Savitribai Phule Pune University
Faculty of Science & Technology

Curriculum

For

First Year
Bachelor of Engineering
(Choice Based Credit System)

(2019 Course)

(With Effect from Academic Year 2019-20)

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

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											

ATTESTED

Dr. M. S. GAIKWAD
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Sinhgad Institute of Technology, Lonavala

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
Semester-III														
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	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	**16**	**12**	**-**	**150**	**350**	**75**	**100**	**25**	**700**	**16**	**6**	**-**	**22**
Semester-IV														
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	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	**15**	**12**	**1**	**150**	**350**	**125**	**-**	**75**	**700**	**15**	**6**	**1**	**22**

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

Note: 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)

Instructions

- Practical/Tutorial must be conducted in three batches per division only.
- Minimum number of required Experiments/Assignments in PR/ Tutorial shall be carried out as mentioned in the syllabi of respective subjects.
- 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.
- 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.
- 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 & CGPA.

ATTESTED

Dr. M. S. GAIKWAD
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Sinhgad Institute of Technology, Lonavala

Savitribai Phule Pune University, Pune

Faculty of Science and Technology

Board of Studies
Electrical Engineering

Syllabus
Second Year Electrical Engineering
(2019 Course)

(w.e.f. AY: 2020-21)

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Savitribai Phule Pune University

Syllabus: Second Year (SE) Electrical Engineering (2019 Course) w.e.f. AY:2020-2021

SEMESTER-I

Course Code	Courses Name	Teaching Scheme			Examination Scheme and Marks						Credits			
		TH	PR	TUT	ISE	ESE	TW	PR	OR	Total	TH	PR	TUT	Total
207006	Engineering Mathematics-III	03	--	--	30	70	--	--	--	**100**	03	--	--	**03**
203141	Power Generation Technologies	03	--	--	30	70	--	--	--	**100**	03	--	--	**03**
203142	Material Science	03	04#	--	30	70	25	--	25	**150**	03	02	--	**05**
203143	Analog and Digital Electronics	03	02	--	30	70	--	50	--	**150**	03	01	--	**04**
203144	Electrical Measurement & Instrumentation	03	04#	--	30	70	25	25	--	**150**	03	02	--	**05**
203150	Applications of Mathematics in Electrical Engineering	--	02*	--	--	--	25	--	--	**25**	--	01	--	**01**
203151	Soft Skill	--	02	--	--	--	25	--	--	**25**	--	01	--	**01**
203152	Audit Course-III	--	--	--	--	--	--	--	--	--	**Grade: PP/NP**			
Total		**15**	**14**	**--**	**150**	**350**	**100**	**75**	**25**	**700**	**15**	**07**	**--**	**22**

SEMESTER-II

Course Code	Courses Name	Teaching Scheme			Examination Scheme and Marks						Credits			
		TH	PR	TUT	ISE	ESE	TW	PR	OR	Total	TH	PR	TUT	Total
203145	Power System-I	03	--	--	30	70	--	--	--	**100**	03	--	--	**03**
203146	Electrical Machines-I	03	02	--	30	70	--	50	--	**150**	03	01	--	**04**
203147	Network Analysis	03	02	--	30	70	25	--	--	**125**	03	01	--	**04**
203148	Numerical Methods & Computer Programming	03	02	--	30	70	--	25	--	**125**	03	01	--	**04**
203149	Fundamental of Microcontroller and Applications	03	04$	--	30	70	25	--	25	**150**	03	02	--	**05**
203152	Project Based Learning	--	04	--	--	--	50	--	--	--	--	02	--	--
203153	Audit Course-IV	--	--	--	--	--	--	--	--	--	**Grade: PP/NP**			
Total		**15**	**14**	**--**	**150**	**350**	**100**	**75**	**25**	**700**	**15**	**07**	**--**	**22**

* - Lab sessions on application of Mathematics in Electrical Engineering using professional software.

- Practical section will comprises of two Part : a) PART A : 2 hours per week : Regular curriculum listed practical total 12 numbers out of which conduction of 8 numbers will be mandatory b) PART B : 2 Hours a week :Practical/case studies/assignments to enable active learning based on advances related to subject to bridge gap between curriculum and enhance practical knowledge required in field .

