Detailed Syllabus
Lecture-wise Breakup

Course Code	15B11CI111	**Semester** ODD **(specify Odd/Even)**	**Semester** I **Session:** 2024-25 **Month from:** July-24 to Dec-24
Course Name	Software Development Fundamentals – I		
Credits	4	**Contact Hours**	3-1-0

Faculty (Names)	**Coordinator(s)**	Amitesh (J62), Shruti Gupta (J128)
	Teacher(s) (Alphabetically)	**J62:** Aastha Maheshwari, Amarjeet Prajapati, Amitesh, Anil Kumar Mahto, Ankita Verma, Anupama Padha, Ashish Singh Parihar, Asmita, Kapil Madan, Mradula Sharma, Prantik Biswas, Pushp, Shraddha Porwal, Sonal Saurabh, Yasmin Ghazala **J128:** Akanksha Mehndiratta, Chetna Gupta, Himani Bansal, Kedar Nath Singh, Niveditta Batra, Satya Prakash Patel, Shariq Murtuza, Shruti Gupta, Shruti Jaiswal, Twinkle Tyagi, Vartika Puri

COURSE OUTCOMES		**COGNITIVE LEVELS**
C109.1	Explain the logic for solving problems considering various phases of software development life cycle and depicting them using algorithms and flowcharts	Understand (Level 2)
C109.2	Explain basics of C programming concepts to make decision for solving problems	Understand (Level 2)
C109.3	Demonstrate and contrast different methods for writing modular programs in C	Understand (Level 2)
C109.4	Use various C programming constructs to implement iteration, and recursion	Apply (Level 3)
C109.5	Apply and implement arrays, pointers, structures and file handling for solving real-world problems	Apply (Level 3)

1. CO-PO and CO-PSO Mapping:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C109.1	**1**	**2**	**2**				**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**
	Slightly mapped to the knowledge of mathematics (puzzles) and engineering fundamentals (C programming)	Moderately mapped to analysis of problems related to engineering sciences (expression and conditional structure in C)	Moderately mapped to design and development of solutions using expression and conditional structure in C				Slightly mapped to sustainable solution using using expression and conditional structure in C	Slightly mapped to professional ethics and responsibilities	Slightly mapped to the individual and team work using assignment	Slightly mapped to the communication using PBL	Slightly mapped to project management using PBL through expression and conditional structure in C	Slightly mapped to the lifelong learning as similarities are presented between different programming skills	Slightly mapped to identification of suitable step by step solution (algorithm) of a problem	Moderately mapped to programming
C109.2	**2**	**1**	**1**				**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**
	Moderately mapped to the knowle	Slightly mapped to analysi	Slightly mapped to design and				Slightly mapped to sustai	Slightly mapped to profe	Slightly mapped to the individ	Slightly mapped to the communication	Slightly mapped to project manage	Slightly mapped to the lifelong learning	Slightly mapped to identification of	Moderately mapped to program

	dge of mathematics (pointer arithmetic) and engineering fundamentals (C programming)	s of problems related to engineering sciences (arrays, string and pointer in C)	development of solutions using arrays, string and pointer in C				nable solution using arrays, string and pointer in C	ssional ethics and responsibilities	ual and team work using assignment	using PBL	ment using PBL through array, string and pointers	as similarities in arrays syntax are present across different programming skills	suitable step by step solution (algorithm) of a problem based on array, string and pointers	ming based on the concept of array, string and pointers
C109.3	**2**	**2**	**1**				**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**
	Moderately mapped to the knowledge of mathematics (functions and recursive functions) and engineering fundamentals (C programming)	Moderately mapped to analysis of problems related to engineering sciences (function and recursive functions C)	Slightly mapped to design and development of solutions using function and recursive functions in C				Slightly mapped to sustainable solution using function and recursive functions in C	Slightly mapped to professional ethics and responsibilities	Slightly mapped to the individual and team work using assignment	Slightly mapped to the communication using PBL	Slightly mapped to project management using PBL through function and recursive functions.	Slightly mapped to the lifelong learning as similarities are present across different programming skills	Slightly mapped to identification of suitable step by step solution (algorithm) of a problem based on function and recursive functions	Moderately mapped to programmings based on the concept of function and recursive functions
C109.4	**2**	**1**	**2**				**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**
	Moderately mapped to the knowledge of mathematics and engineering fundamentals (structure and union)	Slightly mapped to analysis of problems related to engineering sciences (structure and union C)	Moderately mapped to design and development of solutions using structure and union in C				Slightly mapped to sustainable solution using structure and union in C	Slightly mapped to professional ethics and responsibilities	Slightly mapped to the individual and team work using assignment	Slightly mapped to the communication using PBL	Slightly mapped to project management using PBL through structure and union	Slightly mapped to the lifelong learning as similarities are present across different programming skills	Slightly mapped to identification of suitable step by step solution (algorithm) of a problem based on structure and union	Moderately mapped to programming based on the concept of structure and union
C109.5	**2**	**1**	**2**				**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**
	Moderately mapped to the knowledge of mathematics and engineering fundamentals (basic file operation such as fopen, fclose, etc)	Slightly mapped to analysis of problems related to engineering sciences (basic file operations)	Moderately mapped to design and development of solutions using basic file operations in C				Slightly mapped to sustainable solution using basic file operations in C	Slightly mapped to professional ethics and responsibilities	Slightly mapped to the individual and team work using assignment	Slightly mapped to the communication using PBL	Slightly mapped to project management using PBL through basic file operations	Slightly mapped to the lifelong learning as similarities are present across different programming skills	Slightly mapped to identification of suitable step by step solution (algorithm) of a problem based on basic file operations such as fopen, fclose, etc.	Moderately mapped to programming based on the concept of basic file operation such as fopen, fclose, etc

