

B.Sc.(IT)

CODE: BITL–1102

COMMUNICATION SKILLS IN ENGLISH

Course Outcomes:

After passing this course the student will develop the following Skills:

CO 1: Reading skills that will facilitate them to become an efficient reader.

CO 2: The ability to realise not only language productivity but also the pleasure of being able to articulate well.

CO 3: The power to analyse, interpret and infer the ideas in the text.

CO 4: The ability to have a comprehensive understanding of the ideas in the text and enhance their critical thinking.

CO 5: Writing skills of students which will make them proficient enough to express ideas in clear and grammatically correct English.

CO 6: Ability to plan, organise and present ideas coherently on a given topic.

CO 7: The skill to use an appropriate style and format in writing letters (formal and informal.)

COURSE CODE: BITL–1113

INTRODUCTION TO PROGRAMMING - C

Course Outcomes:

After passing course the student will be able to:

CO1: Understand formulation of algorithms and flowcharts for problem solution and different programming constructs.

CO2: Have knowledge of execution flow of a C program for programming and maintenance.

CO3: Apply programming concepts to provide solution in different problem domains.

COURSE CODE: BITL–1114

FUNDAMENTALS OF COMPUTERS

Course Outcomes:

After passing course the student will be able to:

CO1: Have knowledge of Computer fundamentals, operating system concepts and office automation software.

CO2: Apply office automation software to create professional and academic documents and presentations.

CO3: Work on Spreadsheet application for office tasks.

COURSE CODE: BITL-1335
APPLIED AND DISCRETE MATHEMATICS

Course Outcomes:

After passing course the student will be able to:

- CO1: Have knowledge of matrices, sets, relations, propositional logic and Boolean algebra.
- CO 2: Represent world knowledge in symbolic notation through propositional calculus.
- CO 3: Apply discrete mathematical concepts to obtain analytical and numerical solutions.

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) SEMESTER - II
COURSE CODE: BITL-2421
PUNJABI (COMPULSORY)

COURSE OUTCOMES

CO1: ਆਤਮ ਅਨਾਤਮ ਪੁਸਤਕ ਦੇ ਕਹਾਣੀ ਭਾਗ ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਲ ਕਰ ਕੇ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਕਹਾਣੀ ਨੂੰ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਅਤੇ ਕਹਾਣੀ ਜਗਤ ਨਾਲ ਜੋੜਣਾ ਹੈ।

CO2: ਗੱਦ ਪ੍ਰਵਾਹ (ਰੇਖਾ ਚਿਤ੍ਰ ਤੇ ਹਲਕੇ ਲੇਖ) ਪੁਸਤਕ ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਲ ਕਰ ਕੇ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਪੜ੍ਹਣ ਦੀ ਰੁਚੀ ਨੂੰ ਪੈਦਾ ਕਰਨਾ ਹੈ ਅਤੇ ਮੁੱਲਵਾਨ ਇਤਿਹਾਸ ਤੋਂ ਜਾਣੂ ਕਰਵਾਉਣਾ ਹੈ।

CO3: ਸੰਖੇਪ ਰਚਨਾ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਸਮੇਂ ਅਤੇ ਮਿਹਨਤ ਦੀ ਬੱਚਤ ਕਰਨ ਬਾਰੇ ਦੱਸਣਾ ਹੈ।

CO4: ਪੈਰਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉਤਰ ਦੇਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਬੁੱਧੀ ਨੂੰ ਤੀਖਣ ਕਰਦਿਆਂ ਉਨ੍ਹਾਂ ਦੀ ਲਿਖਣ ਪ੍ਰਤਿਭਾ ਨੂੰ ਉਜਾਗਰ ਕਰਨਾ ਹੈ।

CO5: ਸ਼ਬਦ ਬਣਤਰ ਅਤੇ ਸ਼ਬਦ ਰਚਨਾ ਪੜ੍ਹਣ ਨਾਲ ਵਿਦਿਆਰਥੀ ਇਸਦੇ ਮੁੱਢਲੇ ਸੰਕਲਪਾਂ ਨੂੰ ਆਧਾਰ ਬਣਾ ਕੇ ਇਹਨਾਂ ਸੰਕਲਪਾਂ ਤੋਂ ਜਾਣੂ ਹੋਣਗੇ।

CO6: ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਅਮੀਰੀ ਦਾ ਅਤੇ ਬਾਰੀਕੀਆਂ ਨੂੰ ਸਮਝਣ ਲਈ ਵੱਖਰੇ - ਵੱਖਰੇ ਸਿਧਾਂਤਾਂ ਦਾ ਵਿਕਾਸ ਕਰਨਾ ਹੈ।