$ - Practical section will comprises of two Part : a) PART A : 2 hours per week : Regular curriculum listed practical total 12 numbers out of which conduction of 8 numbers will be mandatory b) PART B : 2 Hours a week : IOT application in Electrical Engineering using microcontroller and GSM module to bridge gap between curriculum and enhance application knowledge.

Abbreviation: TH: Theory, PR: Practical, TUT:Tutorial, ISE: Insem Exam, ESE: End Sem Exam, TW: Term Work, OR: Oral

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Savitribai Phule Pune University

Faculty of Science and Technology

Syllabus for

S.E (Electronics / Electronics & Telecommunication Engineering)

(Course 2019)

(w.e.f. June 2020)

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

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**

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Sinhgad Institute of Technology, Lonavala

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 ¶	-	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)

ATTESTED

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PRINCIPAL
Sinhgad Institute of Technology, Lonavala

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)

ATTESTED

Dr. M. S. GAIKWAD
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Savitribai Phule Pune University
Second Year of Computer Engineering (2019 Course)
(With effect from Academic Year 2020-21)

Table of Contents

ATTESTED
Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

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

ATTESTED
Dr. M. S. GAIKWAD
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Sinhgad Institute of Technology, Lonavala

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

FACULTY OF ENGINEERING

SYLLABUS FOR T. E. (ELECTRICAL ENGINEERING)

(2015 course)

WITH EFFECT FROM YEAR 2017-2018

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Savitribai Phule Pune University
FACULTY OF ENGINEERING
T.E. Electrical Engineering (2015 Course)
(w.e.f. 2017-2018)

SEMESTER-I													
Sr. No	Subject Code	Subject Title	Teaching Scheme			Examination Scheme					Total Marks	Credit	
			Th.	Pr.	Tu.	PP In Sem	PP End Sem	TW	PR	OR		TH/ TU	PR+OR
1	311121	Industrial and Technology Management	03	--	--	30	70	--	--	--	100	03	--
2	303141	Advance Microcontroller and its Applications	04	02	--	30	70	--	--	50	150	04	01
3	303142	Electrical Machines II	04	02	--	30	70	--	50	--	150	04	01
4	303143	Power Electronics	04	02	--	30	70	--	50	--	150	04	01
5	303144	Electrical Installation, Maintenance and Testing	03	02	--	30	70	50	--	--	150	03	01
6	303145	Seminar and Technical Communication	--	02	--	--	--	50	--	--	50	--	01
	303152	Audit Course III											
TOTAL			18	10	--	150	350	100	100	50	750	18	05

SEMESTER-II													
Sr. No.	Subject Code	Subject Title	Teaching Scheme			Examination Scheme					Total Marks	Credit	
			Th.	Pr.	Tu	PP In Sem	PP End Sem	TW	PR	OR		TH/ TU	PR+OR
1.	303146	Power System II	04	02	--	30	70	--	50	--	150	04	01
2.	303147	Control System I	04	02	--	30	70	-	--	50	150	04	01
3.	303148	Utilization of Electrical Energy	03	--	--	30	70	--	--	--	100	03	--
4.	303149	Design of Electrical Machines	04	02	--	30	70	25	--	50	175	04	01
5.	303150	Energy Audit and Management	03	02	--	30	70	25	--	--	125	03	01
6.	303151	Electrical Workshop	--	02	--	--	--	50	--	--	50	--	01
	303153	Audit Course IV											
Total			18	10	--	150	350	100	50	100	750	18	05

