Circular file

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY
Chhatrapati Sambhajinagar.

NAAC- 'A' Grade

CIRCULAR /SS/CM/ Department/AEDP BCA-Honors./19/2025

It is hereby inform to all concerned that, on the recommendation of the Dean, Faculty of Commerce & Management; **the Academic Council at its meeting held on 09th May, 2025 has been accepted with minor changes in *"Revised Syllabus of B.C.A (Honors) Apprenticeship Embedded Degree Programme (AEDP) as per the* National Education Policy-2020** under the Faculty of Commerce & Management run at Concerned University Department, Dr.Babasaheb Ambedkar Marathwada University.

This is effective from the Academic Year 2025-26 and Onwards as per appended herewith.

All concerned are requested to note the contents of this circular and bring notice to the students, teachers and staff for their information and necessary action.

University Campus,
Chhatrapati Sambhajinagar
431 004.
REF.No. SS/COMM & MANG./2025-26
Date:- 02/ 06 /2025. 1464-67

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Deputy Registrar,
Syllabus Section.

Copy forwarded with compliments to :-

1] **The Head, concerned Department,**
Dr. Babasaheb Ambedkar Marathwada University. Chhatrapati Sambhajinagar
2] The Director, University Network & Information Centre, UNIC, with a **request to upload this Circular on University Website.**

Copy to :-
1] The Director, Board of Examination & Evaluation,
2] The Deputy Registar, Post Graduate Section,
Dr. Babasaheb Ambedkar Marathwada University. Chhatrapati Sambhajinagar

Faculty of Commerce and Management Science

REGULATIONS SPECIFIC TO

B.C.A. Honors Programme
Apprenticeship Embedded Degree Programme (AEDP)

Applicable to University Department of Management Science

NAAC Reaccredited A+

Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajinagar

As per UGC's AEDP Guidelines, Maharashtra Govt GR and NEP 2020

(With Effect from Academic Year 2025-26)

Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajinagar
BCA Honours – Apprenticeship Embedded Degree Programme (AEDP)

Preamble

The 21st century has ushered in a transformative era in computing and information technology, marked by groundbreaking innovations in Artificial Intelligence, Cloud Computing, Cybersecurity, Data Science, Internet of Things (IoT), and more. These emerging technologies are redefining industries, reshaping global economies, and demanding a future-ready workforce equipped with both academic rigor and hands-on industry experience.

In line with this technological evolution and the National Education Policy (NEP) 2020's vision of holistic, multidisciplinary, and employability-oriented education, the Department of Management Science, Dr. Babasaheb Ambedkar Marathwada University, Chhatrapati Sambhajinagar, has designed and launched the BCA Honours - Apprenticeship Embedded Degree Programme (AEDP) from the academic year 2025–26.

This pioneering undergraduate programme integrates theoretical foundations with real-world apprenticeship training, fostering industry-academia collaboration and preparing graduates for direct employment and innovation-led roles. Developed as per the University Grants Commission (UGC)'s AEDP Guidelines and the Government of Maharashtra's GR dated 22nd April 2025, the curriculum emphasizes:

Multiple entry and exit options with certifications at the UG Certificate, Diploma, Degree, and Honours levels (44, 88, 132, and 176 credits respectively).

A unique credit-based apprenticeship model, where students gain 50+ credits through On-Job Training (OJT) in Semesters VI to VIII.

A blend of academic excellence and experiential learning through core disciplinary courses, skill-based electives, Indian Knowledge System, value-based education, research projects, and community engagement.

Active engagement with local and national industries to ensure apprenticeships aligned with sectoral demands, with preference given to organizations in the Aurangabad and Marathwada region.

The curriculum framework and implementation plan were meticulously crafted by the Department in consultation with industry stakeholders and academic experts,

ensuring alignment with the National Skills Qualifications Framework (NSQF) and the National Higher Education Qualifications Framework (NHEQF).

With this forward-looking programme, the Department envisions creating graduates who are not only academically proficient but also agile professionals ready to thrive in the dynamic digital economy.

Programme Objectives

- To bridge the gap between industry expectations and academic learning.
- To enhance employability through real-world experience.
- To promote entrepreneurial thinking and technological innovation.
- To offer multi-exit options with flexibility for re-entry as per NEP norms.

Rules and Regulations

1. Eligibility and Selection Criteria -

Minimum eligibility is 10+2 in any stream with Mathematics as a subject or equivalent qualification as per university norms.

Obtained at least 50% marks (45% marks in case of candidates belonging to reserved category) in the qualifying Examination.

2. Duration

Duration of the Only BCA PROGRAM shall be 3 years/ 6 semesters. (132 Credits)

& BCA HONOURS PROGRAM shall be 4 years/ 8 semesters. (176 Credits)

3. Admission/Promotion Criteria

If candidate gets selected for BCA Honors course through STATE CET CELL admission process, he/she have to apply on the application form of the University provided with the prospectus. Once the candidate is admitted to the course, he/she will be promoted to next semester with full carryon; subject to the registration of candidate in every consecutive semester. Dropout candidate will be allowed to register for respective semester in which he/she has failed, subject to the condition that his/her tenure should not exceed more than twice the duration of BCA course from the date of first registration at institute.

4. Grievance Redressal Scheme

University will provide the separate guidelines for Grievance Redressal Scheme.

5. Programme Structure and Credit Distribution

Award Level	Minimum Credits	NSQF Level	Duration
UG Certificate	44 + 4 OJT	Level 5	After 1st Year
UG Diploma	88 + 4 OJT	Level 6	After 2nd Year
UG Degree	132 + 6 OJT	Level 7	After 3rd Year
UG Honours Degree	176 (including 50 OJT)	Level 8	4 Years (Full)

6. Grade Awards

In order to pass the examination will be followed. Ten point rating scale shall be used for evaluation of performance of the student to provide Letter Grade for each course and overall grade for this course. Grade points are based on the total number of marks obtained by him / her in all the heads of the examination of the course. These grade points and their equivalent range of the marks are shown separately in following:

Table – I: Ten Point grades and grade description

Sr. No.	Equivalent Percentage	Grade points for SGPA and CGPA	Grade	Grade Description
1.	90 – 100	9.00 – 10	O	Outstanding
2.	80 – 89.99	8.00 – 8.99	A++	Excellent
3.	70 – 79.99	7.00 – 7.99	A+	Exceptional
4.	60 – 69.99	6.00 – 6.99	A	Very Good
5.	55 – 59.99	5.50 – 5.99	B+	Good
6.	50 – 54.99	5.00 – 5.49	B	Fair
7.	45 – 49.99	4.50 – 4.99	C+	Average
8.	**40.01 – 44.99**	**4.01 – 4.49**	C	Below Average
9.	40	4.00	D	Pass
10.	Below 40	0.00	F	Fail

Table – II: Classification for the degree is given as follows

Classification	Overall letter grade
First Class with distinction	*A+ and above*
First Class	*A*
Higher Second Class	*B+*
Second Class	*B*
Pass	*C+ to D*
Fail	*F*

In the event of student registered for the examination (i.e. Internal Tests/End Semester Examination/Practical/Seminar/Project Viva-voce), non-appearance shall be treated as the student deemed to be absent in the respective course.

