CREDITS

Each course is normally assigned one credit per lecture/tutorial per week and one credit for two periods or part thereof for laboratory or practical per week.

Each semester curriculum shall normally have a blend of theory and practical courses. In the first year the total number of credits will be 32. For semesters III to VIII the average credits per semester will be 28 and total credits for the entire degree course will be 200. For the award of the degree a student has to

1) Earn a minimum of 200 credits
2) Serve in the NSS or NCC for at least one year, and
3) Enrol. as student member of a recognized professional society.

DURATION OF THE PROGRAMME

A student is normally expected to complete the B.E. Computer Science & Engineering Programme in four years but in any case not more than seven years from the time of admission.

REGISTRATION FOR COURSES

A newly admitted student will automatically be registered for all the courses prescribed for the first year, without any option.

Every other student shall submit a completed registration form indicating the list of courses intended to be credited during the next semester. This registration will be done a week before the last working day of the current semester. Late registration with the approval of the Dean on the recommendation of the Head of the Department along with a late fee will be done up to the last working day.

Registration for the project work shall be done only for the final semester.

ASSESSMENT

The subjects of study, scheme of assessment and syllabus are enclosed.

The break-up of assessment and examination marks for theory subjects is as follows.

- First assessment : 10 marks
- Second Assessment (mid semester test) : 20 marks
- Third assessment : 10 marks
- Examination : 60 marks
The break-up of assessment and examination marks for practical subjects is as follows.

First Assessment (test) : 15 marks
Second Assessment (test) : 15 marks
Maintenance of Record Book : 10 marks
Examination : 60 marks

The project work will be assessed for 40 marks by a committee consisting of the guide and a minimum of two members nominated by the Head of the Department. One of the committee members will be nominated as the chairman by the Head of the Department. The Head of the Department may himself be a member or the Chairman. 60 marks are allotted for the project work and viva voce examination at the end of the semester.

STUDENT COUNSELLOR

To help the students in planning their course of study and for general advice on the academic programme, the Head of the Department will attach a certain number of students to a member of the faculty who shall function as student counsellor for those students throughout their period of study. Such student counsellors shall advise the students, give preliminary approval for the courses to be taken by the students during each semester and obtain the final approval of the Head of the Department.

CLASS COMMITTEE

For all the branches of study during the first year, a common class committee will be constituted by the Dean of the faculty.

From among the various teachers teaching the same common course to different classes during the first year, the Dean shall appoint one of them as course co-ordinator.

The composition of the first year class committee will be as follows.

Course co-ordinators of all common courses.
Teachers of all other individual courses.
All Heads of the Departments, among whom one may be nominated as chairman by the Dean.

The Dean may opt to be a member or the chairman.

For each of the higher semesters, separate class committees will be constituted by the respective Heads of Departments.

The composition of the class committees from third to eighth semester will be as follows.
Course Co-ordinators of the common courses, if any, who shall be appointed by the Head of the Department from among the staff members teaching the common course.

A project co-ordinator (in the eighth semester committee only) who shall be appointed by the Head of the Department from among the project supervisors.

Teachers of other individual courses.

One Professor or Reader, preferably not teaching the concerned class, appointed as Chairman by the Head of the Department.

The Head of the Department may opt to be a member or the Chairman.

All student counsellors of the class, and the Head of the Department (if not already a member) or any staff member nominated by the Head of the Department may opt to be special invitees.

The class committee shall meet four times during the semester.

The first meeting will be held within two weeks from the date of class commencement in which the type of assessment like test, assignment etc. for the first and third assessment and the dates of completion of the assessments will be decided.

The second meeting will be held within a week after the completion of the first assessment to review the performance and for follow-up action.

The second assessment will be the mid-semester test.

The third meeting will be held within a week after the second assessment is completed to review the performance and for follow-up action.

The fourth meeting will be held after all the assessments except the examinations are completed for all the courses, and at least one week before the commencement of the examinations. During this meeting the assessment on a maximum of 40 marks will be finalised for every student and tabulated and submitted to the Head of the Department (to the Dean in the case of first year) for approval and transmission to the controller of examinations.

WITHDRAWAL FROM A COURSE

A student can withdraw from a course at any time before a date fixed by the Head of the Department prior to the second assessment, with the approval of the Dean of the Faculty on the recommendation of the Head of the Department.

TEMPORARY BREAK OF STUDY

A student can take a one-time temporary break of study covering the current year/semester and/or the next semester with the approval of the Dean on the recommendation of the Head of the Department, not later than seven days after the completion of the mid-semester test. However, the student must complete the entire programme within the maximum period of seven years.
SUBSTITUTE ASSESSMENTS
A student, who has missed, for genuine reasons accepted by the Head of the Department, one or more of the assessments of a course other than the examination, may take a substitute assessment for any one of the missed assessments. The substitute assessment must be completed before the date of the fourth meeting of respective class committees.

A student who wishes to have a substitute assessment for a missed assessment must apply to the Head of the Department within a week from the date of the missed assessment.

ATTENDANCE REQUIREMENTS
To be eligible to appear for the examination in a particular course, a student must put in a minimum of 80% of attendance in that course. However, if the attendance is 75% or above but less than 80% in any course, the authorities can permit the student to appear for the examination in that course on payment of the prescribed condonation fee.

A student who withdraws from or does not meet the minimum attendance requirement in a course must re-register for and repeat the course.

PASSING AND DECLARATION OF EXAMINATION RESULTS
All assessments of all the courses on an absolute marks basis will be considered and passed by the respective results passing boards in accordance with the rules of the University. Thereafter, the controller of examinations shall convert the marks for each course to the corresponding letter Grade as follows, compute the Grade Point Average (GPA) and Overall Grade Point Average (OGPA) and prepare the Grade cards.

