FACULTY OF COMPUTER SCIENCE & IT

SYLLABUS

of
Bachelor of Computer Applications

(Semester V-VI)

(Under Credit Based Continuous Evaluation Grading System)

(12+3 System of Education)

Batch: 2023-26
Session: 2025-26

The Heritage Institution

KANYA MAHA VIDYALAYA JALANDHAR (Autonomous)

PROGRAMME SPECIFIC OUTCOMES

Bachelor of Computer Applications
(Session 2025-26)

Program Specific Outcomes

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.

Kanya Maha Vidyalaya, Jalandhar (Autonomous)

SCHEME AND CURRICULUM OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAMME

Bachelor of Computer Applications

Credit Based Continuous Evaluation Grading System (CBCEGS)

Session 2025-26

Bachelor of Computer Applications Semester V										
Course Code	**Course Title**	**Course Type**	**Hours per week**	**Credit**		**Marks**				**Examination Time (in Hours)**
			L-T-P	**L-T-P**	**Total**	**Total**	**Ext.**		**CA**	
							L	**P**		
BCAL-5111	Computer Networks	C	4-0-0	4-0-0	4	100	80	-	20	3
BCAL-5112	Web Development (Full Stack Development)	C	4-0-0	4-0-0	4	100	80	-	20	3
BCAL-5113	Operating System	C	4-0-0	4-0-0	4	100	80	-	20	3
BCAL-5114	Object Oriented Programming -II	C	4-0-0	4-0-0	4	100	80	-	20	3
BCAP-5115	Lab on Object Oriented Programming-II	C	0-0-4	0-0-2	2	50	-	40	10	3
BCAP-5116	Lab on Full Stack Development	C	0-0-4	0-0-2	2	50	-	40	10	3
BCAI-5117	Internship	C	0-0-4	0-0-2	2	50	-	50	-	3
SECJ-5551	*Job Readiness Course	AC	2-0-0	2-0-0	2	50	40	-	10	1
	Total				24					

Note:

C-Compulsory

AC - Audit Course

***Credits/Grades Points of these courses will not be included in the SGPA/CGPA of Semester / Program, only grades will be provided.**

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Kanya Maha Vidyalaya, Jalandhar (Autonomous)

SCHEME AND CURRICULUM OF EXAMINATIONS OF THREE YEAR DEGREE PROGRAMME

Bachelor of Computer Applications

Credit Based Continuous Evaluation Grading System (CBCEGS)

Session 2025-26

Bachelor of Computer Applications Semester VI										
Course Code	**Course Title**	**Course Type**	**Hours per week**	**Credit**		**Marks**				**Examination Time (in Hours)**
			L-T-P	**L-T-P**	**Total**	**Total**	**Ext.**		**CA**	
							L	**P**		
BCAL-6111	Information Security and Threats	C	4-0-0	4-0-0	4	100	80	-	20	3
BCAL-6112	Software Engineering	C	4-0-0	4-0-0	4	100	80	-	20	3
BCAP-6113	Lab on Graphics Designing	C	0-0-4	0-0-2	2	50	-	40	10	3
BCAD-6114	Project	C	0-0-24	0-0-12	12	300	-	240	60	3
	Total				22					

Note:

C-Compulsory

Bachelor of Computer Applications Semester – V

(Session 2025-26)
COURSE CODE: BCAL-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 Computer Applications Semester – V
(Session 2025-26)
COURSE CODE: BCAL-5111
COMPUTER NETWORKS

L-T-P: 4-0-0
Credits: 4
Examination Time: 3 Hours

Max. Marks: 100
Theory: 80
CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (16 Marks each) are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided 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.

UNIT – I

Introduction: Basic concepts of Computer Networks, Basic Components of a Network, Network types and topologies.

Models: OSI Reference Model, TCP/IP Model, Comparison between TCP/IP and OSI model

Transmission Media: Coaxial Cable, Twisted Pair Cable, Fiber Optics & Satellites.

UNIT – II

Network Devices: Hub, Switch, Repeaters, Bridges, Routers, Gateways.

Introduction to Analog and Digital Transmission: Introduction to Analog and Digital Signals, Modems, Types of modems, pulse code modulation. Multiplexing and its types, Circuit Switching, Packet Switching, Message Switching.

Data Link Layer Design Issues: Error Control, Flow Control, Error Detection & Correction

UNIT - III

Media Access Protocols: CSMA, CSMA/CD, CSMA/CA.

