BCA (Bachelor of Computer Applications) (CBGS)
Syllabus for the Batch from Year 2024 To 2028
SEMESTER-I

Pattern of Question Paper - Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

CSL: Computer Fundamentals & PC Software
Time: 3 Hours M. Marks: 100

Course outcomes: • learn the functioning of various components of a computer system. • identify input and output devices and storage devices. • getting familiar with software. • create documents, spreadsheets, and presentations

Month wise Division	Syllabus Unitization
August	**SECTION–A** Introduction to Computer, Generations of Computers, Classification of Computers, Computer Applications: Computer as a system, basic concepts – hardware and software, functional units, and their interrelation. Block diagram showing Central Processing Unit, Memory, and Input/Output Devices. Communication devices. **SECTION–B** Software: System software and Application software. Programming languages. Hardware: Input Devices- Keyboard, mouse, pens, touch screens, Bar Code reader, joystick, source data automation, (MICR, OMR, OCR), screen assisted data entry: portable/handheld terminals for data collection, voice recognition systems Output Devices: Display Monitors, Printers, Impact Printers, Non-impact Printers, Plotters, Voice Output Systems, Projectors, Terminals. Storage Devices: Concept of storage units(bit, byte, KB, MB etc.), Primary storage, Secondary storage, Magnetic storage devices, and Optical Storage Devices.
September	**SECTION–C** Operating System: meaning, purpose, Windows GUI, Command-line, Powershell overview. File Explorer. Microsoft (MS) Office: download and install; different components Word Processing using Microsoft (MS) Word: Overview, creating, saving, opening, importing, exporting and inserting files, formatting pages, paragraphs and sections, indents and outdents, creating lists and numbering. headings, styles, fonts and font size; editing, positioning, and viewing texts; finding and replacing text; inserting page breaks, page numbers, bookmarks, symbols, and dates; using tables, header, footer, macros, mail-merge; printing setup **SECTION–D** Presentations using MS Powerpoint: Presentation overview, entering information, presentation creation, opening and saving presentation;
October-November	**SECTION–D** inserting audio and video, shapes, different views, formatting; playing slides. Spreadsheets using MS Excel: Spreadsheet overview, Editing, Formatting, freeze panes, using formulas and functions, sorting and filtering, pivot tables, charts and Graphs.

Prescribed Book
Book Name – Fundamentals of Computers and Information Technology
Author – Puneet Kumar
Publisher – Kalyani Publishers

CSL: Principles of Digital Electronics

Time: 3 Hours

M. Marks: 100

Course Outcomes:

1. Explain number systems, basic logic gates, Boolean algebra and define characteristics of logic families.
2. Illustrate the working mechanism and design guidelines of different combinational circuits in the digital system.
3. Analyze the working mechanism and design guidelines of different sequential circuits.
4. Assess the nomenclature and technology in the area of memory devices and apply the memory devices in different types of digital circuits.

Month wise Division	Syllabus Unitization
August	**SECTION–A** Number System: Data Types, Number Systems and Conversion, Complements, Fixed Point Representation, Floating Point Representation, Error Detection Codes, Computer Arithmetic - Addition, Subtraction, Multiplication and Division Algorithms. **SECTION–B** Logic Gates and Boolean Algebra: Logic gates, Universal Gates, Boolean algebra and Minimization techniques, canonical forms of Boolean expressions, Karnaugh-Maps, don't care conditions
September	**SECTION–C** Combinational Circuits: Adder, Subtracter, Multiplexer, Demultiplexer, Decoder, Encoder Sequential Circuits: Flip-flops, clocks and timers, registers, counters. **SECTION–D** Semiconductor memories: Introduction, Static and dynamic devices
October-November	**SECTION–D** Read only & random access memory chips, PROMS and EPROMS Address selection logic. Read and write control timing diagrams for ICs

Prescribed Book
Book Name – Digital Electronics
Author – Puneet Kumar
Publisher – Kalyani Publishers

Paper III – Applied and Discrete Mathematics
Time: 3 Hours M. Marks: 75
Credits L T P
3 1 0

Month wise Division	Syllabus Unitization
July-August	**SECTION–A** Sets and Relations: Definition of sets, subsets, complement of a set, universal set, intersection and union of sets **SECTION–D** Matrices: Introduction of a Matrix, its different kinds, matrix addition and scalar multiplication, multiplication of matrices, transpose etc. Square matrices, inverse and rank of a square matrix, Matrix Inversion method.
September	**SECTION–A** De-Morgan's laws, Cartesian products, Equivalent sets, Countable and uncountable sets, minset, Partitions of sets, Relations: Basic definitions, graphs of relations, properties of relations. **SECTION–B** Logic and Propositional Calculus: Proposition and Compound Propositions, basic Logical Operations, Propositions and Truth Tables, Tautologies and Contradictions, Logical Equivalence **SECTION–C** Boolean Algebra: Boolean algebra and its duality, Duality, Boolean Algebra as Lattices, Boolean identities
October-November	**SECTION–B** Duality law, Algebra of propositions, Conditional and Bi conditional Statements, Arguments, Logical Implication, Propositional Functions, Predicates and Quantifiers, Negation of Quantified Statements, Inference theory of the predicates calculus **SECTION–C** Boolean Algebra: sub-algebra, Representation Theorem, Sum-of-Products Form for Sets, Sum of-Products Form for Boolean Algebra, Minimal Boolean Expressions, Prime Implicants, Boolean Functions, Karnaugh Maps