NBA Code: C109	**2**	**2**	**2**				**1**	**1**	**1**	**1**	**1**	**1**	**1**	**2**

Module No.	Subtitle of the Module	Topics in the Module	No. of Lectures for the module	CO Mapping
1.	Introduction	Introduction to Software Development Life Cycle, Step by step solution to simple problems, developing logic/flow- chart/pseudo code to solve problems like 2D screen saver, simple/logical games, puzzles	6	C109.1
2.	Data types, operators, and Control Flow	Data, variables and constants, data types, operators – binary, unary, ternary, operator precedence, operations using different operators, if, if-else, while, do-while, for, switch-case in C Programming	8	C109.1, C109.2, C109.4
3.	Array	Fundamentals of Array, Implementation of 1D/2D Array and related operations like insertion, traversal, updation, etc. in C programming using different problems	7	C109.3, C109.5
4.	Pointers	Pointers in C, Dynamic memory allocation for 1D/2D array, Arithmetical operations on pointers	5	C109.5
5.	Functions	Introduction to Functions and its implementation in C programming language, Functions using Pass by value, functions using pass by reference, recursive functions	5	C109.3, C109.4, C109.5
6.	Structures and Union	Introduction and implementation of Structures and Union in C programming, Array of Structures, Pointer to Structures and related operations like insertion, traversal, updation, etc. in C programming using different problems, Structures using function	5	C109.3, C109.5
7.	File Handling	Introduction to File, creation of files in C programming language, Modes of File Handling like read, write, update; different types of files like binary file and text file and respective operations like, opening, closing, reading, writing, end of file, traversing the file, for structured and unstructured data	6	C109.5
		Total number of Lectures	**42**	

Evaluation Criteria

Components	**Maximum Marks**
T1	20
T2	20
End Semester Examination	35
TA	25

(Attendance = 10, Class Test, Quiz = 05, Internal Assessment = 05, Assignments in PBL mode = 05)

Total	**100**

Project-Based Learning: In this subject, students work in a team of 3-4 people, to implement a small application/mini-project based on the learned concepts. The students will be able to apply various concepts of SDLC life-cycle, C pointers, functions, arrays, structures, union, and file handling for developing a real-life application. This will aid in their employability in the software industry.

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication, etc. (Textbooks,

Reference Books, Journals, Reports, Websites, etc)	
Text Books:	
1.	Paul Deitel and Harvey Deitel, "C How to Program", 9th Edition, Pearson Education, 2022, ISBN: 978-0-13-739839-3
2.	E Balagurusamy, "Computing Fundamentals & C Programming", 2nd Edition, McGraw Hill Education, 2017, ISBN: 978-9352604166
3.	Greg Perry and Dean Miller, "C Programming Absolute Beginner's Guide", 3rd Edition, Que Publishing, 2013, ISBN: 978-0789751980
4.	David Griffiths and Dawn Griffiths, "Head First C: A Brain-Friendly Guide", O'Reilly Media, Inc., 2012, ISBN: 978-1449399917
Reference Books:	
1.	Herbert Schildt, "The Complete Reference C", 4th Edition, McGraw Hill Education, 2017, ISBN: 978-0070411838
2.	Brian W. Kernighan and Dennis Ritchie, "The C Programming Language", 2nd Edition, Pearson Education India, 2015, ISBN: 978-9332549449
3.	Behrouz A. Forouzan, Richard F. Gilberg, "Computer Science: A Structured Programming Approach Using C", 3rd Edition, Cengage Learning, 2007, ISBN: 978-8131503638

