

Session 2020-21

# Programme and Course Outcome

BCA



***Multani Mal Modi College,  
Patiala***

**Program Outcomes (POs)**

**PO-1:** Identify, formulate, review and analyze complex problems using various techniques.

**PO-2:** Communicate effectively on complex activities and with the society at large and write effective documentation, make effective presentation and give and receive clear instructions.

**PO-3:** Function effectively as an individual, and as a member or leader or project manager in project team.

**PO-4:** Recognize the needs for, and have the preparation and ability to engage in independent and lifelong learning.

**PO-5:** Development of analytical, programming and logical skills.

M. M. Modi College

## Course Outcomes (COs)

### BCA - I

#### Semester-1st

Code	Course
BCA-111	General English – I
BCA-112	Punjabi (Compulsory) or Punjabi Compulsory (Mudla Gyan) **
BCA-113	Fundamentals of Information Technology
BCA-114	Programming Fundamentals using C
BCA-115	Software Lab –I (Windows and Office Automation)
BCA-116	Software Lab – II (Based on paper BCA-114: Programming Fundamentals using C)

#### Semester-2<sup>nd</sup>

Code	Course
BCA-121	General English – II
BCA-122	Punjabi (Compulsory) or Punjabi Compulsory (Mudla Gyan) **
BCA-123	Digital Electronics
BCA-124	Data Structures
BCA-125	Basic Mathematics
BCA-126	Software Lab – III (based on BCA-124: Data Structures)
BCA-127	Drug Abuse : Problem, Management and Prevention***

#### BCA-111: General English – I

**After completion of this course, students will be able to:**

**CO-1:** Generate their competence of both active and passive elements of the English language i.e, writing and speaking and listening and reading.

**CO-2:** Deepen their understanding of accurate usage of English grammar in writing and speaking.

**CO-3:** Enlarge their vocabulary by keeping a vocabulary lexicon.

**CO-4:** Learn to transform their native language into the target language.

**CO-5:** Learn to write accurate English essays and letters.

**CO-6:** Enhance their confidence by having translation drills and through speaking English practice sections.

#### BCA-112: Punjabi (Compulsory)

**After completion of this course, students will be able to:**

## **Programme & Course Outcomes of BCA (Session 2020-21)**

- CO-1:** ਭਾਸ਼ਾਈ ਸੰਰਚਨਾ ਦੇ ਨੇਮਾਂ ਨੂੰ ਸਮਝ ਕੇ ਉਸਦੀ ਵਰਤੋਂ ਰੋਜ਼ਾਨਾ ਜ਼ਿੰਦਗੀ ਵਿੱਚ ਕਰਨਾ
- CO-2:** ਭਾਸ਼ਾ ਦੇ ਜਰੀਏ ਮਨੁੱਖੀ ਭਾਵਾਂ ਨੂੰ ਸਮਝ ਕੇ ਸਮਾਜ ਦਾ ਵਿਸ਼ਲੇਸ਼ਣ ਕਰਨ ਦੇ ਯੋਗ ਹੋਣਾ
- CO-3:** ਗੁਰਮੁਖੀ ਲਿਪੀ ਦੇ ਭਾਸ਼ਾਈ ਵਿਕਾਸ ਦੇ ਵਿਭਿੰਨ ਪੜਾਵਾਂ ਨੂੰ ਸਮਝਣ ਦੀ ਚੇਤਨਾ
- CO-4:** ਮਨੁੱਖੀ ਹੋਂਦ ਦੇ ਸੰਕਟਾਂ ਦੀ ਨਿਸ਼ਾਨਦੇਹੀ ਅਤੇ ਉਹਨਾਂ ਦਾ ਯੋਗ ਹੱਲ ਲੱਭਣਾ
- CO-5:** ਸਾਹਿਤਕ ਰਚਨਾਵਾਂ ਦੇ ਮਾਧਿਅਮ ਨਾਲ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਸਾਹਿਤਕ ਰੁਚੀਆਂ ਦਾ ਵਿਕਾਸ ਹੋਵੇਗਾ

### **BCA-113: Fundamentals of Information Technology**

**Upon the completion of the course the learner will be able to**

- PO-1:** Familiarization with the types of computer, peripheral devices, memory management, multimedia and number system.
- PO-2:** Learn about working of various input and output devices.
- PO-3:** Learnt about binary number representation along with its operations.
- PO-4:** Understand theoretical framework of internet and associated application of the internet.
- PO-5:** Acquire the knowledge about the binary number representation along with its operations.
- PO-6:** Understand of the role of computers in business, education and society.

