of Communication and Computer Network	4	-	-	50	50	--	--	--	100	4
214454	Processor Interfacing Laboratory	--	--	4	--	--	25	50	--	75	2
214455	Data Structure and Files Laboratory	--	--	4	--	--	25	50	--	75	2
214456	Computer Graphics Laboratory	--	--	2	--	--	25	50	--	75	1
	Audit Course	--	--	--	--	--	--	--	--	Grade	
	Total	19	01	10	250	250	100	150	--	750	25
	Total of Part-II	30 Hours			750						

TW: Term Work

PR: Practical

OR: Oral

Third Engineering-E&TC (2015 Course)**(With effect from Academic Year 2017-18)**

Semester I												
Course Code	Course	Teaching Scheme			Semester Examination Scheme of						Credits	
		Hours / Week			Marks						TH/TW	PR+OR
Theory	Tutorials	Practicals	In-Sem	End-Sem	TW	PR	OR	Total				
304181	Digital Communication	4	--	--	30	70	--	--	--	100	4	--
304182	Digital Signal Processing	4	--	--	30	70	--	--	--	100	4	--
304183	Electromagnetics	3	1	--	30	70	--	--	--	100	4	--
304184	Microcontrollers	3	--	--	30	70	--	--	--	100	3	1
304185	Mechatronics	3	--	--	30	70	--	--	--	100	3	1
304191	Signal Processing and Communications Lab (DC/DSP)	--	--	4	--	--	50	50		100	--	2
304192	Microcontrollers and Mechatronics Lab	--	--	4	--	--	50	50		100		
304193	Electronics System Design	2	--	2	--	--	-	--	50	50	2	1
	Audit Course 3	--	--	--	--	--	--	--	--	--	----	
Total		19	1	10	150	350	100	100	50	750		
Total Credits											25	

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

Note: Interested students of T.E (Electronics/E&TC) can opt any one of the audit course from the audit courses prescribed by BoS (Electronics/Computer/IT/Electrical/Instrumentation)

Third Engineering-E&TC (2015 Course)**(With effect from Academic Year 2017-18)**

Semester II												
Course Code	Course	Teaching Scheme			Semester Examination Scheme						Credit	
		Hours / Week			of Marks						TH/TW	PR+OR
		Theory	Tutorials	Practicals	In-Sem	End-Sem	TW	PR	OR	Total		
304186	Power Electronics	4	--	--	30	70	--	--	--	100	4	--
304187	Information Theory, Coding and Communication Networks	4	--	--	30	70	--	--	--	100	4	--
304188	Business Management	3	--	--	30	70	--	--	--	100	3	--
306189	Advanced Processors	4	--	--	30	70	--	--	--	100	4	1
304190	System Programming and Operating Systems	3	--	--	30	70	--	--	--	100	3	1
304194	Power and ITCT Lab	--	--	4	--	--	50	50	--	100	--	2
304195	Advanced Processors and System Programming Lab	--	--	4	--	--	50	50	--	100		
304196	Employability Skills and Mini Project	2	--	2	--	--	--	--	50	50	2	1
	Audit Course 4	--	--	--	--	--	--	--	--	--		
	Total	20	---	10	150	350	100	100	50	750		
Total Credits											25	

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

Note: Interested students of T.E (Electronics/E&TC) can opt any one of the audit course from the audit courses prescribed by BoS (Electronics/Computer/IT/Electrical/Instrumentation)

Savitribai Phule University of Pune
Third Year Computer Engineering (2015 Course)
(with effect from 2017-18)

