

13. COURSES OF STUDY AND SCHEME OF ASSESSMENT

M Sc SOFTWARE SYSTEMS

(2015 REGULATIONS)
(TOTAL CREDITS TO BE EARNED: 211*)

Course Code	Course Title	Hours/Week			Credits	Maximum marks			CAT
		Lecture	Tutorial	Practical		CA	FE	Total	
I SEMESTER									
15XW11	CALCULUS AND ITS APPLICATIONS	3	2	0	4	50	50	100	BS
15XW12	ENGLISH FOR PROFESSIONAL SKILLS	3	0	0	3	50	50	100	HS
15XW13	MATERIALS SCIENCE	4	0	0	4	50	50	100	BS
15XW14	ANALOG AND DIGITAL ELECTRONICS	4	0	0	4	50	50	100	BS
15XW15	C PROGRAMMING	3	0	0	3	50	50	100	PC
15XW16	ENGINEERING GRAPHICS AND GEOMETRIC MODELING	0	0	4	2	100	-	100	ES
15XW17	C PROGRAMMING LAB	0	0	4	2	100	-	100	PC
15XW18	MATERIAL SCIENCE AND DIGITAL ELECTRONICS LAB	0	0	4	2	100	-	100	BS
15XW29	PERSONALITY AND CHARACTER DEVELOPMENT	0	0	** Refer Sem 2 and footnote					MC
Total 31 hrs		17	2	12	24	550	250	800	
II SEMESTER									
15XW21	PROBABILITY AND STATISTICS	3	2	0	4	50	50	100	BS
15XW22	APPLIED LINEAR ALGEBRA	3	2	0	4	50	50	100	BS
15XW23	DATA STRUCTURES AND ALGORITHMS	3	0	0	3	50	50	100	PC
15XW24	OBJECT ORIENTED PROGRAMMING	3	0	0	3	50	50	100	PC
15XW25	COMPUTER ORGANIZATION	3	0	0	3	50	50	100	PC
15XW26	OBJECT COMPUTING LAB	0	0	4	2	100	-	100	PC
15XW27	DATA STRUCTURES LAB	0	0	4	2	100	-	100	PC
15XW28	WEB DESIGNING LAB	0	0	4	2	100	-	100	PC
15XW29	PERSONALITY AND CHARACTER DEVELOPMENT	0	0	** Grade - - -					MC
Total 31 hrs		15	4	12	23	550	250	800	

* Indicated is the minimum number of credits to be earned by a student.

CA – Continuous Assessment; FE - Final Examination; CAT – Category; BS – Basic Sciences; HS – Humanities & Social Sciences; ES – Engineering Sciences; PC – Professional Core; PE – Professional Elective; OE – Open Elective; EEC – Employability Enhancement Course; MC – Mandatory Course.

** - Total 40 hrs in semesters I & II put together.

Grade: Completed / Not Completed.

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Course Code	Course Title	Hours/Week			Credits	Maximum marks			CAT
		Lecture	Tutorial	Practical		CA	FE	Total	
III SEMESTER									
15XW31	DISCRETE STRUCTURES	3	2	0	4	50	50	100	BS
15XW32	DATA BASE MANAGEMENT SYSTEM	3	0	0	3	50	50	100	PC
15XW33	TRANSFORM TECHNIQUES	3	2	0	4	50	50	100	BS
15XW34	ADVANCED DATA STRUCTURES	3	0	0	3	50	50	100	PC
15XW35	MICROPROCESSOR SYSTEMS AND PROGRAMMING	3	0	0	3	50	50	100	PC
15XW36	RDBMS LAB	0	0	4	2	100	-	100	PC
15XW37	ADVANCED DATA STRUCTURES LAB	0	0	4	2	100	-	100	PC
15XW38	ASSEMBLY LANGUAGE PROGRAMMING LAB	0	0	4	2	100	-	100	PC
Total 31 hrs		15	4	12	23	550	250	800	
IV SEMESTER									
15XW41	ACCOUNTING AND FINANCIAL MANAGEMENT	4	0	0	4	50	50	100	BS
15XW42	DATA COMMUNICATION NETWORKS	3	0	0	3	50	50	100	PC
15XW43	OPTIMIZATION TECHNIQUES	4	0	0	4	50	50	100	BS
15XW44	OPERATING SYSTEMS	3	2	0	4	50	50	100	PC
15XW45	SOFTWARE ENGINEERING TECHNIQUES	3	0	0	3	50	50	100	PC
15XW46	COMPUTER NETWORKS LAB	0	0	4	2	100	-	100	PC
15XW47	WINDOWS PROGRAMMING LAB	0	0	4	2	100	-	100	PC
15XW48	MATHEMATICAL COMPUTING LAB	0	0	4	2	100	-	100	BS
Total 31 hrs		17	2	12	24	550	250	800	