CO7: ਮੁਹਾਵਰਿਆਂ ਦੀ ਵਰਤੋਂ ਨਾਲ ਗੱਲਬਾਤ ਵਿਚ ਪਰਪੱਕਤਾ ਆਉਂਦੀ ਹੈ। ਇਹ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਗੱਲਬਾਤ ਵਿਚ ਨਿਖਾਰ ਲਿਆਉਣ ਦਾ ਕੰਮ ਕਰਨਗੇ।

COURSE CODE: BITL-2031
BASIC PUNJABI

Course Outcome:

CO1:ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਨੂੰ ਸਿਖਾਉਣ ਦੀ ਪ੍ਰਕਿਰਿਆ ਵਿਚ ਪਾ ਕੇ ਇਕ ਹੋਰ ਭਾਸ਼ਾ ਸਿੱਖਣ ਦੇ ਮੌਕੇ ਪ੍ਰਦਾਨ ਕਰਨਾ ਹੈ।

CO2:ਇਸ ਵਿਚ ਵਿਦਿਆਰਥੀ ਨੂੰ ਬਾਰੀਕਬੀਨੀ ਨਾਲ ਭਾਸ਼ਾ ਦਾ ਅਧਿਐਨ ਕਰਵਾਇਆ ਜਾਵੇਗਾ।

CO3:ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਸ਼ਬਦ ਰਚਨਾ ਤੋਂ ਜਾਣੂ ਕਰਵਾਇਆ ਜਾਵੇਗਾ।

CO4:ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ ਨੂੰ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੀ ਅਮੀਰੀ ਦਾ ਅਤੇ ਬਾਰੀਕੀਆਂ ਨੂੰ ਸਮਝਣ ਲਈ ਵੱਖਰੇ - ਵੱਖਰੇ ਸਿਧਾਂਤਾਂ ਦਾ ਵਿਕਾਸ ਕਰਨਾ ਹੈ।

CO5:ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਦਾ ਸ਼ਬਦ ਘੇਰਾ ਵਿਸ਼ਾਲ ਕਰਨਾ ਹੈ।

CO6:ਵਿਦਿਆਰਥੀ ਵਾਕ ਦੀ ਪਰਿਭਾਸ਼ਾ ਅਤੇ ਇਸਦੀ ਬਣਤਰ ਤੋਂ ਜਾਣੂ ਹੋਣਗੇ ਅਤੇ ਭਾਸ਼ਾ ਤੇ ਪਕੜ ਮਜ਼ਬੂਤ ਹੋਵੇਗੀ।

CO7:ਪੈਰਾ ਰਚਨਾ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਬੁੱਧੀ ਨੂੰ ਤੀਖਣ ਕਰਦਿਆਂ ਉਨ੍ਹਾਂ ਦੀ ਲਿਖਣ ਪ੍ਰਤਿਭਾ ਨੂੰ ਉਜਾਗਰ ਕਰਨਾ ਹੈ।

CO8: ਸੰਖੇਪ ਰਚਨਾ ਕਰਨ ਨਾਲ ਵਿਦਿਆਰਥੀ ਆਪਣੀ ਗੱਲ ਨੂੰ ਸੰਖੇਪ ਵਿਚ ਕਹਿਣ ਦੀ ਜਾਚ ਸਿੱਖਣਗੇ ਅਤੇ ਇਹ ਦਿਮਾਗੀ ਕਸਰਤ ਵਿਚ ਸਹਾਈ ਹੋਵੇਗੀ।

CO9:ਘਰੇਲੂ ਅਤੇ ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ ਲਿਖਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਇਸ ਕਲਾ ਵਿਚ ਨਿਪੁੰਨ ਕਰਨਾ ਹੈ।

CO10: ਮੁਹਾਵਰਿਆਂ ਦੀ ਵਰਤੋਂ ਨਾਲ ਗੱਲਬਾਤ ਵਿਚ ਪਰਪੱਕਤਾ ਆਉਂਦੀ ਹੈ। ਇਹ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਗੱਲਬਾਤ ਵਿਚ ਨਿਖਾਰ ਲਿਆਉਣ ਦਾ ਕੰਮ ਕਰਨਗੇ।

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COURSE CODE: BITL-2431

Punjab History and Culture (C. 320 to 1000 B.C.)

(Special paper in lieu of Punjabi Compulsory)

(For those students who are not domicile of Punjab)

Course Outcomes:

After completing Semester II and course on Ancient History of Punjab, students of History will be able to identify and have a complete grasp on the sources & writings of Ancient History of Punjab

CO 1: Analyse the emergence of Mauryan, Gupta empires during the classical age in India

CO 2: To understand the various factors leading to rise and fall of empires and emergence of new dynasties and their Culture, society, administration , polity and religion specifically of Kushans and Vardhanas in the Punjab

CO 3: Students will be adept in constructing original historical argument based on primary source material research

CO 4: To have an insight on the existing Literature of this period and understand the past developments in the light of present scenario.

