

**DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS
KURUKSHETRA UNIVERSITY, KURUKSHETRA**

Session: 2023-24			
Part A - Introduction			
Subject	BCA		
Semester	II		
Name of the Course	Object Oriented Programming using C++		
Course Code	B23-CAP-201 (Common with B23-CAI-201, B23-CDS-201, B23-CTS-201)		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	CC		
Level of the course (As per Annexure-I)	200-299		
Pre-requisite for the course (if any)	B23-CAP-101		
Course Learning Outcomes (CLO):	<p>After completing this course, the learner will be able to:</p> <ol style="list-style-type: none"> 1. learn the input/output statements and functions in C++. 2. get familiar with OOPS concepts along with constructors and destructors in C++ language. 3. Learn the various concepts of operator overloading and inheritance. 4. get familiar with concepts of virtual functions and exception handling in C++ language. <hr/> <p>5*. to implement the programs based on various concepts of C++.</p>		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	3	2	5
Max. Marks: 100 (70(T)+30(P))		Time: 3Hrs. (T), 3Hrs. (P)	
Internal Assessment Marks: 30 (20(T)+10(P))			
End Term Exam Marks: 70 (50(T)+20(P))			
Part B - Contents of the Course			
<u>Instructions for Paper-Setter</u>			
<p>The examiner will set a total of nine questions. Out of which, the first question will be compulsory. The remaining eight questions will be set from four units selecting two questions from each unit. The examination will be of three-hour duration. All questions will carry equal marks. The first question will comprise short answer-type questions covering the entire syllabus. The candidate will have to attempt five questions, selecting one from each unit. First</p>			

question will be compulsory.

The practicum will be evaluated by an external and an internal examiner. The examination will be of three-hour duration.

Unit	Topics	Contact Hours
I	<p>Input Output in C++: Unformatted and Formatted I/O Operations. I/O using insertion and extraction operators and streams in C++.</p> <p>Functions: Declaration and Definition, return values, arguments, passing parameters by value, call by reference, call by pointer, Recursion, Inline Functions, Function overloading.</p> <p>Pointers, structures, and union in C++.</p>	10
II	<p>Object-oriented features of C++: Class and Objects, Data hiding & encapsulation, abstraction, Data Members and Member Functions, accessing class members, empty class, local class, global class, Scope Resolution Operator and its Uses, Static Data Members, Static Member Functions, Structure vs Class, Friend function and friend class.</p> <p>Constructors and Destructors: Constructors, Instantiation of objects, Default constructor, Parameterized constructor, Copy constructor and its use, Destructors, Dynamic initialization of objects.</p>	10
III	<p>Operator Overloading: Overloading unary and binary operators: arithmetic operators, manipulation of strings using operators.</p> <p>Inheritance: Derived class, base class, Accessing the base class member, Inheritance: multilevel, multiple, hierarchical, hybrid; Virtual base class, Abstract class.</p>	10
IV	<p>Virtual Functions, pure virtual functions; Polymorphism & its types</p> <p>Exception Handling in C++: exception handling model, exception handling constructs - try, throw, catch, Order of catch blocks, Catching all exceptions, Nested try blocks, handling uncaught exceptions.</p>	10
V*	<p>Practicum:</p> <p>Students are advised to do laboratory/practical practice not limited to but including the following types of problems:</p> <ul style="list-style-type: none"> • Write a C++ program to print the following lines: <ul style="list-style-type: none"> • Your introduction • Your institute introduction • Write a program that accepts principle, rate, and time from the user and prints the simple interest. • Write a program to swap the values of two variables. • Write a program to check whether the given number is even or odd (using ?: ternary operator). • Write a program to check whether the given number is positive or negative (using ?: ternary operator). • Write a program that inputs three numbers and displays the largest number using the ternary operator. • WAP to initialize data members of the class using the constructor. • Pass values to the constructor and initialize the members of that class to those values. • Create a class called cube with the data members 	25

