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 Intelligeuce

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

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Savitribai Phule University of Pune
Third Year Computer Engineering (2015 Course)
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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:

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(With effect from Academic Year 2016-17)

Semester I

Course Code	Course Name	Teaching Scheme Hours / Week			Examination Scheme & Marks						Credit	
		Theory	Tutorial	Practical	In-Sem	End-Sem	TW	PR	OR	Total	TH+ TUT	PR
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

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Second Year of Computer Engineering (2015 Course)
(With effect from Academic Year 2016-17)
Semester II

Course Code	Course Name	Teaching Scheme Hours /Week			Examination Scheme & Marks						Credits	
		Theory	Tutorial	Practical	In-Sem	End-Sem	TW	PR	OR	Total	TH+ TUT	PR
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

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University of Pune

Course Structure for TE Computer Engineering

2012 Course (w.e.f. June 2014)

Subject Code	Subject	Teaching Scheme Hrs/Week			Examination Scheme					Mark
		Lect.	Tutorials	Pract	In-Semester Assessment	Tw	Pr	OR	End Semester Exam	Total
	SEM–I									
310241	Theory of Computation	4	—	—	30	—	—	—	70	100
310242	Operating Systems Design	4	—	—	30	—	—	—	70	100
310243	Data Communication and Wireless Sensor Networks	4	—	—	30	—	—	—	70	100
310244	Database Management Systems Applications	3	—	—	30	—	—	—	70	100
310245	Computer Forensic and Cyber Applications	3	—	—	30	—	—	—	70	100
310246	Programming Lab-I	—	—	4	—		50	50	—	100
310247	Programming Lab-II	—	—	4	—	50	—	50	—	100
310248	Employability Skills Development Lab	—	—	2	—	50	—	—	—	50
	Total of Semester – I	**18**	—	10	150	100	50	100	350	750

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Course Structure for TE Computer Engineering

2012 Course (w.e.f. June 2014)

SEM–II										
Subject Code	Subject	Teaching Scheme Hrs/Week			Examination Scheme					Mark
		Lect.	Tutorials	Pract	In-Semester Assessment	Tw	Pr	Or	End Semester Assessment	Total
310249	Principles of Concurrent and Distributed Programming	4	—	—	30	—	—	—	70	100
310250	Embedded Operating Systems	4	—	—	30	—	—	—	70	100
310251	Computer Networks	4	—	—	30	—	—	—	70	100
310252	Software Engineering	3	—	—	30	—	—	—	70	100
310253	Digital Signal Processing Applications	3	—	—	30	—	—	—	70	100
310254	Programming Laboratory-III	—	—	4	—	—	50	50	—	100
310255	Programming Laboratory-IV	—	—	4	—	50	—	50	—	100
310256	Seminar and Technical Communication Laboratory	—	—	2	—	50	—	—	—	50
	Total of Semester – II	**18**	—	**10**	**150**	**100**	**50**	**100**	**350**	**750**

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Course Structure for SE Computer Engineering

2012 Course (w.e.f. June 2013)

Subject Code	Subject	Teaching Scheme Hrs/Week			Examination Scheme					Mark
		Lect.	Tutorials	Pract	Paper	Tw	Pr	OR	Online	Total
				SEM–I						
210241	Discrete Structures	4	—	—	50	—	—	—	50	100
210242	Data Structures and Problem Solving	4	—	4	50	—	50	—	50	150
210243	Digital Electronics and Logic Design	3	—	2	50	25	—	—	50	125
210244	Operating System and Administration	3	—	2	50	25	50	—	50	175
210245	Microprocessor Architecture	3	—	2	50	25	—	50	50	175
210246	Soft Skills	1	—	2	—	25	—	—	—	025
	Total of Semester – I	**18**	—	12	250	100	100	50	250	750
				SEM–II						
Subject Code	**Subject**	**Teaching Scheme Hrs/Week**			**Examination Scheme**					**Mark**
		Leet.	Tutorials	Pract	Paper	Tw	Pr	Or	Online	Total
207003	Engineering Maths - III	4	1	—	50	25	—	—	50	125
210247	Object Oriented and multi-core Programming	4	—	4	50	25	50	—	50	175
210248	Microprocessors and Interfacing Techniques	3	—	4	50	—	50	—	50	150
210249	Computer Graphics and Gaming	3	—	—	50	—	—	—	50	100
210250	Computer Organization	3	—	—	50	—	—	—	50	100
210251	Programming Laboratory	—	—	4	—	50	—	50	—	100
	Total of Semester – II	**17**	1	12	250	100	100	50	250	750