IEEE standards 802: Token Ring, FDDI.

Design Issues of Network Layer: Routing Algorithm- Distance Vector Routing, Link state Routing and The Dijkstra Algorithm, IPv4: Notation, Classful addressing, Header Format, IPv6 addressing.

UNIT – IV

Design issues of Transport Layer: Introduction to TCP, TCP Services, features, TCP segment format, Introduction to UDP, User Datagram Format, UDP Operation

Network Security and Privacy: Introduction to Cryptography, types of Key.

References/Textbooks:

1. Tanenbaum , A.S., Computer Networks, Prentice Hall, 2010.
2. Stallings, W., Local Networks: An Introduction: Macmillan Publishing Co, 1990.
3. Stallings W., Data and Computer Communications, Prentice Hall, 2011.
4. Forouzan B., Data Communications and networking, McGraw Hill, 2007.

Note: The latest editions of the books should be followed.

Bachelor of Computer Applications Semester – V
(Session 2025-26)
COURSE CODE: BCAL-5112
WEB DEVELOPMENT (FULL STACK DEVELOPMENT)

Course Outcomes:
After passing course the student will be able to:

CO1: Apply JavaScript code for interaction with content of webpage.

CO2: Develop user interface of single page website through React.

CO3: Implement Node.js code for back-end support and database connectivity with MongoDB.

CO4: Implement Express code for managing HTTP responses, sessions, forms and database connectivity.

Bachelor of Computer Applications Semester – V
(Session 2025-26)
COURSE CODE: BCAL-5112
WEB DEVELOPMENT (FULL STACK DEVELOPMENT)

L-T-P: 4-0-0
Credits: 4
Examination Time: 3 Hours.

Max. Marks: 100
Theory: 80
CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (16 Marks each) are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided 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.

UNIT-I

JavaScript: Introduction to JavaScript, Data types, Operators, Control Statements, Arrays, Functions, Advanced Functions in JS, Call Back in JS, JS Promises, DOM manipulation in JS, Events in JS, Create a simple project.

Tailwind CSS: Introduction, Importance, Colors, Margin and Padding, Different attributes of Tailwind CSS (width, height, size class, positions, container class, background class, filter class), Interactivity with Tailwind CSS, Grid in Tailwind CSS.

UNIT-II

NodeJS: Introduction to Node and creating a node server.

Request, response, HTTP status codes and HTTP methods, Routing and Redirectional requests, Node To-Do-List application

ExpressJs: Introduction to Express, Express Framework, Request and response using express, Sending html file as a response, Post request in express, List application of ExpressJs.

UNIT-III

MongoDB: Introduction to MongoDb, Connection to MongoDB, Project setup and dotenv, Models in MongoDB, Controllers (Book Controller) & DTO, User Controller.

Bootstrap: Introduction, features, colours and Typography, Buttons and Button Groups, Utility classes, breakpoints, Grid Layouts, Navbar, cards, Accordions, List Groups, Bootstrap icons, Forms in Bootstrap, Tooltips, Modals, Tabs and Dropdowns in Bootstrap

UNIT-IV

Reactjs: Intro to Reactjs, Roadmap to React, Understand the React flow and File structures, Creating your own Custom React Library and JSX, Hooks in React, Props in React, UseState, usecallback, Use Effect, UseRef in React Hooks, Hooks Implementation, React router, Context API

References / Textbooks:

1. Jeffery C Jackson, "Web Technology- A Computer Science perspective", Pearson Education, 1st Edition, 2007.
2. Chris Bates, "Web Programming- Building Internet Applications", Wiley India, 1st Edition, 2006.
3. Achyut S Godbole and Atul Kahate, "Web technologies", Tata McGraw Hill, 1st Edition, 2008.
4. Web Technologies, Uttam K Roy, Oxford University Press, 1st Edition, 2010.
5. Kirupa Chinnathambi, Learning React, Addison-Wesley Professional, 1st Edition, 2019.

Note: The latest editions of the books should be followed.

Bachelor of Computer Applications Semester – V
(Session 2025-26)
COURSE CODE: BCAL - 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 Computer Applications Semester – V
(Session 2025-26)
COURSE CODE: BCAL-5113
OPEARTING SYSTEM

L-T-P: 4-0-0 **Max. Marks: 100**
Credits: 4 **Theory: 80**
Examination Time: 3 Hours. **CA: 20**

Instructions for Paper Setter -

Eight questions of equal marks (16 Marks each) are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided 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.