	<p>Length, Breadth, Height</p> <ul style="list-style-type: none"> • Members functions: <ul style="list-style-type: none"> • To accept the details. • To calculate the volume of the cube. • To display the details. • WAP to calculate the sum using constructor overloading. • WAP to demonstrate the use of destructor. • Create a C++ Program to show the order of constructor and destructor. • C++ Program to Find the Number of Vowels, Consonants, Digits, and White Spaces in a String • C++ Program to Multiply Two Matrices by Passing Matrix to Function • Increment ++ and Decrement -- Operator Overloading in C++ Programming • C++ Program to Add Two Complex Numbers • C++ Program to Show Function Overriding • C++ Program to Show Polymorphism in Class • C++ Program to Show Function Overloading • C++ Program to Show Inheritance 	
Suggested Evaluation Methods		
<p>Internal Assessment:</p> <p>➤ Theory</p> <ul style="list-style-type: none"> • Class Participation: 5 • Seminar/presentation/assignment/quiz/class test etc.: 5 • Mid-Term Exam: 10 <p>➤ Practicum</p> <ul style="list-style-type: none"> • Class Participation: 5 • Seminar/Demonstration/Viva-voce/Lab record etc.: 5 • Mid-Term Exam: NA 	<p>End-Term Examination: A three-hour exam for both theory and practicum.</p> <p>End Term Exam Marks: 70(50(T) +20(P))</p>	
Part C-Learning Resources		
<p>Recommended Books/e-resources/LMS:</p> <ul style="list-style-type: none"> • Herbert Schildt, C++, The Complete Reference, Tata McGraw-Hill • Robert Lafore, Object Oriented Programming in C++, SAMS Publishing • Bjarne Stroustrup, The C++ Programming Language, Pearson Education • Balaguruswami, E., Object Oriented Programming In C++, Tata McGraw-Hill. • Richard Johnson, An Introduction to Object-Oriented Application Development, Thomson Learning. 		

*Applicable for courses having practical components.

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Session: 2023-24			
Part A - Introduction			
Subject	BCA		
Semester	II		
Name of the Course	Introduction to Web Technologies		
Course Code	B23-CAP-202 (Common with B23-CAI-202, B23-CDS-202, B23-CTS-202)		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	CC		
Level of the course (As per Annexure-I)	100-199		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO):	<p>After completing this course, the learner will be able to:</p> <ol style="list-style-type: none"> 1. learn the basics of web development. 2. understand different types of web pages and web sites. 3. implement HTML and CSS for web page designing. 4. Understand the design of web crawlers and search engines. <hr/> <p>5*. to implement the programs based on various concepts of web development.</p>		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	3	2	5
Max. Marks: 100 (70(T)+30(P)) Internal Assessment Marks: 30 (20(T)+10(P)) End Term Exam Marks: 70 (50(T)+20(P))		Time: 3Hrs.(T), 3Hrs.(P)	
Part B - Contents of the Course			
<u>Instructions for Paper-Setter</u>			
<p>Examiner will set a total of nine questions. Out of which first question will be compulsory. Remaining eight questions will be set from four units selecting two questions from each unit. Examination will be of three-hour duration. All questions will carry equal marks. First question will comprise of short answer type questions covering entire syllabus. Candidate will have to attempt five questions in all, selecting one question from each unit. First question will be compulsory. Practicum will be evaluated by an external and an internal examiner. Examination will be of</p>			

three-hour duration.

Unit	Topics	Contact Hours
I	Introduction to Internet and World Wide Web (WWW); Evolution and History of World Wide Web, Web Pages and Contents, Web Clients, Web Servers, Web Browsers; Hypertext Transfer Protocol, URLs; Searching, Search Engines and Search Tools. Web Publishing: Hosting website; Internet Service Provider; Planning and designing website; Web Graphics Design, Steps For Developing website	10
II	Creating a Website and Introduction to Mark up Languages (HTML and DHTML), HTML Document Features & Fundamentals, HTML Elements, Creating Links; Headers; Text styles; Text Structuring; Text colour and Background; Formatting text; Page layouts, Images; Ordered and Unordered lists; Inserting Graphics; Table Creation and Layouts; Frame Creation and Layouts; Working with Forms and Menus; Working with Radio Buttons; Check Boxes; Text Boxes, HTML5	10
III	Introduction to CSS (Cascading Style Sheets): Features, Core Syntax, Types, Style Sheets and HTML, Style Rule Cascading and Inheritance, Text Properties, CSS Box Model, Normal Flow Box Layout, Positioning, and other useful Style Properties; Features of CSS3.	10
IV	The Nature of JavaScript: Evolution of Scripting Languages, JavaScript-Definition, Programming for Non-Programmers, Introduction to Client-Side Programming, Enhancing HTML Documents with JavaScript. Static and Dynamic web pages	10
V*	<p>Practicum:</p> <p>Students are advised to do laboratory/practical practice not limited to, but including the following types of problems:</p> <ul style="list-style-type: none"> • Create a web page using ordered list and unordered list. • Design a web page to show your institute with hyperlinks. • Create your resume on HTML page. • Create a web page divide the web page into four frames. In one frame create three links that will display different HTML forms in the remaining three frames respectively. • Create a web page to show the record of the college in the form of a table. • Write a HTML code to add internal CSS on a webpage • Design a blog-style personal website. 	25