Minimum D grade shall be the limit to clear /pass the course/subject. A student with F grade will be considered as 'failed' in the concerned course and he/she has to clear the course by reappearing in the next successive semester examinations.

Using table – I, Semester Grade Point Average (SGPA) and then Cumulative Grade Point Average (CGPA) shall be computed. Results will be announced at the end of each semester and Cumulative Grade Card with CGPA will be given on completion of the course.

Computation of SGPA (Semester Grade Point Average) &CGPA (Cumulative Grade Point Average)

The computation of SGPA and CGPA will be as below:

Semester Grade Point Average (SGPA) is the weighted average of points obtained by a student in a semester and will be computed as follows:

$$\textbf{SGPA} = \frac{\text{Sum(Course Credit * Number of Points in concern course gained by the student)}}{\text{Sum (Course Credit)}}$$

The SGPA for all four semesters will be mentioned at the end of every semester.

The Cumulative Grade Point Average (CGPA) will be used to describe the overall performance of a student in all semesters of the course and will be computed as follows:

$$\textbf{CGPA} = \frac{\text{Sum(All Four semester SGPA)}}{\text{Total number of semesters}}$$

The SGPA and CGPA shall be rounded off to the second place of decimal.

7. Tripartite Agreement for Apprenticeship/ Internship/ OJT (Mandatory)

A formal agreement for Apprenticeship/ Internship/ OJT will be signed between:

- University Department
- Industry/Company/Startup
- Student (Apprentice)

This outlines the duties, training period, stipend (if applicable), and evaluation criteria.

Apprenticeship Model

Semester	Course Code	Component	Credits	Remarks
VI	BCA312P	Apprenticeship I	10	Industry-based OJT
VII	BCA401P	Apprenticeship II	20	Full-time apprenticeship
VIII	BCA403P	Apprenticeship III	20	Final phase with project

Attendance: Minimum 75% attendance at workplace.

Apprenticeships must occur off-campus.

8. Credit System and ABC Integration

All credits earned (academic and apprenticeship) will be uploaded to the Academic Bank of Credits (ABC). 10 credits = ~360 hours of practical training or apprenticeship.

9. Evaluation Scheme for Apprenticeship/ Internship/ OJT

30–40%: Industry supervisor

30–40%: Faculty mentor (site visits, logs)

20–40%: Project Report, Seminar, Viva

Grading based on CBCS with CGPA, as per university norms.

10. Attendance and Promotion Criteria

Minimum 75% attendance per course.

Separate passing in Internal and External exams is mandatory (minimum 40%).

Students will be promoted to the next semester with full carry-on.

Maximum programme duration: 8 years.

11. Roles and Responsibilities

a. Department/University

Develop curriculum with NSQF/NHEQF alignment.

Maintain MoUs and track industry partnerships.

Assign faculty mentors and evaluate OJT performance.

b. Industry Partner

Provide structured on-site training.

Ensure compliance with Apprenticeship Act.

Maintain performance records and assist in evaluations.

c. Student (Apprentice)

Follow ethical, professional conduct.

Submit weekly logs, final reports, attend reviews.

Register on NATS/BOAT where applicable.

12. Stipend and Registration

Stipend to be paid directly by the establishment or through NATS/BOAT portal.

All apprenticeships to be formally registered on applicable government platforms.

13. Monitoring and Grievance Redressal

AEDP Director/Coordinator to maintain an online dashboard.

Submit semester-wise progress reports.

A grievance redressal mechanism will be established for students.

14. Exit and Re-entry Options

Students can exit and re-enter the programme at defined stages.

Upon exit, they will receive a formal certification (UG Certificate/Diploma/etc.).

Re-entry possible within maximum tenure (8 years) based on ABC credits.

15. Grade Card

The university under its seal shall issue to the students a grade card on completion of each semester.

Grade card shall contain the following:

Title of the courses along with code taken by the student.

The credits associated with and grades awarded for each course.

The number of grade and grade point secured by the student.

The total credits earned by the student in that semester.

The SGPA of the student.

The total credits earned by the student till that semester.

The CGPA of the student (At the end of the IVth semester).

16. Cumulative Grade Card

The grade card issued on completion of the programme shall contain the name of the programme, the department /school offered the programme, the titles of the courses taken, the credits associated with each course, grades awarded, the total credits earned by the student, the CGPA and the class in which the student is placed.

17. General Clause

It may be noted that beside the above specified rules and regulations all the other rules and regulations in force and applicable to semester system in Post-Graduate courses in Dr. Babasaheb Ambedkar Marathwada University will be applicable as amended from time to time by the University. The students shall abide by all such Rules and Regulations.

Bachelor of Computer Applications (BCA) Honours
Curriculum Structure 2025-26
Based on NEP 2020 and AEDP 2025
Semester I

Sr. No.	Course Title	First Semester			Total Credits	Total Lectures (Teaching / Lectures/ Week	Scheme of Examination			
		Course Code	Course Type	Credits			Max Marks	UA	IA	Min Marks
1	C++ Programming	BCA101T	DSC-1	2	12	2	50	30	20	20
	C++ Programming Lab	BCA101P		2		4	50	30	20	20
2	Web Development - Part 1	BCA102T	DSC-2	2		2	50	30	20	20
	Web Development – Part 1 Lab	BCA102P		2		4	50	30	20	20
3	DBMS	BCA103T	DSC-3	2		2	50	30	20	20
	DBMS Lab	BCA103P		2		4	50	30	20	20
4	**GE/OE -1**	BCA104T	GE/OE-1	2	2	2	50	30	20	20
5	Discrete Mathematics	BCA-105P	SEC-1	2	2	4	50	--	50	50
6	English	BCA-106T	AEC-1	2	6	2	50	30	20	20
7	History of Marathwada	BCA-107T	IKS-1	2		2	50	30	20	20
8	Health and Wellness	BCA-108P	CC-1	2		2	50	--	50	20
				Total	**22**		**550**	**270**	**280**	**250**

GE / OE -1

Sr. No.	Course Title	First Semester			Total Credits	Total Lectures (Teaching / Lectures/ Week	Scheme of Examination			
		Course Code	Course Type	Credits			Max Marks	UA	IA	Min Marks
1	**UDCSIT**: Introduction to Computing for Behavioral Sciences	BCA104T	GE/OE-1	2	2	2	50	30	20	20
2	**UDPsych**: Personality Development			2	2	2	50	30	20	20
3	**UDElectro**: Basics of Electronics and Digital Devices			2	2	2	50	30	20	20