Semester I

Course Code	Course	Teaching Scheme Hours / Week			Examination Scheme and Marks						Credit		
		Theory	Tutorial	Practical	In-Sem	End-Sem	TW	PR	OR	Total	TH/ TUT	PR	
310241	Theory of Computation	03	--	--	30	70	--	--	--	100	03	--	
310242	Database Management Systems (DBMS)	03	--	--	30	70	--	--	--	100	03	--	
310243	Software Engineering & Project Management	03	--	--	30	70	--	--	--	100	03	--	
310244	Information Systems & Engineering Economics	03	--	--	30	70	--	--	--	100	03	--	
310245	Computer Networks (CN)	04	--	--	30	70	--	--	--	100	04	--	
310246	Skills Development Lab	--	02	04	--	--	50	--	50	100	02	02	
310247	DBMS Lab	--	--	04	--	--	25	50	--	75	--	02	
310248	CN Lab	--	--	02	--	--	25	50	--	75	--	01	
Total Credit											18	05	
Total		16	02	10	150	350	100	100	50	750	23		
310249	Audit Course 3											Grade	

310249-Audit Course 3 (AC3) Options:

AC3-I: Cyber Security

AC3-II: Professional Ethics and Etiquettes

AC3-III: Emotional Intelligence

AC3-IV: MOOC- Learn New Skills

AC3-V: Foreign Language (Japanese- Module 3)

Abbreviations:

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

Savitribai Phule University of Pune Third Year Computer Engineering (2015 Course) (with effect from 2017-18)													
<u>Semester II</u>													
Course Code	Course	Teaching Scheme Hours / Week			Examination Scheme and Marks						Credit		
		Theory	Tutorial	Practical	In-Sem	End-Sem	TW	PR	OR	Total	TH/ TUT	PR	
310250	<u>Design & Analysis of Algorithms</u>	04	--	--	30	70	--	--	--	100	04		
310251	<u>Systems Programming & Operating System (SP & OS)</u>	04	--	--	30	70	--	--	--	100	04	--	
310252	<u>Embedded Systems & Internet of Things (ES & IoT)</u>	04	--	--	30	70	--	--	--	100	04	--	
310253	<u>Software Modeling and Design</u>	03	--	--	30	70	--	--	--	100	03	--	
310254	<u>Web Technology</u>	03	--	--	30	70	--	--	--	100	03	--	
310255	<u>Seminar & Technical Communication</u>	--	01	--	--	--	50	--	--	50	01	--	
310256	<u>Web Technology Lab</u>	--	--	02	--	--	25	50	--	75	--	01	
310257	<u>SP & OS Lab</u>	--	--	04	--	--	25	50	--	75	--	02	
310258	<u>ES & IoT Lab</u>	--	--	02	--	--	50	--	--	50	--	01	
Total Credit											19	04	
Total		18	01	08	150	350	150	100	--	750	23		
310259	<u>Audit Course 4</u>											Grade	

310259-Audit Course 4(AC4) Options:

AC4-I: Digital and Social Media Marketing

AC4-II: Green Computing

AC4-III: Sustainable Energy Systems

AC4-IV: Leadership and Personality Development

AC4-V: Foreign Language (Japanese- Module 4)

Abbreviations:

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

T.E. (Information Technology) 2015 Course to be implemented from June 2017

SYLLABUS STRUCTURE

SEMESTER – I

Subject Code	Subject	Teaching Scheme			Examination Scheme					Total Marks	Credits
		Lecture	Tutorial	Practical	In-Sem. Paper	End-Sem. Paper	TW	PR	OR		
314441	Theory of Computation	4	--	--	30	70	--	--	--	100	4
314442	Database Management Systems	4	--	--	30	70				100	4
314443	Software Engineering & Project Management	3	--	--	30	70	--	--	--	100	3
314444	Operating System	4	--	--	30	70	--	--	--	100	4
314445	Human-Computer Interaction	3	--	--	30	70	--	--	--	100	3
314446	Software Laboratory-I	--	--	4	--	--	25	50	50	125	2
314447	Software Laboratory-II	--	--	4	--	--	25	50	--	75	2
314448	Software Laboratory-III	--	--	2	--	--	50	--	--	50	1
314449	Audit Course 3	--	--		--	--	--	--	--	Grade	
Total		18	--	10	150	350	100	100	50	750	23
Total of Part-I		28 Hours				750					