Prescribed Book
Book Name – Applied and Discrete Mathematics
Author –
Publisher – Sharma Publications.

CSP: Lab-1 based on Computer Fundamentals & PC Software

M. Marks: 25
Credits
L-T-P
0-0-1
(30Hrs)

Time: 3 Hours

Instructions for the examiners: -
Two questions of equal marks strictly as per the syllabus and based on the practical exercises covered in the semester. Questions may be subdivided into parts (not exceeding four). Candidates will attempt ONE question, explain their answer by writing on the answer sheet, and then implement the same on the computer. Examiner will evaluate both the answers (theory as well as practical). The viva should also be conducted alongside, and the student is asked viva questions related to the question and the solution he/she is working on during the exam.

Students will prepare a report after analyzing print and social media advertisements along with the local market survey to understand the desktop/laptop vendors and prices. Arrange the options available as per price/performance preferences

Lab exercises based on:

- Practice the Windows Operating System command-line and the GUI for user interaction, personalization, and file management
- Document preparation with Word using the features mentioned in the syllabus
- Spreadsheet processing with Excel using the features mentioned in the syllabus
- Presentation preparation with PowerPoint using the features mentioned in the syllabus

CSL: Introduction to the Internet (Theory)

(SEC-1)

Time: 3 Hours **M. Marks: 50**

Credit : L-T-P

2-0-0

Course Outcomes: To give hands-on experience and provide a comprehensive, non-technical, hands-on overview of the Internet based services.

Month Wise Division	Syllabus Unitization
August	**SECTION–A** Origin, growth and evolution of the Internet; the impact of the Internet; terminology: web pages, website, web browser, web server, bandwidth; Connect to the Internet: hardware and software, types of Internet connections, Internet Service Providers; Navigating different types of websites and online resources. Student should explore the local market to understand the internet service providers, rates, bandwidth etc. **SECTION–B** Email Communication: Email Etiquette and Best Practices, Managing and Organizing Emails Email Tools and Features, identifying spam and phishing emails; Searching on the Internet: Overview of internet resources and search engines,
September	**SECTION -B** Basics of Using Search Engines -How search engines work, Basic search techniques and tips, Understanding search engine results pages (SERPs), Using search operators (e.g., AND, OR, NOT), Utilizing advanced search features (e.g., Google Advanced Search), **SECTION–C** Online Tools for Productivity: Introduction to productivity tools (e.g., Google Workspace, Microsoft Office 365), Cloud storage and file management (e.g., Google Drive, Dropbox), Collaboration and Communication Tools: Online communication etiquette and best practices, using collaboration tools (e.g., Google Docs, Slack, Microsoft Teams), Effective virtual meeting strategies (e.g., Zoom, Google Meet),
October- November	**SECTION–D** Building Online Presence: 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 and online reputation. Digital citizenship and respectful online behaviour, balancing screen time and managing digital distractions

Prescribed Book :

Name: Internet Application

Author: Anshuman Sharma

Publisher : Lakhanpal Publisher

CSP: Lab-2: based on Introduction to the Internet

(Practical)

(SEC-1)

M. Marks: 25
Credits
L-T-P
0-0-1
(30 Hrs)

Time: 3 Hours

Instructions for the examiners: -

Two questions of equal marks strictly as per the syllabus and based on the practical exercises covered in the semester. Questions may be subdivided into parts (not exceeding four). Candidates will attempt ONE question, explain their answer by writing on the answer sheet, and then implement the same on the computer. Examiner will evaluate both the answers (theory as well as practical). The viva should also be conducted alongside, and the student is asked viva questions related to the question and the solution he/she is working on during the exam.