	<ul style="list-style-type: none"> • Design a web page to display your college with hyperlinks. • Write a JavaScript function to calculate the sum of two numbers. • Write a JavaScript program to find the maximum number in an array. • Write a JavaScript function to check if a given string is a palindrome (reads the same forwards and backward). • Write a CSS file and attach it to any 3 HTML webpages. • Use Div and span in a page and color two words with the same colors. • Using HTML, CSS create a styled checkbox with animation on state change • Design a web page that is like a compose page of e-mail. It should have: <ul style="list-style-type: none"> a) Text boxes for To, CC, and BCC respectively. b) Text field for the message. c) Send button. d) Option for selecting a file for attachment • After clicking the send button a new page should open with the display message “Message has been sent”. 	
Suggested Evaluation Methods		
<p>Internal Assessment:</p> <ul style="list-style-type: none"> ➤ Theory <ul style="list-style-type: none"> • Class Participation: 5 • Seminar/presentation/assignment/quiz/class test etc.: 5 • Mid-Term Exam: 10 ➤ Practicum <ul style="list-style-type: none"> • Class Participation: 5 • Seminar/Demonstration/Viva-voce/Lab record etc.: 5 • Mid-Term Exam: NA 	<p>End-Term Examination: A three-hour exam for both theory and practicum.</p> <p>End Term Exam Marks: 70(50(T)+20(P))</p>	
Part C-Learning Resources		
<p>Recommended Books/e-resources/LMS:</p> <ul style="list-style-type: none"> • Raj Kamal, Internet and Web Technologies, Tata McGraw-Hill. • Ramesh Bangia, Multimedia and Web Technology, Firewall Media. • Thomas A. Powell, Web Design: The Complete Reference, Tata McGraw-Hill • Wendy Willard, HTML Beginners Guide, Tata McGraw-Hill. • Deitel and Goldberg, Internet and World Wide Web, How to Program, PHI • David Flanagan, JavaScript: The Definitive Guide: The Definitive Guide. • Kogent Learning, Web Technologies: HTML, JavaScript, PHP, Java, JSP, XML, AJAX – Black Book, Wiley India Pvt. Ltd. 		

*Applicable for courses having practical components.

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Session: 2023-24			
Part A - Introduction			
Subject	BCA		
Semester	II		
Name of the Course	Concepts of Operating Systems		
Course Code	B23-CAP-203 (Common with B23-CAI-203, B23-CDS-203, B23-CTS-203)		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	CC		
Level of the course (As per Annexure-I)	100-199		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO):	<p>After completing this course, the learner will be able to:</p> <ol style="list-style-type: none"> 1. understand the basic concepts of operating systems and their services along with process management. 2. understand the concept of process scheduling and acquire knowledge of process synchronization. 3. learn about memory management and virtual memory concepts. 4. learn to work with directory structure and security aspects. <hr/> <p>5*.to implement the programs based on the operating system.</p>		
Credits	Theory	Practical	Total
	3	1	4
Contact Hours	3	2	5
Max. Marks: 100 (70(T)+30(P))		Time: 3Hrs.(T), 3Hrs.(P)	
Internal Assessment Marks: 30 (20(T)+10(P))			
End Term Exam Marks: 70 (50(T)+20(P))			
Part B - Contents of the Course			
<u>Instructions for Paper-Setter</u>			
Examiner will set a total of nine questions. Out of which first question will be compulsory. Remaining eight questions will be set from four units selecting two questions from each unit. Examination will be of three-hour duration. All questions will carry equal marks. First question			

will comprise short answer-type questions covering the entire syllabus. The candidate will have to attempt five questions in all, selecting one question from each unit. First question will be compulsory. The practicum will be evaluated by an external and an internal examiner. The examination will be of three-hour duration.

