GENERAL GUIDELINES

- This book is to be brought to the class daily.

- Students are not permitted to attend the class without the identity card, once issued.

- Students should be well on time right from the first class.

- Students should keep the Classrooms, Laboratories and Workshops clean.

- **Writing on desks and walls is strictly prohibited, failing which the students will be fined heavily. If the identity of the individual is not established the entire class / students in the block will be fined.**

- Students are advised to show due respect to all faculty regardless of their department and maintain affable personality.

- Students are to maintain absolute discipline and decorum, so as to promote the fair name of their college in all its activities.

- **Students securing less than 85% attendance (with a condonation benefit of 10%) in any individual subject will not be allowed to take up the SEE.**

- **If a course has both the theory and laboratory component, then the student should secure a minimum of 85 % attendance (with a condonation benefit of 10%) in both theory and lab to be eligible to take up SEE of that particular Theory and Laboratory course.**

- **In each of the registered courses the student should secure a minimum of 40% marks in CIE to be eligible to take up SEE.**

- Students are informed to clarify their doubts in the respective courses with the faculty by taking prior appointment.

- Students are to inform their parents that they should follow up the progress of their wards by being in touch with the college authorities at regular intervals.

- **Ragging is punishable under Karnataka Education Act and is strictly prohibited. Any student involved in ragging, will be severely punished – which includes handing over the case to Police, rustication from the college etc.**

- The suggestion boxes are maintained at strategic places in the campus. Students are to avail these facilities.

- **Students should come prepared with algorithm / flowchart / program / procedure for all the experiments before attending the laboratory session.**

- Students should bring the data sheets and laboratory records complete in all respects to the laboratory.

- Students are not supposed to alter the configuration of the system / any software on the systems.

- Students are advised to be present for the mentor meetings conducted by the Faculty Advisors failing which appropriate disciplinary action will be taken.

B.E. 6th SEMESTER COMPUTER SCIENCE AND ENGINEERING: SCHEME 2010-2014

SEMESTER – VI						
SI.No.	Subject Code	Title of the Course	Lecture	Tutorial	Laboratory	Credits
1	10CS351	Computer Networks II	4	0	0	4
2	10CS352	Unix System Programming	4	0	0	4
3	10CS353	Web Technologies	4	0	0	4
4	10CS354	Software Engineering	4	2	0	5
5	10CS355	Computer Networks II Laboratory	0	0	3	1 ½
6	10CS356	Unix System Programming Laboratory	0	0	3	1 ½
7	10CS357	Web Technologies Laboratory	0	0	3	1 ½
8	10CS36X	Group A Elective	4	0	0	4
		Total	20	02	09	25 ½

SEMESTER – VI GROUP – A ELECTIVE LIST						
SI.No.	Subject Code	Title of the Course	Lecture	Tutorial	Laboratory / Field Work	Credits
1	10CS361	Data Mining	4	0	0	4
2	10CS362	Storage Area Networks	4	0	0	4
3	10CS363	Fundamentals of Multimedia Computing	4	0	0	4
4	10CS364	Multi-core Programming	4	0	0	4
5	10CS365	Programming with Python	4	0	0	4
6	10CS366	Computer and Network Security	4	0	0	4
7	10CS367	Hybrid Systems	4	0	0	4
8	10CS368	Generic Programming	4	0	0	4

10CS351: Computer Networks II

# of Credits: 4   **# of Hrs: 52 Hours**

Class #	Chapter Title / Reference Literature	Topics to be Covered	% of portions covered	
			Percentage	Cumulative
Unit #1 : Network layer - Part #1				
1		Introduction to Network Layer, Network Service Models	23	23
2		Virtual circuit and Datagram Networks		
3		What is inside a Router?,		
4	**T1 Chapter 4: Sec 4.1.1 to 4.4.4**	Internet Protocol : IPV4 Addressing – Class based addressing		
5		Classless addressing - Classless InterDomain Routing (CIDR)		
6		CIDR – Subnetting – Aggregation		
7		IP Datagram Format		
8		Fragmentation		
9		Internet Control Message Protocol (ICMP)		
10		Dynamic Host Configuration Protocol (DHCP)		
11		Network Address Translation (NAT)		
12		IPV6 : Datagram Format		
Unit #2 : Network Layer - Part#2 ; Link Layer				
13		Transitioning from IPV4 to IPV6	23	46
14		Routing algorithms- general discussion		
15	**T1 Chapter 4: Sec 4.5.1 to 4.7.1 Chapter 5 : Sec 5.1.1 to 5.2.3**	Link state routing algorithm		
16		Distance vector routing algorithm,		
17		Routing in the internet : RIP		
18		OSPF		
19		BGP		
20		Introduction to Broadcast routing		
21		Link Layer : Introduction & Services		
22		Error detection and correction techniques : Parity check		
23		2 dimensional parity , Checksum		
24		Cyclic Redundancy Check		
Unit #3 : Local area Network (LAN)				
25		introduction to MAC ,	25	71
26	**T1 Chapter 5 : Chapter 5.3.1 to 5.3.3 Sec 5.4 to 5.7**	Switched Local area Networks		
27		Link layer addressing & ARP		
28		Ethernet , Frame structure		
29		CSMA/CD		
30		Link Layer Switches : Forwarding & Filtering		
31		Self Learning		
32		VLANs		
33		Link virtualization, MPLS		
34		A day in the life of a Web Page Request		
35		Data Centre Networking		
Unit #4 : Wireless & Mobile Networks				
36		Basic principles		

