

Dr. Ambedkar Institute of Technology, Bengaluru-56

(An Autonomous Institution, Affiliated to VTU, Approved by AICTE, Accredited by NAAC with A+ grade)

School of Computer Science and Engineering

Bachelor of Computer Applications (BCA) Programme



Scheme 2026 – 2029

BCA I – VI Semester

Effective from the Academic Year 2026-27



Dr. AMBEDKAR INSTITUTE OF TECHNOLOGY

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BACHELOR OF COMPUTER APPLICATIONS (BCA) PROGRAMME

Dr. AIT- VISION
To create Dynamic, Resourceful, Adept and Innovative Technical professionals to meet global challenges.
Dr. AIT- MISSION
▪ To offer state-of-the-art under graduate, post graduate and doctoral programs in the fields of Engineering, Technology and Management ▪ To generate new knowledge by engaging faculty and students in research, development and innovation. ▪ To provide strong theoretical foundation to the students, supported by extensive practical training to meet the industrial requirements. ▪ To instil moral and ethical values with social and professional commitment.
BCA PROGRAM- VISION
To Develop technically competent and ethical human resource to address the global challenges
BCA PROGRAM- MISSION
• To provide the industry-oriented quality education in association with all stake holders. • To promote entrepreneurship and research for sustainable development. • To inculcate a sense of commitment to the students towards socio-economic development of the nation.
PROGRAM EDUCATIONAL OBJECTIVES
PEO1: Apply the principles of software engineering and software development in verticals related to information technology and Information Technology Enabled Services (ITES). PEO2: Inculcate creative and innovative ideas with latest developments in the industry to be displayed as an entrepreneur or a researcher or an academician. PEO3: To incorporate the lifelong learning process with leadership skills and corporate social responsibilities.



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BACHELOR OF COMPUTER APPLICATIONS (BCA) PROGRAMME

PROGRAM SPECIFIC OUTCOMES

- PS01:** Apply advanced computing concepts, programming skills, algorithms, databases, and software engineering principles to develop effective software solutions for real-world problems.
- PS02:** Design and develop innovative applications using emerging technologies such as Artificial Intelligence, Machine Learning, Data Science, Cloud Computing, Cyber Security, and Generative AI.
- PS03:** Analyze, evaluate, and implement computing solutions using appropriate tools and methodologies while demonstrating.

PROGRAM OUTCOMES (POs)

- P01 (Foundation Knowledge):** Apply knowledge of mathematics, programming logic and coding fundamentals for solution architecture and problem solving.
- P02 (Problem Analysis):** Identify, review, formulate and analyse problems for primarily focusing on customer requirements using critical thinking frameworks.
- P03 (Development of Solutions):** Design, develop and investigate problems with as an innovative approach for solutions incorporating ESG/SDG goals.
- P04 (Modern Tool Usage):** Select, adapt and apply modern computational tools such as development of algorithms with an understanding of the limitations including human biases.
- P05 (Individual and Teamwork):** Function and communicate effectively as an individual or a team leader in diverse and multidisciplinary groups. Use methodologies such as agile.
- P06 (Project Management and Finance):** Use the principles of project management such as scheduling, work breakdown structure and be conversant with the principles of Finance for profitable project management.
- P07 (Ethics):** Commit to professional ethics in managing software projects with financial aspects. Learn to use new technologies for cyber security and insulate customers from malware.
- P08 (Life-long learning):** Change management skills and the ability to learn, keep up with contemporary technologies and ways of working.



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BACHELOR OF COMPUTER APPLICATIONS PROGRAMME

Scheme of Teaching and Examination effective from the Academic Year 2026 – 27

I SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Learning Scheme					Examination				Credits
				Class Instruction in Hours		Lab Instruction in Hours	TW & SL	Total Hours/ Sem	Duration (Hrs)	CIE Marks	SEE Marks	Total Marks	
				L	T	P							
1	AEC	1BCAT101A	Balike Kannada (MCQ)	28			32	60	01	50	50	100	2
		1BCAT101B	Samskrutika Kannada (MCQ)										
2	AEC	1BCAT102	Communication English (MCQ)	28			32	60	01	50	50	100	2
3	IPCC	1BCAU103	Computer Fundamentals	42		28	50	120	03	50	50	100	4
4	PCC	1BCAT104	Programming Using C	42			48	90	03	50	50	100	3
5	PCC	1BCAT105	Fundamentals of Mathematics	42			48	90	03	50	50	100	3
6	PCC	1BCAT106	Fundamentals of Accountancy	42			48	90	01	50	50	100	3
7	PCCL	1BCAL107	Programming Using C Lab	14		28	18	60	03	50	50	100	2
8	VAC	1BCAT108	Environmental studies (MCQ)	14			16	30	01	50	50	100	1
9	NCMC	1BCDN109	Placement Training	28	-	-	-	28	01	50	-	50	NP/PP
TOTAL										450	400	850	20

AEC-Ability Enhancement Courses, **PCC** – Professional Core Courses, **PCCL** – Professional Core Course Laboratory, **VAC** – Value Added Courses. **BCA15A**- Fundamentals of Mathematics- This is for students other than those in the science stream at 10+2 level. **BCA15B**- for Science Stream students. **SDA**- Skill Development Activities.

T-Theory, **U**- Lab Integrated, **L**- Lab, **NMC**-Non-Credit Mandatory Course

BCA11A- Balike Kannada (for non-Karnataka students) and **BCA11B**- Samskrutika Kannada- (For Karnataka Students)

Integrated courses (IPCC)-combining theory with practical components. (i) Theory sessions shall be conducted for 3 hours per week, while the practical sessions shall be conducted for 2 hours per week. (ii) Theory components shall be evaluated through both Continuous Internal Evaluation (CIE) and Semester End Examination (SEE). (iii) The practical component shall be assessed only through CIE.

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Scheme of Teaching and Examination effective from the Academic Year 2026 - 27

II SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Learning Scheme					Examination				Credits
				Class Instruction in Hours		Lab Instruction in Hours	TW & SL	Total Hours/ Sem	Duration (Hrs)	CIE Marks	SEE Marks	Total Marks	
				L	T	P							
1	IPCC	1BCAU201	Unix and Shell Scripting	42		28	50	120	01	50	50	100	4
2	PCC	1BCAT202	Data Structures Using C	42			48	90	03	50	50	100	3
3	PCC	1BCAT203	Introduction to Web Technologies	42			48	90	03	50	50	100	3
4	PCC	1BCAT204	Discrete Mathematical Structure	42			48	90	03	50	50	100	3
5	SEC	1BCAT205	Introduction to Fintech (MCQ)	28			32	60	03	50	50	100	2
6	PCCL	1BCAL206	Data Structure Using C Lab	14		28	18	60	01	50	50	100	2
7	PCCL	1BCAL207	Web Technologies Lab	14		28	18	60	03	50	50	100	2
8	VAC	1BCAT208	Constitution of India (MCQ)	14			16	30	01	50	50	100	1
9	NCMC	1BCDN209	Placement Training	28	-	-	-	28	01	50	-	50	NP/PP
TOTAL									450	400	850	20	

AEC-Ability Enhancement Courses, **PCC** – Professional Core Courses, **PCCL** – Professional Core Course Laboratory, **VAC** – Value Added Courses. SEC-Skill Enhancement Course;

SDA- Skill Development Activities. , **T**-Theory, **U**- Lab Integrated, **L**- Lab, **NCMC**-Non-Credit Mandatory Course

Integrated courses (IPCC)-combining theory with practical components. (i) Theory sessions shall be conducted for 3 hours per week, while the practical sessions shall be conducted for 2 hours per week. (ii) Theory components shall be evaluated through both Continuous Internal Evaluation (CIE) and Semester End Examination (SEE). (iii) The practical component shall be assessed only through CIE.

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III SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Learning Scheme				Total Hours/ Sem	Examination				Credits	
				Class Instruction in Hours		Lab Instruction in Hours	TW & SL		Duration (Hrs)	CIE Marks	SEE Marks	Total Marks		
				L	T	P								
1	IPCC	1BCAU301	Introduction to Python Programming	42		28	50	120	01	50	50	100	4	
2	PCC	1BCAT302	Object Oriented Programming with Java	42			48	90	03	50	50	100	3	
3	PCC	1BCAT303	Database Management System	42	28		50	120	03	50	50	100	4	
4	PCC	1BCAT304	Operating Systems	42			48	90	03	50	50	100	3	
5	AEC	1BCAT305	Indian Knowledge System (MCQ)	28			32	60	03	50	50	100	2	
6	PCCL	1BCAL306	Object Oriented Programming with Java Lab	14		28	18	60	01	50	50	100	2	
7	PCCL	1BCAL307	Database Management System Lab	14		28	18	60	03	50	50	100	2	
8	VAC	1BCAT308	Business Ethics (MCQ)				30	30	01	50	50	100	1	
9	NCMC	1BCDN309	Placement Training	28	-	-	-	28	01	50	-	50	NP/PP	
TOTAL											450	400	850	21

AEC-Ability Enhancement Courses, **PCC** – Professional Core Courses, **PCCL** – Professional Core Course Laboratory, **VAC** – Value Added Courses. **SDA**- Skill Development Activities, **SEC**- Skill Enhancement Cours. , **T**-Theory, **U**- Lab Integrated, **L**- Lab, **NCMC**-Non-Credit Mandatory Course

Integrated courses (IPCC)-combining theory with practical components. (i) Theory sessions shall be conducted for 3 hours per week, while the practical sessions shall be conducted for 2 hours per week. (ii) Theory components shall be evaluated through both Continuous Internal Evaluation (CIE) and Semester End Examination (SEE). (iii) The practical component shall be assessed only through CIE.

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IV SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Learning Scheme					Examination				Credits
				Class Instruction in Hours		Lab Instruction in Hours	TW & SL	Total Hours/ Sem	Duration (Hrs)	CIE Marks	SEE Marks	Total Marks	
				L	T	P							
1	IPCC	1BCAU401	Data Analytics using Python	42		28	50	120	03	50	50	100	4
2	PCC	1BCAT402	Design and Analysis of Algorithms	42			48	90	03	50	50	100	3
3	PCC	1BCAT403	Object Oriented Modelling and Design	42			48	90	03	50	50	100	3
4	PCC	1BCAT404	Software Engineering	42			48	90	03	50	50	100	3
5	PCC	1BCAT405	Computer Networks	42			48	90	03	50	50	100	3
6	PCCL	1BCAL406	Design and Analysis of Algorithms Lab	14		28	18	60	03	50	50	100	2
7	PCCL	1BCAL407	Web Application Development Lab	14		28	18	60	03	50	50	100	2
8	SDC	1BCAM408	Mini Project				60	60	03	50	50	100	2
9	NCMC	1BYOG409	Yoga				28	28	01	100	--	100	NP/PP
		1BNSS409	National Service Scheme (NSS)										
		1BPE409	Physical Education (PE) (Sports and Athletics)										
		1BMUK409	Music										
10	NCMC	1BCDN410	Placement Training	28	-	-	-	28	01	50	-	50	NP/PP
TOTAL										550	400	950	22

AEC-Ability Enhancement Courses, PCC – Professional Core Courses, PCCL – Professional Core Course Laboratory, VAC – Value Added Courses. SDA- Skill Development Activities, SEC-

Skill Enhancement Course., NCMC-Non-Credit Mandatory Course, **T**-Theory, **U**- Lab Integrated, **L**- Lab, **NCMC**-Non-Credit Mandatory Course

Integrated courses (IPCC)-combining theory with practical components. (i) Theory sessions shall be conducted for 3 hours per week, while the practical sessions shall be conducted for 2 hours per week. (ii) Theory components shall be evaluated through both Continuous Internal Evaluation (CIE) and Semester End Examination (SEE). (iii) The practical component shall be assessed only through CIE.

Yoga/NSS/Physical Education/Music is a Mandatory Course (MC) (Non-credit). All students have to register for any one of the courses from the Yoga/NSS/Physical Education/Music. Successful completion of the course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for these activities. This course shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the course is mandatory for the award of degree.

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V SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Learning Scheme					Examination				Credits
				Class Instruction in Hours		Lab Instruction in Hours	TW & SL	Total Hours/ Sem	Duration (Hrs)	CIE Marks	SEE Marks	Total Marks	
				L	T	P							
1	PCC	1BCAT501	Introduction to Artificial Intelligence	42			48	90	03	50	50	100	3
2	PCC	1BCAT502	Data Mining and Data Warehousing	42			48	90	03	50	50	100	3
3	PCC	1BCAT503	Cloud Computing	42			48	90	03	50	50	100	3
4	PEC	1BCAT504	Theory of Computation	56			64	120	03	50	50	100	4
5	IPEC	1BCAU505X	Integrated Professional Elective Course – Group 1	42		28	50	120	03	50	50	100	4
6	SDC	1BCAP506	Project Work					120	03	100	100	200	4
TOTAL										350	350	700	21

AEC-Ability Enhancement Courses, **PCC** – Professional Core Courses, **PCCL** – Professional Core Course Laboratory, **VAC** – Value Added Courses. **SDA**- Skill Development Activities, **SEC**- Skill Enhancement Course., **NCMC**-Non-Credit Mandatory Course, **T**-Theory, **U**- Lab Integrated, **L**- Lab, **NCMC**-Non-Credit Mandatory Course

Integrated courses (IPCC)-combining theory with practical components. (i) Theory sessions shall be conducted for 3 hours per week, while the practical sessions shall be conducted for 2 hours per week. (ii) Theory components shall be evaluated through both Continuous Internal Evaluation (CIE) and Semester End Examination (SEE). (iii) The practical component shall be assessed only through CIE.

INTEGRATED PROFESSIONAL ELECTIVE-1

S.No	Course Code	Course Title
1.	1BCAU5051	Internet of Things
2.	1BCAU5052	Mobile Application Development
4.	1BCAU5053	R Programming

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VI SEMESTER

Sl. No	Course	Course Code	Course Title	Teaching Learning Scheme					Examination				Credits
				Class Instruction in Hours		Lab Instruction in Hours	TW & SL	Total Hours/ Sem	Duration (Hrs)	CIE Marks	SEE Marks	Total Marks	
				L	T	P							
1	IPCC	1BCAU601	Cyber Security	42		28	50	120	03	50	50	100	4
2	PEC	1BCAT602X	Professional Elective Course - Group 1	42			48	90	03	50	50	100	3
3	PEC	1BCAT603X	Professional Elective Course - Group 2 (Online VTU/NPTEL Courses) – 12 weeks	42			48	90	03	50	50	100	3
4	TS	1BCAS604	Technical Seminar				30	30	--	100	--	100	1
5	INT	1BCAI605	Industry Internship (5 weeks)					120	03	100	100	200	5
TOTAL										350	250	600	16

AEC-Ability Enhancement Courses, **PCC** – Professional Core Courses, **PCCL** – Professional Core Course Laboratory, **VAC** – Value Added Courses. **SDA**- Skill Development Activities, **SEC**- Skill Enhancement Course., **NCMC**-Non-Credit Mandatory Course, **T**-Theory, **U**- Lab Integrated, **L**- Lab, **NCMC**-Non-Credit Mandatory Course

Integrated courses (IPCC)-combining theory with practical components. (i) Theory sessions shall be conducted for 3 hours per week, while the practical sessions shall be conducted for 2 hours per week. (ii) Theory components shall be evaluated through both Continuous Internal Evaluation (CIE) and Semester End Examination (SEE). (iii) The practical component shall be assessed only through CIE.

Industry Internship of 4 weeks must be completed during the vacation of 4th to 5th semester and/or 5th to 6th semester.

TW & SL – Team Work and Self Learning

Students shall enrol for the Industry Internship (1BCAI605) immediately after completion of 5th semester examination and before starting the 6th semester.

The teaching-learning duration of VI Semester is split into two phases:

- Phase 1: Internship (First 5 weeks duration)
- Phase 2: Remaining courses (Next 9-10 weeks duration)

Professional Elective Course - Group 2			Professional Elective Course - Group 3		
S.No	Course Code	Course Title	Sl.NO.	Course Code	Course Title
1.	1BCAT6021	Blockchain Technology	1.	1BCAT6031	VTU/NPTEL Online Course
2.	1BCAT6022	Cryptography and Network Security	2.	1BCAT6032	VTU/NPTEL Online Course
3.	1BCAT6023	Business Intelligence	3.	1BCAT6033	VTU/NPTEL Online Course

Grand Total	
Total Marks: 4800	Total Credits: 120

Overview of Courses, Credits, Projects, and Internships under VTU Curriculum

I. Abbreviations used in the Scheme of Teaching and Examinations

Abbreviations	Expanded Form of the Abbreviations
AICTE	All India Council of Technical Education
NCrF	National Credit Framework
VTU	Visvesvaraya Technological University
AEC	Ability Enhancement Course
ASC	Applied Science Course
BSC	Basic Science Course
CIE	Continuous Internal Evaluation
CI	Classroom Instruction
CCA	Continuous Comprehensive Assessment
CGPA	Cumulative Grade Point Average
CUL	Cultural
COE	Centre for Online Education
HSMC	Humanities Studies and Management Course
IPCC	Integrated Professional Core Course
LI	Laboratory Instruction
L	Lecture
NCMC	Non-Credit Mandatory Course
NSS	National Service Scheme

NPTEL	National Programme for Technical Enhanced Learning
OEC	Open Elective (Interdepartmental or interdisciplinary) Course
PCC	Professional Core Course
PCCL	Professional Core Course Laboratory
PEC	Professional Elective Courses
PE	Physical Education
P	Practical
SEC	Skill Enhancement Courses
SEE	Semester End Evaluation
SL	Self-Learning
SGPA	Semester Grade Point Average
SWAYAM	Study Webs of Active-Learning for Young Aspiring Minds
TW	Term Work
T	Tutorial
VTU online	VTU online courses offered by Centre for Online Education,
YOG	Yoga

II. Credit Representation
1-hour Lecture (L) per week=1Credit
2-hoursTutorial(T) per week=1Credit
2-hours Practical / Drawing (P) per week=1Credit
Teaching & Learning Scheme
As per the new National Credit Framework (NCrF), 30 hours of learning of a student is considered equivalent to 1 credit.

A semester is considered as a 14-week period of academic interaction with students.

The learning components are categorized as follows:

1. Classroom Instruction (CI): Includes different instructional / implementation strategies i.e. Lecture (L), Tutorial (T), Case method, Demonstrations, Video 09052026 Scheme Template for 2026-27 scheme V1 10 demonstration, Problem based learning etc. to deliver theoretical concepts within the classroom measured in Number of hours per semester.
2. Laboratory Instruction (LI): Expressed as number of hours per semester which Includes experiments / practical performances / problem-based experiences in laboratory, workshop, field or other locations using different instructional / Implementation strategies.
3. Term work (TW): Includes assignments, seminars, presentations, case studies, micro projects, field activities, industrial visits, academic preparation duration and any other student activities in Number of hours per semester.
4. Self-Learning (SL): MOOCs (SWAYAM/NPTEL/Industry certified courses), spoken tutorials, online educational resources, self-initiated projects, Learning through digital resources etc in Number of hours per semester. (If provided in curriculum structure).

III. Details of Courses

(1) Integrated Professional Core Course (IPCC): The Integrated Professional Core Course (IPCC) refers to a core theory course that is integrated with a laboratory of the same subject. Each IPCC carries 4 credits, with Teaching–Learning hours structured (L : T : P) as either (3:0:2). The theory component of the IPCC shall be evaluated through both Continuous Internal Evaluation (CIE) and Semester End Examination (SEE). The laboratory part shall be assessed exclusively through CIE, with no SEE. However, questions derived from the laboratory part may be included in the SEE question paper to ensure comprehensive evaluation

(2) Non-Credit Mandatory Courses (NCMC): are aimed at enhancing students' knowledge, skills, and awareness beyond the core curriculum. Successful completion of the NCMC is compulsory for fulfilling the requirements of the academic program. It shall not be considered for the computation of SGPA, CGPA and vertical progression. Each student shall register for the prescribed NCMC(s) in the prescribed semester. A student who fails to qualify in the prescribed NCMC shall not be eligible for the conferment of the degree.

(3) Professional Elective Courses (PEC): A professional elective course (PEC) is intended to enhance the depth and breadth of educational experience in the Engineering and Technology curriculum of the same discipline.

(4) Open Elective Courses (OEC): A open elective course (OEC) is a course offered by departments other than a student's parent department. These interdepartmental /interdisciplinary courses allow students to explore disciplines beyond their core area of study. These courses are

intended to promote interdisciplinary learning, broad-based education, thereby enhancing a student's overall knowledge, creativity, and employability. Registration to open electives shall be documented under the guidance of the Program Coordinator/ Advisor/Mentor/Proctor.

(5) **Ability Enhancement Course Laboratory (AEC):** An Ability Enhancement Course Laboratory is a practical, skill-oriented lab course designed to strengthen students' practical abilities, professional competencies that support communication, environmental awareness, computational thinking, interdisciplinary learning, and application skills through hands-on learning experiences. The laboratory may pertain to disciplinary or interdisciplinary involving experiments, design tasks, and mini-projects aligned with current industry practices.

(6) **Skill Enhancement Courses (SEC):** These courses are intended to develop specific practical skills and competencies that improve students' employability, technical proficiency, and professional readiness to bridge the gap between academic and industry requirements. These courses emphasize hands-on training, application of theoretical knowledge, and development of discipline-relevant and transferable skills required in industry and society, and develop entrepreneurship and start-up skills. 09052026 Scheme Template for 2026-27 scheme V1 13

(7) **Online Courses:** Online courses are educational programs delivered over the Internet through a digital platform, allowing students to access lessons, assignments, and discussions from anywhere at any time. Most online courses offer flexibility, allowing students to access materials and complete assignments on their own schedule. However, students have to pass the course within a stipulated period as per the norms of the university.