SEMESTER – II

Subject Code	Subject	Teaching Scheme			Examination Scheme					Total Marks	Credits
		Lecture	Tutorial	Practical	In-Sem. Paper	End-Sem. Paper	TW	PR	OR		
314450	Computer Network Technology	3	-	--	30	70	--	--	--	100	3
314451	Systems Programming	4	-	--	30	70	--	--	--	100	4
314452	Design and Analysis of Algorithms	4	-	-	30	70	--	--	--	100	4
314453	Cloud Computing	3	-	-	30	70	--	--	--	100	3
314454	Data Science & Big Data Analytics	4	-	-	30	70	--	--	--	100	4
314455	Software Laboratory-IV	--	--	2	--	--	25	--	25	50	1
314456	Software Laboratory-V	--	--	4	--	--	50	50	--	100	2
314457	Software Laboratory-VI	--	--	2	--	--	25	25	--	50	1
314458	Project Based Seminar	--	01	--	--	--	--	--	50	50	1
314459	Audit Course 4	--	--	--	--	--	--	--	--	Grade	
Total		18	01	08	150	350	100	75	75	750	23
Total of Part-II		27 Hours				750					

Savitribai PhulePune University
Final Year E&TC Engineering (2015 Course)
(With effect from Academic Year 2018-19)

Semester I													
Course Code	Course	Teaching Scheme Hours / Week			Semester Examination Scheme of Marks						Credits		
		Theor y	Tut	Pract	In-Sem	End-Sem	TW	PR	OR	Total	TH/TW	PR+OR	
404181	VLSI Design& Technology	3	--	--	30	70	--	--	--	100	3	--	
404182	Computer Networks & Security	4	--	--	30	70	--	--	--	100	4	--	
404183	Radiation & Microwave Techniques	3	--	--	30	70	--	--	--	100	3	--	
404184	Elective I	3	--	--	30	70	--	--	--	100	3	--	
404185	Elective II	3			30	70	--	--	--	100	3	--	
404186	Lab Practice -I (CNS+ RMT)	--	--	4	--	--	50	--	50	100	--	2	
404187	Lab Practice -II (VLSI + Elective I)	--	--	4	--	--	50	50		100	--	2	
404188	Project Stage I	-	2	--	--	--	-	--	50	50	--	2	
	Audit Course 5	--	--	--	--	--	--	--	--	--	----		
Total		16	2	8	150	350	100	50	100	750	16	6	
Total Credits											22		
<u>Elective I</u>				<u>Elective II</u>					<u>Audit Course 5</u>				
1 Digital Image and Video Processing				1. Wavelets					1. Green Energy				
2. Industrial Drives and Control				2. Electronics Product Design					2. Human Behaviour				
3. Embedded Systems & RTOS				3. Optimization Techniques									
4. Internet of Things				4. Artificial Intelligence									
				5. Electronics in agriculture									

Final Year E&TC Engineering (2015 Course)

(With effect from Academic Year 2018-19)

Semester II												
Course Code	Course	Teaching Scheme			Semester Examination Scheme of						Credit	
		Hours / Week			Marks						TH/TW	PR+OR
		Theory	Tut	Pract	In-Sem	End-Sem	TW	PR	OR	Total		
404189	Mobile Communication	3	--	--	30	70	--	--	--	100	3	--
404190	Broadband Communication Systems	4	--	--	30	70	--	--	--	100	4	--
404191	Elective III	3	--	--	30	70	--	--	--	100	3	--
404192	Elective IV	3	--	--	30	70	--	--	--	100	3	--
404193	Lab Practice –III (MC+BCS)	--	--	4	--	--	50	50	--	100	--	2
404194	Lab Practice –IV (Elective III)	--	--	2	--	--	--	--	50	50	--	1
404195	Project Stage II	--	6	-	--	--	150	--	50	200	--	6
	Audit Course 6	--	--	--	--	--	--	--	--	--		
Total		13	6	6	120	280	200	50	100	750	13	9
Total Credits											22	
<u>Elective III</u> 1. Machine Learning 2. PLC s and Automation 3. Audio and Speech Processing 4. Software Defined Radio 5. Audio Video Engineering				<u>Elective-IV</u> 1. Robotics 2. Biomedical Electronics 3. Wireless Sensor Networks 4. Renewable Energy Systems 5. Open Elective*				<u>Audit Course 6</u> 1. Team Building, Leadership and Fitness 2. Environmental issues and Disaster Management				

*Any one course from the list of Elective IV of computer/IT/Electrical/Instrumentation or Institute can offer elective IV based on any industry need with prior approval from BoS(Electronics & Telecommunication). Repetition of course or topics should be avoided.