### **BCA-114: Programming Fundamentals Using C**

**After completion of this course, students will be able to:**

- CO-1:** Understand of various concepts of programming language.
- CO-2:** Develop logics and analytical ability solve problem.
- CO-3:** Learn about procedural programming using functions.
- CO-4:** Acquired various flow control statements.
- CO-5:** Learn about various storage classes along with user defined data types.
- CO-6:** Acquire knowledge of file handling
- CO-7:** Work with arrays of complex structure data types.
- CO-8:** Understanding a concept of functional hierarchical code organization.

### **BCA-115: Software Lab-I**

**After completion of this course, students will be able to:**

- CO-1:** Have basic knowledge of computer Hardware and Software.
- CO-2:** Understand business areas to which computers may be applied.
- CO-3:** Installation of Operating System (Windows), application software and to use Windows OS.
- CO-4:** Provide practical knowledge to Office tools (MS Word, Excel and Power Point).
- CO-5:** Use of MS-Word to type documents with various formatting.
- CO-6:** Creating and manipulating Datasheets for different applications.
- CO-7:** Designing effective presentations using Power Point software.

### **BCA-116: Software Lab-II**

#### **COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Design algorithms and flowchart to solve programming problems.

**CO-2:** Write, compile and debug programs in C language. Use different data types, operators and console I/O function in a computer program.

**CO-3:** Design programs involving decision control statements, loop control statements and case control structures.

**CO-4:** Understand the implementation of arrays, pointers and functions and apply the dynamics of memory by the use of pointers.

**CO-5:** Comprehend the concepts of structures and union: declaration, initialization and implementation.

**CO-6:** Use the file operations, character I/O, string I/O, file pointers, and create/update basic data files.

**BCA-121: General English – II**

**COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Enhance their competence in writing and speaking skills to the next level.

**CO-2:** Make use of new lexical terms after going through verbs, adjectives and idioms.

**CO-3:** Learn to write with the accurate use of Active and Passive voices after completing the taught exercises by the teacher.

**CO-4:** Start writing in the reported speech that usually confuses the learner. The conversion of Direct Speech to Indirect Speech will create a crystal clarity to the learners.

**CO-5:** Learn different type of sentences e.g. Affirmative, Negative, Interrogative, Assertive, Exclamatory and so on.

**CO-6:** The next level drills of the translation will help the students to create new complex sentences from their mother tongue to the target language.

**BCA-122: Punjabi (Compulsory)**

**COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** ਰੂਪਾਕਾਰ ਨਿਬੰਧ ਰਾਹੀਂ ਜ਼ਿੰਦਗੀ ਦੀਆਂ ਤਲਖ ਹਕੀਕਤਾਂ ਸਮਝਣ ਦੇ ਯੋਗ ਹੋਣਾ

**CO-2:** ਵਪਾਰਕ ਪੱਤਰ ਵਿਹਾਰ ਰਾਹੀਂ ਵਪਾਰਕ ਪੱਧਰ 'ਤੇ ਸਮਰੱਥ ਹੋਣਾ

**CO-3:** ਭਾਸ਼ਾ ਦੇ ਵਿਭਿੰਨ ਰੂਪਾਂ ਨੂੰ ਸਮਝ ਕੇ ਸਮਾਜ ਵਿੱਚ ਪ੍ਰਭਾਵਸ਼ਾਲੀ ਰੂਪ ਵਿੱਚ ਵਿਚਰਨ ਦੀ ਯੋਗਤਾ

**CO-4:** ਭਾਸ਼ਾ ਦੀ ਸਮਰੱਥਾ ਪਛਾਣ ਕੇ ਅੰਦਰਲੀ ਯੋਗਤਾ ਦਾ ਸਹੀ ਪ੍ਰਯੋਗ ਕਰਨਾ

**CO-5:** ਸਾਹਿਤਕ ਰਚਨਾਵਾਂ ਦੇ ਮਾਧਿਅਮ ਨਾਲ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਸਾਹਿਤਕ ਰੁਚੀਆਂ ਦਾ ਵਿਕਾਸ ਹੋਵੇਗਾ

**BCA-123: Digital Electronics**

**COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Acquire knowledge about Analog and Digital Systems and various digital logic gates.