(8) **VTU Online Courses:** VTU Online courses are online courses offered by Centre of Online Education (COE) Mysuru. A wide range of multidisciplinary courses are available to learners anywhere, anytime to earn university-prescribed credits through proctored examination for the award of a degree.

(9) **NPTEL/SWAYAM Online Courses:** The National Programme on Technology Enhanced Learning (NPTEL)/SWAYAM (Study Webs of Active Learning for Young Aspiring Minds) are the specific Indian platforms to host national Massive Open Online Courses (MOOCs). It offers online courses on a wide range of disciplines to learners anywhere, anytime, to earn university-prescribed credits through proctored examination for the award of a degree. All NPTEL/SWAYAM courses are MOOCs, but not all MOOCs are offered on these specific Indian platforms.

	Course Details	
1.	One Credit Theory Courses:	
	Teaching-Learning sessions in a semester	14 hours
	Examination pattern for CIE and SEE	Multiple Choice Question (MCQ)
	Teaching hours per week - L:T:P	1:0:0
2.	One Credit Laboratory Courses:	
	Teaching-Learning sessions in a semester	28 hours (2 hours session /week)
	Examination pattern for CIE and SEE	Continuous assessments, lab Internal test and SEE
	Teaching hours per week - L:T:P	0:0:2
3.	Two Credit Theory Courses:	
	Teaching-Learning Sessions in a semester	28 hours



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School of Computer Science and Engineering

Bachelor of Computer Applications Programme

Semester: I

Scheme: 2026

Course Title	Balake Kannada				
Course Code	1BCAT101A				
Course Category	AEC (Ability Enhancement Course)				
Teaching - Learning Scheme & Credit	L	T	P	Total Credits	Total Teaching Hours
	2	0	0	2	Lecture: 28 + Tutorials: 0 + Practical: 0 + Self-Study: 32 = 60
CIE Marks: 50	SEE Marks: 50		Total Max. Marks: 100		Duration of SEE: 01 Hour

Course Learning Objectives: Students will learn to:	
1	Use basic Kannada vocabulary and grammar.
2	Communicate in Kannada in everyday situations.
3	Form simple Kannada sentences correctly.
4	Use Kannada tenses, verbs, and case forms.
5	Develop basic listening and speaking skills.

SYLLABUS	No. of Hours	BTLs
UNIT 1	5	L1
1. Introduction, Necessity of learning a local language. Methods to learn the Kannada language. 2. Easy learning of a Kannada Language: A few tips. Hints for correct and polite conversation, Listening and Speaking Activities, Key to Transcription 3. ವೈಯಕ್ತಿಕ, ಸ್ವಾಮ್ಯಸೂಚಕ/ಸಂಬಂಧಿತ ಸರ್ವನಾಮಗಳು ಮತ್ತು ಪ್ರಶ್ನಾರ್ಥಕ ಪದಗಳು - Personal Pronouns, Possessive Forms, Interrogative words		
SELF-STUDY COMPONENT	6 Hours	
Prepare a list of 20 commonly used Kannada words related to daily life • Observe conversations in Kannada in daily life and note down five questions and five answers . • Listen to a short Kannada conversation/video and identify the personal pronouns, possessive forms, and interrogative words used.		
UNIT 2	5	L1
1. ನಾಮಪದಗಳ ಸಂಬಂಧಾರ್ಥಕ ರೂಪಗಳು, ಸಂದೇಹಾಸ್ಪದ ಪ್ರಶ್ನೆಗಳಿಲ್ಲ ಮತ್ತು ಸಂಬಂಧವಾಚಕ ನಾಮಪದಗಳು - Possessive forms of nouns, dubitive question and Relative nouns 2. ಗುಣ, ಪರಿಮಾಣ ಮತ್ತು ವರ್ಣಬಣ್ಣ ವಿಶೇಷಣಗಳು, ಸಂಖ್ಯಾವಾಚಕಗಳು - Qualitative, Quantitative and Colour Adjectives, Numerals 3. ಕಾರಕ ರೂಪಗಳು ಮತ್ತು ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು - ಸಪ್ರಮಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯ (ಆ, ಅದು, ಅವು, ಅಲ್ಲಿ) - Predictive Forms, Locative Case		
SELF-STUDY COMPONENT	6 Hours	
• Prepare a list of 20 colour-related words/adjectives in Kannada. • Describe five objects or persons using appropriate adjectives. • Learn Kannada numerals from 1 to 100 and practise writing them.		



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- Write 10 sentences using numerals and adjectives. - Observe objects in the classroom/home and describe their size, quantity and colour in Kannada.		
UNIT 3	6	L1
- ಚತುರ್ಥಿ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯದ ಬಳಕೆ ಮತ್ತು ಸಂಖ್ಯಾವಾಚಕಗಳು - Dative Cases, and Numerals - ಸಂಖ್ಯಾಗುಣವಾಚಕಗಳು ಮತ್ತು ಬಹುವಚನ ನಾಮರೂಪಗಳು -Ordinal numerals and Plural markers - ನ್ಯೂನ/ನಿಷೇಧಾರ್ಥಕ ಕ್ರಿಯಾಪದಗಳು & ವರ್ಣ ಗುಣವಾಚಕಗಳು -Defective/Negative Verbs & Colour Adjectives		
SELF-STUDY COMPONENT	6 Hours	
- Practise making positive and negative sentences in Kannada. - Prepare 10 simple sentences using negative verb forms. Translate 10 simple English sentences into Kannada, focusing on negative forms and colours.		
UNIT 4	6	L1
- ಅಪ್ಪಣೆ/ಒಪ್ಪಿಗೆ,ನಿರ್ದೇಶನ, ಪ್ರೋತ್ಸಾಹ ಮತ್ತು ಒತ್ತಾಯ ಅರ್ಥರೂಪ ಪದಗಳು ಮತ್ತು ವಾಕ್ಯಗಳು - Permission, Commands, encouraging and Urging words (Imperative words and sentences) - ಸಾಮಾನ್ಯ ಸಂಭಾಷಣೆಗಳಲ್ಲಿ ದ್ವಿತೀಯ ವಿಭಕ್ತಿ ಪ್ರತ್ಯಯಗಳು ಮತ್ತು ಸಂಭವನೀಯ ಪ್ರಕಾರಗಳು - Accusative Cases and Potential Forms used in General Communication "ಇರು ಮತ್ತು ಇರಲ್ಲ" ಸಹಾಯಕ ಕ್ರಿಯಾಪದಗಳು, ಸಂಭಾವ್ಯಸೂಚಕ ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಪದಗಳ ಬಳಕೆ - Helping Verbs "iru and iralla", Corresponding Future and Negation Verbs - ಹೋಲಿಕೆ (ತರತಮ), ಸಂಬಂಧ ಸೂಚಕ, ವಸ್ತು ಸೂಚಕ ಪ್ರತ್ಯಯಗಳು ಮತ್ತು ನಿಷೇಧಾರ್ಥಕ ಪದಗಳ ಬಳಕೆ - Comparative, Relationship, Identification and Negation Words		
SELF-STUDY COMPONENT	8 Hours	
Observe everyday Kannada conversations and note down five examples each of comparative, relationship, identification and negation expressions. - Practise a short dialogue involving permission, commands and requests. - Observe everyday conversations and note down five imperative expressions.		
UNIT 5	6	L1
- ಕಾಲ ಮತ್ತು ಸಮಯದ ಹಾಗೂ ಕ್ರಿಯಾಪದಗಳ ವಿವಿಧ ಪ್ರಕಾರಗಳು -Different types of Tense, Time and Verbs - ತು, ಆಗಿ, ಅಲ್ಲ, -ಗ್, -ಕ್, - ಇದೆ, ಕ್ರಿಯಾ ಪ್ರತ್ಯಯಗಳೊಂದಿಗೆ ಭೂತ, ಭವಿಷ್ಯತ್ ಮತ್ತು ವರ್ತಮಾನ ಕಾಲ ವಾಕ್ಯ ರಚನೆ - Formation of Past, Future and Present Tense Sentences with Verb Forms Kannada Vocabulary List -ಸಂಭಾಷಣೆಯಲ್ಲಿ ದಿನೋಪಯೋಗಿ ಕನ್ನಡ ಪದಗಳು - -Kannada Words in Conversation		
SELF-STUDY COMPONENT	6 Hours	
Learn the three basic tenses in Kannada – Present, Past and Future. Prepare a short paragraph describing yesterday, today and tomorrow using the three tenses.		



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TEXT BOOKS

1. Textbook :
ಬಳಕೆ ಕನ್ನಡ
ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ
ಪ್ರಸಾರಂಗ
ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ
ಬೆಳಗಾವಿ

REFERENCE BOOKS

1. ಕನ್ನಡ ಕಲಿ (Kannada Kali) – ಕನ್ನಡವನ್ನು ಅನ್ಯಭಾಷಿಕರಿಗೆ ಕಲಿಯಲು ಸಹಾಯಕವಾದ ಪಠ್ಯಗ್ರಂಥ.
2. ಕನ್ನಡ ಭಾಷಾ ವ್ಯಾಕರಣ – ಕನ್ನಡದ ನಾಮಪದ, ಸರ್ವನಾಮ, ವಿಭಕ್ತಿ, ಕ್ರಿಯಾಪದ ಮತ್ತು ವಾಕ್ಯರಚನೆಗೆ ಉಪಯುಕ್ತ.

e-LEARNING RESOURCES

Google Translate – Kannada – <https://translate.google.com>

YouTube – Kannada Language Learning – <https://www.youtube.com>

Assessment Details for both CIE and SEE

- The weightage assigned to the Continuous Internal Evaluation (CIE) and Semester End Examination (SEE) is 40% each.
- To pass the course, students must secure a minimum of 40% marks separately in both CIE and SEE.
- To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks.
- To pass the SEE, a student must score at least 40% of 50 marks, i.e., 20 marks.
- The question paper pattern is Objective Type (MCQ) with maximum of 25 marks for CIE and maximum marks for SEE is 50 marks.

CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks Required in CIE to Qualify for SEE (40% individually)
Theory	Weightage of CIE-1 and CIE-2 or CIE-3	40	20
	Assignment	05	
	Group Activity	05	
	TOTAL	50	

SEE QUESTION PAPER PATTERN

Q. No.	Q1-Q10	Q11- Q20	Q21-Q30	Q31-Q40	Q41-Q50
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UNIT	1	2	3	4	5
1. There are 50 multiple – choice Questions					
2. Students are required to answer all the Questions by selecting the correct option.					

Course Outcomes: After the completion of the course, the student will be able to	
CO1	Understand the necessity of learning of local language for comfortable life.
CO2	Speak, read and write Kannada language as per requirement.
CO3	Communicate (converse) in Kannada language in their daily life with Kannada speakers.
CO4	Listen and understand the Kannada language properly.
CO5	Speak in polite conversation.

COURSE SUSTAINABLE DEVELOPMENT GOALS (SDGs)		
Goal No.	Goal Title	Description
4	Quality Education	Ensure Inclusive and equitable quality education and promote lifelong learning opportunities for all
8	Decent Work and Economic Growth	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Mapping of COs with POs with PSOs											
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1					3			2			1
CO2			1		3			3			2
CO3			1		3			3			2
CO4			1		3			3			3
CO5			1		3			3			3

Mapping of COs with Knowledge and Attitude Profile (WK)									
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0									
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9
CO1	2	2	3	1	1	2	2	2	3
CO2	3	3	3	3	3	3	2	2	3
CO3	2	1	2	2	1	2	3	2	3
CO4	3	3	3	3	3	3	2	2	3
CO5	3	3	3	3	3	3	3	3	3

Course Coordinators:



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Padma S V
Assistant Professor
School of HSS



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Course Title	Samskrutika Kannada				
Course Code	1BCAT101B				
Course Category	AEC (Ability Enhancement Course)				
Teaching - Learning Scheme & Credit	L	T	P	Total Credits	Total Teaching Hours
	2	0	0	2	Lecture: 28 + Tutorials: 0 + Practical: 0 + Self-Study: 32 = 60
CIE Marks: 50	SEE Marks: 50		Total Max. Marks: 100		Duration of SEE: 01 Hour

Course Learning Objectives:	
1	ಪದವಿ ವಿದ್ಯಾರ್ಥಿಗಳಾಗಿರುವುದರಿಂದ ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು
2	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಪ್ರಧಾನ ಭಾಗವಾದ ಆಧುನಿಕ ಪೂರ್ವ ಮತ್ತು ಆಧುನಿಕ ಕಾವ್ಯಗಳನ್ನು ಪರಿಚಯಿಸುವುದು
3	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾಗೂ ಆಸಕ್ತಿಯನ್ನು ಮೂಡಿಸುವುದು
4	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯವನ್ನು ಹಾಗೂ ಅವರುಗಳ ಸಾಧಿಸಿದ ವಿಷಯಗಳನ್ನು ಪರಿಚಯಿಸುವುದು
5	ಸಾಂಸ್ಕೃತಿಕ ಜನಪದ ಹಾಗೂ ಪ್ರವಾಸ ಕಥನಗಳ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು.

SYLLABUS	No. of Hours	BTLs
UNIT 1	5	L1
ಘಟಕ 1 - ಕನ್ನಡ ಸಂಸ್ಕೃತಿ ಮತ್ತು ಭಾಷೆ ಕುರಿತಾದ ಲೇಖನಗಳು - ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ : ಹಂಪ ನಾಗರಾಜಯ್ಯ - ಕರ್ನಾಟಕದ ಏಕೀಕರಣ : ಒಂದು ಅಪೂರ್ವ ಚರಿತ್ರೆ - ಜಿ.ವೆಂಕಟಸುಬ್ಬಯ್ಯ - ಆಡಳಿತ ಭಾಷೆಯಾಗಿ ಕನ್ನಡ - ಡಾ.ಎಲ್.ತಿಮ್ಮೇಶ ಮತ್ತು ಪ್ರೊ.ವಿ.ಕೇಶವಮೂರ್ತಿ		
SELF-STUDY COMPONENT	6 Hours	
ಕರ್ನಾಟಕದ ಇತಿಹಾಸ, ಭಾಷೆ, ಕಲೆ, ಸಾಹಿತ್ಯ ಮತ್ತು ಪರಂಪರೆಗಳ ಕುರಿತು ಮಾಹಿತಿ ಸಂಗ್ರಹಿಸುವುದು. ಕರ್ನಾಟಕ ಏಕೀಕರಣಕ್ಕಾಗಿ ಶ್ರಮಿಸಿದ ಪ್ರಮುಖ ನಾಯಕರು ಮತ್ತು ಸಾಹಿತಿಗಳ ಕುರಿತು ಮಾಹಿತಿ ಸಂಗ್ರಹಿಸುವುದು. ಕರ್ನಾಟಕ ಏಕೀಕರಣದ ಕುರಿತು ಪ್ರಬಂಧ, ಭಾಷಣ ಅಥವಾ ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಭಾಗವಹಿಸುವುದು. ಸರ್ಕಾರಿ ಕಚೇರಿಗಳಲ್ಲಿ ಬಳಕೆಯಾಗುವ 10-15 ಆಡಳಿತಾತ್ಮಕ ಕನ್ನಡ ಪದಗಳನ್ನು ಸಂಗ್ರಹಿಸಿ ಅವುಗಳ ಅರ್ಥ ತಿಳಿಯುವುದು.		
UNIT 2	6	L1
ಘಟಕ 2 - ಆಧುನಿಕ ಪೂರ್ವದ ಕಾವ್ಯ ಭಾಗ - ವಚನಗಳು : ಬಸವಣ್ಣ, ಅಕ್ಕಮಹಾದೇವಿ, ಅಲ್ಲಮಪ್ರಭು, ಆಯ್ಯಕ್ಕಿ ಮಾರಯ್ಯ, ಜೇಡರ ದಾಸಿಮಯ್ಯ, ಆಯ್ಯಕ್ಕಿ ಲಕ್ಕಮ್ಮ. - ಕೀರ್ತನೆಗಳು : ಅದರಿಂದೇನು ಫಲ ಇದರಿಂದೇನು ಫಲ - ಪುರಂದರದಾಸ ತಲ್ಲಣಸದಿರು ಕಂಡ್ಯ ತಾಳು ಮನವೆ - ಕನಕದಾಸ - ತತ್ವಪದಗಳು : ಸಾವಿರ ಕೊಡಗಳ ಸುಟ್ಟು - ಶಿಶುನಾಳ ಶರೀಫ		



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SELF-STUDY COMPONENT	6 Hours
ಪ್ರಮುಖ ವಚನಕಾರರು ಮತ್ತು ಅವರ ವಚನಗಳ ಕುರಿತು ಮಾಹಿತಿ ಸಂಗ್ರಹಿಸುವುದು. ಯಾವುದೇ ಒಂದು ವಚನ, ಕೀರ್ತನೆ ಅಥವಾ ತತ್ವಪದದ ಆಶಯವನ್ನು ಸ್ವಂತ ಮಾತುಗಳಲ್ಲಿ ಬರೆಯುವುದು. “ವಚನಗಳು, ಕೀರ್ತನೆಗಳು ಮತ್ತು ತತ್ವಪದಗಳಲ್ಲಿ ಮಾನವೀಯ ಮೌಲ್ಯಗಳು” ಎಂಬ ವಿಷಯದ ಕುರಿತು ಗುಂಪು ಚರ್ಚೆ ನಡೆಸುವುದು.	
UNIT 3	6 L1
ಘಟಕ 3 - ಆಧುನಿಕ ಕಾವ್ಯ ಭಾಗ 1. ಡಿ.ವಿ.ಜಿ ರವರ ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗದಿಂದ ಆಯ್ದ ಕೆಲವು ಭಾಗಗಳು 2. ಕುರುಡು ಕಾಂಚಾಣ : ದ.ರಾ.ಬೇಂದ್ರೆ 3. ಹೊಸಬಾಳಿನ ಗೀತೆ : ಕುವೆಂಪು 4. ಮಬ್ಬಿನಿಂದ ಮಬ್ಬಿಗೆ : ಜಿ ಎಸ್ ಶಿವರುದ್ರಪ್ಪ 5. ಚೋಮನ ಮಕ್ಕಳ ಹಾಡು : ಸಿದ್ದಲಿಂಗಯ್ಯ	
SELF-STUDY COMPONENT	6 Hours
ಆಯ್ದ ಕಗ್ಗಗಳ ಅರ್ಥ, ಆಶಯ ಮತ್ತು ಜೀವನಮೌಲ್ಯಗಳನ್ನು ಸ್ವಂತ ಮಾತುಗಳಲ್ಲಿ ಬರೆಯುವುದು. ದ.ರಾ. ಬೇಂದ್ರೆಯವರ ಜೀವನ ಮತ್ತು ಸಾಹಿತ್ಯ ಪರಿಚಯವನ್ನು ಮಾಡಿಕೊಳ್ಳುವುದು. ಕವನದ ಆಯ್ದ ಭಾಗಗಳನ್ನು ಓದಿ ಭಾವಾರ್ಥ ಬರೆಯುವ ಅಭ್ಯಾಸ ಮಾಡುವುದು. “ಸಾಹಿತ್ಯ ಮತ್ತು ಸಾಮಾಜಿಕ ಜಾಗೃತಿ” ಎಂಬ ವಿಷಯದ ಕುರಿತು ಗುಂಪು ಚರ್ಚೆಯಲ್ಲಿ ಭಾಗವಹಿಸುವುದು.	
UNIT 4	6 L1
ಘಟಕ 4 - ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯ 1. ಡಾ.ಸರ್.ಎಂ.ವಿಶ್ವೇಶ್ವರಯ್ಯ : ವ್ಯಕ್ತಿ ಮತ್ತು ಐತಿಹ್ಯ - ಎ.ಎನ್.ಮೂರ್ತಿರಾವ್ 2. ಕರಕುಶಲ ಕಲೆಗಳು ಮತ್ತು ಪರಂಪರೆಯ ವಿಜ್ಞಾನ : ಕರೀಗೌಡ ಬೀಚನಹಳ್ಳಿ	
SELF-STUDY COMPONENT	8 Hours
ಡಾ. ಸರ್. ಎಂ. ವಿಶ್ವೇಶ್ವರಯ್ಯನವರ ಜೀವನ, ವ್ಯಕ್ತಿತ್ವ ಮತ್ತು ಸಾಧನೆಗಳ ಕುರಿತು ಮಾಹಿತಿ ಸಂಗ್ರಹಿಸುವುದು ವಿಶ್ವೇಶ್ವರಯ್ಯನವರ ಜೀವನದಿಂದ ವಿದ್ಯಾರ್ಥಿಗಳು ಕಲಿಯಬೇಕಾದ ಮೌಲ್ಯಗಳು” ಎಂಬ ವಿಷಯದ ಕುರಿತು ಸಂಕ್ಷಿಪ್ತ ಟಿಪ್ಪಣಿ ಬರೆಯುವುದು. “ಕರಕುಶಲ ಕಲೆಗಳ ಸಂರಕ್ಷಣೆ ಮತ್ತು ಯುವಜನರ ಪಾತ್ರ” ಎಂಬ ವಿಷಯದ ಕುರಿತು ಗುಂಪು ಚರ್ಚೆ ನಡೆಸುವುದು.	
UNIT 5	5 L1
ಘಟಕ 5 - ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಕಥೆ ಮತ್ತು ಪ್ರವಾಸ ಕಥನ 1. ಯುಗಾದಿ : ವಸುಧೇಂದ್ರ 2. ಮಗಾನೆ ಎಂಬ ಗಿರಿಜನ ಪರ್ವತ : ಹಿ.ಚಿ.ಬೋರಲಿಂಗಯ್ಯ	
SELF-STUDY COMPONENT	6 Hours
• ಸಮಾಜದಲ್ಲಿನ ಮಾನವೀಯ ಮೌಲ್ಯಗಳ ಬಗೆಗೆ ಗುಂಪು ಚರ್ಚೆ ನಡೆಸುವುದು. • ಪಾಠದಲ್ಲಿ ವಿವರಿಸಲಾದ ಪ್ರಕೃತಿ ಮತ್ತು ಗಿರಿಜನರ ನಡುವಿನ ಸಂಬಂಧವನ್ನು ವಿಶ್ಲೇಷಿಸುವುದು.	



