

Savitribai Phule Pune University, Pune
Syllabus: Third Year (TE) Electrical Engineering (2019 course)
(w.e.f 2021-22)

SEMESTER-I

Course code	Course Name	Teaching Scheme				Examination Scheme						Credit				
		Th	Pr	Tu	SEM /PW /IN	ISE	ESE	TW	PR	OR	Total	Th	Pr	Tu	SEM /PW /IN	Total
303141	<u>Industrial and Technology Management</u>	3	0	0	0	30	70	0	0	0	100	3	0	0	0	3
303142	<u>Power Electronics</u>	3	4#	0	0	30	70	0	50	0	150	3	2	0	0	5
303143	<u>Electrical Machines-II</u>	3	2	0	0	30	70	25	25	0	150	3	1	0	0	4
303144	<u>Electrical Installation Design and Condition Based Maintenance</u>	3	4#	0	0	30	70	25	0	25	150	3	2	0	0	5
303145	<u>Elective-I</u>	3	0	0	0	30	70	0	0	0	100	3	0	0	0	3
303146	<u>Seminar</u>	0	0	0	1	0	0	50	0	0	50	0	0	0	1	1
303147	<u>Audit course-V</u>	2*	0	0	0	0	0	0	0	0	0	GRADE: PP/NP				0
Total		15	10	0	1	150	350	100	75	25	700	15	5	0	1	21

303144: Elective-I

303147 : Audit Course-V

303145A : Advanced Microcontroller and Embedded System

303147A : Energy storage systems

303145B : Digital Signal Processing

303147B : Start up & Disruptive innovation

303145C : Open Elective

SEMESTER-II

Course code	Course Name	Teaching Scheme				Examination Scheme						Credit				
		Th	Pr	Tu	SEM /PW /IN	ISE	ESE	TW	PR	OR	Total	Th	Pr	Tu	SEM /PW /IN	Total
303148	<u>Power System-II</u>	3	2	1	0	30	70	25	50	0	175	3	1	1	0	5
303149	<u>Computer Aided Design of Electrical Machines</u>	3	4#	0	0	30	70	50	0	25	175	3	2	0	0	5
303150	<u>Control System Engineering</u>	3	2\$	1\$	0	30	70	25	0	25	150	3	1	0	0	4
303151	<u>Elective-II</u>	3	0	0	0	30	70	0	0	0	100	3	0	0	0	3
303152	<u>Internship</u>	0	0	0	4	0	0	100	0	0	100	0	0	0	4	4
303153	<u>Audit Course VI</u>	2*	0	0	0	0	0	0	0	0	0	GRADE: PP/NP				0
Total		12	8	2	4	120	280	200	50	50	700	12	4	1	4	21

303151: Elective-II

303153 : Audit Course-VI

303151A : IoT and its Applications in Electrical Engineering

303153A: Ethical Practices for Engineers

303151B : Electrical Mobility

303153B : Project Management

303151C: Cybernetic Engineering

303151D: Energy Management

#Practical consists of Part A & part B. PART A; Regular experiments & part B; to bridge the gap between theory &

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T.E. (Electronics & Telecommunication Engineering) 2019 Course
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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

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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

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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> 1. Digital Image and Video Processing 2. Industrial Drives and Control 3. Embedded Systems & RTOS 4. Internet of Things			<u>Elective II</u> 1. Wavelets 2. Electronics Product Design 3. Optimization Techniques 4. Artificial Intelligence 5. Electronics in agriculture					<u>Audit Course 5</u> 1. Green Energy 2. Human Behaviour				

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

(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.

ANNEXURE I

GENERIC CORE (GC) COURSES – 3 Credits Each			
50 Marks FORMATIVE ASSESSMENT, 50 Marks SUMMATIVE EVALUATION			
Course No.	Course Code	Course	Semester
101	GC – 01	Managerial Accounting	I
102	GC – 02	Organizational Behaviour	I
103	GC – 03	Economic Analysis for Business Decisions	I
104	GC – 04	Business Research Methods	I
105	GC – 05	Basics of Marketing	I
106	GC – 06	Digital Business	I
201	GC – 07	Marketing Management	II
202	GC – 08	Financial Management	II
203	GC – 09	Human Resources Management	II
204	GC – 10	Operations & Supply Chain Management	II
301	GC – 11	Strategic Management	III
302	GC – 12	Decision Science	III
303	GC – 13	Summer Internship Project*	III
401	GC – 14	Enterprise Performance Management	IV
402	GC – 15	Indian Ethos & Business Ethics	IV