37	**T1**	Wireless Links & Network Characteristics	15	86
38	**Chapter 6 :**	Wi-Fi : 802.11 LANs		
39	**Sec 6.2 to**	Cellular Internet access : An overview of Cellular Network Architecture		
40	**Sec 6.7**	2G , 3G & 4G : What do they mean ?		
41		Mobility management Principles		
42		Mobile IP		
43		Managing mobility in Cellular Networks		
Unit#5 : Multimedia Networking				
44	**T1**	Properties of Audio, Video	14	100
45	**Chapter7:**	Application types, Streaming stored video : UDP Streaming		
46	**Sec 7.1 to 7.4**	HTTP Streaming		
47		Introduction to Content Distribution Networks		
48		Case Studies : Netflix, YouTube		
49		Introduction to VOIP		
50		Case study : VOIP with Skype		
51		Protocols for Real-Time Interactive Applications: Real Time Protocol (RTP)		
52		Session Initiation Protocol (SIP)		

Reference books:

Book Type	Code	Title	Author	Publication Info	
				Edition	**Publisher**
Text Book	T1	Computer Networking (A Top-down approach),	James F Kurose, Keith W	6th Edition	Pearson
Text Book	T2	Computer Networks (A Top-down Approach)-	Behrouz A Forouzan, Firouz Mosharraf-	Special Indian Edition,	TMcGraw Hill

10CS353: Web Technologies

# of Credits: 4   **# of Hrs: 52 Hours**

Class #	Class ID	Chapter Title / Reference Literature	Topics to be Covered	% of Portion Covered	
				Reference Chapter	Cumulative
Unit 1 : Introduction, Web Servers and XHTML					
1	C.1		History of internet and world wide web, World Wide Web consortium, Web 2.0		
2	C.2		personal, distributed and client server computing, Hardware trends, Object Technology, Javascript: Object-based scripting for the web. Browser portability.		
3	C.3		Web Servers: Introduction, HTTP transactions,		
4	C.4	**T1:**	Multi-tier Application architecture,	19	19
5	C.5	**1:10-17, 21: 826-833, 4:117-147**	client side versus server scripting, accessing web servers.		
6	C.6		Introduction, editing XHTML, w3c XHTML validation service,		
7	C.7		headers, linking, images, special characters,		
8	C.8		unsorted lists, nested and ordered lists, XHTML tables,		
9	C.9		XHTML forms		
10	C.10		internal linking, meta elements.		
Unit 2 : CSS and Javascript I					
11	C.11		Style Sheets: Inline styles,		
12	C.12		embedded style sheets, conflicting styles, linking external style sheets		
13	C.13		positioning elements, backgrounds, element dimensions		
14	C.14		Box Model and text flow, Media Types,		
15	C.15	**T1:**	Building a CSS drop-down menu		
16	C.16	**5: 156-186, 6:**	User style sheets.	21	40
17	C.17	**193-219, 7: 226-257, 8:266-299**	Java Script: Introduction, Simple program,		
18	C.18		obtaining user input with prompt dialogs, memory concepts, arithmetic, decision making,		
19	C.19		assignment operators, control structures – IF, IF…ELSE, WHILE,		
20	C.20		repetition statement, SWITCH multiple-selection statement, DO…WHILE repetition statement		
21	C,21		logical operators.		
Unit 3 : Javascript II					
22	C.22		Java Script: Program modules in javascript, function definitions,		
23	C.23	**T1:**	scope rules, global functions		
24	C.24	**9: 305-334, 10: 343-374, 11:382-**	recursion ,arrays, references and reference parameters,	23	63
25	C.25	**424**	passing arrays to functions, sorting arrays		
26	C.26		searching arrays		
27	C.27		multi-dimensional arrays, math object		