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TEXT BOOKS

1.	ಸಾಂಸ್ಕೃತಿಕ ಕನ್ನಡ – ಡಾ. ಎಲ್. ತಿಮ್ಮೇಶ, ಪ್ರಸಾರಂಗ, ವಿಶ್ವೇಶ್ವರಯ್ಯತಾಂತ್ರಿಕವಿಶ್ವವಿದ್ಯಾಲಯ,
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REFERENCE BOOKS

1.	ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತಿ – ಹಂಪ ನಾಗರಾಜಯ್ಯ
2.	ಕನ್ನಡ ಸಾಹಿತ್ಯ ಚರಿತ್ರೆ – ಕನ್ನಡ ಸಾಹಿತ್ಯ ಪರಿಷತ್ತು

e-LEARNING RESOURCES

ಕರ್ನಾಟಕ ಸರ್ಕಾರದ ಅಧಿಕೃತ ಜಾಲತಾಣ https://www.karnataka.gov.in/
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Assessment Details for both CIE and SEE

- The weightage assigned to the Continuous Internal Evaluation (CIE) and Semester End Examination (SEE) is 40% each.
- To pass the course, students must secure a minimum of 40% marks separately in both CIE and SEE.
- To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks.
- To pass the SEE, a student must score at least 40% of 50 marks, i.e., 20 marks.
- The question paper pattern is Objective Type (MCQ) with maximum of 25 marks for CIE and maximum marks for SEE is 50 marks.

CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks Required in CIE to Qualify for SEE (40% individually)
Theory	Weightage of CIE-1 and CIE-2 or CIE-3	40	20
	Assignment	05	
	Group Activity	05	
	TOTAL	50	



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SEE QUESTION PAPER PATTERN					
Q. No.	Q1-Q10	Q11- Q20	Q21-Q30	Q31-Q40	Q41-Q50
UNIT	1	2	3	4	5
1. There are 50 multiple – choice Questions					
2. Students are required to answer all the Questions by selecting the correct option.					

Course Outcomes: After the completion of the course, the student will be able to	
CO1	ಕನ್ನಡ ಭಾಷೆ, ಸಾಹಿತ್ಯ ಮತ್ತು ಕನ್ನಡದ ಸಂಸ್ಕೃತಿಯ ಕುರಿತು ಅರಿವು ಮೂಡಿರುತ್ತದೆ.
CO2	ಕನ್ನಡ ಸಾಹಿತ್ಯದ ಆಧುನಿಕ ಪೂರ್ವ ಮತ್ತು ಆಧುನಿಕ ಕಾವ್ಯಗಳನ್ನು ಸಾಂಕೇತಿಕವಾಗಿ ಕಲಿತು ಹೆಚ್ಚಿನ ಓದಿಗೆ ಮತ್ತು ಜ್ಞಾನಕ್ಕೆ ಸ್ಪೂರ್ತಿ ಮೂಡುತ್ತದೆ.
CO3	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿ ಸಾಹಿತ್ಯ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಬಗ್ಗೆ ಅರಿವು ಹಾಗೂ ಆಸಕ್ತಿಯು ಹೆಚ್ಚಾಗುತ್ತದೆ.
CO4	ತಾಂತ್ರಿಕ ವ್ಯಕ್ತಿಗಳ ಪರಿಚಯ ಅವರುಗಳ ಸಾಧಿಸಿದ ವಿಷಯಗಳನ್ನು ತಿಳಿದುಕೊಂಡು ನಾಡಿನ ಇನ್ನಿತರ ವ್ಯಕ್ತಿಗಳ ಬಗ್ಗೆ ತಿಳಿದುಕೊಳ್ಳಲು ಕೌತುಕ ಹೆಚ್ಚಾಗುತ್ತದೆ.
CO5	ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದ ಹಾಗೂ ಪ್ರವಾಸ ಕಥನಗಳ ಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು.

COURSE SUSTAINABLE DEVELOPMENT GOALS (SDGs)		
Goal No.	Goal Title	Description
4	Quality Education	Ensure Inclusive and equitable quality education and promote lifelong learning opportunities for all
8	Decent Work and Economic Growth	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Mapping of COs with POs with PSOs											
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1					3			2			1
CO2			1		3			3			2
CO3			1		3			3			2
CO4			1		3			3			3
CO5			1		3			3			3



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Mapping of COs with Knowledge and Attitude Profile (WK)									
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0									
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9
CO1	2	2	3	1	1	2	2	2	3
CO2	3	3	3	3	3	3	2	2	3
CO3	2	1	2	2	1	2	3	2	3
CO4	3	3	3	3	3	3	2	2	3
CO5	3	3	3	3	3	3	3	3	3

Course Coordinators:

Padma S V
Assistant Professor
School of HSS



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Course Title	COMMUNICATIVE ENGLISH				
Course Code	1BCAT102				
Course Category	AEC (Ability Enhancement Course)				
Teaching - Learning Scheme & Credit	L	T	P	Total Credits	Total Teaching Hours
	2	0	0	2	Lecture:28 + Tutorials: 0 + Practical: 0 + Self Study: 32 = 60
CIE Marks: 50	SEE Marks: 50		Total Max. Marks: 100		Duration of SEE: 01 Hr

Course Learning Objectives:	
CLO 1	To know about the fundamentals of Communicative English and Communication Skills in general.
CLO 2	To train to identify the nuances of phonetics and intonation and enhance pronunciation skills for better Communication skills.
CLO 3	To impart basic English grammar and essentials of important language skills.
CLO 4	To enhance English vocabulary and language proficiency for better communication skills.
CLO 5	To learn about Techniques of Information Transfer through presentation

SYLLABUS	No. of Hours	BTLs
UNIT 1	5	L1
Introduction to Communicative English: Communicative English, Fundamentals of Communicative English, Process of Communication, Barriers to Effective Communicative English, Different styles and levels in Communicative English. Interpersonal and Intrapersonal Communication Skills.		
SELF-STUDY COMPONENT	6 Hours	
Identify the fundamentals, process, barriers, styles, and levels of Communicative English, with examples of interpersonal and intrapersonal communication. Refer to NPTEL/SWAYAM resources on communication skills and prepare concise notes highlighting the importance of effective communication in personal, academic, and professional contexts.		
UNIT 2	6	L1
Introduction to Phonetics: Phonetic Transcription, English Pronunciation, Pronunciation Guidelines to consonants and vowels, Sounds Mispronounced, Silent and Non silent Letters, Syllables and Structure. Word Accent, Stress Shift and Intonation, Spelling Rules and Words often Misspelt. Common Errors in Pronunciation.		
SELF STUDY COMPONENT	6 Hours	
Review phonetic transcription, consonant and vowel sounds, syllable structure, word accent, stress shift, intonation, and silent letters, spelling rules, and commonly misspelt words. Refer to British Council and BBC Learning English resources on English pronunciation and practice common pronunciation patterns and errors.		
UNIT 3	6	L1



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Basic English Communicative Grammar and Vocabulary PART - I: Grammar: Basic English Grammar and Parts of Speech, Articles and Preposition. Question Tags, One Word Substitutes, Strong and Weak forms of words, Introduction to Vocabulary, All Types of Vocabulary – Exercises on it.		
Self Study Component	6 hours	
Review basic English grammar, parts of speech, articles, prepositions, question tags, one-word substitutes, and strong and weak forms of words. Refer to British Council Learn English resources on grammar and vocabulary and practice their application through suitable exercises.		
UNIT 4	6	L1
Basic English Communicative Grammar and Vocabulary PART - II: Word formation - Prefixes and Suffixes, Contractions and Abbreviations. Word Pairs (Minimal Pairs) – Exercises, Tense and Types of Tenses, The Sequence of Tenses (Rules in the use of Tenses) and Exercises on it.		
Self Study Component	8 hours	
Examine word formation using prefixes and suffixes, contractions, abbreviations, minimal pairs, and different types of tenses. Refer to British Council Learn English and Cambridge Dictionary resources on vocabulary, word formation, pronunciation, and grammar, followed by exercises on the sequence and correct usage of tenses.		
UNIT 5	5	L1
Communication Skills for Employment: Information Transfer: Oral Presentation and its Practice. Difference between Extempore/Public Speaking, Communication Guidelines. Mother Tongue Influence (MTI), Various Techniques for Neutralization of Mother Tongue Influence. Reading and Listening Comprehensions – Exercises.		
Self Study Component	6 hours	
Examine oral presentation, extempore and public speaking, information transfer, communication guidelines, and Mother Tongue Influence (MTI). Refer to NPTEL/SWAYAM resources on communication and presentation skills, and practice MTI neutralization techniques along with reading and listening comprehension activities to enhance employability skills.		

TEXT BOOKS:

1.	Communication Skills by Sanjay Kumar & Pushp Lata, Oxford University Press India Pvt Ltd - 2019.
2.	A Textbook of English Language Communication Skills, (ISBN-978-81-955465-2-7), Published by Infinite Learning Solutions, Bengaluru - 2022.

REFERENCE BOOKS:

1.	Technical Communication by Gajendra Singh Chauhan Et al, (ISBN-978-93-5350-050-4), Cengage learning India Pvt Limited [Latest Revised Edition] - 2019.
2.	English for Engineers by N.P.Sudharshana and C.Savitha, Cambridge University Press – 2018.
3.	English Language Communication Skills – Lab Manual cum Workbook, Cengage learning India Pvt Limited [Latest Revised Edition] – (ISBN-978-93-86668-45-5), 2019.



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4.	A Course in Technical English – D Praveen Sam, KN Shoba, Cambridge University Press – 2020.
5.	Practical English Usage by Michael Swan, Oxford University Press – 2016.
Activity Based Learning (Suggested Activities in Class)/ Practical Based learning:	
- Content-related activities (Activity-based discussions). - For active participation of students, instruct the students to prepare Flowcharts and Handouts. - Organising group-wise discussions connecting to placement activities. - Quizzes and Discussions, Seminars and assignment.	

Assessment Details for both CIE and SEE			
- The weightage assigned to the Continuous Internal Evaluation (CIE) and Semester End Examination (SEE) is 40% each. - To pass the course, students must secure a minimum of 40% marks separately in both CIE and SEE. - To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks. - To pass the SEE, a student must score at least 40% of 50 marks, i.e., 20 marks. - The question paper pattern is Objective Type (MCQ) with maximum of 25 marks for CIE and maximum marks for SEE is 50 marks. Self-Study Component should be included for CIE			
CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks Required in CIE to Qualify for SEE (40% individually)
Theory	Weightage of CIE-1 and CIE-2 or CIE-3	40	20
	Assignment	05	
	Group Activity	05	
	TOTAL	50	

SEE QUESTION PAPER PATTERN					
Q. No.	Q1-Q10	Q11 - Q20	Q21-Q30	Q31-Q40	Q41-Q50
UNIT	1	2	3	4	5
1. There are 50 Multiple – Choice questions					
2. Students are required to answer all the questions by selecting the correct option.					



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Course Outcomes: After the completion of the course, the student will be able to	
CO1	Explain the fundamentals of communication, communication process, barriers, and interpersonal communication skills.
CO2	Apply phonetic principles, pronunciation techniques, stress, and intonation for effective spoken English.
CO3	Use appropriate grammar and vocabulary for accurate written and oral communication.
CO4	Apply word formation, tenses, and vocabulary-building techniques to improve language proficiency.
CO5	Demonstrate effective presentation, reading, listening, and employability communication skills.

Mapping of COs with POs with PSOs											
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	-	-	-	-	3	-	1	2	-	-	3
CO2	-	-	-	-	2	-	1	2	-	-	2
CO3	-	1	-	-	3	-	1	2	-	-	3
CO4	-	1	-	-	2	-	1	2	-	-	2
CO5	-	-	-	-	3	1	2	3	-	-	3

Mapping of COs with Knowledge and Attitude Profile (WK)											
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	CO	WK1
CO1	2	2	3	1	1	2	2	2	3	CO1	2
CO2	3	3	3	3	3	3	2	2	3	CO2	3
CO3	2	1	2	2	1	2	3	2	3	CO3	2
CO4	3	3	3	3	3	3	2	2	3	CO4	3
CO5	3	3	3	3	3	3	3	3	3	CO5	3

Course Coordinator:

Prathibha D S,
Assistant Professor,
School of HSS



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Course Title	COMPUTER FUNDAMENTALS				
Course Code	1BCAU103				
Course Category	IPCC (Integrated Professional Core Course)				
Teaching - Learning Scheme & Credit	L	T	P	Total Credits	Total Teaching Hours
	3	0	1	4	Lecture:42+Tutorial:0+Practical:28+Self Study:50=120
CIE Marks: 50	SEE Marks: 50		Total Max. Marks: 100		Duration of SEE: 03 Hrs

Course Learning Objectives:	
CLO1	Learn the fundamental concepts of computers and number systems.
CLO2	Understand the organisation and operation of computer hardware components.
CLO3	Describe the role of system and application software and evaluate operating system services for efficient resource management.
CLO4	Explain the principles of data communication and compare different networking technologies and transmission media.
CLO5	Explain understanding of software engineering methodologies, software life cycle models, and quality assurance techniques

SYLLABUS	No. of Hours	BTLs
UNIT 1	9	L1-L4
Introduction to Computers: Introduction, Characteristics of Computers, Generations of Computers, The Computer System. Data Representation: Introduction, Number System, Conversion from Decimal to Binary, Octal, Hexadecimal, Conversion of Binary, Octal, Hexadecimal to Decimal, Conversion of Binary to Octal, Hexadecimal, Conversion of Octal, Hexadecimal To Binary, Binary Arithmetic, Binary Coding Schemes, Logic Gates. Textbook 1: Chapter 1.1, 1.3, 1.5, 1.7, 5.1-5.7, 5.10, 5.11		
Self Study Component	10 hours	
Difference between data and information, Binary Representations, positional and non-positional number systems, BCD Code, EBCDIC, ASCII, Unicode character encoding, Boolean Algebra and Functions.		
UNIT 2	8	L1-L4
The Computer System Hardware: Introduction, Central Processing Unit, Memory Unit, Instruction Format, Instruction Set, Instruction Cycle, Microprocessor, Interconnecting the Units of a Computer. Data Manipulation: Computer Architecture, Machine Language, Program Execution, Arithmetic/Logic Instructions, Communicating with Other Devices. Textbook 1: Chapter 2.1-2.8, Textbook 2: Chapter 2.1-2.5		
Self Study Component	10 hours	



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Basic functions of a computer, types of storage, modern multi-core processor architectures, Nonstandard Instruction set, Memory access model, understanding communication devices. Executing simple assembly level programs.		
UNIT 3	9	L1-L4
Software: Introduction, Types of software, System Software, Application Software. Operating System: Introduction, Objectives of Operating System, Types of OS, Functions of OS, Process Management, Memory Management, File Management, Device Management, Protection and Security. Textbook 1: Chapter 6.1-6.4, 7.1-7.9		
Self Study Component		10 hours
Classification of software with suitable real world examples, major functions of OS, Compare features and applications based on different OS such as Linux, Android and other OS.		
UNIT 4	8	L1-L4
Data Communications and Computer Networks: Introduction, Importance of Networking, Data Transmission Media, Data Transmission Across Media, Data Transmission and Data Networking, Computer Network, Wireless Networking. Textbook 1: Chapter 9.1-9.7		
Self Study Component		10 hours
Basic Components of Data Communication (sender, receiver, message, transmission media(twisted pair cable, coaxial cable, optical fiber) and protocol. LAN, WAN, MAN and PAN.		
UNIT 5	8	L1-L4
Software Engineering: The Software Engineering Discipline, The Software Life Cycle, Software Engineering Methodologies, Modularity, Tools of the Trade, Quality Assurance, Documentation. Textbook 2: Chapter 7.1-7.7		
Self Study Component		10 hours
Prepare a comparative study of Agile and Waterfall methodologies with suitable examples.		
PRACTICAL COMPONENTS OF IPCC		
FIXED SET OF EXPERIMENTS: Any Open-Source Office Suite (LibreOffice/OpenOffice) or Microsoft Office tools may be used to perform documentation, spreadsheet analysis, and presentation tasks associated with the laboratory experiments.		
1. Analyze the configuration of a computer system by studying processor specifications, memory organization, storage capacity, peripheral devices, and basic operating system information. Perform basic troubleshooting for common hardware and software issues, and prepare a structured technical report.		
2. Develop a technical report demonstrating number system conversions, binary arithmetic, binary coding schemes, and logic gate operations by solving representative problems and presenting the solutions using suitable tables and diagrams.		
3. Prepare a comparative study of computer architectures by analyzing CPU organization, memory hierarchy, instruction cycle, microprocessor features, and data manipulation processes, and present the findings using suitable block diagrams and illustrations.		
4. Create a professional word processor document such as a resume, newsletter, brochure, or event circular using advanced formatting and page design.		



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5.	Identify system software and application software installed on a computer, compare their features, perform installation, configuration, and uninstallation of suitable educational or productivity software, and prepare a comparative technical report.
6.	Develop worksheets using spreadsheet software to perform data entry, cell formatting, arithmetic calculations, and implementation of basic formulas and functions such as SUM, AVERAGE, MAX, MIN, and COUNT.
7.	Analyze the computer network configuration by identifying network devices, transmission media, IP configuration, Internet connectivity, and execute basic network diagnostic utilities (such as ping, ipconfig/ifconfig, tracert/traceroute), and prepare a network configuration report.
8.	Design a mini spreadsheet application for budget calculation, attendance management, inventory tracking, or student result analysis with formulas, functions, and chart generation.
9.	Prepare Software Development Life Cycle (SDLC) documentation for a simple software application including requirement analysis, flowcharts, test cases, and software quality assurance considerations.
10.	Prepare and deliver a software project presentation on a simple application by illustrating the Software Development Life Cycle (SDLC), system design, testing strategy, and software quality considerations using presentation software.

TEXT BOOKS:

1	P. K. Sinha and Priti Sinha, Computer Fundamentals, 7 th Edition, BPB Publications, 2022.
2	J. Glenn Brookshear, "Computer Science: An Overview", Addison-Wesley, 12 th Edition, 2014.

REFERENCE BOOKS:

1	Ian Sommerville, Software Engineering, Pearson Education, 10 th Edition, 2017.
2	Joan Lambert, Microsoft Office 2021 Step by Step, 1 st Edition, Microsoft Press, 2022.
3	LibreOffice Documentation Team, LibreOffice Getting Started Guide (Version 24.x), The Document Foundation, 2024 (Open Educational Resource).
4	Microsoft Office 365: In Practice, 2019 Edition, 1 st Edition ISBN10: 1260079902 ISBN13: 9781260079906, By Randy Nordell, Kathleen Stewart, Annette Easton and Pat Graves © 2020.

e-LEARNING RESOURCES:

1	Computer Fundamentals 101: https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01384787485802496055267_shared/overview
2.	Operating Systems: http://ndl.iitkgp.ac.in/he_document/inflibnet_epgp/inflibnet_epgp/IN_I_e_P_P_1_F_S_16151_P_1_D_F_17233_M_O_O_S_17277_17278



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3.	Computer Networks: http://ndl.iitkgp.ac.in/he_document/inflibnet_epgp/inflibnet_epgp/IN I e P P 1 F S 16151 P 1 D F 17233 M 0 t N a t o N 17241 17242
4.	Microsoft Office Tools: http://ndl.iitkgp.ac.in/he_document/openstax_cnx/openstax/IN O 1 W S a S 10 06 C 15 I A 2537 2538
5	LibreOffice Writer: http://ndl.iitkgp.ac.in/he_document/spokentutorial/spokentutorial/IN S T 1 L S W 722 T i E U 1 9 729

Assessment Details both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) and Semester End Exam (SEE) is 50% each. The students have to obtain a minimum of 40% marks individually in both CIE and SEE to pass. CIE: The CIE has two components – CIE - theory component and CIE laboratory component. Students have to score a minimum of 40% Marks in the total of CIE - theory and CIE – laboratory components put together, provided students have to score a minimum of 40% marks in the CIE laboratory component alone to qualify to take SEE. Theory Semester End Exam (SEE) is conducted for 100 marks (3 Hours duration) and reduced to 50 Marks.

****Self-Study Component should be included for CIE.**

CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks		Minimum Marks to be scored in CIE, to qualify to take SEE (40% individually)
Theory	Weightage of CIE1 and CIE2 Tests or CIE3	30		12
Laboratory components	Rubrics for experiments are added, then averaged	10	20	08
	Lab CIE	10		
TOTAL		50		20

QUESTION PAPER PATTERN (SEE)

Q. No.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
UNIT	1	2	3	4	5					
1. Two full questions (each of 20 Marks) are to be set from each unit.										
2. Students shall answer five full questions, selecting one full question from each unit.										

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

CO1	Explain fundamental concepts of computers and number systems.
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CO2	Describe the organization and functioning of computer hardware components.
CO3	Describe the role of system and application software and evaluate operating system services for efficient resource management.
CO4	Explain the principles of data communication and compare different networking technologies and transmission media.
CO5	Explain understanding of software engineering methodologies, software life cycle models, and quality assurance techniques.

