	Semester I	Credits	Hours/Week			IA	ЕоТЕ
							Marks
			L	Т	Р		
101	Applied Database	4	3	1	-	40	60
	Management Systems						
102	Computer Networks	4	3	1	-	40	60
103	Java Programming	4	3	1	-	40	60
104	Computational Statistics	4	3	1	-	40	60
105	Management Concepts and	4	3	1	-	40	60
	Applications						
106	Lab on Applied Database	3		0	4	40	60
	Management Systems		1				
107	Lab on Java Programming	3	0	0	6	40	60
108	MOOCS Based General	2		-	-	50	00
	Course 1 (Soft Sills) (GE-1)		0				
		28	16		10	330	420
				05			

SEMESTER WISE COURSE STRCTURE

	Semester II	Credits	Hours/Week			IA	EoTE
						Marks	Marks
			L	Т	Р		
201	Object Oriented Software Engineering	4	3	1	-	40	60
202	Cloud Computing Concepts	4	3	1	-	40	60
203	Data structures using Python	4	3	1	-	40	60
204	Data Warehousing and Data Mining	4	3	1	-	40	60
205	Web Supporting Technologies	4	2	1	4	40	60
206	Lab on Data Structures using Python	3	0	0	6	40	60
207	Minor Project – 1	3	3	-	-	00	100
208	MOOCS Based General	2		-	-	50	00
	Course 2 (GE-2)		0				
		28	17	05	10	290	460

	Semester III	Credits	Hours/Week			IA Marks	EoTE Marks
-			L	Т	Р	Widi Ko	THAT KS
301	Software Design Patterns	4	3	1	-	40	60
302	Artificial Intelligence	4	3	1	-	40	60
303	Information Security	4	3	1	-	40	60
304	EL-GRP-1 (A)	3	2	1	-	100	-
305	EL-GRP-2 (A)	3	2	1	-	100	-
306	Lab on Software Testing	3	1	0	4	40	60
307	Minor Project – 2	3	3	-	-	00	100
308	MOOCS Based General	2		-	-	50	00
	Course 3 (GE-3)		0				
		26	17	05	04	410	340

	Semester IV	Credits	Hours/Week			IA Marks	EoTE Marks
			L	Т	Р		
401	Seminar on Recent Trends in IT [#]	4	-	-	-		100
402	El-GRP - 1 (B)	3	2	1	-	100	-
403	El-GRP –2 (B)	3	2	1	-	100	-
404	Major Internship Project	10	-	-	-	-	100
		20	04	02	-	200	200

List of Elective Groups:

Elective	Elective Group	Subject	Subjects					
Code		Code						
01	Cloud Computing	А	Virtualization					
		В	AWS					
02	Data Science	А	Statistical Programming in R					
		В	Introduction to Data Science					
03 Linux		А	Linux Desktop Environment, Shell Programming and System Administration					
		В	Linux Internals and Network Administration					
04	Open Source	А	Perl Scripting					
	Technologies	В	Ruby					
05 Mobile Computing		А	Java Script					
		В	Android					
06	Dot Net Technologies	А	C# Programming and Applications					
		В	ASP Dot Net with MVC					
07	Net Centric	А	HTML 5					
	rechnologies	В	AJAX Programming					
08	Information Systems	А	Recommender System					
		В	Knowledge Management					
09	IOT	А	IoT Architecture Sensors and Fundamentals with Hands-on lab					
		В	Internet Of Things: Sensing And Actuator Devices and Smart city use case					
10	Big Data	А	Introduction to Big Data					
		В	Business Intelligence Tools With Hadoop					
11	Cyber Security	А	Introduction to Information Security					
		В	Information Security Threats and Mitigation Strategies					

Practical Examinations:

For courses 106, 107, 205, 206 and 306, University Practical Examination will be held and marks will be reported to the University.

MOOC'S based General Course (108, 208, 308):

Students will complete MOOCS course prescribed by institute from NPTEL / Swayam in respective semesters and will be evaluated at institute level based on the assignments submitted by the students and the institute level exam on that subjects. The respective institute will report the marks obtained by students in these courses at the end of the semester.