## **Programme & Course Outcomes of BCA (Session 2020-21)**

**CO-2:** Distinguish between various number systems and their conversions and computer arithmetic.

**CO-3:** Develop K-Maps representation and simplification logic functions up to 4 variables.

**CO-4:** Understand, analyze and design various combinational and sequential circuits such as encoders, decoders and counters using multiplexers, and flip – flops.

**CO-5:** Describe analog to digital and digital to analog conversion circuits.

### **BCA-125: Basic Mathematics**

#### **COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Understand the concept and solve complex numbers and quadratic equations.

**CO-2:** Understand and use of co-ordinate geometry in modern scientific computing.

**CO-3:** Apply Matrices and Determinants for solving problems appropriate problems.

**CO-4:** Familiar with representation of floating point number system, arithmetic operation and errors in normalized floating point numbers.

**CO-5:** Solve transcendental and simultaneous algebraic equations using different methods under different parameters.

### **BCA-124: Data and File Structures & BCA-126: Software Lab-III (based on BCA-124)**

**After completion of this course, students will be able to:**

**CO-1:** Be familiar with basic data structure and algorithms.

**CO-2:** Design and analyze programming problem statements

**CO-3:** Choose appropriate data structures and algorithms and use it to design algorithms for a specific problem.

**CO-4:** Handle operations like searching, insertion, deletion and traversing mechanism

**CO-5:** Come up with analysis of efficiency and proofs of correctness

### **BCA-127: Drug Abuse: Problem, Management and Prevention\*\*\***

#### **COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Understand the extent of the problem of Drug Abuse and its prevalence.

**CO-2:** Differentiate Drug Abuse from Drug Dependence and Drug Addiction.

**CO-3:** Gain conceptual understanding about Drug tolerance and examine the difference between Physical and Psychological dependence on drugs.

**CO-4:** Identify short and long term effects and withdrawal symptoms of drugs like stimulants, depressants: Alcohol, Barbiturates, Narcotics, hallucinogens, steroids and Inhalants.

**CO-5:** Analyze the nature of the problem of Drug abuse by learning about vulnerable age groups, Physical, academic, behavioral and Psychological indicators.

***Programme & Course Outcomes of BCA (Session 2020-21)***

**CO-6:** Evaluate the Physiological, Psychological and Sociological causes of drug abuse along with its consequences for individuals, families, society and the nation.

**CO-7:** Understand the overview of Management and Prevention of Drug Abuse by visiting a Drug De-addiction Centre. The students will also be able to assess the role of Family, School, Media, Legislation and De-addiction Centers in combating the menace of Drug Abuse.

M. M. Modi College

## Course Outcomes (COs)

### B. Com - II

#### Semester-3rd

Code	Course
BCA-211	English Communication Skills – I
BCA-212	Punjabi (Compulsory) or Punjabi Compulsory (Mudla Gyan)**
BCA-213	Discrete Mathematics
BCA-214	Computer System Organization and Architecture
BCA-215	Object Oriented Programming using C++
BCA-216	Fundamentals of Database Management System
BCA-217	Software Lab – IV (Object Oriented Programming using C++ Lab)
BCA-218	Software Lab – V (DBMS using MS Access Lab)

#### Semester-4<sup>th</sup>

Code	Course
BCA-221	English Communication Skills – II
BCA-222	Punjabi (Compulsory) or Punjabi Compulsory (Mudla Gyan) **
BCA-223	Computer Networks
BCA-224	Management Information Systems
BCA-225	Computer Oriented Numerical and Statistical Methods
BCA-226	Relational Database Management Systems with Oracle
BCA-227	Software Lab – VI (Computer Oriented Numerical and Statistical Methods Lab)
BCA-228	Software Lab – VII (Oracle Lab)
BCA-229	Environmental and Road Safety Awareness (Qualifying Exam)

### BCA-211: English Communications Skills - I

#### COURSE OUTCOMES

After completion of this course, students will be able to:

**CO-1:** Write with competency with a critical and creative insight.

**CO-2:** The taught prescribed literature book Prose Parable will be an insightful source for the students that will help them in understanding social and moral philosophy.