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Course Code	Course Title	Hours/Week			Credits	Maximum marks			CAT
		Lecture	Tutorial	Practical		CA	FE	Total	
V SEMESTER									
15XW51	UNIX ARCHITECTURE AND PROGRAMMING	3	0	0	3	50	50	100	PC
15XW52	JAVA PROGRAMMING	3	0	0	3	50	50	100	PC
15XW53	TCP/IP NETWORKS AND APPLICATIONS	3	0	0	3	50	50	100	PC
15XW54	OBJECT ORIENTED ANALYSIS AND DESIGN	3	2	0	4	50	50	100	PC
15XW55	PROFESSIONAL ELECTIVE – I	3	2	0	4	50	50	100	PE
15XW56	JAVA PROGRAMMING LAB	0	0	4	2	100	-	100	PC
15XW57	TCP/IP APPLICATIONS LAB	0	0	4	2	100	-	100	PC
15XW58	UNIX SHELL AND SYSTEM PROGRAMMING LAB	0	0	4	2	100	-	100	PC
Total 31 hrs		15	4	12	23	550	250	800	
VI SEMESTER									
15XW61	PRINCIPLES OF COMPILER DESIGN	3	0	0	3	50	50	100	PC
15XW62	MACHINE LEARNING	3	0	0	3	50	50	100	PC
15XW63	SOFTWARE PATTERNS	3	2	0	4	50	50	100	PC
15XW64	SOFTWARE TESTING	3	2	0	4	50	50	100	PC
15XW65	OPEN ELECTIVE I	3	2	0	4	50	50	100	OE
15XW66	PRINCIPLES OF COMPILER DESIGN LAB	0	0	4	2	100	-	100	PC
15XW67	MACHINE LEARNING LAB	0	0	2	1	100	-	100	PC
15XW68	DISTRIBUTED ENTERPRISE COMPUTING LAB	0	0	4	2	100	-	100	PC
Total 31 hrs		15	6	10	23	550	250	800	
VII SEMESTER									
15XWP1	PROJECT WORK I	0	0	-	12	50	50	100	EEC

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Course Code	Course Title	Hours/Week			Credits	Maximum marks			CAT
		Lecture	Tutorial	Practical		CA	FE	Total	
VIII SEMESTER									
15XW81	DATA MINING	3	0	0	3	50	50	100	PC
15XW82	SOFT COMPUTING	3	0	0	3	50	50	100	PC
15XW83	SOFTWARE PROJECT MANAGEMENT	3	2	0	4	50	50	100	PC
15XW84	PROFESSIONAL ELECTIVE II	3	2	0	4	50	50	100	PE
15XW85	OPEN ELECTIVE II	3	2	0	4	50	50	100	OE
15XW86	DATA MINING LAB	0	0	4	2	100	-	100	PC
15XW87	SOFT COMPUTING LAB	0	0	4	2	100	-	100	EEC
15XW88	CASE STUDY LAB	0	0	4	2	100	-	100	PC
Total 33 hrs		15	6	12	24	550	250	800	
IX SEMESTER									
15XW91	PRINCIPLES OF MANAGEMENT AND BEHAVIOURAL SCIENCE	3	0	0	3	50	50	100	HS
15XW92	WEB SERVICES	3	0	0	3	50	50	100	PC
15XW93	INFORMATION RETRIEVAL	3	0	0	3	50	50	100	PC
15XW94	PROFESSIONAL ELECTIVE III	3	2	0	4	50	50	100	PE
15XW95	PROFESSIONAL ELECTIVE IV	3	2	0	4	50	50	100	PE
15XW96	INFORMATION RETRIEVAL LAB	0	0	4	2	100	-	100	PC
15XW97	WEB SERVICES LAB	0	0	4	2	100	-	100	PC
15XW98	OPEN SOURCE SOFTWARE LAB	0	0	4	2	100	-	100	PC
Total 31 hrs		15	4	12	23	550	250	800	
X SEMESTER									
15XWP2	PROJECT WORK II	0	0	-	12	50	50	100	EEC