<table>
<thead>
<tr>
<th>Marks Range</th>
<th>Letter Grade</th>
</tr>
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<tbody>
<tr>
<td>90 to 100 marks</td>
<td>Grade 'S'</td>
</tr>
<tr>
<td>80 to 89 marks</td>
<td>Grade 'A'</td>
</tr>
<tr>
<td>70 to 79 marks</td>
<td>Grade 'B'</td>
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<tr>
<td>60 to 69 marks</td>
<td>Grade 'C'</td>
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<tr>
<td>55 to 59 marks</td>
<td>Grade 'D'</td>
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<td>Grade 'F'</td>
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<tr>
<td>Insufficient attendance</td>
<td>Grade 'I'</td>
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<tr>
<td>Withdrawn from the course</td>
<td>Grade 'W'</td>
</tr>
</tbody>
</table>

A student who obtains less than 24 marks out of 60 in the examination or is absent for the examination will be awarded Grade ‘F’.

A student who earns a Grade of S, A, B, C, D or E for a course is declared to have successfully completed that course and earned the credits for that course. Such a course cannot be repeated by the student.

A student who obtains letter Grade F in a course has to reappear for the examination in that course.
A student who obtains letter Grades I or W in a course must reregister for and repeat the course.

The following Grade Points are associated with each letter Grade for calculating the Grade Point Average (GPA) and Overall Grade Point Average (OGPA).

S - 10; A - 9; B - 8; C - 7; D - 6; E - 5; F - 0

Courses with Grades I and W are not considered for calculation of Grade Point Average or Cumulative Grade Point Average. F Grade will be considered for computing GPA and OGPA.

A student can apply for retotalling of one or more of his/her examination answer papers within a week from the date of issue of Grade sheet to the student on payment of the prescribed fee per paper. The application must be made to the controller of examinations with the recommendation of the Head of the Department.

After results are declared, Grade cards will be issued to the students.

The Grade card will contain the list of courses registered during the year/semester, the Grades scored and the Grade Point Average (GPA) for the year/semester.

GPA is the sum of the products of the number of credits of a course with the Grade Point scored in that course, taken over all the courses for the year/semester, divided by the sum of the number of credits for all courses taken in that year/semester. OGPA is similarly calculated considering all the courses taken from third semester.

After successful completion of the programme, the degree will be awarded with the following classifications based on OGPA.

For First Class with distinction the student must earn a minimum of 200 credits within four years from the time of admission, pass all the courses in the first attempt and obtain an OGPA of 8.25 or above.

For First Class the student must earn a minimum of 200 credits within five years from the time of admission and obtain an OGPA of 6.75 or above.

For Second Class the student must earn a minimum of 200 credits within seven years from the time of admission.

**ELECTIVES**

Apart from the various elective courses offered in the curriculum of the branch of specialisation, a student can choose a maximum of two electives from any specialisation under the faculty during the entire period of study, with the approval of the Head of the Department and the Head of the Department offering the course.
### COURSES OF STUDY AND SCHEME OF EXAMINATIONS

#### FIRST YEAR (ANNUAL PATTERN)

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>T</th>
<th>P</th>
<th>D</th>
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**THEORY (Duration of Examination – 3 Hrs)**

**PRACTICAL (Duration of Examination – 3 Hrs)**

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Total: 25 1 8 3 720 480 1200 32

L – Lecture; T – Tutorial; P – Practical; D – Drawing; Ex. – Examination; CA – Continuous Assessment.

#### THIRD SEMESTER

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<tr>
<th>Course Code</th>
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Total: 18 6 12 24 320 480 800 28

#### FOURTH SEMESTER

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Total: 18 6 12 24 320 480 800 28

L – Lecture; T – Tutorial; Lab – Laboratory; D – Duration of the Examination.
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<th>Course Code</th>
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L – Lecture;  T – Tutorial;  Lb – Laboratory;  D – Duration of the Examination.
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<td>8XX08C</td>
<td>RDBMS (Oracle &amp; DB)</td>
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<td>8XX08D</td>
<td>J2EE Programming</td>
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<td>8XX08E</td>
<td>Neural Networks and Fuzzy Systems</td>
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SYLLABUS
THIRD SEMESTER
COURSE : 83108 – ENGINEERING MATHEMATICS – II

Aim: The course aims to develop the Skills of the Students in the areas of boundary value problems and transform techniques. This will be necessary for their effective studies in a large number of engineering subjects like heat conduction, Communication systems, Electro – Optics and Electromagnetic theory. The Course will also serve as a prerequisite for post graduate and specialized studies and research.

Objectives
• At the end of the Course the students would be capable of mathematically formulating certain practical problems in terms of partial differential equations, solve them and physically interpret the results.
• Have gained a well founded knowledge of Fourier series, their different possible forms and the frequently needed practical Fourier analysis that an engineer may have to make from discrete data.
• Have obtained capacity to formulate and identify certain boundary value problems encountered in engineering practices, decide on applicability of the Fourier series method of solution, solve them and interpret the results.
• Have grasped to concept of expression of a function, under certain conditions, as a double integral leading to identification of transform pair, and specialization on Fourier transform pair, their properties, the possible special cases with attention to their applications
• Have learnt the basics of Z transform in its applicability to discretely varying functions, gained the skill to formulate certain problems in terms of difference equations and solve them using the Z – transform technique bringing out the elegance of the procedure involved.

Unit–I: Partial Differential Equations

Unit–II: Fourier Series

Unit–III: Boundary Value Problems
Solutions of one dimensional Wave equation – One dimensional heat equation (without derivation) – Fourier series solutions in Cartesian Co-ordinates.