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SAVITRIBAI PHULE PUNE UNIVERSITY

BE (COMPUTER ENGINEERING)- 2012 COURSE STRUCTURE

Term-I

Subject Code	Subject	Teaching Scheme			Examination Scheme				Total Marks
		Lect	Tut	Pract	In Sem Asmnt	PR/ TW	OR/ TW	End Sem Asmnt	
410441	Design & Analysis of Algorithms	03	—	—	30	—	—	70	100
410442	Principles of Modern Compiler Design	04	—	—	30	—	—	70	100
410443	Smart System Design and A p plications	03	—	—	30	—	—	70	100
410444	Elective-I.	03	—	—	30	—	—	70	100
410445	Elective-II	03	—	—	30	—	—	70	100
410446	Computer laboratory-I	—	—	04	—	50	50	—	100
410447	Computer Laboratory-II	—	—	04	—	50	50	—	100
410448	Project	—	02	—	—	50	—	—	50
	Total	16	02	08	150	150	100	350	750
	Term-II								
410449	Software Design Methodologies & Testing	03	—	—	30	—	—	70	100
410450	High Performance Comp uting	03	—	—	30	—	—	70	100
410451	Elective-III	03	—	—	30	—	—	70	100
410452	Elective-IV Open Elective	03	—	—	30	—	—	70	100
410453	Computer laboratory-III	—	—	04	—	50	50	—	100
410454	Computer Laboratory-IV	—	—	04	—	50	50	—	100
410455	Project	—	06	—	—	50	100	—	150
	Total	12	06	08	120	150	200	280	750

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Savitribai Phule Pune University, Pune
Master of Computer Engineering (2017 Course)
(with effect from June 2017)

Semester I

Course Code	Course	Teaching Scheme Hours / Week		Examination Scheme and Marks					Credit	
		Theory	Practical	In-Sem	End-Sem	TW	OR/PRE	Total	TH	PR
510101	Research Methodology	04	--	50	50	--	--	100	04	--
510102	Bio-Inspired Optimization Algorithms	04	--	50	50	--	--	100	04	--
510103	Software Development and Version Control	04	--	50	50	--	--	100	04	--
510104	Embedded and Real Time Operating Systems	04	--	50	50	--	--	100	04	--
510105	Elective I	05	--	50	50	--	--	100	05	-
510106	Laboratory Proficiency I	--	08	--	--	50	50	100	--	04
							Total Credit		21	04
	Total	21	08	250	250	50	50	600	25	
510107	Non-Credit Course I								Grade	

Elective I

510105A	Advanced Digital Signal Processing	510105B	Data Mining
510105C	Network Design and Analysis	510105D	Data Algorithms
510105E	Open Elective		

Semester II

Course Code	Course	Teaching Scheme Hours / Week		Examination Scheme and Marks					Credit	
		Theory	Practical	In-Sem	End-Sem	TW	OR/PRE	Total	TH	PR
510108	Operations Research	04	--	50	50	--	--	100	04	--
510109	System Simulation and Modeling	04	--	50	50	--	--	100	04	--
510110	Machine Learning	04	--	50	50	--	--	100	04	--
510111	Elective II	05	--	50	50	--	--	100	05	--
510112	Seminar I		04	--	--	50	50	100	--	04
510113	Laboratory Proficiency II	--	08	--	--	50	50	100	--	04
							Total Credit		17	08
	Total	17	12	200	200	100	100	600	25	
510114	Non-Credit Course II								Grade	

Elective II

510111A	Image Processing	510111B	Web Mining
510111C	Pervasive and Ubiquitous Computing	510111D	Network Security
510111E	Open Elective		

Abbreviations: TW: Term Work, **TH:** Theory, **OR:** Oral, **PRE:** Presentation, **Sem:** Semester

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Syllabus for ME (Computer Engineering)
Course 2013 (w.e.f 2013)