Detailed Syllabus

Lecture-wise Breakup

Course Code	15B11HS112	**Semester**: Odd		**Semester**: I **Session** 2024-25 **Month:** July-December
Course Name	English			
Credits	2		**Contact Hours**	1-0-2
Faculty (Names)	**Coordinator(s)**	Dr.Monali Bhattacharya(Sec 62) & Dr.Ekta Srivastava(Sec 128)		
	Teacher(s) (Alphabetically)	Dr Anshu Banwari, Dr Danish Siddiqui, Dr Deepak Verma, Dr Ekta Singh, Dr Ekta Srivastava, Dr Harleen Kaur, Dr Monali Bhattacharya, Dr Nilu Choudhary.		

COURSE OUTCOMES		**COGNITIVE LEVELS**
C114.1	Show proficiency in basic concepts of grammar and phonetics usage.	Remembering (C1)
C114.2	Demonstrate an understanding of the basic aspects of English as a communication tool.	Understanding (C2)
C114.3	Apply grammar concepts, vocabulary skills and phonetics for effective communication and also develop effective professional writing skills.	Applying (C3)
C114.4	Analyze rhetorical devices and literature for enhancing communication skills.	Analyzing (C4)

Module No.	**Title of the Module**	**Topics in the Module**	**No. of Lectures for the module**
1.	English as a Communication Tool	Basic aspects of English: LSRW: Listening, Speaking, Reading, Writing Non-Verbal Communication: Body Language, Voice Modulation, Posture Presentation Skills Phonetics: Transcription, Pronunciation	6
2.	Grammar & Vocabulary	Tense, Aspect, Mood and Voice Vocabulary Enrichment strategies	1
3	Language through Literature	Forms of Literature & Rhetorical Devices One act Play Refund by Fritz Karinthy Famous Speech Swami Vivekanand's Chicago Speech	3
4.	Professional Application/Writing	Textual Organization ·Notice, Agenda and Minutes ·Format of Report Writing	4
		Total number of Lectures	**14**

Syllabus of Practical:

Syllabus for Reading Modules	**No. of Hours in Lab: 7**
Practical for Learning Comprehension Strategies of Reading: Summarizing Inferencing Newspaper reading and comprehension Relating background knowledge Distinguishing between fact and opinion Finding the main idea, important facts, and supporting details	5 Hrs
Practice Quick Reading through SKY Read up-Speed Up Software or SAT/CAT/IELTS exercises.	2 Hrs
Syllabus for Listening Modules	No. of Hours in Lab: 7
Practical for Mastering the Skill of Listening: Listening for the Main Idea; Listening for Detail: 5 Ws and H questions; Listening in sequence: for order following Through Ted Talks Listening for understanding personal & social connotations through News Brief, Interviews. Listening for non-verbal connotations through Audio-Videos and Movie Clips Listening for Functional Language: understanding choice of words for same situation.	5 Hrs
Practice Listening through software of Sky IELTS Listening Exercises or Podcasts	2 Hrs

Syllabus for Speaking Modules	**No. of Hours in Lab: 7**
Activities for Vocabulary Enrichment and learning Public Speaking: Practice through JAM Session- Situational Dialogues – Greetings – Taking; Leave – Introducing Oneself and Others. Making Requests and Seeking Permissions. Exposure to Structured Talks - Non-verbal Communication: Practice. Practice of Phonetics, Stress and Intonation while Making a Short Speech, Extempore and Making a Presentation	3 Hrs

Practice Speaking through software of Sky Pronounce and Sanako Pronounce	4 Hrs

Syllabus for Writing Modules	**No. of Hours in Lab: 7**
Grammar Practice & Exercises: Jumbled Paragraphs for grammar learning Picking the Out of Context sentence in a Jumbled Paragraph for proper communication. Application of right grammar concepts	2 Hrs
Cohesion in Writing Practical on Different forms of writing, like persuasive writing, expository, narrative, descriptive	2 Hr
Practice of Professional Writing Notice, Agenda. Minutes Memorandum and Letter Format Report Writing	3 Hrs

Evaluation Criteria

Components	**Maximum Marks**
Mid Term	30
End Semester Examination	40
TA	30 (Project, Lab Assessment)
Total	**100**

PBL Component: Students will be asked to form groups, with a maximum of five students per group, and will be assigned a project topic on which they will submit a project report.

