SUBJECT: Counselling Schedules for Academic year 2025-2026
School of Computer Science
UGP05 (BCA)

Counselling Schedule Time Table: Semester - I

Monday to Friday (Theory & Practical Counselling Sessions)

Time Slot	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 AM – 10:00 AM	BCAC101: Problem Solving Techniques	BCAC102: Mathematics	AECL101: Listening and Speaking Skills	IKSK104: भारतीय ज्ञान परंपरेच्या अनुशंगाने विज्ञान व तंत्रज्ञान	BCAS101: Lab – Problem Solving using Computers
10:00 AM – 11:00 AM	BCAC102: Mathematics	BCAC101: Problem Solving Techniques	VECD101: Introduction to Indian Constitution	BCAC101: Problem Solving Techniques	BCAC102: Mathematics

Saturday & Sunday (Lab Sessions and Tests)

Time Slot	Saturday	Sunday
9:00 AM – 11:00 AM	BCAS101: Lab – Problem Solving using Computers	BCAV101: Advanced Excel (Lab)
11:30 AM – 12:30 PM	Weekly Test	Weekly Test

Weekly Test Courses (UGP05 – BCA)

Course Code	Course Title
BCAC101	Problem Solving Technique
BCAS101	Lab – Problem Solving Technique
BCAC102	Mathematics
AECL101	Listening and Speaking Skills
BCAV101	Advanced Excel
IKSK104	भारतीय ज्ञान परंपरेच्या अनुशंगाने विज्ञान व तंत्रज्ञान
VECD101	Introduction to Indian Constitution

Counselling Schedule Time Table: Semester - II

Monday to Friday (Theory & Practical Counselling Sessions)

Time Slot	Monday	Tuesday	Wednesday	Thursday	Friday
9:00 AM – 10:00 AM	BCAC103: Data Structure using C++	BCAC104: Web Technology	BCAC105: Operating System	BCAD101: Environmental Education	BCAS102: Lab – Data Structure using C++
10:00 AM – 11:00 AM	AECL102: Reading and Writing Skills	BCAC103: Data Structure using C++	BCAC104: Web Technology	BCAC105: Operating System	BCAV102: Lab – Web Technologies

Saturday & Sunday (Lab Sessions and Tests)

Time Slot	Saturday	Sunday
9:00 AM – 11:00 AM	BCAS102: Lab – Data Structure using C++	BCAV102: Lab – Web Technologies
11:30 AM – 12:30 PM	Weekly Test	Weekly Test

Weekly Test Courses (Semester II – UGP05 BCA)

Course Code	Course Title
BCAC103	Data Structure using C++
BCAC104	Web Technology
BCAC105	Operating System
BCAD101	Environmental Education
AECL102	Reading and Writing Skills

Counselling Schedules for Academic year 2025-2026

School of Computer Science

UGP05: Bachelor of Computer Applications (BCA) [2025 Pattern]

SN	Name of Programme	Programme Code	Level of Programme	Modes employed by the institution to provide academic counseling services for theory courses	Modes employed by the institution to provide academic counseling services for Practical/ Project courses	Year	Semester
1	Bachelor of Computer Applications (BCA) [2025 Pattern]	UGP05	UG	1. Face to Face Counselling 2. Online Counselling 3. Recorded Video Lectures 4. Printed and Digital Self Learning Material (SLM) 5. Interactive Discussion Forums 6. WhatsApp group and email counselling support 7. Learning Management System 8. Workshops/ Seminars and Revision Sessions	1. Face to Face Laboratory sessions 2. Demonstration Based Learning 3. Online Practical Counseling 4. Recorded Practical Counseling 5. Lab Manuals and Project Guidelines 6. Case Studies 7. Field Study / Industry exposure **8.** Mentor Guided Project Supervision	First	I & II

Note:

- Each counselling session and practical session is conducted for a duration of two hours, ensuring adequate academic engagement and interaction.
- The University centrally prepares the counselling and laboratory schedules by specifying the topics to be covered and the corresponding months of delivery, thereby maintaining uniform academic standards across all Study Centres.
- The University develops and provides Self-Learning Materials (SLM) designed in a learner-centric format. These materials serve as the primary academic resource and support independent study alongside counselling sessions.
- Learner Support Centres (LSC's) are granted operational flexibility to schedule the day and time of counselling and laboratory sessions in consultation with learners, based on local convenience. Accordingly, some Learner Support Centres conduct sessions on weekdays, while others organize them on weekends.
- Audio-visual learning resources developed by the University are hosted on the official University YouTube channel. Learners are provided the flexibility to access these resources for self-paced learning and revision.
- Learner Support Centres and counsellors integrate appropriate web-based educational resources into counselling sessions to enrich the learning experience whenever necessary.
- Learners are encouraged to undertake guided self-study using SLM, digital resources, textbooks, and reference materials recommended by counsellors and Study Centres.