Unit	Topics	Contact Hours
I	Introductory Concepts: Operating System, Functions and Characteristics, Historical Evolution of Operating Systems, Operating System Structure. Types of Operating System: Real-time, Multiprogramming, Multiprocessing, Batch processing. Operating System Services, Operating System Interface, Service System Calls, and System Programs. Process Management: Process Concepts, Operations on Processes, Process States, and Process Control Block. Inter-Process Communication.	10
II	CPU Scheduling: Scheduling Criteria, Levels of Scheduling, Scheduling Algorithms, Multiple Processor Scheduling, Algorithm Evaluation. Synchronization: Critical Section Problem, Semaphores, Classical Problem of Synchronization, Monitors. Deadlocks: Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery.	10
III	Memory Management Strategies: Memory Management of Single-user and Multiuser Operating Systems, Partitioning, Swapping, Contiguous Memory Allocation, Paging and Segmentation; Virtual Memory Management: Demand Paging, Page Replacement Algorithms, Thrashing.	10
IV	Implementing File System: File System Structure, File System Implementation, File Operations, Type of Files, Directory Implementation, Allocation Methods, and Free Space Management. Disk Scheduling algorithm - SSTF, Scan, C- Scan, Look, C-Look. SSD Management.	10
V*	Practicum: Students are advised to do laboratory/practical practice not limited to but including the following types of problems: <ul style="list-style-type: none"> • Working with various operating systems, and performing different operations using operating systems. • Write a program to print file details including owner access permissions, and file access time, where file name is given as argument. • Write a program to copy files using system calls. 	25

	<ul style="list-style-type: none"> • Write a program to implement the FCFS scheduling algorithm. • Write a program to implement the Round Robin scheduling algorithm. • Write a program to implement the SJF scheduling algorithm. • Write a program to implement a non-preemptive priority-based scheduling algorithm • Write a program to implement preemptive priority-based scheduling algorithm. • Write a program to implement the SRJF scheduling algorithm. • Write a program to calculate the sum of n numbers using the thread library. • Write a program to implement first-fit, best-fit, and worst-fit allocation strategies. 	
Suggested Evaluation Methods		
<p>Internal Assessment:</p> <p>➤ Theory</p> <ul style="list-style-type: none"> • Class Participation: 5 • Seminar/presentation/assignment/quiz/class test etc.: 5 • Mid-Term Exam: 10 <p>➤ Practicum</p> <ul style="list-style-type: none"> • Class Participation: 5 • Seminar/Demonstration/Viva-voce/Lab record etc.: 5 • Mid-Term Exam: NA 	<p>End-Term Examination: A three-hour exam for both theory and practicum.</p> <p>End Term Exam Marks: 70(50(T)+20(P))</p>	
Part C-Learning Resources		
<p>Recommended Books/e-resources/LMS:</p> <ul style="list-style-type: none"> • Silberschatz A., Galvin P.B., and Gagne G., Operating System Concepts, John Wiley & Sons. • Godbole, A.S., Operating Systems, Tata McGraw-Hill Publishing Company, New Delhi. • Deitel, H.M., Operating Systems, Addison- Wesley Publishing Company, New York. • Tanenbaum, A.S., Operating System- Design and Implementation, Prentice Hall of India, New Delhi. 		

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Session: 2023-24			
Part A - Introduction			
Subject	BCA		
Semester	II		
Name of the Course	Mathematical Foundations for Computer Science-II		
Course Code	B23-CAP-204 (Common with B23-CAI-204, B23-CDS-204, B23-CTS-204)		
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	CC-M		
Level of the course (As per Annexure-I)	100-199		
Pre-requisite for the course (if any)			
Course Learning Outcomes (CLO):	<p>After learning this course student will be able:</p> <ol style="list-style-type: none"> 1. Understand the concept of integration. 2. Acquire cognitive and technical knowledge about a variety of methods of representation of statistical data. 3. Understand methods of measure of central tendency. Analyze the problem and apply the best measure of central tendency to draw inferences from the available data. 4. Understand the concept of correlation, and correlation methods and conclude about the type of correlation for the available data. Comprehend the skills of curve fitting. 5. * Attain a range of cognitive and technical skills to integrate various functions. Have technical and practical skills required for selecting and using suitable methods for data representation and measure of central tendency. 		
Credits	Theory	Practical	Total
	1	1	2
Contact Hours	1	2	3
Max. Marks: 50 (30(T)+20(P))		Time: 3Hrs. (T), 3Hrs. (P)	
Internal Assessment Marks: 15 (10(T)+5(P))			
End Term Exam Marks: 35 (20(T)+15(P))			
Part B - Contents of the Course			