Unit–IV: Fourier Transform
Unit–V : Z – Transform and Difference Equations

Z – transform – Elementary Properties – Inverse Z – transform – Convolution
theorem – Solution of difference equations using Z – transform.

Text Books
1) Kandasamy, P., K. Thilagavathy and K. Gunavathy, “Engineering

Reference Books
Publication Company Ltd, New Delhi, 2002.

COURSE : 83208 – DIGITAL PRINCIPLES AND SYSTEM DESIGN

Aim: To learn the Basic Concepts of Boolean Algebra, Combinational logic and
sequential Logic circuits which are important in describing the Operations among
various modules in digital system.

Unit–I : Binary Systems and Boolean Algebra

Signed binary numbers – Binary arithmetic in computers – BCD arithmetic –
Data representation – Fixed and floating point representation – Exponent
representation of floating point binary numbers – Weighted and non weighted
binary codes – alphanumeric codes – Error detection and correction codes – Laws of
boolean algebra – Boolean expansions and logic diagrams – Negative logic –
Introduction to mixed logic.

Unit–II : Logic Families

Specifications of a logic circuit – Operation and characteristics of RTL – DTL –
HTL – TTL – ECL – MOS – CMOS and logic families – Comparison of logic families –
Open collector – totem pole – Schottky and tristate TTL gates – wire – ANDing –
strobed gate – expanders and expandable gates – Logic packages SSI – MSI – LSI –
VLSI – and VVLSI.

Unit–III : Combinational Logic

Introduction – Minterms and Maxterms – Truth tables and maps – Solving
digital problems using maps – Sum of products and Product of sums reduction –
Tabular minimization – Hybrid functions – Incompletely specified functions –
Multiple output minimization – Implementation of expressions using AOI gates.
Fault diagnosis in combinational circuits – Classical method – Boolean difference
method.
Unit–IV: Sequential Logic
- Flip-flops – Counters – Types of counters – Type T – Type D and type JK design
- Design using state equations – Shift registers – Asynchronous sequential circuits
- Fault diagnosis in sequential circuits – Initial and final state identification.

Unit–V: Digital Integrated Circuits

Text Books

Reference Books

COURSE: 83308 – COMPUTER ARCHITECTURE

Aim: To study about the design of instruction set, pipelining, memory system and multiprocessors and multicomputers.

Unit–I: Introduction

Unit–II: Instruction Set Design

Unit–III: Pipelining
- Comparison of Pipelined and non Pipelined Computers – Instruction and Arithmetic Pipelines – Structural Hazards and Data Dependencies – Branch Delay and multicycle instructions – Superscalar Computers.

Unit–IV: Memory System Design

Unit–V: Multiprocessors and Multicomputers
- SISD – SIMD and MIMD architectures – Centralized and Distributed Shared Memory – Architectures – Cache Coherence.
Text Book

Reference Books

COURSE : 83408 – BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING

Aim: To learn the basic concepts of Circuit theory, Electrical machines and Semiconductor devices.

Unit–I : Electrical Circuits
Review of Kirchoff’s laws – Mesh and nodal analysis – Star delta transformation – Network theorems, Superposition, Thevenin’s, Norton’s and Maximum power transfer theorem – AC circuits – Power and energy relations – Series and parallel resonance – Introduction to three phase systems.

Unit–II : DC Machines and Transformers

Unit–III : AC Machines

Unit–IV : Semiconductor Devices

Unit–V: Electronic Circuits (Qualitative Treatment Only)

Text Books
Reference Books

COURSE: 83508 – C PROGRAMMING

Aim: To learn character set, data types, statements, functions, structure, input/output operations, pointers, files etc., available in ‘C’ language inorder to write ‘C’ programs.

Unit-I

Unit-II

Unit-III

Unit-IV

Unit–V

Text Books

Reference Books

COURSE : 83608 – PRINCIPLES OF PROGRAMMING LANGUAGES

Aim: To understand the principles of programming languages such as COBOL, C, C++, Java, LISP and PROLOG.

Unit–I

Unit–II
Data types – Simple statements like (assignment statement – if statement – switch statement) – Control statement like (for loop – while and do – while loops – break and continue statements etc.) – Arrays – Functions and pointers in C, C++ and Java.

Unit–III

Unit–IV
Introduction to applicative languages – Study of LISP – Programming style – lamda calculus – Property list and macro expansion in LISP and LISP programming.
Data types and data structures in PROLOG – Basic statements – control structures and input – output statement used in PROLOG – Recursion and iteration used in PROLOG – programming in PROLOG.

Unit–V

Introduction to COBOL – Various divisions and sections used in COBOL – Simple type of statements like ADD – SUBTRACT – COMPUTE – OPEN – CLOSE – MOVE in COBOL – Loop type statements in COBOL – Table handling – sequential file processing – File sorting and merging in COBOL. Comparative study of various programming Languages like C, C++, Java, LISP, PROLOG, ADA and COBOL.

Text Books


Reference Books


FOURTH SEMESTER

COURSE : 84108 – THEORY OF COMPUTATION

Aim: To learn different types of grammars and their automaton.

Unit–I


Unit–II


Unit–III

Turing Machine(TM): Basic model – Construction of TM – Modifications of Turing Machine – Church’s hypothesis – Restricted TM equivalent to the basic model.
Unit–IV

Unit–V

Text Book

Reference Book

COURSE : 84208 – OBJECT ORIENTED PROGRAMMING AND C++
Aim: To learn and implement the basic concepts of OOPS using C++

Unit–I : Object Oriented Programming

Unit–II : C++

Unit–III

Unit–IV
Unit–V
Inheritance and Class Hierarchies Using Constructors and Destructors in Derived Classes – C++ Stream I/O Systems – Using the Stream Operators – Initialising istream, ostream Objects – Record Oriented File I/O.