**CO-3:** Start forming new dialogues with the given paragraphs that will give them new dimensions to their foresight and creativity.



**CO-4:** Write and speak with accuracy and precision after going through the exercises of error in the sentences.

**CO-5:** The topic 'Curriculum Vitae' taught by the teacher will make the learner conscious about their earned credentials and the potentials to be generated.

**BCA-212: Punjabi (Compulsory)**

**COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਸਾਹਿਤਕ ਰੁਚੀਆਂ ਦਾ ਵਿਕਾਸ ਹੋਵੇਗਾ

**CO-2:** ਰੂਪਾਕਾਰ ਕਹਾਣੀ ਰਾਹੀਂ ਜ਼ਿੰਦਗੀ ਦੀਆਂ ਤਲਖ ਹਕੀਕਤਾਂ ਸਮਝਣ ਦੇ ਯੋਗ ਹੋਣਗੇ

**CO-3:** ਭਾਸ਼ਾ ਦੇ ਵਿਭਿੰਨ ਰੂਪਾਂ ਨੂੰ ਸਮਝਕੇ ਸਮਾਜ ਵਿੱਚ ਪ੍ਰਭਾਵਸ਼ਾਲੀ ਰੂਪ ਵਿੱਚ ਵਿਚਰਨ ਦੀ ਯੋਗਤਾ ਪੈਦਾ ਹੋਵੇਗੀ

**CO-4:** ਭਾਸ਼ਾ ਦੀ ਸਮਰੱਥਾ ਪਛਾਣ ਕੇ ਅੰਦਰਲੀ ਯੋਗਤਾ ਦਾ ਸਹੀ ਪ੍ਰਯੋਗ ਕਰਨਾ ਸਿੱਖਣਗੇ

**CO-5:** ਭਾਸ਼ਾਈ ਨੇਮਾਂ ਨੂੰ ਸਮਝ ਕੇ ਭਾਸ਼ਾਈ ਸੰਜਮਤਾ ਤੇ ਅਨੁਸ਼ਾਸਨ ਦੀ ਯੋਗਤਾ ਪੈਦਾ ਕਰਨਾ

**BCA-213: Discrete Mathematics**

**COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Learn the mathematical reasoning and important problem solving skills.

**CO-2:** Understand the basic concepts of Set theory and foundation for imbedding logical reasoning in computer science.

**CO-3:** Understand and create mathematical arguments.

**CO-4:** Apply the concept of Graph and tree in practical applications.

**BCA-214: Computer System Organization and Architecture**

**COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Understand computer organization and its working, processing of an instruction by the CPU.

**CO-2:** Understand the various other important component of a computer system like Memory, Registers, Arithmetic Logic unit, Control unit, Peripheral devices.

**CO-3** Learn the concepts related with execution of instructions, working of addressing modes, interface and its use in the working of peripheral devices, interrupt signals, direct memory access.

**CO-4:** Learn the concepts related with digital electronics to understand the working of components like logic gates, flip flops, counters, and multiplexers etc., which are used to build components in a computer.

**BCA-215: Object Oriented Programming using C++**

**After the completion of the course the learner will be able to**

**CO-1:** Understand the benefits of Object-Oriented Programming (OOP) as compare to Traditional Programming approach and resolve problem in domain of object-oriented programming.