Subject Code	Subject	Teaching Scheme Hrs/Week		Examination Scheme					Credits
		Lect.	Pract	Paper		Tw	Oral/Presentation	Marks	
				In Semester Assessment	End Semester Assessment				
SEM—I									
510101	Applied Algorithms	04	—	50	50	—	—	100	4
510102	High Performance Databases	04	—	50	50	—	—	100	4
510103	Advanced Computer Architecture	04	—	50	50	—	—	100	4
510104	Research Methodology	04	—	50	50	—	—	100	4
510105	Elective –I	05	—	50	50#	—	—	100	5
510106	Laboratory Practice-I	—	04	—		50	50	100	4
	Total	21	04	250	250	50	50	600	25

Subject Code	Subject	Teaching Scheme Hrs/Week		Examination Scheme					Credits
		Lect.	Pract	Paper		Tw	Oral/Presentation	Marks	
				In Semester Assessment	End Semester Assessment				
SEM—II									
510107	Operating System Design	04	—	50	50	—	—	100	4
510108	Software Design and Architecture	04	—	50	50	—	—	100	4

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Computer Engg. Department
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510109	**Advanced Computer Networks**	04	—	50	50	—	—	100	4
510110	Elective –II	05	—	50	50#	—	—	100	5
510111	Laboratory Practice-II	—	04	—		50	50	100	4
510112	Seminar-I	—	04	—		50	50	100	4
	Total	17	08	200	200	100	100	600	25

Subject Code	Subject	Teaching Scheme Hrs/Week		Examination Scheme					Credits
		Lect.	Pract	Paper		Tw	Oral/Presentation	Marks	
				In Semester Assessment	End Semester Assessment				
				SEM—III					
610101	**Advanced Storage Systems and Infrastructure Management**	04	—	50	50	—	—	100	4
610102	**Advanced Unix Programming**	04	—	50	50	—	—	100	4
610103	Elective-III	05	—	50	50#	—	—	100	4
610104	Seminar–II	04	—			50	50	100	5
610105	Dissertation Stage – I	—	08	—		50	50	100	8
	Total	17	08	150	150	100	100	500	25

Subject Code	Subject	Teaching Scheme Hrs/Week		Examination Scheme					Credits
		Lect.	Pract	Paper		Tw	Oral/Presentation	Marks	
				In Semester Assessment	End Semester Assessment				

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Computer Engg. Department
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SEM—IV									
610106	Seminar –III	—	05	—	—	50	50	100	5
610107	Dissertation Stage – II	—	20	—	—	150	50	200	20
	Total		25	—	—	200	100	300	25

#: Ref. Rule R-1.3 for Examination Rules of *"Rules and Regulations for M.E. Programs under faculty of Engineering effective from June 2013".*

Electives:

Elective I		Elective II	
510105A	Intelligent Systems	510110A	Business Intelligence and Data Mining
510105B	IRand Web Mining	510110B	Usability Engineering
510105C	Machine Learning and Translation	510110C	Advanced Complier Design
510105D	Open Elective /Real Time Systems	510110D	Open Elective/ Embedded System Design

Elective III		Non Credit Courses	
610103A	Network Security	Semester -I	Cyber Security
610103B	Cloud Computing	Semester-II	Information and Cyber Warfare
610103C	Computer Vision and Pattern Recognition	Semester-III	Bio-Metrics and Cyber Security
610103D	Open Elective/ Soft Computing	Semester -IV	Cyber Forensics and Information Security

The dissertation must result into the publication of at least two research papers (at Stage–I and Stage-II respectively) preferably in the Journal having Citation Index 2.0 and ISSN number; or paper can be published in reputed International Journal recommended by the guide of the Dissertation and the BoS supported cPGCON event for paper presentation and participation. The guides certificate covering originality of the work and plagiarism-testing result shall be included in the report along with the Published Journal Papers and. cPGCON paper presentation and participation certificates. The comments received by the journal paper reViewers be attached in the Dissertation report and shall be made available during dissertation presentation/viva to the examiners.

Note 1: Refer R-2.7 for Examination Rules of *"Rules and Regulations for M.E. Programs under faculty of Engineering effective from June 2013"*. Non-credit courses are mandatory for the grant of the term and shall be completed by the students as a self study either by referring to the Hand books, Journal/Conference papers (atleast 25 in number), open source software, tools and in addition may be by organizing educational visits to the technological/professional centers in the subject, *if any*. Each student is required to produce in own words, one 10 pages innovative, technical paper to be submitted as a part of the semester course work of non-credit courses.

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Chincholi,Nasik-422102

Asstt. Prof. & H.O.D.
Computer Engg. Department
S.V.M. Engg. College Chincholi
Tal. Sinnar Dist. Nashik 422 102