

Course: BCA101 Digital Electronics

PROGRAMME: Computer Application	DEGREE: BCA
COURSE: Digital Electronics	SEMESTER: 1 CREDITS: 4
COURSECODE: BCA 101	COURSE TYPE: Theory
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): NA	LABCOURSE NAME: NA

Course pre-requisites;

Basic understanding of Number systems and basic Electronics concepts.

Course Objectives

The objective of this course is to introduce the organization of a computer and its principal components, viz, ALU, Control, Memory and Input/output. The course will also enable the student to understand the design components of a digital subsystem that required realizing various components such as ALU, Control, etc.

Course Outcomes:

Upon successful completion of the course, a student will be able to:

1. An ability to understand theory of Digital Design and Computer Organization to provide an insight of how basic computer components are specified.
2. An ability to understand the functions of various hardware components and their building blocks
3. An ability to understand and appreciate Boolean algebraic expressions to digital design
4. An in depth understanding of sequential! Combinational circuits
5. An in depth understanding of realization of different combinational/sequential circuits
6. An in depth understanding of different stages of an instruction execution
7. An in depth understanding of how different hardware components are related and work in coordination
8. An ability to understand computer buses and input/output peripherals

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BCA102 Business Systems and Applications

PROGRAMME: Computer Application	DEGREE: BCA
COURSE: Business Systems and Applications	SEMESTER: 1 CREDITS: 4
COURSECODE: BCA 102	COURSE TYPE: Theory
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): NA	LABCOURSE NAME: NA

Course pre-requisites:

Basic idea about Industry based software development and Business.

Course Objectives

The objective of the course is to help management students to get familiar with the modern computing techniques. Students will get familiarity with the computers and computing facilities including the techniques to use different office management software systems, underline functioning and working of hardware.

Course Outcomes

Students will be able to:

1. Recognize & appreciate the role of computing in a wide variety of activities & applications in modern society, including commerce, communication, education, travel & social interactions.
2. Distinguish & identify the structure and function of modern computer systems in terms of hardware & software as well as the integration of computers into business systems.
3. Explain how computing systems improve productivity, reliability & transparency of business, governance, education & research organizations.
4. Articulate the relevance of latest computing technologies in shaping the life.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect

Course: BCA103 Introduction to Programming

PROGRAMME: Computer Application	DEGREE: BCA
COURSE: Introduction to Programming	SEMESTER: 1 CREDITS: 4
COURSECODE: BCA 103	COURSE TYPE: Theory
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): BCA 193	LABCOURSE NAME: Programming Lab (C/ Pascal)

Course pre-requisites:

Basic understanding of Digital Computer, algorithm and Flowchart.

Course Objectives

1. Learn how to solve common types of computing problems.
2. Learn data types and control structures of C
3. Learn to map problems to programming features of C.
4. Learn to write good portable C programs.

Course Outcomes

Upon successful completion of the course, a student will be able to:

1. Appreciate and understand the working of a digital computer
2. Analyze a given problem and develop an algorithm to solve the problem
3. Improve upon a solution to a problem
4. Use the 'C' language constructs in the right way
5. Design, develop and test programs written in 'C'

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect

Course: BM 101 Mathematics

PROGRAMME: Computer Application	DEGREE: BCA
COURSE: Mathematics	SEMESTER: 1 CREDITS: 4
COURSECODE: BM 101	COURSE TYPE: Theory
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): NA	LABCOURSE NAME: NA

Course pre-requisites:

Basic knowledge of Class XII Mathematics /Business Mathematics.

Course Objectives

Mathematics concepts and notations are useful in studying and describing objects and problems in computer algorithms and programming languages and have applications in cryptography, automated theorem proving and software development. The objective of combinatorial mathematics is to demonstrate an understanding of the theory underlying exact approaches to combinatorial optimization problems, prove & interpret standard results in graph theory & develop, implement & critically evaluate the correctness and performance of standard graph algorithms and recurrence relations of different orders.

Course Outcomes

Upon successful completion of the course, a student will be able to:

1. Reason mathematically about basic discrete structures such as numbers, sets, used in computer science.
2. Evaluate Group, Ring and Fields and 2D Geometry.
3. Familiarity with Determinant and Matrices.
4. Formulate Limit, Continuity and Differentiability.
5. Demonstrate a working knowledge Definite and Indefinite Integrals.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BCA 104 PC Software

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: PC Software	SEMESTER: 1 CREDITS: 4
COURSECODE: BCA 104	COURSE TYPE: Theory
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): BCA 194	LABCOURSE NAME: PC Software Lab

Course pre-requisites

Basic knowledge of MS Office 2007 and computer fundamentals.