B.C.A. (Bachelor of Computer Applications) (2025 pattern) [UGP05]

Course Code	Category	Course Name	Theory/ Practical/ Project	Contact (HRS)	Credit Points	Assessment Type	Passing Marks
Semester 1							
BCAC101	Major (Core)	Problem Solving Techniques	Theory	60	4	CA(12/30) + EE(28/70)	40/100
BCAC102	Major (Core)	Mathematics	Theory	60	4	CA(12/30) + EE(28/70)	40/100
BCAS101	SEC	Lab: Problem Solving Techniques	Practical	30	4	CA(20/50) + EE(20/50))	40/100
BCAV101	VSC	Advanced Excel	Practical	15	2	CA(10/25) + EE(10/25)	20/50
AECL101	AEC	Listening and Speaking Skills	Theory	30	2	CA(6/15) + EE(14/35)	20/50
VECD101	VEC	Introduction to Constitution of India	Theory	30	2	CA(6/15) + EE(14/35)	20/50
IKSK104	IKS	भारतीय ज्ञान परंपरेच्या अनुशंगाने विज्ञान व तंत्रज्ञान	Theory	30	2	CA(6/15) + EE(14/35)	20/50
	CC	Choose from CC list (Appendix F)					
						Total	**220/550**
Semester 2							
BCAC103	Major (Core)	Data Structure using C++	Theory	60	4	CA(12/30) + EE(28/70)	40/100
BCAC104	Major (Core)	Web Technology	Theory	60	4	CA(12/30) + EE(28/70)	40/100
BCAC105	Major (Core)	Operating System	Theory	60	4	CA(12/30) + EE(28/70)	40/100
BCAV102	VSC	Lab: Web Technology	Practical	15	2	CA(10/25) + EE(10/25)	20/50
BCAS102	SEC	Lab:Data Structure using C++	Practical	15	2	CA(10/25) + EE(10/25)	20/50
AECL102	AEC	Reading and Writing Skills	Theory	30	2	CA(6/15) + EE(14/35)	20/50
VECD101	VEC	Environmental Education	Theory	30	2	CA(6/15) + EE(14/35)	20/50
	CC	Choose from CC list (Appendix F)					
						Total	**220/550**
Award of UG Certificate in the Faculty of Computer Science – Computer Applications (Level 4.5) with 44 credits and an additional 4 credits core NSQF course/Internship OR Continue							
Semester 3							
BCAC201	Major (Core)	Python Programming	Theory	60	4	CA(12/30) + EE(28/70)	40/100
BCAC202	Major (Core)	Data Base Management System	Theory	60	4	CA(12/30) + EE(28/70)	40/100
BCAC203	Major (Core)	Statistics	Theory	30	2	CA(6/15) + EE(14/35)	20/50
BCAC204	Major (Core)	Vedic Mathematics	Theory	30	2	CA(6/15) + EE(14/35)	20/50
BCAV201	VSC	Lab: Python Programming	Practical	15	2	CA(10/25) + EE(10/25)	20/50
BCAS201	SEC	Lab: Data Base Management System	Practical	15	2	CA(10/25) + EE(10/25)	20/50
AECL201	AEC	श्रवण आणि संभाषण कौशल्ये	Theory	30	2	CA(6/15) + EE(14/35)	20/50
	CC	Choose from CC list (Appendix F)					
Elective Course Select Any one from BCA205, BCA206 and BCA207							
BCAC205	DSE	Fundamentals of AI	Theory	30	2	CA(6/15) + EE(14/35)	20/50
BCAC206	DSE	Fundamentals of Data	Theory	30	2	CA(6/15) + EE(14/35)	20/50