**Programme & Course Outcomes of BCA (Session 2020-21)**

**CO-2:** Familiarization with a widely range of features of object-oriented programming using C++

**CO-3:** Understand Object oriented approach for finding solutions to various problems with the help of C++ language.

**CO-4:** Understand the concept of polymorphism with the help function overloading and virtual functions.

**CO-5:** Acquire various types of various types and forms of inheritance.

**CO-6:** Understand basic of generic functions and classes.

**BCA-216: Fundamentals of Database Management System**

**Upon the completion of the course the learner will be able to**

**CO-1:** Familiarization with various features and applications of Database Management system.

**CO-2:** Acquire knowledge about database languages (DDL, DML, DCL)

**CO-3:** Learn how to design a database by using different data models.

**CO-4:** Understand the database handling during execution of the transactions along with concurrent access.

**CO-5:** Ability to perform various types of SQL queries.

**CO-6:** Able to design a good database using normalization, decomposition and functional dependency

**BCA-217: Software Lab – IV (Object Oriented Programming using C++ Lab)**

**COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Understand the intricacies of Object Oriented Programming including the features and peculiarities of the C++ programming language.

**CO-2:** Illustrate the concept of Inheritance, operator overloading, and polymorphism.

**CO-3:** Implement various objects oriented concepts to solve practical problems.

**CO-4:** Apply the concepts of OOPs using C++ in programming.

**BCA-218: Software Lab – V (DBMS using MS-Access Lab)**

**COURSEOUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Understand database concepts and importance of database design.

**CO-2:** Understanding the concepts of DMBS architecture.

**CO-3:** Understand the objectives of normalization and what role it plays in the database design process.

**CO-4:** Become proficient in creating and using tables, queries, reports and forms in MS-Access.

**BCA-221: English Communications Skills - II**

**COURSE OUTCOMES**

**After completion of this course, students will be able to:**

## **Programme & Course Outcomes of BCA (Session 2020-21)**

**CO-1:** Increase their reading rate and cognition of fiction via the novel The Old Man and The Sea.

**CO-2:** Improve their reading fluency skills through extensive reading.

**CO-3:** Enlarge their vocabulary by keeping a vocabulary lexicon while dealing with literature.

**CO-4:** Enhance their level of understanding of sentences after having the revisions of Narration & Active and Passive voices

**CO-5:** Generate accuracy in writing and speaking skills.

### **BCA-222: Punjabi (Compulsory)**

#### **COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** ਕਵਿਤਾ ਨੂੰ ਪੜ੍ਹਦਿਆਂ ਵਿਦਿਆਰਥੀਆਂ ਅੰਦਰ ਸਾਹਿਤਕ ਰੁਚੀ ਦਾ ਵਿਕਾਸ ਹੋਵੇਗਾ

**CO-2:** ਕਵਿਤਾ ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਕਲਪਨਾ ਸ਼ਕਤੀ ਦਾ ਵਿਕਾਸ ਕਰੇਗੀ

**CO-3:** ਕਵਿਤਾ ਦੁਆਰਾ ਵਿਦਿਆਰਥੀਆਂ ਸ਼ਬਦ ਦੀ ਸਮਝ ਅਤੇ ਪਰਤਾਂ ਬਾਰੇ ਸਹੀ ਅਰਥਾਂ ਵਿੱਚ ਜਾਣਨਗੇ।

**CO-4:** ਗੁਰਮੁਖੀ ਲਿੱਪੀ ਦੀ ਵਿਕਾਸ ਪ੍ਰਕਿਰਿਆ ਬਾਰੇ ਪੜ੍ਹਦੇ ਹੋਏ ਵਿਦਿਆਰਥੀ ਭਾਸ਼ਾ ਅਤੇ ਲਿੱਪੀ ਦੇ ਆਪਸੀ ਸਬੰਧਾਂ ਨੂੰ ਸਮਝਣਗੇ

**CO-5:** ਲਿੱਪੀ ਨੂੰ ਸਮਝਣ ਤੋਂ ਬਾਅਦ ਭਾਸ਼ਾ ਦੀ ਸਮਝ ਪਛਾਨਣ ਦੇ ਯੋਗ ਹੋਣਗੇ

### **BCA-223: Computer Networks**

#### **COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Understand the functions of different layers of TCP/IP and OSI reference models.

**CO-2:** Classify of networks-LAN, MAN and WAN.

**CO-3:** Identify and understand various techniques and modes of transmission media with real time applications.

**CO-4:** Understand the fundamentals of Network security.

### **BCA-224: Management Information System**

#### **COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Understand the concept of information, system, value of information, elements of a system and role of information system.