Top of Form

Bottom of Form

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)	
1.	C.L.Bovee, J.V.Thill, M.Chaturvedi, *Business Communication Today*,9th Ed, Pearson Education, Pvt Ltd, 2021.
2.	A. Tiwari, *Communication Skills in English*. Khanna Publishers, 2022.

3.	K. M. Quintanilla and S. T. Wahl, *Business and Professional Communication*, Sage Publications Pvt India Ltd, 2011.
4.	] S. Kumar and P. Lata, *Communication Skills*, 1st ed. Oxford University Press, 2011.
5.	R. K. Bansal and J. B. Harrison, *Spoken English for India*, Orient Longman, 2018.
6.	M. A. Yadugiri, *The Pronunciation of English: Principles and Practice*, India: Viva Books Pvt. Ltd, 2015.
7.	A. R. Rizvi, *Effective Technical Communication*, 2nd ed. Chennai, India: McGraw Hill Education Private Limited, 2018.
8.	R. Murphy, *English Grammar in Use*, 5th ed. Cambridge, UK: Cambridge University Press, 2019.

9.	K. Mohan and N. P. Singh, *Speaking English Effectively*, 2nd ed. Delhi: Macmillan Publishers India Ltd., 2011.
10.	E. Suresh Kumar and P. A. Sreehari, *A Handbook for English Language Laboratories*. New Delhi: Foundation, 2009.
11.	F. Karinthy, "The Refund," Online. Available: https://egyankosh.ac.in/bitstream/123456789/27478/1/Unit-4.pdf.
12.	Swami Vivekananda and S. Srinivasan, "Sisters & Brothers of America: Speech at World Parliament of Religions, Chicago, 1893," Creative Space Independent Publishing Platform, 2015.

CO-PO and CO-PSO Mapping:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2
C114.1									2	1		3		
C114.2						1			2	3		3		
C114.3									2	1		3		
C114.4						1			2	1		3		
Avg						1.00			2.00	1.50		3.00		

Detailed Syllabus
Lecture-wise
Breakup

Course Code	**15B17CI171**	**Semester** Odd	**Semester: 1st Session: 2024 -2025** **Month from: July – Dec 2024**
Course Name	Software Development Lab-1		
Credits	1	**Contact Hours**	2

Faculty (Names)	**Coordinator(s)**	Dharmveer Singh Rajpoot (JIIT62), Kedar Nath Singh (JIIT128)
	Teacher(s) (Alphabetically)	Alka, Amarjeet Prajapati, Amit Mishra, Amitesh, Anil Kumar Mahto, Ankita Verma, Archana Purwar, Ashish Singh Parihar, Asmita, Kapil Madan, Kavita Pandey, Shardha Porwal, Sonal Saurabh, Sulabh, Yasmin Ghazaala, Anupama Padha, Richa, Akshit, Akanksha Mehndiratta, Arti Jain, Chetna Gupta, Himani Bansal, Himanshu Agrawal, Snigdha Agarwal, SatyaPrakash, Twinkle Tyagi, Niveditta Batra, Shariq Murtuza, Shruti Gupta, Shruti Jaiswal

COURSE OUTCOMES		**COGNITIVE LEVELS**
C172.1	Develop programs/logic for data types, expressions and conditional structure.	Apply (level 3)
C172.2	Perform programs for arrays, strings and pointers	Apply (level 3)
C172.3	Perform programs of functions and recursive functions.	Apply (level 3)
C172.4	Implement programs for structure and union.	Apply (level 3)
C172.5	Implement menu driven programs to perform basic file operations.	Apply (level 3)

1. CO-PO and CO-PSO Mapping:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C172.1	**2**	**2**	**1**		**2**	**1**		**1**	**2**	**2**	**1**	**1**	**1**	**1**
C172.2	**2**	**2**	**1**		**2**	**2**		**1**	**2**	**2**	**1**	**1**	**2**	**2**
C172.3	**2**	**2**	**1**		**2**	**1**		**1**	**2**	**1**	**1**	**1**	**1**	**2**
C172.4	**2**	**2**	**2**		**2**	**1**		**1**	**2**	**1**	**1**	**1**	**2**	**2**
C172.5	**2**	**2**	**2**		**2**	**1**		**1**	**2**	**2**	**1**	**2**	**2**	**2**
AVG	**2**	**2**	**1**		**2**	**1**		**1**	**2**	**2**	**1**	**1**	**2**	**2**