*** Six Credits**

GENERIC ELECTIVES UNIVERSITY LEVEL (GE – UL) COURSES – 2 Credits Each			
00 Marks FORMATIVE ASSESSMENT , 50 Marks SUMMATIVE EVALUATION			
Course #	Course Code	Course	Semester
Any 3 courses to be selected from the following list in Semester I			
107	GE - UL - 01	Management Fundamentals	I
108	GE - UL - 02	Indian Economy	I
109	GE - UL - 03	Entrepreneurship Development	I
110	GE - UL - 04	Essentials of Psychology for Managers	I
111	GE - UL - 05	Legal Aspects of Business	I
112	GE - UL - 06	Demand Analysis & Forecasting	I
Any 3 courses to be selected from the following list in Semester II			
207	GE - UL - 07	Contemporary Frameworks in Management	II
208	GE - UL - 08	Geopolitics & World Economic Systems	II
209	GE - UL - 09	Start Up and New Venture Management	II
210	GE - UL - 10	Qualitative Research Methods	II
211	GE - UL - 11	Business, Government & Society	II
212	GE - UL - 12	Business Process Re-engineering	II
Any 3 courses to be selected from the following list in Semester III			
306	GE - UL - 13	International Business Economics	III
307	GE - UL - 14	International Business Environment	III
308	GE - UL - 15	Project Management	III
309	GE - UL - 16	Knowledge Management	III
310	GE - UL - 17	Corporate Governance	III
311	GE - UL - 18	Management of Non-profit organizations	III
Any 2 courses to be selected from the following list in Semester IV			
405	GE - UL - 19	Global Strategic Management	IV
406	GE - UL - 20	Technology Competition and Strategy	IV
407	GE - UL - 21	Cyber Laws	IV
408	GE - UL - 22	Corporate Social Responsibility & Sustainability	IV

GENERIC ELECTIVES INSTITUTE LEVEL (GE – IL) COURSES – 2 Credits Each			
50 Marks FORMATIVE ASSESSMENT , 00 Marks SUMMATIVE EVALUATION			
Course No.	Course Code	Course	Semester
Maximum 3 courses to be selected from the following list in Semester I			
113	GE - IL - 01	Verbal Communication Lab	I
114	GE - IL - 02	Enterprise Analysis & Desk Research	I
115	GE - IL - 03	Selling & Negotiation Skills Lab	I
116	GE - IL - 04	MS Excel	I
117	GE - IL - 05	Business Systems & Procedures	I
118	GE – IL- 06	Managing Innovation	I
119	GE – IL- 07	Foreign Language – I	I
Maximum 1 course to be selected from the following list in Semester II			
213	GE – IL - 08	Written Analysis and Communication Lab	II
214	GE – IL - 09	Industry Analysis & Desk Research	II
215	GE – IL - 10	Entrepreneurship Lab	II
216	GE – IL - 11	SPSS	II
217	GE – IL - 12	Foreign Language – II	II

SUBJECT CORE (SC) COURSES: Specialization – Marketing Management (MKT)			
3 Credits Each, 50 Marks FORMATIVE ASSESSMENT, 50 Marks SUMMATIVE EVALUATION			
Course No.	Course Code	Course	Semester
205 MKT	SC – MKT- 01	Marketing Research	II
206 MKT	SC – MKT- 02	Consumer Behaviour	II
304 MKT	SC – MKT- 03	Services Marketing	III
305 MKT	SC – MKT- 04	Sales & Distribution Management	III
403 MKT	SC – MKT- 05	Marketing 4.0	IV
404 MKT	SC – MKT- 06	Marketing Strategy	IV

SUBJECT ELECTIVE (SE - IL) COURSES: Specialization – Marketing Management (MKT)			
2 Credits Each, 50 Marks FORMATIVE ASSESSMENT, 00 Marks SUMMATIVE EVALUATION			
Course No.	Course Code	Course	Semester
Maximum 2 courses to be selected from the following list in Semester II			
217 MKT	SE – IL - MKT- 01	Integrated Marketing Communications	II
218 MKT	SE – IL - MKT- 02	Product & Brand Management	II
219 MKT	SE – IL - MKT- 03	Personal Selling Lab	II
220 MKT	SE – IL - MKT- 04	Digital Marketing - I	II
221 MKT	SE – IL - MKT- 05	Marketing of Financial Services - I	II
222 MKT	SE – IL - MKT- 06	Marketing of Luxury Products	II
Maximum 3 courses to be selected from the following list in Semester III			
312 MKT	SE – IL - MKT- 07	Business to Business Marketing	III
313 MKT	SE – IL - MKT- 08	International Marketing	III
314 MKT	SE – IL - MKT- 09	Digital Marketing - II	III
315 MKT	SE – IL - MKT- 10	Marketing of Financial Services - II	III
316 MKT	SE – IL - MKT- 11	Marketing Analytics	III
317 MKT	SE – IL - MKT- 12	Marketing of High Technology Products	III
Maximum 2 courses to be selected from the following list in Semester IV			
409 MKT	SE – IL - MKT- 13	Customer Relationship Management	IV
410 MKT	SE – IL - MKT- 14	Rural & Agriculture Marketing	IV
411 MKT	SE – IL - MKT- 15	Tourism & Hospitality Marketing	IV
412 MKT	SE – IL - MKT- 16	Retail Marketing	IV
413 MKT	SE – IL - MKT- 17	Retailing Analytics	IV
414 MKT	SE – IL - MKT- 18	Marketing to Emerging Markets & Bottom of the Pyramid	IV