		Science					
BCAC207	DSE	Fundamentals of IoT	Theory	30	2	CA(6/15) + EE(14/35)	20/50
						Total	**220/550**
Semester 4							
BCAC208	Major (Core)	Java Programming	Theory	60	4	CA(12/30) + EE(28/70)	40/100
BCAC209	Major (Core)	Software Engineering	Theory	60	4	CA(12/30) + EE(28/70)	40/100
BCAC210	Major (Core)	Computer Networks	Theory	60	4	CA(12/30) + EE(28/70)	40/100
BCAV202	VSC	Lab: Java Programming	Practical	15	2	CA(10/25) + EE(10/25)	20/50
BCAS202	SEC	Lab: Software Engineering	Practical	15	2	CA(10/25) + EE(10/25)	20/50
AECL202	AEC	वाचन आणि लेखन कौशल्ये	Theory	30	2	CA(6/15) + EE(14/35)	20/50
BCAF201	FP	Minor Project	Project	15	2	CA(20/50)	20/50
Elective Course Select Any one from BCA211, BCA212 and BCA213							
BCAC211	DSE	Machine Learning and Deep Learning	Theory	30	2	CA(6/15) + EE(14/35)	20/50
BCAC212	DSE	Statistics for Data Science	Theory	30	2	CA(6/15) + EE(14/35)	20/50
BCAC213	DSE	IoT Hardware and Software	Theory	30	2	CA(6/15) + EE(14/35)	20/50
						Total	**220/550**
Award of UG Diploma in the Faculty of Computer Science - Computer Applications (Level 5.0) with 88 credits and an additional 4 credits core NSQF course/ Internship OR Continue							
Semester 5							
BCAC301	Major (Core)	Advance Java	Theory	60	4	CA(12/30) + EE(28/70)	40/100
BCAC302	Major (Core)	Cloud computing	Theory	60	4	CA(12/30) + EE(28/70)	40/100
BCAC303	Major (Core)	Design and Analysis of Algorithms	Theory	30	2	CA(6/15) + EE(14/35)	20/50
BCAS301	SEC	Financial management	Practical	15	2	CA(10/25) + EE(10/25)	20/50
BCAS302	SEC	Lab: Advance Java	Practical	15	2	CA(10/25) + EE(10/25)	20/50
BCAV301	VSC	Lab: Cloud computing	Practical	15	2	CA(10/25) + EE(10/25)	20/50
BCAF301	FP	Major Project Foundation	Project	30	4	CA(20/50)	40/100
Elective Course Select Any one from BCA304, BCA305 and BCA306							
BCAC304	DSE	Fuzzy Logic & Expert System	Theory	30	2	CA(6/15) + EE(14/35)	20/50
BCAC305	DSE	SQL for Data Management	Theory	30	2	CA(6/15) + EE(14/35)	20/50
BCAC306	DSE	Networking and Connectivity in IoT	Theory	30	2	CA(6/15) + EE(14/35)	20/50
						Total	**220/550**
Semester 6							
BCAC307	Major (Core)	Android Programming	Theory	60	4	CA(12/30) + EE(28/70)	40/100
BCAC308	Major (Core)	Data Warehousing and Data Mining	Theory	60	4	CA(12/30) + EE(28/70)	40/100
BCAS303	SEC	Digital Marketing	Practical	15	2	CA(10/25) + EE(10/25)	20/50
BCAV302	VSC	Lab: Android Programming & Data Mining	Practical	30	4	CA(20/50) + EE(20/50)	40/100
BCAS304	SEC	Personality and Career Skills	Practical	15	2	CA(10/25) + EE(10/25)	20/50
BCAL301	AEC	Work Life Balance	Theory	30	2	CA(6/15) + EE(14/35)	20/50
BCAO301	OJT	Major Project	Project	30	4	CA(30) + EE(28/70)	40/100
						Total	**220/550**

Counselling Session for Semester - I

BCAC101: Problem Solving Technique [Theory: 4 Credits]