Text Book

Reference Books

COURSE : 84308 – DATA STRUCTUERS AND ALGORITHMS

Aim: To understand the concepts of data structures such as stack, queue, linked list, tree, graphs and searching and sorting algorithms.

Unit–I : Arrays

Unit–II : Linked List

Unit–III : Binary Trees

Unit–IV : Graphs

Unit–V : Case Study

Text Book

Reference Books
COURSE : 84408 – DATA BASE MANAGEMENT SYSTEMS

**Aim:** To study about the fundamentals of database management systems, models of databases and applications.

**Unit–I : Introduction**

**Unit–II : Relational Approach**

**Unit–III : Database Design**

**Unit–IV : Implementation Techniques**

**Unit–V : Current Trends**

**Text Book**

**Reference Books**
COURSE : 84508 – OPERATING SYSTEM

**Aim:** To understand the different functions of the operating system.

**Unit I : Basics of OS**

**Unit II : Concurrency Issues**

**Unit III: Memory Management**

**Unit IV : File Management – Mutual Exclusion and Synchronization**

**Unit V : Implementation Issues**

**Text Books**

**Reference Books**
COURSE : 84608 – DISCRETE MATHEMATICS

**Aim:** The Course is aimed at developing skills of Discrete Mathematics. Discrete Mathematics is a bridge connecting various branches of Computer Science and Mathematics. The topics introduced will serve as basic tools for to develop the various concepts of Computer Science.

**Objectives**

On completion of the Course the Students are expected to know the following.

- The theory of sets which is the most fundamental concept in modern mathematics.
- The Idea of a relation between the elements of two sets.
- The Idea of Functions.
- Logic that deals with the methods of reasoning with studying arguments and conclusions.
- Detailed study of Semi groups, monoids and groups.
- Group codes and procedure for generating group codes.
- The study on ordering relations, Lattices and Boolean algebra.
- Graphs, especially trees and binary trees are used widely in the representation of data structures.

**Unit–I**

**Set Theory:** Introduction – Sets – Notation and Description of sets – subjects – Operations on Sets – Properties of Set operations – The principle of Duality.


**Functions:** Functions and operators – one-to-one, onto functions – special type of functions – invertible functions – composition functions.

**Unit–II**


**Unit–III**

**Algebric Systems:** Binary operation – Algebraic Systems – Semi groups and monoids – Homomorphism and Isomorphism of semi groups and monoids – Groups – order of a Group – Subgroup of a group – Cyclic groups.

**Coding Theory:** Introduction Hamming Distance Encoding a message – Group codes – procedure for Generating Group codes – Decoding and Error correction – simple Error correcting code.
Unit–IV

**Lattices and Boolean Algebra:** Lattices – Some properties of lattices – New lattices – Modular and Distributive lattices – Boolean Algebras – Boolean Polynomials – Karnaugh Map.

Unit–V


**Text Books**

**Reference Books**

FIFTH SEMESTER

**COURSE : 85108 – MICROPROCESSOR AND MICROCONTROLLERS**

**Aim:** To understand about microprocessor, microcontroller, design methods and interfacing techniques to digital systems.

**Unit–I : 8 – BIT Microprocessor**

**Unit–II : Microcontroller**

**Unit–III : 8086 Processors**

**Unit–IV : Peripherals and Interfacing**
Serial and Parallel I/O (8251 and 8255) – Programmable DMA Controller (8257) – Programmable interrupt controller (8259) – Keyboard display ADC/DAC interfacing – Inter integrated circuits interfacing (I2C standard).
Unit–V : Microprocessor Based Systems Design – Digital Interfacing

Interfacing to alphanumeric displays – Interfacing to liquid crystal display (LCD 16x2 line) – High power Devices and Optical motor shaft encoders – Stepper motor interfacing – Analog interfacing and Industrial control – Microcomputer based small scale – Industrial process control system – Robotics and Embedded control – DSP and Digital Filters.

Text Books

Reference Books

COURSE : 85208 – INTERNET AND JAVA PROGRAMMING

Aim: To study about Internet, Core java. Java swing, JDBC, Java Beans and Applets.

Unit–I : Internet

Internet – Connecting to Internet: Telephone – Cable – Satellite connection – Choosing an ISP – Introduction to Internet Services – E-mail Concepts – Sending and Receiving secure E-mail – Voice and Video Conferencing.

Unit–II : Core Java


Unit–III


**JDBC:** The connectivity Model – JDBC/ODBC Bridge – Java. SQL package – connectivity to remote database – navigating through multiple rows retrieved from a database.

**Unit–IV : Java Beans**

**Unit–V : Java Servlets**

**Text Books**

**COURSE : 85308 – NUMERICAL MATHEMATICS AND OPERATIONS RESEARCH**

**Aim:** To enable the Students to gain a vast Knowledge in numerical methods and Resource Management Techniques.

**Objective**
- To develop the Skills of the students in method of finite differences, interpolation, Solution of algebraic equations, Solution of Simultaneous equations, Numerical Solution of Ordinary and Partial differential equations.
- To gain a knowledge about Linear and Non–linear programming Problems, PERT and CPM.

**Unit–I : Numerical Methods**
Interpolation: Newton’s Forward and Backward interpolation formulae – Strlings interpolation formula – Lagrange’s interpolation formula for unequal intervals.
Numerical differentiation Using Newton’s forward and backward formulae.
Unit–II


Unit–III


Unit–IV : Operation Research
Linear Programming problems – simplex method – Big – M method – Transportation and assignment problems.