Mapping of COs with POs with PSOs											
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	1	2	1	-	1	2	3	1	2
CO2	3	2	2	3	1	-	1	2	3	2	2
CO3	3	3	2	3	2	2	2	2	3	2	3
CO4	3	3	2	3	2	1	2	2	3	2	3
CO5	3	3	3	2	2	3	3	3	3	2	3

Mapping of COs with Knowledge and Attitude Profile (WK)									
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0									
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9
CO1	3	3	3	1	1	2	1	1	1
CO2	3	3	3	2	2	3	1	1	1
CO3	3	2	3	3	3	3	1	2	2
CO4	3	2	3	3	3	3	2	2	2
CO5	2	2	3	3	3	2	2	3	3

Course Coordinators:

Priya S,
Assistant Professor,
BCA program



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Course Title	PROGRAMMING USING C				
Course Code	1BCAT104				
Course Category	PCC (Professional Core Course)				
Teaching - Learning Scheme & Credit	L	T	P	Total Credit	Total Teaching Hours
	3	0	0	3	Lecture:42+Tutorial:0+Practical:0+Self Study:48=90
CIE Marks: 50	SEE Marks: 50		Total Max. Marks: 100		Duration of SEE: 03 Hrs

Course Learning Objectives:	
CLO1	Explain the basic concepts of C programming, algorithms, and flowcharts to solve computational problems.
CLO2	Apply operators, decision-making statements, loops, and jump statements to develop C programs for problem solving.
CLO3	Develop C programs using arrays and strings to perform data processing and manipulation.
CLO4	Design modular C programs using user-defined functions to solve computational problems efficiently.
CLO5	Develop C programs using structures and pointers for effective data organization and memory handling

SYLLABUS		No. of Hours	BTLs
UNIT 1		9	L1-L4
Algorithms and Flowcharts: Art of Programming through Algorithms & Flowcharts. Overview of C. History of C, Importance of C, Basic Structure of C Programs, Programming Style, Compiling and Executing a ‘C’ Program. Constants, Variables and Data Types: Character Set, C Tokens, Keywords and Identifiers, Constants, Variables, Data Types, Declaration of Variables, Assigning Values to Variables, Defining Symbolic Constants, Declaring Variables as Constants and Volatile, Input / Output Statements in C. Textbook1: Chapter 1. 6, 2.1, 2.2, 2.8, 2.9, 2.10, Chapter 3.2 to 3.14, Chapter 5.1 to 5.5			
Self Study Component		10 hours	
Develop an algorithm and flowchart to calculate a student's total marks, percentage and grade based on marks obtained in five subjects. Develop an algorithm and flowchart to calculate an employee's gross salary based on basic salary, HRA and DA. Design an algorithm and flowchart to calculate the monthly electricity bill based on the number of units consumed.			
UNIT 2		9	L1-L4
Operators: Introduction to Operators, Arithmetic Operators, Relational Operators, Logical Operators, Assignment Operators, Increment and Decrement Operators, Conditional Operators, Precedence of Arithmetic Operators.			



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Decision Making, Branching, Looping: Introduction, Decision Making with IF Statement, Simple IF Statement, The IF.. ELSE Statement, Nesting of IF...ELSE Statements, The ELSE IF Ladder, The Switch Statement, The?: Operator, The GOTO Statement, WHILE, DO, FOR, Jumps in LOOPS.
Textbook1: Chapter 4.1 to 4.7, 4.12, Chapter 6.1 to 6.9, Chapter 7.1 to 7.5

Self Study Component	10 hours
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Prepare the **problem statement, algorithm, flowchart and C solution for the following problems:**
ATM Transaction System: Develop an algorithm and flowchart for a simple ATM transaction system that allows a user to perform operations such as balance enquiry, cash withdrawal, cash deposit, and exit. The solution should use appropriate decision-making constructs such as switch and conditional statements to process the user's choice and display the corresponding result.
Electricity Bill Calculation: Design an algorithm and flowchart to calculate a customer's electricity bill based on the number of units consumed. Different rates can be applied for different consumption slabs using an if-else ladder. The student should identify the required variables, constants and operators and determine the total bill amount based on the applicable tariff.
Student Grade Calculator: Develop an algorithm and flowchart to calculate a student's total marks, percentage and grade based on marks obtained in multiple subjects. Relational and logical operators along with an if-else ladder can be used to determine the appropriate grade according to predefined percentage ranges. The case study should demonstrate the practical application of operators and decision-making statements in solving an educational problem.

UNIT 3	8	L1-L4
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Arrays and Strings: Introduction, Declaration and Initialization of One-dimensional and Two-Dimensional Arrays, Declaring and Initializing String Variables, Example programs using arrays, Reading Strings from Terminal, Writing Strings to Screen, Arithmetic Operations on Characters, Comparison of Two Strings, String-handling Functions.

Textbook1: Chapter 8.1 to 8.6, Chapter 9.2 to 9.5, 9.7, 9.8

Self Study Component	9 hours
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Solve the following case studies:
Student Marks Analysis: Study a problem where marks of students in multiple subjects are stored in arrays. Calculate total marks, average, highest and lowest marks, and identify students who have achieved the required performance level.
Employee Information Management: Study a simple employee information system using arrays and strings to store employee names, employee IDs, departments and salaries. Perform operations such as searching for an employee, comparing names and displaying employee information.
Text Analysis System: Study a text-processing problem in which a sentence is accepted as input and analysed to determine the number of characters, words, vowels and occurrences of a particular character or word using character arrays and string-handling functions.

UNIT 4	8	L1-L4
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User-defined Functions: Introduction, Need for User-defined Functions, A Multi-functional Program, Elements of User-defined Functions, Definition of Function, Return Values and their Types, Function Calls, Function Declaration, No Arguments and no Return Values, Arguments but no Return Values, Nesting of Functions.

Textbook1: Chapter 10.1 to 10.8, 10.10 to 10.14



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Electricity Bill Calculator: Design a function-based solution for calculating an electricity bill. Separate functions can be used for reading units, calculating the bill based on consumption slabs and displaying the final amount. Students should identify the function declarations, parameters and return values required for the solution.

Self Study Component

10 hours

Solve the following case studies:

Student Result Processing System: Study a program design in which separate functions are used to calculate total marks, percentage, grade and display the result. Students should identify suitable arguments and return values for each function and explain how the functions work together.

Banking Transaction System: Analyse a simple banking application divided into functions such as deposit, withdrawal, balance enquiry and account information. Students should determine which functions require arguments and which functions should return values, demonstrating modular program design.

UNIT 5

8

L1-L4

Structures and Pointers: Introduction, defining a Structure, declaring and Accessing Structure Variables and Members, Structure Initialization, Copying and Comparing Structure Variables, Array of Structures, Arrays within Structures.

Pointers: Introduction, Understanding Pointers, Accessing the Address of a Variable, Declaring Pointer Variables, initialization of Pointers, Accessing Variables through their pointers.

Textbook1: Chapter 11.1 to 11.6, 11.8, 11.19, Chapter 12.1 to 12.6

Self Study Component

9 hours

Solve the following case studies:

Student Record Management: Study a problem where student information such as student ID, name, marks and percentage is represented using a structure. An array of structures can be used to store records of multiple students, while pointers can be explored for accessing and updating individual records.

Employee Payroll System: Analyse an employee payroll system using structures to store employee ID, name, department and salary details. Students can study how an array of structures manages multiple employees and how pointers can be used to access structure members efficiently.

Library Book Management: Study a simple library system where book ID, title, author and availability status are stored using structures. An array of structures can represent multiple books, while pointers can be used to access and modify individual book records.

TEXT BOOKS:

1. E Balaguruswamy, Programming in ANSI C, 9e, , Tata McGraw Hill Education, 2024.

REFERENCE BOOKS:

1. Reema Thareja, PROGRAMMING IN C, Oxford University, 3rd Edition, 2023.
2. Brian W. Kernighan and Dennis M. Ritchie, The 'C' Programming Language,



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e-LEARNING RESOURCES:

1.	Problem Solving through Programming in C: https://nptel.ac.in/courses/106105171
2.	C for Everyone, Part 1: Programming Fundamentals: https://www.coursera.org/learn/c-for-everyone
3.	C Tutorial: https://www.w3schools.com/c/
4.	Interactive C tutorial: https://www.learn-c.org/

Assessment Details both (CIE and SEE)

The weightage assigned to the Continuous Internal Evaluation (CIE) and Semester End Examination (SEE) is 50% each.

To pass the course, students must secure a minimum of 40% marks separately in both CIE and SEE.

Continuous Internal Evaluation (CIE)

The CIE consists of two components:

1. CIE – Theory Component
2. Assignment
3. Group Activity

Students must secure a minimum of 40% marks in the combined total of the CIE Theory, Assignment, and Group Activity components to qualify for appearing in the SEE.

Semester End Examination (SEE)

The Theory SEE is conducted for 100 marks with a duration of 3 hours. The marks obtained are subsequently scaled down to 50 marks for calculating the final course grade.

The student must secure a minimum of 40% marks in the SEE to pass the course.

****Self-Study Component should be included for CIE.**

CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks to be scored in CIE, to qualify to take SEE (40% individually)
Theory	Weightage of CIE1 and CIE2 Tests or CIE3	40	20
	Assignment	05	
	Group Activity	05	
TOTAL		50	

QUESTION PAPER PATTERN (SEE)

Q. No.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
UNIT	1	2	3	4	5					
1. Two full questions (each of 20 Marks) are to be set from each unit.										
2. Students shall answer five full questions, selecting one full question from each unit.										



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Course Outcomes:	
CO1	Apply algorithms, flowcharts, and basic concepts of C programming.
CO2	Apply operators, decision-making statements, looping constructs, and jump statements.
CO3	Develop programs using arrays and strings.
CO4	Develop user-defined functions to modularize the solution to the given problems.
CO5	Develop programs using structures and pointers for efficient programming and data handling.

Mapping of COs with POs with PSOs											
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO3
CO1	3	2	2	1	2	–	–	–	3	1	2
CO2	3	3	3	1	2	–	–	–	3	1	2
CO3	2	3	3	2	2	–	–	–	3	2	2
CO4	2	3	3	2	3	–	–	–	3	2	3
CO5	2	3	3	2	3	–	–	1	3	3	3

Mapping of COs with Knowledge and Attitude Profile (WK)										
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0										
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	
CO1	–	3	3	1	–	2	–	–	–	
CO2	–	3	3	2	1	2	–	–	–	
CO3	–	3	2	3	1	2	–	1	–	
CO4	–	2	2	3	2	3	–	1	–	
CO5	–	2	2	3	2	3	–	1	1	

Course Coordinators:

Dr. Dharani N V,
Assistant Professor,
MCA program



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Scheme: 2026

Course Title	FUNDAMENTALS OF MATHEMATICS				
Course Code	1BCAT105				
Course Category	PCC (Professional Core Course)				
Teaching - Learning Scheme & Credit	L	T	P	Total Credit	Total Teaching Hours
	3	0	0	3	Lecture:42+Tutorial:0+Practical:0+Self Study:48=90
CIE Marks: 50	SEE Marks: 50		Total Max. Marks: 100		Duration of SEE: 03 Hrs

Course Learning Objectives:	
CLO1	Understand number systems, logarithms, and algebraic techniques to solve linear, quadratic, and simultaneous equations.
CLO2	Apply Perform matrix operations, evaluate determinants, compute inverses, and solve systems of linear equations using matrix methods.
CLO3	Analyze sets, relations, and functions to model mathematical and computational problems.
CLO4	Apply counting principles, permutations, combinations, and probability concepts to solve real-life and computing-related problems.
CLO5	Apply differential calculus to evaluate limits, derivatives, and solve optimization problems involving maxima and minima.

SYLLABUS	No. of Hours	BTLs
UNIT 1	8	L1-L4
Basic Algebra: Number systems and operations- binary numbers, number-based conversion, Octal and hexadecimal numbers, Indices and logarithms. Equations: Linear and quadratic equations, Simultaneous equations containing two and three unknowns.		
Self Study Component	9 hours	
Natural Numbers, Binary representation of numbers, Binary Operations, Basic laws of exponents and logarithms, Simple Factorization.		
UNIT 2	8	L1-L4
Matrices and Determinants: Matrices-Introduction to matrices, types of matrices, Matrix operations, transpose. Determinants- Evaluation of determinants of order (2×2 and 3×3), Minors, Cofactors, Adjoin and inverse of a matrix of order (2×2 and 3×3).		
Self Study Component	10 hours	
Basic terminology(order, elements), Different types of Matrices (row, column, scalar, diagonal, square, identity, zero and triangular matrices), important properties of matrix.		
UNIT 3	8	L1-L4
Set Theory and Functions: Set Theory- operations on sets, power set, Venn diagram, Cartesian product, relations. Functions: Domain and Range, types of functions, composite and inverse functions		
Self Study Component	10 hours	



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Concepts of Prime numbers, even/odd integers, divisibility Rules, and interval notation (open and closed)Universal Quantification(for all) and existential quantification(there exists). Multiplication and addition rules.		
UNIT 4	9	L1-L4
Probability: Principle of counting, Permutation, Combination, Basic terminologies of probability, Probability and set notations, Addition and multiplication laws of probability, conditional probability and Bayes’ Theorem.		
Self Study Component	10 hours	
Factorial Notation, Algebraic manipulation of Fractions, Ratios, and Percentages, Solving single variable linear equations, Sum Rule and Product Rule ,Logic Axiomatic Relations.		
UNIT 5	9	L1-L4
Differential calculus: Functions and limits -Simple Differentiation of Algebraic Functions – Evaluation of first- and second-order derivatives– Maxima and Minima.		
Self Study Component	9 hours	
Concept of Domain, Range, Inputs and Outputs, Exponents and Radicals.		

TEXT BOOKS:	
1	B. S. Grewal, Higher Engineering Mathematics, 45th Edition, Khanna Publishers.
2	R. S. Aggarwal, Quantitative Aptitude, S. Chand Publishing.
3	H. K. Dass and Er. Rajnish Verma, Higher Engineering Mathematics, S. Chand Publishing.

REFERENCE BOOKS:	
1	Erwin Kreyszig, Advanced Engineering Mathematics, 10 th Edition, Wiley India.
2	Seymour Lipschutz and Marc Lipson, Schaum's Outline of Linear Algebra, McGraw-Hill.
3	Kenneth H. Rosen, Discrete Mathematics and Its Applications, 8 th Edition, McGraw-Hill.

e-LEARNING RESOURCES:	
1	Engineering Mathematics – NPTEL: https://nptel.ac.in/courses/111106101
2	Discrete Mathematics – NPTEL: https://nptel.ac.in/courses/106106183
3	Probability and Statistics – NPTEL: https://nptel.ac.in/courses/111105041
4	SWAYAM – https://swayam.gov.in



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Assessment Details for both CIE and SEE

The weightage assigned to the Continuous Internal Evaluation (CIE) and Semester End Examination (SEE) is 50% each.

To pass the course, students must secure a minimum of 40% marks separately in both CIE and SEE.

Continuous Internal Evaluation (CIE)

The CIE consists of two components:

1. CIE – Theory Component
2. Assignment
3. Group Activity

Students must secure a minimum of 40% marks in the combined total of the CIE Theory, Assignment, and Group Activity components to qualify for appearing in the SEE.

Semester End Examination (SEE)

The Theory SEE is conducted for 100 marks with a duration of 3 hours. The marks obtained are subsequently scaled down to 50 marks for calculating the final course grade.

The student must secure a minimum of 40% marks in the SEE to pass the course.

****Self-Study Component should be included for CIE.**

CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks Required in CIE to Qualify for SEE (40% individually)
Theory	Weightage of CIE-1 and CIE-2 or CIE-3	40	20
	Assignment	05	
	Group Activity	05	
	TOTAL	50	

QUESTION PAPER PATTERN (SEE)

Q. No.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
UNIT	1		2		3		4		5	
1. Two full questions (each of 20 Marks) are to be set from each unit.										
2. Students shall answer five full questions, selecting one full question from each unit.										

Course Outcomes:

CO1	Apply number systems, logarithms, and algebraic techniques to solve linear, quadratic, and simultaneous equations.
CO2	Perform matrix operations, evaluate determinants, compute inverses, and solve systems of linear equations using matrix methods.
CO3	Analyze sets, relations, and functions to model mathematical and computational problems.
CO4	Apply counting principles, permutations, combinations, and probability concepts to solve real-life and computing-related problems.



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CO5	Apply differential calculus to evaluate limits, derivatives, and solve optimization problems involving maxima and minima.
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Mapping of COs with POs with PSOs											
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO1	PSO2	PSO3
CO1	3	2	1	1	1	–	–	–	2	2	1
CO2	3	3	2	2	2	–	–	–	3	3	2
CO3	3	3	3	2	2	–	–	–	3	3	2
CO4	3	3	2	2	2	1	–	–	3	3	2
CO5	3	3	3	2	2	–	–	–	3	3	2

Mapping of COs with Knowledge and Attitude Profile (WK)										
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0										
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	
CO1	–	3	2	1	–	1	–	–	–	
CO2	–	3	3	2	1	2	–	1	–	
CO3	–	3	3	3	2	2	–	1	–	
CO4	–	3	3	3	2	2	1	1	–	
CO5	–	3	3	3	2	2	–	1	–	

Course Coordinators:

Priya S,
Assistant Professor,
BCA Programme,



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Semester: I

Scheme: 2026

Course Title	FUNDAMENTALS OF ACCOUNTANCY				
Course Code	1BCAT106				
Course Category	PCC (Professional Core Course)				
Teaching - Learning Scheme & Credit	L	T	P	Total Credits	Total Teaching Hours
	3	0	0	3	Lecture:42+Tutorial:0+ Practical:0+Self Study:48=90
CIE Marks: 50	SEE Marks: 50		Total Max. Marks:100		Duration of SEE: 03 Hrs

Course Learning Objectives:	
CLO1	Explain the fundamentals of accounting principles and systems.
CLO2	Prepare journal entries, ledger accounts, and trial balance.
CLO3	Record transactions using subsidiary books and negotiable instruments.
CLO4	Prepare Bank Reconciliation Statements and classify capital and revenue items.
CLO5	Prepare final accounts with necessary adjustments.

SYLLABUS	No. of Hours	BTLs
UNIT 1	9 hours	L1-L4
Meaning and Scope of Accounting: Need for Accounting, Development of Accounting, Definition and Functions of Accounting, Book-Keeping and Accounting, Is Accounting a ‘Science’ or an ‘Art’?, End Users of Accounting Information, Accounting and Other Disciplines, Role of the Accountant, Accountants’ Services, Branches of Accounting, Difference between Management Accounting and Financial Accounting, Objectives of Accounting, Outsourcing of Accounting Function, Accounting as an Information System. Accounting Principles: Meaning of Accounting Principles, Accounting Concepts, Accounting Conventions, Accounting Standards and International Accounting Standards Committee/Board, Accounting Principles and the Institute of Chartered Accountants of India, Applicability of Accounting Standards, AS 1: Disclosure of Accounting Policies, IFRS—Convergence in India, Indian Accounting Standard (Ind AS) 1, Difference between AS 1 and Ind AS 1 Regarding Accounting Principles, Systems of Book-Keeping, Systems of Accounting. Textbook 1: Chapters 1, 2.		
Self Study Component	10 hours	
Basic Financial Terms, Business Transactions, Basic Arithmetic Skills; Students can observe a simple business such as a shop or small enterprise, identify its assets, liabilities, income, expenses, and transactions, and prepare a basic list of financial activities		
UNIT 2	8 hours	L1-L4
Journalizing Transactions: Journal, Rules of Debit and Credit, Compound Journal Entry, Opening Entry. Ledger Posting and Trial Balance: Ledger, Posting, Rules Regarding Posting, Trial Balance. Textbook 1: Chapter 3, 4		



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Self Study Component		10 hours
Record the following transactions of any small Traders in the Journal and prepare the Trial Balance. -Prepare the Journal Entries. -Post the entries into the Ledger. - Prepare the Trial Balance.		
UNIT 3		L1-L4
Sub-Division of Journal: Need to Sub-Divide the Journal, Types of Journal, Cash Journal, Petty Cash Book, Purchases Journal, Sales Journal, sales returns journal, purchases returns journal. Negotiable Instruments: Promissory Note, Bill of Exchange, Cheque, Some Important Terms, Accounting Entries, Bills Sent for Collection, Accommodation Bills, Bills Receivable and Payable Books. Textbook 1: Chapter 5, 6		
Self Study Component		9 hours
Types of Business Transactions, understand the meaning of cash and bank transactions, Basic terms of Credit Transactions, Basic banking concepts.		
UNIT 4		L1-L4
Bank Reconciliation Statement: Advantages of Keeping a Bank Account, Causes of Difference, Meaning and Objective of Bank Reconciliation Statement, Importance of Bank Reconciliation Statement, Technique of Preparing Bank Reconciliation Statement. Matching Concept: Learning Objectives, Components of Matching, Problems in Matching, Period of Recognition, and Determination of the Amount of Expense, AS 9—Revenue Recognition. Capital and Revenue: Learning Objectives; Classification of Income; Classification of Expenditure; Classification of Receipts. Textbook 1: Chapter 7, 8, 9		
Self Study Component		9 hours
Prepare the Bank Reconciliation Statement and determine the adjusted bank balance for small traders. -Identify the components of the Matching Concept in the given transactions. -Classify each expenditure as capital expenditure or revenue expenditure. -Classify the receipts and income into appropriate categories.		
UNIT 5		L1-L4
FINAL ACCOUNTS: Trading Account, Profit and Loss Account, Manufacturing Account, Balance Sheet, Adjustment Entries, Work Sheet. Textbook 1: Chapter 10		
Self Study Component		10 hours
Identify which items belong to the Manufacturing Account, Trading Account, Profit and Loss Account, and Balance Sheet for a Manufacturing company. -Pass the necessary adjustment entries. -Prepare the final accounts. -Prepare a worksheet showing the effect of adjustments on the financial statements.		



