MARIAN COLLEGE KUTTIKKANAM

(AUTONOMOUS)

BCA

POs, PSOs & COs

Submitted to

THE NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL (NAAC)

FOURTH CYCLE OF ASSESSMENT

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BACHELOR OF COMPUTER APPLICATIONS

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO1: Apply algorithmic principles, computer science theory and practice and mathematical foundations to solve real world problems

PSO2: Model, design, implement and test software systems with ethical concern

PSO3: Use new design methodologies, operating systems, languages, and other development tools in software development within reasonable time constraints

PSO4: Develop effective software applications for mobile, web and cloud environment.

PSO5: Communicate effectively in teams, pertaining to technical collaboration using all modes of communication.

COURSE OUTCOMES (CO)

UCE2001: Essential English for Undergraduates

CO1: Identify the distinct sounds in English words

CO2: Choose the right words while writing/talking about everyday life.

CO3: Write sentences adhering to tense rules.

CO4: Correct common errors such as punctuation and capitalization.

CO5: Use expressions appropriate for various social occasions.

CO6: Identify the key points in a piece of writing.

UBC2001: Algebra and Logic

CO1: Write an argument using logical notation and verification of the validity of arguments.

CO2: Demonstrate the ability to write a proof or outline the basic structure using different method of proofs.

CO3: Solve system of linear equations using canonical matrix, inverse matrix method and Cramer's rule.

CO4: Compute determinant, characteristic equation, Eigen values and Eigen vectors of a square matrix.

CO5: Determination of solution of homogeneous and non-homogeneous equations using rank.

UBC2002: Basic Statistics

CO1: Collect and present data objectively.

CO2: Calculate different measures of central tendency and dispersion.

CO3: Solve problems of permutations and combinations.

CO4: Study different approaches of probability.

CO5: Find the probability distribution function, expectation, variance and moments of random variables

UBC2003: Operating Systems

CO1: Describe the role of operating system in the working of a computer system.

CO2: Analyse the performance of various process Scheduling Algorithms in process scheduling.

CO3: Appraise the design of various algorithms for process Synchronization and deadlock handling.

CO4: Analyze various memory management techniques.

CO5: Appraise issues related to file system interface and file system implementation in a computer system.

UBC2004: Object Oriented Programming Using C++

CO1: Describe Programming Paradigms.

CO2: Define Classes and objects.

CO3: Develop Programs using constructors, destructors, type conversions.

CO4: Apply inheritance, Polymorphism and Virtual functions in programming.

CO5: Implement pointers, Files and streams in C++.

UBC2005: Software Lab I

CO1: Install windows 10 and its tools.

CO2: Install and configure windows Server.

CO3: Create Class and Objects in C++.

CO4: Implement Different types of Constructors and Memory management operators in C++.

CO5: Implement Inheritance and Polymorphism in C++.

UBC2006: Digital Content Development

CO1: Describe the fundamentals of Videography.

CO2: Familiarize the techniques of videography.

CO3: Discuss various video editing softwares.

CO4: Practice the video uploading process

UCE2002: Academic and Professional English

CO1: Identify the elements of good academic writing.

CO2: Select the right vocabulary for an academic essay.

CO3: Write effective thesis statements.

CO4: Identify the different strategies employed in shaping an academic essay.

CO5: Write brief book reviews.

CO6: Write CVs and cover letters.

UBC2007: Discrete Mathematics

CO1: Prove basic set equalities using truth table and definitions.

CO2: Determine the properties of relations and functions.

CO3: Solve mathematical problems using permutation, Combination and Principle of inclusion and exclusion.

CO4: Find minimal spanning tree of a connected graphs.

CO5: Verify the planarity of a given graph.

CO6: Identify shortest paths for connected graphs.

UBC2008: Computer Networks

CO1: Explain the terminology and concepts of OSI and TCP-IP reference models.

CO2: Identify the various multiplexing techniques and routing mechanisms.

CO3: Describe the various IP addressing methods and subnetting.

CO4: Acquire the concept of routing algorithms and congestion control algorithms.

CO5: Monitor the network performance and services.

UBC2009: Java Programming

CO1: Write Java application programs using OOP principles and proper program structuring.

CO2: Demonstrates how to achieve reusability using inheritance, interfaces and packages

CO3: Demonstrate understanding and use of different exception handling mechanisms and multitasking concept in Java Programming.

CO4: Identify and describe common abstract user interface components to design GUI in Java

CO5: Implement various utility classes and keywords in Java Programming.

UBC2010: Data Structures Using C++

CO: Describe the fundamental concepts of static and dynamic data structures.

CO2: Compare and Contrast different searching and sorting techniques.

CO3: Design operations on linear data structures such as stacks and queues.