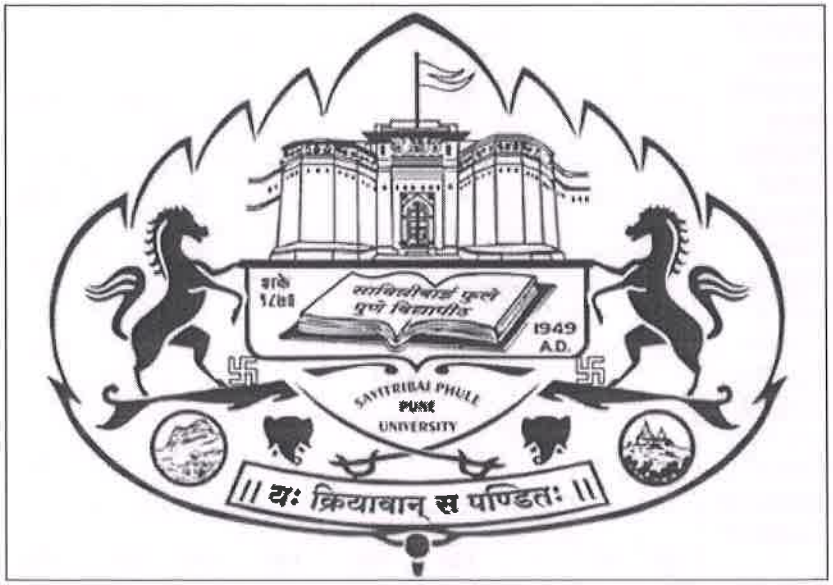
Th: Theory lectures hours/week
Pr: Practical hours/week
Tu: Tutorial hours/week

TW: Term work
PR: Theory
OR: Oral
PP: Paper- In semester and End Semester

ATTESTED
Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Savitribai Phule Pune University

FACULTY OF ENGINEERING



Structure for the

T.E (Electronics and Telecommunication Engineering)

(2015 Course)

(w.e.f . June 2017)

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Third Engineering-E&TC (2015 Course)

(With effect from Academic Year 2017-18)

Semester I												
Course Code	**Course**	**Teaching Scheme Hours / Week**			**Semester Examination Scheme of Marks**						**Credits**	
		Theory	**Tutorials**	**Practicals**	**In-Sem**	**End-Sem**	**TW**	**PR**	**OR**	**Total**	**TH/TW**	**PR+OR**
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)

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Third Engineering-E&TC (2015 Course)

(With effect from Academic Year 2017-18)

Semester II

Course Code	Course	Teaching Scheme Hours / Week			Semester Examination Scheme of Marks						Credit	
		Theory	Tutorials	Practicals	In-Sem	End-Sem	TW	PR	OR	Total	TH/TW	PR +OR
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)

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Savitribai Phule Pune University, Pune
Bachelor of Computer Engineering

Program Educational Objectives

1. To prepare globally competent graduates having strong fundamentals, domain knowledge, updated with modern technology to provide the effective solutions for engineering problems.
2. To prepare the graduates to work as a committed professional with strong professional ethics and values, sense of responsibilities, understanding of legal, safety, health, societal, cultural and environmental issues.
3. To prepare committed and motivated graduates with research attitude, lifelong learning, investigative approach, and multidisciplinary thinking.
4. To prepare the graduates with strong managerial and communication skills to work effectively as individual as well as in teams.

Program Outcomes

Students are expected to know and be able –

1. To apply knowledge of mathematics, science, engineering fundamentals, problem solving skills, algorithmic analysis and mathematical modeling to the solution of complex engineering problems.
2. To analyze the problem by finding its domain and applying domain specific skills
3. To understand the design issues of the product/software and develop effective solutions with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
4. To find solutions of complex problems by conducting investigations applying suitable techniques.
5. To adapt the usage of modern tools and recent software.
6. To contribute towards the society by understanding the impact of Engineering on global aspect.
7. To understand environment issues and design a sustainable system.
8. To understand and follow professional ethics.
9. To function effectively as an individual and as member or leader in diverse teams and interdisciplinary settings.
10. To demonstrate effective communication at various levels.
11. To apply the knowledge of Computer Engineering for development of projects, and its finance and management.
12. To keep in touch with current technologies and inculcate the practice of lifelong learning.

Program Specific Outcomes (PSO)

A graduate of the Computer Engineering Program will demonstrate-

PSO1: Professional Skills-The ability to understand, analyze and develop computer programs in the areas related to algorithms, system software, multimedia, web design, big data analytics, and networking for efficient design of computer-based systems of varying.

PSO2: Problem-Solving Skills- The ability to apply standard practices and strategies in software project development using open-ended programming environments to deliver a quality product for business success.

