1. Department: Computer Science

A. Name of the Head of the Department: Dr Shubhangi Bhatambrekar

B. Program Specific Outcome. (PSO)-B.Sc.(Computer Science)-UG

Sr. No	Objectives/ Outcomes
1.	To enrich students' knowledge and train them in technical subjects so that they will be technical professional by learning C programming,Relational Database Management, Data Structure,Software Engineering, Graphics, Java, PHP, Networking, Theoretical Computer Science, System programming, Object Oriented Software Engineering.
2.	To introduce the concepts of software application and projects.
3.	To understand the computer subjectswith following: 1) Demonstrate all programming and theoretical concepts with the use of ICT 2) Development of in-house applications in terms of projects 3) Aware them to publish their work in reputed journals
4.	To build up programming, analytical and logical thinking abilities.
5.	To make them employable according to current demand of IT Industry and responsible citizen.

Course: Problem Solving using Computers and C Programming

Name of The Teacher: Kumod Sapkal

Class: FYBSc(Computer Science) Pattern: 2013

Course Outcomes: COs:

1) Students will understand algorithms and flowchart for solving problems using computers.

2) Students will understand and can choose the loops and decision making statements to solve the problem.

3) Student will implement different Operations on arrays and will use functions to solve the given problem.

4)To enrich the students in logic development required for programming.

5)To help the students to build carrier in various branches of software development.

6) Students will understand difference between low level and high level programming languages.

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DEPARTMENT OF COMPUTER SCIENCE

CS- 102 (Paper II)
Course: File Organization and fundamentals of database

Name of the Teacher: Pratiksha P. Kamble
Class: Bsc I (Computer Science) Pattern: 2013

Course Outcomes: File Organization and fundamentals of database

1) Master the basic concepts and appreciate the applications of database systems.
2) Master the basics of SQL and construct queries using SQL.
3) Be familiar with a commercial relational database system (Oracle) by writing SQL using the system. 4) Be familiar with the relational database theory, and be able to write relational algebra expressions for queries.
5) Mater sound design principles for logical design of databases, including the E-R method and normalization approach.
6) Be familiar with basic database storage structures and access techniques: file and page organizations, indexing methods including B-tree, and hashing.
7) Master the basics of query evaluation techniques and and query optimization.

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DEPARTMENT OF COMPUTER SCIENCE

CS- 102 (Paper II)
Course: File Organization and fundamentals of database.

Name of the Teacher: Vedant S. Mulay
Class: F.Y.B.Sc (Computer Science) (2013 PATTERN)

Course Outcomes: File Organization and fundamentals of database

1) **Understand Basic RDB(**Relational Database**) Definitions -** Understand a relational table schema (including keys and foreign key references).
2) **Read/write Unextended Relational Algebra** Queries - Write and read (understand) queries in un-extended relational algebra.
3) **Read/write Simple SQL Queries -** Write and read (understand) simple SQL queries (no embedded queries).
4) **Read/write Embedded SQL Queries** - Write and read (understand) SQL queries using embedded subqueries without embedding operators
5) **Read/write SQL Queries With GROUP BY -** Write and read (understand) SQL queries using the GROUP BY clause.

6) Master the basics of SQL and construct queries using SQL
7) **Design/Read ER Diagrams -** Design ER diagrams for new databases and read (understand) ER diagrams.

8) **Be familiar with basic database storage structures and access techniques**- file and page organizations, indexing methods including B-tree, and hashing.

9) **Perform Normalization -** Perform normalization based on functional dependency.

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DEPARTMENT OF COMPUTER SCIENCE

Class: B.Sc. I (Computer Science) Pattern: 2013

Course Outcomes:

CS- 103
Course: Practical Paper - I

1) Identity the basic UNIX general purpose commands.
2) Apply and change file and directories using UNIX commands.
3) Apply pattern searching of word in the file.
4) Illustrate flowcharts and algorithms to the given problems.
5) Understand basic structure of c program and usage of variables operators, looping statements .

CS- 104
Course: Practical Paper - II

1) Design a responsive web site using HTML and CSS.
2) Demonstrate rich internet applications.
3) Demonstrate important HTML tags for designing static pages and separate design from content using CSS.
4) Demonstrate array, string, function, and pointer.
5) Master the basics of SQL and construct queries using SQL.
6) Be familiar with a commercial relational database system by writing SQL using the system.

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DEPARTMENT OF COMPUTER SCIENCE

CS- 211 (Paper I)
Course: Data Structure Using 'C'

Name of the Teacher: Prof.Ashwini Gulabrao Pawar
Class: S.Y.B.Sc.(Computer Science) Pattern: 2013 (Semester I)

Course Outcomes: Data Structure Using 'C'

CO1)Students will understand system related Programming such as Operating System functioning.

