SEMESTER 1

UCE2201: ESSENTIAL ENGLISH FOR UNDERGRADUATES (Common)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUCE2201.01: Identify the speech sounds of English and articulate them correctly.

COUCE2201.02: Use appropriate words and expressions in their speech and writing.

COUCE2201.03: Demonstrate their awareness of correct usage of English grammar in writing and speaking.

COUCE2201.04: Revise and correct sentences.

COUCE2201.05: Improve their reading comprehension of functional, fictional and non-fictional texts.

UBC2201: ALGEBRA AND LOGIC (Complementary)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2201.01: Write an argument using logical notation and verification of the validity of arguments.

COUBC2201.02: Demonstrate the ability to write a proof or outline the basic structure using different methods of proof.

COUBC2201.03: Ability to solve the system of linear equations using determinants and matrices.

COUBC2201.04: Ability to test the consistency and to find the solutions of homogeneous and Nonhomogeneous equations.

COUBC2201.05: To compute Eigen values and Eigen vectors.

UBC2202: BASIC STATISTICS (Complementary)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2202.01: Collect and present data objectively.

COUBC2202.02: Calculate measures of central tendency and dispersion.

COUBC2202.03: Solve problems of probability, permutations and combinations.

COUBC2202.04: Calculate probability by applying theoretical results.

COUBC2202.05: Find the probability distribution function, expectation, variance and moments of random variables.

UBC2203: OPERATING SYSTEMS (Core)

Course Outcomes(CO):

Upon successful completion of this course students should be able to:

COUBC2203.01: Describe the role of operating system in the working of a computer system.

COUBC2203.02: Demonstrate the performance of various process Scheduling Algorithms in process scheduling.

COUBC2203.03: Appraise the design of various techniques for process synchronization and deadlock handling.

COUBC2203.04: Analyze the techniques employed for memory management in computer systems

COUBC2203.05: Appraise issues related to storage management and file system implementation in computer systems.

UBC2204: OBJECT ORIENTED PROGRAMMING USING C++ (Core)

Course Outcomes (CO):

Upon successful completion of this course, students should be able to:

COUBC2204.01: Describe Programming paradigms and programming fundamentals.

COUBC2204.02: Apply Object Oriented Concepts.

COUBC2204.03: Use the concept of constructors and destructors, Compile time polymorphism in programming.

COUBC2204.04: Apply inheritance in programming

COUBC2204.05: Implement the concept of pointers, Runtime Polymorphism, Streams in C++ programming.

UBC2205: SOFTWARE LAB I (Core)

Course Outcomes(CO):

Upon successful completion of this course students should be able to:

COUBC2205.01: Install windows 10 and its tools.

COUBC2205.02: Install and configure windows Server.

COUBC2205.03: Apply the concept of Object Oriented Programming.

UBC2206: DIGITAL CONTENT DEVELOPMENT (Non Credit)

Course Outcomes(CO):

Upon successful completion of this course students should be able to

COUBC2206.01: Describe the fundamentals of Videography.

COUBC2206.02: Familiarize the techniques of videography.

COUBC2206.03: Discuss various video editing softwares.

COUBC2206.04: Practice the video uploading process

SEMESTER 2

UCE2202: WRITING FOR ACADEMIC PURPOSES (Common)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUCE2202.01: Compose effective thesis statements, body paragraphs and conclusions.

COUCE2202.02: Paraphrase information from outside sources effectively and accurately

COUCE2202.03: Summarize information from academic sources, distinguishing between main ideas and details.

COUCE2202.04: Apply the conventions of APA documentation.

COUCE2202.05: Write academic essays using appropriate shaping strategies.

UBC2207: DISCRETE MATHEMATICS (Complementary)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2207.01: Apply knowledge about set theory in problem solving

COUBC2207.02: Determine equivalence and partial order relations

COUBC2207.03: Solve mathematical problems using permutations and combinations.

COUBC2207.04: Check planarity of graphs and reachability of vertices of a graph

COUBC2207.05: Verify the planarity of a given graph.

COUBC2207.06: Find shortest path and shortest distances of vertices in a graph

UBC2208: COMPUTER NETWORKS (Core)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2208.01: Explain the terminology and concepts of OSI and TCP-IP reference models.
COUBC2208.02: Identify the various multiplexing techniques and routing mechanisms.
COUBC2208.03: Describe the various IP addressing methods and subnetting.
COUBC2208.04: Acquire the concept of routing algorithms and congestion control algorithms.
COUBC2208.05: Monitor the network performance and services.

UBC2209: JAVA PROGRAMMING (Core)

Course Outcomes(CO):

Upon successful completion of this course students should be able to:

COUBC2209.01: Create Java application programs using proper program structuring.