UNIT – I

Introduction: Definition, Batch Processing, Multi programming, Time Sharing Systems, Multitasking, multiprocessing, Parallel Systems, Distributed Systems, Real–time Systems.

Processes: Process Concepts, Process Scheduling, Threads, System Calls.

UNIT - II

CPU–Scheduling: Basic concepts, Scheduling Criteria, Scheduling Algorithms, Algorithm Evaluation: Response Time, Turnaround Time, Waiting Time, Throughput.

Process Synchronization: Critical-section problem, semaphores and its Types (Binary and Counting), Classical problems of synchronization and their solutions.

UNIT – III

Deadlocks: System Model, Deadlock characterization, Methods for handing deadlocks, Deadlocks Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock, Approach to Deadlock handling.

Memory Management: Background, Logical v/s Physical Address Space, Swapping, Continuous Allocation, Paging, Segmentation.

UNIT – IV

Virtual Memory: Background, Page Fault, Demand Paging, Page Replacement, Page Replacement Algorithms, Thrashing.

Secondary Storage Structures: Disk structures, Disk scheduling.

References/Textbooks:

1. Avi Silberschatz, Peter Baer Galvin, Greg Gagne, Operating System Concepts, Wiley, 2013.
2. Charles Crowley, Operating Systems: A Design-Oriented Approach, Tata McGraw Hill, 2001.
3. Deitel, An Introduction to Operating Systems, Second Edition, Addison Wesley, 1990.
4. William Stallings, Operating Systems: Internals and Design Principles, Pearson Education Limited, 2014.

Note: The latest editions of the books should be followed.

Bachelor of Computer Applications Semester – V
(Session 2025-26)
COURSE CODE: BCAL-5114
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 Computer Applications Semester – V
(Session 2025-26)
COURSE CODE: BCAL-5114
OBJECT ORIENTED PROGRAMMING-II

L-T-P: 4-0-0 **Max. Marks: 100**
Credits: 4 **Theory: 80**
Examination Time: 3 Hours. **CA: 20**

Instructions for Paper Setter -

Eight questions of equal marks (16 Marks each) are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided 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.

UNIT - I

JAVA BASICS: Introduction to Java, Features of Java, Structure of a Java Program, primitive data types, keywords, Identifiers, literals, operators and comments.

OOPS: Object oriented concepts Advantage of OOPs, Objects and Classes,

Strings: Declaring a string, Immutable string, string comparison, concatenation, substring, string tokenizer.

UNIT - II

Inheritance: what is inheritance, types of inheritance, static import, Method overloading, method overriding, Runtime polymorphism, super keyword, final keyword

Interfaces: Abstract classes, declaring an interface, relationship between classes and interface, interface inheritance, implementing multiple inheritance using interface

Packages: what are packages, advantages of using packages, accessing package from another package, subpackaging, running packages by setting path and classpath.

UNIT - III

Exception Handling: what is exception handling, checked and unchecked exceptions, try-catch, try-multiple catch, try – finally, throw and throws

Multithreading: What is a thread, life cycle of a thread, creating a thread, sleeping a thread, joining a thread, thread priority

UNIT - IV

Input/Output: File input stream, File output stream, Buffered output stream, Buffered input stream.

Database connectivity: JDBC, JDBC drivers, steps to connect to the database, connectivity with MYSQL.

References/Textbooks:

1. HurbertSchildt, Java The Complete Reference, Tata McGraw Hill, 2014.
2. Y. Daniel Liang, Introduction to Java Programming, Pearsons Publications, 2015.
3. Jon Duckett, Beginning Web Programming with HTML, XHTML, and CSS, John Wiley & Sons, 2004.
4. Thomas A. Powell, HTML & CSS: The Complete Reference, McGraw-Hill, 2010.

Note: The latest editions of the books should be followed.

Bachelor of Computer Applications Semester – V
(Session 2025-26)
COURSE CODE: BCAP-5115
LAB ON OBJECT ORIENTED PROGRAMMING-II

L-T-P: 0-0-2
Credits: 2
Examination Time: 3 Hours.

Max. Marks: 50
Practical: 40
CA: 10

Lab Based on Object Oriented Programming - II

Bachelor of Computer Applications Semester – V
(Session 2025-26)
COURSE CODE: BCAP-5116
LAB ON FULL STACK DEVELOPMENT

L-T-P: 0-0-2
Credits: 2
Examination Time: 3 Hours.

