


Government of Karnataka
Department of Technical Education
Board of Technical Examinations, Bangalore

	Course Title: C PROGRAMMING LAB		
	Scheme (L:T:P) : 0:2:4	Total Contact Hours: 78	Course Code: 15ME47P
	Type of Course: Tutorial and practice	Credit : 03	Core/ Elective: Core(practice)
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, looping 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:

Course Outcome		CL	Linked Exercise	Linked PO	Teaching Hrs
CO1	Acquire logical thinking, Implement the algorithms and analyze their complexity, Identify the correct and efficient ways of solving problems	U/A	1 to 10	1,2,3,5,10	69
CO2	Implement real time applications using the power of C language features.	U/A	11,12,13	1,2,3,4,5,10	09
			Total sessions		78

Legend: R; Remember, U: Understand A: Application

1. COURSE-PO ATTAINMENT MATRIX

Course	Programme Outcomes									
	1	2	3	4	5	6	7	8	9	10
MACHINE SHOP	3	3	3	1	3	-	-	-	-	3
<p style="text-align: center;">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 $\geq 40\%$ 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.</p>										

TUTORIAL SESSION ACTIVITES

Introduction to C programming- Need for a computer language, types of computer languages, features of C, Character set- Structure of C program., keywords, statements, standard library functions, pre-processor, main function, comments, variables, data types, operators, assignments, strings, format specifies, escape sequences, control structures-sequential, conditional, repetitive/looping, arrays-one & two dimensions, user defined functions

LIST OF GRADED PRACTICAL EXERCISES

The practical/Graded exercises should be properly designed and implemented with an attempt to develop different types of learning out comes in affective domain and psychomotor domain, so that students are able to acquire the necessary skills. Following is the list of experiments to be carried out

Exer cise No.	Practical/Exercise	Apprx. Hrs. Required
C PROGRAMMING		
1	Introduction to C programming (Lecture and demo).And Write C programme to convert the temperature in degree Celsius to degree Fahrenheit.	04+05
2	To find the sum and average of 3 real numbers.	01+02
3	To find the sum of even and odd numbers from 1 to N.	01+02
4	To find the sum of digits of a number.	01+02
5	To reverse the given integer and check whether it is a palindrome or not	02+04
6	To find the roots of a quadratic equation using switch statement.	03+06
7	To arrange N numbers in ascending order using Bubble sort technique	03+06
8	To perform addition of two matrices.	03+06
9	To perform a multiplication of two matrices after checking the compatibility for multiplication.	03+06
10	To find the largest of 3 numbers using functions (functions with arguments and return value)	03+06
11	To find the distance travelled by a vehicle, given it's initial velocity 'u', acceleration 'a' and time 't' [$S = ut + \frac{1}{2}at^2$]	01+02
12	To find out Clearance volume of an Engine, given its bore diameter, Length of stroke and Compression ratio	01+02
13	To find the power transmitted by shaft by inputting the value speed and torque transmitted	01+02
	TOTAL	78Hrs

Note: For the above exercises, first the flowchart should be developed and then the programs should be written and executed.



SUGGESTED LIST OF STUDENT ACTIVITIES

Note: the following activities or similar activities for assessing CIE (IA) for 10 marks (Any one)

1. Each student 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 Teacher and HOD.
2. Each student should conduct different activity and no repeating should occur

1	Ask the students to take the simple problems in Hydraulics , develop a C Programme
2	Ask the students to take the simple problems in Strength of Materials , develop a C Programme
3	Ask the students to take the simple problems in Thermal engineering, develop a C Programme

Course Delivery:

The course will be delivered through lectures and presentations

Course Assessment and Evaluation Scheme:

	What		To whom	When/Where (Frequency in the course)	Max Marks	Evidence collected	Course outcomes
Direct Assessment meth	CIE	IA	Students	Student Activities	10	Activities sheet	1,2
				Record – Average marks of graded exercises to be computed	15	Graded exercises	1,2
				End of the course	50	Answer scripts at BTE	1,2
Indirect Assessment	Student Feedback on course		Students	Middle of the course		Feedback forms	1 Delivery of course
	End of Course Survey			End of the course		Questionnaires	1,2 Effectiveness of Delivery of instructions & Assessment Methods

*CIE – Continuous Internal Evaluation

*SEE – Semester End Examination

Note:

1. Rubrics to be devised appropriately by the concerned faculty to assess Student activities.

• **MODEL OF RUBRICS /CRITERIA FOR ASSESSING STUDENT ACTIVITY**

RUBRICS FOR ACTIVITY(5 Marks)						
Dimension	Unsatisfactory	Developing	Satisfactory	Good	Exemplary	Student Score
	2	4	6	8	10	
Collection of data	Does not collect any information relating to the topic	Collects very limited information; some relate to the topic	Collect much information; but very limited relate to the topic	Collects some basic information; most refer to the topic	Collects a great deal of information; all refer to the topic	Ex: 4
Fulfil team's roles & duties	Does not perform any duties assigned to the team role	Performs very little duties but unreliable.	Performs very little duties	Performs nearly all duties	Performs all duties of assigned team roles	6
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	Normally does the assigned work	Always does the assigned work without having to be reminded.	8
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	Talks good; but never show interest in listening others	Listens, but sometimes talk too much	Listens and speaks a fair amount	8
Average / Total marks=(4+6+8+8)/4=26/4=6.5=7						

Note: This is only an example. Appropriate rubrics/criteria may be devised by the concerned faculty (Course Coordinator) for assessing the given activity.

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

1. Student suggested activities report for 10 marks
2. Student feedback on course regarding Effectiveness of Delivery of instructions & Assessment Methods.

Scheme of Valuation for End Examination

Serial no	Description	Marks
1	Writing Programme	20
2	Execution	20
4	Viva	10

	TOTAL	50
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EQUIPMENT LIST: Quantity: 01 Each

1. Latest Configuration Computers -20 no
2. C software
3. LCD Projector

MODEL QUESTION PAPER

IV Semester Diploma in Mechanical Engineering
C-PROGRAMMING LAB

Time: 3 Hours

[Max Marks: 50]

1. Write C programme for Finding the power transmitted by shaft by inputting the value speed and torque.

Writing Programme	20
Execution	20
Viva	10
TOTAL	50

MODEL QUESTION BANK

IV Semester Diploma in Mechanical Engineering
C-PROGRAMMING LAB

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