COUBC2209.02: Apply Object Oriented Programming concepts in Java Programming

COUBC2209.03: Implement reusability concepts using inheritance, interfaces and packages

COUBC2209.04: Apply exception handling mechanism and multitasking concept in Java Programming.

COUBC2209.05: Create common abstract user interface components to design GUI programs in Java.

UBC2210: DATA STRUCTURES USING C++ (Core)

Course Outcomes(CO):

Upon successful completion of this course students should be able to:

COUBC2210.01: Describe the fundamental concepts of static and dynamic data structures.

COUBC2210.02: Compare and Contrast different searching and sorting techniques.

COUBC2210.03: Design operations on linear data structures such as stacks and queues.

COUBC2210.04: Implement operations on linked lists.

COUBC2210.05: Devise programs for operations on trees.

UBC2211: SOFTWARE LAB II (Core)

Course Outcomes(CO):

Upon successful completion of this course students should be able to:

COUBC2211.01: Compile and execute Java Programs

COUBC2211.02: Implement programs in C++ to solve problems using different data structures.

COUBC2211.03: Configuration of routing protocols

UBC2212: DATA ANALYSIS (Non Credit)

Course Outcomes(CO):

Upon successful completion of this course students should be able to:

COUBC2212.01: Illustrate the use of spreadsheet tool in Data analysis.

COUBC2212.02: Apply formulas and functions to manipulate, manage and analyse data using spreadsheet.

COUBC2212.03: Customize the spreadsheet and use different types of charts for data presentation.

SEMESTER 3

UBC2213: ADVANCED STATISTICAL METHODS (Complementary)

Course Outcomes (CO):

Upon successful completion of this course students should be able to:

COUBC2213.01: Create an application of probability models to different contexts.

COUBC2213.02: Create an awareness on the sampling distributions and various estimation methods.

COUBC2213.03: Create an awareness on case studies based on statistical tools.

COUBC2213.04: Apply various statistical testing procedures in real life problems.

COUBC2213.05: Analyse various practical problems statistically to reduce errors in data interpretation.

UBC2214: DIGITAL ELECTRONICS AND MICROPROCESSOR (Core)

Course Outcomes(CO):

Upon successful completion of this course students should be able to:

COUBC2214.01: Design logic circuits using simplified Boolean Expression.

COUBC2214.02: Comprehend the design of Adders, Encoders, Multiplexer, Decoder and De-Multiplexer.

COUBC2214.03: Recognize the design of Flip-flops, Registers and Counters.

COUBC2214.04: Describe the architecture and pin configuration of Intel 8086 microprocessor.

COUBC2214.05: Understand the instruction set, addressing modes and 8086 assembly language program concepts.

UBC2215: INFRASTRUCTURE MANAGEMENT (Core)

Course Outcomes(CO):

Upon successful completion of this course students should be able to:

COUBC2215.01: Support and configure Windows 10 desktops in an organizational environment.

COUBC2215.02: Describe the System Centre Configuration Manager Server and typical Configuration Manager deployment scenarios.

COUBC2215.03: Configure global and Management Server specific settings using Manager 2012 R2.

COUBC2215.04: Describe the System Centre Operations Manager Server and typical Operations Manager deployment scenarios.

COUBC2215.05: Understand the process of managing and administering SCOM environment

UBC2216: VIRTUALIZATION AND CLOUD (Core)

Course Outcomes(CO):

Upon successful completion of this course students should be able to:

COUBC2216.01: Describe the features of parallel and distributed computing applications.

COUBC2216.02: Describe the working of a data centre.

COUBC2216.03: Configure a virtual machine for resource management and monitoring.

COUBC2216.04: Choose appropriate cloud platform for deployment of web services

COUBC2216.05: Understand the hybrid cloud fundamentals.

UBC2217: PROBLEM SOLVING USING PYTHON (Core)

Course Outcomes(CO):

Upon successful completion of this course students should be able to:

COUBC2217.01: Set up Python programming environment and develop basic design constructs.

COUBC2217.02: Use the decision and repetition structures in program design.

COUBC2217.03: Apply functions and files to improve the efficiency of the programs.

COUBC2217.04: Implement exception handling and Object-oriented programming methodology.

COUBC2217.05: Represent and perform visualization of data.

UBC2218: SOFTWARE LAB III (Core)

Course Outcomes(CO):

Upon successful completion of this course students should be able to:

COUBC2218.01: Manage, monitor, and automate the infrastructure and workflows end-to-end.

COUBC2218.02: Configure a virtual machine in cloud environment.

COUBC2218.03: Implement basic programming constructs and Object Oriented concepts using Python.

UBC2219A: ENTREPRENEURSHIP AND INNOVATIONS (Non Credit-Elective)

Course Outcomes(CO):

Upon successful completion of this course students should be able to:

COUBC2219A.01: Describe the concept of Entrepreneurship.

