

BCA Sem-I

Subject: Computer Fundamentals & PC Software

Subject Code: BCA01001T

Periods per week: 9

Practicals per week: 3

Duration of Lecture: 40 minutes

Course Objectives

- To impart knowledge about the structure, components and functions of a computer system.
- To understand working of basic input and output devices.
- To learn about the storage of data and storage devices.
- To give detailed knowledge of MS-Office.
- To give an in-depth understanding of role of computers in business, education and society.

Course Outcomes

- Familiarization with the terms like Application software, Operating System, peripheral devices, etc.
- Initiation into the process of writing business letters or job applications using MS Word.
- Tabulating data using spreadsheet software MS-Excel.
- Preparing presentations using MS PowerPoint.

Subject: Principles of Digital Electronics

Subject Code: BCA01002T

Periods per week: 12

Duration of Lecture: 40 minutes

Course Objectives

- To gain basic knowledge of digital electronics circuits and its levels.
- To understand and examine the structure of various number system and its conversation.
- To learn about the basic requirements for a design application.
- To enable the students to understand, analyze and design various combinational and sequential circuits.
- To understand the logic functions, circuits, truth table and Boolean algebra expression.

Course Outcomes

- Skill to build and troubleshoot digital logic circuits.
- Skill to use the methods of systematic reduction of Boolean expression using K- Map.
- Ability to interpret logic gates and its operations.
- Illustrate the working mechanism and design guidelines of different combinational and sequential circuits in the digital system.
- Familiarization with semiconductor memories in electronics.

Subject: Applied and Discrete Mathematics

Subject Code: BCA01003T

Periods per week: 9

Duration of period: 40 minutes

Course Objectives

- To understand and solve discrete mathematical problems.
- To impart knowledge regarding topics such as set Theory, basic logic, graphs, trees or discrete probability.
- To familiarize students with linear Algebra, differential and integral calculus, numerical methods and statistics.

Course Outcomes

- Student develops formal reasoning.
- Knowledge regarding the use of Discrete Mathematics in Computer Science.
- Helpful in formulating questions.
- Ability to solve problems based on discrete mathematics.

Subject: Introduction to the Internet

Subject Code: BCA01005T

Periods per week: 6

Practicals per week: 3

Duration of Lecture: 40 minutes

Course Objectives:

- To introduce the basic concepts and essential knowledge of the applications and technology of the Internet and World Wide Web.
- To learn about the practice of good Email Communication and how to identify E-mail Phishing and Spams.
- To learn Searching Techniques for fast search result.
- To gain hands-on experience of online productivity tools like Google Workspace, Microsoft Office 365, Cloud storage and file management, using collaboration tools like Google Docs, Slack, Microsoft Teams and Effective virtual meeting strategies through Zoom, Google Meet.
- To provide knowledge of Creating and maintaining a professional online profile (e.g., LinkedIn), Personal branding and digital portfolios, Networking strategies for academic and career growth, Understanding digital footprints, online reputation. Digital citizenship and respectful online behavior.

Course Outcomes:

- Ability to identify internet connections and configuring internet connection on PC/Laptop.
- Skills to write professional Email effectively.
- Skills to make online presence on internet by using social media like LinkedIn.

- In-depth knowledge of Google Docs, Google Classroom, Google Drive for document preparation and storage.

Subject: Communication Skills in English– I

Course Code: ENL121

Periods per week: 6

Duration of Lecture: 40 minutes

Course objectives and course outcomes

Communication skills course is designed to help students develop effective communication strategies that are crucial in both personal and professional settings. Below are typical objectives and outcomes for such courses:

Course objectives

- Understanding Communication processes
- Enhancing Written communication skills
- Develop Proficiency in writing clear concise and coherent texts. Practice writing for different purposes and audiences.
- Improving Listening skills
- Understand the importance of active listening, develop techniques for better comprehension and retention of spoken information.

Course Outcomes

- **Effective Communication:** Ability to communicate ideas clearly and effectively in both oral and written forms.
- **Public Speaking:** Exhibit confidence in public speaking situations.
- **Professional Writing:** Produce Bell structured and grammatically correct return documents for specific audiences
- **Active Listening:** Show proficiency in active listening techniques leading to better understanding and engagement in conversations.

