FACULTY OF COMPUTER SCIENCE & IT

SYLLABUS

of

Bachelor of Science (Information Technology)

(Semester I-VI)

(UnderContinuous Evaluation System)

(12+3 System of Education)

Session 2022-23

The Heritage Institution

KANYA MAHA VIDYALAYA JALANDHAR (Autonomous)

Program Specific Outcomes

Bachelor of Science (Information Technology)
(Session 2022-23)

After completing this program, the students will be able to:

PSO1: Apply skills for development of software and websites for providing efficient solution to IT based problems.

PSO2: Comprehend development process in IT industry through ethical, defined and innovative techniques.

PS03: Achieve leadership role and team player role to be able to work in multidisciplinary areas at various job roles.

PSO4: Identify and demonstrate the implementation of various tools and technologies involved in the field of Information Technology.

PSO5: Demonstrate proficiency in the field of Programming, Web development and IT enabled services.

Bachelor of Science (Information Technology) Semester- I

(Session 2022-23)
COURSE CODE: BITL–1031
BASIC PUNJABI

In lieu of Punjabi(Compulsory)

Course outcomes

CO1:ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਨੂੰ ਸਿਖਾਉਣ ਦੀ ਪ੍ਰਕਿਰਿਆ ਵਿਚ ਪਾ ਕੇ ਇਕ ਹੋਰ ਭਾਸ਼ਾ ਸਿੱਖਣ ਦਾ ਮੌਕਾ 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:ਮੁੱਢਲੀ ਪੰਜਾਬੀ ਪੜ੍ਹਾਉਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਨਿੱਤ ਵਰਤੋਂ ਦੀ ਪੰਜਾਬੀ ਸ਼ਬਦਾਵਲੀ ਬਾਰੇ ਦੱਸਣਾ ਹੈ।

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

CO6:ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬੀ ਵਿਚ ਹਫ਼ਤੇ ਦੇ ਸੱਤ ਦਿਨਾਂ ਦੇ ਨਾਂ, ਬਾਰ੍ਹਾਂ ਮਹੀਨਿਆਂ ਦੇ ਨਾਂ, ਰੁੱਤਾਂ ਦੇ ਨਾਂ, ਇਕ ਤੋਂ ਸੌ ਤੱਕ ਗਿਣਤੀ ਸ਼ਬਦਾਂ ਵਿਚ ਸਿਖਾਉਣਾ ਹੈ।

Bachelor of Science (Information Technology) Semester- I

(Session 2022-23)
COURSE CODE: BITL–1431
Punjab History and Culture (From Earliest Times to C 320)
(Special paper in lieu of Punjabi Compulsory)
(For those students who are not domicile of Punjab)

COURSE OUTCOMES

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

CO1: Identify and understand the sources and physical features of Punjab

CO2:- To study the earliest civilisation (Indus Valley Civilization) and original home of Aryans

CO3:- To examine the Social, Religious and Economic life during Early and Later Vedic Age

CO4: To comprehend the Buddhist, Jain and Hindu faith and their relevance in the modern times

Bachelor of Science (Information Technology) Semester- I

(Session 2022-23)
COURSE CODE: BITL–1102
COMMUNICATION SKILLS IN ENGLISH

COURSE OUTCOMES:

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

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

CO 2: Through reading skills, the students will have an ability to have a comprehensive understanding of the ideas in the text and enhance their critical thinking

CO 3: Writing skills of students which will make them proficient enough to express ideas in clear and grammatically correct English

CO 4: The skill to use an appropriate style and format in writing letters (formal and informal) and resume, memo, notices, agenda, minutes

Bachelor of Science (Information Technology) Semester- I

(Session 2022-23)
COURSE CODE: BITL–1333
APPLIED AND DISCRETE MATHEMATICS

Course Outcomes:

After passing this course the student will be able to:

CO1: Apply various operations on sets and relations

CO2: Represents world knowledge in symbolic notation through propositional calculus

CO3: Apply Boolean algebra to solve problems like minimization, standard formetc.

