



SOLAPUR UNIVERSITY, SOLAPUR

FACULTY OF ENGINEERING & TECHNOLOGY

ELECTRONICS ENGINEERING

Syllabus Structure for

S.E. (Electronics Engineering) w.e.f. Academic Year 2017-18

T.E. (Electronics Engineering) w.e.f. Academic Year 2018-19

B.E. (Electronics Engineering) w.e.f. Academic Year 2019-20

Choice Based Credit System





SOLAPUR UNIVERSITY, SOLAPUR
FACULTY OF ENGINEERING & TECHNOLOGY
Electronics Engineering

Programme Educational Objectives and Outcomes

A. Program Educational Objectives

1. To make students competent for professional career in Electronics & allied fields.
2. To build strong fundamental knowledge amongst student to pursue higher education and continue professional development in Electronics & other fields
3. To imbibe professional ethics, develop team spirit and effective communication skills to be successful leaders and managers with a holistic approach.
4. To nurture students to be sensitive to ethical, societal & environmental issues while conducting their professional work.

B. Program Outcomes

Engineering Graduate will be able to –

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.





SOLAPUR UNIVERSITY, SOLAPUR
Faculty of Engineering & Technology (Revised from 2016-17)

Credit System structure of S.E. Electronics Engineering W.E.F. 2017-18

Semester I

Course Code	Theory Course Name	Hrs./week			Credits	Examination Scheme				
		L	T	P		ISE	ESE	ICA	Total	
EN211	Engineering Mathematics – III	3	1	–	4	30	70	25	125	
EN212	Electronic Circuit Analysis and Design-I	4	–	–	4	30	70	–	100	
EN213	Network Theory and Analysis	4	–	–	4	30	70	–	100	
EN214	Digital Logic Design	4	–	–	4	30	70	–	100	
EN215	Analog Communication	3	–	–	3	30	70	–	100	
Sub Total		18	1	–	19	150	350	25	525	
ENV21	Environmental Studies	1	–	–	–	–	–	–	1	
Course Code	Laboratory Course Name									
							ESE			
							POE	OE		
EN212	Electronic Circuit Analysis and Design-I	–	–	2	1	–	50*	--	25	75
EN213	Network Theory and Analysis	–	–	2	1	–	–	–	25	25
EN214	Digital Logic Design	--	--	2	1	--	25	--	25	50
EN215	Analog Communication	–	–	2	1	–	--	–	25	25
EN216	Object Oriented Programming with C++	--	1	2	2	–	50	–	50	100
Sub Total		--	1	10	6	–	125		150	275
Grand Total		18	2	10	25	150	475	175	800	

Abbreviations: L- Lectures, P –Practical, T- Tutorial, ISE- In Semester Exam, ESE - End Semester Exam, ICA- Internal Continuous Assessment ESE - University Examination (Theory &/ POE &/Oral examination)

- **Note:**

1. *- Practical and Oral Examination of Electronics Circuit Analysis and Design – I includes some of the practical from Network Theory and Analysis
2. Student is required to study and pass Environmental Science subject in Second Year of Engineering to become eligible for award of degree.
3. Batch size for the practical /tutorial shall be of 20 students. On forming the batches, if the strength of remaining students exceeds 9, then a new batch shall be formed.
4. Vocational Training (evaluated at B.E. Part-I) of minimum 15 days shall be completed in any vacation after S.E. Part-II but before B.E. Part-I & the report shall be submitted and evaluated in B.E. Part-I
5. Student shall select one Self Learning Module at T.E. Part I and T.E. Part II each from Technical and Humanities and Social Sciences Group with at least one Self Learning Module from the Humanities and Social Sciences Group
6. Curriculum for Humanities and Social Sciences Self Learning Modules is common for all under graduate programmes of faculty of Engineering and Technology
7. ICA assessment shall be a continuous process based on student's performance in – class tests, assignments, homework, subject seminars, quizzes, laboratory books and their interaction and attendance for theory and lab sessions as applicable





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Credit System structure of S.E. Electronics Engineering W.E.F. 2017-18