COUBC2219A.02: Develop a business plan.

UBC2219B: H/W WORKSHOP (Non Credit-Elective)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2219B.01: Describe various network topologies and models.

COUBC2219B.02: Suggest an appropriate device for a networking problem.

COUBC2219B.03: Configure computer system with appropriate security.

SEMESTER 4

UBC2220: OPERATIONS RESEARCH (Complementary)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2220.01: Convert real life situations to mathematical models in LPP and determine solution by graphical method

COUBC2220.02: Solve linear programming problems by using algebraic method.

COUBC2220.03: Solve transportation problems

COUBC2220.04: Solve assignment problems.

COUBC2220.05: To construct project management model using PERT and CPM

UBC2221: ARTIFICIAL INTELLIGENCE (Core)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2221.01: Describe the fundamental concepts and searching techniques in AI.

COUBC2221.02: Use appropriate knowledge representation techniques in AI.

COUBC2221.03: Illustrate the methods of knowledge inference in AI.

COUBC2221.04: Describe the fundamental concepts of machine learning.

COUBC2221.05: Analyse the working of different expert systems.

UBC2222: DATABASE MANAGEMENT SYSTEMS (Core)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2222.01: Explain DBMS concepts, data models, architecture and ER model.

COUBC2222.02: Demonstrate relational data model.

COUBC2222.03: Use SQL for database management.

COUBC2222.04: Develop programs using PL/SQL.

COUBC2222.05: Identify the use of normalization and familiarize the emerging databases

UBC2223: SOFTWARE PROCESS MANAGEMENT (Core)

Course Outcomes (CO):
Upon successful completion of this course students should be able to:
COUBC2223.01: Describe the role of Software Engineering in building a software.

COUBC2223.02: Explain the concept of Agile software development process and Lean UX.

COUBC2223.03: Implement the scrum framework in a software project.

COUBC2223.04: Illustrate the different features of DevOps software delivery model.

COUBC2223.05: Describe Design Thinking approaches in Software development.

UBC2224: WEB PROGRAMMING USING PHP (Core)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2224.01: Harness the power of programming to build intelligent, interactive and personalized web sites.

COUBC2224.02: Apply CSS and JavaScript in web programming.

COUBC2224.03: Utilize a variety of basic programming structures (variables, loops, functions etc.) in PHP on a web server.

COUBC2224.04: Apply advanced constructs such as cookies, sessions and object oriented programming correctly in PHP.

COUBC2224.05: Develop web pages that interact with MySQL databases performing simple CRUD (Create, Read, Update, Delete) operations.

UBC2225: SOFTWARE LAB IV (Core)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2225.01: Create dynamic web pages using HTML, CSS, JavaScript and PHP.

COUBC2225.02: Execute DDL and DML commands.

COUBC2225.03: Familiarize PL/SQL programming.

UBC2226A: BUSINESS IDEA DEVELOPMENT (Non Credit-Elective)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2226A.01: Prepare a business plan.

COUBC2226A.02: Develop Project of an innovative business.

UBC2226B: IoT PROJECT (Non Credit-Elective)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2226B.01: Implement a small project in IOT.

UBC2226C: WEBSITE DEVELOPMENT (Non Credit-Elective)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2226C.01: Develop a web site.

COUBC2226C.02: Perform Client Side Validation on their pages.

COUBC2226C.03: Create well defined web pages using HTML tags, CSS and JavaScript.

SEMESTER 5

UBC2227: SOFTWARE TESTING (Core)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2227.01: Describe the importance of testing, different levels and types of testing performed in Software Development Life Cycle.
COUBC2227.02: Install Selenium Web Driver and create simple automation test script.
COUBC2227.03: Create reusable methods using Java and identifying complex web objects using CSSSelector and Xpath.
COUBC2227.04: Perform cross browser testing and handle complex/dynamic UI objects.
COUBC2227.05: Create a simple automation framework using Java, Selenium web driver library and TestNG
.

UBC2228: CLIENT RELATIONSHIP MANAGEMENT (Core)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2228.01: Illustrate the procedure of service management.

COUBC2228.02: Use the Service Now Tool.

COUBC2228.03: Analyse how to manage the workflow in Service Now tool.

COUBC2228.04: Create the client side and server side scripts.

COUBC2228.05: Create Service request and generate status reports using Service Now.

UBC2229: INTERNET AND DIGITAL MARKETING (Open Course)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2229.01: Describe the basic concepts of Internet and Cyber laws.

COUBC2229.02: Develop web pages using HTML.

COUBC2229.03: Enlist the different areas of e-marketing.

COUBC2229.04: Demonstrate the different possibilities of social media in digital marketing.

COUBC2229.05: Explain the features of e-commerce and online marketing tools.