**CO-2:** Understand the classification of MIS.

**CO-3:** Experience various stages in the development of MIS and applications of Information Systems in functional areas of MIS.

**CO-4:** Have a clear idea about DSS and its difference from MIS.

### **BCA-225: Computer Oriented Numerical and Statistical Methods & BCA-227: Software Lab – VI (Computer Oriented Numerical and Statistical Methods)**

**After completion of this course, students will be able to:**

**Programme & Course Outcomes of BCA (Session 2020-21)**

**CO-1:** Solve algebraic equations using different methods under different parameters.

**CO-2:** Be familiar with numerical integration and differentiation

**CO-3:** Analyze statistical data using measures of central tendency and dispersion.

**CO-4:** Calculate and interpret the methods of correlation and regression analysis.

**CO-5:** Implement numerical and statistical methods in C/C++.

**BCA-226: Relational Database Management System with Oracle & BCA-228: Software Lab – VII (Oracle Lab)**

**COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Understand the core terminology of Relational Database Management System.

**CO-2:** Understand and apply the concept of Transaction Processing, Concurrency Control Mechanism, and Recovery system in database.

**CO-3:** Comprehend Relational Query Languages.

**CO-4:** Use SQL syntax for Data Administration, Manipulation and to query a database to retrieve information.

**BCA-229: Environmental and Road Safety Awareness**

**COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Understand the structure and function of an ecosystem and ecosystem links between environmental components and their role.

**CO-2:** Recognize the importance of environment and the sustainable of natural resources.

**CO-3:** Use scientific reasoning to recognize and comprehend environment issues and evaluate potential solutions.

**CO-4:** Well versed with environmental protection laws in India.

**CO-5:** Understand the concept and significance of Road safety.

**Course Outcomes (COs)**

**B. Com - III  
Semester- 5th**

Code	Course
BCA-311	English Literary Skills – I
BCA-312	System Analysis and Design
BCA-313	System Software
BCA-314	Java Programming
BCA-315	Web Designing using HTML and DHTML
BCA-316	Software Lab – IX (based on paper BCA-314: Java Programming)
BCA-317	Software Lab – X (based on paper BCA-315: Web Designing using HTML and DHTML)
BCA-318	Punjabi (Compulsory) or Punjabi Compulsory (Mudla Gyan) **

**Semester- 6<sup>th</sup>**

Code	Course
BCA-321	English Literary Skills – II
BCA-322	E-Commerce
BCA-323	Operating Systems
BCA-324	Software Engineering
BCA-325	Web Designing using ASP.NET
BCA-326	Software Lab – XI (More on Java based on BCA-314: Java Programming)
BCA-327	Software Lab – XII (based on BCA-325: Web Designing using ASP.NET)
BCA-328	Punjabi (Compulsory) or Punjabi Compulsory (Mudla Gyan) **

**BCA -311: English Literary Skills – I**

**COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Attain the intrinsic knowledge of human behaviour by reading Popular Short Stories book.

**CO-2:** By learning new words pertaining to places, trades, church, marriage, arts and science, the learners will have more knowledge of physical and social entities.

**CO-3:** The grammar book will create accuracy and precision in students' writings and conversation.

**CO-4:** Bring the students to a new advanced level of learning the English language.

**CO-5:** The prescribed lists of synonyms and antonyms will make the students more refined in selecting appropriate words for usage.

### **BCA-312: System Analysis and Design**

#### **COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Understand the term System in the real world.

**CO-2:** Understand all terms and concepts related with the various systems existing.

**CO-3:** Learn Computer functioning as a System.

**CO-4:** Understand all steps related with the creation of a System, starting from its analysis to its design to its implementation including the hardware software selection for the same.

### **BCA-313: System Software**

#### **COURSE OUTCOMES**

**After completion of this course, students will be able to:**

**CO-1:** Learn and understand the System at the level of the operating system that is System software.

**CO-2:** Understand System in terms of the processors, loaders and linkers.

**CO-3:** Learn the working of Compilers as well as their construction and use.

**CO-4:** Knowledge of various software tools like program developers, editors, debuggers and user interfaces.

### **BCA-314: Java Programming & BCA-316: Software Lab-IX**

**After completion of this course, students will be able to:**

**CO-1:** Design programs involving decision control statements, loop control statements and case control structures.

**CO-2:** Understand the implementation of arrays, and functions and apply the dynamics of memory by the use of memory management schemes.