Semester II

Sr. No.	Course Type	Second Semester			Total Credits	Total Lectures (Teaching / Lectures/ Week	Scheme of Examination			
		Course Code	Course Type	Credits			Max Marks	UA	IA	Min Marks
1	Advanced C++	BCA201T	DSC-4	2	12	2	50	30	20	20
	Advanced C++ Lab	BCA201P		2		4	50	30	20	20
2	Operating System	BCA202T	DSC-5	2		2	50	30	20	20
	Operating System Lab	BCA202P		2		4	50	30	20	20
3	Web Development Part – II	BCA203T	DSC-6	2		2	50	30	20	20
	Web Development Part – II Lab	BCA203P		2		4	50	30	20	20
4	**GE/OE -2**	BCA204T	GE/OE-2	2	2	2	50	30	20	20
5	Introduction to Cyber Security	BCA205T	VSC-1	2	2	2	50	30	20	20
6	Communication and Personality Development	BCA206T	AEC-2	2	6	2	50	--	50	20
7	Constitution of India	IC001	VEC-1	2		2	50	30	20	20
8	Yoga	BCA207P	CC-2	2		2	50	--	50	20
				Total	**22**		**550**	**270**	**280**	**220**

Exit Option : Award of UG Certificate in 3 Majors with 44 Credits and an additional 4 credits of core NSQF course / Internship OR Continue with Major and Minor

GE / OE -2

Sr. No.	Course Title	First Semester			Total Credits	Total Lectures (Teaching / Lectures/ Week	Scheme of Examination			
		Course Code	Course Type	Credits			Max Marks	UA	IA	Min Marks
1	**UDCSIT**: Data Analysis for Psychology	BCA204T	GE/OE-2	2	2	2	50	30	20	20
2	**UDPsych**: Stress Management			2	2	2	50	30	20	20
3	**UDElectro**: Introduction to Computers and Microcontrollers			2	2	2	50	30	20	20

Bachelor of Computer Applications (BCA) Honours
Curriculum Structure 2025-26
Based on NEP 2020 and AEDP 2025

Semester III

Sr. No.	Course Title	Third Semester			Total Credits	Total Lectures (Teaching / Lectures/ Week)	Scheme of Examination			
		Course Code	Course Type	Credits			Max Marks	UA	IA	Min Marks
1	Java – 1	BCA301T	DSC-7	2	8	2	50	30	20	20
	Java – 1 Lab	BCA301P		2		4	50	30	20	20
2	Introduction to Python	BCA302T	DSC-8	2		2	50	30	20	20
	Introduction to Python Lab	BCA302P		2		4	50	30	20	20
3	Software Testing	BCA303T	M-1	2	4	2	50	30	20	20
	Software Testing Lab	BCA303P	M-2	2		4	50	30	20	20
4	**GE/OE-3**	BCA304T	GE/OE-3	2	2	2	50	30	20	20
5	NoSQL (Mongo DB)	BCA305T	VSC-2	2	2	2	50	---	50	20
6	English – II	BCA306T	AEC-3	2	2	2	50	30	20	20
7	Environment Studies	BCA307T	VEC-2	2	4	2	50	--	50	20
8	Graphical Design	BCA308T	CC-3	2		2	50	--	50	20
				Total	**22**		**550**	**240**	**310**	**220**

Semester IV

Sr. No.	Course Title	Fourth Semester			Total Credits	Total Lectures (Teaching / Lectures/ Week)	Scheme of Examination			
		Course Code	Course Type	Credits			Max Marks	UA	IA	Min Marks
1	DBMS – II	BCA401T	DSC-9	2	8	2	50	30	20	20
	DBMS – II Lab	BCA401P		2		4	50	30	20	20
2	Advanced Python & Deep Learning Techniques	BCA402T	DSC-10	2		2	50	30	20	20
	Advanced Python & Deep Learning Techniques Lab	BCA402P		2		4	50	30	20	20
3	Data Structure using Java	BCA403T	M-3	2	4	2	50	30	20	20
	Data Structure using Java Lab	BCA403P	M-4	2		4	50	30	20	20
4	**GE/OE-4**	BCA404T		2	2	2	50	30	20	20
5	Node JS	BCA405T1	SEC-2	2	2	2	50	--	50	20
	OR					**OR**				
	AI Ethics & Governance	BCA405T2				2	50	--	50	20
6	Communication and Personality Development – II	BCA406T	AEC-4	2	2	2	50	30	20	20
7	Project	BCA407P	FP-1	2	4	2	50	30	20	20
8	Social Work	BCA408P	CC-4	2		2	50	30	20	20
				Total	**22**		**550**	**300**	**250**	**220**

Exit Option : Award of UG Diploma Major and Minor with 88 Credits and an additional 4 credits of core NSQF course / Internship OR Continue with Major and Minor

Bachelor of Computer Applications (BCA) Honours
Curriculum Structure 2025-26
Based on NEP 2020 and AEDP 2025
Semester V

Sr. No.	Course Title	Fifth Semester			Total Credits	Total Lectures (Teaching / Lectures/ Week)	Scheme of Examination			
		Course Code	Course Type	Credits			Max Marks	UA	IA	Min Marks
1	Software Testing – II	BCA501T	DSC-11	2	8	2	50	30	20	20
	Software Testing – II Lab	BCA501P		2		4	50	30	20	20
2	Android	BCA502T	DSC-12	2		2	50	30	20	20
	Android Lab	BCA502P		2		4	50	30	20	20
3	Cloud Computing	BCA503T	DSE-1	2	4	2	50	30	20	20
	Cloud Computing Lab	BCA503P	DSE-2	2		4	50	30	20	20
4	Ethical Hacking	BCA504T	M-5	2	4	2	50	--	50	20
	Financial Literacy	BCA505T	M-6	2		2	50	30	20	20
5	C-#	BCA506T1	VSC-3	2	4	2	50	30	20	20
	C-# Lab	BCA506P1		2		4	50	30	20	20
	OR									
	Generative AI and LLMs	BCA506T2		2		2	50	30	20	20
	Generative AI and LLMs Lab	BCA506P2		2		4	50	30	20	20
6	Project	BCA507P	FP-2	2	2	2	50	--	50	20
				Total	**22**		**550**	**300**	**250**	**220**

Semester VI

Sr. No.	Course Type	Sixth Semester			Total Credits	Total Lectures (Teaching / Lectures/ Week)	Scheme of Examination			
		Course Code	Course Type	Credits			Max Marks	UA	IA	Min Marks
1	Software Project Management *	BCA601T	DSC-14	2	2	2	50	--	50	20
4	**Apprenticeship**	BCA602P	OJT-1	20	20	--	500	300	200	200
				Total	**22**		**550**	**300**	**250**	**220**
Exit Option : Award of UG Degree Major and Minor with 132 Credits and an additional 4 credits of core NSQF course / Internship OR Continue with Major and Minor										