UBC2230: DIGITAL TECHNOLOGY (Core)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2230.01: Describe the advancements in digital technologies in all branches of Computer Science.

COUBC2230.02: Enlist the applications of digital technologies in service sector.

COUBC2230.03: Explain steps in the Robotic Process Automation implementation.

COUBC2230.04: Suggest an automation procedure for enterprises.

COUBC2230.05: Use IoT to automate applications.

UBC2231: SOFTWARE LAB V (Core)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2231.01: Test web applications using Selenium Web Driver.

UBC2232: SOFTWARE DEVELOPMENT LAB I (Mini project)(Core)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2232.01: Apply Software Engineering concepts in project development.

COUBC2232.02: Plan, analyse, design a project using any selected technique.

COUBC2232.03: Demonstrate independent and group learning through project implementation.

COUBC2232.04: Demonstrate and document software product.

UBC2233: COGNITIVE SCIENCE FOR PROBLEM SOLVING (Non Credit)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2233.01: Describe the cross-disciplinary, historical foundations of cognitive science.

COUBC2233.02: Discuss Perceptual Processes in cognition.

COUBC2233.03: Describe the concept of working memory of human being.

COUBC2233.04: Demonstrate a high level of understanding of cognitive domains of Problem solving, reasoning and decision making.

COUBC2233.05: Describe fundamental concepts of critical thinking.

SEMESTER 6

UBC2234: MOBILE COMPUTING AND ANDROID APPLICATION DEVELOPMENT (Core)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2234.01: Create Android Application using different interfaces

COUBC2234.02: Implement activity and multimedia in Android.

COUBC2234.03: Apply SQLite Database in Android.

COUBC2234.04: Use JSON and XML in Mobile application development.

COUBC2234.05: Publish Android Application in Play store.

UBC2235: IT, ENVIRONMENT AND HUMAN RIGHTS(Core)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2235.01: Describe the various natural resources and their importance in human existence.

COUBC2235.02: Analyse the environmental damage to life-supportive elements such as air, land and water on a global scale.

COUBC2235.03: Articulate the impact of information technology on environment and society.

COUBC2235.04: Appreciate the importance of the concept of Human right.

COUBC2235.05: Describe how human right is implemented in Indian context.

UBC2236A: BIG DATA ANALYSIS (Core- Elective)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2236A.01: Illustrate the concepts of Big Data and Bid Data Technologies.

COUBC2236A.02: Analyze Big data using Hadoop.

COUBC2236A.03: Explain how to use Map Reduce for distributed processing of large data sets.

COUBC2236A.04: Illustrate the features of NoSQL Databases to manage Big Data.

COUBC2236A.05: Compare different NoSQL Databases.

UBC2236B: DATA MINING (Core - Elective)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2236B.01: Illustrate the Data Mining Techniques and their application.

COUBC2236B.02: Explain various classification and clustering Techniques to analyse the behaviour of large data sets.

COUBC2236B.03: Use Decision Tree to analyse the behaviour of data sets.

COUBC2236B.04: Explain how Neural Networks, Genetic Algorithm and SVM can be used to generate information from large data sets.

COUBC2236B.05: Apply data mining technique for studying Web Data, Biomedical data, and Text Data.

UBC2236C: MACHINE LEARNING (Core - Elective)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2236C.01: Describe the basic concept of Machine Learning.

COUBC2236C.02: Implement Data preparation in R/Python.

COUBC2236C.03: Implement various classification algorithms in R/Python.

COUBC2236C.04: Implement various regression methods in ML.

COUBC2236C.05: Demonstrate Artificial Neural Networks and SVM using R/Python.

UBC2236D: CRYPTOGRAPHY AND NETWORK SECURITY (Core – Elective)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2236D.01: Describe the classical encryption techniques.

COUBC2236D.02: Explain the advanced encryption standards.

COUBC2236D.03: Enlist the different Cryptosystems.

COUBC2236D.04: Apply the Cryptographic Hash Functions.

COUBC2236D.05: Discuss the different security methods.

UBC2237: SOFTWARE LAB VI & SEMINAR (Core)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2237.01: Develop android applications by implementing the basic components and SQLite database.

COUBC2237.02: Conduct Literature Survey and acquire information of new developments in IT.

COUBC2237.03: Develop presentation and communication skill.

UBC2238: SOFTWARE DEVELOPMENT LAB II (Main Project)(Core)

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2238.01: Apply Software Engineering techniques in solving real life problems.

COUBC2238.02: Demonstrate independent learning.

COUBC2238.03: Develop a software project maintaining professional ethics.

COUBC2238.04: Demonstrate presentation and communication skill.

UBC2239: VIVA VOCE

Course Outcomes(CO):
Upon successful completion of this course students should be able to:
COUBC2239.01: Synthesize the knowledge acquired during the entire Graduate programme.