SOLAPUR UNIVERSITY, SOLAPUR

FACULTY OF ENGINEERING & TECHNOLOGY

INFORMATION TECHNOLOGY

Syllabus Structure for

S.E. (Information Technology) w.e.f. Academic Year 2017-18

T.E. (Information Technology) w.e.f. Academic Year 2018-19

B.E. (Information Technology) w.e.f. Academic Year 2019-20

Choice Based Credit System

Programme Educational Objectives and Outcomes

A. Program Educational Objectives

1. To build a strong foundation in mathematics, science & technology in students required to prepare them for Graduate studies and research.
2. To prepare students to apply knowledge of core & application domain, to analyze & design complex engineering problems using latest technologies & tools.
3. To develop effective communication, presentation skills and management principles in students and enable them to apply these in their work as a member or a leader in a team for managing projects.
4. To promote awareness for life-long learning, environment, sustainability, health & safety, economics etc. in students and to introduce them to professional ethics to build a good social personality.

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
Second Year Information Technology

Choice Based Credit System Syllabus Structure of S.E. Information Technology W.E.F. 2017-2018

Semester I

Course Code	Theory Course Name	Hrs./week			Credits	Examination Scheme			
		L	T	P		ISE	ESE	ICA	Total
IT211	Applied Mathematics - I	3	1	--	4	30	70	25	125
IT212	Discrete Mathematical Structure	3	1	--	4	30	70	25	125
IT213	Data Communication	3	--	--	3	30	70	--	100
IT214	Digital Logic Design	3	--	--	3	30	70	--	100
IT215	Computer Graphics	3	--	--	3	30	70	--	100
IT216	Programming in C	3	--	--	3	--	--	--	--
	Sub Total	18	2	--	20	150	350	50	550
ENV21	Environmental Science	1	-	-	-	-	-	-	1

| Course Code | Laboratory Course Name | | | | | | ESE | | |
							POE	OE	
IT213	Data Communication	--	--	2	1	--	50	--	25	75
IT214	Digital Logic Design	--	--	2	1	--	50	--	25	75
IT215	Computer Graphics	--	--	2	1	--		--	25	25
IT216	Programming in C	--	--	4	2	--	50	--	25	75
	Sub Total	--	--	10	5	--	150		100	250
	Grand Total	18	2	10	25	150	500		150	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. Student is required to study and pass Environmental Science subject in Second Year of Engineering to become eligible for award of degree.

2. 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.

3. 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

4. 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

5. Curriculum for Humanities and Social Sciences Self Learning Modules is common for all under graduate programmes of faculty of Engineering and Technology

6. 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

Choice Based Credit System Structure of S.E. Information Technology W.E.F. 2017-2018

Semester II

Course Code	Theory Course Name	Hrs./week L	T	P	Credits	ISE	ESE	ICA	Total
IT221	Applied Mathematics – II	3	1	--	4	30	70	25	125
IT222	Theory of Computation	3	1	--	4	30	70	25	125
IT223	Microprocessor	3	--	--	3	30	70	--	100
IT224	Data Structures	3	--	--	3	30	70	--	100
IT225	Computer Networks	3	--	--	3	30	70	--	100
IT226	Object Oriented Programming through C++	3	--	--	3	--	--	--	--
ENV22	Environmental Science	1	-	-	-	-	-	-	1
	Sub Total	18	2	--	20	150	350	50	550

Course Code	Laboratory Course Name						ESE POE	OE		
IT223	Microprocessor	--	--	2	1	--	50	--	25	75
IT224	Data Structures	--	--	4	2	--	50	--	25	75
IT225	Computer Networks	--	--	2	1	--	-	--	25	25
IT226	Object Oriented Programming through C++	--	--	2	1	--	50	--	25	75
	Sub Total		_	10	5		150		--	250
	Grand Total	18	2	10	25	150	500		--	800

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Note

1. Student is required to study and pass Environmental Science subject in Second Year of Engineering to become eligible for award of degree.

2. 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.