28	C.28		string object, date object		
29	C.29		Boolean and number object		
30	C.30		document object		
31	C.31		window object		
32	C.32		using cookies		
33	C.33		using JSON to represent objects.		
Unit 4 : Document Object Model				19	82
34	C.34		Document Object Model: Introduction, Modeling a document,		
35	C.35		DOM Nodes and Trees		
36	C.36		Traversing and modifying a DOM tree		
37	C.37		DOM Collections		
38	C.38	**T1:** **12: 432-456, 13: 461-484**	dynamic styles		
39	C.39		summary of DOM objects and Collections, registering event handlers,		
40	C.40		onload, onmousemove, the event object,		
41	C.41		this, onmouseover, onmouseout,		
42	C.42		onfocus, onblur, onsubmit, onreset		
43	C.43		event bubbling, more events.		
Unit 5 : AJAX and PHP				18	100
44	C.44		AJAX: Introduction, traditional web applications versus AJAX applications		
45	C.45		rich internet applications with AJAX, Raw AJAX example using XMLHttpRequest,		
46	C.46	**T1:** **15: 560-576, 23: 872-917**	Using XML and DOM.		
47	C.47		PHP: Introduction, PHP basics,		
48	C.48		string processing and regular expressions,		
49	C.49		form processing and business logic,		
50	C.50		connecting to database,		
51	C.51		using cookies		
52	C.52		dynamic content, operator precedence.		

Literature:

Book Type	Code	Author & Title	Publication info		
			Edition	Publisher	Year
Text book	T1	Internet and World Wide Web, How to Programme, Deitel and Deitel	Fourth Edition	Prentice Hall (Pearson) Publications	2009

Syllabus for test:

Test #	Syllabus
T1	Class # 1 to 20
T2	Class # 21 to 43

10CS354: Software Engineering

# of Credits: 5   **# of Hrs: 65 Hours**

Class #	Chapter Title / Reference Literature	Topics to be Covered	% of Portion Covered	
			Reference Chapter	Cumulative
Unit 1 : Introduction to Software Engineering:				
1-4	T1: Ch 1 - Ch 3 T2: Ch 1 - Ch 4 R1: Ch 1 - Ch 3	Understand the context of Software Engineering; Contrasting System Development, Product development, Software products, project engineering;	21.50	21.50
5-10		Generic Process framework, Phases in the development of software, Product life cycle Phases, roles in product development; product development eco-system,		
11-14		Introduction to Software development models including waterfall model, Incremental model, Evolutionary model, Agile model etc.		
Unit 2 : Software Project Management Overview & Requirement Management				
15-20	T1: Ch 2 & Ch 9 T2: Ch 21 & Ch 7 R1: Ch 22,23,24,26 & Ch 4	Planning a software development project with overview of different aspects of SE management and process maturities	13	34.50
21-24		Requirements Engineering tasks, Initiating the requirement engineering process, Requirements elicitation process & techniques, analysis considering information, functional, behavioral domains perspectives, negotiations, validation and firm up, Requirements documentation/specification and management, Requirements traceability		
Unit 3 : Analysis, Design & Implementation Engineering & Change/Build management:				
25-26	T1: Ch 10, Ch 11, Ch 4 Ch 12.2-12.5 Ch 19.1-19.2 T2: Ch 5.4,8, Ch 9, Ch 10 R1:Ch 5.1-5.5,6.1-6.4	System Modeling: Analysis of the requirements with different perspectives/various modeling techniques.	21.50	56
27-30		Software Architecture: Software Architecture, Software Life cycle, Architecture Design, Architectural Views, Architectural Styles ,The Unified Modeling Language,		
31-34		Design & Implementation Engineering: Classical design Methods, Object Oriented analysis and Design Methods, Design patterns, Service Orientation: service descriptions and service communication, service oriented architecture.		
35-38		Implementation: Coding standards & guidelines, code Review/Peer Review. Patching and patch management. Change & Build Management: Elements of a Configuration Management Systems, Baselines, Repository, The SCM process, Configuration Management Plan, Management of code versions, release versions. Exposure to code management tools/Build.		
Unit 4 : Software Testing & Quality				
39-50	T1: Ch 13, Ch 14 & Ch 6 T2: Ch 13, Ch 14 & Ch 26	Software Testing: Test Objectives, Testing and the Software Life cycle, Testing Strategies, Verification and Validation, Planning and Documentation, Manual test Techniques, Coverage Based Test Techniques, Fault based test techniques, Error Based Test Techniques, Comparison of Test Techniques, Test Stages, and Estimating Software Reliability	24.60	80.60