Instructions for Paper-Setter		
Unit	Topics	Contact Hours
I	Integration of simple algebraic, trigonometric, and exponential functions. Presentation of data: Frequency distribution and cumulative frequency distribution, Diagrammatic and graphical presentation of data, Construction of bar, Pie diagrams, Histograms, Frequency polygon, Frequency curve, and Ogives.	4
II	Measures of central tendency: Arithmetic mean, Median, Mode, Geometric mean, and Harmonic mean for ungrouped and grouped data. Measures of dispersion: Concept of dispersion, Mean deviation and its coefficient, Range, Variance and its coefficient, Standard deviation.	4
III	Correlation: Concept and types of correlation, Methods of finding correlation: Scatter diagram, Karl Pearson's coefficients of correlation, Rank correlation.	4
IV	Linear regression: Principle of least square, Fitting of a straight line, Two lines of regression, Regression coefficients.	4
V*	Practicum: Students are advised to do laboratory/practical practice not limited to, but including the following types of problems: Problem Solving- Questions related to the practical problems based on the following topics will be worked out and a record of those will be maintained in the Practical Note Book: <ul style="list-style-type: none"> • Demonstrate skills in finding integration of simple functions. • Representation of data using Bar and pie diagrams. • Representation of data using Histogram, Frequency polygon, Frequency curves, and Ogives. • Problems to compute measures of central tendency. • Problems to calculate measures of dispersion. • Problem to calculate Karl Pearson's coefficient of correlation. • Problem to fit the straight line for the given data. • Problem to find lines of regression. 	25
Suggested Evaluation Methods		
Internal Assessment: <ul style="list-style-type: none"> ➤ Theory <ul style="list-style-type: none"> • Class Participation: 4 • Seminar/presentation/assignment/quiz/class test etc.: NA • Mid-Term Exam: 6 ➤ Practicum <ul style="list-style-type: none"> • Class Participation: NA • Seminar/Demonstration/Viva-voce/Lab record etc.: 5 • Mid-Term Exam: NA 		End Term Examination: A three-hour exam for both theory and practicum. End Term Exam Marks: 35(20(T)+15(P))

PartC-LearningResources

Text/ReferenceBooks:

- S.C. Gupta and V.K. Kapoor (2014). Fundamentals of Mathematical Statistics, S. Chand & Sons, Delhi.
- R.V. Hogg, J. W. McKean and A. T. Craig (2013). Introduction to Mathematical Statistics (7 th edition), Pearson Education.
- J. V. Dyke, J. Rogers and H. Adams (2011). Fundamentals of Mathematics, Cengage Learning.
- A.S. Tussy, R. D. Gustafson and D. Koenig (2010). Basic Mathematics for College Students. Brooks Cole.
- G. Klambauer (1986). Aspects of calculus. Springer-Verlag.

*Applicablefor courseshavingpracticalcomponents.

Part A - Introduction			
Subject	Business Administration		
Semester	II		
Name of the Course	Entrepreneurship & Start-ups		
Course Code	B23-BBA-206		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/VAC)	MDC-2		
Level of the course (As per Annexure-I)	Introductory-Level		
Pre-requisite for the course (if any)	None		
Course Learning Outcomes (CLO):	After completing this course, the learner will be able to: 1. Understand the concept of Entrepreneur and Entrepreneurship. 2. Role of Institutions in promotion of Entrepreneurship culture. 3. Government Support for the startups. 4. Various stakeholders involved in a startup. 5*.		
Credits	Theory	Practical	Total
	3	0	3
Contact Hours/Week	3	0	3
Max. Marks: 75 Internal Assessment Marks: 25 End Term Exam Marks: 50	Time: 3 Hours		

Part B- Contents of the Course

Instructions for Paper- Setter

The Paper-Setter shall set *nine* questions in all and the question paper shall be divided into two parts. **Part 'A'** shall comprise *four* short answer type questions from the whole of the syllabus carrying 2.5 marks each, which shall be compulsory. **Part 'B'** shall comprise *eight* questions (*two* questions from each unit) carrying 10 marks each and the student will be required to attempt *four* questions selecting *one* question from each unit.