Each counselling session consists of two hours

Counselling Session	Month	Topic
1	July	Unit 1: Introduction to Computers: Computer Fundamentals: Introduction to Computers: Characteristics of Computers, Uses of computers, Types and generations of Computers.
2	July	Unit 1: Introduction to Computers: Basic Computer Organization: Units of a computer, CPU, ALU, memory hierarchy, registers, I/O devices
3	July	Unit 2: Techniques of Problem Solving: Concept of problem solving, Problem definition, Program design
4	July	Unit 2: Techniques of Problem Solving: Flowcharting, decision table, algorithms, Structured programming concepts
5	July	Unit 3: Planning the Computer Program: Programming methodologies viz. top-down and bottom-up programming
6	August	Unit 3: Planning the Computer Program: Debugging, Types of errors in programming documentation
7	August	Unit 4: Introduction to C: History of C, C Basics
8	August	Unit 4: Introduction to C: Problem solving techniques, flowchart and algorithm
9	August	Unit 5: Managing Input & Output Operations: Reading a character, writing a character, formatted input, formatted output.
10	August	Unit 6: Decision Making and Looping: Decision making and branching if-statement–if, if- else, else-if ladder, nested if else, switch case statement, break statement
11	August	Unit 6: Decision Making and Looping: Decision making and looping- while, do, do- while statement, for loop, continue statement
12	August	Unit 7: Arrays: Arrays Declaration and initialization of one-dimensional array
13	September	Unit 7: Arrays: two Dimensional and character arrays, accessing array elements.
14	September	Unit 8: Strings: Declaration and initialization of string variables
15	October	Unit 8: Strings: string handling functions from standard library – strlen(), strcpy(), strcat(), strcmp()
16	October	Unit 9: Functions: Need of functions, scope and lifetime of variables, defining functions, function call, call by value, call by reference, return values, storage classes
17	October	Unit 9: Functions: category of function- No argument No return value, No argument with return value, argument with return value, recursion, command line Arguments
18	October	Unit 10: Pointers: Understanding pointers, declaring pointer variable, initialization of pointer variable
19	October	Unit 10: Pointers: accessing address of a variable, pointer expressions ,Pointers arithmetic
20	October	Unit 11: Structures and Unions: Defining structure, declaring and accessing structure members, initialization of structure, arrays of structure, Difference between array and structure.
21	November	Unit 11: Structures and Unions: Defining Union, declaring and accessing union members, Difference between structure and

		union
22	November	Unit 12: File Handling: Introduction to Streams, Types of files, Operation on text files
23	November	Unit 12: File Handling: Standard Library, Input Output function
24	November	Unit 13: Storage Functions: Scope and extent, Storage Classes in a single source file, auto, extern and static, register
25	December	Unit 14: Preprocessor: Features of C Preprocessor, Macro Expansion Macros with Arguments
26	December	Unit 14: Preprocessor: Macros versus Functions, File Inclusion, Conditional Compilation;
27	December	Revision
28	December	Revision
29	December	Revision
30	December	Revision for Theory Exam

BCAS101: Problem Solving Technique [Lab: 4 Credits]

Practical Session	Month	Topic
1	July	Flowchart and Algorithm
2	July	if statement, Conditional operator
3	August	Switch statement
4	August	For loop
5	August	do-while / while-do loop
6	September	if-else ladder/nested if
7	September	Menu driven program
8	October	Functions
9	October	Functions and Recursion
10	October	One-Dimensional Array
11	November	Two Dimensional Arrays
12	November	Array of structures
13	November	Pointers
14	December	File Handling
15	December	Miscellaneous

BCAC102: Mathematics [Th: 4 Credits]

Each counselling session consists of two hours

Session	Month	Topic
1	July	Unit 1: Set Theory – Relevance of mathematics, set notations, types of sets
2	July	Unit 1: Set Theory – Set operations, properties of set operations, Venn diagrams
3	July	Unit 2: Number Systems – Binary system, decimal ↔ binary conversion
4	July	Unit 2: Number Systems – Binary arithmetic, octal and hexadecimal systems
5	July	Unit 3: Mathematical Induction – Principle and basic proofs
6	August	Unit 4: Mathematical Logic – Statements, truth values, compound statements
7	August	Unit 4: Mathematical Logic – Logical identities, tautology, contradiction
8	August	Unit 5: Exponents and Surds – Laws of exponents and fractional exponents
9	August	Unit 5: Exponents and Surds – Surds and their properties
10	August	Unit 6: Logarithms – Logarithms, antilogarithms, base conversion
11	August	Unit 6: Logarithms – Applications of logarithms
12	August	Unit 7: Permutations & Combinations – Principles and factorials
13	September	Unit 7: Permutations & Combinations – Permutations and combinations problems
14	September	Unit 8: Relations – Cartesian product, types of relations
15	October	Unit 8: Relations – Equivalence relations and matrix representation
16	October	Unit 9: Functions – Types of functions and composition
17	October	Unit 10: Vectors – Vector basics and algebra
18	October	Unit 10: Vectors – Collinear and coplanar vectors
19	October	Unit 11: Matrices – Types and algebra of matrices
20	October	Unit 11: Determinants – Determinants and inverse of matrix
21	November	Unit 12: Linear Equations – Systems of equations and matrix form
22	November	Unit 12: Polynomials – Roots, divisibility, quadratic equations
23	November	Unit 13: Graph Theory – Graph terminology and types
24	November	Unit 13: Graph Theory – Matrix representation, Eulerian & Hamiltonian graphs
25	December	Unit 14: Mensuration – Plane figures and perimeters
26	December	Unit 14: Mensuration – Volumes and surface areas
27	December	Revision – Part 1
28	December	Revision – Part 2
29	December	Revision – Part 3
30	December	Final Exam Revision