51-54	**R1: Ch 8 and Ch 24**	Software Quality: Managing Software Quality, A taxonomy of Quality attributes, perspectives on quality, The quality system, Software Quality assurance, The Capability Maturity Model, Personal Software Process		
Unit 5 : SW Quality & Other Eng. Topics				
55-56		CBSE		
57-58	**Internet articles, books and slides will be shared during the class**	Software Metrics	19.40	100
59-60		Software Engineering in a global environment		
61-62		Software Estimation		
63		Software Engineering & Hacking		
64-65		Ethics in Software Engineering		

Literature:

Book Type	Code	Title and Author	Publication info		
			Edition	Publisher	Year
Text Book	T1	Software Engineering: Principles and Practice, Hans Wan Vliet	3rd	Wiley India	2010
Text Book	T2	Software Engineering (A practitioners approach), Roger S Pressman	6th	McGraw Hill	2005
Reference Book	R1	Software Engineering, Ian Somerville	9th	Pearson Education	2009

10CS355: Computer Networks II Laboratory

# of Credits: 1½   **# of Weeks: 12 Hours**

Week	Experiment	Type of the experiment	Problem statement listed @*	Learning objectives
#1	#1	Design , Simulate & Test	P1- Local Area Network	1.To be familiar with CISCO PACKET TRACER simulation tool • how to draw network topology. • how to configure hosts . • How to test the network. • Difference between real time mode and simulation mode. • Difference between the modes –'Auto capture and Play' and 'Capture & Forward' • How to use the event list. 2. To understand the basic building blocks of Local Area Networks
	#2	Design , Simulate & Test	P2- LAN –Wi-Fi – DHCP	• Know how hosts get IP addresses dynamically • Principle of Wireless LAN
#2	#3	Design , Simulate & Test	P3-Network Layer – Single Router-Static	• Understand the role of Router to create IP segments • Appreciate the protocol ARP
	#4	Design , Simulate & Test	P4-Network Layer – Two Routers- Static Routing	• Know the principles of static routing • Sense the shortcomings of static routing
	#5	Design , Simulate & Test	P5-Network Layer – Multiple Routers- Static Routing	• How to create subnets with the available IP address space?
#3	#6	Design , Simulate & Test	P6-Network Layer-Dynamic Routing-RIP	• How to configure Router based network using dynamic routing • Appreciate the advantages of Dynamic routing
#4	#7	Design , Simulate & Test	P7-Application-Transport-Browsing	• Understand how different protocols are integrated while browsing the internet • Understand the operation of TCP protocol
#5	#8	Analysis the network	P8- Troubleshoot	• Apply the knowledge acquired so for to troubleshoot a wrongly configured network
#6	#9	Analyse the protocols	P9-Analyse-Wireshark	Sense the protocol on a live network and analyse the protocols using Wireshark Protocol
#7	#10	Programming	P10-Program-UDP Socket	How to create Sockets using UDP
#8	#11	Programming	P11- Program-TCP Socket	How to create Sockets using TCP
#9	#12	Programming	P12- Program- Stop N Wait / Go-back-N	How to implement Reliable Transfer Protocols?;
#10	#13	Programming	P13-Program-Webserver	Apply programming skill to understand application layer protocol-http
#11	#14	Programming	P14- Program-DVR	Implementation of Distance Routing Algorithm
#12	#15	Experiment of student's choice	P15-Exp-Student-Choice	Opportunity for the student to exhibit the practical skills in any specific sub-topic of Computer Networks

• Problem statement will be given during the laboratory instruction class

10CS357: Web Technologies Laboratory

# of Credits: 1½   **# of Weeks: 12 Hours**

Week #	Program #	List of programs
1		Instruction class
2	Program #1	Program to demonstrate XHTML tags.
3	Program #2	Program to demonstrate CSS Style sheets.
4	Program #3	Basic Javascript program to demonstrate use of variables and control structures
	Program #4	Javascript Program to demonstrate use of functions and dialog boxes
5	Program #5	Javascript Program to demonstrate use of String and date objects
6	Program #6	Javascript Program to demonstrate DOM objects
8	Program #7	Javascript Program to demonstrate dynamic styling and positioning
9	Program #8	Javascript Program to demonstrate forms and event handling
10	Program #9	PHP program to demonstrate asynchronous server access using AJAX and JSON
11	Program#10	Program to demonstrate basic PHP constructs and pattern matching.
12	Program#11	PHP program to demonstrate database access and cookies.
13	Program#12	PHP program to demonstrate sessions and file operations.