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Course Code	Course Title	Hours/Week			Credits	Maximum marks			CAT
		Lecture	Tutorial	Practical		CA	FE	Total	
PROFESSIONAL ELECTIVE THEORY COURSES (Four to be opted)									
15XWA1	MODELLING AND SIMULATION	3	2	0	4	50	50	100	PE
15XWA2	ADVANCED DATABASE MANAGEMENT SYSTEMS	3	2	0	4	50	50	100	PE
15XWA3	SOFTWARE METRICS	3	2	0	4	50	50	100	PE
15XWA4	PARALLEL AND DISTRIBUTED COMPUTING	3	2	0	4	50	50	100	PE
15XWA5	DATA COMPRESSION	3	2	0	4	50	50	100	PE
15XWA6	COMPUTER GRAPHICS AND VISUALIZATION	3	2	0	4	50	50	100	PE
15XWA7	REAL TIME AND EMBEDDED SYSTEMS	3	2	0	4	50	50	100	PE
15XWA8	MOBILE COMPUTING	3	2	0	4	50	50	100	PE
15XWA9	SERVICE ORIENTED ARCHITECTURE	3	2	0	4	50	50	100	PE
15XWAA	PRINCIPLES OF PROGRAMMING LANGUAGES	3	2	0	4	50	50	100	PE
15XWAB	AGILE SOFTWARE DEVELOPMENT	3	2	0	4	50	50	100	PE
15XWAC	SYSTEM SECURITY	3	2	0	4	50	50	100	PE
15XWAD	PERVASIVE COMPUTING	3	2	0	4	50	50	100	PE
15XWAE	SEMANTIC WEB	3	2	0	4	50	50	100	PE
15XWAF	CLOUD COMPUTING	3	2	0	4	50	50	100	PE
15XWAG	HUMAN COMPUTER INTERACTION	3	2	0	4	50	50	100	PE
15XWAH	SOCIAL NETWORK ANALYSIS	3	2	0	4	50	50	100	PE
15XWAI	ADVANCED COMPUTER GRAPHICS	3	2	0	4	50	50	100	PE
15XWAJ	COMPUTER VISION AND IMAGE ANALYSIS	3	2	0	4	50	50	100	PE
15XWAK	BIG DATA ANALYTICS	3	2	0	4	50	50	100	PE

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Course Code	Course Title	Hours/Week			Credits	Maximum marks			CAT
		Lecture	Tutorial	Practical		CA	FE	Total	
OPEN ELECTIVE THEORY COURSES (Two to be opted)									
15XWO1	ENTREPRENEURSHIP	3	2	0	4	50	50	100	OE
15XWO2	COMPUTER FORENSICS	3	2	0	4	50	50	100	OE
15XWO3	WIRELESS NETWORKS	3	2	0	4	50	50	100	OE
15XWO4	RANDOMIZED ALGORITHMS	3	2	0	4	50	50	100	OE
15XWO5	DATA VISUALIZATION	3	2	0	4	50	50	100	OE
15XWO6	APPLIED GRAPH THEORY	3	2	0	4	50	50	100	OE
15XWO7	CRYPTOGRAPHY	3	2	0	4	50	50	100	OE

Labeling and Grouping of Courses

HUMANITIES AND SOCIAL SCIENCES (HS)				
S.No.	Course Code	Course Title	L:T:P:C	Preferred Semester
1	15XW12	ENGLISH FOR PROFESSIONAL SKILLS	3:0:0:3	I
2	15XW91	PRINCIPLES OF MANAGEMENT AND BEHAVIOURAL SCIENCE	3:0:0:3	IX