BCAV101: Advanced Excel [Lab: 2 Credits]

Practical Session	Month	Experiment / Program Name
1	July	Experiment to explore Excel interface and perform data entry with filled series and keyboard shortcuts
2	July	Experiment to format worksheets and apply cell referencing (absolute, relative, mixed) with named ranges
3	July	Experiment to implement arithmetic, statistical, and logical functions using combined formulas
4	August	Experiment to apply LOOKUP, VLOOKUP, nested VLOOKUP and HLOOKUP functions
5	August	Experiment to use advanced functions: INDEX, INDEX–MATCH and INDIRECT
6	August	Experiment to perform data validation, dependent dropdown lists, sorting and filtering
7	September	Experiment to apply date and text functions for data manipulation
8	September	Experiment to perform data cleaning and conditional formatting
9	October	Experiment to create basic and advanced charts for data visualization
10	October	Experiment to create Pivot Tables, Pivot Charts and use slicers
11	November	Experiment to connect, clean and transform data using Power Query
12	November	Experiment to create data models using Power Pivot
13	December	Experiment to merge queries and design interactive dashboards
14	December	Experiment to record and edit macros using absolute and relative references
15	December	Experiment to implement VBA programming with loops, conditions and user forms

AECL101: Listening and Speaking Skills [Th: 2 Credits]

Session	Month	Topic
1	July	Unit 1: Listening Skills – Importance of listening, listening vs hearing, types of listening
2	July	Unit 1: Listening Skills – Note-taking, synthesizing viewpoints, evaluating arguments, barriers to listening
3	July	Unit 2: Spoken English – English sound system: vowels, consonants, syllables, stress
4	August	Unit 2: Spoken English – Intonation patterns and pronunciation practice
5	August	Unit 3: Conversational Skills I – Greetings, introductions, introducing self & others
6	August	Unit 3: Conversational Skills I – Requesting/responding, agreeing/disagreeing (role play)
7	September	Unit 4: Conversational Skills II – Suggesting, asking information, permissions, apologizing
8	September	Unit 5: Group Discussion – GD rules, language expressions, practice session
9	October	Unit 6: Interview Skills – Types of interviews and preparation
10	October	Unit 6: Interview Skills – Making a good impression + language expressions
11	November	Unit 6: Interview Skills – Mock interview practice
12	November	Unit 7: Telephonic Communication – Calls, messages, appointments
13	November	Unit 7: Telephonic Communication – Information exchange & etiquette
14	December	Integrated speaking practice – conversation + GD + telephonic role play
15	December	Final revision & full communication practice

VECD101: Introduction to Constitution of India [Th: 2 Credits]

Session	Month	Topic
1	July	**Introduction & Background** – Need and importance of the Constitution, historical background
2	July	**Genesis of the Constitution** – Constituent Assembly and drafting process
3	July	**Sources of the Constitution** – Foreign influences and Indian innovations
4	August	**Constitutional Philosophy & Preamble** – Meaning, objectives, interpretation
5	August	**Preamble Values** – Justice, liberty, equality, fraternity
6	August	**Salient Features of the Constitution** – Federal structure, parliamentary democracy, secularism
7	September	**Judiciary & Rule of Law** – Independence of judiciary
8	September	**Fundamental Rights – I** – Introduction, classification, Right to Equality
9	October	**Fundamental Rights – II** – Right to Freedom, cultural & educational rights, constitutional remedies
10	October	**Fundamental Duties** – Meaning, importance, rights–duties relationship
11	November	**Directive Principles – I** – Philosophy and classification
12	November	**Directive Principles – II** – Implementation, harmony with rights
13	November	**Governance System – Legislature** – Parliament & law-making process
14	December	**Governance System – Executive & Judiciary**