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TEXT BOOKS:

1	Dr. S N Maheshwari, Dr. Suneel K Maheshwari, CA Sharad K Maheshwari, Advanced Accountancy; Volume I, 11 th Revised & Enlarged Edition, Vikas Publishing House Pvt Ltd, 2023.
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REFERENCE BOOKS:

1	S. P. Jain and K. L. Narang, Financial Accounting, 9th Edition, Kalyani Publishers, 2021.
2	T. S. Reddy and A. Murthy, Financial Accounting, 6 th Edition, Margham Publications, 2021.
3	Mike Piper, Accounting Made Simple: Accounting Explained in 100 Pages or Less, Simple Subjects, LLC, 2022.

e-LEARNING RESOURCES:

1	S. P. Jain and K. L. Narang, Financial Accounting, 9th Edition, Kalyani Publishers, 2021.
2	T. S. Reddy and A. Murthy, Financial Accounting, 6 th Edition, Margham Publications, 2021.
3	Mike Piper, Accounting Made Simple: Accounting Explained in 100 Pages or Less, Simple Subjects, LLC, 2022.

Assessment Details for both CIE and SEE

The weightage assigned to the Continuous Internal Evaluation (CIE) and Semester End Examination (SEE) is 50% each.

To pass the course, students must secure a minimum of 40% marks separately in both CIE and SEE.

Continuous Internal Evaluation (CIE)

The CIE consists of two components:

1. CIE – Theory Component
2. Assignment
3. Group Activity

Students must secure a minimum of 40% marks in the combined total of the CIE Theory, Assignment, and Group Activity components to qualify for appearing in the SEE.

Semester End Examination (SEE)

The Theory SEE is conducted for 100 marks with a duration of 3 hours. The marks obtained are subsequently scaled down to 50 marks for calculating the final course grade.

The student must secure a minimum of 40% marks in the SEE to pass the course.

****Self-Study Components should be included for CIE.**

CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks Required in CIE to Qualify for SEE (40% individually)
Theory	Weightage of CIE-1 and CIE-2 or CIE-3	40	20
	Assignment	05	



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Group Activity	05	
TOTAL	50	

QUESTION PAPER PATTERN (SEE)										
Q. No.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
UNIT	1		2		3		4		5	
1. Two full questions (each of 20 Marks) are to be set from each unit.										
2. Students shall answer five full questions, selecting one full question from each unit.										

Course Outcomes:	
CO1	Explain the fundamentals of accounting principles and systems.
CO2	Prepare journal entries, ledger accounts, and trial balance.
CO3	Record transactions using subsidiary books and negotiable instruments.
CO4	Prepare Bank Reconciliation Statements and classify capital and revenue items.
CO5	Prepare final accounts with necessary adjustments.

Mapping of COs with POs with PSOs											
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO1	PSO2	PSO3
CO1	3	2	1	1	1	2	0	2	3	2	1
CO2	3	3	2	2	2	1	0	1	3	3	2
CO3	3	3	2	2	2	1	0	1	3	3	2
CO4	3	3	3	2	2	2	0	1	3	3	2
CO5	3	3	3	3	2	2	0	1	3	3	2

Mapping of COs with Knowledge and Attitude Profile (WK)										
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0										
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	
CO1	3	3	2	2	1	2	1	2	1	
CO2	3	3	3	2	1	2	1	2	2	
CO3	3	3	3	2	2	2	1	2	2	
CO4	3	3	3	2	2	2	1	2	2	
CO5	3	3	3	2	2	3	1	3	3	

Course Coordinators:

Priya S ,
Assistant Professor,
BCA program



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Course Title	PROGRAMMING USING C LAB				
Course Code	1BCAL107				
Course Category	LABORATORY				
Teaching - Learning Scheme & Credit	L	T	P	Total Credit	Total Teaching Hours
	1	0	2	2	Lecture:14+Tutorial:0+Practical:28+Self Study:18=60
CIE Marks: 50	SEE Marks: 50		Total Max. Marks: 100		Duration of SEE: 03 Hrs

Course Learning Objectives:	
CLO1	Write and execute basic C programs using variables and input/output operations.
CLO2	Implement conditional statements and loops to solve simple logic problems.
CLO3	Develop programs using arrays and built-in string functions.
CLO4	Design modular code using custom user-defined functions.
CLO5	Build programs using structures and pointers for simple data handling.

SYLLABUS	
PART – A	
FIXED SET OF EXPERIMENTS	
1	Write a menu driven C program to calculate either the area of a circle, area of a rectangle, or area of a triangle and print the results on the screen.
2	Write a menu-driven C program that takes two numbers and lets the user choose to either find the largest of the two numbers or check if the first number is Even or Odd.
3	Write an interactive C program that displays the multiplication table of a number chosen by the user and continues to do so until user decides to exit.
4	Write a C program to store the marks of 5 subjects of a student in a one-dimensional array. Calculate and display the total marks, average marks, and highest marks scored.
5	Write a C program to read a user's first name. Use built-in string functions to find the length of the name, copy it to a backup variable. Reverse the characters of the name and find whether it is palindrome or not.
6	Write a modular C program with user-defined functions to demonstrate Pass by Value and Pass by Reference.
SELF-STUDY COMPONENT	
9 Hours	
Practice developing menu-driven C programs using switch loops, arrays, strings, and functions. Explore different decision-making and looping techniques through simple programming exercises. Practice will include array operations, string manipulation, and palindrome checking. Students will also implement user-defined functions to understand pass by value and pass by reference.	
PART – B	
OPEN ENDED EXPERIMENTS	



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1	Design a student grading system that accepts marks for five subjects, calculates and prints the total percentage, and evaluates the final status as "Fail" if any subject mark falls below 40, or "Pass" otherwise.
2	Design a menu-driven four-function calculator system that continuously processes arithmetic operations (+, -, *, /) inside a loop until the user explicitly enters a specific value (such as 0) to terminate the program.
3	Design an array-based system to store 'n' integers, search for a user-inputted target number, and determine its existence along with its total count.
4	Design a modular banking management system initialized with a starting balance of Rs. 1000, utilizing distinct user-defined functions for deposit() and withdraw() to dynamically update and display the account balance based on user interaction.
5	Design a data management system using an array of structures to store and process records for 'n' entities (such as students or employees), enabling users to input data and display the complete registry in a tabular format.
6	Design a banking utility to manage two separate account balances, utilizing a pointer-based user-defined function to safely transfer a specified fund amount from one account directly into the other.
Self Study Component	
9 hours	
Understanding of user-defined functions and modular programming through practical applications such as grading and banking systems. Additional exercises will include searching arrays, processing records, and performing transactions using pointers.	
Recommended Platform for Execution of Programs:	
• Text Editor: Any suitable text editor • Compiler: GCC (GNU Compiler Collection) • Debugger: GNU Debugger (GDB)	
Program development IDEs such as Code::Block, Visual Studio Code shall be avoided.	

TEXT BOOKS:

1	E Balaguruswamy, Programming in ANSI C, 9 th edition, Tata McGraw Hill Education, 2024.
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REFERENCE BOOKS:

1	Brian W. Kernighan and Dennis M. Ritchie, The 'C' Programming Language, 2 nd Edition, Prentice Hall of India, 2015.
2	Yashavanth Kanetkar, Let us C, Authentic Guide to C Programming Language, bpb publisher, 17th Edition, 2020.
3	Reema Thareja, Computer Fundamentals and Programming in C, 2 nd Edition, 2016.



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e-LEARNING RESOURCES:

1	Interactive C tutorial: https://www.learn-c.org/
2	Problem Solving through Programming in C: https://nptel.ac.in/courses/106105171
3	C for Everyone, Part 1: Programming Fundamentals: https://www.coursera.org/learn/c-for-everyone
4	C Tutorial: https://www.w3schools.com/c/

Assessment Details for both CIE and SEE

The weightage of Continuous Internal Evaluation (CIE) and Semester End Exam (SEE) is 50% each. The students have to obtain a minimum of 40% marks individually both in CIE and SEE to pass .CIE:

CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks Required in CIE to Qualify for SEE (40% individually)
Laboratory Components	Each experiment will be evaluated using the prescribed rubrics and the average of the marks obtained across all experiments will be considered for the final evaluation.	10	20
	Lab CIE	40	
TOTAL		50	

SEMESTER END EXAMINATION(SEE)

The student must secure a minimum of 40% marks in the SEE to pass the course.

Practical Examination Guidelines

- All laboratory experiments shall be included for the practical examination.
- The instructions and marks breakup printed on the cover page of the answer script shall be strictly adhered to by the examiners.
- Students shall be allowed to randomly select any one experiment from the given lot.
- Change of the selected experiment shall be permitted only once.
- Any change of experiment shall attract mark deduction as per the Dr. AIT Autonomous Examination Rules and Regulations.

Course Outcomes:

CO1	Write and execute basic C programs using variables and input/output operations.
CO2	Implement conditional statements and loops to solve simple logic problems.
CO3	Develop programs using arrays and built-in string functions.
CO4	Design modular code using custom user-defined functions.
CO5	Build programs using structures and pointers for simple data handling.



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Mapping of COs with POs with PSOs											
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO1	PSO2	PSO3
CO1	3	2	1	1	2	—	—	—	3	1	2
CO2	3	3	3	2	2	—	—	—	3	1	2
CO3	3	3	3	2	2	—	—	—	3	2	2
CO4	3	3	3	2	3	—	—	—	3	2	3
CO5	3	3	3	2	3	—	—	—	3	3	3

Mapping of COs with Knowledge and Attitude Profile (WK)									
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0									
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9
CO1	—	3	3	1	—	2	—	—	—
CO2	—	3	3	2	1	2	—	—	—
CO3	—	3	2	3	1	2	—	1	—
CO4	—	2	2	3	2	3	—	1	—
CO5	—	2	2	3	2	3	—	1	1

Course Coordinators:

**Priya S,
Assistant Professor,
BCA program**



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Course Title	ENVIRONMENTAL STUDIES				
Course Code	1BCAT108				
Course Category	VAC (Value Added Course)				
Teaching - Learning Scheme & Credit	L	T	P	Total Credit	Total Teaching Hours
	1	0	0	1	Lecture:14+Tutorial:0+Practical:0+Self Study:16=60
CIE Marks: 50 Objective type (MCQ)	SEE Marks: 50 Objective type (MCQ)		Total Max. Marks: 100		Duration of SEE: 01 Hrs (MCQ)

Course Learning Objectives:	
CLO1	To explore methods for the sustainable use and conservation of resources such as water, soil, minerals, and biodiversity.
CLO2	To explore the social, economic, and ethical dimensions of environmental issues.
CLO3	To provide an understanding of the structure and function of natural ecosystems and the relationships between organisms and their environment.
CLO4	To understand the impact of human activities on the environment, including urbanization, industrialization, deforestation, and climate change.
CLO5	To provide an understanding of the structure and function of natural ecosystems and the relationships between organisms and their environment.

SYLLABUS	No. of Hours	BTLs
UNIT 1	3	L1-L4
Introduction to Environmental Studies: Multidisciplinary nature of environmental studies. Scope and importance; Concept of sustainability and sustainable development. Ecosystems: What is an ecosystem? Structure and function of an ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems: • Forest ecosystem • Grassland ecosystem • Desert ecosystem • Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries) • Natural Resources: Renewable and Non-Renewable Resources Land resources and land-use change: Land degradation, soil erosion and desertification. Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (International & Inter-state). Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies.		
SELF STUDY COMPONENT	3 Hours	



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Study case studies on forest, grassland, desert, and aquatic ecosystems, and understand their structure, functions, energy flow, and ecological succession. Review resources on renewable and non-renewable resources, land degradation, soil erosion, desertification, deforestation, water scarcity, floods, droughts, and energy conservation. Examine case studies on the environmental impacts of mining, dams, deforestation, over-exploitation of water resources, and growing energy demands.		
UNIT 2	3	L1-L4
Biodiversity and Conservation: Levels of biological diversity: Genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hotspots. India as a mega-biodiversity nation; Endangered and endemic species of India. Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.		
SELF STUDY COMPONENT		4 Hours
Study the different levels of biodiversity—genetic, species, and ecosystem diversity—and explore the biogeographic zones and biodiversity hotspots of India. Study the ecological, economic, social, ethical, aesthetic, and informational values of ecosystem and biodiversity services. Maintain a learning journal or submit a brief summary highlighting important biodiversity issues, conservation strategies, and examples of successful conservation practices in India.		
UNIT 3	3	L1-L4
Environmental Pollution: Types, causes, effects and controls; Air, water, soil and noise pollution. Nuclear hazards and human health risks. Solid waste management, Control measures for urban and industrial waste. Pollution case study system; Banking complaints and Ombudsman.		
SELF STUDY COMPONENT		3 Hours
Explore learning resources from MoEFCC, UNEP, WWF, National Geographic, NPTEL, or SWAYAM on biodiversity, wildlife conservation, endangered and endemic species, and ecosystem services. Study the different levels of biodiversity—genetic, species, and ecosystem diversity—and explore the biogeographic zones and biodiversity hotspots of India.		
UNIT 4	4	L1-L4
Environmental Policies and Practices: Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture. Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and Control of Pollution) Act; Wildlife (Protection) Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD). Nature reserves, tribal populations and rights, and human-wildlife conflicts in Indian context.		
SELF STUDY COMPONENT		3 Hours
Review the major provisions and objectives of important Indian environmental laws, including the Environment (Protection) Act, Air Act, Water Act, Wildlife (Protection) Act, and Forest (Conservation) Act.		



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Learn about **tribal populations, forest rights, conservation challenges, and human–wildlife conflicts** in India through relevant case studies.

UNIT 5	4	L1-L4
Human Communities and the Environment: Human population growth: Impacts on environment, human health and welfare. Resettlement and rehabilitation of project-affected persons; case studies. Disaster management: Floods, earthquakes, Cyclones and Landslides. Environmental movements: Chipko, Silent Valley, Bishnois of Rajasthan. Environmental ethics: Role of Indian and other religions and cultures in environmental conservation. Environmental communication and public awareness, case studies (e.g., CNG vehicles in cities).		
SELF STUDY COMPONENT	3 Hours	
Review major environmental movements in India , such as the Chipko Movement, Silent Valley Movement, and Bishnoi conservation tradition , and understand their contribution to environmental protection. Maintain a learning journal or submit a brief summary highlighting major environmental challenges, disaster-management practices, environmental movements, ethical values, and successful public-awareness initiatives.		

TEXT BOOKS:

1	Bharucha, E. (2015). Textbook of Environmental Studies.
2	Carson, R. (2002). Silent Spring. Houghton Mifflin Harcourt.
3	Climate Change: Science and Politics. (2021). Centre Science and Environment, New Delhi.
4	Gadgil, M., & Guha, R. (1993). This Fissured Land: An Ecological History of India. Univ. of

Assessment Details for both CIE and SEE

- The weightage assigned to the Continuous Internal Evaluation (CIE) and Semester End Examination (SEE) is 40% each.
- To pass the course, students must secure a minimum of 40% marks separately in both CIE and SEE.
- To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks.
- To pass the SEE, a student must score at least 40% of 50 marks, i.e., 20 marks.
- The question paper pattern is Objective Type (MCQ) with maximum of 25 marks for CIE and maximum marks for SEE is 50 marks.
- Self-Study Component should be included for CIE**

CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks Required in CIE to Qualify for SEE (40% individually)
Theory	Weightage of CIE-1 and CIE-2 or CIE-3	40	20
	Assignment	05	
	Group Activity	05	
	TOTAL	50	



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Course Outcomes:	
CO1	To understand the roles and responsibilities of various stakeholders in environmental management and policy-making.
CO2	To teach the principles and practices of natural resource conservation and management.
CO3	To provide an understanding of the structure and function of natural ecosystems and the relationships between organisms and their environment.
CO4	To analyze the impact of human activities on the environment, including urbanization, industrialization, deforestation, and climate change.
CO5	Develop environmental awareness and communication strategies based on environmental ethics, Indian and other cultural values, and case studies such as CNG vehicles in cities.

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO 1	PSO 2	PSO3
CO1	-	-	3	-	-	-	-	-	-	-	3
CO2	-	-	3	-	-	-	-	-	-	-	3
CO3	-	-	3	-	3	-	-	-	-	-	3
CO4	-	-	2	-	-	-	-	3	-	-	3
CO5	-	-	2	-	-	-	-	3	-	-	3

Mapping of COs with Knowledge and Attitude Profile (WK)										
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0										
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	
CO1	2	2	3	1	1	2	2	2	3	
CO2	3	3	3	3	3	3	2	2	3	
CO3	2	1	2	2	1	2	3	2	3	
CO4	3	3	3	3	3	3	2	2	3	
CO5	3	3	3	3	3	3	3	3	3	

Course Coordinators

Nagarathna M L,
Assistant Professor,
School of HSS



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Course Title	PLACEMENT TRAINING				
Course Code	1BCDN109				
Course Category	NCMC (Non Credit Mandatory Course)				
Teaching - Learning Scheme & Credit	L	T	P	Total Credit	Total Teaching Hours
	2	0	0	0	Lecture:28+Tutorial:0+Practical:0 +Self Study:0=28
CIE Marks: 50 Objective type (MCQ)	-		Total Max. Marks: 50		-

Course Learning Objectives:	
CLO1	To enable the students to plan their career on correct measures and motivate them to set their goals on prior basis.
CLO2	To develop the personality skills of the students and teach them to lead a corporate discipline nurture.
CLO3	To develop overcoming ability of students dealt in stress and it also teaches the punctuality and time managing.
CLO4	To help students make inferences and predictions about spoken, writing & listening discourse.
CLO5	To prepare for Verbal Ability, stick to the rule of – concepts first and practice later. Study English grammar to understand the concepts.

SYLLABUS	No. of Hours	BTLs
UNIT 1	6	L1-L4
Self-awareness and Self-confidence: Knowing your own self, Knowing others, Working well with others, Knowing personal attitudes, Developing the right attitude for work, Being proactive & positive. Goal Settings: Importance of goal, Creating SMART goals, Action plan to meet goals, Tips for effective execution of goals Career Planning: Qualities of an Engineer, available opportunities for Engineering graduates, Avenues and Skills.—(GA)- Role play on self-introduction, strengths and weakness 2) Improve my GPA to 3.5, Make new friends on Campus		
UNIT 2	6	L1-L4
Building Personality and Discipline: Personality Building, Types of Personality, Ways of developing personality, 3 types of discipline, Advantages of being disciplined Mindful Grooming and Cleanliness: Expectations from the industry, Building personal presence, Corporate grooming, Types and Impact of Grooming, Tips on Personal Grooming..—(GA)- Understanding on Dress Etiquettes (Debate-Role Play) Attitude and Behavior: Types & Structures of Attitudes, Personal & Positive Attitudes		
UNIT 3	6	L1-L4
Emotional intelligence Quotient: Types of emotional quotient, Signs of emotional intelligence, Characteristics of emotional intelligence, Ways to increase EQ Time Management: Importance of time, Time Management Matrix, Tips for managing time effectively, Prioritizing. Stress Management: Causes, Types & Symptoms of stress Writing Skills: Importance of Writing Skills, Dos & DON'T's of		



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Writing Skills, Ways to improve writing skills, Tips for writing skills. Reading Skills: Dos & Don'ts of good reading, Improve your reading skills.--(GA)- Read and Respond- Passage: -5 Questions (1 mark each):

UNIT 4	4	L1-L4
Listening Skills: Hearing & Listening, Barriers to Listening, Active Listening Skills & Importance of listening Speaking Skills: Basics of Speaking skills, 7 C's for Better Speaking, Types of Speaking & Elements of public speaking.-(GA)- Presentation on a particular topic on writing skills, Escape the Classroom, The Survival Challenge		
UNIT 5	4	L1-L4
Leadership skills and motivation: Attributes of a leader, Leadership Styles, Key Characteristics---(GA) Quiz, Word Relay (The Verbal Challenge Common mistakes in English, Classic Indianisms, Course of action, Cause and effect.		

TEXT BOOKS:

1	Soft skills for Managers by Dr. T. KALYANA CHAKRAVATHI
2	Personal Development and Soft Skills by BARUN K MITRA, Oxford Higher Education
3	The Emotionally Intelligent Workplace by DANIEL GOLEMAN.
4	Communication skills and soft skills an integrated approach by E. SURESH KUMAR, P.
5.	Top Talking in English (international communication skills) by CHARLES T. RAJENDRA
6.	Soft skills by RAJ LAKSHMI SURYAVANSHI, Gurucool Publishing

Assessment Details for both CIE and SEE

- The weightage assigned to the Continuous Internal Evaluation (CIE) and Semester End Examination (SEE) is 40% each.
- To pass the course, students must secure a minimum of 40% marks separately in both CIE and SEE.
- To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks.
- To pass the SEE, a student must score at least 40% of 50 marks, i.e., 20 marks.
- The question paper pattern is Objective Type (MCQ) with maximum of 25 marks for CIE and maximum marks for SEE is 50 marks.

CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks Required in CIE to Qualify for SEE (40% individually)
Theory	Weightage of CIE-1 and CIE-2 or CIE-3	40	20
	Assignment	05	
	Group Activity	05	
	TOTAL	50	



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Course Outcomes:	
CO1	The students will be able to learn about the overview of their goals and also gets to know diversities in the field of their career planning.
CO2	The student will develop and improve their personal and professional effectiveness.
CO3	Develop the self-confidence and emerge the student as a confident person.
CO4	Students will understand the stress, time and emotional management on the overcoming the fear and uncomfortable situations such as public speaking.
CO5	Students will gain knowledge about the assertiveness of Listening, Reading, Writing & Interpersonal segments.

CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	1	2	-	-	3
CO2	-	-	-	-	-	-	1	2	-	-	3
CO3	-	-	-	-	-	-	2	2	-	-	3
CO4	-	-	-	-	-	-	3	3	-	-	3
CO5	-	-	-	-	-	-	3	3	-	-	3

Mapping of COs with Knowledge and Attitude Profile (WK)										
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0										
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9	
CO1	2	2	3	1	1	2	2	2	3	
CO2	3	3	3	3	3	3	2	2	3	
CO3	2	1	2	2	1	2	3	2	3	
CO4	3	3	3	3	3	3	2	2	3	
CO5	3	3	3	3	3	3	3	3	3	

Course Coordinators:

Dr. Indumathi S K
Associate Professor
MCA Programme



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Course Title	UNIX AND SHELL SCRIPTING				
Course Code	1BCAU201				
Course Category	IPCC (Integrated Professional Core Course)				
Teaching - Learning Scheme & Credit	L	T	P	Total Credits	Total Teaching Hours
	3	0	1	4	Lecture:42 + Tutorials: 0 + Practical: 28 + Self Study: 50 = 120
CIE Marks: 50	SEE Marks: 50		Total Max. Marks: 100		Duration of SEE: 03 Hrs

Course Learning Objectives:	
CLO1	Learning UNIX commands and utilities for file, directory, and system management.
CLO2	Understand file system concepts, security mechanisms, permissions, and process management techniques in UNIX environments
CLO3	Understand shell features, environment variables, redirection, pipes, and command-line tools effectively
CLO4	Understand shell scripts using decision-making, looping, and other scripting constructs to automate tasks
CLO5	Learning filters, regular expressions, and text-processing utilities to solve practical problems in UNIX systems

SYLLABUS	No. of Hours	BTLs
UNIT 1	8	L1-L4
Introduction of UNIX and Command Usage Why UNIX?, Computer System, The UNIX Environment, UNIX structure, Assessing UNIX, Commands, Common Commands- date, cal, who, passwd, echo, man, whoami Other useful commands- tty, clear, stty, script, uname, bc.		
SELF-STUDY COMPONENTS	10 hours	
Study the history, features, and advantages of UNIX. Understand the basic structure of a UNIX operating system, including hardware, kernel, shell, utilities, and applications. Explore the UNIX environment and different types of shells.		
UNIT 2	8	L1-L4
File Systems – Filenames, File Types, Regular files, Directories, File System Implementation, Operations Unique to Directories, Operations Unique to Regular Files, Operations common to both.		
SELF-STUDY COMPONENTS	10 hours	



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Create a hierarchical directory structure and practice navigating it. Identify different file types using appropriate UNIX/Linux commands. Practice file operations such as cp, mv, rm, cat, and touch. Explore file metadata using ls -l and related commands.		
UNIT 3	9	L1-L4
Security and File Permissions: User and Groups, Security levels, Changing Permissions, User Masks, Changing Ownership and groups. Process: Basics, ps, System Process, Mechanism Of Process Creation, Internal and External Commands, Process States and Zombies, Running Jobs in Background, nice, killing process, job control, at & batch, cron, time.		
SELF-STUDY COMPONENTS	10 Hours	
Create users and groups in a controlled Linux environment and examine their permissions. Create files with different permissions and practice modifying them using chmod. Experiment with umask and observe the permissions of newly created files. Change file and group ownership using chown and chgrp.		
UNIT 4	9	L1-L4
Shell Programming: Shell Interpretive Cycle, Shell Offering, Pattern Matching, Escaping and Quoting, Redirection, Pipes, tee, Command substitution, Shell variables, Environment Variables, Common Environment Variables, Shell Scripts, Read, Command Line Arguments , exit, Logical Operators, if-conditional, Using test[], case Conditional, expr, \$0, while, for, set & shift, The Here Document, trap, Debugging Shell Scripts.		
SELF-STUDY COMPONENTS	10 hours	
Write a script that accepts command-line arguments and performs calculations. Develop a menu-driven program using case. Create a script to search files using pattern matching and pipes . Write a script demonstrating redirection, tee, and command substitution .		
UNIT 5	8	L1-L4
Filters: The Sample database, pr, head, tail, cut, paste, sort, uniq, tr Regular Expressions: grep, Basic Regular Expressions, Extended Regular Expressions, sed, Line Addressing Using Multiple Instructions, Context Addressing, Writing selected lines to a file, text editing, Substitution		
SELF-STUDY COMPONENTS	10 hours	
Study the sample database and practice processing structured text data using UNIX, Practice combining filter commands using pipes () . Study grep for searching patterns in text files. Practice Basic Regular Expressions (BRE) and pattern matching.		



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PRACTICAL COMPONENTS OF IPCC

Bash can be used on a UNIX/Linux Platforms for executing the experiments.

1. Write a shell script to display the current logged-in user, the current date and time in DD-MM-YYYY format, the current working directory, and the system architecture information.
2. Write a shell script to count the total number of files in the current directory and dynamically create a backup directory named using the current system date via command substitution.
3. Write a shell script that accepts a filename as a command-line argument and uses file testing operators to validate whether the file exists, whether it is a regular file or directory, and lists its active read-write-execute permissions.
4. Write a shell script to accept student marks for a subject and use an if-else ladder to assign grades (Distinction, First Class, Second Class, or Fail), and extend it using a case statement to display a corresponding feedback remark.
5. Write a shell script to find the sum of digits of a given number using a while loop, and generate the multiplication table of that number using a for loop.
6. Write a shell script to find the factorial of a number using a user-defined function, passing the target number as a command-line argument.
7. Write a menu-driven shell script using a case statement and a loop to perform basic arithmetic operations (Addition, Subtraction, Multiplication, and Division) based on user choice.
8. Write a shell script to display the first 5 lines and last 5 lines of a given text file, sort the combined output alphabetically, and save the result into a new file using pipes and filters.
9. Write a shell script that uses grep to count the total number of times a specific word (entered by the user) appears in a text file, and display the line numbers where that word occurs.
10. Write an automation shell script that accepts a directory path as input, checks if it exists, and automatically converts all lowercase filenames within that directory into uppercase letters using tr.

TEXT BOOKS:

1	Sumitabha Das, UNIX: Concepts and Applications, 4 th Ed, McGraw Hill Education, 2017.
2	Behrouz A. Forouzan, Richard F. Gilberg, UNIX and Shell Programming: A Textbook, 1 st Ed, Cenage Learning, 2003



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REFERENCE BOOKS:

1	Richard Blum and Christine Bresnahan, Linux Command Line and Shell Scripting Bible, 4th Edition, Wiley, 2020
2	Evi Nemeth, Garth Snyder, Trent R. Hein, Ben Whaley, and Dan Mackin, UNIX and Linux System Administration Handbook, 5th Edition, Addison-Wesley, 2017

e-LEARNING RESOURCES:

1	UNIX Basics: https://nptel.ac.in/courses/117106113
2	UNIX / LINUX Tutorial: https://www.tutorialspoint.com/unix/index.htm

Assessment Details both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) and Semester End Exam (SEE) is 50% each.

The students have to obtain a minimum of 40% marks individually in both CIE and SEE to pass.

CIE:

The CIE has two components –

CIE – theory component and CIE laboratory component.

Students have to score a minimum of 40% Marks in the total of CIE - theory and CIE – laboratory components put together, provided students have to score a minimum of 40% marks in the CIE laboratory component alone to qualify to take SEE.

Theory Semester End Exam (SEE) is conducted for 100 marks (3 Hours duration) and reduced to 50 Marks.

****Self-Study Component should be included for CIE.**

CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks		Minimum Marks to be scored in CIE, to qualify to take SEE (40% individually)
Theory	Weightage of CIE1 and CIE2 Tests or CIE3	30		12
Laboratory components	Rubrics for experiments are added, then averaged	10	20	08
	Lab CIE	10		
TOTAL		50		20

QUESTION PAPER PATTERN (SEE)

Q. No.	Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
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UNIT	1	2	3	4	5
1. Two full questions (each of 20 Marks) are to be set from each unit.					
2. Student shall answer five full questions selecting one full question from each unit.					

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

CO1	Demonstrate the use of UNIX commands and utilities for file, directory, and system management.
CO2	Apply file system concepts, security mechanisms, permissions, and process management techniques in UNIX environments
CO3	Utilize shell features, environment variables, redirection, pipes, and command-line tools effectively
CO4	Develop shell scripts using decision-making, looping, and other scripting constructs to automate tasks
CO5	Apply filters, regular expressions, and text-processing utilities to solve practical problems in UNIX systems

Mapping of COs with POs with PSOs

Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	1	3	–	1	1	3	2	2
CO2	3	3	2	2	3	1	1	1	3	3	2
CO3	3	3	3	2	3	1	1	1	3	3	3
CO4	3	3	3	2	3	1	1	1	3	3	3
CO5	3	3	3	3	3	1	1	1	3	3	3

Mapping of COs with Knowledge and Attitude Profile (WK)

Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0

CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9
CO1	2	1	3	3	2	3	1	1	2
CO2	2	2	3	3	2	3	2	2	3
CO3	1	2	3	3	3	3	1	2	3
CO4	1	2	3	3	3	3	1	2	3
CO5	1	2	3	3	3	3	1	3	3

Course Coordinators:

Anitha J
Assistant Professor
MCA Programme



Dr. Ambedkar Institute of Technology

School of Computer Science and Engineering

Bachelor of Computer Applications Programme

Semester: II

Scheme: 2026

Course Title	DATA STRUCTURES USING C				
Course Code	1BCAT202				
Course Category	PCC (Professional Core Course)				
Teaching - Learning Scheme & Credit	L	T	P	Total Credits	Total Teaching Hours
	3	0	0	3	Lecture:42+Tutorial:0+Practical:0+Self Study:48=90
CIE Marks: 50	SEE Marks: 50		Total Max. Marks: 100		Duration of SEE: 03 Hrs

Course Learning Objectives:	
CLO1	Understand the fundamental concepts of data structures, recursion, pointers, and dynamic memory allocation in the C programming language.
CLO2	Learn array operations, searching techniques, and sorting algorithms to organize, manage, and process data efficiently.
CLO3	To understand linear data structures such as linked lists, stacks, and queues, and perform their fundamental operations.
CLO4	To understand solutions to computational problems using stacks, queues, recursion, and expression evaluation techniques.
CLO5	Understand non-linear data structures such as trees and graphs using appropriate representations and traversal algorithms to solve real-world problems.

SYLLABUS	No. of Hours	BTLs
UNIT 1	8	L1-L4
Introduction to Data Structures: Basic Terminology, Classification of Data Structures, Operations on Data Structures. Recursion: Introduction, Types-Direct and Indirect, Applications-Factorial, GCD, Finding Exponents, Fibonacci Series, Tower of Hanoi. Memory Allocation: Types, Dynamic Memory Allocation, malloc(), calloc(), realloc(), free() functions.		
SELF-STUDY COMPONENTS	10 Hours	
Understand some basic definitions of Data, information and related real world examples, know the concept memory management, looping statements.		
UNIT 2	9	L1-L4
Array: Operations on Arrays - Traversing an Array, Inserting an Element in an Array, Deleting an Element from an Array, Merging Two Arrays, Passing Arrays to Functions Searching and Sorting - Linear Search, Binary Search, Bubble Sort, Insertion Sort, Selection Sort, Merge Sort, Quick Sort.		
SELF-STUDY COMPONENTS	10 Hours	



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Understand the definition of arrays, types of array, implementation of array in memory ; Compare the time and space complexity of different searching and sorting algorithms.		
UNIT 3	8	L1-L4
Linked Lists: Introduction, Singly Linked Lists-Traversing, Searching, Inserting a Node at the Beginning of a Linked List, Deleting the First Node from a Linked List, Circular Linked Lists - Inserting a Node at the End of a Circular Linked List, Deleting the Last Node from a Circular Linked List, Doubly Linked Lists - Inserting a Node at the Beginning of a Doubly Linked List, Deleting the First Node from a Doubly Linked List.		
SELF-STUDY COMPONENTS		10 Hours
Pointers – Declaring pointers, dereferencing, pointer arithmetic, and using pointers with variables. Structures (struct) – Creating structures, accessing members using . and ->, and using structures with pointers.		
UNIT 4	9	L1-L4
Stack: Introduction, Array Representation Of Stacks, Operations On A Stack-push, pop, peek, Applications of Stacks-Reversing a list, Parentheses Checker, Evaluation of Arithmetic Expressions-Polish Notations, Conversion of an Infix Expression into a Postfix Expression, Evaluation of a Postfix Expression.		
Queues: Introduction, Array Representation of Queues, Operations on Queues, Circular Queues, Deques, Priority Queues.		
SELF-STUDY COMPONENTS		9 Hours
Basic knowledge of singly linked lists is useful for understanding stack and queue implementations using dynamic memory, Basic Searching and Traversal. Basic Knowledge of Operators & Operands ,Operator Precedence, Associativity		
UNIT 5	8	L1-L4
Trees: Introduction, Binary Trees, Complete Binary Trees, Representation of Binary Trees in the Memory, Binary Search Trees, Creating a Binary Tree from a General Tree, Traversing a Binary Tree- PreOrder Traversal, InOrder Traversal, PostOrder Traversal Graphs: Introduction, Graph Terminology, Directed Graphs, Terminology of a Directed Graph, Representation of Graphs-Adjacency Matrix Representation, Adjacency List Representation.		
SELF-STUDY COMPONENTS		9 Hours
Basic Knowledge of Sets, Relations, Nodes and Edges ; Basic Mathematical Notation ,Matrix Representation		

TEXT BOOKS:

- | | |
|---|---|
| 1 | Reema Thareja, Data Structures using C, 2nd Ed, Oxford press, 2014. |
|---|---|

REFERENCE BOOKS:

- | | |
|---|--|
| 1 | Ellis Horowitz, Sartaj Sahni and Susan Anderson-Freed, Fundamentals of Data Structures in C, 2nd Ed, Universities Press, 2014. |
| 2 | Seymour Lipschutz, Data Structures Schaum's Outlines, Revised 1st Ed, McGraw Hill, 2014. |



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e-LEARNING RESOURCES:	
1	Data Structures & Algorithms: https://www.futureskillsprime.in/course/data-structures-algorithms
2	Arrays: https://www.w3schools.com/dsa/dsa_data_arrays.php

Assessment Details both (CIE and SEE)			
The weightage assigned to the Continuous Internal Evaluation (CIE) and Semester End Examination (SEE) is 50% each. To pass the course, students must secure a minimum of 40% marks separately in both CIE and SEE. Continuous Internal Evaluation (CIE) The CIE consists of two components: 1. CIE – Theory Component 2. Assignment 3. Group Activity Students must secure a minimum of 40% marks in the combined total of the CIE Theory, Assignment, and Group Activity components to qualify for appearing in the SEE. Semester End Examination (SEE) The Theory SEE is conducted for 100 marks with a duration of 3 hours. The marks obtained are subsequently scaled down to 50 marks for calculating the final course grade. The student must secure a minimum of 40% marks in the SEE to pass the course. **Self-Study Component should be included for CIE.			
CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks to be scored in CIE, to qualify to take SEE (40% individually)
Theory	Weightage of CIE1 and CIE2 Tests or CIE3	40	20
	Assignment	05	
	Group Activity	05	
	TOTAL	50	

QUESTION PAPER PATTERN (SEE)										
Q. No.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
UNIT	1		2		3		4		5	
1. Two full questions (each of 20 Marks) are to be set from each unit.										
2. Student shall answer five full questions selecting one full question from each unit.										



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Course Outcomes: After the completion of the course, the student will be able to:	
CO1	Explain the fundamentals of data structures, recursion techniques, and dynamic memory allocation concepts in C
CO2	Apply array operations, searching techniques, and sorting algorithms to organize and process data efficiently.
CO3	Implement various linked list data structures and perform fundamental operations.
CO4	Utilize stacks and queues to solve computational problems and evaluate arithmetic expressions.
CO5	Implement tree and graph data structures using appropriate representations and traversal techniques

Mapping of COs with POs with PSOs											
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	2	1	3	1	1	1	3	3	2
CO2	3	3	3	2	3	1	1	1	3	3	3
CO3	3	3	3	2	3	1	1	1	3	3	3
CO4	3	3	3	2	3	1	1	1	3	3	3
CO5	3	3	3	3	3	1	1	2	3	3	3

Mapping of COs with Knowledge and Attitude Profile (WK)									
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0									
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9
CO1	3	3	3	2	3	2	1	1	1
CO2	3	3	3	3	3	2	1	1	1
CO3	3	3	3	3	3	2	1	1	1
CO4	3	3	3	3	3	2	1	1	1
CO5	3	3	3	3	3	3	1	2	2

Course Coordinators:

Dharani N V
Assistant Professor
MCA Programme



Dr. Ambedkar Institute of Technology

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Semester: II

Scheme: 2026

Course Title	INTRODUCTION TO WEB TECHNOLOGIES				
Course Code	1BCAT203				
Course Category	PCC (Professional Core Course)				
Teaching - Learning	L	T	P	Total	Total Teaching Hours
Scheme & Credit	3	0	0	3	Lecture:42+Tutorial:0+Practical:0+Self Study:48=90
CIE Marks: 50	SEE Marks: 50		Total Max. Marks: 100		Duration of SEE: 03 Hrs

Course Learning Objectives:	
CLO1	Understand the fundamentals of web technologies and the architecture of web-based applications.
CLO2	Develop structured and semantic web pages using HTML and create responsive layouts with CSS
CLO3	Design interactive and user-friendly web pages using JavaScript and the Document Object Model (DOM).
CLO4	Create dynamic web applications by integrating JavaScript with XML technologies for data handling and communication.
CLO5	Develop server-side web applications using PHP, including form processing, cookies, and session management.

SYLLABUS	No. of Hours	BTLs
UNIT 1	9	L1-L4
Fundamentals of Web: Introduction to the Internet, The World Wide Web, Web Browsers, Web Servers, Uniform Resource Locators (URLs), MIME, Hypertext Transfer Protocol, Security, The Web Programmer's Toolbox. Origins and Evolution of HTML/XHTML, Basic Syntax, Standard HTML Document Structure, Basic Text Markup, Images, Hypertext Links, Lists, and Tables.		
SELF-STUDY COMPONENTS	9 Hours	
HTML/XHTML webpage using formatting tags to ensure that the webpage is clear and concise. Practice writing a small webpage from scratch by combining all the tags.		
UNIT 2	8	L1-L4
HTML and CSS: Forms, Audio Element, Video Element, Organization Elements, The Time Element, Syntactic Differences between HTML and XHTML. Introduction to CSS, Levels of Style Sheets (CSS), Style Specification formats, Selector Forms, Property-Value Forms, Fonts Properties, Lists Properties, Alignment of Text, Color, Box Model, Background Images, and <div> Tags.		
SELF-STUDY COMPONENTS	10 Hours	



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Should be able to create a structured and visually formatted webpage using HTML and CSS, apply appropriate CSS selectors and properties, and explain the basic differences between HTML and XHTML.

UNIT 3	8	L1-L4
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JavaScript and HTML Documents: Overview of JavaScript, Object Orientation and JavaScript, General Syntactic Characteristics, Primitives, Operations, and Expressions, Screen Output and Keyboard Input, Control Statements, Object Creation and Modification, Arrays, Functions. The JavaScript Execution Environment, The Document Object Model, Element Access in JavaScript, Events and Event Handling, Handling Events from Body Elements, Handling Events from Button Elements, Handling Events from Text Box and Password Elements, The DOM 2 Event Model.

SELF-STUDY COMPONENTS	9 Hours
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Should be able to write JavaScript programs by understanding how to use basic concepts, control statements and object creation, manipulate HTML elements through the DOM, handle user interactions and events, and develop simple interactive web pages.

UNIT 4	9	L1-L4
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Dynamic Documents with JavaScript and XML: Introduction, Positioning Elements, Moving Elements, Element Visibility, Changing Colors and Fonts, Dynamic Content, Stacking Element, Locating the Mouse Cursor, Reacting to Mouse Click, Slow Movement Elements, Dragging and Dropping Elements. Introduction to XML, Uses of XML, The Syntax of XML, XML Document Structure, Namespaces, XML Schemas

SELF-STUDY COMPONENTS	9 Hours
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Practice implementing slow-moving, draggable, and drop-enabled elements using JavaScript. Study the basics of XML, including its uses, syntax, document structure, namespaces, and XML schemas.

UNIT 5	8	L1-L4
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Server-Side Scripting using PHP: Origins and Uses of PHP, Overview of PHP, General Syntactic Characteristics, Primitives, Operations and Expressions, Output, Control Statements, Arrays, Functions, and Pattern Matching, Form Handling, Cookies, and Session Tracking

SELF-STUDY COMPONENTS	9 Hours
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Practice creating simple PHP programs, handling HTML forms, and implementing cookies and session tracking to understand how PHP manages user data and web sessions.