*** This means that the course BCA601T will be taught in hybrid mode.**

Bachelor of Computer Applications (BCA) Honours
Curriculum Structure 2025-26
Based on NEP 2020 and AEDP 2025

Semester VII

Sr. No.	Course Type	Seventh Semester			Total Credits	Total Lectures (Teaching / Lectures/ Week	Scheme of Examination			
		Course Code	Course Type	Credits			Max Marks	UA	IA	Min Marks
1	**Apprenticeship**	BCA701P	OJT-2	20	22	--	500	300	200	200
2	**RM – Part I** * **(**Research Methodology)	BCA702T	RM-1	2		2	50	30	20	20
				Total	**22**		**550**	**330**	**220**	**220**

Semester VIII

Sr. No.	Course Type	Eighth Semester			Total Credits	Total Lectures (Teaching / Lectures/ Week	Scheme of Examination			
		Course Code	Course Type	Credits			Max Marks	UA	IA	Min Marks
1	**Apprenticeship**	BCA801P	OJT-2	20	22	--	500	300	200	200
2	**RM – Part II** * **(**Research Methodology)	BCA802T	RM-2	2		2	30	30	20	20
				Total	**22**		**550**	**330**	**220**	**220**

*** This means that the courses BCA702T, and BCA802T will be taught in hybrid mode.**

Semester – 1

Course Title		C++ Programming			
Course Type		DSC-1			
Course Code		BCA101T	**No. of Credits**		2
			No. of Periods / Week		2
			Assignments / Sessional		20
			Semester Examination		30

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	To understand basic concepts of C++ programming Language
CO-2	To write, compile & execute C++ programs
CO-3	To implement array, function, pointer & other data types to solve real problems

Mapping of Course Outcomes (COs) with Program Outcomes (POs) (Course Articulation Matrix)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1										
CO-2										
CO-3										
AVG										

Prerequisites	
Unit I	**C++ Programming introduction :** IDE / Compiler requirement, Structure of C++ programming language, how to write source code, Syntax, output, comments, variables ,keywords, tokens, user input , compile & execute, data types, operators, Statements(if/switch/while/do-while & for) with examples
Unit II	**Array , Pointer & Function,:** Array Definition, types, initialization of an array, examples, Pointer – Concepts & applications & examples , Function- Definition , types – Call by value , call by reference , nested function, recursion & examples, passing an array, pointer to function

Unit III	**Structure & union / File Handling :** Concepts of Structure & Union, memory organization, object to structure & union, object as an Array , program on structure & Union , passing structure to function. IOstreams : ofstream, ifstream, fstream with examples
Text Books	• "The C++ Programming Language" by Bjarne Stroustrup: • Let Us C++ (English, Paperback, Yashavant Kanetkar) • C++: The Complete Reference, 4th Edition Paperback – 1 July 2017 by Herbert Schildt (Author)
Reference books	
Web References	

Course Title		C++ Programming Lab			
Course Type		DSC-1			
Course Code		BCA101P	**No. of Credits**		2
			No. of Periods / Week		2
			Assignments / Sessional		20
			Semester Examination		30

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	To understand basic concepts of C++ programming Language
CO-2	To write, compile & execute C++ programs
CO-3	To implement array, function, pointer & other data types to solve real problems

Practical Assignments based on the subject of C++ Programming BCA101T

Course Title	:	Web Development - PART I			
Course Type		DSC-2			
Course Code		BCA102T	**No. of Credits**		2
			No. of Periods / Week		2
			Internal Assessment		20
			Semester Examination		30

Course Objectives:

1. To introduce the fundamentals of web development using HTML and CSS.
2. To develop skills in structuring web pages with HTML.
3. To enable students to style web pages effectively using CSS.
4. To prepare students for advanced web development concepts in future courses.

Course Outcomes (COs)

At the end of the course, students will be able to:

CO Code	Course Outcome	Bloom's Taxonomy Level
CO1	Describe the basic structure of HTML documents and list essential HTML tags.	**Remembering (L1)**
CO2	Compare different HTML elements and attributes to determine their appropriate usage.	**Understanding (L2)**
CO3	Construct static web pages using HTML tags, lists, tables, and forms.	**Applying (L3)**
CO4	Analyze the impact of CSS styling on webpage layout and appearance.	**Analyzing (L4)**
CO5	Evaluate different CSS properties and selectors to optimize webpage design.	**Evaluating (L5)**
CO6	Develop a responsive and visually appealing website using HTML and CSS.	**Creating (L6)**

Mapping of Course Outcomes (COs) with Program Outcomes (POs) (Course Articulation Matrix)

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3		2		3				3	
CO2	3	2	2		3					
CO3	3		3		3				3	
CO4	3	2	3	2	3				3	2

Prerequisites	
Unit I	**Introduction to HTML** **Topics:** • Overview of Web Development • Structure of an HTML Document • Basic HTML Tags (<html>, <head>, <body>, <title>) • Text Formatting Tags (<h1> to <h6>, <p>, , <hr>) • Lists (, , <dl>) • Links (<a>, Absolute vs. Relative URLs) • Images (<img>, Attributes: src, alt, width, height)
Unit II	**Advanced HTML and Forms** **Topics:** • HTML Tables (<table>, <tr>, <td>, <th>, colspan, rowspan) • HTML Forms (<form>, <input>, <textarea>, <select>, <button>) • Form Attributes (action, method, name, id) • Input Types (text, password, email, radio, checkbox, submit, reset) • Semantic HTML5 (<header>, <footer>, <nav>, <section>, <article>)
Unit III	**Introduction to CSS** **Topics:** • Introduction to CSS (Inline, Internal, External CSS) • CSS Selectors (Element, Class, ID, Universal) • CSS Properties (Color, Background, Font, Text, Border) • Box Model (Margin, Padding, Border, Content) • CSS Layout (Display: block, inline, inline-block) • Basic Responsive Design (Media Queries Introduction)
Text Books	
Reference books	

Course Title		Web Development - PART I Lab			
Course Type		DSC-2			
Course Code		BCA102P	**No. of Credits**		2
			No. of Periods / Week		2
			Internal Assessment		20
			Semester Examination		30

Course Objectives:

1. To provide hands-on experience in creating static web pages using HTML.
2. To apply various CSS properties and selectors to enhance web aesthetics.
3. To integrate HTML and CSS to build visually structured and responsive web layouts.
4. To prepare students with basic web development skills for real-world applications.