**CO-3:** Comprehend the concepts of classes and objects: declaration, initialization and implementation.

**CO-4:** Apply basics of object oriented programming, polymorphism and inheritance, Exception Handling, Multithreading.

**CO-5:** Use the file operations, character I/O, string I/O, and create/update basic data files.

**CO-6:** Understand and learn the concepts of Applets.

**BCA-315: Web Designing using HTML and DHTML & BCA – 317: Software Lab-X**

**After completion of this course, students will be able to:**

**CO-1:** Write and debug webpage using HTML and DHTML languages.

**CO-2:** Knowledge and Use of web publishing and phases related with the website development.

**CO-3:** Make use of knowledge related to links, addresses, images, and tables.

**CO-4:** Knowledge of various formatting options on HTML page and web site.

**CO-5:** Knowledge of Server Side programming.

**BCA-318: Punjabi Compulsory or Punjabi Compulsory**

**After completion of this course, students will be able to:**

**CO-1:** ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਵਿਭਿੰਨ ਸਾਹਿਤਕ ਰੂਪਕਾਰਾਂ ਵਿੱਚ ਰੁਚੀ ਪੈਦਾ ਹੋਵੇਗੀ

**CO-2:** ਵਿਦਿਆਰਥੀ ਤਕਨੀਕ ਦੇ ਦੌਰ ਵਿੱਚ ਹੁੰਦੇ ਹੋਏ ਲੋਕਧਾਰਾਈ ਬੋਧ ਬਾਰੇ ਗਿਆਨ ਹਾਸਿਲ ਕਰਨਗੇ

**CO-3:** ਵਿਦਿਆਰਥੀਆਂ ਆਪਣੀਆਂ ਪਰੰਪਰਾਵਾਂ ਦਾ ਸਮਕਾਲ ਨਾਲ ਮੇਚ ਕੇ ਮੁਲਾਂਕਣ ਕਰਨ ਦੇ ਸਮਰੱਥ ਹੋਣਗੇ

**CO-4:** ਵਿਦਿਆਰਥੀਆਂ ਨੂੰ ਪੰਜਾਬ ਦੇ ਮੇਲੇ ਅਤੇ ਤਿਉਹਾਰਾਂ ਬਾਰੇ ਵਿਸਥਾਰ ਨਾਲ ਪਤਾ ਲੱਗੇਗਾ

**CO-5:** ਵਿਦਿਆਰਥੀ ਵਿਆਕਰਨ ਨੂੰ ਭਾਸ਼ਾ ਦੇ ਪ੍ਰਯੋਗ ਹਿੱਤ ਕੁਸ਼ਲਤਾ ਨਾਲ ਪ੍ਰਯੋਗ ਕਰਨਗੇ

**BCA-321: English Literary Skills-II**

**After completion of this course, students will be able to:**

**CO-1:** Gain not only innate insight of human behaviour but also the terms of drama by reading Short Plays book.

**CO-2:** By learning new words referring to death, war, science and nature, the students will have supplementary knowledge of material and nature elements.

**CO-3:** The grammar book will create accuracy and precision in students' writings and conversation.

**CO-4:** Bring the students to a new advanced level of learning the English language.

**CO-5:** The prescribed figure of speech i.e. verbs, adjectives and adverbs will make the students more polished in determining proper words for usage.

**BCA-322: E-Commerce**

**After completion of this course, students will be able to:**

**CO-1:** Understand E-commerce as a process.

**CO-2:** Learn the difference that exist between traditional and latest e-commerce procedures and outcomes.

**CO-3:** Understand the concepts and technologies like internet for implementation of e-commerce.

**CO-4:** Learn various consumer oriented e-commerce concepts in the form of models et cetera.

**CO-5:** Knowledge of advertisement and marketing using internet technology.

**BCA-323: Operating Systems**

**After completion of this course, students will be able to:**

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**CO-1:** Learn the mechanisms of OS to handle processes and threads and their communication.