SUBJECT CORE (SC) COURSES: Specialization – Financial Management (FIN)			
3 Credits Each, 50 Marks FORMATIVE ASSESSMENT, 50 Marks SUMMATIVE EVALUATION			
Course No.	Course Code	Course	Semester
205 FIN	SC – FIN - 01	Financial Markets and Banking Operations	II
206 FIN	SC – FIN - 02	Personal Financial Planning	II
304 FIN	SC – FIN - 03	Advanced Financial Management	III
305 FIN	SC – FIN - 04	International Finance	III
403 FIN	SC – FIN - 05	Financial Laws	IV
404 FIN	SC – FIN - 06	Current Trends & Cases in Finance	IV

SUBJECT ELECTIVE (SE - IL) COURSES: Specialization – Financial Management (FIN)			
2 Credits Each, 50 Marks FORMATIVE ASSESSMENT, 00 Marks SUMMATIVE EVALUATION			
Course No.	Course Code	Course	Semester
Maximum 2 courses to be selected from the following list in Semester II			
217 FIN	SE – IL - FIN - 01	Securities Analysis & Portfolio Management	II
218 FIN	SE – IL - FIN - 02	Futures and Options	II
219 FIN	SE – IL - FIN - 03	Direct Taxation	II
220 FIN	SE – IL - FIN - 04	Financial Reporting	II
221 FIN	SE – IL - FIN - 05	Retail Credit Management- Lending & Recovery	II
222 FIN	SE – IL - FIN - 06	Banking Laws & Regulations	II
223 FIN	SE – IL - FIN - 07	Fundamentals of Life Insurance – Products and Underwriting	II
224 FIN	SE – IL - FIN - 08	General Insurance - Health and Vehicle	II
Maximum 3 courses to be selected from the following list in Semester III			
312 FIN	SE – IL - FIN - 09	Behavioural Finance	III
313 FIN	SE – IL - FIN - 10	Technical Analysis of Financial Markets	III
314 FIN	SE – IL - FIN - 11	Commodities Markets	III
315 FIN	SE – IL - FIN – 12	Indirect Taxation	III
316 FIN	SE – IL - FIN – 13	Corporate Financial Restructuring	III
317 FIN	SE – IL - FIN - 14	Financial Modeling	III
318 FIN	SE – IL - FIN – 15	Digital Banking	III
319 FIN	SE – IL - FIN – 16	Treasury Management	III
320 FIN	SE – IL - FIN – 17	Project Finance and Trade Finance	III
321 FIN	SE – IL - FIN – 18	Insurance Laws & Regulations	III
322 FIN	SE – IL - FIN – 19	Marine Insurance	III
323 FIN	SE – IL - FIN – 20	Fire Insurance	III
Maximum 2 courses to be selected from the following list in Semester IV			
409 FIN	SE – IL - FIN – 21	Fixed Income Securities	IV
410 FIN	SE – IL - FIN – 22	Business Valuation	IV
411 FIN	SE – IL - FIN – 23	Risk Management	IV
412 FIN	SE – IL - FIN – 24	Strategic Cost Management	IV
413 FIN	SE – IL - FIN – 25	Rural and Micro Finance	IV
414 FIN	SE – IL - FIN - 26	Reinsurance	IV
415 FIN	SE – IL - FIN – 27	Agricultural Insurance	IV

SUBJECT CORE (SC) COURSES: Specialization – Human Resource Management (HRM)			
3 Credits Each, 50 Marks FORMATIVE ASSESSMENT, 50 Marks SUMMATIVE EVALUATION			
Course No.	Course Code	Course	Semester
205 HR	SC – HRM – 01	Competency Based Human Resource Management	II

206 HR	SC – HRM – 02	Employee Relations & Labour Legislation	II
304 HR	SC – HRM - 03	Strategic Human Resource Management	III
305 HR	SC – HRM - 04	HR Operations	III
403 HR	SC – HRM - 05	Organizational Diagnosis & Development	IV
404 HR	SC – HRM - 06	Current Trends & Cases in Human Resource Management	IV

SUBJECT ELECTIVE (SE - IL) COURSES: Specialization – Human Resource Management (HRM)			
2 Credits Each, 50 Marks FORMATIVE ASSESSMENT, 00 Marks SUMMATIVE EVALUATION			
Course No.	Course Code	Course	Semester
Maximum 2 courses to be selected from the following list in Semester II			
217 HRM	SE – IL - HRM - 01	Labour Welfare	II
218 HRM	SE – IL - HRM - 02	Lab in Recruitment and Selection	II
219 HRM	SE – IL - HRM - 03	Learning and Development	II
220 HRM	SE – IL - HRM - 04	Public Relations & Corporate Communications	II
221 HRM	SE – IL - HRM - 05	HR Analytics	II
222 HRM	SE – IL - HRM - 06	Conflict and Negotiation Management	II
Maximum 3 courses to be selected from the following list in Semester III			
312 HR	SE – IL - HRM - 07	Talent Management	III
313 HR	SE – IL - HRM - 08	Psychometric Testing and Assessment	III
314 HR	SE – IL - HRM - 09	HR perspective in Mergers and Acquisition	III
315 HR	SE – IL - HRM - 10	International HR	III
316 HR	SE – IL - HRM - 11	Mentoring and Coaching	III
317 HR	SE – IL - HRM - 12	Compensation and Reward management	III
318 HR	SE – IL - HRM - 13	Performance Management System	III
319 HR	SE – IL - HRM - 14	Change Management & New Technologies in HRM	III
Maximum 2 courses to be selected from the following list in Semester IV			
409 HR	SE – IL - HRM - 15	Labour Legislation	IV
410 HR	SE – IL - HRM - 16	Designing HR Policies	IV
411 HR	SE – IL - HRM - 17	Labour Economics and Costing	IV
412 HR	SE – IL - HRM - 18	Best Practices in HRM	IV
413 HR	SE – IL - HRM - 19	Employee Engagement and Ownership	IV
414 HR	SE – IL - HRM – 20	Leadership and Succession Planning	IV
415 HR	SE – IL - HRM - 21	E - HRM	IV