These Objectives and outcomes aim to equip students with the essential skills needed to navigate various communication challenges and succeed in their personal and professional lives.

ਵਿਸ਼ਾ: ਲਾਜ਼ਮੀ ਪੰਜਾਬੀ

ਵਿਸ਼ਾ ਕੋਡ: PBL601

ਲੈਕਚਰ ਪ੍ਰਤੀ ਹਫ਼ਤੇ: 6

ਲੈਕਚਰ ਦਾ ਸਮਾਂ: 40 ਮਿੰਟ

ਉਦੇਸ਼:

- ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਭਾਸ਼ਾ, ਸਾਹਿਤ, ਅਤੇ ਸਭਿਆਚਾਰ ਪ੍ਰਤੀ ਚੇਤਨਤਾ ਪੈਦਾ ਕਰਨਾ।
- ਵਿਦਿਆਰਥੀਆਂ ਵਿਚ ਸਿਰਜਨਾਤਮਕ ਹੁਨਰ/ਕਲਾ ਨੂੰ ਉਤਸ਼ਾਹਿਤ ਕਰਨਾ।
- ਪੰਜਾਬੀ ਸਾਹਿਤ ਦੇ ਅਧਿਐਨ ਦੁਆਰਾ ਵਿਦਿਆਰਥੀ ਦੀ ਸ਼ਖ਼ਸੀਅਤ ਨੂੰ ਉਸਾਰਨਾ।
- ਵਿਦਿਆਰਥੀ ਦੀ ਸਾਹਿਤਕ ਸਮਝ ਵਿਚ ਵਾਧਾ ਕਰਨਾ।
- ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਨਿਕਾਸ ਅਤੇ ਵਿਕਾਸ ਤੋਂ ਵਿਦਿਆਰਥੀ ਨੂੰ ਜਾਣੂ ਕਰਵਾਉਣਾ।

ਨਤੀਜੇ:

- ਵਿਦਿਆਰਥੀ ਭਾਸ਼ਾਈ ਅਧਿਐਨ ਰਾਹੀਂ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਚ ਮੁਹਾਰਤ ਹਾਸਿਲ ਕਰੇਗਾ।
- ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਨਿਕਾਸ ਅਤੇ ਵਿਕਾਸ ਨੂੰ ਸਮਝੇਗਾ।
- ਵਿਦਿਆਰਥੀ ਵਿਚ ਭਾਸ਼ਾਈ ਸੰਰਚਨਾ ਬਾਰੇ ਸਮਝ ਵਧੇਗੀ।
- ਵਿਦਿਆਰਥੀ ਵਿਚ ਸਾਹਿਤਕ ਰਚਨਾਵਾਂ ਦਾ ਗਹਿਨ ਅਧਿਐਨ ਕਰਨ ਦੀ ਕਲਾ ਵਿਕਸਿਤ ਹੋਵੇਗੀ।
- ਵਿਦਿਆਰਥੀ ਸਾਹਿਤ ਦੀਆਂ ਗਲਪੀ ਵਿਧਾਵਾਂ ਰਾਹੀਂ ਸਮਾਜਕ ਤੇ ਸਭਿਆਚਾਰਕ ਪ੍ਰਸੰਗ ਨੂੰ ਉਭਾਰਨਾ ਸਿਖੇਗਾ।

BCA Sem-III

Subject: Computer Architecture

Subject Code: BCA03001T

Periods per week: 12

Duration of period: 40 minutes

Course Objectives

- To introduce the students to I/O and memory organization of computer system.
- To deliver an overview of Control Unit of a computer system.
- To enable the students to understand the functionality and implementation of computer system.
- To familiarize with the various instruction codes and formats of different CPUs.
- To learn the usage of parallel and vector processing.

Course Outcomes

- Ability to understand the functionality, organization and implementation of computer system.
- Skill to recognize the instruction codes and formats.
- Knowledge of the internal working of main memory, cache memory, associative memory and various modes of data transfer.
- Familiarization with the working of parallel processing and vector processing.