Course Outcomes (COs)

At the end of the course, students will be able to:

CO Code	Course Outcome	Bloom's Level
CO1	Demonstrate the use of basic HTML tags to build structured web pages.	Applying (L3)
CO2	Design user-friendly forms and tables using advanced HTML features.	Creating (L6)
CO3	Implement CSS styling techniques to control page layout and design.	Applying (L3)
CO4	Develop a responsive web layout using HTML and CSS principles.	Creating (L6)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) (Course Articulation Matrix)

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	3		2		3					
CO2	3	2	2		3					
CO3	3		3		3					
CO4	3	2	3	2	3			2		

Prerequisites	

List of Experiments	1. Create a simple HTML page using headings, paragraphs, and line breaks. 2. Design a web page demonstrating various text formatting tags. 3. Create a page using ordered, unordered, and definition lists. 4. Create a web page with multiple links using absolute and relative URLs. 5. Embed images in a webpage with proper attributes. 6. Create a table with rowspan and colspan features. 7. Develop a student registration form with various input elements. 8. Use semantic HTML5 elements to design a basic webpage layout. 9. Apply internal CSS to format text, background, and borders. 10. Create a webpage using class and ID selectors with external CSS. 11. Design a box layout using CSS box model (margin, padding, border). 12. Develop a responsive layout using simple media queries. 13. Mini Project: Create a multi-page static website for a fictional organization.
Software/ Tools Required:	• VS Code / Sublime Text / Notepad++ • Modern Web Browser (Google Chrome, Mozilla Firefox) • Internet (for testing online responsiveness, referencing W3Schools/MDN

Course Title		Database Management System			
Course Type		DSC-3			
Course Code		BCA-103T	**No. of Credits**		2
			No. of Periods / Week		2
			Assignments / Sessional		20
			Semester Examination		30

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	Understand basic DBMS concepts and architecture.	Understanding (L2)
CO-2	Design simple relational databases schema using ERD.	Applying (L3)
CO-3	Design simple relational databases using MS- Access as DBMS.	Creating (L6)

Mapping of Course Outcomes (COs) with Program Outcomes (POs)
(Course Articulation Matrix)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1	3	2			2					
CO-2	3	3	2		3					
CO-3	3	2	3	1	3					
AVG										

Prerequisites	NA
Unit I	**Introduction** Data, Information, Difference between the two, Tuple, Relation, Attributes, Database and Need for DBMS, Relevant Terminologies, Characteristics of DBMS, Database Users, 3-tier architecture of DBMS (its advantages over 2-tier), Data Models.
Unit II	**RDBMS and Relationships** RDBMS, ORDBMS, OODBMS, Entity-Relationship (ER) Model, Relationships, types of relationships, Introduction to MS- Access.
Unit III	**Database Design and Table Creation** Creating tables in Design View and Datasheet View, Field types and properties,

	Setting Primary Keys and Indexes, Importing and linking external data (Excel/CSV).
Text Books	Database system concept, Korth Fundamentals of Database Sysems, ElmasriNavathe Database Management Systems, Bipin Desai
Reference books	1. Raghu Ramakrishnan, Johannes Gerhke, "Database Management Systems" McGraw Hill. 2. Decision support & database system –Efrem G. Mallach.
Web References	https://www.w3schools.com/ https://www.tutorialspoint.com/ms_access/index.htm https://support.microsoft.com/en-us/office/build-an-access-database-to-share-on-the-web-cca08e35-8e51-45ce-9269-8942b0deab26

Course Title		Database Management System Lab			
Course Type		DSC-3			
Course Code		BCA-103P	**No. of Credits**		2
			No. of Periods / Week		2
			Assignments / Sessional		20
			Semester Examination		30

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	Create and manage tables with appropriate data types and validation rules.	Applying (L3)
CO-2	Write and execute SQL queries (using SQL View and Query Design).	Applying (L3)
CO-3	Build a mini-database application using all Access components.	Creating (L6)

Mapping of Course Outcomes (COs) with Program Outcomes (POs)
(Course Articulation Matrix)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1	3	3	2		3					2
CO-2	3	2	3		3					2
CO-3	3	3	3	1	3			1		2
AVG										

Prerequisites	NA
Content for Practical Lab sessions scheduled for DBMS	1 | Introduction to MS Access Interface and Features 2 | Creating Tables in Design and Datasheet View 3 | Setting Primary Keys, Data Types, Field Properties, and Validation Rules 4 | Creating Relationships and Enforcing Referential Integrity 5 | Data Entry: Adding, Editing, and Deleting Records 6 | Creating Simple Select Queries 7 | Creating Queries with Criteria, Sorting, and Calculated Fields 8 | Using Aggregate Functions and Group By in Queries 9 | Creating Parameter Queries and Action Queries (Append, Update, Delete) 10 | Designing Forms with Controls and Navigation Buttons 11 | Designing Reports with Grouping, Sorting, and Calculations

	12 | Importing/Linking External Data (e.g., Excel, Text File) 13-14 | Mini Project: Schema Design, Table Creation, Forms, Queries, and Reports 15 | Viva Voce and Project Demonstration
Text Books	1. Pratt, P. J., & Last, M. Z. (2014). *A Guide to Microsoft Access 2013*. Cengage Learning. 2. Microsoft Access Tutorials – support.microsoft.com
Reference books	1. Rob, P., & Coronel, C. (2007). *Database Systems: Design, Implementation, and Management*. Cengage.
Web References	https://www.w3schools.com/ https://www.tutorialspoint.com/ms_access/index.htm https://support.microsoft.com/en-us/office/build-an-access-database-to-share-on-the-web-cca08e35-8e51-45ce-9269-8942b0deab26

Course Title		Discrete Mathematics			
Course Type		GE / OE -1			
Course Code		BCA104T	**No. of Credits**		2
			No. of Periods / Week		2
			Internal Assessment		20
			Semester Examination		30

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	Understand foundational concepts of logic, sets, and functions used in computer science.
CO-2	Apply combinatorics and graph theory principles to real-world computing problems.
CO-3	Analyze and solve problems related to discrete structures and mathematical reasoning.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) (Course Articulation Matrix)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1	3	3	2	2	2	1	1	1	2	1
CO-2	3	3	2	2	2	1	1	1	1	1
CO-3	3	3	2	2	2	1	1	1	2	1

Prerequisites	Basic knowledge of algebra and logical reasoning.
Unit I	**Logic and Proof Techniques** • Propositions, logical operators, truth tables • Tautologies, contradictions, logical equivalence • Predicates and quantifiers • Methods of proof: direct, contrapositive, contradiction
Unit II	**Sets, Relations, and Functions** • Sets and set operations • Venn diagrams, Cartesian products • Types of relations and their properties • Functions: types, composition, inverse functions
Unit III	**Combinatorics and Graph Theory** • Basics of counting: sum rule, product rule • Permutations and combinations

	• Pigeonhole principle, principle of inclusion and exclusion • Introduction to graphs: definitions, types of graphs • Degree, paths, cycles, connectedness, basic operations on graphs
Text Books	1. **Kenneth H. Rosen – *Discrete Mathematics and Its Applications*, McGraw Hill.** 2. **Tremblay and Manohar – *Discrete Mathematical Structures with Applications to Computer Science*, Tata McGraw Hill.**
Reference books	• **Ralph P. Grimaldi – *Discrete and Combinatorial Mathematics*, Pearson** • **Seymour Lipschutz – *Schaum's Outline of Discrete Mathematics*, McGraw Hill**
Web References	https://www.khanacademy.org/computing/computer-science/cryptography https://nptel.ac.in/courses/106106094/