Semester II

Course Code	Theory Course Name	Hrs./week			Credits	Examination Scheme				
		L	T	P		ISE	ESE	ICA	Total	
EN221	Electrical Machines	3	-	-	3	30	70	-	100	
EN222	Electronic Circuit Analysis and Design – II	4	-	-	4	30	70	-	100	
EN223	Data Structures	3	-	-	3	30	70	-	100	
EN224	Linear Integrated Circuits	4	-	-	4	30	70	-	100	
EN225	Signals and Systems	4	1	-	5	30	70	25	125	
Sub Total		18	1	-	19	150	350	25	525	
ENV22	Environmental Studies	1	-	-	-	-	-	-	1	
Course Code	Laboratory Course Name									
							ESE			
							POE	OE		
EN221	Electrical Machines	-	-	2	1	-	-	--	25	25
EN222	Electronic Circuit Analysis and Design – II	-	-	2	1	-	50\$	-	25	75
EN223	Data Structures	-	-	2	1	-	50	-	25	75
EN224	Linear Integrated Circuits	-	-	2	1	-	25	-	25	50
EN226	Software Simulation Tools	-	1	2	2	-	-	-	50	50
Sub Total		--	1	10	6	-	125		150	275
Grand Total		18	2	10	25	150	475		175	800

Abbreviations: L- Lectures, P –Practical, T- Tutorial, ISE- In Semester Exam, ESE - End Semester Exam, ICA- Internal Continuous Assessment ESE - University Examination (Theory &/ POE &/Oral examination)

- Note:

1. \$ Practical and Oral Examination of Electronics Circuit Analysis and Design – II includes some of the simulation practical from Software Simulation Tools
2. Student is required to study and pass Environmental Science subject in Second Year of Engineering to become eligible for award of degree.
3. Batch size for the practical /tutorial shall be of 20 students. On forming the batches, if the strength of remaining students exceeds 9, then a new batch shall be formed.
4. Vocational Training (evaluated at B.E. Part-I) of minimum 15 days shall be completed in any vacation after S.E. Part-II but before B.E. Part-I & the report shall be submitted and evaluated in B.E. Part-I
5. Student shall select one Self Learning Module at T.E. Part I and T.E. Part II each from Technical and Humanities and Social Sciences Group with at least one Self Learning Module from the Humanities and Social Sciences Group
6. Curriculum for Humanities and Social Sciences Self Learning Modules is common for all under graduate programmes of faculty of Engineering and Technology
7. ICA assessment shall be a continuous process based on student's performance in – class tests, assignments, homework, subject seminars, quizzes, laboratory books and their interaction and attendance for theory and lab sessions as applicable





SOLAPUR UNIVERSITY, SOLAPUR
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Credit System structure of T.E. Electronics Engineering W.E.F. 2018-19

Semester I

Course Code	Theory Course Name	Hrs./week			Credits	Examination Scheme			
		L	T	P		ISE	ESE	ICA	Total
EN311	Control Systems	3	1	–	4	30	70	--	100
EN312	Digital Signal Processing	4	–	–	4	30	70	-	100
EN313	Microcontrollers	4	-	–	4	30	70	-	100
EN314	Electro Magnetic Engineering	4	1	–	5	30	70	25	125
EN315	Information Technology & Management	3	–	–	3	30	70	25	125
SLH31	Self Learning Module I	–	–	–	2	--	50	–	50
EN317	Programming with Java	2	-	-	2	--	--	50	50
Sub Total		20	2	–	24	150	400	100	650
Course Code	Laboratory Course Name								
							ESE		
							POE	OE	
EN311	Control Systems	–	–	2	1	–	--	--	25
EN312	Digital Signal Processing	–	–	2	1	–	--	25	25
EN313	Microcontrollers	--	--	2	1	--	50	--	25
EN317	Programming with Java	–	–	2	1	–	50	–	50
Sub Total		--	-	8	4	–	125		75
Grand Total		20	2	8	28	150	525	175	850

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Credit System structure of T.E. Electronics Engineering W.E.F. 2018-19

Semester II

Course Code	Theory Course Name	Hrs./week			Credits	Examination Scheme			
		L	T	P		ISE	ESE	ICA	Total
EN321	Operating Systems	3	-	-	3	30	70	-	100
EN322	Digital Communication	3	-	-	3	30	70	-	100
EN323	Embedded Systems	4	-	-	4	30	70	-	100
EN324	Industrial Electronics	4	-	-	4	30	70	-	100
EN325	VLSI Design	4	-	-	4	30	70	-	100
EN326	Self Learning Module II	-	-	-	2	--	50	-	50
Sub Total		18	-	-	20	150	400	-	550
Course Code	Laboratory Course Name								
							ESE		
							POE	OE	
EN321	Operating Systems	-	-	2	1	-	-	-	25
EN322	Digital Communication	-	-	2	1	-	-	25	25
EN323	Embedded Systems	-	-	2	1	-	50	-	25
EN324	Industrial Electronics	-	-	2	1	-	50	-	25
EN325	VLSI Design	-	-	2	1	-	-	-	25
EN327	Mini Hardware Project	-	-	2	1	-	-	-	50
Sub Total		-	-	12	6	-	125		175
Grand Total		18	-	12	26	150	525		850