Max. Marks: 50
Practical: 40
CA: 10

Lab Based on Web Development (Full Stack Development).

Bachelor of Computer Applications Semester – V
(Session 2025-26)
COURSE CODE: BCAI-5117
INTERNSHIP

L-T-P: 0-0-2 **Max. Marks: 50**
Credits: 2

Internship with Local / Public / Private Industry / Business organization / MOOCs / Online Internship / Certifications from the recognized organization.

Important points to be considered:

- MOOCs tenure should not be less than 8 weeks.
- The tenure of the Online Certification must be more than 60 hours.
- Online / Offline Internship tenure not to be less than two months / 60 hours.
- The requisite certificate to be submitted to HOD in print form on or before November 15, 2025.

Bachelor of Computer Applications Semester – V
(Session 2025-26)
COURSE CODE: SECJ-5551
JOB READINESS COURSE

Course Duration: 30 hours

Course intended for: Semester V students of undergraduate degree Programmes of all streams.

Course Credits: 2

Course Code: SECJ-5551

Objectives of the Course:

It is a specialized Programme structured to prepare the students job ready and adaptable for the work place. The main purpose of the course is to enhance their live skills and increase their chances of success in job interviews. It aims at improving their employability skills by making them ready for competitive jobs. It will help them synergizing with others, making realistic expectations and goals.

Learning Outcomes:

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

- help them building a professional resume to start their career
- learn represent themselves and communicate better in all areas
- make them understand how speaking skills can help them excelling in job interviews
- boost self confidence
- share their ideas in the group and improve their listening skills
- make them aware about critical thinking and leadership qualities

CURRICULUM

Course Code: SECJ-5551 Course Credits: 2 Total contact hours: 30

MODULE	TITLE	HOURS
I	Resume Building	5 Hours
II	Positive Attitude	2 Hours
III	Presentation Skills	5 Hours
IV	Leveraging LinkedIn	4 Hours
V	E-Mail Etiquette and Telephonic Conversation	4 Hours
VI	Organizational Structure and Corporate Jargons	3 Hours
VII	Tips for Personal Interviews	5 Hours
VIII	Final Assessment, Feedback and Closure	2 Hours

EXAMINATION

- **Total Marks:** 50 (Final Exam: 40; Internal Assessment: 10)
- **Final Exam:** Multiple Choice Quiz; Marks – 40; Time: 1 hour
- **Internal Assessment: 10** (Assessment: 6; Attendance:4)

  Comparative assessment questions (medium length) in the beginning and close of the programme. Marks: 6; Time: 0.5 hour each at the beginning and end.

- **Total marks:** 40 converted to grade for final result
- **Grading system:**

90.1% -100% marks: O grade
80.1% - 90% marks: A+ grade
70.1% - 80% marks: A grade
60.1% - 70% marks: B+ grade
50.1% -60% marks: B grade
45%- 50 % marks: C grade
35%-44.9% marks: P grade
Below 35% marks: F grade
Absent: Ab

Bachelor of Computer Applications Semester – VI
(Session 2025-26)
COURSE CODE: BCAL - 6111
INFORMATION SECURITY AND THREATS

Course Outcomes:

After passing course the student will be able to:

CO1: Comprehend essential terminology of cyber security and its importance.

CO2: Comprehend various security measures for security at web and operating system level.

CO3: Identify various Information security threat and its countermeasures.

CO4: comprehend hosting at different platforms, virtualization, firewall deployment and digital certificates.

Bachelor of Computer Applications Semester – VI
(Session 2025-26)
COURSE CODE: BCAL - 6111
INFORMATION SECURITY AND THREATS

L-T-P: 4-0-0 **Max. Marks: 100**
Credits: 4
Examination Time: 3 Hours **Theory: 80**
CA:20

Instructions for Paper Setter -

Eight questions of equal marks (16 marks each) are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided 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.

UNIT - I

Essential terminology, Hardware, Software, Malware, Defining security, Need for security Cybercrime vs Computer based crime, Information Security statistics, Three pillars of Security, Security myths, Identity of a Web Site, http vs https.

UNIT - II

Operating System fingerprinting, Hardening operating system, updates, patches, Host based firewall vs Network based firewall, deploying firewall, sniffing network traffic.