BASIC SCIENCES (BS)				
S.No.	Course Code	Course Title	L:T:P:C	Preferred Semester
1	15XW11	CALCULUS AND ITS APPLICATIONS	3:2:0:4	I
2	15XW13	MATERIAL SCIENCE	4:0:0:4	I
3	15XW14	ANALOG AND DIGITAL ELECTRONICS	4:0:0:4	I
4	15XW18	MATERIAL SCIENCE AND DIGITAL ELECTRONICS LAB	0:0:4:2	I
5	15XW21	PROBABILITY AND STATISTICS	3:2:0:4	II
6	15XW22	APPLIED LINEAR ALGEBRA	3:2:0:4	II
7	15XW31	DISCRETE STRUCTURES	3:2:0:4	III
8	15XW33	TRANSFORM TECHNIQUES	3:2:0:4	III
9	15XW41	ACCOUNTING AND FINANCIAL MANAGEMENT	4:0:0:4	IV
10	15XW43	OPTIMIZATION TECHNIQUES	4:0:0:4	IV
11	15XW48	MATHEMATICAL COMPUTING LAB	0:0:4:2	IV

ENGINEERING SCIENCES (ES)				
S.No.	Course Code	Course Title	L:T:P:C	Preferred Semester
1	15XW16	ENGINEERING GRAPHICS AND GEOMETRIC MODELING	0:0:4:2	I

PROFESSIONAL CORE (PC)				
S.No.	Course Code	Course Title	L:T:P:C	Preferred Semester
1	15XW15	C PROGRAMMING	3:0:0:3	I
2	15XW17	C PROGRAMMING LAB	0:0:4:2	I
3	15XW23	DATA STRUCTURES AND ALGORITHMS	3:0:0:3	II
4	15XW24	OBJECT ORIENTED PROGRAMMING	3:0:0:3	II
5	15XW25	COMPUTER ORGANIZATION	3:0:0:3	II
6	15XW26	OBJECT COMPUTING LAB	0:0:4:2	II
7	15XW27	DATA STRUCTURES LAB	0:0:4:2	II
8	15XW28	WEB DESIGNING LAB	0:0:4:2	II
9	15XW32	DATA BASE MANAGEMENT SYSTEM	3:0:0:3	III
10	15XW34	ADVANCED DATA STRUCTURES	3:0:0:3	III
11	15XW35	MICROPROCESSOR SYSTEMS AND PROGRAMMING	3:0:0:3	III
12	15XW36	RDBMS LAB	0:0:4:2	III
13	15XW37	ADVANCED DATA STRUCTURES LAB	0:0:4:2	III
14	15XW38	ASSEMBLY LANGUAGE PROGRAMMING LAB	0:0:4:2	III
15	15XW42	DATA COMMUNICATION NETWORKS	3:0:0:3	IV
16	15XW44	OPERATING SYSTEMS	3:2:0:4	IV
17	15XW45	SOFTWARE ENGINEERING TECHNIQUES	3:0:0:3	IV
18	15XW46	COMPUTER NETWORKS LAB	0:0:4:2	IV
19	15XW47	WINDOWS PROGRAMMING LAB	0:0:4:2	IV
20	15XW51	UNIX ARCHITECTURE AND PROGRAMMING	3:0:0:3	V
21	15XW52	JAVA PROGRAMMING	3:0:0:3	V
22	15XW53	TCP/IP NETWORKS AND APPLICATIONS	3:0:0:3	V
23	15XW54	OBJECT ORIENTED ANALYSIS AND DESIGN	3:2:0:4	V
24	15XW56	JAVA PROGRAMMING LAB	0:0:4:2	V
25	15XW57	TCP/IP APPLICATIONS LAB	0:0:4:2	V
26	15XW58	UNIX SHELL AND SYSTEM PROGRAMMING LAB	0:0:4:2	V
27	15XW61	PRINCIPLES OF COMPILER DESIGN	3:0:0:3	VI
28	15XW62	MACHINE LEARNING	3:0:0:3	VI
29	15XW63	SOFTWARE PATTERNS	3:2:0:4	VI
30	15XW64	SOFTWARE TESTING	3:2:0:4	VI
31	15XW66	PRINCIPLES OF COMPILER DESIGN LAB	0:0:4:2	VI
32	15XW67	MACHINE LEARNING LAB	0:0:2:1	VI
33	15XW68	DISTRIBUTED ENTERPRISE COMPUTING LAB	0:0:4:2	VI
34	15XW81	DATA MINING	3:0:0:3	VIII
35	15XW82	SOFT COMPUTING	3:0:0:3	VIII
36	15XW83	SOFTWARE PROJECT MANAGEMENT	3:0:0:3	VIII
37	15XW86	DATA MINING LAB	3:2:0:4	VIII
38	15XW87	SOFT COMPUTING LAB	0:0:4:2	VIII
39	15XW88	CASE STUDY LAB	0:0:4:2	VIII
40	15XW92	WEB SERVICES	3:0:0:3	IX
41	15XW93	INFORMATION RETRIEVAL	3:0:0:3	IX
42	15XW96	INFORMATION RETRIEVAL LAB	0:0:4:2	IX
43	15XW97	WEB SERVICES LAB	0:0:4:2	IX
44	15XW98	OPEN SOURCE SOFTWARE LAB	0:0:4:2	IX