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• **Note –**

1. Batch size for the practical /tutorial shall be of 15 students. On forming the batches, if the strength of remaining student exceeds 7, then a new batch shall be formed.
2. Vocational Training (evaluated at B.E. Part-I) of minimum 15 days shall be completed in any vacation after S.E. Part-II but before B.E. Part-I & the report shall be submitted and evaluated in B.E. Part-I
3. Student shall select one Self Learning Module at T.E. Part I and T.E. Part II each from Technical and Humanities and Social Sciences Group with at least one Self Learning Module from the Humanities and Social Sciences Group
4. Curriculum for Humanities and Social Sciences Self Learning Modules is common for all under graduate programmes of faculty of Engineering and Technology
5. Minimum four assignments for Self Learning Modules at T.E. Part I and T.E. Part II shall be submitted by the students which shall be evaluated by a Module Coordinator assigned by institute / department
6. Project group for T.E.(Electronics) Part II Mini Project shall not be of more than **three** student
7. Project group for B.E.(Electronics) Part I and Part II shall not be of more than **three** student.
8. ICA assessment shall be a continuous process based on student's performance in – class tests, assignments, homework, subject seminars, quizzes, laboratory books and their interaction and attendance for theory and lab sessions as applicable





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Credit System structure of B.E. Electronics Engineering W.E.F. 2019-20

Semester I

Course Code	Theory Course Name	Hrs./week			Credits	Examination Scheme				
		L	T	P		ISE	ESE	ICA	Total	
EN411	Power Electronics	4	–	–	4	30	70	--	100	
EN412	Computer Networks	4	–	–	4	30	70	-	100	
EN413	Mobile Technology	4	-	–	4	30	70	25	125	
EN414	Internet of Things	3	1	–	4	30	70	–	100	
EN415A to EN415D	Elective - I	3	1	–	4	30	70	25	125	
Sub Total		18	2	–	20	150	350	50	550	
Course Code	Laboratory Course Name									
							ESE			
							POE	OE		
EN411	Power Electronics	–	–	2	1	–	50	--	25	75
EN412	Computer Networks	–	–	2	1	–	–	25	25	50
EN414	Internet of Things	--	--	2	1	--	--	25	25	50
EN416	Project- I	–	–	4	2	–	–	–	50	50
EN417	Vocational Training	–	–	–	1	–	–	–	25	25
Sub Total		--	-	10	6		100		150	250
Grand Total		18	2	10	26	150	450	200	800	

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Semester II

Course Code	Theory Course Name	Hrs./week			Credits	Examination Scheme			
		L	T	P		ISE	ESE	ICA	Total
EN421	Advanced Communication Engineering	4	–	–	4	30	70	–	100
EN422	Audio Video Systems	4	–	–	4	30	70	–	100
EN423	Electronic System Design	3	1	–	4	30	70	25	125
EN424A to EN424D	Elective – II	3	1	–	4	30	70	25	125
Sub Total		14	2	–	16	120	280	50	450
Course Code	Laboratory Course Name								
							ESE		
							POE	OE	
EN421	Advanced Communication Engineering	–	–	2	1	–	50	–	75
EN422	Audio Video Systems	–	–	2	1	–	–	–	25
EN423	Electronic System Design	–	–	2	1	–	–	25	50
EN425	Project- II	–	–	8	4	–	–	100	200
Sub Total				14	7	–		175	350
Grand Total		14	2	14	23	120	455	225	800

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<i>Elective I</i>		<i>Elective II</i>	
<i>Course Code</i>	<i>Course</i>	<i>Course Code</i>	<i>Course</i>
EN415A	Biomedical Instrumentation	EN424A	Broadband Communication
EN415B	Mechatronics	EN424B	PLC and Industrial Controllers
EN415C	Image Processing	EN424C	Speech Processing
EN415D	Database Management Systems	EN424D	Data Analytics

• **Note –**

1. Batch size for the practical /tutorial shall be of 15 students. On forming the batches, if the strength of remaining students exceeds 7, then a new batch shall be formed.
2. Vocational Training (evaluated at B.E. Part-I) of minimum 15 days shall be completed in any vacation after S.E. Part-II but before B.E. Part-I & the report shall be submitted and evaluated in B.E. Part-I
3. Appropriate Elective I & II Subjects may be added when required.
4. Project group for B.E. (Electronics) Part I and Part II shall not be of more than **three** students.
5. ICA assessment shall be a continuous process based on student's performance in – class tests, assignments, homework, subject seminars, quizzes, laboratory books and their interaction and attendance for theory and lab sessions as applicable