Course Objectives

The objective of the course is to introduce the concepts of computer fundamental & their applications for the efficient use of office technology in a business environment.

Course Outcomes

1. Demonstrate the basic technicalities of creating Word documents for office use.
2. Create and design a spreadsheet for general office
3. Demonstrate the basic technicalities of creating a PowerPoint presentation.
4. Demonstrate the practices in data & files management

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BCA 194 PC Software Lab

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: PC Software	SEMESTER: 1 CREDITS: 4
COURSECODE: BCA 194	COURSE TYPE: Practical
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 6P/WEEK

Course: BCA 193 Programming Lab (C/ Pascal)

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Programming Lab (C/ Pascal)	SEMESTER: 1 CREDITS: 4
COURSECODE: BCA 193	COURSE TYPE: Practical
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 6P/WEEK

Course: BCA 201 Computer Architecture and Systems Software

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Computer Architecture and Systems Software	SEMESTER: 2 CREDITS: 4
COURSECODE: BCA 201	COURSE TYPE: Theory
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): NA	LABCOURSE NAME: NA

Course pre-requisites

Basic knowledge of Digital electronics.

Course Objectives

The objective of this course is to introduce the organization of a computer and its principal components, viz, ALU, Control, Memory and Input/output. The course will also enable the student to understand the design components of a digital subsystem that required realizing various components such as ALU, Control, etc.

Course Outcomes

Upon successful completion of the course, a student will be able to:

1. An ability to understand theory of Digital Design and Computer Organization to provide an insight of how basic computer components are specified.
2. An ability to understand the functions of various hardware components and their building blocks
3. An ability to understand and appreciate Boolean algebraic expressions to digital design
4. An in depth understanding of sequential! Combinational circuits
5. An in depth understanding of realization of different combinational/sequential circuits
6. An ability to understand computer buses and input/output peripherals
7. An ability to understand memory hierarchy and design of primary memory

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BCA 202 Information Systems Analysis & Design

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Information Systems Analysis & Design	SEMESTER: 2 CREDITS: 4
COURSECODE: BCA 202	COURSE TYPE: Theory
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): NA	LABCOURSE NAME: NA

Course pre-requisites:

Basic knowledge of Software Development life cycle.

Course Objectives

1. To provide foundation for understanding the software development process in a defined way according to industrial standards.
2. To understand the complete software development life cycle and the different methodologies

Course Outcomes

After this course, the student will be able to

1. Develop the software projects or prototypes by understanding the requirements.
2. Meet the project deadlines along with the number of resources and type of tasks to be carried out.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BCA 203 Computer Programming

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Computer Programming	SEMESTER: 2 CREDITS: 4
COURSECODE: BCA 203	COURSE TYPE: Theory
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): BCA 293	LABCOURSE NAME: Programming Lab (Visual Basic)

Course pre-requisites:

Basic knowledge of Programming and basic user interface design.

Course Objectives

1. Learn basics of computer programming
2. Learn how to solve a given problem
3. Learn to use various paradigms of programming and user interface designing.
4. Learn Visual Basic as a programming language
5. Learn how to implement data structures and functions available in Visual Basic to solve problems

Course Outcomes

1. Analyze a given problem and implement an algorithm to solve the problem
2. Improve upon a solution to a problem
3. Implement the Visual Basic language constructs in the right way
4. Design, develop and test Applications written in Visual Basic.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BM 201 Mathematics

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Mathematics	SEMESTER: 2 CREDITS: 4
COURSECODE: BM 201	COURSE TYPE: Theory
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IF ANY): NA	LABCOURSE NAME:NA

Course pre-requisites

Basic knowledge of class XII standard and 1st semester Mathematics.

Course Objectives

1. To develop an understanding of Differential Equations concepts
2. To enable application of mathematical reasoning in solving problems through sequence and series.