CO 5: To enable students to have thorough insight into the various forms/styles of Architecture and synthesis of Indo - Muslim Art and Architecture in Punjab

COURSE CODE: BITM–2102

COMMUNICATION SKILLS IN ENGLISH

Course Outcomes:

At the end of this course, the students will develop the following skills:

CO 1: Enhancement of listening skills with the help of listening exercises based on conversation, news and TV reports

CO 2: Improvement of speaking skills enabling them to converse in a specific situation

CO 3: Acquisition of knowledge of phonetics which will help them in learning about correct pronunciation as well as effective speaking

CO 4: The capability to present themselves well in a job interview

CO 5: The ability of Note-Taking to be able to distinguish the main points from the supporting details and the irrelevant information from the relevant one

CO 6: Speaking skills of the students enabling them to take active part in group discussion and present their own ideas

CO 7: The capability of narrating events and incidents in a logical sequence

COURSE CODE: BITL–2113

OBJECT ORIENTED PROGRAMMING - I

Course Outcomes:

After the completion of this course, the student will be able to:

CO1: Comprehend the concepts of Object-Oriented Programming Paradigm

CO2: Write, compile and debug programs in C++, use different data types, operators and I/O function in a computer program.

CO3: Apply OOPs concepts to model real world problems for its simplified implementation.

COURSE CODE: BITL-2114
PRINCIPLES OF DIGITAL ELECTRONICS

Course Outcomes:

After the completion of this course, the student will be able to:

- CO1: Comprehend and apply the number systems and Boolean Algebra.
- CO2: Design advanced and complex electronic circuits.
- CO3: Reduce Boolean Expressions and implement them with Logic Gates.
- CO4: Demonstrate the internal structure of semiconductor memory

COURSE CODE: BITL-2115
NUMERICAL METHODS AND STATISTICAL TECHNIQUES

Course Outcomes:

After the completion of this course, the student will be able to:

- CO1: Comprehend mechanics of elementary methods and statistical inference techniques for numerical analysis.
- CO2: Demonstrate the application of numerical methods on different platform with the use of programming language.
- CO3: Apply learned techniques to solve linear and non-linear equations related real world problems.

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) SEMESTER – III

Session 2020-21
COURSE CODE: BITL-3111
INTRODUCTION TO PYTHON

Course Outcomes:

After passing course the student will be able to:

- CO1: Understand the formulation of algorithms and programs for problem solving.
- CO2: Gain understanding of various programming constructs like data types, operators, string processing and control structures.
- CO3: Have knowledge of object oriented programming paradigms.
- CO4: Have understanding of file handling, exception handling and SQLite database connectivity in Python.

COURSE CODE: BITL-3112
DATA STRUCTURES

Course Outcomes:

After passing course the student will be able to:

- CO1: Get familiarized with basic data structures.
- CO2: Analyze algorithms to determine their efficiency.
- CO3: Handle operations on various data structures.
- CO4: Choose appropriate data structures according to real world problems.

COURSE CODE: BITL-3113
SYSTEM ANALYSIS AND DESIGN

Course Outcomes:

After passing course the student will be able to:

- CO1: Gather data to analyze and specify the requirements of a system.
- CO2: Design database for storing data and user interface for data input and output,
- CO3: Build modular and structured design of a system and in designing a model.
- CO4: Identify the quality assurance and documentation tools.

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) SEMESTER- IV
(Session 2020-21)

COURSE CODE: BITL-4111
DATABASE MANAGEMENT SYSTEM

Course Outcomes:

After the completion of this course, the student will be able to:

- CO1: Comprehend various terms like data, database and database models.
- CO2: Illustrate the concept of database normalization and its various forms.
- CO3: Apply SQL to design basic to intermediate level of databases.
- CO4: Comprehend the use of Programming Language constructs like function, procedure, packages, etc. in database.
- CO5: Acquire knowledge of big data and NoSQL.

COURSE CODE: BITL-4112
INTERNET APPLICATIONS

Course Outcomes:

After passing course the student will be able to:

- CO1: Comprehend basics of internet and its working.
- CO2: Apply the concepts for better e-mail management.
- CO3: Comprehend different Internet protocols and search engines.
- CO4: Apply basic web designing technologies to design webpage.

COURSE CODE: BITL-4113
OBJECT ORIENTED PROGRAMMING- II

Course Outcomes:

After passing this course the student will be able to:

- CO1: Apply OOPs concepts to model real world problems for its simplified implementation.
- CO2: Comprehend fundamentals of Java programming.
- CO3: Identify the utilization of packages, multithreading and Exception handling.
- CO4: Demonstrate the concept of file handling and Applets.