Unit	Topics	Contact Hours
I	Entrepreneurship: Meaning and Significance, Relationship between Entrepreneurship Development and Economic Development, Qualities of entrepreneurs and Entrepreneurial Competencies, Types of Entrepreneurs.	12
II	Entrepreneurial support system; Family Business and their contribution to Entrepreneurship Role of Educational Institutions in promoting the Entrepreneurship culture	11
III	Role of Government, Promotional Agencies and Institutions in Entrepreneurship Development, Incentives and Various Financial Schemes available for Entrepreneurs.	11
IV	Opportunity Identification process; Business plan, Start-Up India Initiative Major Players/stakeholders in Startup Ecosystem – Mentors, Incubators, Investors, Accelerators, Government Bodies.	11
V*		

Suggested Evaluation Methods

Internal Assessment:

> Theory

- Class Participation: 05
- Seminar/presentation/assignment/quiz/class test etc.: 07
- Mid-Term Exam: 13

> Practicum

- Class Participation:
- Seminar/Demonstration/Viva-voce/Lab records etc.:
- Mid-Term Exam:

End Term Examination: 50

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Session: 2023-24			
Part A - Introduction			
Subject	COMPUTER SCIENCE		
Semester	II		
Name of the Course	Cloud Computing Skills		
Course Code	B23-SEC-201		
Course Type: (CC/MCC/MDC/CC- M/DSEC/VOC/DSE/PC/AEC/ VAC)	SEC		
Level of the course (As per Annexure-I)			
Pre-requisite for the course (if any)			
Course Learning Outcomes(CLO):	After completing this course, the learner will be able to: <ol style="list-style-type: none"> 1. Get acquainted with the term Cloud computing. 2. Understand various types of free and commercial clouds. 3. Understands various types of cloud services like SaaS, PaaS and IaaS. 4. Know how the Cloud Computing is changing software industry <hr style="width: 50%; margin-left: 0;"/> 5*. to create and use Cloud.		
Credits	Theory	Practical	Total
	2	1	3
Contact Hours	2	2	4
Max. Marks:75(50(T)+25(P)) Internal Assessment Marks:20(15(T)+5(P)) End Term Exam Marks: 55(35(T)+20(P))		Time: 3 Hrs.(T), 3Hrs.(P)	
Part B- Contents of the Course			
<u>Instructions for Paper- Setter</u>			
Examiner will set a total of nine questions. Out of which first question will be compulsory. Remaining eight questions will be set from four unit selecting two questions from each unit. Examination will be of three-hour duration. All questions will carry equal marks. First question will comprise of short answer type questions covering entire syllabus. Candidate will have to attempt five questions in all, selecting one question from each unit. First question will be compulsory.			

Practicum will be evaluated by an external and an internal examiner. Examination will be of three-hour duration.

Unit	Topics	Contact Hours
I	Basic Concepts of Cloud Computing Computer Network Basics. Concepts of Distributed Systems. Concepts of Cloud Computing and its Necessity. Cloud Service Providers in use and their Significance.	6
II	Cloud Infrastructure Cloud Pros and Cons. Cloud Delivery Models. Cloud Deployment Models.	6
III	Cloud Storage Management Concept of Virtualization and Load Balancing. Overview on Virtualization used for Enterprise Solutions. Key Challenges in managing Information. Identifying the problems of scale and management in big data.	6
IV	Building Cloud Networks Designing and Implementing a Data Center-Based Cloud Installing Open Source Cloud service. Amazon Web Services (AWS). Google Cloud Platform.	6
V*	Practicum: <ul style="list-style-type: none"> • Creating & using Amazon(AWS) Account • Creating & using Google Account 	25

Suggested Evaluation Methods

<p>Internal Assessment:</p> <p>➤ Theory</p> <ul style="list-style-type: none"> • Class Participation: 4 • Seminar/presentation/assignment/quiz/class test etc.: 4 • Mid-Term Exam: 7 <p>➤ Practicum</p> <ul style="list-style-type: none"> • Class Participation: 2 • Seminar/Demonstration/Viva-voce/Lab records etc.: 3 • Mid-Term Exam: NA 	<p>End Term Examination:</p> <p>A three hour exam for both theory and practicum.</p>
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Part C-Learning Resources