SUBJECT CORE (SC) COURSES: Specialization – Operations & Supply Chain Management (OSCM)			
3 Credits Each, 50 Marks FORMATIVE ASSESSMENT, 50 Marks SUMMATIVE EVALUATION			
Course No.	Course Code	Course	Semester
205 OSCM	SC – OSCM - 01	Services Operations Management - I	II
206 OSCM	SC – OSCM - 02	Supply Chain Management	II
304 OSCM	SC – OSCM - 03	Services Operations Management - II	III
305 OSCM	SC – OSCM - 04	Logistics Management	III
403 OSCM	SC – OSCM - 05	E Supply Chains & Logistics	IV
404 OSCM	SC – OSCM - 06	Industry 4.0	IV

SUBJECT ELECTIVE (SE - IL) COURSES : Specialization – Operations & Supply Chain Management (OSCM)			
2 Credits Each, 50 Marks FORMATIVE ASSESSMENT, 00 Marks SUMMATIVE EVALUATION			
Course No.	Course Code	Course	Semester
Maximum 2 courses to be selected from the following list in Semester II			
217 OSCM	SE – IL - OSCM - 01	Planning & Control of Operations	II
218 OSCM	SE – IL - OSCM - 02	Productivity Management	II
219 OSCM	SE – IL - OSCM - 03	Inventory Management	II
220 OSCM	SE – IL - OSCM - 04	Theory of Constraints	II
221 OSCM	SE – IL - OSCM - 05	Quality Management Standards	II
222 OSCM	SE – IL - OSCM - 06	Service Value Chain Management	II
Maximum 3 courses to be selected from the following list in Semester III			
312 OSCM	SE – IL - OSCM – 07	Manufacturing Resource Planning	III
313 OSCM	SE – IL - OSCM – 08	Sustainable Supply Chains	III
314 OSCM	SE – IL - OSCM – 09	Business Excellence	III
315 OSCM	SE – IL - OSCM – 10	Toyota Production System	III
316 OSCM	SE – IL - OSCM – 11	Operations and Services Strategy	III
317 OSCM	SE – IL - OSCM – 12	Six Sigma for Operations	III
Maximum 2 courses to be selected from the following list in Semester IV			
409 OSCM	SE – IL - OSCM – 14	Enterprise Resource Planning	IV
410 OSCM	SE – IL - OSCM – 15	World Class Manufacturing	IV
411 OSCM	SE – IL - OSCM – 16	Supply Chain Strategy	IV
412 OSCM	SE – IL – OSCM – 17	Financial Perspectives in Operations Management	IV
413 OSCM	SE – IL - OSCM – 18	Facilities Planning	IV
414 OSCM	SE – IL - OSCM – 19	Purchasing and Supplier Relationship Management	IV
415 OSCM	SE – IL - OSCM - 20	Strategic Supply Chain Management	IV

SUBJECT CORE (SC) COURSES: Specialization – Business Analytics (BA)			
3 Credits Each, 50 Marks FORMATIVE ASSESSMENT, 50 Marks SUMMATIVE EVALUATION			
Course No.	Course Code	Course	Semester
205 BA	SC – BA - 01	Basic Business Analytics using R	II
206 BA	SC – BA - 02	Data Mining	II
304 BA	SC – BA - 03	Advanced Statistical Methods using R	III
305 BA	SC – BA - 04	Machine Learning & Cognitive intelligence using Python	III
403 BA	SC – BA - 05	Economics of Network Industries	IV
404 BA	SC – BA - 06	Artificial Intelligence in Business Applications	IV

SUBJECT ELECTIVE (SE - IL) COURSES: Specialization – Business Analytics (BA)			
2 Credits Each, 50 Marks FORMATIVE ASSESSMENT, 00 Marks SUMMATIVE EVALUATION			
Course No.	Course Code	Course	Semester
Maximum 2 courses to be selected from the following list in Semester II			
217 BA	SE – IL - BA - 01	Marketing Analytics	II
218 BA	SE – IL - BA - 02	Retailing Analytics	II
219 BA	SE – IL - BA - 03	Workforce Analytics	II
220 BA	SE – IL - BA - 04	Tableau	II
221 BA	SE – IL - BA - 05	Data Warehousing Project Life Cycle Management	II
Maximum 3 courses to be selected from the following list in Semester III			
312 BA	SE – IL - BA – 06	Social Media, Web & Text Analytics	III
313 BA	SE – IL - BA – 07	Industrial Internet of Things	III
314 BA	SE – IL - BA – 08	Supply Chain Analytics	III
315 BA	SE – IL - BA – 09	Cognos Analytics	III
316 BA	SE – IL - BA – 10	Predictive Modelling using SPSS Modeler	III
317 BA	SE – IL - BA – 11	E commerce Analytics - I	III
Maximum 2 courses to be selected from the following list in Semester IV			
409 BA	SE – IL - BA - 13	E Commerce Analytics - II	IV
410 BA	SE – IL - BA - 14	Healthcare Analytics	IV
411 BA	SE – IL - BA – 15	Watson	IV
412 BA	SE – IL - BA – 16	Scala and Spark	IV