Unit–V
Scheduling by PERT and CPM – Non linear programming Problems – Lagrangian method – Kuhn Tucker Conditions.

Text Books

Reference Books

COURSE : 85408 – UNIX AND WINDOWS PROGRAMMING

Aim: To learn about Windows SDK programming and Unix programming.

Unit–I

Unit–II
Programming with the shell – Advanced features of the shell – Simple filters – advanced filters – Line editing with Examples – System administration.

Unit–III
Building a program – Types and names – Creating a main window – Event driven programming – Window messages – Displaying text Resources and projects – Menus.
Unit–IV

Unit–V

Text Books

Reference Books

SIXTH SEMESTER
COURSE : 86108 – COMPUTER GRAPHICS AND MULTIMEDIA

Aim: To understand the concept of computer graphics and its applications.

Unit–I : Introduction

Unit–II : 2D Transformations

Unit–III : 3D Transformations

Unit–IV : Overview of Multimedia
Unit–V : Multimedia Systems and Applications
Multimedia communication systems – Data base systems – Synchronization
Issues – Presentation requirements – Applications – Video conferencing – Virtual
reality – Interactive video – video on demand.

Text Books
2) Ralf Steinmetz, Klara Steinmetz, "Multimedia Computing, Communications

Reference Books
1) Siamon J. Gibbs and Dionysios C. Tsichritzis, "Multimedia Programming",
2) John Villamil, Casanova and Leony Fernanadez, Eliar, "Multimedia Graphics",

COURSE : 86208 – WEB TECHNOLOGIES
Aim: To Study about Web environment, HTML, XML, Java Script and JSP.

Unit–I : Web Environment
WWW – HTTP – Web Server and its deployment – N - Tier Arch. – Services of

Unit–II : HTML

Unit–III : XML
Introduction – displaying an XML Document – Data interchange with an XML
Server – side Usage.

Unit–IV : Java Script
Introduction – Documents – forms – Statements – Functions – Objects in Java
scripts – events and event handling – arrays – FORMS – Buttons – Checkboxes –
Text fields and text areas.

Unit–V : JSP
JSP overview – JSP language basics – JSP translation and compilation directives
– Standard java objects from JSP – JSP configuration and deployment – actions and
tags of JSP; Java servlets – Arch – servlet interface – applications of servlets.

Text Books
2) William B. Brogden, Bill Brogden – Chris Minnick, "Java Developer's Guide to

COURSE : 86308 – VISUAL PROGRAMMING

Aim: To understand Windows, Visual Basic and Visual C++ programming.

Unit–I

Unit–II

Unit–III
Toolbox Controls – Control arrays – Flex Grid Control – Dialog Boxes – Common Dialog Control – Menus – MDI Forms – Accessing database with data control – Communicating with other Windows applications – VB and the Internet.

Unit–IV

Unit–V

Text Books
Reference Books

COURSE : 86408 – C# AND .NET PROGRAMMING

Aim: To study about the .NET Framework, C# Basics, Libraries and advanced features of C#.

Unit–I : .NET Framework

Unit–II : C# Basics

Unit–III : C# Using Libraries

Unit–IV : Advanced Features Using C#

Unit–V : Advanced Features Using C#
Distributed application in C# – XML and C# – Unsafe Mode – Graphical Device Interface with C# – Case Study (Messenger Application).

Text Book

Reference Books
SEVENTH SEMESTER
COURSE : 87108 – SYSTEM SOFTWARE AND COMPILER DESIGN

Aim: This course aims to give some basic idea about system software such as assembler, linker, loader, editor and macros and design of compiler.

Unit–I : Introduction to Systems Programming

Unit–II : Introduction to Compilers

Unit–III : Syntax Analysis

Unit–IV : Syntax – Directed Translation

Unit–V: Intermediate Code Generation

Generator – the target machine – a simple code generator.

Text Books

Reference Books

COURSE: 87208 – DATA COMMUNICATION AND COMPUTER NETWORKS

Aim: To Study the concepts and principles involved in data communication, transmission methods and networking.

Unit–I

Unit–II

Unit–III

Unit–IV

Unit–V

Text Books


**Reference Books**


**COURSE : 87308 – OBJECT ORIENTED ANALYSIS AND DESIGN**

**Aim:** To Study the OOPs concepts that are used in the object oriented system design (OOSD).

**Unit–I : Complexity**


**Unit–II**

**Classes and Objects:** The Nature of an Object – Relationships among Objects – The Nature of a Class – Relationships among Classes – The Interplay of classes and objects – On building quality classes and objects.

**Classification:** The Importance of Proper Classification – Identifying Classes and Objects – Key Abstractions and Mechanisms.

**Unit–III**


**Unit–IV : Pragmatics**


**Unit–V : Analysis – Design – Evolution And Maintenance of**

1) Data Acquisition: Weather Monitoring Station.
2) Frameworks: Foundation Class library and
3) Client/Server Computing: Inventory Tracking.

**Text Book**

Reference Books

COURSE : 87408 – ETHICS IN ENGINEERING

Unit–I


Professions and Professionalism – Professions – Membership Criteria – Persuasive Definitions – Multiple Motives.

Model Reasoning and Ethical Theories – Theories about Virtues – Professional Responsibility – Integrity – Self – Respect – Senses of “responsibility”.


Unit–II

Engineers as Responsible Experimenters – Conscientiousness – Relevant Information – Moral Autonomy – Accountability.

The Challenger Case – Safety issues.

Codes of Ethics – Roles of Codes – Codes and the Experimental Nature of Engineering – Limitations on codes.