<p>Recommended Books/e-resources/LMS:</p> <ul style="list-style-type: none"> • Cloud Computing: Concepts, Technology & Architecture By Thomas Erl, Ricardo • Cloud computing a practical approach Anthony T.Velte, Toby J.Velte Robert Elsenpeter, TATA McGraw-Hill, New Delhi- 2010 • Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online -Michael Miller-Que2008 • Moving to Cloud by Dinkar Sitaram, Geetha Manjunath, Publication: Syngress Elsevier Inc, 2014(2ndEdition) • Cloud Computing Second Edition by Dr Kumar Saurabh, Publication Willy INDIA (2013) • Cloud Computing Bible by Barrie Sosinsky, Publisher Willy INDAI (2014) • Cloud computing for Dummies-Judith Hurwitz, Robin Bloor, Marcia Kaufman, Fern Halper, Wiley Publishing, Inc, 2010 • Cloud Computing(Principles and Paradigms),Edited by Rajkumar Buyya, James Broberg, Andrzej Goscinski, John Wiley & Sons, Inc. 2011
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VAC Session: 2023-24	
Part A – Introduction	
Subject	Philosophy
Semester	First
Name of the Course	Human Values and Ethics
Course Code	B- VAC 101
Course Type: (CC/MCC/MDC/CC-M/DSEC/VOC/DSE/PC/AEC/VAC)	VAC
Level of the course (As per Annexure-I)	100-199
Pre-requisite for the course (if any)	N.A

Course Learning Outcomes (CLO):	After completing this course, the learner will be able to know/understand: 301.1. the Need, Content and Process for Value Education. 301.2. the Human Values and Ethics 301.3. the theories of Integrated Personality and Well-being 301.4. the Professional Ethics and Global Citizenship		
	Theory	Practical	Total
Credits	02	00	02
Contact Hours	02	00	02
Max. Marks:-50 Internal Assessment Marks:-15 End Term Exam Marks:-35	Time:-3 hrs.		
Part B-Contents of the Course			
Instructions for Paper- Setter			
The paper-setter is requested to set Nine questions in all i.e., One Compulsory Objective Type Question (7x1) without any choice, equitably distributed over the whole syllabi and Two Questions from Each Unit equitably spread over the concerned unit. The examinees will have to attempt Five questions in all, selecting one question from each unit. All questions carry equal marks.			
Unit	Topics		Contact Hours
I	Course Introduction - Need, Content and Process for Value Education <ul style="list-style-type: none"> • Understanding the need, content and process for Value Education. (Students should be aware of the difference among skills, values and ethics and their respective needs in life.) • Classification of Value Education: understanding Personal Values, Social Values, Moral Values & Spiritual Values; Understanding the difference between ideology and values. • Understanding Harmony with self, Society and Nature. • Practical: Debate and discussion on the need and nature of value education; • Students should be encouraged to find and analyze suitable case studies to • Understand various types of values. 		8

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II	<p>Human Values and Ethics</p> <ul style="list-style-type: none"> • Meaning and nature of human values; Significance of human values in life; • Relation between values and ethics. • Relevance of Human values: Integrity Empathy, Loksangrah, Brahmvihara. • Theory of Naya (Jainism), Deontology, Virtue Ethics, Utilitarianism • Practical: Students should be divided in small groups and should be motivated to reflect upon their values. Teacher should make an environment to make them realize that everyone has a set of values arisen from their family, social, cultural, religious, and political contexts, some of which correspond to more “human” and “universal” frameworks. This exercise is to encourage students to articulate their values and put them into conversation with values from other contexts. 	8
III	<p>Integrated Personality and Well-being</p> <ul style="list-style-type: none"> • Understanding the relationship among: Self, Identity and Personality. • Understanding Integrated Personality – with the three gunas theory of Sankhya, the four • Antah-karanas (inner instruments) in Yoga, and Panchkosha (five sheaths) in Upanishad. • Approaching comprehensive understanding of well-being and its relation to Happiness. • Practical: Bhramadhyā Dhyān, Chakra Dhyān, Preksha Dhyān, Sakshi Bhava Dhyān, Vipassana, Yog Nidra, Partipakshabhava (yogic way of cognitive restructuring) 	7
IV	<p>Professional Ethics and Global Citizenship</p> <ul style="list-style-type: none"> • Nature, characteristics and scope of professional-ethics; Types of Professional Ethics • Professional Values: Trusteeship, Inclusiveness, Commitment, Sustainability, Accountability, Transparency, Impartiality. • Values for Global Citizenship: Equality, Justice, and Human Dignity. • Nature and need of competency based education; Types of Competencies, Core • Competencies: communication, teamwork, planning and achieving goals, Functional • Competencies: analytical thinking, knowledge sharing and learning, decision making, partnership building. 	7