[D] FOUNDATION (FOU) COURSES (ELECTIVES) – 1 Credit Each			
25 Marks FORMATIVE ASSESSMENT, 00 Marks SUMMATIVE EVALUATION			
Between ZERO to SIX courses to be selected from the following list in Semester I and / or Between ZERO to FOUR courses to be selected from the following list in Semester II			
Course No.	Course Code	Course	Semester
1	FOU - 001	Elementary English	I
2	FOU - 002	Elementary Mathematics & Statistics	I
3	FOU - 003	Elementary Economics	I
4	FOU - 004	Elementary Accounting	I
5	FOU - 005	Elementary Information Technology	I
6	FOU - 006	Elementary Business Etiquette	I
7	FOU - 007	Elementary MS WORD	II
8	FOU - 008	Elementary MS POWERPOINT	II
9	FOU - 009	Elementary Data Interpretation & Logical Reasoning	II
10	FOU - 010	Elementary Verbal and Reading Comprehension	II
11	FOU - 011	Elementary Quantitative Ability	II

[E] ENRICHMENT (ENR) COURSES (ELECTIVES) – 1 Credit Each				
25 Marks FORMATIVE ASSESSMENT, 00 Marks SUMMATIVE EVALUATION				
<p>Between ZERO to SIX courses to be selected from the following list in Semester I and / or</p> <p>Between ZERO to FOUR courses to be selected from the following list in Semester II and / or</p> <p>Between ZERO to TWO courses to be selected from the following list in Semester III and / or</p> <p>Between ZERO to FOUR courses to be selected from the following list in Semester IV</p>				
Course No	Course Code	Proficiency Track	Course	Semester
1	ENR - 1	Entrepreneurship	Entrepreneurship in The Online Economy – Seminar	Any
2	ENR - 2	Entrepreneurship	Management Skills for MSMEs – Seminar	Any
3	ENR - 3	Entrepreneurship	Business Plan for Small Business - Case Study Development and Presentation	Any
4	ENR - 4	Entrepreneurship	The Elevator Pitch - Case Study Development and Presentation	Any
5	ENR - 5	Entrepreneurship	Private Equity – Seminar	Any
6	ENR - 6	Entrepreneurship	Launching & Sustaining Start-Ups- Case Study Development and Presentation	Any
7	ENR - 7	Entrepreneurship	Start-Up Fest	Any
8	ENR - 8	Entrepreneurship	Marketing on a shoe string budget for Small Business - Case Study Development and Presentation	Any
9	ENR - 9	Entrepreneurship	Growing business through Franchising - Case Study Development and Presentation	Any
10	ENR - 10	Entrepreneurship	Finance and Accounting aspects of Small Businesses - Case Study Development and Presentation	Any
11	ENR - 11	Entrepreneurship	Planning, Structuring, and Financing Small Businesses - Case Study Development and Presentation	Any
12	ENR - 12	Entrepreneurship	Digital Marketing for MSMEs- Case Study Development and Presentation	Any
13	ENR - 13	Entrepreneurship	Legal Compliances for MSMEs – Seminar	Any
14	ENR - 14	Entrepreneurship	Contemporary Indian Models in Entrepreneurship - Case Study Development and Presentation	Any
15	ENR - 15	Entrepreneurship	Women Entrepreneurs in Contemporary India - Case Study Development and Presentation	Any
16	ENR - 16	Desk Research	Review of National Databases & Reports	Any
17	ENR - 17	Desk Research	Review of Industry Databases	Any
18	ENR - 18	Desk Research	Review of Industry Best Practice Surveys	Any
19	ENR - 19	Desk Research	Review of Global Best Practice Surveys	Any
20	ENR - 20	Desk Research	Review of TED Talks	Any
21	ENR - 21	Desk Research	Book Reviews	Any
22	ENR - 22	Desk Research	Emerging Trends in Business - Seminar	Any
23	ENR - 23	Desk Research	Best Business Practices - Case Study Development and Presentation	Any
24	ENR - 24	Desk Research	Disruptive Business Practices - Case Study Development and Presentation	Any