COURSE CODE: BITL-4114
E-BUSINESS

Course Outcomes:

After passing this course student will be able to:

- CO1: Comprehend the basic terms of E-Commerce, its evolution, aims and benefits.
- CO2: Acquaint about the steps to be followed for opening a new E-Commerce business, along with its Hardware & Software requirements.
- CO3: Identify Electronic Payment systems and various issues involved in relation to secure electronic transactions.
- CO4: Discuss BPR and Case Studies of E-Business related applications.

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) SEMESTER V
COURSE CODE: BITL-5111
COMPUTER NETWORKS

Course Outcomes:

After passing course the student will be able to:

- CO1: Describe the functions of each layer in OSI and TCP/IP model.
- CO2: Understand the types of transmission media with real time applications
- CO3: Describe the Data Link layer and Network layer design issues.
- CO4: Explain the functions of Transport layer and Application layer protocols.
- CO5: Have a basic knowledge of the use of cryptography and network security.

COURSE CODE: BITL-5112
WEB TECHNOLOGIES

Course Outcomes:

After passing course the student will be able to:

- CO1: Understand the basics of websites and use of different markup languages.
- CO2: Gain knowledge of different client side technologies.
- CO3: Develop single page application through React.

COURSE CODE: BITL-5113
OPERATING SYSTEM

Course Outcomes:

After passing course the student will be able to:

- CO1: Describe, contrast and compare different types of Operating System.
- CO2: Understand the process management policies and CPU scheduling.
- CO3: Describe and analyze the memory management and its allocation policies.
- CO4: Gain knowledge of operating system concepts that includes virtual memory, mutual exclusion algorithms and deadlock handling.

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) SEMESTER VI
COURSE CODE: BITL - 6111
COMPUTER GRAPHICS

Course Outcomes:

After passing this course the student will be able to:

- CO1: Comprehend the background mechanism involved in display devices like CRT, LCD, LED, etc.
- CO2: Comprehend basic concepts involved in drawing basic shapes.

CO3: Implement various algorithms to scan, convert the basic geometrical primitives, transformations, Area filling, clipping, etc.

CO4: Identify the importance of viewing and projections.

COURSE CODE: BITL - 6112
SOFTWARE ENGINEERING

Course Outcomes:

After passing course the student will be able to:

CO1: Identify and evaluate various process model used for development of software.

CO2: Analyze gathered data to form requirement specifications and design modular and /or structured design of a system.

CO3: Identify documentation involved during different phases of system development.

CO4: Apply testing techniques on basic building blocks and control structure.

CO5: Comprehend activities involved in software project management.

COURSE CODE: BITP - 6114
PROJECT

Course Outcomes:

After passing course the student will be able to:

CO1: Apply the tools and techniques learnt to frame problems and their corresponding solutions.

CO2: Develop skills necessary to structure, manage and execute projects.

CO3: Learn to work as a member of a cohesive unit.

CO4: Develop presentation skills.

ADDITIONAL / OPTIONAL PAPER FOR SPECIALIZATION IN DATA SCIENCE

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) SEMESTER I
(Session 2020-21)

COURSE CODE: BITL-1117

FUNDAMENTALS OF DATA PREPROCESSING AND DATA MINING

Course Outcomes:

After the completion of this course, the student will be able to:

CO1: Comprehend terminology associated with data and its processing.

CO2: Comprehend various types of data mining tools and methods.

CO3: Implementation of different Data Analysis tools.

CO4: Implement statistical techniques using Spreadsheets.

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) SEMESTER II
(Session 2020-21)

COURSE CODE: BITL-2117

STATISTICAL TECHNIQUES FOR DATA SCIENCE

Course Outcomes:

After the completion of this course, the student will be able to:

CO1: Comprehend the key terminology of descriptive statistics and frequency distribution.

CO2: Distinguish between sample and population distributions, identify the basic concepts of hypothesis testing to conduct hypothesis.

CO3: Comprehend the basic Probability terms and their usage.

CO4: Implement statistical techniques using Spreadsheets.

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) SEMESTER- III
(Session 2020-21)

COURSE CODE: BITL-3116

DATA VISUALIZATION

Course Outcomes:

After the completion of this course, the student will be able to:

CO1: Comprehend Importance and applications of data visualization

CO2: Acquaint with data visualization tools

CO2: Interpret large amounts of data to analyze, explain and compare data

CO3: Use Specialized and advanced data visualization tools.

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) SEMESTER IV
(Session 2020-21)

COURSE CODE: BITM-4117

FOUNDATION OF STATISTICAL COMPUTING

Course Outcomes:

After passing this course the student will be able to:

CO1: Comprehend basic constructs like control statements, string functions, array, list, etc in R programming.

CO2: Create, operate and manage data frames.

CO3: Apply R programming from a statistical perspective.

CO4: Simulate various descriptive and analytical algorithms using R language.