CO 2) Students will capable to develop problem solving abilities using a computer.

CO3)To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems.

CO4)To imbibe quality software development practices. To create awareness about process and product standards.

CO5)Students will train in professional skills related to Software Industry.

CO6)To prepare necessary knowledge which is related to operating system and base for research and development in Computer Science.

1) **Types of Evaluation: Diagnostic Evaluation Test to Identify slow learner and advanced learner**

Formative and summative Evaluation

2) Formative Evaluation: Knowledge, Understanding, Application, Skill
3) Summative Evaluation: Term End Examination and University Examination

Development of E-content/ E-Module and made available on Google and Website

References:

1. Fundamentals of Data Structures ---- By Horowitz Sahani (Galgotia)
2. Data Structures using C and C++ --- By YedidyahLangsam, Aaron M. Tenenbaum, Moshe J. Augenstein
3. Introduction to Data Structures using C---By Ashok Kamthane
4. Data Structures using C --- Bandopadhyay&Dey (Pearson)
5. Data Structures using C ---By Srivastava BPB Publication.

Prof. Ashwini G. Pawar
M.Sc(Computer Science)
Department of Computer Science
Modern College Ganeshkhind, Pune.

Progressive Education Society's
Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16
DEPARTMENT OF COMPUTER SCIENCE

CS- 212 (Paper II)

Course: Relational Database Management System

Name of the Teacher: Chaitali Purushottam Makashir Class: S.Y B.Sc (Computer Science)
Pattern: 2013 (Semester I)

Course Outcomes: Relational Database Management System

- **CO1)** Students will understand the concept of transaction and transaction processing.
- **CO2)** To apply knowledge of Programming in pl/sql including stored function,cursor,trigger.
- **CO3)** Students will get to know how to apply DML/DDL commands on database.
- **CO4)** Acquaint the knowledge of recovery management.
- **CO5)** Understanding the concept of client – server technology.

Formative and summative Evaluation

1) **Formative Evaluation: Knowledge, Understanding, Application, Skill**
2) **Summative Evaluation: Term End Examination and University Examination**

References:

T1. Fundamentals of database systems(4th Ed) By: Elmasri and Navathe.
T2 . Database system concepts (4th Ed) By: Korth, Sudarshan.

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DEPARTMENT OF COMPUTER SCIENCE

CS- 223 (Lab I)
Course: Data Structure Using 'C' and C++ practical

Name of the Teacher: Prof.Ashwini Gulabrao Pawar
Class: S.Y.B.Sc.(Computer Science) Pattern: 2013 (Semester I)

Course Outcomes: Data Structure Using 'C' and C++ practical

CO1)Students will capable to implement logic of various algorithms.

CO2) Students will capable to solve problems which is related to operating system.

CO3)To build the necessary skill set and analytical abilities for developing

computer based solutions for real life problems.

CO4)Students will train in professional skills related to Software Industry.

1) **Types of Evaluation: Diagnostic Evaluation Test to Identify slow learner and advanced learner**

Formative and summative Evaluation

2) Formative Evaluation: Knowledge, Understanding, Application, Skill
3) Summative Evaluation: University Examination

Prof. Ashwini G. Pawar
M.Sc(Computer Science)
Department of Computer Science
Modern College Ganeshkhind, Pune.

Progressive Education Society's
Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16
DEPARTMENT OF COMPUTER SCIENCE

CS- 224(Lab II)

Course: Relational Database Management System

Name of the Teacher: Chaitali Purushottam Makashir Class: S.Y B.Sc (Computer Science)
Pattern: 2013 (Semester I)

Course Outcomes: Relational Database Management System

CO1) Students will get to know how to apply DML/DDL commands on database.
CO2) To apply knowledge of Programming in pl/sql including stored function,cursor,trigger.
CO3) Designing the normalized database.
CO4) Understanding the practical knowledge of exception handling.
CO5)Gathering data requirements and functional requriments

Formative and summative Evaluation

1) **Formative Evaluation: Knowledge, Understanding, Application, Skill**
2) **Summative Evaluation: University Examination**

P.E. Society's Modern College of Arts, Science & Commerce

Ganeshkhind, Pune-16

Department of English

EN-211

Course: Technical English

Name of the Subject Teacher: Jitender Kumar

Class: S.Y.B.Sc. Computer Science

Pattern: 2013 (Semester)

Course Outcomes (COs):