PSO3: Successful Career and Entrepreneurship- The ability to employ modern computer languages, environments, and platforms in creating innovative career paths to be an entrepreneur, and a zest for higher studies.

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Sinhgad Institute of Technology, Lonavala

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:

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Third Year Computer Engineering (2015 Course)
(with effect from 2017-18)

Semester II

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	Design & Analysis of Algorithms	04	--	--	30	70	--	--	--	100	04	
310251	Systems Programming & Operating System (SP & OS)	04	--	--	30	70	--	--	--	100	04	--
310252	Embedded Systems & Internet of Things (ES & IoT)	04	--	--	30	70	--	--	--	100	04	--
310253	Software Modeling and Design	03	--	--	30	70	--	--	--	100	03	--
310254	Web Technology	03	--	--	30	70	--	--	--	100	03	--
310255	Seminar & Technical Communication	--	01	--	--	--	50	--	--	50	01	--
310256	Web Technology Lab	--	--	02	--	--	25	50	--	75	--	01
310257	SP & OS Lab	--	--	04	--	--	25	50	--	75	--	02
310258	ES & IoT Lab	--	--	02	--	--	50	--	--	50	--	01
										Total Credit	19	04
	Total	18	01	08	150	350	150	100	--	750	23	
310259	Audit Course 4										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

ATTESTED
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Sinhgad Institute of Technology, Lonavala

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**					

ATTESTED

Dr. M. S. GAIKWAD
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Sinhgad Institute of Technology, Lonavala

Savitribai Phule Pune University

Faculty of Science and Technology

Syllabus for Final Year of Mechanical Engineering

(Course 2015)

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Savitribai Phule Pune University, Pune

BE (Mechanical Engineering) (2015 Course) Semester – VII

Code	Subject	Teaching Scheme Hrs / week			Examination Scheme					Total Marks	Credits		
		Lect	Tut	Pract	In-Sem	End-Sem	TW	PR	OR		TH	TW	OR/PR
402041	Hydraulics and Pneumatics	3	-	2	30	70	25	-	25	150	3	-	1
402042	CAD CAM Automation	3	-	2	30	70	25	50	-	175	3	-	1
402043	Dynamics of Machinery	4	-	2	30	70	25	-	25	150	4	-	1
402044	Elective-I	3	-	2	30	70	25	-	-	125	3	1	-
402045	Elective-II	3	-	-	30	70	-	-	-	100	3	-	-
402046	Project Stage-I	-	-	4	-	-	25	-	25	50	-	1	1
Total		16	-	12	150	350	125	50	75	750	16	2	4
											22		

B. E. (Mechanical Engineering) (2015 Course) Semester – VIII

Code	Subject	Teaching Scheme Hrs / week			Examination Scheme					Total Marks	Credits		
		Lect	Tut	Pract	In-Sem	End-Sem	TW	PR	OR		TH	TW	OR/PR
402047	Energy Engineering	3	-	2	30	70	25	-	25	150	3	-	1
402048	Mechanical System Design	4	-	2	30 (1.5 hrs)	70 (3 hrs)	25	-	50	175	4	-	1
402049	Elective-III	3		2	30	70	25	-	--	125	3	1	-
402050	Elective-IV	3	-	-	30	70	-	-	-	100	3	-	-
402051	Project Stage-II	-	-	12	-	-	100	-	100	200	-	3	3
Total		13	-	18	120	280	175	-	175	750	13	4	5
											22		

Elective – I		Elective – II	
Code	Subject	Code	Subject
402044 A	Finite Element Analysis	402045 A	Automobile Engineering
402044 B	Computational Fluid Dynamics	402045 B	Operation Research
402044 C	Heating Ventilation and Air Conditioning	402045 C	Energy Audit and Management
		402045 D	Open Elective**
Elective – III		Elective – IV	
402049 A	Tribology	402050 A	Advanced Manufacturing Processes
402049 B	Industrial Engineering	402050 B	Solar & Wind Energy
402049 C	Robotics	402050 C	Product Design and Development
		402050 D	Open Elective**

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SAVITRIBAI PHULE PUNE UNIVERSITY