Course Outcomes

1. Students would be able to understand the theories and principles of linear algebra
2. Students would be able apply their knowledge by solving mathematical problems

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: HU 201 English Language and Communication

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: English Language and Communication	SEMESTER: 2 CREDITS: 4
COURSECODE: HU 201	COURSE TYPE: Theory
COURSE AREA/DOMAIN: English Communication	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): HU 291	LABCOURSE NAME: Business Presentation and Language Lab

Course pre-requisites:

Basic knowledge of English Communication.

Course Objectives

1. Understand the communication concepts.
2. Practically apply various components of business communication
3. Identify and analyze essentials of communication
4. Understand the concept of effective communication in a corporate world

Course Outcomes

1. Mastering the art of a professional business presentation
2. Distinguishing different communication process and its practical application
3. More effective written communication

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: HU 291 Business Presentations and Language Lab

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Business Presentation and Language Lab	SEMESTER: 2 CREDITS: 4
COURSECODE: HU 291	COURSE TYPE: Practical
COURSE AREA/DOMAIN: English Communication	CONTACT HOURS: 6P/WEEK

Course: BCA 293 Programming Labs (Visual Basic)

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Programming Lab (Visual Basic)	SEMESTER: 2 CREDITS: 4
COURSECODE: BCA 293	COURSE TYPE: Practical
COURSE AREA/DOMAIN:	CONTACT HOURS: 6P/WEEK

Course: BCA 301 Operating Systems

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Operating Systems	SEMESTER: 3 CREDITS: 4
COURSECODE: BCA 301	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): NA	LABCOURSE NAME: NA

Course pre-requisites:

Basic knowledge of working principle of computer. Familiarity with WINDOWS and LINUX operating system.

Course Objectives

1. To understand the services provided by and the design of an operating system.
2. To understand the structure and organisation of the file system.
3. To understand what a process is and how processes are synchronized and scheduled.
4. To understand different approaches to memory management.
5. Students should be able to use system calls for managing processes, memory and the file system.
6. Students should understand the data structures and algorithms used to implement an OS.

Course Outcomes

1. Analyze the concepts of processes in operating system and illustration of the scheduling of processor for a given problem instance.
2. Identify the dead lock situation and provide appropriate solution so that protection and security of the operating system is also maintained.
3. Analyze memory management techniques, concepts of virtual memory and disk scheduling.
4. Understand the implementation of file systems and directories along with the interfacing of IO devices with the operating system.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BCA302 Data Structures with C

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Data Structures with C	SEMESTER: 3 CREDITS: 4
COURSECODE: BCA 302	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): BCA 392	LABCOURSE NAME: Programming Lab (Data Structure with C)

Course pre-requisites:

Sound programming knowledge in C and algorithms.

Course Objectives

1. Notion of Abstract Data Types (ADT) & Recursive access on them
2. Relation between Data Structure operations and Amortized Complexity analysis
3. How to implement Iterated Lists and variations thereof
4. Tree data structures and how to balance them, for specific access needs
5. Understanding Graph representations, Event modelling, spatial and temporal relational data
6. Choose a Data structure, a set of access methods and determine their asymptotic efficiency

Course Outcomes

Upon successful completion of the course student should be able to:

1. Analyze data structure impact on algorithms, program design and program performance.
2. Understand and apply amortised analysis on data structures, including binary search trees, heaps, and disjoint sets.
3. Explain & describe the applications of static and dynamic trees.
4. Design, implement, and use advanced ADTs.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BCA303 Graphics & Internet

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Graphics & Internet	SEMESTER: 3 CREDITS: 4
COURSECODE: BCA 303	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): BCA 393	LABCOURSE NAME: Internet & Computer Graphics Lab

Course pre-requisites:

Basic Programming knowledge of C language.

Course Objectives

1. To understand importance of visual representation
2. To emphasize basic theoretical tools to engage the various forms of visual culture that are increasingly prevalent in society

Course Outcomes

- After this course, the student will be able to
1. Design 2D and 3D techniques for graphics
 2. Apply graphics API (OpenGL) effectively

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect

Course: BM 301 Mathematics for Computing

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Mathematics for Computing	SEMESTER: 3 CREDITS: 4
COURSECODE: BM 301	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): NA	LABCOURSE NAME:NA

Course pre-requisites

Basic knowledge of class XII standard Mathematics and concepts of Graph and Algorithms..

Course Objectives

- 1.To develop an understanding of computability and complexity .
- 2.To develop an ability to design machine models for various computation problems.

