PUNJAB TECHNICAL UNIVERSITY
STUDY SCHEME OF B.Tech (CSE)

THIRD SEMESTER

Sr. No.	COURSE CODE	COURSE TITLE	HOURS/WEEK			MARKS		
			L	T	P	INT	EXT	TOTAL
1.	CS-201	Computer Architecture	3	1	-	40	60	100
2.	CS-203	Discrete Structures	3	1	-	40	60	100
3.	CS-205	Digital Circuits & Logic Design	3	1	-	40	60	100
4.	CS-207	Data Structures & Programming Methodology	3	1	-	40	60	100
5.	CS-209	Written & Oral Technical Communication	2	1	-	40	60	100
6.	CS-252*	Object Oriented Programming Using C++	3	1	-	40	60	100
7.	CS-213	Software Lab- I (DSPM)	-	-	3	30	20	50
8.	CS-215	Institutional Practical Training	-	-	-	60	40	100
9.	CS-217	Hardware Lab -I (DCLD)	-	-	2	30	20	50
10.	CS-254*	Software Lab-II(OOPS)	-	-	3	30	20	50

FOURTH SEMESTER

Sr. No.	COURSE CODE	Course Title	L	T	P	Ext.	Int..	Total
1	CS-202	Operating System	3	1	-	60	40	100
2	CS-204	Mathematics – III	3	1	-	60	40	100
3	CS-206	Data Communication	3	1	-	60	40	100
4	CS-208	Microprocessor & Assembly Language Programming	3	1	-	60	40	100
5	CS-210	Systems Programming	3	1	-	60	40	100
6	CS-212	Software Lab - III (OS)	-	-	2	20	30	50
7	CS-214	H/W Lab. II (DC)	-	-	2	20	30	50
8	CS-216	H/W Lab. III (Microprocessor & Assembly Language Programming)	-	-	2	20	30	50
9	CS-218	Software Lab-IV(SP)	-	-	4	20	30	50
		General Fitness					100	100

There should be institutional/industrial training of 6 weeks in summer vacation after 4th semester

***indicates the subject, where changes have been made/New Subject.**

FIFTH SEMESTER

Sr. No.	COURSE CODE	COURSE TITLE	HOURS/WEEK			MARKS		
			L	T	P	INT	EXT	TOTAL
1.	CS-301	System Analysis and Design	3	1	-	40	60	100
2.	CS-303	Computer Networks	3	1	-	40	60	100
3.	CS-305	DBMS	3	1	-	40	60	100
4.	CS-307	Design and Analysis of Algorithms	3	1	-	40	60	100
5.	CS-309	Computer Graphics	3	1	-	40	60	100
6.	CS-311	Computer Peripherals and Interfaces	3	1	-	40	60	100
7.	CS-313	Software Lab.(DBMS Lab)	-	-	4	30	20	50
8.	CS-315	H/W lab-IV (Computer networks)	-	-	2	30	20	50
9.	CS-317	Software Lab VI(Algorithms)	-	-	2	30	20	50
10.	CS-319	S/W Lab VII(Computer Graphics)	-	-	2	30	20	50
		Industrial Training				60	40	100

SIXTH SEMESTER

Sr. No.	COURSE CODE	COURSE TITLE	HOURS/WEEK			MARKS		
			L	T	P	INT	EXT	TOTAL
1.	CS-302	Relational Database Management System-II	3	1	-	40	60	100
2.	CS-304	Introduction to Business System	3	1	-	40	60	100
3.	CS-306	Asynchronous Transfer Mode	3	1	-	40	60	100
4.	CS-332*	Software Engineering	3	1	-	40	60	100
5.		Elective –I	3	1	-	40	60	100
6.		Open Elective	3	1	-	40	60	100
7.	CS-314	H/W Lab-V(ATM)	-	-	4	30	20	50
8.	CS-316	S/W Lab-VIII(RDBMS-II)	-	-	4	30	20	50
9.	CS-334*	S/W Lab-IX(S/W Engg.)	-	-	2	30	20	50
10.	CS-320	S/W Lab-X (Business System)	-	-	2	30	20	50
		General Fitness				100		100

Open Elective: CS – 312 COMPUTERS AND SOCIETY (For other branches only)

Elective: I

CS-310 Computer Vision
CS-322 System Hardware Design
CS-324 Real Time Systems
CS-326 Operation Research
CS-328 Language Processor
CS-330 Natural Language Processing

***indicates the subject, where changes have been made/New Subject.**

SEVENTH / EIGHTH SEMESTER					
	Course Title		**Internal**	**Ext.Viva**	**TOTAL**
	6-month Industrial Training		500	500	**1000**

SEVENTH / EIGHTH SEMESTER

Sr. No.	**COURSE CODE**	**COURSE TITLE**	**HOURS/WEEK**			**MARKS**		
			L	**T**	**P**	**INT**	**EXT**	**TOTAL**
1.	CS-424[@]	Expert System	3	1	-	40	60	100
2.	CS-404	Formal Language & Automata Theory	3	1	-	40	60	100
3.	CS-406	Project	-	-	8	100	100	200
4.	CS-408	Principles of Engineering .Economics & Management Techniques	3	1	-	40	60	100
5.	CE-216	Environmental Sciences	3	-	-	40	60	100
6.		Department elective –II	3	1	-	40	60	100
7.		Department Elective-III	3	1	-	40	60	100
8.		Department Elective-III Lab	-	-	2	30	20	50
9.	CS-416	Software Lab –XIII (Sl&LP)	-	-	2	30	20	50
		General fitness				100		100