PROFESSIONAL ELECTIVES (PE)				
S.No.	Course Code	Course Title	L:T:P:C	Preferred Semester
1	15XWA1	MODELLING AND SIMULATION	3:2:0:4	FROM V
2	15XWA2	ADVANCED DATABASE MANAGEMENT SYSTEMS	3:2:0:4	FROM V
3	15XWA3	SOFTWARE METRICS	3:2:0:4	FROM V
4	15XWA4	PARALLEL AND DISTRIBUTED COMPUTING	3:2:0:4	FROM V
5	15XWA5	DATA COMPRESSION	3:2:0:4	FROM V
6	15XWA6	COMPUTER GRAPHICS AND VISUALIZATION	3:2:0:4	FROM V
7	15XWA7	REAL TIME AND EMBEDDED SYSTEMS	3:2:0:4	FROM V
8	15XWA8	MOBILE COMPUTING	3:2:0:4	FROM V
9	15XWA9	SERVICE ORIENTED ARCHITECTURE	3:2:0:4	FROM V
10	15XWAA	PRINCIPLES OF PROGRAMMING LANGUAGES	3:2:0:4	FROM V
11	15XWAB	AGILE SOFTWARE DEVELOPMENT	3:2:0:4	FROM V
12	15XWAC	SECURITY IN COMPUTING	3:2:0:4	FROM V
13	15XWAD	PERVASIVE COMPUTING	3:2:0:4	FROM V
14	15XWAE	SEMANTIC WEB	3:2:0:4	FROM V
15	15XWAF	CLOUD COMPUTING	3:2:0:4	FROM VI
16	15XWAG	HUMAN COMPUTER INTERACTION	3:2:0:4	FROM VI
17	15XWAH	SOCIAL NETWORK ANALYSIS	3:2:0:4	FROM VI
18	15XWAI	ADVANCED COMPUTER GRAPHICS	3:2:0:4	FROM VI
19	15XWAJ	COMPUTER VISION AND IMAGE ANALYSIS	3:2:0:4	FROM VI
20	15XWAK	BIG DATA ANALYTICS	3:2:0:4	FROM VI

OPEN ELECTIVES (OE)				
S.No.	Course Code	Course Title	L:T:P:C	Preferred Semester
1	15XWO1	ENTREPRENEURSHIP	3:2:0:4	VIII
2	15XWO2	COMPUTER FORENSICS	3:2:0:4	FROM VI
3	15XWO3	WIRELESS NETWORKS	3:2:0:4	FROM VI
4	15XWO4	RANDOMIZED ALGORITHMS	3:2:0:4	VIII
5	15XWO5	DATA VISUALIZATION	3:2:0:4	FROM VI
6	15XWO6	APPLIED GRAPH THEORY	3:2:0:4	FROM VI
7	15XWO7	CRYPTOGRAPHY	3:2:0:4	VIII

EMPLOYABILITY ENHANCEMENT COURSES (EEC)				
S.No.	Course Code	Course Title	L:T:P:C	Preferred Semester
1	15XWP1	PROJECT WORK I	0:0:0:12	VII
2	15XW88	CASE STUDY LAB	0:0:4:2	VIII
3	15XWP2	PROJECT WORK II	0:0:0:12	X