	PO1	PO2	PO3	PO 4	PO5	PO6	P O7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C172.1	**2**	**2**	**1**		**2**	**1**		**1**	**2**	**2**	**1**	**1**	**1**	**1**
	Moderately mapped to the knowledge of mathematics (puzzles) and engineering fundamentals (C programming)	Moderately mapped to analysis of problems related to engineering sciences (expression and conditional structure in C)	Slightly mapped to design and development of solutions using expression and conditional structure in C		Moderately mapped to the uses of IT tools like code blocks and its limitations	Slightly mapped to the engineer and society using PBL component		Slightly mapped to the ethics using PBL component	Moderately mapped to the individual and team work using lab assignment and PBL component	Moderately mapped to the communication using presentation and PBL.	Slightly mapped to project management using PBL through expression and conditional structure in C.	Slightly mapped to the lifelong learning as similarities are present between different programming languages	Slightly Mapped to identification of suitable step by step solution (algorithm) of a problem	Slightly Mapped to programming/ project competitions
C172.2	**2**	**2**	**1**		**2**	**2**		**1**	**2**	**2**	**1**	**1**	**2**	**2**
	Moderately mapped to the knowledge of mathematics (pointer arithmetic) and engineering fundamentals (C programming)	Moderately mapped to analysis of problems related to engineering sciences (Arrays, string and pointer in C)	Slightly mapped to design and development of solutions using Arrays, string and pointer in C		Moderately mapped to the uses of IT tools like code blocks and its limitations	Moderately mapped to the engineer and society using PBL component		Slightly mapped to the ethics using PBL component	Moderately mapped to the individual and team work using lab assignment and PBL component	Moderately mapped to the communication using presentation and PBL.	Slightly mapped to project management using PBL through array, string and pointers.	Slightly mapped to the lifelong learning as similarities in arrays syntax are present across different programming languages	Moderately Mapped to identification of suitable step by step solution (algorithm) of a problem based on array, string and pointers	Moderately mapped to programming/ project competitions based on the concept of array, string and pointers
C172.3	**2**	**2**	**1**		**2**	**1**		**1**	**2**	**1**	**1**	**1**	**1**	**2**
	Moderately mapped to the knowledge of mathematics (function and recursive functions) and engineering fundamentals (C programming)	Moderately mapped to analysis of problems related to engineering sciences (function and recursive functions C)	Slightly mapped to design and development of solutions using function and recursive functions in C		Moderately mapped to the uses of IT tools like code blocks and its limitations	Slightly mapped to the engineer and society using PBL component		Slightly mapped to the ethics using PBL component and using the concept of function in C	Moderately mapped to the individual and team work using lab assignment and PBL component	Slightly mapped to the communication using presentation and PBL.	Slightly mapped to project management using PBL through function and recursive functions.	Slightly mapped to the lifelong learning as similarities are present across different programming languages	Slightly Mapped to identification of suitable step by step solution (algorithm) of a problem based on function and recursive functions	Moderately mapped to programming/ project competitions based on the concept of function and recursive functions
C172.4	**2**	**2**	**2**		**2**	**1**		**1**	**2**	**1**	**1**	**1**	**2**	**2**

	Moderately mapped to the knowledge of mathematics and engineering fundamentals (structure and union)	Moderately mapped to analysis of problems related to engineering sciences (structure and union C)	Moderately mapped to design and development of solutions using structure and union in C		Moderately mapped to the uses of IT tools like code blocks and its limitations	Slightly mapped to the engineer and society using PBL component		Slightly mapped to the ethics using PBL component and assignments using the concept of structure and union in C	Moderately mapped to the individual and team work using lab assignment and PBL component	Slightly mapped to the communication using presentation and PBL.	Slightly mapped to project management using PBL through structure and union	Slightly mapped to the lifelong learning as similarities are present across different programming languages	Moderately Mapped to identification of suitable step by step solution (algorithm) of a problem based on structure and union	Moderately mapped to programming/ project competitions based on the concept of structure and union
C172.5	**2**	**2**	**2**		**2**	**1**		**1**	**2**	**2**	**1**	**2**	**2**	**2**
	Moderately mapped to the knowledge of mathematics and engineering fundamentals (basic file operation such as fopen, fclose, etc)	Moderately mapped to analysis of problems related to engineering sciences (basic file operations)	Moderately mapped to design and development of solutions using basic file operations in C		Moderately mapped to the uses of IT tools like code blocks and its limitations	Slightly mapped to the engineer and society using PBL component		Slightly mapped to the ethics using PBL component and using the concept of basic file operations in C	Moderately mapped to the individual and team work using lab assignment and PBL component	Moderately mapped to the communication using presentation and PBL.	Slightly mapped to project management using PBL through basic file operations	Moderately mapped to the lifelong learning as similarities are present across different programming languages	Moderately Mapped to identification of suitable step by step solution (algorithm) of a problem based on basic file operations such as fopen, fclose, etc.	Moderately mapped to programming/ project competitions based on the concept of basic file operation such as fopen, fclose, etc
NBA Code: C172	**2**	**2**	**1**		**2**	**1**		**1**	**2**	**2**	**1**	**1**	**2**	**2**