Subject: Database Management System

Subject Code: BCA03002T

Periods per week: 9

Practicals per week: 3

Duration of period: 40 minutes

Course Objectives

- To introduce the students to the database system.
- To learn how to design a database by using different models.
- To enable the students to understand the database handling during execution of the transactions.
- To understand the handling of database by concurrent users.
- To gain complete knowledge of SQL and PL/SQL.

Course Outcomes

- Familiarization with Database Management System.
- Comprehensive knowledge of database models.
- Ability to code database transactions using SQL.
- Skill to write PL/SQL programs.

Subject: Computational Problem Solving Using Python

Subject Code: BCA03003T

Periods per week: 9

Practicals per week: 3

Duration of period: 40 minutes

Course Objectives

- To impart knowledge of one of the latest and powerful programming languages – Python.
- To make students understand about to read and write files.
- To give a broad view of concept of Object-Oriented Programming (OOP) applied in Python.
- To learn how to connect Python programs to a database.

Course Outcomes

- Ability to create and execute Python programs.
- Understanding the working of file I/O.
- Ability to manipulate database using Python programs.

Subject: Multimedia Technology and Application

Periods per Week: 6

Practical per week: 3

Duration of period: 40 minutes

Course Objectives

- To learn various concepts of multimedia and its applications.
- To learn representations, perceptions and applications of Multimedia.
- To understand the technologies behind multimedia applications.
- To familiarize students with the working of various multimedia application software viz. Adobe Photoshop, Audacity, Final cut pro, WordPress, Blender.

Course Outcomes

- Ability to analyze the key components of multimedia technologies including text, graphics, voice, video and animation.
- Skill to use Adobe Photoshop, Final Cut Pro, Blender, Audacity.
- Knowledge of content management software - WordPress.

BCA Sem-V

Subject: Software Engineering

Subject Code: Paper-I

Periods per week: 6

Duration of period: 40 minutes

Course Objectives

- To introduce the students to a branch of study associated with the development of a software product.
- To gain basic knowledge about the pre-requisites for planning a software project.
- To learn how to design of software.
- To enable the students to perform testing of a software.

Course Outcomes

- Familiarization with the concept of software engineering and its relevance.
- Understanding of various methods or models for developing a software product.
- Ability to analyze existing system to gather requirements for proposed system.
- Skill to design and code a software.

Subject: Web Technologies

Subject Code: Paper-II

Periods per week: 9

Practical per week: 3

Duration of period: 40 minutes

Course Objectives

- To learn various Emerging Web Technologies.
- To enable the students to design and implement static and dynamic Web pages.
- To acquire knowledge regarding hosting a website online.
- To learn PHP and MySQL.

Course Outcomes

- Ability to develop web pages using HTML5 and Cascading Style Sheets.
- Knowledge of client-side (JavaScript) and server-side scripting (PHP) languages to build dynamic web pages.
- Familiarization with Emerging Web Technologies viz. Virtual and Augmented Reality, Artificial Intelligence, Machine Learning, Chatbot, IoT etc.
- Ability to develop database applications with MySQL.

Subject: Operating System

Subject Code: Paper-III

Periods per week: 12

Duration of period: 40 minutes

Course Objectives

- To deliver a detailed knowledge of integral software in a computer system – Operating System.
- To understand the working of operating system as a resource manager.
- To familiarize the students with Process and Memory management.
- To describe the problem of process synchronization and its solution.

Course Outcomes

- Ability to apply CPU scheduling algorithms to manage tasks.
- Initiation into the process of applying memory management methods and allocation policies.
- Knowledge of methods of prevention and recovery from a system deadlock.
- Understanding of disk structure and disk scheduling.

Subject: Java Programming Language

Subject Code: Paper-IV

Periods per week: 9

Practical per week: 3

Duration of period: 40 minutes

Course Objectives

- To learn the syntax and semantics to write Java programs.
- To understand the fundamentals of object-oriented programming in Java.
- To familiarize with the concept of inheritance, polymorphism, packages and interfaces.

Course Outcomes

- Skill to write Java application programs using OOP principles and proper program structuring.
- Ability to create packages and interfaces.
- Ability to implement error handling techniques using exception handling.