Course Title		MS-Office			
Course Type		SEC-1			
Course Code		BCA105P	**No. of Credits**		2
			No. of Periods / Week		2
			Internal Assessment		50
			Semester Examination		--

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	Create and format professional documents using MS Word.
CO-2	Use MS Excel for data management, calculations, and basic data analysis.
CO-3	Design impactful and informative presentations using MS PowerPoint.
CO-4	Integrate Office applications for practical tasks like reports, dashboards, and presentations.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) (Course Articulation Matrix)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1	3		2		3				3	
CO-2	3	2	2		3					
CO-3				3		3				3
CO-4	3	2	3		3			2	3	

Prerequisites	Basic knowledge of algebra and logical reasoning.
Unit I	**MS Word** • Basics of Word Processing • Creating, Saving, and Formatting Documents • Paragraph styles, bullets & numbering, tables, columns • Header, Footer, Page Numbering • Mail Merge, Templates, Review Tools (Track Changes, Comments) • File Conversion and Sharing Options
Unit II	**MS Excel** • Introduction to Spreadsheets

	• Working with Formulas and Functions (SUM, AVERAGE, IF, VLOOKUP) • Formatting Cells, Data Validation • Charts and Graphs • Conditional Formatting • Sorting, Filtering, Pivot Tables • Basic Macro Introduction
Unit III	**MS PowerPoint** • Creating Presentations • Slide Design and Layouts • Transitions and Animations • Inserting Charts, Tables, Images, Audio & Video • Presentation Tips and Best Practices • Integrating Word/Excel data into Slides
Text Books	**1. Microsoft Office 2019 Step by Step – Joan Lambert, Curtis Frye, Microsoft Press** **2. Learn Microsoft Office – Steve Schwartz, Peachpit Press**
Reference books	
Web References	

Course Title		English			
Course Type		AEC-1			
Course Code		BCA106T	**No. of Credits**		2
			No. of Periods / Week		2
			Internal Assessment		20
			Semester Examination		30
University has given syllabus on University Web Portal.					

Course Title		History of Marathwada			
Course Type		IKS-1			
Course Code		BCA107T	**No. of Credits**		2
			No. of Periods / Week		2
			Internal Assessment		20
			Semester Examination		30
University has given syllabus on University Web Portal.					

Course Title		Health and Wellness			
Course Type		CC-1			
Course Code		BCA108P	**No. of Credits**		2
			No. of Periods / Week		2
			Internal Assessment		50
			Semester Examination		--
University has given syllabus on University Web Portal.					

Semester - II

Course Title		Advanced C++			
Course Type		DSC - 4			
Course Code		BCA201T	**No. of Credits**		2
			No. of Periods / Week		2
			Assignments / Sessional		20
			Semester Examination		30

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	To understand basic concepts of OOPs in C++
CO-2	To Implement OOPs concepts for solving the real-time applications
CO-3	To Develop C++ application using OOPs & IOstreams

Mapping of Course Outcomes (COs) with Program Outcomes (POs) (Course Articulation Matrix)

	PO-1	**PO-2**	**PO-3**	**PO-4**	**PO-5**	**PO-6**	**PO-7**	**PO-8**	**PO-9**	**PO-10**
CO-1										
CO-2										
CO-3										
AVG										

Prerequisites	
Unit I	**OOPs concepts in C++ :** OOPs concepts , Characteristics of OOPs, class & Object, simple programs of class & object, instance & static members, methods, inline function, friend function, access modifiers, real time implementation of OOPs concepts.
Unit II	**Inheritance , abstraction & encapsulation :** Definition of Inheritance, types of Inheritance, C++ Aggregation , real implementation , abstraction & encapsulation, Polymorphism , Operator overloading & Function Overloading , virtual function Data Abstraction & Abstract class in C++
Unit III	C++ Exception , File & Stream : Exception Definition , types, handling of exceptions, programs of exception , File streams , writing & reading data in file.

	Namespace in C++
Text Books	• "The C++ Programming Language" by Bjarne Stroustrup: • Let Us C++ (English, Paperback, Yashavant Kanetkar) • C++: The Complete Reference, 4th Edition Paperback – 1 July 2017 by Herbert Schildt (Author) • C++ - Balaguruswamy
Reference books	
Web References	

Course Title		Advanced C++ Lab			
Course Type		DSC-4			
Course Code		BCA201P	**No. of Credits**		2
			No. of Periods / Week		2
			Assignments / Sessional		20
			Semester Examination		30

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	To understand basic concepts of C++ programming Language
CO-2	To write, compile & execute C++ programs
CO-3	To implement array, function, pointer & other data types to solve real problems

Practical Assignments based on the subject of Advanced C++ BCA201T

Course Title		Operating System			
Course Type		DSC-5			
Course Code		BCA202T	**No. of Credits**		2
			No. of Periods / Week		2
			Internal Assessment		20
			Semester Examination		30

Course Outcomes (COs)

At the end of the course, students will be able to:

CO Code	Course Outcome	Bloom's Taxonomy Level
CO-1	Describe the structure, functions, and types of operating systems.	Remembering (L1)
CO-2	Understand and analyze process management and scheduling techniques.	Analyzing (L4)
CO-3	Explain memory management strategies and file system structures.	Understanding (L2)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) (Course Articulation Matrix)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1	3		2		3					
CO-2	3	2	3	2	3					
CO-3	2	2	3		3					

Prerequisites	Basic knowledge of algebra and logical reasoning.
Unit I	**Introduction to Operating Systems** • Definition, Types, and Functions of OS • System Calls and System Programs • OS Structures: Monolithic, Layered, Microkernel, Modular • Operating System Services and Interfaces
Unit II	**Process and CPU Scheduling** • Process Concept, Process States and PCB

	• Threads and Multithreading Models • CPU Scheduling: Scheduling Criteria and Algorithms (FCFS, SJF, Round Robin, Priority) • Concept of Concurrency and Context Switching
Unit III	**Memory Management and File Systems** • Memory Management: Contiguous Allocation, Paging, Segmentation • Virtual Memory: Demand Paging, Page Replacement Algorithms • File Concepts: File Operations, Access Methods • Directory Structures and File System Implementation (FAT, NTFS)
Text Books	1. **Operating System Concepts – Abraham Silberschatz, Peter Galvin, Greg Gagne, Wiley** 2. **Operating Systems: Internals and Design Principles – William Stallings**
Reference books	• **Modern Operating Systems** – Andrew S. Tanenbaum, Pearson Education • **Operating Systems** – D. M. Dhamdhere, Tata McGraw Hill