TEXT BOOKS:

1	Robert W. Sebesta, Programming the World Wide Web, 8 th Edition, Pearson, 2022.
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REFERENCE BOOKS:

1	Paul J. Deitel, Harvey M. Deitel, and Abbey Deitel, Internet & World Wide Web: How to Program, 5 th Edition, Pearson Education, 2022.
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2	Randy Connolly and Ricardo Hoar, Fundamentals of Web Development, 3 rd Edition, Pearson Education, 2022
e-LEARNING RESOURCES:	
1	HTML and CSS: https://www.youtube.com/watch?v=h_RftxdJTzs
2	JavaScript: https://www.w3schools.com/js/default.asp

Assessment Details both (CIE and SEE)			
The weightage assigned to the Continuous Internal Evaluation (CIE) and Semester End Examination (SEE) is 50% each. To pass the course, students must secure a minimum of 40% marks separately in both CIE and SEE. Continuous Internal Evaluation (CIE) The CIE consists of two components: 1. CIE – Theory Component 2. Assignment 3. Group Activity Students must secure a minimum of 40% marks in the combined total of the CIE Theory, Assignment, and Group Activity components to qualify for appearing in the SEE. Semester End Examination (SEE) The Theory SEE is conducted for 100 marks with a duration of 3 hours. The marks obtained are subsequently scaled down to 50 marks for calculating the final course grade. The student must secure a minimum of 40% marks in the SEE to pass the course. **Self-Study Component should be included for CIE.			
CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks to be scored in CIE, to qualify to take SEE (40% individually)
Theory	Weightage of CIE1 and CIE2 Tests or CIE3	40	20
	Assignment	05	
	Group Activity	05	
	TOTAL	50	

QUESTION PAPER PATTERN (SEE)										
Q. No.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
UNIT	1		2		3		4		5	
1. Two full questions (each of 20 Marks) are to be set from each unit.										
2. Student shall answer five full questions selecting one full question from each unit.										



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Course Outcomes: After the completion of the course, the student will be able to:	
CO1	Describe the fundamentals of web technologies and develop structured web pages using HTML.
CO2	Design responsive and visually appealing web pages using HTML forms and CSS.
CO3	Develop interactive web pages using JavaScript and the Document Object Model.
CO4	Design dynamic web documents using JavaScript and XML technologies
CO5	Develop server-side web applications using PHP with form handling, cookies, and session management.

Mapping of COs with POs with PSOs											
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	1	3	1	1	1	3	2	2
CO2	3	2	3	1	3	1	1	1	3	3	2
CO3	3	3	3	2	3	1	1	1	3	3	3
CO4	3	3	3	2	3	1	1	1	3	3	3
CO5	3	3	3	2	3	1	1	2	3	3	3

Mapping of COs with Knowledge and Attitude Profile (WK)									
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0									
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9
CO1	3	2	2	2	3	1	1	1	1
CO2	3	2	3	2	3	1	1	1	1
CO3	3	3	3	3	3	2	1	1	1
CO4	3	3	3	3	3	2	1	2	1
CO5	3	3	3	3	3	2	2	2	2

Course Coordinators:

Shobha Rani B R
Associate Professor
MCA Programme



Dr. Ambedkar Institute of Technology

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Semester: II

Scheme: 2026

Course Title	DISCRETE MATHEMATICAL STRUCTURES				
Course Code	1BCAT204				
Course Category	PCC (Professional Core Course)				
Teaching - Learning	L	T	P	Total	Total Teaching Hours
Scheme & Credit	3	0	0	3	Lecture:42+Tutorial:0+Practical:0 +Self Study:48=90
CIE Marks: 50	SEE Marks: 50		Total Max. Marks: 100		Duration of SEE: 03 Hrs

Course Learning Objectives:	
CLO1	Understand the fundamental concepts of discrete mathematics and their significance in computer science and engineering.
CLO2	Develop logical reasoning skills using propositional logic, predicate logic, and mathematical proof techniques.
CLO3	Apply counting principles, mathematical induction, permutations, combinations, and the pigeonhole principle to solve discrete mathematical problems.
CLO4	Model and solve computational problems using recurrence relations and the principle of inclusion-exclusion.
CLO5	Analyze mathematical structures such as relations, functions, equivalence relations, partial orders, and Hasse diagrams.

SYLLABUS	No. of Hours	BTLs
UNIT 1	8	L1-L4
Fundamentals of Logic Basic Connectives and Truth Tables, Logic Equivalence – The Laws of Logic, Logical Implication – Rules of Inference. The Use of Quantifiers, Quantifiers, Definitions and the Proofs of Theorems		
SELF-STUDY COMPONENTS	10 Hours	
Basic Connectives and Truth Tables, Applying quantifiers with real time examples, Direct proof, proof by contradiction, proof by contrapositive, and proof by cases Boolean algebra and switching logic; applications of predicate logic in programming and databases		
UNIT 2	9	L1-L4
Mathematical Induction -The Well Ordering Principle, Recursive Definitions, The Basics of Counting, The Pigeonhole Principle Fundamental Principles of Counting: The Rules of Sum and Product, Permutations, Combinations – The Binomial Theorem, Combinations with Repetition.		
SELF-STUDY COMPONENTS	9 Hours	
Cartesian products and relations, Basic idea, steps of induction, counting passwords, binary strings, user IDs, codes, Applications to duplicate detection, database queries, scheduling and resource allocation		
UNIT 3	9	L1-L4
The Principle of Inclusion and Exclusion: The Principle of Inclusion and Exclusion, Generalizations of the Principle, Derangements – Nothing is in its Right Place, Rook Polynomials.		



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Recurrence Relations: First Order Linear Recurrence Relation, The Second Order Linear Homogeneous Recurrence Relation with Constant Coefficients.		
SELF-STUDY COMPONENTS	9 Hours	
Recurrence relations in algorithms, divide-and-conquer recurrences, and applications of recurrence relations in dynamic programming.		
UNIT 4	8	L1-L4
Relations, Functions: Cartesian Products and Relations, Functions – Plain and One-to-One, Onto Functions. Properties of Relations, Computer Recognition – Zero-One Matrices and Directed Graphs, Partial Orders – Hasse Diagrams, Equivalence Relations and Partitions		
SELF-STUDY COMPONENTS	10 Hours	
Composition of functions, Basic principle and applications to hashing, data storage, identifiers, and computer networks, Using directed graphs to model networks, dependencies, state transitions, and workflows		
UNIT 5	8	L1-L4
Introduction to Graph Theory: Definitions and Examples, Sub graphs, Complements, and Graph Isomorphism, Vertex Degree, Euler Trails and Circuits Trees: Definitions, Properties, and Examples, Routed Trees, Trees and Sorting, Weighted Trees and Prefix Codes		
SELF-STUDY COMPONENTS	10 Hours	
Concept, examples, and applications in routing and optimization, Connected graphs, components, bridges, articulation points, and their applications in networks, shortest path algorithms		

TEXT BOOKS:	
1	Ralph P. Grimaldi, Discrete and Combinatorial Mathematics: An Applied Introduction, 5 th
2	Edition, Pearson Education.

REFERENCE BOOKS:	
1	C. L. Liu and D. P. Mohapatra, Elements of Discrete Mathematics, 4 th Edition, McGraw-Hill Education.
2	Narsingh Deo, Graph Theory with Applications to Engineering and Computer Science, Prentice Hall of India.
e-LEARNING RESOURCES:	
1	Engineering Discrete Mathematics – https://nptel.ac.in
2	Discrete Mathematics – https://swayam.gov.in



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Assessment Details both (CIE and SEE)

The weightage assigned to the Continuous Internal Evaluation (CIE) and Semester End Examination (SEE) is 50% each.

To pass the course, students must secure a minimum of 40% marks separately in both CIE and SEE.

Continuous Internal Evaluation (CIE)

The CIE consists of two components:

1. CIE – Theory Component
2. Assignment
3. Group Activity

Students must secure a minimum of 40% marks in the combined total of the CIE Theory, Assignment, and Group Activity components to qualify for appearing in the SEE.

Semester End Examination (SEE)

The Theory SEE is conducted for 100 marks with a duration of 3 hours. The marks obtained are subsequently scaled down to 50 marks for calculating the final course grade.

The student must secure a minimum of 40% marks in the SEE to pass the course.

****Self-Study Component should be included for CIE.**

CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks to be scored in CIE, to qualify to take SEE (40% individually)
Theory	Weightage of CIE1 and CIE2 Tests or CIE3	40	20
	Assignment	05	
	Group Activity	05	
	TOTAL	50	

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

CO1	Apply the principles of propositional logic, predicate logic, and proof techniques to solve logical problems.
CO2	Analyze mathematical induction, counting principles, permutations, combinations, and the pigeonhole principle to solve discrete mathematical problems.
CO3	Apply the principle of inclusion-exclusion and recurrence relations to model and solve computational problems.
CO4	Analyze relations, functions, partial orders, equivalence relations, and Hasse diagrams in mathematical and computing applications.
CO5	Apply graph theory concepts, including trees, Euler circuits, graph isomorphism, and weighted trees, to solve problems in computer science.



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Mapping of COs with POs with PSOs Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	2	2	1	0	0	1	3	2	1
CO2	3	3	3	2	1	0	0	1	3	3	2
CO3	3	3	3	3	2	0	0	1	3	3	2
CO4	3	3	3	2	2	0	0	1	3	3	2
CO5	3	3	3	3	3	0	1	1	3	3	3

Mapping of COs with Knowledge and Attitude Profile (WK) Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0									
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9
CO1	3	3	3	2	1	0	0	1	1
CO2	3	3	3	3	2	0	0	1	1
CO3	3	3	3	3	2	1	0	1	1
CO4	3	3	3	2	2	0	0	1	1
CO5	3	3	3	3	3	1	1	1	2

Course Coordinators:

Shobha Rani B R Assistant Professor MCA Programme
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Dr. Ambedkar Institute of Technology

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Semester: II

Scheme: 2026

Course Title	INTRODUCTION TO FINTECH				
Course Code	IBCAT205				
Course Category	SEC(Skill Enhancement Course)				
Teaching - Learning	L	T	P	Total	Total Teaching Hours
Scheme & Credit	2	0	0	2	Lecture:28+Tutorial:0+Practical:0+Self Study:32=60
CIE Marks: 50	SEE Marks: 50		Total Max. Marks: 100		Duration of SEE: 01 Hr

Course Learning Objectives:	
CLO1	Understand the fundamentals of Financial Technology (FinTech), its evolution, ecosystem, and its impact on the financial services industry.
CLO2	Describe FinTech hubs and digital payment systems, including electronic payment methods, digital wallets
CLO3	Understand digital lending and the applications of Artificial Intelligence (AI) in financial services, including credit scoring, fraud detection, customer service, and risk management.
CLO4	Understand the role of Machine Learning in banking and financial services, and evaluate their applications in improving efficiency, accuracy, and customer experience.
CLO5	Understand the fundamentals of Blockchain technology and cryptocurrencies, including their working principles, features, advantages, challenges, and applications in the financial sector

SYLLABUS	No. of Hours	BTLs
UNIT 1	5	L1-L4
Introduction To Fintech: Introduction, Financial Technology: An Understanding, What is FinTech?, Definitions of FinTech, The History and Evolution of the FinTech Industry, FinTech Ecosystem, FinTech's Most Recent Developments, FinTech Market in India, Fintech Market Trends in India, Types of FinTech or Transformation of Financial Services, Benefits of FinTech, The Drawbacks of FinTech, FinTech's Key Growth Drivers, Challenges to the Growth of FinTech		
SELF-STUDY COMPONENTS	7 hours	
Prepare a SWOT analysis highlighting the advantages, limitations, opportunities, and risks associated with FinTech adoption - Study challenges related to cybersecurity, data privacy, financial fraud, regulatory compliance, digital exclusion, and customer trust.		
UNIT 2	5	L1-L4
Fintech Hubs: Introduction, The Purpose of Financial Hubs / Why do Financial Hubs Exist?, Getting to know a Financial Hub, FinTech Revolution in India, Top Global FinTech Hubs, FinTech Firms in India, Emerging FinTech Hubs.		
Digital Payments: Introduction, Forms of Digital Payments, Advantages of Digital Payments, Cashless / Cash-free Society, DFS Eco System, What Digital Financial Services hope to Achieve?, Use Cases are the Circumstances in Which Individuals and Organizations, Developing Countries		



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and DFS, The Story of Mobile Money, RTGS Networks, RTGS Transaction Benefits.		
SELF-STUDY COMPONENTS		7 hours
Analyze the 10 years of UPI in India		
UNIT 3	6	L1-L4
Digital Lending: Introduction, FinTech and the Landscape of Digital Lending, Development of Alternative Finance, The Outlook for SME Financing, Ecosystem Funding Crowd Finance, Payment and Retail Business, Digitization of Financial Services, Benefits of Digitization in Retail Banking and Corporate Banking.		
Artificial Intelligence And Fintech: Introduction, Artificial Intelligence, How Vital is Artificial Intelligence?, AI and FinTech, Global Artificial Intelligence (AI) in FinTech Market Overview, Artificial Intelligence (AI) in FinTech Market Segmentation, AI Changing the Financial Services Industry, Artificial Intelligence (AI) in FinTech Market Opportunities, Applications of Artificial Intelligence in FinTech.		
SELF-STUDY COMPONENTS		6 hours
Study the challenges of data privacy and security in digital lending in AI era.		
UNIT 4	6	L1-L4
Machine Learning And Fintech: Introduction, Characteristics of Machine Learning, Need of Machine Learning, Significance of Machine Learning, Machine Learning in Finance, Functions of Machine Learning in Finance, Advantages of Machine Learning for Accounting and Finance, Use Cases of Machine Learning in Finance, Benefits of Machine Learning in FinTech.		
Robotic Process Automation (RPA) And Fintech: Introduction, RPA in Banking, RPA’s Advantages in Banking and Finance, Financial Data Analytics, Data Science and Big Data in Finance, Big Data is Revolutionizing Finance, Big Data Challenges in Finance.		
SELF-STUDY COMPONENTS		6 hours
Present two real-world use cases and prepare a case study describing the problem, data used, ML approach, and expected outcome.		
UNIT 5	6	L1-L4
Blockchain: Introduction, What is Blockchain?, Blockchain Technology, its Potential, and Applications, Blockchain Technology is Revolutionising FinTech, Blockchain Technology in FinTech, Fintech Blockchain Use Cases, The Benefits of Blockchain in FinTech, Blockchain in Financial Services: Key Statistics, Implementation on BCT Solutions in Indian Banks, Benefit from Blockchain Technology (BCT) in Banking, Block Chain Technology in Indian Banking Sector, Challenges and Considerations, Outlook for the Future.		
Crypto Currencies: Introduction, Cryptocurrencies and Blockchain, Cryptocurrencies, Outline of Cryptocurrency, Major Types of Cryptocurrencies Used, How to Keep Cryptocurrencies Safe, Cryptocurrencies’ Legal and Regulatory Implications, The Legal Position of Cryptocurrencies in India, Impact on Cryptocurrencies.		



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SELF-STUDY COMPONENTS	6 hours
Analyze the importance of block chain in the growth of our country other than banking sector.	

TEXT BOOKS:	
1	C. Vijai and V. Dheenadhayalan, FinTech, First Edition, Vijay Nicole Imprints Private Limited, 2024. ISBN-13: 978-8119243426

REFERENCE BOOKS:	
1	Chandrahauns Chavan, Atul Patankar, Introduction to Fintech, 1 st Edition, Pearson Education, 2024.
2	Sanjay Phadke, FINTECH FUTURE: The Digital DNA of Finance, 1 st Edition, Atlantic Publishers and Distributors (P) Ltd, 2025.

e-LEARNING RESOURCES:	
1	Introduction of Fintech: https://www.youtube.com/watch?v=jf25vt1Sg3A&list=PLFW6lRTa1g80SSjd5ygkA6knaAvht3zNp&index=51
2	Fintech – Indian Perspective: https://link.springer.com/chapter/10.1007/978-981-97-6242-2_2

Assessment Details for both CIE and SEE			
- The weightage assigned to the Continuous Internal Evaluation (CIE) and Semester End Examination (SEE) is 40% each. - To pass the course, students must secure a minimum of 40% marks separately in both CIE and SEE. - To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks. - To pass the SEE, a student must score at least 40% of 50 marks, i.e., 20 marks. - The question paper pattern is Objective Type (MCQ) with maximum of 25 marks for CIE and maximum marks for SEE is 50 marks.			
CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks Required in CIE to Qualify for SEE (40% individually)
Theory	Weightage of CIE-1 and CIE-2 or CIE-3	40	20
	Assignment	05	
	Group Activity	05	
	TOTAL	50	



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QUESTION PAPER PATTERN (SEE)										
Q. No.	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
UNIT	1		2		3		4		5	
1. Two full questions (each of 20 Marks) are to be set from each unit.										
2. Student shall answer five full questions selecting one full question from each unit.										

Course Outcomes: After the completion of the course, the student will be able to:	
CO1	Understand the fundamentals and ecosystem of FinTech.
CO2	Analyze FinTech hubs, digital payment systems.
CO3	Analyze digital lending and the applications of Artificial Intelligence and machine learning
CO4	Apply Machine Learning, Robotic Process Automation (RPA), data analytics and Big Data concepts to identify and address real-world problems in FinTech and financial services.
CO5	Evaluate the applications, benefits, security issues, regulatory considerations and future potential of Blockchain and Cryptocurrencies in the financial sector, with reference to the Indian context.

Mapping of COs with POs with PSOs											
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	1	1	1	-	1	2	2	2	3	2
CO2	2	3	2	3	1	2	2	2	2	3	2
CO3	3	3	3	3	1	2	2	3	3	3	2
CO4	2	3	3	3	2	2	1	3	3	3	2
CO5	3	3	2	3	1	2	3	3	2	3	3

Mapping of COs with Knowledge and Attitude Profile (WK)									
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0									
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9
CO1	2	2	3	3	2	2	1	2	3
CO2	2	2	3	3	2	3	1	2	3
CO3	2	2	3	3	3	3	2	3	3
CO4	2	2	3	3	3	3	2	3	3
CO5	2	2	3	3	3	3	3	3	3

Course Coordinators:

Dr. Indumathi S K
Associate Professor
MCA Programme



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Course Title	DATA STRUCTURE USING C LAB				
Course Code	1BCAL206				
Course Category	PCCL(Professional Core Course Laboratory)				
Teaching - Learning	L	T	P	Total	Total Teaching Hours
Scheme & Credit	1	0	2	2	Lecture:14+Tutorial:0+Practical:28+Self Study:18=60
CIE Marks: 50	SEE Marks: 50		Total Max. Marks: 100		Duration of SEE: 03 Hrs

Course Learning Objectives:	
CLO1	Understand the fundamentals of C programming and develop problem-solving skills using arrays, functions, and recursion.
CLO2	To understand and implement fundamental searching and sorting algorithms for efficient data processing.
CLO3	To familiarize students with linear data structures such as stacks and linked lists and their practical applications.
CLO4	To develop the ability to analyze problems and select appropriate data structures and algorithms for real-world applications.
CLO5	To enhance programming proficiency through debugging, testing, documentation, and hands-on laboratory experiments.

Note:

- The laboratory syllabus consists of PART-A and PART-B. While PART-A has 6 conventional experiments, PART-B has 6 typical open-ended experiments. The maximum marks for the laboratory course are 100.
- Both PART-A and PART-B are considered for CIE and SEE.
- Students have answer 1(one) question from PART-A and 1(one) question from PART-B.
 - The questions set for SEE shall be from among the experiments under PART-A. It is evaluated for **70 marks** out of the maximum 100 marks.
 - The open-ended question set for SEE shall be any other open-ended question and not selected from the experiments under PART-A. It shall be evaluated for **30 marks**.

For Continuous Internal Evaluation (CIE) during the semester, classwork shall typically include open-ended questions from **Part-B**, along with other similar questions designed to enhance the students' skills

Recommended Platform for Execution of Programs:

- Open Source Software IDE such as Code::Blocks, Visual Studio Code

Compiler: GCC (GNU Compiler Collection)

PART – A FIXED SET OF EXPERIMENTS



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1. Write a recursive C program to perform linear search on an array and report the position of a given element. 2. Write a program to implement binary search technique on an array 3. Write a program to implement selection sort technique on an array. 4. Write a program to implement and demonstrate the Insertion, Deletion, Traversing operations on an array. 5. Write a program to implement and demonstrate the Push, Pop, Peek and Display operations on a stack. 6. Write a program to implement and demonstrate Insertion at the beginning, Deletion from the beginning, and Traversal operations on a singly linked list.	
SELF STUDY COMPONENT	9 HOURS
C Basics, Loop and Conditional Statements, Functions, Arrays, Pointers; A small program which includes all the above concepts.	
PART – B OPEN ENDED EXPERIMENTS Open-ended experiments are a type of laboratory activity where the outcome is not predetermined and students are given the freedom to explore, design, and conduct the experiment based on the problem statements as per the concepts defined by the course coordinator. It encourages creativity, critical thinking, and inquiry-based learning.	
1. Analyze and compare the execution efficiency of recursive and iterative approaches for solving mathematical and computational problems. 2. Design and develop a student record management system using arrays with suitable searching techniques for efficient record retrieval. 3. Develop an inventory management application using arrays and sorting techniques for organizing and processing data records. 4. Design and implement a menu-driven application utilizing array operations for dynamic data management and manipulation. 5. Develop a real-world application such as browser history management, undo-redo operations, or expression evaluation using stack data structures. 6. Design and implement a dynamic information management system using singly linked lists for insertion, deletion, searching, and traversal of records.	
SELF STUDY COMPONENT	9 HOURS
Stack Concepts ADT, Algorithm Analysis; Program to implement it in real world application .	

TEXT BOOKS:	
1	Reema Thareja, Data Structures using C, 2 nd Ed, Oxford press, 2014.

REFERENCE BOOKS:	
1	Ellis Horowitz, Sartaj Sahni and Susan Anderson-Freed, Fundamentals of Data Structures in C, 2 nd Ed, Universities Press, 2014.