CO4: Implement operations on linked lists.

CO5: Devise programs for operations on trees.

UBC2011: Software Lab II

CO1: Implement the Object Oriented Programming concepts.

CO2: Implement AWT, swings and Event Handling in java.

CO3: Configure the routing protocols using Cisco packet tracer software.

CO4: Develop programs in C++ to implement various sorting and searching methods.

CO5: Implement programs in C++ to solve problems using different data Structures.

UBC2012: Data Analysis

CO1: Illustrate the use of spreadsheet tool in Data analysis.

CO2: Apply formulas and functions to manipulate, manage and analyse data using spreadsheet.

CO3: Customize the spreadsheet and use different types of charts for data presentation.

UBC2013: Advanced Statistical Methods

CO1: Analyse various probability distributions and use for data processing.

CO2: Apply Sampling Distributions to data analysis.

CO3: Discuss the properties of estimators which are needed for further evaluation of probability models.

CO4: Apply various statistical testing procedures in real life problems.

CO5: Create awareness on the concepts which are useful in report and project evaluation.

UBC2014: Digital Electronics and Microprocessor

CO1: Design logic circuits using simplified Boolean Expression.

CO2: Comprehend the design of Adders, Encoders, Multiplexer, Decoder and De-Multiplexer.

CO3: Recognize the design of Flip-flops, Registers and Counters.

CO4: Describe the architecture and pin configuration of Intel 8086 microprocessor.

CO5: Understand the instruction set, addressing modes and 8086 assembly language program concepts.

UBC2015: infrastructure Management

CO1: Support and configure Windows 10 desktops in an organizational environment.

CO2: Describe the System Center Manager server infrastructure and typical Configuration Manager deployment scenarios.

CO3: Configure global and Management Server specific settings using Manager 2012 R2.

CO4: Configure Windows-based computers for agentless management.

CO5: Understand the sequence and steps for installing the Operations Manager Server.

UBC2016: Virtualization and Cloud

CO1: Describe the features of parallel and distributed computing application.

CO2: Choose appropriate cloud platform for deployment of web services.

CO3: Configure a virtual machine for resource management and monitoring.

CO4: Maintain host machine in a virtualization environment.

CO5: Describe the architecture of a data centre in cloud environment.

UBC2017: Problem Solving Using Python

CO1: Set up Python programming environment and develop basic design constructs.

CO2: Use the decision and repetition structures in program design.

CO3: Apply functions and files to improve the efficiency of the programs.

CO4: Implement exception handling and Object-oriented programming methodology.

CO5: Represent and perform visualization of data.

UBC2018: Software Lab III

CO1: Describe the deployment and security of devices and applications across an enterprise.

CO2: Create, manage, monitor, and automate the infrastructure and workflows end-to-end.

CO3: Configure a virtual machine using vSphere.

CO4: Learn Python programming Environment and basic design Constructs.

CO5: Apply functions and files to improve the efficiency of the programs

UBC2019A: Entrepreneurship and innovations

CO1: Describe the concept of Entrepreneurship.

CO2: Develop Entrepreneurship talents.

CO3: Identify innovative business ideas.

CO4: Recognize Government initiatives to support Entrepreneurship.

CO5: Develop a business plan.

UBC2019B: Hardware Workshop

CO1: Describe various network topologies and models.

CO2: Suggest an appropriate device for a networking problem.

CO3: Configure computer system with appropriate security.

UBC2020: Operations Research

CO1: Understand the significance of OR in Management and Industry.

CO2: Convert real life situations to mathematical models in LPP.

CO3: Solve Linear programming problem by using graphical method and algebraic method.

CO4: Solve transportation problem and assignment problem.

CO5: Understand concept of Game theory and Solve pure strategy Games.

CO6: Solve mixed strategy problems by principle of dominance.

UBC2021: Artificial intelligence

CO1: Explain the basics of AI.

CO2: Identify appropriate AI methods to solve a given problem.

CO3: Illustrate basic AI algorithms.

CO4: Formalize a problem in the framework of AI methods.

CO5: Analyse how different expert systems work.

UBC2022: Database Management Systems

CO1: Explain DBMS concepts, data models, architecture and ER model.

CO2: Demonstrate relational data model.

CO3: Use SQL for database management.

CO4: Develop programs using PL/SQL.

CO5: Describe fundamental concepts of SAN.

UBC2023: Process Management

CO1: Describe the role Software Engineering in building of a software.

CO2: Explain the concept of Agile software development process.

CO3: Implement the scrum framework in a software project.

CO4: Enlist the different features of Devops software delivery model.

CO5: Describe Design Thinking approaches in Software development.

UBC2024: Web Programming Using php

CO1: Harness the power of programming to build intelligent, interactive and personalized web sites.