List of Electives -II

I. CS-410 Organisational Structure
II. CS-416 Overview of IT Materials
III. CS-418 System Simulation and Modelling
IV. CS-420 Emerging Technologies and Current IT- Trends

List of Electives-III

I. CS-412 Graphical User Interface
II. CS-422 Advanced Microprocessor
III. CS-402 Symbolic Logic & Logic Processing[@]
IV. CS-426 Image Processing & Pattern recognition

Labs of Elective-III

I. CS-414 Graphical User Interface
II. CS-428 Advanced Microprocessor
III. CS-430 Expert System.
IV. CS-432 Image Processing & Pattern recognition

@ Subject interchanged

CS -252 OBJECT ORIENTED PROGRAMMING USING C++

Internal Marks: 40 **L T P**
External Marks: 60 **3 1 0**
Total Marks: 100

1. Basics of C & C++

Introduction, Basics, Data Type, Bit Field integer, Operations, Control Structures, Storage Classes, User Defined Data Type, Reserved Words and Standard 110 Statements in C & C++ .

2. Object Orient Programming With C++

Introduction ,Object Oriented Programming Concept, Objective of OPP, Programming Structure in C++, Data Abstraction

3. Overloading and Information Hiding

Introduction, Function Overloading, Information Hiding

4. Memory Management in C++ :

Introduction ,Constructor-Automatic Initialization of Objects, Dynamic Memory Management , Default Constructor, Copy Constructor, Constructor and Information Hiding, Destructor-Automatic Clear up of an Object

5. Inheritance

Introduction, Inheritance-Data and Code Sharing , Class Derivation ,Ambiguity in Class Member Access ,Virtual Base Class-A Remedy , Class Initialization in Inheritance ,Arguments for the Base Class

6. Bindings and Polymorphism

Introduction, Bindings in C++, Polymorphism

7. Generic Facility

Introduction ,Concept of Generic Facility, Generic Function ,Overloading a Generic Function, Generic Classes

8. File Handling in C++

Introduction , Concept of Stream in C++, File Positioning Functions , Error Handling During File Operation

CS -254 Lab III (Object Oriented Programming)

Internal Marks: 30 **L T P**
External Marks: 20 **0 0 2**
Total Marks: 50

List of experiments:

To write following programs in C / C++ :

1. Using basic statements like control statements , looping statements, various I/O statements and various data structures.

2. Creating classes in C++ for understanding of basic OOPS features.

3. Representing concepts of data hiding, function overloading and operator overloading.

4. Using memory management features and various constructors and destructors.

5. Representing Inheritance, virtual classes and polymorphism.

6. Writing generic functions.

7. File handling programs.

CS-332 SOFTWARE ENGINEERING

Internal: 40 **L T P**
External: 60 **3 1 0**
Total: 100

Introduction: The software engineering, Discipline-Evolution and impact. Why study software Engineering? Emergence of software Engineering.

Software Life Cycle Models: Why use a lifecycle model? Classical waterfall Model, Iterative, Prototype, Evolutionary, Spiral Models & their Comparison.

Software Project Management: Project Planning, Metrics for Project Size estimation-LOC and Function- Point, Project Estimation Techniques, COCOMO, Team Structure, Software Configuration Management.

Requirements Analysis and Specification: Software Requirement Specifications (SRS), Formal System Development Techniques.

Software Design: Issues in software Design, Function oriented design, object oriented Design, object Modelling Using UML, and user interface Design.

Coding and Testing: Code Standard and guidelines, Code review , Verification and validation, Unit testing, Black Box Testing, Integration and system Testing.

Software Reliability and Quality Management

Software Maintenance: Characteristics of Software maintenance, Software Reverse Engineering, Software Process Models.

Software Reuse: Issue in Software Reuse, Domain Analysis, Component Classification, Searching, Repository Maintenance.

TEXT-BOOKS:

1. Pressman R.S., Software Engineering: A practitioner's Approach, third Edition McGraw Hill, New York, 1987.
2. Jalota Software Engineering.
3. Sommerville I., Software Engineering, Fourth Edition, Adison- Wesley Pub. Co. 1992.

References:

1. Ghezzi C., Jazayeri M.And Mandrioli D.,Fundamentals of Software Engineering, Prentice Hall, N.J. 1991.
2. Pfleedger S.L., Software Engineering: The Production of Quality software, second Edition, Macmillian Publishing Company, 1991.
3. Oehm B.W., A Spiral Model of Software Development and Enhancement, IEEE Computer, 21.pp 61-72, May 1988.
4. Fairley R., Software Engineering Concepts, McGraw Hill, New York, 1985. 46

CS- 334 SOFTWARE LAB - IX
(S/W ENGINEERING)

	L	T	P
External Marks: 20			
Internal Marks: 30	**-**	**-**	**2**
Total Marks: 50			

Assignments should be provided for the following:

· Development of DFD, data dictionary, E-R diagram, Structured Chart.
· Analysis and design of simple object-oriented as well as real time systems.
· Familiarity with JSP and JSD
· Documentation
· Beta Testing