Project Guidelines:

Minor Project I (207) and Minor Project II (307)

Students are expected to choose a problem which will provide software solutions. The project should be based on the courses learnt by the student in previous semester. The projects can be completed as individual project or if the scope of the project is comprehensive then project can be divided into modules by the project guide and a group of student can work on it. The number of students in the group can be decided by project guide and it should not be less than 2 and more than 4. Every student or group must have meeting about progress of project with their project guide regularly as specified in time table or if required at a communicated by guide.

The project dissertation/document is expected to be created and it should have the following contents.

- a. SRS Problem Statement, BRD- Business Requirement Document
- b. General Requirement
- c. Requirement as per user Role
- d. System design (RED/Class Diagrams, DFD/Activity diagrams)
- e. User screen design and client side validation
- f. Database Design
- g. User interface design /user manual
- h. Test cases
- i. Scope and limitation
- j. Conclusion
- k. Bibliography

Major Internship Project (404)

The student is expected to get exposure of industry through 'Major Internship Project'. Guidelines about project are as bellow.

- 1. Every project will be evaluated by University appointed panel of examiners at the end of the semester.
- 2. Student must report about the progress of project to the internal project guide regularly as specified in time table or if required at a time given by guide.

Seminar on Recent Trends in IT: (401)

Student will select any topic of interest and study it thoroughly throughout the semester. At the end of the semester, student will give a presentation on the topic before the panel appointed by the University and submit the seminar report.

Bridge Course:

This course of 30 hours duration is designed and compulsory for the students from Non-IT background. The course can be conducted concurrently with semester I courses. The evaluation of this course will be at institute level for 100 marks. The student must score minimum 40 marks to pass in this course. There will be no credits assigned to this Bridge Course. A separate course work completion certificate will be issued to students.

Subject Name	Course Work
No. of Credits	00
Pre Requisite	Basic Mathematics and MSCIT course
Cognitive Abilities	Course Outcome as per Blooms Taxonomy
Remembering	Basic formula for finding areas, volumes, graphical representation of data is to be remembered.
Understanding	The calculations by using formulas, algorithm ,C program structure are to be understood
Applying	Application of basic knowledge of mathematics and computers is to be applied for calculations and for writing programming codes.
Analyzing	Programs which are to be written are analysed and put in a particular format such as graphs, trees for effective working
Evaluating	New programs or problems are to be evaluated through algorithms, logic
Creating	Creating proper program logic so as to reduce lines of codes is expected .
Syllabus	
	Unit 1: (4 Hours) Algorithm ,flow charts, integers, division, relations, relations and their types, representation of relation in computer memory, number conversion systems.

	Unit 2: (4 Hours)				
	Set theory, predicate logic, Graph terminologies, types of graphs,				
	representation of graph in computers, Paths, Eular and Hamilton graphs,				
	graph colorings.				
	Unit 3 : (3 Hours)				
	Trees ,applications of trees, tree traversal algorithms, minimum				
	spanning trees				
	Unit 4 : (5 Hours)				
	Fundamentals of C programming, Keywords and Identifiers, Constants,				
	Variables, Data types, Declaration of variables, Declaration of variables				
	as constant, Operators, Types of operators, Input and Output functions -				
	printf(), scanf(), getchar(), putchar(), Formatted input and formatted				
	output.				
	Unit 5: (7 Hours)				
	Control Statements- Sequential, Selection, Iteration Statements,				
	Branching structure- if statement, if-else statement, Nested if-else				
	statement, else if Ladder, Conditional operator, switch statement, Loop				
	control structures- while loop, do-while loop, for loop, Nested for loop,				
	Jump statements-break, continue, goto statements.				
	Unit 6: (5 Hours)				
	Function call, return statement, Function parameters, Types of functions,				
	Arrays and functions				
	Unit 7: (2 Hours)				
	Introduction to OOP concepts.				
Text Books	1.Discrete Structures by Kenneth Rosen				
	2.C programming by Yashwant Kanetkar				
	3. Object Oriented Programming by Balguruswamy				
Reference Books	C Programming language by Brain W. Kernighan				