IKSK104: भारतीय ज्ञान परंपरेच्या अनुशंगाने विज्ञान व तंत्रज्ञान [Th: 2 Credits]

Session	Month	Topic
1	July	**घटक 1:** वेद आणि विज्ञान - परिचय, वैज्ञानिक संकल्पना, आधुनिक विज्ञान तुलना
2	July	**घटक 2:** खगोलशास्त्र - प्राचीन खगोलज्ञान, ग्रह-नक्षत्र, कालमापन
3	July	भारतीय खगोलशास्त्रीय साधने + पारंपरिक गणना पद्धती
4	August	**घटक 3:** ज्योतिषशास्त्र - मूलतत्त्वे, राशी, नक्षत्र, ग्रहसिद्धांत
5	August	ज्योतिष आणि खगोलशास्त्र संबंध
6	August	**घटक 4:** स्थापत्यशास्त्र - वास्तुशास्त्र, मंदिरे, स्थापत्य परंपरा
7	September	स्थापत्यातील गणित व विज्ञान
8	September	**घटक 5:** गणितशास्त्र - भारतीय गणित परंपरा, शून्य, बीजगणित, त्रिकोणमिती
9	October	प्राचीन गणितज्ञांचे योगदान
10	October	**घटक 6:** भूगर्भशास्त्र + **घटक 7:** रसायनशास्त्र
11	October	आयुर्वेद, धातुविज्ञान व प्राचीन रसायन प्रयोग
12	November	**घटक 8:** भौतिकशास्त्र + **घटक 9:** पर्यावरणशास्त्र
13	November	पर्यावरण व्यवस्थापन + **घटक 10:** कृषिशास्त्र
14	December	**घटक 11:** वनस्पतीशास्त्र - औषधी वनस्पती व आयुर्वेद
15	December	सर्व घटकांचे अंतिम पुनरावलोकन व चर्चा

CCRX101 to CCRX106: [Practical: 2 Credits]

Each activity consists of two hours

Activity Session	Month	Topic
1	August	Activity 1
2	August	Activity 2
3	September	Activity 3
4	September	Activity 4
5	October	Activity 5
6	November	Activity 6
7	November	Activity 7
8	December	Activity 8

Learners can choose the CC of their choice from the list provided.

Semester I						
Course Code	Course Name	Theory/ Practical /Project	Contact (HRS)	Credit Points	Assessment Type	Passing Marks
CCRX101	Health & Wellness-I	Practical	15	2	CA(20/50)	20/50
CCRX102	Yoga education-I	Practical	15	2	CA(20/50)	20/50
CCRX103	Sports & fitness-I	Practical	15	2	CA(20/50)	20/50
CCRX104	Cultural activities-I	Practical	15	2	CA(20/50)	20/50
CCRX105	NSS-I	Practical	15	2	CA(20/50)	20/50
CCRX106	Fine/applied/visual/performing arts-I	Practical	15	2	CA(20/50)	20/50

Counselling Session for Semester - II

BCAC103: Data Structure using C++ [Theory: 4 Credits]

Session	Month	Topic
1	January	Unit 1: OOP principles, basic concepts, OOP languages
2	January	Preprocessor directives, header files, structure of C++ program
3	January	Tokens, keywords, identifiers, datatypes
4	January	Storage classes, operators, manipulators, control statements
5	January	Unit 2: Classes, objects, member functions
6	February	Static members, arrays within class, arrays of objects
7	February	Returning objects, practical examples
8	February	Unit 3: Functions in C++ – prototype, call by reference
9	February	Return by reference, inline functions
10	February	Unit 4: Arrays – 1D, 2D operations
11	February	String operations and manipulation
12	March	Unit 5: Pointers and pointer arithmetic
13	March	Dynamic memory allocation (new/delete)
14	March	Unit 6: Linked lists – singly linked list
15	March	Doubly & circular linked lists
16	March	Applications of linked lists
17	April	Unit 7: Stacks – implementation & applications
18	April	Queues – circular queue, deque, priority queue
19	April	Unit 8: Recursion & backtracking
20	April	Unit 9: Searching algorithms
21	April	Sorting algorithms (basic sorts)
22	April	Advanced sorting (merge, quick, heap)
23	May	Unit 10: Trees & BST operations
24	May	AVL trees & balancing
25	May	Unit 11: Heaps & heap sort
26	May	Unit 12: Graph representation & traversal
27	May	Shortest path & spanning tree algorithms
28	May	Unit 13: Hashing & collision handling
29	May	Unit 14: Advanced DS – Trie, segment tree, RB tree
30	May	Final revision & problem-solving session