25	ENR - 25	Desk Research	Business Houses & Business Families in India - Case Study Development and Presentation	Any
26	ENR - 26	Desk Research	Industry Specific Governance & Compliances - Seminar	Any
27	ENR - 27	Desk Research	Business Excellence Awards & Awardees - Case Study Development and Presentation	Any
28	ENR - 28	Managerial Effectiveness	Design Thinking Workshop	Any
29	ENR - 29	Managerial Effectiveness	Problem Solving Tools & Techniques Workshop	Any
30	ENR - 30	Managerial Effectiveness	Theory of Constraints Workshop	Any
31	ENR - 31	Managerial Effectiveness	Six Sigma Applications in Business Workshop	Any
32	ENR - 32	Managerial Effectiveness	Budgeting Workshop	Any
33	ENR - 33	Managerial Effectiveness	i-Lab Design Thinking Projects Workshop	Any
34	ENR - 34	Managerial Effectiveness	Public Relations Workshop	Any
35	ENR - 35	Managerial Effectiveness	Cross Cultural Relationship Marketing Workshop	Any
36	ENR - 36	Managerial Effectiveness	Digital Productivity Tools Workshop	Any
37	ENR - 37	Managerial Effectiveness	Effective Meetings Management Workshop	Any
38	ENR - 38	Managerial Effectiveness	Balanced Score Card - Case Study Development and Presentation	Any
39	ENR - 39	Perspectives on Management	Management Thinkers & Contributions - Seminar	Any
40	ENR - 40	Perspectives on Management	Enduring Management Principles & Thoughts - Seminar	Any
41	ENR - 41	Perspectives on Management	Mysteries in Management - Seminar	Any
42	ENR - 42	Perspectives on Management	Management - The Future Frontiers - Seminar	Any
43	ENR - 43	Perspectives on Management	Leaderships Lessons from Non-business leaders – Seminar	Any
44	ENR - 44	Perspectives on Management	Leadership Lessons from Antiquity - Seminar	Any
45	ENR - 45	Perspectives on Management	Leading in the 21st Century - Case Study Development and Presentation	Any
46	ENR - 46	Perspectives on Management	Strategy in a VUCA world - Case Study Development and Presentation	Any
47	ENR - 47	Economy & Polity	The Economics & Politics of NGOs - Case Study Development and Presentation	Any
48	ENR - 48	Economy & Polity	Politics & Governance - Seminar	Any
49	ENR - 49	Economy & Polity	Climate Change Politics & Policy - Seminar	Any
50	ENR - 50	Economy & Polity	Energy Economics - Seminar	Any
51	ENR - 51	Economy & Polity	Civil Society, New Social Movements & Public Policy - Case Study Development and Presentation	Any
52	ENR - 52	Economy & Polity	Corporations, NGOs & Civil societies - Seminar	Any
53	ENR - 53	Economy & Polity	Environment & Development - Seminar	Any
54	ENR - 54	Economy & Polity	Globalization & Localization - Seminar	Any
55	ENR - 55	Economy & Polity	Strategic Transformation and Change in the Indian Economy - Case Study Development and Presentation	Any
56	ENR - 56	Communication	Verbal Communication & Presentation Skills Workshop	Any

57	ENR - 57	Communication	Visual Communication Workshop	Any
58	ENR - 58	Communication	Communication Through Theatre Techniques Workshop	Any
59	ENR - 59	Communication	Technical Writing Workshop	Any
60	ENR - 60	Communication	Walk the Talk - Leader / Entrepreneur Interviews Lab	Any
61	ENR - 61	Communication	Creative Writing Workshop	Any
62	ENR - 62	Communication	Blog Writing Workshop	Any
63	ENR - 63	Behavioural & Interpersonal Skills	Transactional Analysis Lab	Any
64	ENR - 64	Behavioural & Interpersonal Skills	Emotional Intelligence & Managerial Effectiveness Lab	Any
65	ENR - 65	Behavioural & Interpersonal Skills	Influence & Persuasion Lab	Any
66	ENR - 66	Behavioural & Interpersonal Skills	Negotiation Skills Lab	Any
67	ENR - 67	Behavioural & Interpersonal Skills	Team Selling Lab	Any
68	ENR - 68	Technology	Technology Clinic	Any
69	ENR - 69	Technology	Digital Innovation and Transformation – Seminar	Any
70	ENR - 70	Technology	Social Impact of Technology - Case Study Development and Presentation	Any
71	ENR - 71	Technology	Technology Commercialization – Seminar	Any
72	ENR - 72	Technology	Intellectual Property Rights – Seminar	Any
73	ENR - 73	Technology	Strategy and Technology – Seminar	Any
74	ENR - 74	Technology	Internet of Things – Seminar	Any
75	ENR - 75	Technology	Cyber Security – Seminar	Any
76	ENR - 76	Technology	Gamification Workshop	Any
77	ENR - 77	Understanding India	Skill-India - Case Study Development and Presentation	Any
78	ENR - 78	Understanding India	Smart-Cities - Case Study Development and Presentation	Any
79	ENR - 79	Understanding India	Swachh Bharat - Case Study Development and Presentation	Any
80	ENR - 80	Understanding India	Make-in-India - Case Study Development and Presentation	Any
81	ENR - 81	Understanding India	Constitution of India – Seminar	Any
82	ENR - 82	Understanding India	Indian Social Structure - Case Study Development and Presentation	Any
83	ENR - 83	Understanding India	Methodological Foundations of Indian Scientific Tradition – Seminar	Any
84	ENR - 84	Understanding India	Some Scientific Concepts from Sanskrit Texts – Seminar	Any
85	ENR - 85	Understanding India	Film Appreciation - Case Study Development and Presentation	Any
86	ENR - 86	Understanding India	Culture, Diversity & Society – Seminar	Any
87	ENR - 87	Understanding India	Contemporary Debates in Business & Society – Seminar	Any
88	ENR - 88	Understanding India	Consumerism and Sociology of the Family – Seminar	Any
89	ENR - 89	Understanding India	Culture and Media – Seminar	Any
90	ENR - 90	Understanding India	Business History – Seminar	Any
91	ENR - 91	Unconventional Sectors	Educational Institutions Management - Case Study Development and Presentation	Any
92	ENR - 92	Unconventional Sectors	The Business of Bollywood - Case Study Development and Presentation	Any