3. 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

4. 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

5. Curriculum for Humanities and Social Sciences Self Learning Modules is common for all under graduate programmes of faculty of Engineering and Technology

6. 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
Faculty of Engineering & Technology
Third Year Information Technology

Choice Based Credit System Syllabus Structure of T.E. Information Technology W.E.F. 2018-2019

Course Code	Theory Course Name	Hrs./week L	Hrs./week T	Hrs./week P	Credits	ISE	ESE	ICA	Total
IT311	Principles of Operating System	3	--	--	3	30	70	--	100
IT312	System Software	3	--	--	3	30	70	--	100
IT313	Design and Analysis of Algorithms	3	1	--	3	30	70	25	125
IT314	Database Engineering	3	--	--	3	30	70	--	100
IT315	Computer Organization and Architecture	3	1	--	3	30	70	25	125
IT316	Java Programming	3	--	--	3	--	--	--	--
SLH31	Self Learning Module-I	--	--	--	2	--	50	--	50
	Sub Total	18	2	–	20	150	400	50	600

Course Code	Laboratory Course Name						ESE POE	ESE OE		
IT311	Principles of Operating System	–	–	2	1	–	50	--	25	75
IT312	System Software	–	–	2	1	–	--	–	25	25
IT314	Database Engineering	--	--	2	1	--	50	--	25	75
IT316	Java Programming	–	–	4	2	–	50	–	25	75
	Sub Total	--	-	10	5	–	150		75	250
	Grand Total	18	2	10	25	150	550		125	850

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Choice Based Credit System Structure of T.E. Information Technology W.E.F. 2018-2019

Semester II

Course Code	Theory Course Name	Hrs./week			Credits	Examination Scheme			
		L	T	P		ISE	ESE	ICA	Total
IT321	Unix Operating System	4	--	--	4	30	70	--	100
IT322	Software Engineering	3	1	--	4	30	70	25	125
IT323	Object Oriented Modeling and Design	3	1	--	4	30	70	25	125
IT324	Artificial Intelligence	3	--	--	3	30	70	--	100
IT325	Mobile Application Development	3	--	--	3	30	70	--	100
IT326	Python Programming	2	--	--	2	--	--	--	--
IT327	Self Learning Module-II	--	--	--	2	--	50	--	50
	Sub Total	18	2	--	22	150	400	50	600

Course Code	Laboratory Course Name						ESE			
							POE	OE		
IT321	Unix Operating System	--	--	2	1	--	--	25	25	50
IT324	Artificial Intelligence	--	--	2	1	--	--	--	25	25
IT325	Mobile Application Development	--	--	2	1	--	50	_	25	75
IT326	Python Programming	--	--	2	1	--	50	_	25	75
IT328	Seminar	--	--	2	1	--	--	--	25	25
	Sub Total		--	10	5	--	125		125	250
	Grand Total	18	2	10	27	150	525		175	850

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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 groups for B.E. (I.T.) Part I and Part II formed at TE(IT) Part II for seminar shall not be of more than **five** students.