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2	Seymour Lipschutz, Data Structures Schaum's Outlines, Revised 1 st Ed, McGraw Hill,
e-LEARNING RESOURCES:	
1	Data Structures & Algorithms: https://www.futureskillsprime.in/course/data-structures-algorithms
2	Arrays: https://www.w3schools.com/dsa/dsa_data_arrays.php

Assessment Details for both CIE and SEE			
The weightage of Continuous Internal Evaluation (CIE) and Semester End Exam (SEE) is 50% each. The students have to obtain a minimum of 40% marks individually both in CIE and SEE to pass .CIE: The CIE has three components – CIE - theory component, assignment and group activity. Students have to score a minimum of 40% Marks in the total of CIE - theory, assignment and group activity components put together to take SEE. SEE: Theory Semester End Exam (SEE) is conducted for 100 marks (3 Hours duration) and reduced to 50 Marks. **Self-Study Component should be included for SEE & CIE.			
CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks Required in CIE to Qualify for SEE (40% individually)
Laboratory Components	Each experiment will be evaluated using the prescribed rubrics and the average of the marks obtained across all experiments will be considered for the final evaluation.	10	20
	Lab CIE	40	
	TOTAL	50	
SEMESTER END EXAMINATION(SEE)			
The student must secure a minimum of 40% marks in the SEE to pass the course.			
Practical Examination Guidelines			
• All laboratory experiments shall be included for the practical examination. • The instructions and marks breakup printed on the cover page of the answer script shall be strictly adhered to by the examiners. • Students shall be allowed to randomly select any one experiment from the given lot. • Change of the selected experiment shall be permitted only once. • Any change of experiment shall attract mark deduction as per the Dr. AIT Autonomous Examination Rules and Regulations.			

Course Outcomes: After the completion of the course, the student will be able to:	
CO1	Develop C programs using recursion, arrays, and fundamental programming constructs to solve computational problems.
CO2	Implement searching and sorting techniques for efficient data processing and retrieval.



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CO3	Apply stack operations and linked list concepts to design and develop appropriate data structure solutions.
CO4	Analyze, design, and implement real-world applications using suitable data structures and algorithms.
CO5	Demonstrate problem-solving, debugging, testing, and documentation skills through laboratory experiments and open-ended activities

Mapping of COs with POs with PSOs											
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	3	2	2	3	1	1	1	3	3	2
CO2	3	3	3	2	3	1	1	1	3	3	3
CO3	3	3	3	2	3	1	1	1	3	3	3
CO4	3	3	3	3	3	2	1	2	3	3	3
CO5	3	3	3	3	3	2	1	2	3	3	3

Mapping of COs with Knowledge and Attitude Profile (WK)									
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0									
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9
CO1	0	2	3	2	1	2	0	0	0
CO2	0	3	2	3	1	1	0	1	0
CO3	0	2	2	3	2	1	0	1	0
CO4	0	2	2	3	3	2	1	2	0
CO5	0	1	1	2	2	3	0	2	0

Course Coordinators:

Dharani N V Assistant Professor MCA Programme
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Semester: II

Scheme: 2026

Course Title	WEB TECHNOLOGIES LAB				
Course Code	1BCAL207				
Course Category	PCCL(Professional Core Course Laboratory)				
Teaching - Learning	L	T	P	Total	Total Teaching Hours
Scheme & Credit	1	0	2	3	Lecture:14+Tutorial:0+Practica 28:0+Self Study:18=60
CIE Marks: 50	SEE Marks: 50		Total Max. Marks: 100		Duration of SEE: 03 Hrs

Course Learning Objectives:	
CLO1	Understand the fundamentals of web technologies and the architecture of web applications.
CLO2	Learn to design and develop structured, attractive, and responsive web pages using HTML5 and CSS3.
CLO3	Develop interactive client-side web applications using JavaScript, including DOM manipulation and form validation.
CLO4	Understand XML for data representation and PHP for server-side scripting, database connectivity, and session management.
CLO5	Integrate front-end and back-end technologies to build dynamic web applications following standard web development practices.

Note:

- The laboratory syllabus consists of PART-A and PART-B. While PART-A has 6 conventional experiments, PART-B has 6 typical open-ended experiments. The maximum marks for the laboratory course are 100.
- Both PART-A and PART-B are considered for CIE and SEE.
- Students have answer 1(one) question from PART-A and 1(one) question from PART-B
 - The questions set for SEE shall be from among the experiments under PART-A. It is evaluated for **70 marks** out of the maximum 100 marks.
 - The open-ended question set for SEE shall be any other open-ended question and not selected from the experiments under PART-A. It shall be evaluated for **30 marks**.
- For Continuous Internal Evaluation (CIE) during the semester, classwork shall typically include open-ended questions from **Part-B**, along with other similar questions designed to enhance the students' skills.

Recommended Platform for Execution of Programs

- Editor: Visual Studio Code/Notepad++
- Browser: Google Chrome/Firefox
- PHP: XAMPP/WAMP Server

PART – A

FIXED SET OF EXPERIMENTS

- Develop a personal resume website using HTML5 and CSS3 to present personal, educational, and professional information in a structured and visually appealing format.
- Develop a college admission form using HTML5 form controls and CSS3 to collect student



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information with an attractive user interface. 3. Develop a JavaScript-based student grade calculator that computes total marks, percentage, grade, and result based on user input. 4. Develop a client-side form validation application using JavaScript to validate user inputs before form submission. 5. Create an XML document to store student information and develop a JavaScript application to parse and display the XML data in a web browser. 6. Develop a PHP application to generate a student marksheet by accepting student details and marks, calculating the total, percentage, grade, and displaying the result	
SELF STUDY COMPONENT	9 HOURS
Explore HTML5 semantic elements and CSS3 responsive design techniques to enhance the resume and admission form interfaces. Study different HTML5 form controls and CSS styling methods for creating user-friendly web forms.	
PART – B OPEN ENDED EXPERIMENTS Open-ended experiments are a type of laboratory activity where the outcome is not predetermined and students are given the freedom to explore, design, and conduct the experiment based on the problem statements as per the concepts defined by the course coordinator. It encourages creativity, critical thinking, and inquiry-based learning.	
1. Design and develop an online feedback system using HTML5, CSS3, and JavaScript with appropriate client-side validation. 2. Design and develop an XML document representing real-world data and create a web application to parse and display the XML contents using JavaScript. 3. Develop a web application demonstrating XML namespaces and structured XML documents for representing hierarchical information. 4. Develop a multi-page web application integrating HTML5, CSS3, JavaScript, XML, and PHP to collect, validate, process, and display user information. 5. Design and develop a responsive departmental or college website using HTML5, CSS3, JavaScript, and multimedia elements. 6. Design and develop an online event registration or tourism information website using HTML5, CSS3, JavaScript, and PHP with appropriate navigation, validation, and user interaction.	
SELF STUDY COMPONENT	9 HOURS
Practice JavaScript functions, events, DOM manipulation, and validation techniques through interactive applications.	



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PHP form handling, Server side scripting, Sessions, XML Structure, Syntax

TEXT BOOKS:

- 1 Robert W. Sebesta, Programming the World Wide Web, 8th Edition, Pearson, 2022

REFERENCE BOOKS:

- 1 Paul J. Deitel, Harvey M. Deitel, and Abbey Deitel, Internet & World Wide Web: How to Program, 5th Edition, Pearson Education, 2022.
- 2 Randy Connolly and Ricardo Hoar, Fundamentals of Web Development, 3rd Edition, Pearson Education, 2022.

e-LEARNING RESOURCES:

- 1 HTML and CSS: https://www.youtube.com/watch?v=h_RftxdJTzs
- 2 JavaScript: <https://www.w3schools.com/js/default.asp>

Assessment Details for both CIE and SEE

The weightage of Continuous Internal Evaluation (CIE) and Semester End Exam (SEE) is 50% each. The students have to obtain a minimum of 40% marks individually both in CIE and SEE to pass. CIE: The CIE has three components – CIE - theory component, assignment and group activity. Students have to score a minimum of 40% Marks in the total of CIE - theory, assignment and group activity components put together to take SEE.

SEE: Theory Semester End Exam (SEE) is conducted for 100 marks (3 Hours duration) and reduced to 50 Marks.

****Self-Study Component should be not included for SEE & CIE.**

CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks Required in CIE to Qualify for SEE (40% individually)
Laboratory Components	Each experiment will be evaluated using the prescribed rubrics and the average of the marks obtained across all experiments will be considered for the final evaluation.	10	20
	Lab CIE	40	
TOTAL		50	

SEMESTER END EXAMINATION(SEE)

The student must secure a minimum of 40% marks in the SEE to pass the course.

Practical Examination Guidelines

- All laboratory experiments shall be included for the practical examination.



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- The instructions and marks breakup printed on the cover page of the answer script shall be strictly adhered to by the examiners.
- Students shall be allowed to randomly select any one experiment from the given lot.
- Change of the selected experiment shall be permitted only once.
- Any change of experiment shall attract mark deduction as per the Dr. AIT Autonomous Examination Rules and Regulations.

Course Outcomes: After the completion of the course, the student will be able to:	
CO1	Design and develop structured web pages using HTML5 and CSS3 for effective presentation of information.
CO2	Develop interactive web applications using JavaScript for client-side programming, DOM manipulation, and form validation.
CO3	Develop web applications using XML and PHP for structured data representation, server-side processing, and session management.
CO4	Integrate HTML5, CSS3, JavaScript, XML, and PHP to develop dynamic and responsive web applications.
CO5	Test, debug, document, and demonstrate web applications using appropriate web development tools and programming practices

Mapping of COs with POs with PSOs											
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	3	2	3	1	3	1	1	1	3	2	3
CO2	3	3	3	2	3	1	1	1	3	3	3
CO3	3	3	3	2	3	1	1	1	3	3	3
CO4	3	3	3	3	3	1	1	2	3	3	3
CO5	3	3	3	3	3	2	1	2	3	3	3

Mapping of COs with Knowledge and Attitude Profile (WK)									
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0									
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9
CO1	3	2	3	2	3	1	1	1	1
CO2	3	3	3	3	3	1	1	1	1
CO3	3	3	3	3	3	2	1	1	1
CO4	3	3	3	3	3	2	1	2	2
CO5	3	3	3	3	3	2	1	2	2

Course Coordinators:

Shobha Rani B R
Associate Professor
MCA Programme



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Course Title	CONSTITUTION OF INDIA				
Course Code	1BCAT108				
Course Category	VAC (Value Added Courses)				
Teaching - Learning	L	T	P	Total	Total Teaching Hours
Scheme & Credit	1	0	0	1	Lecture:14+Tutorial:0+Practical:0+Self Study:16=30
CIE Marks: 50 (Objective Type: MCQ)	SEE Marks: 50 (Objective Type: MCQ)		Total Max. Marks: 100		Duration of SEE: 01 Hrs (MCQ)

Course Learning Objectives:	
CLO1	Understand India's socio-political culture and philosophical traditions.
CLO2	Explore the significance and sacrifices of the freedom struggle.
CLO3	Examine the Constitution's values and the roles of constitutional offices.
CLO4	Review the contributions of Gandhiji, Dr. B.R. Ambedkar, Nehru, and Tilak, and key values like tolerance and equality.
CLO5	Assess the Constitution's impact and the effectiveness of its institutions

SYLLABUS	No. of Hours	BTLs
UNIT 1	3	L1
Indian Constitution: Necessity of the Constitution, Societies before and after the Constitution adoption. Introduction to the Indian constitution, Making of the Constitution, Role of the Constituent Assembly.		
SELF-STUDY COMPONENTS	3 Hours	
Prepare a concept map on the necessity of the Constitution, compare Indian society before and after the Constitution in a table, create a timeline of the making of the Constitution, and write a brief note on the role of the Constituent Assembly. Explore resources from India Code , Parliament of India , and NPTEL/SWAYAM on the making of the Indian Constitution and the role of the Constituent Assembly. Prepare concise notes or a brief learning journal highlighting the necessity of the Constitution and its evolution.		
UNIT 2	2	L1
Salient features of India Constitution. Preamble of Indian Constitution & Key concepts of the Preamble. Fundamental Rights (FR's) and its Restriction and limitations in different Complex Situations.		
SELF-STUDY COMPONENTS	3 Hours	
Explore resources from India Code , Supreme Court of India , and NPTEL/SWAYAM to study the salient features of the Constitution, the Preamble, Fundamental Rights, and landmark judgments related to their interpretation. Prepare a brief summary or learning journal of the key concepts learned. Recall constitutional features, Preamble values, and the provisions governing Fundamental Rights.		



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Prepare short notes on the key concepts of the Preamble, create a chart on Fundamental Rights, and identify situations where reasonable restrictions apply.		
UNIT 3	3	L1
Directive Principles of State Policy (DPSP’s) and its present relevance in Indian society. Fundamental Duties and its Scope and significance in Nation, Union Executive: Parliamentary System, Union Executive – President, Prime Minister, Union Cabinet.		
SELF-STUDY COMPONENTS	3 Hours	
Analyze the constitutional principles guiding governance and the functions of the Union Executive. Prepare a comparative chart on DPSPs and Fundamental Duties, and write brief notes on the roles of the President, Prime Minister, and Union Cabinet.		
UNIT 4	3	L1
Parliament - LS and RS, Parliamentary Committees, Important Parliamentary Terminologies. Judicial System of India, Supreme Court of India and other Courts, Judicial Reviews and Judicial Activism.		
SELF STUDY COMPONENT	3 Hours	
Explore resources from Parliament of India, Supreme Court of India, India Code, NPTEL, and SWAYAM on Parliament, Parliamentary Committees, the Judicial System, Judicial Review, Judicial Activism, and landmark judgments. Prepare a brief learning journal or summary of the key concepts learned. Analyze the legislative and judicial framework of the Indian Constitution. Prepare brief notes on key parliamentary terminologies, and write a summary of the powers and functions of the Supreme Court and other courts.		
UNIT 5	3	L1
State Executive and Governor, CM, State Cabinet, Legislature - VS & VP, Election Commission, Elections & Electoral Process. Amendment to Constitution, and Important Constitutional Amendments till today. Emergency Provisions.		
SELF STUDY COMPONENT	4 Hours	
Explore resources from Election Commission of India, India Code, Parliament of India, NPTEL, and SWAYAM on the State Executive, State Legislature, electoral process, Constitutional Amendments, and Emergency Provisions. Prepare a brief learning journal or summary of the key concepts learned. Apply knowledge of State governance, electoral mechanisms, and constitutional safeguards in different contexts. Prepare short notes on key concepts, and solve case-based or short-answer questions related to State governance, elections, constitutional amendments, and Emergency Provisions.		

TEXT BOOKS:	
1	Altekar A.S. 1949. "State and Government in Ancient India". Motilal Banarsidass Chowk, Banaras
2	Andre Beteille, 1965. Caste, class, and Power. Berkley: University of California Press.



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REFERENCE BOOKS:	
1	Bhandarkar D.D. 1940. "Some Aspects of Ancient Indian culture". University of Madras.
2	Chandra Bipan. 1979. "Nationalism and Colonialism in India". Orient, Lang
e-LEARNING RESOURCES:	
1	Constitution of India (Full Text), India.gov.in.National Portal of India, https://www.India.gov.in/sites/upload_files/npi/files/coi_part_full.pdf

Assessment Details for both CIE and SEE			
- The weightage assigned to the Continuous Internal Evaluation (CIE) and Semester End Examination (SEE) is 40% each. - To pass the course, students must secure a minimum of 40% marks separately in both CIE and SEE. - To qualify and become eligible to appear for SEE, in the CIE, a student must score at least 40% of 50 marks, i.e., 20 marks. - To pass the SEE, a student must score at least 40% of 50 marks, i.e., 20 marks. - The question paper pattern is Objective Type (MCQ) with maximum of 25 marks for CIE and maximum marks for SEE is 50 marks.			
CONTINUOUS INTERNAL EVALUATION (CIE)		Max. Marks	Minimum Marks Required in CIE to Qualify for SEE (40% individually)
Theory	Weightage of CIE-1 and CIE-2 or CIE-3	40	20
	Assignment	05	
	Group Activity	05	
	TOTAL	50	

SEE QUESTION PAPER PATTERN					
Q. No.	Q1- Q10	Q11- Q20	Q21 – Q30	Q31- Q40	Q41- Q50
UNIT	1	2	3	4	5
1. There are 50 multiple-choice questions.					
2. Students are required answer all the questions by selecting the correct option.					

Course Outcomes: After the completion of the course, the student will be able to:	
CO1	Explain the making, objectives, and significance of the Constitution of India.
CO2	Describe the salient features, Preamble, Fundamental Rights, and their significance.
CO3	Explain the Directive Principles of State Policy, Fundamental Duties, and the Union Executive.
CO4	Describe the structure and functions of Parliament and the Indian Judiciary.



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CO5	Explain the State Government, electoral process, constitutional amendments, and Emergency provisions.
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COURSE SUSTAINABLE DEVELOPMENT GOALS (SDGs)		
Goal No.	Goal Title	Description
4	Quality Education	Ensure Inclusive and equitable quality education and promote lifelong learning opportunities for all
8	Decent Work and Economic Growth	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Mapping of COs with POs with PSOs											
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	-	1	-	-	1	-	3	2	-	-	3
CO2	-	2	1	-	1	-	3	2	-	-	3
CO3	-	1	-	-	1	-	3	2	-	-	3
CO4	-	3	1	-	1	-	3	2	-	-	3
CO5	-	2	1	-	1	-	3	3	-	-	3

Mapping of COs with Knowledge and Attitude Profile (WK)									
Strength of correlation: Strongly related-3, Moderately related-2, Weakly related-1, Not related-0									
CO	WK1	WK2	WK3	WK4	WK5	WK6	WK7	WK8	WK9
CO1	2	2	3	1	1	2	2	2	3
CO2	3	3	3	3	3	3	2	2	3
CO3	2	1	2	2	1	2	3	2	3
CO4	3	3	3	3	3	3	2	2	3
CO5	3	3	3	3	3	3	3	3	3

Course Coordinators:

Geetha H
Associate Professor
School of HSS



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Course Title	PLACEMENT TRAINING				
Course Code	1BCDN209				
Course Category	NCMC (Non Credit Mandatory Course)				
Teaching - Learning Scheme & Credit	L	T	P	Total Credit	Total Teaching Hours
	2	0	0		Lecture:28+Tutorial:0+Practical:0 +Self Study:0=28
CIE Marks: 50 Objective type (MCQ)	-		Total Max. Marks: 50		-

Course Learning Objectives:	
CLO1	To help students to overcome the fear of speaking in both personal and professional culture and it also focuses on the presenting the topics with confidence.
CLO2	Guide students on how to be effective team player & contribute to the organizational growth.
CLO3	Make the students understand about the English usage properly with the right set of course and action.
CLO4	Understand Quantitative Aptitude and Logical Aptitude content to strengthen the general aptitude.
CLO5	Help students understand their interpretation skills in relation to patterns, diagrammatic tests, abstract reasoning test.

SYLLABUS	No. of Hours	BTLs
UNIT 1	4	L1-L4
Team building: Importance of Team Building, Benefits of Team Building, Key Roles in Team building, Helpful Team Behavior---(GA) The Human Maze, Projects Releases performed as a team (Act /Play) Decision making and Problem Solving: Decision making styles, Types of Decision making, Steps of Decision making, Decision Making skills, Problem Solving, Steps of Problem solving. Small talk and Debate		
UNIT 2	6	L1-L4
Workplace etiquette, Business Communication, sales and negotiation---(GA) and Customer service (Customer Experience of selling a product, Owner of a company selling he/her firm to a buyer)		
UNIT 3	4	L1-L4
Grammar Brush up: Parts of Speech Verbal Ability – II Grammar based Exercise: Sentence correction, Sentence Completion, Spotting errors---(PH)- Nuances of Vowels, Sentence Structure, Grammar Organization		
UNIT 4	6	L1-L4
Number System: Number system, Power cycle, Remainder cycle, Factors, Multiples, HCF and LCM, Trailing Zeroes Algebra: Different types of Algebraic expressions, Different types of Algebraic equations-(PH) – Usage of Zeroes, Comparison of LCM, HCF		



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UNIT 5	4	L1-L4
Coding and Decoding: Different types of Problems on Coding and Decoding, Forward Coding, Reverse Coding, Mirror Coding. Statement and assumptions, Statement and Conclusions- Different types of questions and answering methodology. Alphanumeric Problems and Number series: Different types of Problems--(PH)		

TEXT BOOKS:	
1	Soft skills for Managers by Dr. T. KALYANA CHAKRAVATHI
2	Personal Development and Soft Skills by BARUN K MITRA, Oxford Higher Education
3	The Emotionally Intelligent Workplace by DANIEL GOLEMAN.
4	Communication skills and soft skills an integrated approach by E. SURESH KUMAR, P.
5.	Top Talking in English (international communication skills) by CHARLES T. RAJENDRA
6.	Soft skills by RAJ LAKSHMI SURYAVANSHI, Gurucool Publishing

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	Assignment	05	
	Group Activity	05	
	TOTAL	50	

Course Outcomes:	
CO1	Remember the way of quality communication with the co-workers and it will also help to build a strong social relationship with outside society.
CO2	To understand the significance of working in teams and be effective leader in synchronization with the workmate.
CO3	Understand the mistakes in the usage of English vocabulary during their common talks.



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CO4	Implement basic concepts of general quantitative aptitude.
CO5	Apply problems on alphanumeric & numbers and analytical reasoning concept of coding and decoding.

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	-	-	-	-	-	-	1	2	-	-	3
CO2	-	-	-	-	-	-	1	2	-	-	3
CO3	-	-	-	-	-	-	2	2	-	-	3
CO4	-	-	-	-	-	-	3	3	-	-	3
CO5	-	-	-	-	-	-	3	3	-	-	3

Mapping of COs with Knowledge and Attitude Profile (WK)									
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CO2	3	3	3	3	3	3	2	2	3
CO3	2	1	2	2	1	2	3	2	3
CO4	3	3	3	3	3	3	2	2	3
CO5	3	3	3	3	3	3	3	3	3

Course Coordinators:

Dr. Indumathi S K Associate Professor MCA Programme