Savitribai Phule Pune University
Fourth Year of Computer Engineering (2015 Course)
(with effect from 2018-19)

Semester I

Course Code	Course	Teaching Scheme Hours / Week		Examination Scheme and Marks						Credit		
		Theory	Practical	In-Sem	End-Sem	TW	PR	OR/ *PRE	Total	TH/ TUT	PR	
410241	High Performance Computing	04	--	30	70	--	--	--	100	04	--	
410242	Artificial Intelligence and Robotics	03	--	30	70	--	--	--	100	03	--	
410243	Data Analytics	03	--	30	70	--	--	--	100	03	--	
410244	Elective I	03	--	30	70	--	--	--	100	03	--	
410245	Elective II	03	--	30	70	--	--	--	100	03	--	
410246	Laboratory Practice I	--	04	--	--	50	50	--	100	--	02	
410247	Laboratory Practice II	--	04	--	--	50	--	*50	100	--	02	
410248	Project Work Stage I	--	02	--	--	--	--	*50	50	--	02	
Total Credit										16	06	
Total		16	10	150	350	100	50	100	750	22		
410249	Audit Course 5										Grade	
Elective I				Elective II								
410244 (A) Digital Signal Processing				410245 (A) Distributed Systems								
410244 (B) Software Architecture and Design				410245 (B) Software Testing and Quality Assurance								
410244 (C) Pervasive and Ubiquitous Computing				410245 (C) Operations Research								
410244 (D) Data Mining and Warehousing				410245 (D) Mobile Communication								

410249-Audit Course 5 (AC5) Options:

AC5-I [Entrepreneurship Development](#)

AC5-IV: [Industrial Safety and Environment Consciousness](#)

AC5-II: [Botnet of Things](#)

AC5-V: [Emotional Intelligence](#)

AC5-III: [3D Printing](#)

AC5-VI: [MOOC- Learn New Skills](#)

Abbreviations:

TW: Term Work

TH: Theory

OR: Oral

PR: Practical

Sem: Semester

***PRE:** Project/ Mini-Project Presentation

Savitribai Phule Pune University
Fourth Year of Computer Engineering (2015 Course)
(with effect from 2018-19)

Semester II

Course Code	Course	Teaching Scheme Hours / Week		Examination Scheme and Marks						Credit		
		Theory	Practical	In-Sem	End-Sem	TW	PR	OR/ *PRE	Total	TH/ TUT	PR	
410250	Machine Learning	03	--	30	70	--	--	--	100	03	--	
410251	Information and Cyber Security	03	--	30	70	--	--	--	100	03	--	
410252	Elective III	03	--	30	70	--	--	--	100	03	--	
410253	Elective IV	03	--	30	70	--	--	--	100	03	--	
410254	Laboratory Practice III	--	04	--	--	50	50	--	100	--	02	
410255	Laboratory Practice IV	--	04	--	--	50	--	*50	100	--	02	
410256	Project Work Stage II	--	06	--	--	100	--	*50	150	02	04	
Total Credit										12	10	
Total		12	14	120	280	200	50	100	750	22		
410257	Audit Course 6										Grade	
Elective III						Elective IV						
410252 (A) Advanced Digital Signal Processing						410253 (A) Software Defined Networks						
410252 (B) Compilers						410253 (B) Human Computer Interface						
410252 (C) Embedded and Real Time Operating Systems						410253 (C) Cloud Computing						
410252 (D) Soft Computing and Optimization Algorithms						410253 (D) Open Elective						

410259-Audit Course 6 (AC6) Options:

AC6-I: [Business Intelligence](#)

AC6-IV: [Usability Engineering](#)

AC6-II: [Gamification](#)