CO4: Apply various operations like addition, subtraction, multiplication, inverseetc. on matrices

Bachelor of Science (Information Technology) Semester- I

(Session 2022-23)
COURSE CODE: BITM–1114
INTRODUCTION TO PROGRAMMING - C

Course Outcomes:

After passing course the student will be able to:

CO1:Comprehend the working of various programming constructs involved in C Programming
CO2: Design C program and control its sequence using various control statements
CO3: Apply programming concepts such as arrays, functions and strings to provide solution in different problem domains
CO4: Work with pointers, structures and union

Bachelor of Science (Information Technology) Semester- I

(Session 2022-23)
COURSE CODE: BITM–1115
FUNDAMENTALS OF COMPUTERS

Course Outcomes:

After passing course the student will be able to:

CO1: comprehend about computer hardware, operating system concepts and various system software

CO2: Identify various input, output and memory devices
CO3: Apply office automation software to create professional and academic documents and presentations

CO4: Manage data in a spreadsheet along with its representation through graphs

Bachelor of Science (Information Technology) Semester- I

(Session 2022-23)

COURSE CODE: AECD - 1161

DRUG ABUSE: PROBLEM, MANAGEMENT AND PREVENTION

(COMPULSORY)

Course Outcomes

After completing the course the students will be able to:

CO1. Learn how to include factual data about what substance abuse is; warning signs of addiction; information about how alcohol and specific drugs affect the mind and body;

CO 2. Learn how to be supportive during the detoxification and rehabilitation process.

CO3. Focus on substance abuse education- is teaching individuals about drug and alcohol abuse and how to avoid, stop, or get help for substance use disorders.

CO 4. Understand that substance abuse education is important for students alike; there are many misconceptions about commonly used legal and illegal substances, such as alcohol and marijuana

Bachelor of Science (Information Technology) Semester- II

(Session 2022-23)
COURSE CODE: BITL–2421
PUNJABI (COMPULSORY)

COURSE OUTCOMES

CO1: ਆਤਮ ਅਨਾਤਮ ਪੁਸਤਕ ਦੇ ਕਹਾਣੀ ਭਾਗ ਨੂੰ ਸਿਲੇਬਸ ਵਿਚ ਸ਼ਾਮਿਲ 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 ਸ਼ਾਮਿਲ 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: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:ਮੁਹਾਵਰਿਆਂ ਦੀ ਵਰਤੋਂ ਨਾਲ ਗੱਲਬਾਤ ਵਿਚ ਪਰਪੱਕਤਾ ਆਉਂਦੀ ਹੈ।ਇਹ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਗੱਲਬਾਤ ਵਿਚ ਨਿਖਾਰ ਲਿਆਉਣ ਦਾ ਕੰਮ ਕਰਨਗੇ।

Bachelor of Science (Information Technology) Semester- II

(Session 2022-23)
COURSE CODE: BITL–2031
BASIC PUNJABI

In lieu of Punjabi(Compulsory)

Course outcomes

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 ਮਜਬੂਤ ਹੋਵੇਗੀ।

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

CO8: ਘਰੇਲੂ ਅਤੇ ਦਫ਼ਤਰੀ ਚਿੱਠੀ ਪੱਤਰ ਲਿਖਣ ਦਾ ਮਨੋਰਥ ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਇਸ ਕਲਾ ਵਿਚ ਨਿਪੁੰਨ ਕਰਨਾ ਹੈ।

CO9:ਮੁਹਾਵਰਿਆਂ ਦੀ ਵਰਤੋਂ ਨਾਲ ਗੱਲਬਾਤ ਵਿਚ ਪਰਪੱਕਤਾ ਆਉਂਦੀ ਹੈ।ਇਹ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਗੱਲਬਾਤ ਵਿਚ ਨਿਖਾਰ ਲਿਆਉਣ ਦਾ ਕੰਮ ਕਰਨਗੇ।