BCAC104: Web Technology [Theory: 4 Credits]

Session	Month	Topic
1	January	Unit 1: Evolution of Internet, WWW, Web 1.0–3.0
2	January	Client–Server architecture, browsers & web servers
3	January	Types of web applications
4	January	Unit 2: Web development life cycle (WDLC)
5	January	Requirement analysis & website planning
6	February	Website architecture, development phases
7	February	Testing, deployment & maintenance
8	February	Unit 3: Web publishing & domain concepts
9	February	Hosting types, web servers, FTP
10	February	Website deployment practice discussion
11	February	Unit 4: Web content types & optimization
12	March	Unit 5: Overview of web technologies (HTML, JS, JSP)
13	March	Unit 6: HTML fundamentals & document structure
14	March	HTML tags, elements, attributes
15	March	Unit 7: Lists & text formatting
16	March	Advanced text formatting & block elements
17	April	Unit 8: Images, forms & frames
18	April	DOM introduction & form handling
19	April	Unit 9: Dynamic HTML & event-driven pages
20	April	Unit 10: CSS basics & types
21	April	CSS syntax & common tasks
22	April	Unit 11: Advanced CSS selectors & box model
23	May	CSS properties, pseudo classes/elements
24	May	Unit 12: Client-side scripting concepts
25	May	Unit 13: JavaScript basics & syntax
26	May	JavaScript control structures & functions
27	May	JavaScript objects & event handling
28	May	Unit 14: XML fundamentals
29	May	XML DTD, Schema, XSL + website design concepts
30	May	Final revision & integrated discussion

BCAC105: Operating System [Theory: 4 Credits]

Session	Month	Topic
1	January	**Unit 1:** Introduction to OS – importance, features, applications
2	January	Evolution of operating systems
3	January	Command line → GUI, portability, client-server
4	January	**Unit 2:** Types of operating systems
5	January	User's view of the OS
6	February	**Unit 3:** OS services & information management
7	February	Process management basics & system calls
8	February	Memory management overview
9	February	**Unit 4:** OS structure – monolithic, layered, microkernel
10	February	Virtual machines & booting
11	February	**Unit 5:** Disk basics & DMA
12	March	File systems & record handling
13	March	**Unit 6:** Directory structures & file allocation
14	March	Device drivers & path management
15	March	**Unit 7:** Process concept & multiprogramming
16	March	Process states, PCB, hierarchy
17	April	Process operations & context switching
18	April	**Unit 8:** Scheduling concepts & objectives
19	April	Scheduling policies & multithreading
20	April	**Unit 9:** IPC basics & producer-consumer
21	April	Semaphores & mutual exclusion
22	April	Classical IPC problems & algorithms
23	May	**Unit 10:** I/O management
24	May	Deadlocks & prevention strategies
25	May	**Unit 11:** Contiguous memory management
26	May	**Unit 12:** Paging & segmentation
27	May	Combined memory systems
28	May	**Unit 13:** Virtual memory
29	May	**Unit 14:** Protection & security
30	May	Final revision & discussion

BCAV102: Lab: Web Technology [Practical: 2 Credits]

Lab Session	Month	Experiment / Program Name
1	January	Installation and configuration of VS Code and XAMPP/WAMP and creation of a basic HTML webpage
2	January	Hosting a local webpage using XAMPP/WAMP and accessing it via localhost
3	January	Program to design a multi-section HTML webpage with navigation bar, table, form, and multimedia elements
4	February	Program to apply CSS styling using selectors and Flexbox/Grid layout
5	February	Program to implement responsive design using media queries and CSS animations
6	February	Program to perform client-side form validation using JavaScript
7	March	Program to implement DOM manipulation and event handling using JavaScript
8	March	Program to fetch JSON data from a public API and display dynamically on a webpage
9	March	Program to design a styled webpage using Bootstrap/Tailwind framework
10	April	Program to create a basic Express.js server using Node.js
11	April	Program to connect Node.js application with MySQL/MongoDB database
12	April	Program to implement CRUD API operations and test using Postman
13	May	Program to implement authentication using bcrypt hashing and JWT security
14	May	Program to optimize webpage performance, accessibility, and SEO features
15	May	Program to deploy frontend and backend application using GitHub and cloud hosting platforms