AC6-V: [Conversational Interfaces](#)

AC6-III: [Quantum Computing](#)

AC6-VI: [MOOC- Learn New Skills](#)

Abbreviations:

TW: Term Work

TH: Theory

OR: Oral

PR: Practical

Sem: Semester

***PRE:** Project/ Mini-Project Presentation

B.E. (Information Technology) 2015 Course to be implemented from Academic Year 2018-19**SEMESTER-I**

Subject Code	Subject	Teaching Scheme			Examination Scheme					Total Marks	Credits
		Lecture	Practical	Tutorial	In-Sem	TW	PR	OR	End-Sem		
414453	Information and Cyber Security	3	--	--	30	--	--	--	70	100	3
414454	Machine Learning and Applications	4	--	--	30	--	--	--	70	100	4
414455	Software Design and Modeling	3	--	--	30	--	--	--	70	100	3
414456	Elective-I	3	--	--	30	--	--	--	70	100	3
414457	Elective -II	3	--	--	30	--	--	--	70	100	3
414458	Computer Laboratory-VII	--	4	--	--	50	50	--	--	100	2
414459	Computer Laboratory-VIII	--	4	--	--	50	--	50	--	100	2
414460	Project Phase-I	--	--	2	--	--	--	50	--	50	2
414461	Audit Course-V	--	--	--	--	--	--	--	--	Grade	
Total		16	8	2	150	100	50	100	350	750	22
Total of Part-I		26			750						

Abbreviations: TW: Term Work TH: Theory OR: Oral PR: Practical Sem: Semester

Computer Laboratory-VII (Information and Cyber Security+ Machine Learning and Application)

Computer Laboratory-VIII (Software Design and Modeling)

Elective I		Elective II	
414456 A	1. Wireless Communications	414457A	1. Software Defined Networks
414456B	2. Natural Language Processing	414457B	2. Soft Computing
414456C	3. Usability Engineering	414457C	3. Software Testing and Quality Assurance
414456D	4. Multicore and Concurrent Systems	414457D	4. Compiler Construction
414456E	5. Business Analytics and Intelligence	414457E	5. Gamification

Audit Course-V	
414461A	1. Emotional Intelligence
414461B	2. Green Computing
414461C	3. Critical Thinking
414461D	4. Statistical Learning model using R.

SEMESTER –II

Subject Code	Subject	Teaching Scheme			Examination Scheme					Total Marks	Credits
		Lecture	Practical	Tutorial	In-Sem	TW	PR	OR	End-Sem		
414462	Distributed Computing System	3	--	--	30	--	--	--	70	100	3
414463	Ubiquitous Computing	3	--	--	30	--	--	--	70	100	3
414464	Elective-III	3	2	--	30	25	--	25	70	150	4
414465	Elective-IV	3	--	--	30	--	--	--	70	100	3
414466	Computer Laboratory-IX	--	4	--	--	50	50	--	--	100	2
414467	Computer Laboratory-X	--	2	--	--	25	--	25	--	50	1
414468	Project Work	--	--	6	--	50	--	100	--	150	6
414469	Audit Course-VI	--	--	--	--	--	--	--	--	Grade	
Total		12	8	6	120	150	50	150	280	750	22
Total of Part-II		26			750						

Abbreviations: TW: Term Work TH: Theory OR: Oral PR: Practical Sem: Semester
 Computer Laboratory-IX (Distributed Computing System)
 Computer Laboratory-X (Ubiquitous Computing)

Elective III		Elective IV	
414464A	1. Internet of Things (IoT)	414465A	1. Rural Technologies and Community Development
414464B	2. Information storage and retrieval	414465B	2. Parallel Computing
414464C	3. Multimedia Techniques	414465C	3. Computer Vision
414464D	4. Internet and Web Programming	414464D	4. Social Media Analytics
414464E	5. Computational Optimization	414465E	5. Open Elective

Audit Course-VI	
414469A	1. IoT – Application in Engineering field
414469B	2. Entrepreneurship
414469C	3. Cognitive Computing
414469D	4. AI and Robotics