- **The students will be able to understand and appreciate literary pieces written in English**
- **Students will have enriched their vocabulary in English**
- **Certain units in the course dealing with social issues will enhance students' understanding of the society thus making them sensible citizens**
- **Improved understanding of English Language**
- **Communicative skills of the students in English will have improved**

Class: T.Y. B. Sc. (Computer Science)

Pattern: 2013 (Semester)

Course: System Programming

CS-331 (Paper I)

Name of the Teacher: Amol G. Patil

Course Outcome:

- Students will understand the design and implementation of System programs.
- Students will understand the role of System programs in program development.
- Students will able to differentiate between System program and Application program.
- Students will be able to analyze the working of Simulation of simple computer SMAC0
- Students will understand the design structure of a simple editor, Assembler and macro processor for hypothetical simulated computer.
- Students will understand the working of linkers and loaders and other development utilities.
- Students will understand Complexity of Operating system as software.

Course Outcome

Class : TYBSc (Computer Science)
Subject Code : CS 332
Subject : Theoretical Computer Science
Name of Teacher : Ranjana S. Shevkar

Upon successful completion of this course, the students are able to:

1. Design a finite automaton to recognize a given regular language.
2. Transform a language into regular expression or finite automaton or transition graph and define deterministic and nondeterministic finite automata.
3. Prove properties of regular languages and classify them.
4. Define relationship between regular languages and context-free grammars.
5. Building a context-free grammar for pushdown automata.
6. Determine whether a given language is context-free language or not and Prove properties of context-free languages.
7. Design Turing machine and Post machine for a given language.

Students are exposed to a broad overview of the theoretical foundations of computer science

Class: T.Y. B. Sc. (Computer Science)

Pattern: 2013 (Semester)

Course: Computer Networks -I

Code No. : CS-333 (Paper III)

Name of the teacher: Kulkarni Sonal Ramesh

Outcome of the Course :

- Students will get acquainted with fundamentals of Networking like PAN,LAN,MAN,WAN, topologies and Home & Business applications of Networks.
- Students will clear their basic concepts about the standards, their need & types of standards.
- Students will know the design issues for the layers, layered architecture of the Network Models & functions performed at each layer.
- Students will come to know the role played by different addresses at different layers of the network model.
- Students will understand very basic networking hardware like transmission media types & tools description .
- Students will be able to understand the need and importance of protocols at each layer in the communicating computers.

Class: T.Y.B.Sc (Computer Science)

Pattern: 2013 (Semester)

Course: Internet Programming

Course Code: CS-334

Name of the Teacher: Ms. Tamhane Dipali S.

Outcome of the course:

1. Students will gain deep understanding of the use and implementation of HTML 5 and PHP language.
2. Students will be able to write well-structured, easily maintained, standards-compliant, responsive HTML code.
3. Students will get acquainted with Object Oriented Web applications.
4. Students will be able to create PHP programs that use various PHP library functions, files and directories manipulations.
5. Students will understand database connection & information retrieval from database.
6. Students will be able to apply a structured approach to identifying needs, interests, and functionality of a website.

Class: T.Y. B. Sc. (Computer Science)

Pattern: 2013 (Semester)

Course: Programming in Java-I

CS-335 (Paper I)

Name of Faculty: Mrs . Rupali Sameer Phadnis

Course Outcome

1. Students will learn about the basic concepts of Object Oriented Programming language like Objects, Classes, Inheritance, Polymorphism etc.
2. They will implement those concepts in programming using Java language.
3. They will get an insight of how to handle unexpected problems and conditions in programming code and mechanisms of how to recover from them.
4. They will understand the concepts of designing Graphical User Interface and client side program execution on browser.
5. They will work on how to create files and transfer data to and from files through program coded in Java.

Class: T.Y. B. Sc. (Computer Science)
Pattern: 2013 (Semester)
Course: Object Oriented Software Engineering
Code No. : CS-336 (Paper VI)
Name of the teacher: Niket Pundlikrao Tajne

Outcome of the Course:

1. To inculcate the Analytical and thinking ability.
2. To develop structured sets of simple user-defined classes using Object-Oriented principles to achieve overall programming goals.
3. To understanding the significance of Object Orientation Technique in Software engineering.
4. To employ formal methods to produce effective software designs as solutions to specific tasks.
5. To locate, read and summarize relevant literature, from both traditional and electronic media, to extend understanding of the topic.
6. To understand the components of Unified Modeling Language (UML) by learning the all Symbolic notation.
7. To understand techniques and diagrams related to structural modeling as well as behavioral modeling.
8. To develop error identification and testing strategies for code development by Understanding techniques of Object Oriented analysis, object oriented design and object oriented testing.