Lab exercises based on:

- Identifying internet connections and Configuring internet connection on PC/Laptop
- Email Tools and features
- Using the Google search engine and explore Bing
- Using Google Docs, Google Drive for document preparation and storage
- Collaboration using Slack
- Analyzing LinkedIn profiles
- Creating your own LinkedIn profile
- Virtual meeting platforms: Microsoft Teams, Zoom, Google Meet

PAPER-V: ENL-121 Communication Skills in English–I
Time: 3 Hrs.; Maximum Marks: 100
Credits: L-T-P
4-0-0

Month Wise Division	Syllabus Unitization
August	**SECTION–A :Reading Skills**: Reading Tactics and strategies; Reading Purposes **SECTION–B:** Reading for understanding concepts, details, coherence, logical progression and meanings of phrases/ expressions. Comprehension questions in multiple choice format & Short answer type questions; **SECTION–C : Writing Skills:** Guidelines for effective writing; writing styles for application. **SECTION–D :** Resume, Notices
September	**SECTION–A: Reading Skills**: Kinds of Purposes and Associated Comprehension **SECTION–B :** Practice of Unseen Passages for Comprehension based on multiple choice format & Short answer type questions. **SECTION–C: Writing Skills:** Personal letter Writing; Organizing the details in a sequential order **SECTION–D:** Practice of Resume, Notices & Memo Writing
October- November	**SECTION–A: Reading Skills**: Reading for Direct meanings & Revision of all topics. **SECTION–B:** Practice & Revision of Unseen Passages for Comprehension based on multiple choice format & Short answer type questions. **SECTION–C: Writing Skills :** Official/ Business letters **SECTION–D:** Practice and Revision of Resume, Notices & Memo Writing

Prescribed Book :

Name: KLS-Communication Skills for BCA/B.Sc.(IT) & B.Com(Financial Services) Semester-I

Author: Singh & Bhatia

Publisher : Kasturi Lal & Sons, Educational Publishers, Amritsar-Jalandhar.

Paper – VI: General Punjabi

Time: 03 Hours **Max. Marks: 100**

Credit L-T-P
4-0-0

Month wise Division	**Syllabus Unitization**
ਜੁਲਾਈ-ਅਗਸਤ	Section A ਸਰਵੋਤਮ ਪੰਜਾਬੀ ਕਾਵਿ: ਭਾਈ ਵੀਰ ਸਿੰਘ ,ਧਨੀ ਰਾਮ ਚਾਤ੍ਰਿਕ, ਪ੍ਰੋ .ਮੋਹਨ ਸਿੰਘ, ਅੰਮ੍ਰਿਤਾ ਪ੍ਰੀਤਮ। ਮੰਚ ਘਰ: ਬੇਬੇ ਰਾਮ ਭਜਨੀ, ਦੂਜਾ ਵਿਆਹ, ਮਨ ਦੀਆਂ ਮਨ ਵਿੱਚ। ਪੈਰਾ ਰਚਨਾ। ਪੈਰਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ।
ਸਤੰਬਰ-ਅਕਤੂਬਰ	ਸਰਵੋਤਮ ਪੰਜਾਬੀ ਕਾਵਿ: ਹਰਭਜਨ ਸਿੰਘ, ਸ਼ਿਵ ਕੁਮਾਰ ਬਟਾਲਵੀ, ਸੁਰਜੀਤ ਪਾਤਰ। ਮੰਚ ਘਰ: ਅੱਖ ਅੱਗੇ ਕੱਖ, ਬ੍ਰਹਮ ਭੋਜ। ਭਾਸ਼ਾ ਦਾ ਟਕਸਾਲੀ ਰੂਪ ,ਭਾਸ਼ਾ ਅਤੇ ਉਪ ਭਾਸ਼ਾ 'ਚ ਅੰਤਰ, ਪੰਜਾਬੀ ਦੀਆਂ ਉਪ ਭਾਸ਼ਾਵਾਂ ਦੇ ਪਛਾਣ ਚਿੰਨ੍ਹ। ਪੈਰਾਂ ਰਚਨਾ, ਪੈਰਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ।
ਨਵੰਬਰ	ਸਰਵੋਤਮ ਪੰਜਾਬੀ ਕਾਵਿ: ਪਾਸ਼। ਮੰਚ ਘਰ: ਕੁੱਤਾ ਤੇ ਮਨੁੱਖ। ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦਾ ਨਿਕਾਸ ਅਤੇ ਵਿਕਾਸ। ਪੈਰਾ ਰਚਨਾ, ਪੈਰਾ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ।

ਪੁਸਤਕਾਂ: ਸਰਵੋਤਮ ਪੰਜਾਬੀ ਕਵਿਤਾ ਤੇ ਕਹਾਣੀ

(ਸੰਪਾਦਕ .ਡਾਕਟਰ ਰਮਿੰਦਰ ਕੌਰ, ਡਾਕਟਰ ਮੇਘਾ ਸਲਵਾਨ) ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ ਅੰਮ੍ਰਿਤਸਰ।

ਮੰਚ ਘਰ

ਡਾਕਟਰ ਕੁਲਦੀਪ ਸਿੰਘ ਧੀਰ, ਡਾਕਟਰ ਹਿਰਦੇਜੀਤ ਸਿੰਘ ਭੋਗਲ (ਸੰਪਾਦਕ)

ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ ਅੰਮ੍ਰਿਤਸਰ।