Suggested Evaluation Methods	
Internal Assessment: > Theory • Class Participation: 4 • Seminar/presentation/assignment/quiz/class test etc.:4 • Mid-Term Exam: 7 > Practicum • Class Participation: • Seminar/Demonstration/Viva-voce/Lab records etc.: • Mid-Term Exam:	End Term Examination: 35
Part C-Learning Resources	
Recommended Books/e-resources/LMS: <ol style="list-style-type: none"> 1. R. R. Gaur R Sangal G P Bagaria (2009): A Foundation Course in Human Values and Professional Ethics, Excel Books. 2. D.R. Kiran (2014) Professional Ethics and Human Values, McGraw Hill Education (India). 3. Happiness and Well-Being, NIOS Module V (Health and well-being) 4. Kiran Kumar K. Salagame (2016): Meaning and Well-Being: Indian Perspectives, Journal of Constructivist Psychology 5. Dan P. McAdams, Kali Trzesniewski, Jennifer Lilgendahl, Veronica Benet-Martinez, Richard W. Robins (2021) Self and Identity in Personality Psychology, Personality Science, 2021, Vol. 2, Article e6035, https://doi.org/10.5964/ps.603 6. S. K. Kiran Kumar (2003): An Indian conception of well being, in Henry, J. (Ed) European Positive Psychology Proceedings 2002. Leicester, UK: British Psychological Society. 7. Vivian L Vignoles (2017): Identity: Personal and Social, Chapter to appear in Oxford Handbook of Personality and Social Psychology (2nd ed.), edited by Kay Deaux and Mark Snyder. 8. Wong, S.-C. (2020). Competency Definitions, Development and Assessment: A Brief Review. International Journal of Academic Research in Progressive Education and Development, 9(3), 95-114. 	

English
Semester-II

Nomenclature of the Course: **English Language and Communication Skills: Level 2**

Course Code: **B23-AEC-211**

Course Type: **AEC-2**

Level of the Course: **100-199**

Credits: 2 (Theory 2)

Total Marks: 50

End Term Exam Marks: 35

Internal Assessment Marks: 15

Exam Time: 3 Hrs.

Workload: Theory 2 hours

Course Learning Outcomes

After the successful completion of the course, the student will be able to:

E201.1. The students will be introduced to the phonetics and syllables in English.

E201.2. They will learn various components of speaking skills and their use in communication.

E201.3. They will learn the practical use of punctuation and capitalization.

E201.4. They will have the comprehensive knowledge of tenses.

Contents of the Course:

Unit I: Sounds in English Language

Phonetic symbols and their understanding through a dictionary (Oxford Advanced Learner's Dictionary)

Transcribing one and two syllable words in English

(*For Blind Students: Develop a story from the given prompt or idea)

Unit II: Developing Fluency in Speaking Skills

Speech Making: Expository Speech, Argumentative Speech

Dialogues, Role Plays and Group Discussions

Unit III: Proper use of Punctuation and Capitalization

Unit IV: Introduction to Tenses

Suggested Readings:

Fraleigh, Douglas M., and Joseph S. Tuman. *Speak Up: An Illustrated Guide to Public Speaking*. Macmillan, 2011.

Lucas, Stephen. *The Art of Public Speaking*. McGraw-Hill, 2008.

Murphy, Raymond. *English Grammar in Use with Answers*. Cambridge UP, 2002.

Instructions to the Paper Setters:

1. Question No 1 will be compulsory and will have 7 parts based on all the four Units and the students will be required to attempt all the 7.
2. Question No 2 and 3 will be set on Unit-I covering the entire Unit. Students will be required to attempt any one.
3. Question No 4 and 5 will be set on Unit-II covering the entire Unit. Students will be required to attempt any one.
4. Question No 6 and 7 will be set on Unit-III covering the entire Unit. Students will be required to attempt any one.
5. Question No. 8 and 9 will be based on Unit-IV having 7 parts each covering the entire Unit. Students will be required to attempt any one of these

Evaluation of Internal Assessment

Internal Assessment (Theory) will be based on the following components.

i.	Class Participation	4 Marks
ii.	Seminar/Presentation/Assignments/ Quiz/Class Test etc.	4 Marks
iii.	Mid-Term Exam	7 Marks
	Total	15 Marks