Bachelor of Science (Information Technology) Semester- II

(Session 2022-23)
COURSE CODE: BITL–2431
Punjab History and Culture (From Earliest Times to C 320)
(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 will be able to understand:

CO 1: The reasons and impact of Alexander's invasions

CO 1 (a): To understand the various factors leading to rise and fall of empires and emergence of new dynasties and their administration specifically of Maurya rule in general and Ashok in particular

CO 2: art and architecture of Gupta period and the Indo-Greek style of architecture under Gandhara School

CO 3: To have an insight into the socio-cultural history under Harshvardhan and punjab under the stated period

CO 4: To enable students to have thorough insight into the various forms/styles of Architecture and synthesis of Indo - Greek Art and Architecture in Punjab

Bachelor of Science (Information Technology) Semester- II

(Session 2022-23)
COURSE CODE: BITM–2102
COMMUNICATION SKILLS IN ENGLISH

Examination Time: (3+3) Hours

Max. Marks: 50
Theory: 25
Practical: 15
CA: 10

COURSE OUTCOMES:

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

CO1: Enhancement of listening skills with the help of listening exercises based on conversation, news and TV reports

CO2: 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 using Listening Skills

CO3: Acquisition of knowledge of phonetics which will help them in learning about correct pronunciation as well as effective speaking

CO4: Speaking skills of the students enabling them to take active part in group discussion and present their own ideas

Bachelor of Science (Information Technology) Semester- II
(Session 2022-23)
COURSE CODE: BITL–2113
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

CO2: Apply K-map for simplification of Boolean expressions and implement them with Logic Gates

CO3: Design advanced and complex combinational and sequential circuits

CO4: Demonstrate the internal structure of semiconductor memory

Bachelor of Science (Information Technology) Semester- II
(Session 2022-23)
COURSE CODE: BITL–2114
NUMERICAL METHODS AND STATISTICAL TECHNIQUES

Course Outcomes:

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

CO1: Solve non-linear and linear equations using different methods

CO2: Comprehend interpolation and numerical integration

CO3: Calculate different means and deviations using statistical techniques

CO4: Comprehend correlation, curve fitting and regression for finding solutions to various statistical problems

Bachelor of Science (Information Technology) Semester- II
(Session 2022-23)
COURSE CODE: BITM–2115
INTRODUCTION TO 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: Identify the use of access specifiers and different types of constructors in class

CO3: Apply function and operator overloading

CO4: Comprehend different types of inheritance and polymorphism

Bachelor of Science (Information Technology) Semester – III

Session 2022-23
COURSE CODE: BITL–3111
COMPUTATIONAL PROBLEM SOLVING

Course Outcomes:

After passing course the student will be able to:

CO1: Comprehend basics of Python programming like operators, data types, control structuresetc.

CO2: Apply list and directories for handling and accessing data through iterations

CO3: Implement various built-in and user defined function to solve mathematical problems

CO4: Comprehend Object Oriented Programming and modules in Python

Bachelor of Science (Information Technology) Semester – III

Session 2022-23
COURSE CODE: BITL–3112
DATA STRUCTURES

Course Outcomes:

After passing course the student will be able to:

CO1: Analyze complexity of algorithms to determine their efficiency

CO2: Comprehend various hashing method, sorting and searching algorithms

CO3: Comprehend various operations of stack and queue along with different scenarios

CO4: Comprehend advanced data structures such as tree and graph

Bachelor of Science (Information Technology) Semester – III

Session 2022-23
COURSE CODE: BITL–3113
SYSTEM ANALAYSIS 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: Comprehend various system analysis and design processes

CO3: Identify different types of testing and involved documentation

CO4: Comprehend implementation of system along with its maintenance

Bachelor of Science (Information Technology) Semester- III
(Session 2022-23)
COURSE CODE: AECE-3221
ENVIRONMENTAL STUDIES
(COMPULSORY PAPER)

Course Outcomes:

CO1: Understand the concept and need of environmental education.