A balanced outlook on law – A Regulated Society – The trend toward Greater Detail – Industrial Standards – Problems with the Law in Engineering – The Proper Role of Law in Engineering.


Unit III
Respect for Authority – Institutional Authority – Morally Justified Authority – Accepting Authority – Paramount Obligations.
Collective Bargaining – Historical Note – Faithful Agent Argument – Public Service Argument – Conclusion.

Unit IV
The Bart Case – Background – Responsibility and Experimentation – Controversy – Aftermath – Comments.


Unit–V

Engineers as Managers, Consultants and Leaders – Engineers as Managers – Managers as Professional – Promoting an Ethical Climate – Managing Conflict.

Consulting Engineers – Advertising – Competitive Bidding – Contingency Fees – Safety and Client needs Provision for resolution of Disputes.


Concluding Remarks. Integrity and Ingenuity – Citicorp Skyscraper.

Text Book


EIGHTH SEMESTER

COURSE : 88108 – AI AND FUZZY SYSTEMS

Aim: To understand the essential topics of AI and its subfields.

Unit–I : Introduction


Unit–II : Knowledge Representation Issues


Unit–III : Reasoning

Uncertainty: Introduction to uncertain knowledge – review of probability theory – Bayes’s Theorem – Non monotonic reasoning.

Unit–IV : Fuzzy Sets

Unit–V : Applications

Text Books

Reference Books

COURSE : 88208 – SECURITY IN COMPUTING
Aim: To study the various issues involved in security in computing like security threats, program Security, operating system security, database and network security and ethical issues and security policies.

Unit–I : Introduction

Unit–II : Program Security

Unit–III : Security in Operating Systems


Unit–IV : Database and Network Security
Unit–V : Administering Security and Ethical Issues


Text Book

Reference Books

COURSE : 88308 – PRINCIPLES OF MANAGEMENT

Aim: To understand the functions of management giving an intensified focus and marketing management.

Unit–I : Forms of Business Organizations

Unit–II : Functions of Management

Unit–III : Staffing

Unit–IV : Financial Management
Short term and long term sources of funds – Financing decision – Investment decision – Introduction to financial statements – Production management – Planning and scheduling, purchasing, inventory control.

Unit–V : Marketing Management

Text Book

Reference Books
COURSE: 88708 – PROJECT WORK AND VIVA – VOCE

The topic for project work will be assigned by the Head of the Department of Computer Science and Engineering.

The project work should be taken during the VII Semester and the final report submitted by the students on a date fixed by the Head of the Department towards the end of the VIII Semester. There will be viva – voce examination on project.

ELECTIVES
COURSE: 8XX08A – UNIX NETWORKING

Aim: To obtain knowledge on UNIX Networking system, Protocols, Sockets and Security.

Unit–I


Unit–II: Interprocess Communication

Unit–III: Communication Protocols

Unit–IV: Berkeley Sockets

System V Transport Layer Interface.


Unit–V: Security

Text Book
Reference Books

COURSE: 8XX08B – EMBEDDED SYSTEMS

Aim: To learn knowledge of embedded system’s software and hardware platform and development. To aware the student about the real time operating system concepts and about networks for embedded system.

Unit–I : Introduction
Introduction to embedded system – Applications of embedded system – Characteristics of embedded computing applications – Challenges in embedded computing system design – Functional requirement – Non functional requirement – Choice of Processor – Embedded product design cycle.

Unit–II : Software Development

Unit–III : Embedded Hardware

Unit–IV : Real Time Operating System
Real time without RTOS – choosing the hardware and software – Task states and data – Multitasking operating systems – context switches – kernels – Task swapping methods – Scheduler algorithms – Memory management and Translation.

Unit–V : Networks for Embedded System

Case Study: Hardware and Software design of Telephone Answering Machine.

Text Books

Reference Books
COURSE: 8XX08C – RDBMS (Oracle and DB2)

Aim: To study the basic concepts of database systems, relational database and queries, object modeling and database design.

Unit–I

Unit–II
Relational Database [RDBMS]: The Relational Database Model – Techniques – Components of Relational Model – Definition of Relational Terms – Features of RDBMS – CODD 12 rules for a fully RDBMS. Relational implementation Primary and Foreign Keys – Relationships in the relational model Introduction to ER Model – one – to – one, one – to – many, many to many relationship – Examples of Data definition language.

Unit–III

Unit–IV

Unit–V
design of databases – rule of reconstruction – over normalization – Reverse Engineering of Databases.

**Text Book**

**Reference Books**

**COURSE : 8XX08D – J2EE PROGRAMMING**

**Aim:** To provide an exposure to J2EE.

**Unit–I**

**Unit–II**

**Unit–III**

**Unit–IV**

**Unit–V**
Reference Books

COURSE: 8XX08E – NEURAL NETWORKS AND FUZZY SYSTEMS

Aim: To learn basic concepts of neuron, different types of neural networks, application of neural networks, fuzzy logic operations and its applications.

Unit–I

Unit–II

Unit–III
Radial basis function neural networks (RBFNN) – Basic learning laws in Radial basis function nets – Counter propagation networks – Adaptive resonance theory networks – Autoassociative neural networks (AANN) – Applications of neural networks such as pattern recognition – Optimization – Associative memories – speech and decision – making.

