APPENDIX – A
M.Sc. DEGREE COURSE IN COMPUTER SCIENCE

FIRST SEMESTER

S.No	Course Components	Name of Course	Credits	Exam. Duration	Max. Marks		Total Marks
					CIA	ESE	
1	Core -1	Design and Analysis of Algorithms	4	3	20	80	100
2	Core -2	Advanced Java Programming	4	3	20	80	100
3	Core -3	Systems Software	4	3	20	80	100
4	Core-4	Principles of Compiler Design	4	3	20	80	100
5	Core–5	Practical – I: Algorithms Lab	2	3	20	80	100
6	Core–6	Practical-II : Advanced Java Lab	2	3	20	80	100
7	Soft Skill-1		2	3	20	80	100
TOTAL			22				700

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SECOND SEMESTER

S.No	Course component	Name of Course	Credits	Exam.	Max. Marks		Total Marks
					CIA	ESE	
8	Core-7	Computer Networks	4	3	20	80	100
9	Core–8	Digital Image Processing	4	3	20	80	100
10	Core-9	Practical – III: RDBMS Lab.	2	3	20	80	100
11	Core-10	Practical – IV: Image Processing using Java Lab	2	3	20	80	100
12	Elective- I	Elective- I	4	3	20	80	100
13	Extra Disciplinary	Theoretical Foundations of Computer Science	4	3	20	80	100
16	Soft skill-2		2	3	20	80	100
17	Internship	4 to 6 weeks of Internship during summer vacation of I Year					
TOTAL			22				700

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ELECTIVE – I

MOBILE COMPUTING OR COMPUTER SIMULATION AND MODELING OR COMPUTER GRAPHICS.

THIRD SEMESTER

S.No	Course Component	Name of Course	Credits	Exam. Duration	Max. Marks		Total Marks
					CIA	ESE	
18	Core-11	Information Security	4	3	20	80	100
19	Core-12	Artificial Intelligence	4	3	20	80	100
20	Core-13	Practical – V: Mini Project	2	3	20	80	100
21	Elective	Elective–II	4	3	20	80	100
22	Elective	Elective–III	4	3	20	80	100
23	Extra Disciplinary Elective -2	Object Oriented Analysis and Design	4	3	20	80	100
24	Soft skills-3		2		20	80	100
25	Internship	During summer vacation 4 to 6 weeks of I Year	2		20	80	100
TOTAL			26				800

CIA – Continuous Internal Assessment ESE – End Semester Examination

*** Internship will be carried out during the summer vacation of the first year and marks should be sent to the University by the College and the same will be included in the Third Semester Marks Statement.**

Elective - II
Big data Analytics OR Cryptography OR Distributed Database Systems.

Elective - III
Multimedia Systems OR E-Commerce OR Cloud Computing.

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FOURTH SEMESTER

S. No.	Course components	Name of Course	Semester	Credits	Exam. Duration	Max. Marks		
						CIA	ESE	
26	Core-14	Project & Viva-Voce	IV	20	-	20	80	100
27	Soft skills-4			2	3	20	80	100
		TOTAL		22				200

Recommended Credits Distribution: (Total should not be less than 91 Credits)

Course Type	Course	Credits	Total Credits	TOTAL MARKS
Core (Theory)	8	4	32	800
Core (Practical)	5	2	10	500
Core (Project)	1	20	20	100
Elective	3	4	12	300
Internship	1	2	2	100
Skill based courses	4	2	8	400
Extra Disciplinary	2	4	8	200
Total			**92**	**2400**

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Title of the Course/ paper	Practical – II: Advanced Java Programming Lab		
Core – 6	I Year & First Semester	Credit: 2	

1. HTML to Servlet Applications
2. Applet to Servlet Communication
3. Designing online applications with JSP
4. Creating JSP program using JavaBeans
5. Working with Enterprise JavaBeans
6. Performing Java Database Connectivity.
7. Creating Web services with RMI.
8. Creating and Sending Email with Java
9. Building web applications

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Title of the Course/ Paper	Computer Networks		
Core - 7	I Year & Second Semester	Credit: 4	

Unit 1: Introduction – Network Hardware – Software – Reference Models – OSI and TCP/IP models – Example networks: Internet, 3G Mobile phone networks, Wireless LANs –RFID and sensor networks - Physical layer – Theoretical basis for data communication - guided transmission media.

Unit-2: Wireless transmission - Communication Satellites – Digital modulation and multiplexing - Telephones network structure – local loop, trunks and multiplexing, switching. Data link layer: Design issues – error detection and correction.

Unit 3: Elementary data link protocols - sliding window protocols – Example Data Link protocols – Packet over SONET, ADSL - Medium Access Layer – Channel Allocation Problem – Multiple Access Protocols.

Unit 4: Network layer - design issues - Routing algorithms - Congestion control algorithms – Quality of Service – Network layer of Internet- IP protocol – IP Address – Internet Control Protocol.

Unit 5: Transport layer – transport service- Elements of transport protocol - Addressing, Establishing & Releasing a connection – Error control, flow control, multiplexing and crash recovery - Internet Transport Protocol – TCP - Network Security: Cryptography.

Recommended Texts:

1) A. S. Tanenbaum, 2011, Computer Networks, Fifth Edition, Pearson Education, Inc.

Reference Books

1) B. Forouzan, 1998, Introduction to Data Communications in Networking, Tata McGraw Hill, New Delhi.
2) F. Halsall, 1995, Data Communications, Computer Networks and Open Systems, Addison Wessley.
3) D. Bertsekas and R. Gallagher, 1992, Data Networks, Prentice hall of India, New Delhi.
4) Lamarca, 2002, Communication Networks, Tata McGraw Hill, New Delhi.

Website, E-learning resources

1) http://peasonhighered.com/tanenbaum

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Title of the Course/ Paper	**Practical – V:Mini Project**		
Core – 13	**II Year & Third Semester**	**Credit: 2**	

Each student will develop and implement individually application software based on any emerging latest technologies.

Title of the Course/ Paper	**Project & Viva-Voce**		
Core-14	**II Year & Fourth Semester**	**Credit: 20**	

The project work is to be carried out either in a software industry or in an academic institution for the entire semester and the report of work done is to be submitted to the University.

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