Course Outcomes

- 1.Students would be able to determine computability of problems
- 2.Students would be able to design algorithms using machine models
- 3.Students would be able to apply the knowledge in compiler design, text and image processing.
4. The student will be able to define a system and recognize the behaviour of a system.
- 5.They will be able to minimize a system and compare different systems.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect

Course: BBA 301 Management & Accounting

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Management & Accounting	SEMESTER: 3 CREDITS: 4
COURSECODE: BBA 301	COURSE TYPE: Theory
COURSE AREA/DOMAIN: Accounts	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): NA	LABCOURSE NAME:NA

Course pre-requisites:

Fundamental concepts about account.

Course Objectives

The objective of the course is to strengthen the fundamentals of accounting and provide strong foundation for other accounting courses.

The course will intensify knowledge on all the basic components by using double entry book keeping perspective.

Course Outcomes

The students will be able to:

1. Define fundamental accounting concepts, Conventions & terminologies.
2. Describe the importance, functions & objectives of books of entry, subsidiary books, bank reconciliation statement and Final accounts.
3. Prepare books of entry, subsidiary books, bank reconciliation statement and Final accounts using double entry book keeping.
4. To rectify the errors located in books of entry & subsidiary books.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BCA 393 Internet & Computer Graphics Lab

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Internet & Computer Graphics Lab	SEMESTER: 3 CREDITS: 4
COURSECODE: BCA 393	COURSE TYPE: Practical
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 6P/WEEK

Course: BCA 392 Programming Labs (Data Structure with C)

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Programming Lab (Data Structure with C)	SEMESTER: 3 CREDITS: 4
COURSECODE: BCA 392	COURSE TYPE: Practical
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 6P/WEEK

Course: BCA 401 Data Base Management System

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Data Base Management System	SEMESTER: 4 CREDITS: 4
COURSECODE: BCA 401	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): BCA 491	LABCOURSE NAME: Database Lab (Oracle)

Course pre-requisites:

Fundamental concepts about data and basic programming knowledge.

Course Objectives

The objective of the course is to enable students to understand and use a relational database system. Introduction to Databases, Conceptual design using ERD, Functional dependencies and Normalization, Relational Algebra is covered in detail. Students learn how to design and create a good database and use various SQL operations. The course concludes with an overview of transaction management and introduction to advanced and non-relational databases.

Course Outcomes

1. Able to master the basic concepts and understand the applications of database systems.
2. Able to construct an Entity-Relationship (E-R) model from specifications and to transform to relational model.
3. Able to construct unary/binary/set/aggregate queries in Relational Algebra.
4. Understand and apply database normalization principles.
5. Able to construct SQL queries to perform CRUD operations on database. (Create, Retrieve, Update, Delete)
6. Understand principles of database transaction management, database recovery, security.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BCA 402 Object-Oriented Programming with C++

PROGRAMME: Computer Application	DEGREE:BCA
COURSE Object-Oriented Programming with C++	SEMESTER: 4 CREDITS: 4
COURSECODE: BCA 402	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): BM 491	LABCOURSE NAME: Computing Lab

Course pre-requisites

Fundamental programming knowledge about C language.

Course Objectives

The fundamental point in learning programming is to develop the critical skills of formulating programmatic solutions for real problems. It will be based on basic knowledge of algorithms and procedural programming language. Once the basic skill of writing programs using loop, methods and arrays will be clear then the student can develop object oriented software using class encapsulation and inheritance. To impart the basic concepts of Java Programming and to develop understanding about Basic Object oriented Design.

Course Outcomes

1. Understand fundamental constructs of OOP.
2. Get the knowledge of UML with skills to draw UML diagrams.
3. Get the knowledge of different forms of OO Implementation.
4. Apply object oriented programming concepts in problem solving through C++.
5. Design and implement Applet and event handling mechanisms in programs

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BCA 403 Software Project Management and Quality Assurance

PROGRAMME: Computer Application	DEGREE:BCA
COURSE :Software Project Management and Quality Assurance	SEMESTER: 4 CREDITS: 4
COURSECODE: BCA 403	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): NA	LABCOURSE NAME: NA

Course pre-requisites:

Basic knowledge about Software Development life cycle.

Course Objectives

To develop an understanding of software engineering, software crisis, SDLC. Understanding the concept of software project planning – feasibility analysis, requirement analysis, SRS documents. Come to know the software designing strategies – structured analysis, structured design, DFD, structure chart. Understand concept of Project Management along with software testing, maintenance, back-up..