CO2: Apply CSS and JavaScript in web programming.

CO3: Utilize a variety of basic programming structures in PHP on a web server.

CO4: Apply advanced constructs such as cookies, sessions and object oriented programming correctly in PHP.

CO5: Develop web pages that interact with MySQL databases performing simple CRUD operations.

UBC2025: Software Lab IV

CO1: Create dynamic web pages using JavaScript ,HTML, DHTML and Cascading styles sheets.

CO2: Build web applications using PHP.

CO3: Execute DDL and DML commands.

CO4: Execute advanced DDL and DML commands.

CO5: Familiarize PL/SQL programming.

UBC2026A: Business Idea Development

CO1: Prepare a business plan.

CO2: Develop Project of an innovative business.

UBC2026B: IoT Project

CO1: Implement a small project in IoT.

UBC2026C: Website Development

CO1: Develop a web site.

CO2: Perform Client Side Validation on their pages.

CO3: Create well defined web pages using HTML tags, CSS and JavaScript.

UBC2027: Software Testing

CO1: Describe the importance of testing, different levels and types of testing performed in Software Development Life Cycle.

CO2: Install Selenium Web Driver and create simple automation test script.

CO3: Create reusable methods using Java and identifying complex web objects using CSSSelector and Xpath.

CO4: Perform cross browser testing and handle complex/dynamic UI objects.

CO5: Create a simple automation framework using Java, Selenium web driver library and Testing

UBC2028: Client Relationship Management

CO1: Illustrate the procedure of service management.

CO2: Use the Service Now Tool.

CO3: Analyse how to manage the workflow in Service Now tool.

CO4: Create the client side and server side scripts.

CO5: Create Service request and generate status reports using Service Now.

UBC2029: internet and Digital Marketing

CO1: Describe the basic concepts of Internet and Cyber laws.

CO2: Develop web pages using HTML.

CO3: Enlist the different areas of e-marketing.

CO4: Demonstrate the different possibilities of social media in digital marketing.

CO5: Explain the features of e-commerce and online marketing tools.

UBC2030: Digital Technology

CO1: Describe the advancements in digital technologies in all branches of Computer Science.

CO2: Enlist the applications of digital technologies in the service sector.

CO3: Explain steps in the Robotic Process Automation implementation.

CO4: Suggest an automation procedure for enterprises.

CO5: Use IoT to automate applications.

UBC2031: Software Lab V

CO1: Create bots for software installation, file management and file backup.

CO2: Manage Client Service Request using Process Now.

CO3: Test web applications using Selenium Web Driver.

UBC2032: Software Development Lab I

CO1: Apply Software Engineering concepts in project development.

CO2: Plan, analyse, design and implement a web project using PHP and MySQL.

CO3: Demonstrate independent learning.

CO4: Demonstrate and document software product.

UBC2033: Cognitive Science For Problem Solving

CO1: Describe the cross-disciplinary, historical foundations of cognitive science.

CO2: Discuss Perceptual Processes in cognition.

CO3: Describe the concept of working memory of human being.

CO4: Demonstrate a high level of understanding of cognitive domains of Problem solving, reasoning and decision making.

CO5: Describe fundamental concepts of critical thinking.

UBC2034: Mobile Computing and android Application Development

CO1: Create Android Application using different interfaces

CO2: Implement activity and multimedia in Android.

CO3: Apply SQLite Database in Android.

CO4: Use JSON and XML in Mobile application development.

CO5: Publish Android Application in Play store.

UBC2035: IT, Environment and Human Rights

CO1: Describe the various natural resources and their importance in human existence.

CO2: Analyse the environmental damage to life-supportive elements such as air, land and water on a global scale.

CO3: Articulate the impact of information technology on environment and society.

CO4: Appreciate the importance of the concept of Human right.

CO5: Describe how human right is implemented in Indian context.

UBC2036A: Big Data Analysis

CO1: Illustrate the concepts of Big Data and Bid Data Technologies.

CO2: Analyze Big data using Hadoop.

CO3: Explain how to use Map Reduce for distributed processing of large data sets.

CO4: Illustrate the features of NoSQL Databases to manage Big Data.

CO5: Compare different NoSQL Databases.

UBC2036B: Data Mining

CO1: Illustrate the Data Mining Techniques and their application.

CO2: Explain various classification and clustering Techniques to analyze the behaviour of large data sets.

CO3: Use Decision Tree to analyse the behaviour of data sets.

CO4: Explain how Neural Networks, Genetic Algorithm and SVM can be used to generate information from large data sets.

CO5: Apply data mining technique for studying Web Data, Biomedical data, and Text Data.

UBC2036C: Machine Learning

CO1: Describe the basic concept of Machine Learning.