93	ENR - 93	Unconventional Sectors	Contemporary Sports: A Business Perspective - Case Study Development and Presentation	Any
94	ENR - 94	Unconventional Sectors	Managing Public Festivals , Exhibitions & Fairs - Case Study Development and Presentation	Any
95	ENR - 95	Unconventional Sectors	Agro Tourism- Case Study Development and Presentation	Any
96	ENR - 96	Ethics & Social Responsibility	Rural Immersion Project	Any
97	ENR - 97	Ethics & Social Responsibility	Managing for bottom of the Pyramid Business – Seminar	Any
98	ENR - 98	Ethics & Social Responsibility	Digital Technologies For Social Inclusion - Case Study Development and Presentation	Any
99	ENR - 99	Ethics & Social Responsibility	Social Impact Analysis for Local Community Projects - Case Study Development and Presentation	Any
100	ENR - 100	Ethics & Social Responsibility	Social & Ethical Aspects of Healthcare – Seminar	Any
101	ENR - 101	Ethics & Social Responsibility	Spirituality for Managers – Seminar	Any
102	ENR – 102	Personal Interest Course	Yoga	Any
103	ENR – 103	Personal Interest Course	Vedic Maths	Any
104	ENR – 104	Personal Interest Course	Graphology	Any
105	ENR – 105	Personal Interest Course	Caligraphy	Any
106	ENR – 106	Personal Interest Course	Music	Any
107	ENR – 107	Personal Interest Course	Dance	Any
108	ENR – 108	Personal Interest Course	Adventure Sports	Any
109	ENR – 109	Personal Interest Course	Hackathon	Any
110	ENR - 110	Personal Interest Course	Local Community Development Project	Any
111	ENR - 111	Personal Interest Course	Videography	Any
112	ENR - 112	Personal Interest Course	Fine Arts	Any

[F] ALTERNATIVE STUDY CREDIT COURSES (ASCC) (ELECTIVES) – 2 Credit Each			
50 Marks FORMATIVE ASSESSMENT, 00 Marks SUMMATIVE EVALUATION			
<p>Between ZERO to THREE courses to be selected from the following list in Semester I[#] and / or</p> <p>Between ZERO to THREE courses to be selected from the following list in Semester II[#] and / or</p> <p>Between ZERO to THREE courses to be selected from the following list in Semester III[#] and / or</p> <p>Between ZERO to TWO courses to be selected from the following list in Semester IV[#]</p>			
Course No.	Course Code	Course	Semester
1	ASCC - 001	MOOCs	Any
2	ASCC - 002	Professional Certification Programs	Any
3	ASCC - 003	CSR Project	Any
4	ASCC - 004	Innovation Projects	Any
5	ASCC - 005	Industry or Academic Internships	Any
6	ASCC - 006	Field/Live Projects	Any

Same type of course can be selected multiple number of times.