Unit–IV

Unit–V

Text Books
**Reference Books**


**COURSE: 8XX08F – SPEECH TECHNOLOGY**

**Aim:** To learn the basic concepts of speech production, analysis, coding, recognition and synthesis.

**Unit–I: Speech Production**


**Unit–II: Speech Analysis**


**Unit–III: Speech Coding**


**Unit–IV: Speech Recognition**


**Unit–V: Speech Synthesis**


**Text Book**


**Reference Books**


COURSE : 8XX08G – IMAGE PROCESSING

**Aim:** To learn the basic concept of image processing and its applications.

**Unit–I**

**Unit–II**


**Unit–III**

**Unit–IV**

**Unit–V**

Image Segmentation: Detection of discontinuities – Edge linking and Boundary detection – Thresholding – Region based segmentation

Image Representation and Description: Representation schemes – Boundary descriptors – Regional descriptors

**Text Books**

**Reference Book**

COURSE : 8XX08H – DATA MINING AND DATA WAREHOUSING

**Aim:** To learn about how to retrieve information using the concept of data mining in different fields like marketing, ethics and database. This course also aim in learning about data warehouse architecture, operations, security, service, testing of dataware houses etc.

**Unit–I : Data Mining**
Introduction – Information and production factor – Data mining vs. Query tools – Data and machine learning – Machine learning and statistics – Data Mining in
marketing – Data Mining and ethics – Nuggets and data mining – Database Mining – A performance and database Perspective – Self learning computer systems – Concept learning – Data mining and the Data Warehousing –

**Unit–II : Knowledge Discovery Process**


**Unit–III : Dataware House – Architecture**


**Unit–IV : Hardware and Operational Design**


**Unit–V : Planning – Tuning and Testing**


**Reference Books**

4) Jiawei Han and Micheline Kamber, “Data Mining: Concepts and Techniques” Morgan Kaufmann Publishers, 2000.

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**COURSE : 8XX08I – SOFTWARE TESTING AND QUALITY ASSURANCE**

**Aim:** To create an awareness about the significance of software testing and provide an understanding of the concepts of software testing – quality control and quality assurance.

**Unit–I**


**Unit–II**

Unit–III

Unit–IV

Unit–V

Reference Books

COURSE : 8XX08J – ENTERPRISE RESOURCE PLANNING

Aim: To study basic concept of enterprise resource planning model advantage and Architecture.

Unit–I : Introduction to ERP

Unit–II : Business Modelling for ERP

Unit–III : ERP and the Competitive Advantage

Unit–IV : Commercial ERP Package
Description – Multi – Tier Client/Server Solutions – Open Technology – User Interface – Application Integration.

Unit–V : Architecture
Text Books

COURSE: 8XX08K – AD – HOC AND SENSOR NETWORKS

Aim: To provide the knowledge of ad-hoc network, sensor networks, routing protocols and distributed data processing.

Unit–I

Unit–II
Sensor Networks – Introduction and applications. Design issues and architecture for wireless sensor Networks – Sensors Network operating system – Communications and routing in sensor Networks.

Unit–III

Unit–IV

Unit–V

Text Books

Reference Books
COURSE : 8XX08L – CLIENT/SERVER COMPUTING

**Aim:** To study about client/server computing and its characteristics. Role of the client and server Components, Type of server Network.

**Unit–I : Introduction**


**Unit–II : The Client**


**Unit–III : The Server**


**Unit–IV: The Network**


**Unit–V : Development Methodology and Tools**


**Text Book**


**Reference Books**


COURSE : 8XX08M – PARALLEL ALGORITHMS

**Aim:** To learn about different parallel computer models and to study about different parallel algorithms designed for this parallel model. These parallel algorithms are compared with sequential algorithms for their time complexity.

**Unit–I**

Introduction to Parallel Computing: Supercomputers Modern Parallel Computers – Data Parallelism – Functional Parallelism – Pipelining and Data

Unit–II

Unit–III

Unit–IV

Unit–V

Text Books

Reference

COURSE : 8XX08N – E-COMMERCE

Aim: To study the basic concepts of E-Commerce network infrastructure – information publishing technology security and search engine services.

Unit–I

Unit–II

Unit–III

Unit–IV

Unit–V

Text Book

Reference Books
1) Ravi Kalakota and Andrew B. Whinston, “Frontiers of Electronic Commerce”, Pearson Education Asia, 1999. (Chapters 1,2,3,6 – 10,16)

COURSE : 8XX08O – NATURAL LANGUAGE PROCESSING

Aim: To understand the concepts of natural language Processing: Language related algorithms and techniques, Computational morphology and Phonology, passing and semantic interpretation.

Unit–I : Introduction

Unit–II : Probabilistic Models and Speech Recognition

Unit–III : Syntax
Unit–IV : Unification and Probabilistic Parsing


Unit–V : Semantics


Text Book

Reference Books

COURSE : 8XX08P – PERVERSIVE COMPUTING

Aim: To study concepts of pervasive computing, design and security of pervasive computing.

Unit–I : Architecture


Unit–II : Devices Technology


Unit–III : Sensor Networks and RFIDS


Unit–IV : Local Area and Wide Area Wireless Technologies

Unit–V : Protocols and Application


Text Book

Reference Books

COURSE : 8XX08Q – MAINFRAME COMPUTING

Aim: To study the concepts of mainframe, structure command and file control.

Unit–I

Unit–II

Unit–III


Unit–IV
Map Definition Macros – Map I/O Operations – Screen Definition Facility – Program
Control – Application House Keeping – Exec – Interface block – Supplied
Control – Program Control – TSQ – TDQ – Pseudo Conversation – LINK Command –

Unit–V

File Control – Write Command – Browsing – Delete – Unlock – Accessing
Relational Database – Temporary Storage Queue – TD – I/O – Dynamic Transaction
Backout – CICS Supplied Transaction – Exception Handling in CICS.

Text Books

COURSE : 8XX08R – MOBILE COMPUTING

Aim: To study the concepts of mobile computing including access control,
digital mobile phone systems, wireless LAN and the needed protocols.