Module No.	Title of the Module	Topics in the Module	No. of Weeks	CO Mapping
1	Flow chart and Logic Building	Developing logic/flow-chart/pseudo code to solve problems, simple/logical games, puzzles	2 Weeks	C172.1
2	Data Type, Statements, Expressions, Operators	Data, variables and constants, data types, operators – binary, unary, ternary, operator precedence, associativity	1 Week	C172.1
3	Control Flow	Develop C programs using conditional structure (if, if-else, nested if), and iterative control structure (do-while, while, for). Implement switch case statement.	2 Weeks	C172.1

4	Array and String	Array initialization, reading and writing operations with array, one dimensional, two-dimensional array, strings, and related operations like addition, multiplication, traversal, transpose etc.	2 Weeks	C172.2
5	Pointers	Pointers in C, Dynamic memory allocation for 1D/2D array, Arithmetical operations on pointers, recursive functions like palindrome, factorial, fibonacci series, number system etc	2 Weeks	C172.2, C172.3
6	Functions	User defined functions and inbuilt functions, Functions definition, declaration, calling, Pass by value, functions using pass by reference, functions with array	1 Week	C172.2, C172.3
7	Structures and Union	Struct keyword, Structure and Union, Structure variable, dot operator, pointer to structures, arrow operator, Array of Structures, structure using functions.	2 Weeks	C172.4, C172.2
8	File Handling	File creation, Modes of File Handling like read, write, update; different types of files like binary file and text file and respective operations like, opening, closing, reading, writing, end of file, traversing the file for structured and unstructured data	2 Weeks	C172.5
Total Number of Weeks			14 Weeks	

Project Based learning: In this subject, students work in the team of 3-4 people, to implement a small application/mini-project based on the learned concepts. The students will be able apply various concepts of SDLC lifecycle, C pointers, functions, arrays, structures, union and file handling for developing a real life application. This will aid in their employability in software industry.

Evaluation Criteria

Components	**Maximum Marks**
Lab Test -1	20
Lab Test -2	20
Day to Day	60
Evaluation 1	15
Evaluation 2	15
Project	15
Attendance	15
Total	**100**

Recommended Reading material: Author(s), Title, Edition, Publisher, Year of Publication etc. (Text books, Reference Books, Journals, Reports, Websites etc. in the IEEE format)

1	Paul Deitel and Harvey Deitel, "C HOW TO PROGRAM", 9th Edition, Pearson Education, 2023, ISBN 978-0-13-739839-3
2	H. Cooper and H. Mullish, Jaico Publishing House. "Spirit of C", 4th Edition, Jaico Publishing House, 2006

3	Herbert Schildt. "The Complete Reference C ", 4th Edition, TMH, 2000
4	Brian W. Kernighan and Dennis M. Ritchie ,"The C Programming Language", 2nd Edition, Prentice-Hall India, New Delhi, 2002
5	Peter Norton, "Introduction to Computers", 5th edition, Tata McGraw-Hill, Delhi., 2005.
6	Balaguruswamy, Programming in ANCI C", 2nd Edition, TMH, 2001.
7	Ashok N. Kamthane , "Programming with ANSI and Turbo C", Pearson Education, Delhi, 2003
8	Rajaraman V., "Fundamentals of Computer", 3rd Edition, Prentice-Hall India, New Delhi, 2005.
9	B. A. Forouzan, R. F. Gilberg "Computer Science: A Structured Programming Approach Using C", 2nd Edition, Thomson Press, New Delhi, 2006.
10	Avi Silberschatz, Henry F. Korth, and S. Sudarshan, "Database System Concepts", 6th edition, McGraw-Hill, 2010.