CO2: Understand the role of an individual in conservation of natural resources.

CO3: Learn about role of major Eco system and their conservation.

CO4: Develop desirable attitude,value and respect for protection of Biodiversity.

CO5: Learn about the control measure of pollution and solid waste management.

CO6:Understand the role of different agencies in the protection of environment.

CO7: Knowledge regarding welfare programmes and Human rights.

CO8: Knowledge about the applied value of environmental studies.

Bachelor of Science (Information Technology) Semester- IV
(Session 2022-23)

COURSE CODE: BITL–4111

DATABASE MANAGEMENT SYSTEM

Course Outcomes:

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

CO1: Understand data, database and database models

CO2: Apply relational algebra and relational calculus for performing queries of different types

CO3: Gain knowledge of normalization and transaction control

CO4: Create, manage and access database using SQL and PL/SQL

Bachelor of Science (Information Technology) Semester- IV
(Session 2022-23)

COURSE CODE: BITL–4112

INTERNET APPLICATIONS

Course Outcomes:

After passing course the student will be able to:

CO1: Comprehend basics of internet and email along with their effective use

CO2: Apply HTML for development of static webpages

CO3: Implement styling and behavior in webpages through the use of CSS and JavaScript

CO4: Create and manage websites through the application of WordPress content management system

Bachelor of Science (Information Technology) Semester- IV
(Session 2022-23)

COURSE CODE: BITL–4113

OBJECT ORIENTED PROGRAMMING- II

Course Outcomes:

After passing this course the student will be able to:

CO1: Understand the basic fundamentals of Object-Oriented Programming using Java

CO2: Identify the use of inheritance, interfaces and packages in Java

CO3: Identify the utilization of multithreading and Exception handling

CO4: Connect Java application with an existing database and access it through JDBC

Bachelor of Science (Information Technology) Semester- IV
(Session 2022-23)

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, aims, benefits and E-Commerce models

CO2: Acquaint about the working and components of EDI

CO3: Identify Electronic Payment systems, various issues involved in relation to secure electronic transactions and various E-Payment options

CO4: Comprehend BPR and Case Studies of E-Business related applications

Bachelor of Science (Information Technology) Semester – V
Session 2022-23
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: Identify various network devices and the layers on which it operates

CO3: Describe the Data Link layer and Network layer design issues

CO4: Comprehend the functioning of Transport layer and Application layer protocols

Bachelor of Science (Information Technology) Semester – V

Session 2022-23
COURSE CODE: BITL-5112
WEB TECHNOLOGIES

Course Outcomes:

After passing course the student will be able to:

CO1: Develop user interface of single page website through React

CO2: Apply PHP as server-side scripting language for control of flow, file handling, cookie and session handling, database interactionsetc.

CO3: Comprehend the application of XML, AJAX, JQuery and REST

CO4: Comprehend the process of web hosting and incorporation of emerging web technologies

Bachelor of Science (Information Technology) Semester – V

Session 2022-23
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 synchronization policies and CPU scheduling

CO3: Describe and analyze the memory management and its allocation policies

CO4: Comprehend about the application of virtual memory and disk scheduling

Bachelor of Science (Information Technology) Semester – VI
(Session 2022-23)

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, LEDetc.

CO2: Comprehend basic concepts involved in drawing basic shapes

CO3: Implement various algorithms and techniques to clip and transform various objects and viewports

CO4: Identify the importance of viewing and projections

Bachelor of Science (Information Technology) Semester – VI
(Session 2022-23)

COURSE CODE: BITL - 6112

DIGITAL MARKETING

Course Outcome:

After passing the course the student will be able to:

CO1: Identify impact of digital space and digital marketing in reaching out to customers

CO2: Comprehend importance of Keywords in Search Engine Optimization

CO3: Outline factors affecting Social Media Marketing

CO4: Comprehend importance of Tools and Analytics in social media marketing

Bachelor of Science (Information Technology) Semester – VI
(Session 2022-23)

COURSE CODE: BITD - 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