Government of Karnataka
Department of Technical Education
Bengaluru

	Course Title: **Programming with C lab**		
	Scheme (L:T:P) : **0:2:4**	Total Contact Hours: **78**	Course Code: **15CS35P**
	Type of Course: **Tutorial and Practical's**	Credit **:03**	Core/ Elective: **Core**
CIE- 25 Marks			SEE- 50 Marks

Prerequisites

Knowledge of Computer Operation.

Course Objectives

1. Apply the specification of syntax rules for numerical constants and variables, data types.
2. Usage of Arithmetic operator, Conditional operator, logical operator and relational operators and other C constructs.
3. Write C programs using decision making, branching and loop constructs.
4. Apply and Write C programs to implement one dimensional and two dimensional arrays.
5. Writing programs using functions.

Course Outcome

On successful completion of the course, the students will be able to attain CO:

Course Outcome		Experiment linked	CL	Linked PO	Teaching Hrs
CO1	Demonstrate branching statements	***1 to 3***	***A***	1 to 10	**12**
CO2	Demonstrate looping statements	***4 to 7***	***A***	1 to 10	**18**
CO3	Experiment on functions	***8 & 9***	***A***	1 to 10	**12**
CO4	Construct programs on arrays	***10 to 12***	***A***	1 to 10	**18**
CO5	Solve programs on structures	***13 & 14***		1 to 10	**12**
CO6	Write program on Preprocessor directive #define	***15***	***A***	1 to 10	**06**
			Total sessions		**78**

Legends: R = Remember U= Understand; A= Apply and above levels (Bloom's revised taxonomy)

Course-PO Attainment Matrix

Course	Programme Outcomes									
	1	2	3	4	5	6	7	8	9	10
Programming with C lab	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**

Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.

Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.
If ≥40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3
If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2
If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1
If < 5% of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.

List of Graded Practical Exercises

Sl.No	Practical/Exercise
1	WAP to swap the values of two variables without using third variable.
2	WAP to find the largest/smallest of 3 numbers (if-else).
3	WAP to calculate the roots of a quadratic equation (using switch).
4	WAP to sum & reverse a given integer (while loop).
5	WAP to detect the Armstrong numbers in three digits from 100 to 999. (do-while).
6	WAP to check whether the given number is prime or not (for loop).
7	WAP to find the number of and sum of all integers greater than 100 and less than 200 that are divisible by 7 for loop).
8	WAP to calculate factorial of a given number using function.
9	WAP to find GCD of two numbers using function
10	WAP to search for a given number in an array
11	WAP to find the transpose of a given matrix
12	WAP to addition two matrices
13	WAP to create a structure with employee details and display the same
14	WAP to process student structure containing roll number, class and age as members. The program must read 5 student record in an array of structure and display the details of a student who is eldest. Use a function to find the eldest for which array of structure is an argument.
15	WAP to demonstrate # define function.

Reference

Programming with ANSI-C, E. Balaguruswamy, Sixth Edition, Tata Mcgraw Hill.

Suggested list of student activities

Note: the following activities or similar activities for assessing CIE (IA) for 5 marks (Any one)

Student activity like mini-project, surveys, quizzes, etc. should be done in group of 3-5 students.

1. Each group should do any one of the following type activity or any other similar activity related to the course and before conduction, get it approved from concerned course co-ordinator and programme co-ordinator.
2. Each group should conduct different activity and no repeating should occur.

    - Customer billing System Project, Cricket Score Board Project, Calendar, Application Project, Employee Record System Project, Student Record

System Project, Cyber Management System Project, College billing System Project, Customer billing system, Phone book application, etc.

Course Delivery

The course will be delivered through Demonstration and Practices

Course Assessment and Evaluation Scheme

Method	What		To whom	When/Where (Frequency in the course)	Max Marks	Evidence collected	Course outcomes
Direct Assessment	CIE (Continuous Internal Evaluation)	IA	Students	Two tests (average of two tests)	10	Blue books	1,2,3,4,5
				Record	10	Record	1,2,3,4,5
				Student activity.	05	Report.	
				Total	**25**		
	SEE (Semester End Examination)	End Exam		**End of the course**	**50**	Answer scripts at BTE	1,2,3,4,5
Indirect Assessment	Student Feedback on course		Students	Middle of the course		Feedback forms	1,2,3 Delivery of course
	End of Course Survey			End of the course		Questionnaires	1,2,3, 4 & 5 Effectiveness of Delivery of instructions & Assessment Methods

***CIE** – Continuous Internal Evaluation ***SEE** – Semester End Examination

Note:

1. I.A. test shall be conducted as per SEE scheme of valuation. However obtained marks shall be reduced to 10 marks. Average marks of two tests shall be rounded off to the next higher digit.
2. Rubrics to be devised appropriately by the concerned faculty to assess Student activities.

Questions for CIE and SEE will be designed to evaluate the various educational components (Bloom's taxonomy) such as:

Sl. No	Bloom's Category	%
1	Remembrance	10
2	Understanding	20
3	Application	70

Note to IA verifier*: *The following documents to be verified by CIE verifier at the end of semester

1. Blue books (10 marks)
2. Record (10 marks)
3. Student suggested activities report for 5 marks
4. Student feedback on course regarding Effectiveness of Delivery of instructions & Assessment Methods.

Format for Student Activity Assessment

DIMENSION	Unsatisfactory 1	Developing 2	Satisfactory 3	Good 4	Exemplary 5	Score
Collection of data	Does not collect any information relating to the topic	Collects very limited information; some relate to the topic	Collects some basic information; refer to the topic	Collects relevant information; concerned to the topic	Collects a great deal of information; all refer to the topic	3
Fulfill team's roles & duties	Does not perform any duties assigned to the team role	Performs very little duties	Performs nearly all duties	Performs all duties	Performs all duties of assigned team roles with presentation	4
Shares work equally	Always relies on others to do the work	Rarely does the assigned work; often needs reminding	Usually does the assigned work; rarely needs reminding	Does the assigned job without having to be reminded.	Always does the assigned work without having to be reminded and on given time frame	3
Listen to other Team mates	Is always talking; never allows anyone else to speak	Usually does most of the talking; rarely allows others to speak	Listens, but sometimes talk too much	Listens and contributes to the relevant topic	Listens and contributes precisely to the relevant topic and exhibit leadership qualities	3
					TOTAL	**13/4=3.25=4**

All student activities should be done in a group of 4-5 students with a team leader.

Scheme of Valuation for End Examination

1	Writing two programs	10+10=20
2	Executing any one program with result	20
3	Viva Voice	10
	Total	**50**

***Evaluation should be based on the screen output only. No hard copy required.*

***Change of question is allowed only once. Marks of 05 should be deducted in the given question.*

Resource requirements for Programming with C Lab

(For an Intake of 60 Students [3 Batches])

Sl. No.	Equipment	Quantity
1	PC systems (latest configurations with speakers)	20
2	Laser Printers	01
3	Networking (Structured) with CAT 6e / wireless 24 Port switches / Wireless Router I/O Boxes for networking(as required)	03
4	Broad Band Connection	01

***Open Source Software should be encouraged*

MODEL QUESTION BANK

1	WAP to swap the values of two variables without using third variable.
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