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
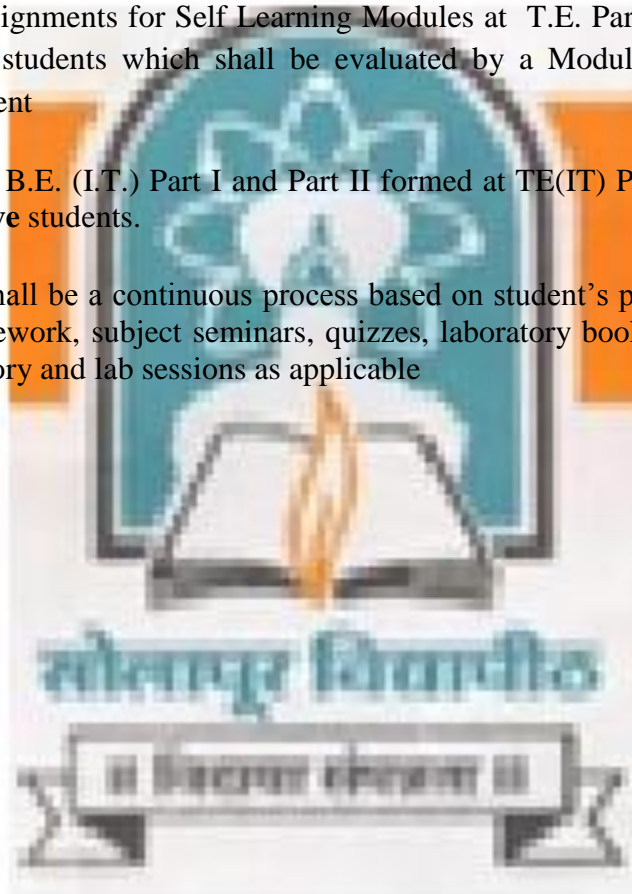
SOLAPUR UNIVERSITY, SOLAPUR
Faculty of Engineering & Technology
Final Year Information Technology

Choice Based Credit System Syllabus Structure of B.E. Information Technology W.E.F. 2019-2020

Semester I

Course Code	Theory Course Name	L	T	P	Credits	ISE	ESE	ICA	Total
		Hrs./week				**Examination Scheme**			
IT411	Management Information System	3	--	_	3	30	70	--	100
IT412	Advanced Database System	4	--	_	4	30	70	--	100
IT413	Software Testing and Quality Assurance	3	-	_	3	30	70	25	125
IT414	Mobile Computing	3	--	_	3	30	70	--	100
IT415A to IT415D	Elective-I	3	--	_	3	30	70	25	125
IT416	C# .Net	2	--	--	2	--	--	--	--
IT417	Project-I	--	4	--	4	--	--	75	75
	Sub Total	18	4	--	22	150	350	125	625

Course Code	Laboratory Course Name	L	T	P	Credits	POE	OE	ICA	Total
						ESE			
IT411	Management Information System	--	--	2	2	--	--	25	25
IT412	Advanced Database System	--	--	2	2	50	--	25	75
IT414	Mobile Computing	--	--	2	2	--	--	25	25
IT416	C# .Net	--	--	2	2	50	--	25	75
IT418	Vocational Training	--	--	--	--	--	--	25	25
	Sub Total	--	--	8	8	--	100	125	225
	Grand Total	18	4	8	30	150	450	250	850

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Choice Based Credit System Structure of B.E. Information Technology W.E.F. 2019-2020

Semester II

Course Code	Theory Course Name	Hrs./week			Credits	Examination Scheme			
		L	T	P		ISE	ESE	ICA	Total
IT421	Information Retrieval	4	--	--	4	30	70	--	100
IT422	Machine Learning	3	--	--	3	30	70	--	100
IT423	Information Assurance and Security	4	--	--	4	30	70	25	125
IT424A to IT424D	Elective –II	3	2	--	5	30	70	25	125
IT425	Web Technology	2	--	--	2	--	--	--	--
	Sub Total	16	2	--	18	120	280	50	450

Course Code	Laboratory Course Name								
							ESE		
							POE	**OE**	
IT421	Information Retrieval	--	--	2	1	--	50	--	25	75
IT422	Machine Learning	--	--	2	1	--	--	--	25	25
IT425	Web Technology	--	--	2	1	--	50	--	25	75
IT426	Project-II	--	--	6	3	--	100	--	75	175
	Sub Total	--	--	12	6	--	200		150	350
	Grand Total	16	2	12	24	120	480		250	800

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Elective I		Elective II	
Course Code	Course	Course Code	Course
IT415A	Data Mining	IT424A	Business Intelligence
IT415B	Image Processing	IT424B	Pattern Recognition
IT415C	Distributed Computing	IT424C	Cloud Computing
IT415D	Microcontroller and Embedded System	IT424D	Internet of Things

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. (Information Technology) Part I and Part II shall not be of more than **five** 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