Course Title		Operating System Lab			
Course Type		DSC-5			
Course Code		BCA202P	**No. of Credits**		2
			No. of Periods / Week		2
			Internal Assessment		20
			Semester Examination		30

Course Outcomes (COs)

At the end of the course, students will be able to:

CO Code	Course Outcome	Bloom's Taxonomy Level
CO-1	Implement and simulate basic operating system algorithms.	Applying (L3)
CO-2	Write programs related to process scheduling and memory management.	Applying (L3)
CO-3	Understand practical aspects of system-level programming in Linux environment.	Applying (L3)
CO-4	Analyze and compare the efficiency of different OS techniques through experiments.	Analyzing (L4)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) (Course Articulation Matrix)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1	3	2	3	2	3					
CO-2	3	3	2		3					
CO-3	2		3		3					
CO-4	3	2	3	2	3					

Prerequisites	
List of Experiments	1. Simulate First Come First Serve (FCFS) CPU Scheduling Algorithm 2. Simulate Shortest Job First (SJF) CPU Scheduling Algorithm 3. Simulate Round Robin Scheduling Algorithm 4. Simulate Priority Scheduling Algorithm 5. Implement Process Creation using fork(), exec(), and wait() System Calls 6. Simulate Paging and Page Replacement Algorithms (FIFO, LRU)

	7. Simulate Memory Allocation Techniques (First Fit, Best Fit, Worst Fit) 8. Shell Scripting: Basic Commands, Variables, Conditional Statements 9. File Handling: Creating, Reading, Writing Files in C/Linux 10. Simulate Producer-Consumer Problem using Semaphores
Software/ Tools Required:	• GCC Compiler / Turbo C (for Windows) • Ubuntu/Linux Environment or Windows Subsystem for Linux (WSL) • Terminal and Shell • Code Editor (VS Code / Gedit / Nano)

Course Title	:	Web Development - PART II			
Course Type		DSC-6			
Course Code		BCA203T	**No. of Credits**		2
			No. of Periods / Week		2
			Internal Assessment		20
			Semester Examination		30

Course Objectives:

1. Introduce core programming concepts using JavaScript.
2. Teach DOM manipulation for dynamic web pages.
3. Simplify event handling and animations with jQuery.
4. Prepare students for front-end frameworks (e.g., React/Angular).

Course Outcomes (COs)

At the end of the course, students will be able to:

CO Code	Course Outcome	Bloom's Level
CO1	Explain JavaScript syntax, variables, and data types.	**Remembering (L1)**
CO2	Apply functions, loops, and conditionals to solve problems.	**Applying (L3)**
CO3	Manipulate the DOM using JavaScript/jQuery.	**Applying (L3)**
CO4	Analyze AJAX and JSON for asynchronous web apps.	**Analyzing (L4)**
CO5	Build interactive web apps with form validation and animations.	**Creating (L6)**

Mapping of Course Outcomes (COs) with Program Outcomes (POs) (Course Articulation Matrix)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1										
CO-2										
CO-3										
CO-4										
CO-5										
CO-6										

Prerequisites	

Unit I	**JavaScript Core Concepts**
	Topics:
	• **Fundamentals**
	  ○ JavaScript engines, ES6+ features, <script> tag
	  ○ Variables (let, const), Data Types (Primitive vs Object)
	  ○ Operators, Type Conversion, Template Literals
	• **Control Flow**
	  ○ Conditionals (if-else, switch), Loops (for, while, forEach)
	  ○ Error Handling (try-catch-finally)
	• **Functions & Objects**
	  ○ Function types (Declaration, Expression, Arrow)
	  ○ Scope (Global, Block, Lexical), Closures
	  ○ Objects (Properties, Methods), this keyword
	  ○ Arrays (Methods: map, filter, reduce), JSON

Unit II	**DOM Manipulation & Events**
	Topics:
	• **Document Object Model (DOM)**
	  ○ DOM Tree, Selecting Elements (getElementById, querySelectorAll)
	  ○ Modifying Content (innerHTML, textContent), Attributes (classList, setAttribute)
	• **Events**
	  ○ Event Listeners (addEventListener), Event Object
	  ○ Common Events (click, submit, keydown, load)
	  ○ Event Propagation (Bubbling/Capturing), Delegation
	• **Forms & Validation**
	  ○ Form Controls (Input, Textarea, Select)
	  ○ Client-side Validation (Regex, Constraint API)
	  ○ Preventing Default Behavior

Unit III	**jQuery & AJAX**
	Topics:
	• **jQuery Basics**
	  ○ Introduction, CDN Setup, $() Selector
	  ○ DOM Traversal (parent(), find()), Manipulation (html(), css())
	  ○ Chaining, Animations (show(), animate())
	• **jQuery Events**
	  ○ Event Methods (click(), on()), Shortcuts (hover())
	  ○ Form Handling with jQuery
	• **AJAX & APIs**
	  ○ XMLHttpRequest, Fetch API
	  ○ jQuery AJAX ($.ajax(), $.getJSON())
	  ○ Consuming REST APIs, Error Handlin

Text Books	
Reference books	

Course Title		Web Development - PART II Lab			
Course Type		DSC-6			
Course Code		BCA203P	**No. of Credits**		2
			No. of Periods / Week		2
			Internal Assessment		20
			Semester Examination		30

Course Objectives:

1. To provide hands-on experience in client-side scripting with JavaScript.
2. To develop dynamic and interactive websites using DOM manipulation.
3. To introduce jQuery and AJAX for asynchronous content loading and animations.
4. To strengthen the foundation for advanced front-end development frameworks.

Course Outcomes (COs)

At the end of the course, students will be able to:

CO Code	Course Outcome	Bloom's Level
CO1	Demonstrate use of JavaScript syntax, data types, and control structures.	Applying (L3)
CO2	Write interactive functions to handle events and update web content dynamically.	Applying (L3)
CO3	Implement client-side form validation techniques using JavaScript and jQuery.	Creating (L6)
CO4	Develop dynamic web pages using jQuery animations and AJAX calls.	Creating (L6)

Mapping of Course Outcomes (COs) with Program Outcomes (POs) (Course Articulation Matrix)

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1										
CO2										
CO3										
CO4										

Prerequisites	

List of Experiments	11. Write a JavaScript program to demonstrate variables, data types, and template literals. 12. Create JavaScript functions using conditionals and loops to generate a number pattern or factorial. 13. Create an HTML page and use JavaScript to modify its content dynamically using DOM. 14. Build an HTML form and validate fields like email, password, and phone number using JavaScript. 15. Use JavaScript to display data from an array using map() and forEach() methods. 16. Demonstrate form validation using regular expressions and constraint validation API. 17. Develop a webpage with real-time input validation and dynamic UI updates. 18. Set up jQuery using CDN and perform DOM manipulation using selectors and methods like .html() and .css(). 19. Create animations using jQuery methods like .fadeIn(), .slideUp(), and .animate(). 20. Use jQuery to handle form submission and display validation results. 21. Fetch external JSON data using the Fetch API and display it on a webpage. 22. Use $.ajax() and $.getJSON() to call a REST API and render dynamic content (e.g., weather, news, or user data). 23. Mini Project: Build an interactive multipage website using HTML, CSS, JavaScript, jQuery, and AJAX with basic animation and form processing.
Software/ Tools Required:	• VS Code / Sublime Text • Modern Web Browsers (Chrome/Firefox) • Internet for CDN/API access • Public REST APIs for practice (e.g., JSONPlaceholder, OpenWeatherMap)