UNIT - III

Recognizing Security Threats and attacks, Phishing and its countermeasures, Virus, Trojan horse, Worms, Spyware, Adware, Keylogger, Social engineering, Denial of Service, Spamming, Port Scanning, Password cracking

UNIT - IV

Creating isolated network presence using virtualization, hosting different operating systems virtually and networking amongst these, Identify website's identity, NMAP, netcat, using tcpdump and Wireshark, generating digital certificates, understanding CAs.

References / Textbooks:

1. Atul Kahate, Cryptography and Network Security, McGraw Hill, 2010.
2. Mark S. Merkow, Jim Breithaupt, Information Security: Principles and Practices,

Pearson Prentice Hall, 2006.

3. Michael E Whitman, Herbert J Mattord, Principles of Information Security, Cengage Learning, 2018.
4. Christopher T. Carlson, How to Manage Cybersecurity Risk, Universal-Publishers, 2019.

Note: The latest editions of the books should be followed.

Bachelor of Computer Applications Semester – VI
(Session 2025-26)
COURSE CODE: BCAL - 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 formulate design from this requirement specifications.

CO3: Comprehend activities involved in software project management.

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

Bachelor of Computer Applications Semester – VI
(Session 2025-26)
COURSE CODE: BCAL - 6112
SOFTWARE ENGINEERING

L-T-P: 4-0-0 **Max. Marks: 100**
Credits: 4 **Theory: 80**
Examination Time: 3 Hours. **CA: 20**

Instructions for Paper Setter -

Eight questions of equal marks (16 marks each) are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided 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.

UNIT – I

Introduction to Software: Definition, Software characteristics, Software Components, Software Applications.

Introduction to Software Engineering: Definition, Software Engineering Paradigms, Waterfall Model, Prototyping Model, Incremental Model, Spiral Model.

UNIT – II

Requirement, Analysis and Specifications – Problem Analysis, Requirement Gathering Tools (Questionnaire, Interview, Group Discussion, and Observation), SRS Document and its Characteristics, Structured Analysis: Data Flow Diagram, Data Dictionaries.

Software Design – Characteristics, Structure Chart, Coupling, Cohesion, Functional Independence.

UNIT – III

Project Management – SPMP Document, Size Estimation (LOC, Function Point), COCOMO (Basic, Intermediate and Complete COCOMO), Effort Estimation, Development Time Estimation, Project Scheduling (Work Breakdown Structure, Activity Network, Critical Path Method, Gantt Chart, PERT Chart), Staffing.

Risk management and Control, software Maintenance and its types, Software Reuse, Software Reliability.

UNIT – IV

Coding– Coding Standards and Guidelines, Code Walkthrough, Code Inspection.

Testing - Test Case Design, Unit Testing, Black Box Testing (Equivalence Class Partitioning, Boundary Value Analysis), White Box Testing (Statement, Branch, Condition, Path Coverage), Cyclomatic Complexity, Integration Testing, System Testing (Alpha, Beta, Acceptance), Validation And Verification, Performance Testing.

References / Textbooks:

1. Roger S. Pressman, Software Engineering, McGraw-Hill series (2014) , 8th Edition.
2. Pankaj Jalote, A concise introduction to Software Engineering, Wiley (2008).
3. Rajib Mall, Fundamentals of Software Engineering, PHI Learning (2018), 5th Revised Edition
4. Kogent Learning Solutions Inc., Software Engineering, Dreamtech Press (2012)
5. Bruce R.Maxim, Roger S. Pressman, Software Engineering: A Practioner's Approach, McGraw Hill Education (2019), Eighth edition
6. David A. Gustafson, Schaum's Outline of Software Engineering, McGraw Hill (2020), 1st Edition

Bachelor of Computer Applications Semester – VI
(Session 2025-26)
COURSE CODE: BCAP - 6113
LAB ON GRAPHICS DESIGNING

L-T-P: 0-0-2 **Max. Marks: 50**
Credits: 2 **Practical: 40**
Examination Time: 3 Hours. **CA: 10**

Exercises to be implemented (in Adobe Photoshop)

1. Image Manipulation
2. Transform & Distort images
3. Color adjustment of those images (Photo Retouching), creating / restore old images
4. Designing movie posters or music album posters
5. Create logos
6. Graphics for Social media platforms

Syllabus to be covered for the practical:

UNIT- I

Graphic designing and its objective, difference between raster and vector graphics
Photoshop: Introduction to Photoshop and its interface, navigation and all tools, working with basic selections, advanced selections, Working with Layers.
Rectangular Marquee Tool , Move Tool , Polygon Lasso Tool , Magic Wand Tool , Crop Tool, Spot Healing Brush Tool , Healing Brush Tool ,Content aware tool , Patch tool, Brush Tool , Clone Stamp Tool ,Eraser Tool , Gradient Tool (, Blur Tool , Smudge tool , Dodge Tool ,Burn tool , Path Selection Tool , Text Type Tool , Pen Tool ,Rectangle Tool ,Notes Tool , Red eye tool,

UNIT- II

Color Balance, Hue Saturation, Save Selection & Load selection. Transformation tools (Distort, skew, perspective, warp), Vanishing point
Color Modes, Color Correction, Advanced color correction techniques (levels, Curves, Hue, Saturation etc.) Layers & Layer Blending Modes. Photoshop filters – Smart Filters, Filter Gallery, Create images for the web: Exporting images from Photoshop

UNIT - III

FIGMA Fundamentals: Introduction, What is FIGMA, Creating a new file, Importing, Saving your work, Frames, Spacing & Alignment, Groups, Scaling, Components, Anatomy of a FIGMA File, Styles, FIGMA Keyboard Shortcuts
FIGMA Interface: Browser app vs Desktop App, The Start Screen, Introduction to the interface, Importing and Exporting Files, Using Templates, The Toolbar, The Layers and

Pages Panel, The Assets Panel, The Design Panel, The Prototype Panel, The Code Panel, The Canvas, Using Keyboard Shortcuts, Working with the Version History
Setting up a New Project: Creating a New Project and File, Importing Sketch Files, Working with Templates

UNIT - IV

Add and Edit Content: Working with Frames, Working with Shapes, Drawing Icons using the Pen Tool, Drawing Shapes Using the Pencil Tool, Working with Text, Masking Images and Shapes, Importing Icons and other Graphics, Working with Color, Working with Styles, Setting up Components, Using Constraints for Responsive Design, Working with Version Control
Completing the Design: Designing a Slide-out Menu, Designing an on-screen Overlay, Designing a comments section, Designing Multiple Artboard States, Give this design its own unique personality.

Reference / Textbooks:

1. Caplin Steve, "How to Cheat in Photoshop CC: The art of creating realistic photomontages", Focal Press
2. Danae Lisa, "Adobe Photoshop CC Bible", Wiley
3. Faulkner Andrew,"Adobe Photoshop CC Classroom in a Book", Pearson Education
4. The Ultimate Figma for UI/UX Design, Aditi Sharma.
5. Figma User Guide: The Comprehensive Handbook to Understand this Web-Based Interface Design Tool, by BURT P. SOUZA

Bachelor of Computer Applications Semester – VI
(Session 2025-26)
COURSE CODE: BCAD - 6114
PROJECT

Course Outcomes:
After passing this course the student will be able to:

CO1: Apply software engineering paradigms like Process Model, Analysis, Design, Testing, etc.

CO2: Work within defined time and resource constraints while developing real world application.

CO3: Address the Real World Problems and find the required solution.

CO4: Demonstrate an ability to work in teams and manage the conduct of the research study.

CO5: Formulate and propose a plan for creating a solution.

Bachelor of Computer Applications Semester – VI
(Session 2025-26)
COURSE CODE: BCAD - 6114
PROJECT

L-T-P: 0-0-12
Credits: 12
Examination Time: 3 Hours.

Max. Marks: 300
Practical: 240
CA: 60

General Instructions:

1. A software module based on the work done in the entire course is to be developed.
2. Candidates have to submit one hard copy and two CDs/DVDs of documentation which shall be kept with the HoD in the college only. Further, supervisor/guide shall forward one copy of DVD/CD containing all the documentation files of the students (file name to be saved as Rollno_of_the_ student.pdf) to the COE Office. The Covering letter (duly signed by the guide and Head of the department) should contain the following information: Candidate name, Candidate Roll no, Project Title of the student and .pdf file name of her project documentation.
3. The software module / website maybe developed in groups, consisting of at most two students in a group.
4. The college shall depute guide(s)/supervisor(s) under whose supervision the software module shall be developed. The guide/supervisor shall clarify that the work done is original and authenticated. The certificate found to be incorrect at any stage shall attract the proceedings against all the stakeholders, as per rules.
5. The evaluation of the module shall be done as per the common ordinance of UG/PG under semester system.