Course Outcomes

1. Evaluate and analyze the SDLC and basic architecture SRS documents.
2. Help to understand the software design and coding techniques.
3. Understand the software testing principles.
4. Understand the concept project management.
5. Identify various concepts of Advanced UML techniques.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BM 401 Statistics, Numerical Methods & Algorithms

PROGRAMME: Computer Application	DEGREE:BCA
COURSE : Statistics, Numerical Methods & Algorithms	SEMESTER: 4 CREDITS: 4
COURSECODE: BM 401	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): BM 491	LABCOURSE NAME: Computing Lab

Course pre-requisites

Basic knowledge of formulation of algorithms.

Course Objectives

The primary goal is to provide engineering majors with a basic knowledge of numerical methods including: root-finding, elementary numerical linear algebra, integration, interpolation, solving systems of linear equations, curve fitting, and numerical solution to ordinary differential equations. 'C' language software environment used for implementation and application of these numerical methods. The numerical techniques learned in this course enable students to work with mathematical models of technology and systems.

Course Outcomes

1. An ability to apply knowledge of mathematics, science, and engineering.
2. An ability to design and conduct experiments, as well as to analyze and interpret data.
3. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. An ability to function on multidisciplinary teams

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: HU 401 Environment and Ecology

PROGRAMME: Computer Application	DEGREE:BCA
COURSE : Environment and Ecology	SEMESTER: 4 CREDITS: 4
COURSECODE: HU 401	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): NA	LABCOURSE NAME: NA

Course pre-requisites :

Basic understanding of Chemistry of class X standard.

Course Objectives

Environmental Studies is a multidisciplinary subject. It has been introduced with the objective of exposing the students to the basic concepts of environment - resources, pollution, management and law and also the current issues endangering life on earth.

Course Outcomes

A student complete the course would be able to

1. Understand fundamental physical and biological principles that govern natural processes.
2. Understand the natural environment as a system and how human activities affect the system
3. Interpret environmental resource management and sustainability conflicts from multiple perspectives.
4. Effectively analyze and integrate the social and natural sciences to understand diverse environmental and sustainability challenges ranging from local issues to global environments.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BCA 491 Database Lab (Oracle)

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Database Lab (Oracle)	SEMESTER: 4 CREDITS: 4
COURSECODE: BCA 393	COURSE TYPE: Practical
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 6P/WEEK

Course: BM 491 Computing Lab

PROGRAMME: Computer Application	DEGREE:BCA
COURSE :Computing Lab	SEMESTER: 4 CREDITS: 4
COURSECODE: BCA 393	COURSE TYPE: Practical
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 6P/WEEK

Course: BCA 501 Data Communication & Computer Networks

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Data Communication & Computer Networks	SEMESTER: 5 CREDITS: 4
COURSECODE: BCA 501	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): BCA 591	LABCOURSE NAME: Unix & Networking

Course pre-requisites:

Fundamental knowledge about analog and digital communication.

Course Objectives

1. To provide an introduction to the fundamental concepts on data communication and the design of computer networks.
2. To get familiarized with the basic protocols of computer networks.

Course Outcomes

After this course, the student will be able to

1. Identify the different components in a Communication System and their respective roles.
2. Describe the technical issues related to the local Area Networks
3. Identify the common technologies available in establishing LAN infrastructure.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BCA 502 Unix and Shell Programming

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Unix and Shell Programming	SEMESTER: 5 CREDITS: 4
COURSECODE: BCA 502	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): BCA591	LABCOURSE NAME: Unix & Networking Lab

Course pre-requisites

Basic knowledge about Operating System.

Course Objectives

1. To understand Unix Operating System
2. To explore the Basic Shell Commands

Course Outcomes

After this course, the student will be able to

1. Implement and innovate commands using the basic tool kit.
2. Develop shell programs in vi/vim editor.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect

Course: BCA 503 Windows Programming

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Windows Programming	SEMESTER: 5 CREDITS: 4
COURSECODE: BCA 503	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): NA	LABCOURSE NAME: NA

Course pre-requisites:

Basic knowledge about MS Visual Studio and GUI.