Course Title		Organizational Behavior			
Course Type		GE / OE -2			
Course Code		BCA204T	**No. of Credits**		2
			No. of Periods / Week		2
			Internal Assessment		20
			Semester Examination		30

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	Understand the fundamentals of organizational behavior and its impact on performance.
CO-2	Analyze individual behavior, perception, motivation, and personality at work.
CO-3	Examine group behavior, team dynamics, and conflict management.
CO-4	Apply leadership styles and organizational culture principles in real-life situations.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) (Course Articulation Matrix)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1	2	2				2			2	2
CO-2	2	3		1		3	2		3	2
CO-3		2	2			2		3	2	3
CO-4			3	2	2	3		3	2	2

Prerequisites	Basic knowledge of algebra and logical reasoning.
Unit I	**Introduction to Organizational Behavior** • Definition, Nature, and Scope • Importance of OB in the modern workplace • Models of Organizational Behavior • Challenges and Opportunities for OB
Unit II	**Individual Behavior in Organizations** • Personality: Traits, Determinants • Perception: Process and Errors • Attitudes and Job Satisfaction

	• Motivation Theories: Maslow, Herzberg, McGregor **Group Dynamics and Conflict Management** • Group vs. Team: Types and Stages of Team Development • Group Behavior: Norms, Roles, and Status • Conflict: Sources, Types, and Conflict Resolution Techniques • Decision Making in Groups
Unit III	**Leadership and Organizational Culture** • Leadership Styles and Theories (Trait, Behavioral, Contingency) • Power and Politics in Organizations • Organizational Culture: Definition, Elements, and Types • Managing Organizational Change and Innovation
Text Books	**1. Organizational Behavior – Stephen P. Robbins, Pearson Education** **2. Organizational Behavior – K. Aswathappa, Himalaya Publishing House**
Reference books	• **Essentials of Organizational Behavior – Stephen P. Robbins** • **Organizational Behavior – Fred Luthans, McGraw Hill** • **Understanding Organizational Behavior – Udai Pareek, Oxford University Press**
Web References	

Course Title		Cyber Security			
Course Type		VSC-1			
Course Code		BCA205T	**No. of Credits**		2
			No. of Periods / Week		2
			Assignments / Sessional		20
			Semester Examination		30

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	Understand the foundational concepts of cyberspace, cyber security, and cyber laws including the IT Act, cybercrime threats, and intellectual property rights in digital environments.
CO-2	Analyze and interpret emerging trends in cyber law, cyber threats, and intellectual property strategies with a focus on Indian and global contexts.
CO-3	Apply knowledge of cyber risk mitigation strategies, including policy frameworks, supply chain risk reduction, cyber awareness, and information sharing practices.

Mapping of Course Outcomes (COs) with Program Outcomes (POs) (Course Articulation Matrix)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1										
CO-2										
CO-3										
AVG										

Prerequisites	NA
Unit I	**Introduction** Cyberspace, cyber security, cyber security policy, cyber-crime, nature of threat, enabling people, IT Act, emerging trends of cyber laws.
Unit II	**Intellectual property rights** Types, advantages, IPR in India, Intellectual property in cyber space, strategies for cyber security.
Unit III	**Cyber Risks** Policies to mitigate cyber risk, reducing supply chain risks, cyber security

	awareness, information sharing, cyber security framework
Text Books	1. Cyber Law and Information Security- Dreamtech MISL 2. Cyber Laws and Information Technology- Dr. Jyoti Rattan, Vijay Rattan
Reference books	1. Cyber Laws and IT Protection – Chander H 2. Textbook on Cyber Laws – Pavan Duggal
Web References	--

Course Title		Communication and Personality Development			
Course Type		AEC-2			
Course Code		BCA206T	**No. of Credits**		2
			No. of Periods / Week		2
			Assignments / Sessional		20
			Semester Examination		30

Course Outcomes (COs)

At the end of the course, students will be able to:

CO-1	Demonstrate effective verbal, non-verbal, and written communication in academic and professional environments.
CO-2	Apply personality development techniques including confidence building, time management, and emotional intelligence in real-life situations.
CO-3	Exhibit improved interpersonal and presentation skills through group discussions, interviews, and team activities.

Mapping of Course Outcomes (COs) with Program Outcomes (POs)
(Course Articulation Matrix)

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10
CO-1										
CO-2										
CO-3										
AVG										

Prerequisites	Basic conversational English
Unit I	**Fundamentals of Communication** • Communication: Definition, process, types (verbal, non-verbal, written) • Principles of effective communication • Barriers to communication and how to overcome them • Listening skills and feedback • Email etiquette and business writing (letters, memos, notices)

Unit II	**Personality Development & Soft Skills** • Personality: Concept, types, and traits • Self-awareness and self-esteem • Time management and goal setting • Positive attitude, emotional intelligence, stress and anger management • Leadership, team building, and decision-making skills
Unit III	**Professional Communication and Career Readiness** • Presentation skills (PPTs, speech, body language) • Public speaking and confidence building • Group discussions and mock interviews • Resume and cover letter writing • Workplace etiquette and corporate communication
Text Books	• Raman, M. & Sharma, S. (2011). *Technical Communication: Principles and Practice*. Oxford University Press. • Mitra, B. K. (2011). *Personality Development and Soft Skills*. Oxford University Press. • Sen, L. (2009). *Communication Skills*. PHI Learning Pvt. Ltd.
Reference books	• **Carnegie, Dale (2019).** *How to Win Friends and Influence People* **Simon & Schuster** ✔ A timeless guide on interpersonal communication and relationship-building. • **Covey, Stephen R. (2004).** *The 7 Habits of Highly Effective People* **Simon & Schuster** ✔ Useful for personal growth, time management, and leadership.
Web References	--

Course Title		Constitution of India			
Course Type		VEC-1			
Course Code		IC001	**No. of Credits**		2
			No. of Periods / Week		2
			Internal Assessment		20
			Semester Examination		30
The university has given syllabus on University Web Portal.					

Course Title		Yoga			
Course Type		CC-2			
Course Code		BCA207P	**No. of Credits**		2
			No. of Periods / Week		2
			Internal Assessment		50
			Semester Examination		--
University has given syllabus on University Web Portal.					