**CO-2:** Use different data types, operators and console I/O function in a computer program.

**CO-3:** Learn the mechanisms involved in memory management in contemporary OS.

**CO-4:** Gain knowledge on distributed operating system concepts that includes architecture, deadlock detection algorithms and agreement protocols.

**CO-5:** Understand different approaches to memory management.

**CO-6:** Understand the structure and organization of the file system

**BCA-324: Software Engineering**

**On completion of this course, the students will be able to:**

**CO-1:** Understand the basic concepts, models, life cycle of software development.

**CO-2:** Learn higher level concepts like Re-engineering, Reverse Engineering, Forward Engineering, and CASE tools.

**CO-3:** Knowledge of all the steps of software engineering and their use and implementation in real problems

**CO-4:** Understanding of programming language and using it to develop software using all stages of software development.

**BCA-326: Software Lab-XI**

**After completion of this course, students will be able to:**

**CO-1:** Understand the basic concepts related with the development of software.

**CO-2:** Ability to develop software both at simple level as well as complex level.

**CO-3:** Understand various models for software development.

**CO-4:** Understand the life cycle of a software.

**CO-5:** Learn higher level concepts like Re-engineering, Reverse Engineering, Forward Engineering, CASE tools.

**CO-6:** Knowledge of all the steps of software engineering and their use and implementation in real problems

**CO-7:** Understanding of programming language and using it to develop software using all stages of software development.

**BCA-325: Web Designing using ASP.NET & BCA-327: Software Lab-XII**

**After completion of this course, students will be able to:**

**CO-1:** Write, compile and debug programs using ASP.NET language.

**CO-2:** Knowledge and Use of different data types, operators, loops and other control structures in web programming.

**CO-3:** Design programs accepting user inputs and various other standard controls.

**CO-4:** Understand the implementation of arrays, and events.

**CO-5:** Comprehend the concepts of classes and objects: declaration, initialization and implementation.



**Programme & Course Outcomes of BCA (Session 2020-21)**

**CO-6:** Apply the various rich web features like file uploads, debugging, caching and deploying ASP.NET pages et cetera.

**CO-7:** Understand and learn the concepts related with ASP.NET security, localizing ASP.NET applications.

**CO-8:** Ability to develop programs to implement and use all the above specified concepts and features in programming.

**BCA-328: Punjabi (Compulsory) or Punjabi**

**After completion of this course, students will be able to:**

**CO-1:** ਵਿਦਿਆਰਥੀਆਂ ਦੀ ਸਾਹਿਤ ਦੇ ਰੂਪਕਾਰਾਂ ਵਿੱਚ ਰੁਚੀ ਪੈਦਾ ਹੋਵੇਗੀ

**CO-2:** ਉਹਨਾਂ ਅੰਦਰ ਸਾਹਿਤਕ ਅਤੇ ਰਚਨਾਤਮਕ ਯੋਗਤਾ ਦਾ ਵਿਕਾਸ ਹੋਵੇਗਾ

**CO-3:** ਅੰਗਰੇਜ਼ੀ ਤੋਂ ਪੰਜਾਬੀ ਅਨੁਵਾਦ ਕਰਦੇ ਹੋਏ ਭਾਸ਼ਾਈ ਸਾਂਝਾਂ ਅਤੇ ਵੱਖਰੇਵਿਆਂ ਬਾਰੇ ਜਾਣਨ ਦੇ ਸਮਰੱਥ ਹੋਣਗੇ

**CO-4:** ਰੋਜ਼ਾਨਾ ਜ਼ਿੰਦਗੀ ਵਿੱਚ ਭਾਸ਼ਾਈ ਯੋਗਤਾ ਦਾ ਵਿਕਾਸ ਹੋਵੇਗਾ

**CO-5:** ਸਿਵਲ ਪ੍ਰੀਖਿਆਵਾਂ ਵਿੱਚ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਅਧਿਐਨ ਉਹਨਾਂ ਨੂੰ ਮਜ਼ਬੂਤ ਆਧਾਰ ਪ੍ਰਦਾਨ ਕਰੇਗਾ