Course Objectives

1. To understand Windows concepts and terminology
2. To explore the MFC programming concepts.

Course Outcomes

After this course, the student will be able to

1. Implement and innovate commands using the basic tool kit.
2. Develop the practice of writing windows applications through OO concepts.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect

Course: BCA E501C Multimedia & E-Commerce (Elective 1)

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Windows Programming	SEMESTER: 5 CREDITS: 4
COURSECODE: BCA 503	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): NA	LABCOURSE NAME: NA

Course pre-requisites:

Basic ideas about Web and business.

Course Objectives

1. To develop an understanding of scope of E-Commerce.
2. To develop an understanding of electronic market and market place.
3. To develop an understanding of business models.
4. To develop an understanding of legal issues, threats of E-Commerce.

Course Outcomes

1. Students would be able to analyze the concept of electronic market and market place.
2. Students would be able to understand the business models.
3. Students would be able to understand the business standards.
4. Students would be able to understand the legal and security issues.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BCA 591 Unix & Networking Lab

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Unix & Networking	SEMESTER: 5 CREDITS: 4
COURSECODE: BCA 393	COURSE TYPE: Practical
COURSE AREA/DOMAIN: NA	CONTACT HOURS: 6P/WEEK

Course: BCA E601A Advanced networking and Communication (Elective II)

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Advanced networking and Communication	SEMESTER:6 CREDITS: 4
COURSECODE: BCA E601A	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): NA	LABCOURSE NAME: NA

Course pre-requisites:

Fundamental knowledge about analog and digital communication.

Course Objectives

1. To provide an introduction to the fundamental concepts on data communication and the design of computer networks.
2. To get familiarized with the basic protocols of computer networks.

Course Outcomes

After this course, the student will be able to

1. Identify the different components in a Communication System and their respective roles.
2. Describe the technical issues related to the local Area Networks
3. Identify the common technologies available in establishing LAN infrastructure.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect

Course: BCA E602B Object Oriented Programming with Java (Elective III)

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Object Oriented Programming with Java	SEMESTER:6 CREDITS: 4
COURSECODE: BCA E602B	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): NA	LABCOURSE NAME: NA

Course pre-requisites:

Basic knowledge about C,C++ .

Course Objectives

The fundamental point in learning programming is to develop the critical skills of formulating programmatic solutions for real problems. It will be based on basic knowledge of algorithms and procedural programming language. Once the basic skill of writing programs using loop, methods and arrays will be clear then the student can develop object oriented software using class encapsulation and inheritance.

To impart the basic concepts of Java Programming and to develop understanding about Basic Object oriented Design using UML and Applet.

Course Outcomes

1. Understands fundamental constructs of OOP.
2. Get the knowledge of UML with skills to draw UML diagrams.
3. Gets the knowledge of different forms of OO Implementation.
4. Apply object oriented programming concepts in problem solving through JAVA.
5. Design and implement Applet and event handling mechanisms in programs

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect



Course: BCA E602C Advanced Database Management (Elective III)

PROGRAMME: Computer Application	DEGREE:BCA
COURSE: Advanced Database Management	SEMESTER:6 CREDITS: 4
COURSECODE: BCA E602C	COURSE TYPE: Theory
COURSE AREA/DOMAIN:	CONTACT HOURS: 4 (weekly)
CORRESPONDING LABCOURSE CODE (IFANY): NA	LABCOURSE NAME: NA

Course pre-requisites:

Knowledge about Database Management System.

Course Objectives

The objective of the course is to enable students to understand and use a relational database system. Introduction to Databases, Conceptual design using ERD, Functional dependencies and Normalization, Relational Algebra is covered in detail. Students learn how to design and create a good database and use various SQL operations. The course concludes with an overview of transaction management and introduction to advanced and non-relational databases.

Course Outcomes

1. Able to master the basic concepts and understand the applications of database systems.
2. Able to construct an Entity-Relationship (E-R) model from specifications and to transform to relational model.
3. Able to construct unary/binary/set/aggregate queries in Relational Algebra.
4. Understand and apply database normalization principles.
5. Able to construct SQL queries to perform CRUD operations on database. (Create, Retrieve, Update, Delete)
6. Understand principles of database transaction management, database recovery, security.

Assessment Methodologies

S.NO	DESCRIPTION	TYPE
1	Student Assignment	Direct
2	Tests	Direct
3	University Examination	Direct
4	Student Feedback	Indirect