FACULTY OF ENGINEERING

SYLLABUS FOR

B.E. ELECTRICAL ENGINEERING

(2015 course)

WITH EFFECT FROM YEAR 2018-2019

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Savitribai Phule Pune University

FACULTY OF ENGINEERING

B.E. Electrical Engineering (2015 Course)
(w.e.f. 2018-2019)

SEMESTER-I

Sr No	Subject Code	Subject Title	Teaching Scheme (Hrs/Week)			Examination Scheme (Marks)					Total Marks	Credit	
						PP							
			TH	PR	TU	In Sem	End Sem	TW	PR	OR		TH / TU	PR + OR
1	403141	Power System Operation and Control	03	02	--	30	70	25	--	25	150	03	01
2	403142	PLC and SCADA Applications	04	02	--	30	70	25	50	--	175	04	01
3	403143	Elective I	03	02	--	30	70	25	--	--	125	03	01
4	403144	Elective II	03	--	--	30	70	--	--	--	100	03	--
5	403145	Control System II	03	02	--	30	70	25	--	25	150	03	01
6	403146	Project I	--	--	02	--	--	--	--	50	50	02	--
	403152	Audit Course V											
TOTAL			16	08	02	150	350	100	50	100	750	18	04

SEMESTER-II

Sr No	Subject Code	Subject Title	Teaching Scheme (Hrs/Week)			Examination Scheme (Marks)					Total Marks	Credit	
						PP							
			TH	PR	TU	In Sem	End Sem	TW	PR	OR		TH / TU	PR + OR
1	403147	Switchgear and Protection	03	02	--	30	70	50	--	25	175	03	01
2	403148	Power Electronic Controlled Drives	04	02	--	30	70	25	50	--	175	04	01
3	403149	Elective III	03	02	--	30	70	25	--	25	150	03	01
4	403150	Elective IV	03	--	--	30	70	--	--	--	100	03	--
5	403151	Project II	--	--	06	--	--	50	--	100	150	06	--
	403153	Audit Course VI											
TOTAL			13	06	06	120	280	150	50	150	750	19	03

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

Savitribai Phule Pune University

Faculty of Science &Technology

B.E. (Electronics & Telecommunication)
(2015 Pattern) Syllabus
(With effect from Academic Year 2018-19)

ATTESTED

Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

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**	
		Theory	**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**	

Elective I	**Elective II**	**Audit Course 5**
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	

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Dr. M. S. GAIKWAD
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Sinhgad Institute of Technology, Lonavala

Final Year E&TC Engineering (2015 Course)

(With effect from Academic Year 2018-19)

Semester II

Course Code	Course	Teaching Scheme Hours / Week			Semester Examination Scheme of Marks						Credit	
		Theory	Tut	Pract	In-Sem	End-Sem	TW	PR	OR	Total	TH/TW	PR+OR
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**	

Elective III	**Elective-IV**	**Audit Course 6**
1. Machine Learning 2. PLC s and Automation 3. Audio and Speech Processing 4. Software Defined Radio 5. Audio Video Engineering	1. Robotics 2. Biomedical Electronics 3. Wireless Sensor Networks 4. Renewable Energy Systems 5. Open Elective*	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.

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Dr. M. S. GAIKWAD
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Sinhgad Institute of Technology, Lonavala

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-II: Botnet of Things
AC5-III: 3D Printing
AC5-IV: Industrial Safety and Environment Consciousness
AC5-V: Emotional Intelligence
AC5-VI: MOOC- Learn New Skills

Abbreviations:

TW: Term Work **TH:** Theory **OR:** Oral **PR:** Practical
Sem: Semester ***PRE**: Project/ Mini-Project Presentation

ATTESTED
Dr. M. S. GAIKWAD
PRINCIPAL
Sinhgad Institute of Technology, Lonavala

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	--	06
								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-II: Gamification
AC6-III: Quantum Computing
AC6-IV: Usability Engineering
AC6-V: Conversational Interfaces
AC6-VI: MOOC- Learn New Skills

Abbreviations:

TW: Term Work **TH:** Theory **OR:** Oral **PR:** Practical
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Sinhgad Institute of Technology, Lonavala

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.

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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

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