CO2: Implement Data preparation in R/Python.

CO3: Implement various classification algorithms in R/Python.

CO4: Implement various regression methods in ML.

CO5: Demonstrate Artificial Neural Networks and SVM using R/Python.

UBC2036D: Cryptography and Network Security

CO1: Describe the classical encryption techniques.

CO2: Explain the advanced encryption standards.

CO3: Enlist the different Cryptosystems.

CO4: Apply the Cryptographic Hash Functions.

CO5: Discuss the different security methods.

UBC2037: Software Lab VI and Seminar

CO1: Create basic UI in Android Apps using different activities and multimedia in Android.

CO2: Implement different activities and multimedia in Android.

CO3: Implement SQLite in Android Apps.

CO4: Conduct Literature Survey and acquire information of new developments in IT.

CO5: Develop presentation and communication skill.

CO6: Build confidence for public speaking.

UBC2038: Software Development Lab II

CO1: Apply Software Engineering techniques in solving real life problems.

CO2: Demonstrate independent learning.

CO3: Demonstrate the ability to locate and use technical information from multiple sources.

CO4: Maintain professional ethics in Software development.

CO5: Demonstrate communication skill.

UBM2040A: Capital Market and investment Management

CO1: Explain the components of Indian Financial System

CO2: Appreciate the significance of SEBI as a regulatory mechanism in the Indian Capital Market

CO3: Develop an ability to start micro scale investment in stock market

CO4: Familarize with different dimensions of derivative trading

CO5: Explain the functioning of new issue matket and identify the major intermediaries

CO6: Identify the major stock exchanges of India and appreciate the role played by them in terms of capital raised

UBM2040B: Fundamentals of Accounting

CO1: Describe accounting concepts and conventions required for the business enterprise

CO2: Pass journal enteries by understanding the rules of double entry system of accounting

CO3: Prepare ledgers which include different types of cash book and balancing of the accounts

CO4: Prepare trial balance by understanding the format in order to ensure the arithematical accuracy

CO5: Create final accounts of the sole properitorship by understanding the nature of accounts

UEN2030: Film Studies

CO1: Develop critical and appreciative skills in film viewing

CO2: Write reviews and critiques on films

CO3: Examine the verbal and non-verbal messages in films and how they influence the socio-political-cultural behaviour of people

CO4: Observe the operation of the sound and color in films

CO5: Outline the processes of film production, including pre-production, production, andpost production.

CO6: Draft research essays in the discipline.

UEC2026: Fundamentals of Economics

CO1: Apply basic concepts of economics of demand and supply

CO2: To analyze and demonstrate the expenditure pattern of a country

CO3: To critically evaluate the functioning of financial system

CO4: To evaluate the planning system and strategies

UBC2029: internet and Digital Marketing

CO1: Understand the basic concepts of Internet and Cyber laws.

CO2: Develop web pages using HTML.

CO3: Acquire basics of digital marketing concepts.

CO4: Discuss about the various business drivers in the digital world.

CO5: Familiarize with E-commerce and online tools for marketing.

UMA2030: Applicable Mathematics

CO1: Solve quadratic equations.

CO2: Plot points and draw graphs of straight lines.

CO3: Use problem solving techniques for aptitude problems

CO4: Find the derivatives and integrals of functions

CO5: Define outcomes, sample space and events

UBB 2024: Brand Management

CO1: Demonstrate a fair understanding about key principles of branding

CO2: Discuss and apply different strategies for promoting brands and types of branding.

CO3: Design and implement brand strategies that consider brand naming, logo and its types

CO4: Cognize and apply brand positioning strategies

CO5: Demonstrate and apply knowledge of different brand extension strategies.

USW2021: Development Communication

CO1: Explain basic concepts in development communication

CO2: Demonstrate understanding on theoretical frameworks of development communication

CO3: Apply various communication strategies in practice

CO4: Use various communication techniques for development programmes

CO5: Demonstrate skills in public speaking and organising conferences and seminars

UPE2001: Physical Health and Life Skills Education

CO1: Ability to search appropriate sources of information about physical fitness and its components.

CO2: Suggest set of exercises or activities to maintain or improve efficiency of different body systems.

CO3: Ability to suggest combination of nutrients and its various sources for balanced diet.

CO4: Application of first aid and its procedure for common injuries.

CO5: Capable to demonstrate and suggest exercises for the prevention and management of hypo-kinetic diseases.

CO6: Habit of Engage in sports and games activities including yoga for better life skills.

UPY2043: Renewable Energy Sources

CO1: Describe the details of Solar Thermal energy

CO2: Describe the solar photovoltaic and wind energy

CO3: Describe the geothermal energy and energy from biomass

CO4: Describe the energy from oceans and chemical energy resources