Unit–I

Introduction to wireless communication – Wireless data technologies –
Frequencies for radio signals – antennas and signal propagation – need and types of
multiplexing techniques – modulation types – use of spread spectrum – cellular
Systems.

Unit–II

Medium Access Control: Need for MAC algorithm – medium access methods and
comparison of these methods.

Unit–III

Digital mobile Phone Systems – GSM: mobile services – system architecture –
radio interference – protocols – localization and calling – hand over – security – new
data services – other digital cellular networks – comparison with GSM.

Unit–IV

Wireless LAN: Introduction – advantages and design goals for wireless LAN –
Infrastructure – ad-hoc networks – IEEE 802.11: system and protocol architecture –
physical layer – HIPERLAN protocol architecture and physical layer and MAC – Blue
tooth physical and MAC layer. Wireless ad-hoc networks.

Unit–V

Protocols for mobile computing: mobile network layer – mobile IP – Snooping
TCP – Mobile TCP – Fast and selective retransmission and recovery – Transaction

**Text Books**

**Reference Books**

**COURSE : 8XX08S – SOFTWARE PROJECT MANAGEMENT**

**Aim:** To study about software process project estimation, project scheduling, and quality standards.

**Unit–I : Defining a Software Development Process**

**Unit–II : Software Project Estimation – Software**


**Unit–III : Software Project Scheduling**

**Unit–IV : Requirements Engineering Specification Languages**


**Unit–V : Quality Considerations and Standards**

**Text Books**

Reference Books

COURSE : 8XX08T – TCP/IP NETWORK COMPONENTS

Aim: To know about practical implementation of ISO – OSI model as TCP/IP Protocol suite and its Component protocols.

Unit–I : Standards, Standard Organisations and OSI Model


Unit–II : Addressing, Connecting Devices and Routing


Unit–III : Network Layer Components


Unit–IV : Transport Layer Components
Unit–V : DNS and Network Management SNMP

DNS – Name space – Domain name space – Distribution of name space – DNS in the Internet – Resolution – DNS message Headers – Types of Records.


Text Book

Reference Books

COURSE : 8XX08U – DISTRIBUTED OBJECTS – COM/DCOM

Aim: To know about fundamentals to programming in distributed objects using Microsoft’s COM/DCOM architecture.

Unit–I
Fundamental programming architecture and IUNKNOWN – ICLASSEFACTORY.


The interface definition language – the component’s client – the component – COM reuse mechanisms.

Unit–II
Type libraries, language integration, threading models and apartments.

Type libraries – C++ client utilizing type library – active template library – COM programming in visual basic – COM programming in java.

Threads – apartments – apartment interactions – implementing multithreaded components – the ten threading commandments.


Unit–III
Connection points, type information, monikers and structured storage.

A simple version of a connectable object – a complete implementation of a connectable object – type information.

Initializing objects – monikers – the class moniker – the java monitor – the running object table – structured storage.

Remoting architecture – DLL surrogates – marshaling – executable components.

Unit–IV
Standard Vs custom marshaling, the IDL and security.

IDL types – directional attributes – arrays – pointers – interface design recommendations.


Unit-V
The network protocol, MTS and COM+.
Spying on the network protocol – calling all remote objects – marshaled interface pointers – the OXID resolver – DCOM garbage collection – channel hooks.


Text Books

Reference Books

COURSE : 8XX08V – DISTRIBUTED OPERATING SYSTEM

Aim: To understand the basic concepts and other issues related to distributed operating systems.

Unit-I : Network Structures

Unit-II : Distributed File System

Unit-III : Protection

Unit–IV : Case Studies the Unix System

Unit–V : Windows NT

Text Book

Reference Books

COURSE : 8XX08W – SOFTWARE ENGINEERING

Aim: The subject aims to impart sound knowledge to design and implement an efficient software system and manage the resources.

Unit–I : Software Engineering Fundamentals

Unit–II : Requirements Engineering Processes
Unit–III : Architectural Design

Unit–IV : Critical Systems

Unit–V : Industry Standards

Text Book

Reference Book

COURSE : 8XX08X – UNIFIED MODELING LANGUAGE

AIM: The aim of this course is to provide the necessary knowledge for modeling object oriented software systems. It provides a strong and formal foundation in object-oriented analysis and design. It teaches the underlying principles of object-oriented analysis and design, including documentation of the design using UML and an UML-enabled CASE tool.

Unit–I

Class Diagrams: Modeling Simple Collaborations – modeling a logical database schema – forward and reverse engineering.

Unit–II

Unit–III
Basic Behavioral Modeling: Interactions: Modeling a flow of control. Use cases: modeling the behavior of an element. Use case diagram: modeling a context of a system modeling the requirements of system. Interaction diagram: modeling flows of control by time ordering – modeling flows of control by organization. Activity diagram: modeling a workflow – Modeling an Operation.

Unit–IV

Unit–V


Text Book

COURSE : 8XX08Y – JSP AND EJB
AIM: The aim of this course is to provide the complete skills on Internet programming paradigm. This includes the programming knowledge about J2EE such as JSP and EJB.

Unit–I
JSP Session – Persistent Connections – Cookies & Java Sessions in Action – Sessions, HTTPS and SSL

Unit II

Database Connectivity – RDBMS – Driver Types Creation of my SQL Database – Coding with JSP & JDBC Multiple users and connection pooling.

Unit III

Unit IV

Unit V


Text Books

Reference

LABORATORIES

The experiments for the various laboratory courses for the B.E. (Computer Science and Engineering) programme will generally follow the theory subjects concerned, taking into account the needs of the course, the needs of the time and the technological advances.

The list of experiments will be prepared by the Head of the Department from time to time.