BCAS102: Lab: Data Structure using C++ [Practical: 2 Credits]

Lab Session	Month	Experiment / Program Name
1	January	Program to analyze time complexity of nested loops and demonstrate basic input/output operations
2	January	Program to implement array operations (insert, delete, search, sort)
3	January	Program to reverse a string and check palindrome using character arrays
4	February	Program to create and traverse a dynamic array using pointers
5	February	Program to swap two numbers using pointers and implement singly linked list operations
6	February	Program to implement a doubly linked list and stack using array
7	March	Program to convert infix expression to postfix and evaluate using stack
8	March	Program to implement simple queue and circular queue using arrays
9	March	Program to implement recursion (factorial, Fibonacci) and solve N-Queens problem
10	April	Program to implement binary search and compare sorting algorithms performance
11	April	Program to implement Binary Search Tree with insertion, deletion and traversal
12	April	Program to implement Min-Heap and Heap Sort
13	May	Program to implement graph traversal using BFS and DFS with Dijkstra's algorithm
14	May	Program to implement hash table using separate chaining and hashing application
15	May	Program to implement Trie / Red-Black Tree and develop final project using data structures

AECL102: Reading and Writing Skills [Theory: 2 Credits]

Session	Month	Topic
1	January	Unit 1: Sentence construction – basic sentence patterns & subject–verb concord
2	January	Tenses and modal auxiliaries
3	January	Active and passive voice + sentence transformation practice
4	February	Unit 2: Paragraph writing – structure and types of paragraphs
5	February	Transitional words + guided paragraph writing practice
6	February	Paragraph editing and improvement workshop
7	March	Unit 3: Essay writing – types and characteristics
8	March	Structure of essay + essay drafting practice
9	March	Essay revision and peer review session
10	April	Unit 4: Letter writing – formal and informal letters
11	April	Application letters and resume writing
12	April	Unit 5: Report writing – types and formats
13	May	Newspaper and investigative report writing practice
14	May	Unit 6: Email writing – format and etiquette
15	May	Writing for social media + final revision workshop

VECD101: Environmental Education [Theory: 2 Credits]

Session	Month	Topic
1	January	Unit 1: Humans and environment – hunter-gatherers to industrial revolution
2	January	Population growth, resource exploitation & global environmental change
3	January	Environmental movements – UN Conference 1972 & World Commission
4	February	Unit 2: Natural resources – forest, water and soil resources
5	February	Mineral and energy resources + conservation issues
6	February	Unit 3: Sustainable Development Goals – concepts & indicators
7	March	SDG challenges and sustainability strategies
8	March	Unit 4: Biodiversity – levels, hotspots, ecosystems & services
9	March	Biodiversity threats and conservation practices
10	April	Unit 5: Air and water pollution – sources & health impacts
11	April	Unit 6: Soil, noise, thermal & radioactive pollution
12	April	Waste management and environmental health
13	May	Unit 7: Environmental management – ISO 14001, audit, 3R concept
14	May	Unit 8: Indian environmental laws and policies
15	May	International environmental organizations + final revision

CCRX101 to CCRX106: [Practical: 2 Credits]

Each activity consists of two hours

Activity Session	Month	Topic
1	August	Activity 1
2	August	Activity 2
3	September	Activity 3
4	September	Activity 4
5	October	Activity 5
6	November	Activity 6
7	November	Activity 7

Learners can choose the CC of their choice from the list provided.

Semester II						
Course Code	**Course Name**	**Theory/ Practical /Project**	**Contact (HRS)**	**Credit Points**	**Assessment Type**	**Passing Marks**
CCRX107	Health & Wellness-II	Practical	15	2	CA(20/50)	20/50
CCRX108	Yoga education-II	Practical	15	2	CA(20/50)	20/50
CCRX109	Sports & fitness-II	Practical	15	2	CA(20/50)	20/50
CCRX110	Cultural activities-II	Practical	15	2	CA(20/50)	20/50
CCRX111	NSS-II	Practical	15	2	CA(20/50)	20/50
CCRX112	Fine/applied/visual/performing arts-II	Practical	15	2	CA(20/50)	20/50