MINOR ONLY SPECIALIZATIONS

Specialization – Rural & Agri -Business Management (RABM)			
Course No.	Course Code	Course	Semester
2 CORE courses as per the following list – in Semester III or Semester IV			
1	SC – RABM – 01	Agriculture and Indian Economy	III
2	SC – RABM – 02	ICT for Agriculture Management	IV
Any 2 ELECTIVE courses to be selected from the following list – either in Semester III or Semester IV			
1	SE – RABM – 03	Rural Credit and Finance	III
2	SE – RABM – 04	Rural Marketing - I	III
3	SE– RABM – 05	Agri – Entrepreneurship	IV
4	SE – RABM – 06	Rural Marketing II	IV
Specialization – Pharma & Health Care Management (PHCM)			
Course No.	Course Code	Course	Semester
2 CORE courses as per the following list – in Semester III or Semester IV			
1	SC – PHCM- 01	Fundamentals of Pharma and Healthcare Management	III
2	SC – PHCM- 02	Pharma and healthcare regulatory environment in India	IV
Any 2 ELECTIVE courses to be selected from the following list – either in Semester III or Semester IV			
1	SE – PHCM- 03	Strategic Planning & Healthcare Management	III
2	SE – PHCM- 04	Information Technology in Pharma and Healthcare	III
3	SE – PHCM- 05	Pharmaceutical Import and Export	IV
4	SE – PHCM- 06	Entrepreneurship in Pharma and Healthcare	IV
Specialization – Tourism & Hospitality Management (THM)			
Course No.	Course Code	Course	Semester
2 CORE courses as per the following list – in Semester III & Semester IV			
1	SC – THM – 01	Fundamentals of Hospitality Management	III
2	SC – THM - 02	Tourism & Travel Management	IV
Any 2 ELECTIVE courses to be selected from the following list – either in Semester III or Semester IV			
1	SE – THM - 03	Event Management	III
2	SE – THM - 04	Tourism Planning & Development	III
3	SE – THM - 05	Strategic Hospitality Management	IV
4	SE – THM - 06	Revenue Management	IV
Specialization – International Business Management (IB)			
Course No.	Course Code	Course	Semester
2 CORE courses as per the following list – in Semester III & Semester IV			
1	SC – IB – 01	Import Export Documentation and Procedures	III
2	SC – IB - 02	Global Trade and Logistics Management	IV
Any 2 ELECTIVE courses to be selected from the following list – either in Semester III or Semester IV			
1	SE – IB - 03	Cross Cultural Management and Global Leadership	III
2	SE – IB - 04	International Business and Employment Laws	III
3	SE – IB- 05	Global Competitiveness, Value Chains and Alliances	IV
4	SE – IB- 06	International Banking and Foreign Exchange Management	IV

Savitribai Phule Pune University

B. E. (Mechanical) (2015 Course) Semester – I

Code	Subject	Teaching Scheme Hrs / week			Examination Scheme					Total Marks	Credits	
		Lecture	Tut	Pract	In Sem	End Sem	TW	PR	OR		Theory	TW/ Pr/OR
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-I	-	-	4	-	-	25	-	25	50	-	2
Total		16	-	12	150	350	125	50	75	750	16	6
											22	

B. E. (Mechanical) (2015 Course) Semester – II

Code	Subject	Teaching Scheme Hrs / week			Examination Scheme					Total Marks	Credits	
		Lecture	Tut	Pract	In Sem	End Sem	TW	PR	OR		Theory	TW/ Pr/OR
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-II	-	-	12	-	-	100	-	100	200	-	6
Total		13	-	18	120	280	175	-	175	750	13	9
											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	
Code	Subject	Code	Subject
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**

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

Course Code	Course Name	Teaching Scheme (Hrs./week)			Examination Scheme and Marks						Credit			
		TH	PR	TUT	ISE	ESE	TW	PR	OR	Total	TH	PR	TUT	Total
Semester-V														
302041	Numerical & Statistical Methods	3	-	1	30	70	25	-	-	125	3	-	1	4
302042	Heat & Mass Transfer	3	2	-	30	70	-	50	-	150	3	1	-	4
302043	Design of Machine Elements	3	2	-	30	70	-	-	25	125	3	1	-	4
302044	Mechatronics	3	2	-	30	70	-	-	25	125	3	1	-	4
302045	Elective I	3	-	-	30	70	-	-	-	100	3	-	-	3
302046	Digital Manufacturing Laboratory	-	2	-	-	-	50	-	-	50	-	1	-	1
302047	Skill Development	-	2	-	-	-	25	-	-	25	-	1	-	1
302048	Audit course - V ^{\$}	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	15	10	1	150	350	100	50	50	700	15	5	1	21
Semester-VI														
302049	Artificial Intelligence &Machine Learning	3	2	-	30	70	-	-	25	125	3	1	-	4
302050	Computer Aided Engineering	3	2	-	30	70	-	50	-	150	3	1	-	4
302051	Design of Transmission Systems	3	2	-	30	70	-	-	25	125	3	1	-	4
302052	Elective II	3	-	-	30	70	-	-	-	100	3	-	-	3
302053	Measurement Laboratory	-	2	-	-	-	50	-	-	50	-	1	-	1
302054	Fluid Power &Control Laboratory	-	2	-	-	-	50	-	-	50	-	1	-	1
302055	Internship/Mini project *	-	4	-	-	-	100	-	-	100	-	4	-	4
302056	Audit course - VI ^{\$}	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	12	14	-	120	280	200	50	50	700	12	9	-	21
Elective-I					Elective-II									
302045-A	Advanced Forming & Joining Processes				302052-A			Composite Materials						
302045-B	Machining Science & Technology				302052-B			Surface Engineering						
Abbreviations: TH: Theory, PR: Practical, TUT: Tutorial, ISE: In-Semester Exam, ESE: End-Semester Exam, TW: Term Work, OR: Oral														
Note: Interested students of TE (Automobile Engineering and Mechanical Engineering) can opt for any one of the audit course from the list of audit courses prescribed by BOS (Automobile and Mechanical Engineering)														
Instructions:														
<ul style="list-style-type: none">Practical/Tutorial must be conducted in FOUR batches per division only.Minimum number of Experiments/Assignments in PR/Tutorial shall be carried out as mentioned in the syllabi of respective courses.Assessment of tutorial work has to be carried out similar to term-work. The Grade cum marks for Tutorial and Term-work shall be awarded on the basis of continuous evaluation.^{\$} 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.														