GUJARAT TECHNOLOGICAL UNIVERSITY, AHMEDABAD, GUJARAT
COURSE CURRICULUM

Course Title: Programming Practice
(Code: 3312402)

Diploma Programmes in which this course is offered	Semester in which offered
Power Electronics Engineering	**First Semester**

1. RATIONALE

To enable the students to acquire basic knowledge in the fundamentals of computers and programming language which is useful in developing applications in various fields & gives knowledge of 'C' language. The fundamental concepts of learning a computer programming language have been covered in this course which will enhance their ability to suitably use it in their respective field of applications.

2. LIST OF COMPETENCIES

The course content should be taught and implemented with the aim to develop different types of skills leading to the achievement of the following competency:

i. **Develop programmes in C progamming language to solve given problems**.

3. TEACHING AND EXAMINATION SCHEME

Teaching Scheme (In Hours)			TotalCredits (L+T+P)	Examination Scheme				
				Theory Marks		Practical Marks		Total Marks
L	T	P	C	ESE	PA	ESE	PA	
0	0	4	4	0	0	40	60	100

Legends: L-Lecture; **T** – Tutorial/Teacher Guided Theory Practice; **P** - Practical; C – Credit;
ESE - End Semester Examination; **PA** - Progressive Assessment.

4. DETAILED COURSE CONTENTS

Unit	Major Learning Outcomes	Topics and Sub-topics
Unit – I Introduction to Computer & Operating System	1.1 Explain basics of computer and operating systems 1.2 Identify different parts of computer systems	**COMPUTER BASICS** 1.1 History of computer and processors 1.2 Latest processor available depending on speed 1.3 Parts of computer - Types of Mouses, Types of Printers, Types of Keyboard, Standard sizes of Screens, Scanner, Image & Screen Resolutions 1.4 Types of Software - Various Application Software, Security Softwares Available, File Extensions available in various files 1.5 Expansion slots 1.6 Sockets and ports 1.7 Formatting & Drive Memory Allocations 1.8 Problem debugging regarding drivers & viruses. 1.9 IP allocation 1.10 Removable Media available based on size and speed 1.11 Life of Removable Media
Unit– II C Concepts	2.1 Describe C development 2.2explain C Characters & Tockens	2.1 Importance of C 2.2 Structure of C Programming 2.3 Character set 2.4 'C' token 2.5 Keywords & Identifiers 2.6 Constant, Variables 2.7 Data Types 2.8 Declaration of Variables 2.9 Assigning Values 2.10 Defining Symbolic Constants
UNIT-III OPERATORS AND EXPRESSIONS	3.1 Use operators and expressions	3.1 Arithmetic Operators 3.2 Relational Operators 3.3 Logical Operators 3.4 Assignment Operators 3.5 Increment & Decrement Operators 3.6 Conditional operator 3.7 Bitwise Operators 3.8 Special operators 3.9 Arithmetic expressions 3.10 Evaluation of expressions 3.11 Precedence of Arithmatic Operators
UNIT-IV Managing Input and Output Operations	4.1 Explain input and output operations in program	4.1 Reading a Character 4.2 Writing a Character 4.3 Formatted Input 4.4 Formatted Output
UNIT-V Decision Making, Branching and Looping	5.1 Use condition like if ..else..., switch statement, Go To statement in program. 5.2 Use decision making loops like while, do...while, for, multiple action loop like nested for in programming	5.1 Decision Making with IF Statement 5.2 Simple IF statement 5.3 The If.....Else Statement 5.4 Nested If.....Else Statement 5.5 Else If Ladder 5.6 The Switch Statement 5.7 The GoTo Statement 5.8 The WHILE Statement 5.9 The Do Statement 5.10 The For Statement

Unit	Major Learning Outcomes	Topics and Sub-topics
		5.11 Jumps in Loops
UNIT-VI Arrays	6.1 Use Computation with Array logics for multiple data system	6.1 One Dimensional Arrays 6.2 Declaration of One Dimensional Arrays 6.3 Initialization of One Dimensional Arrays 6.4 Two Dimensional Arrays 6.5 Initialization of Two Dimensional Arrays

5. SPECIFICATION TABLE (for theory)

There is no theory paper and hence specification table for theory is not applicable

6 . SUGGESTED LIST OF EXERCISES/PRACTICALS

The exercises should be properly designed and implemented with an attempt to develop different types of skills leading to the achievement of the competency

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S. No.	Unit No.	Practical/Exercises
1	II	Write minimum 5 programs using Constants, Variables & arithmetic expression.
2	II	Write programs to understand Data types, Type modifiers and Type conversion.
3	III	Write minimum 5 programs providing understanding of Relational operators.
4	III	Write programs using logical and bitwise operators.
5	IV	Write programs providing insight to formatted and unformatted input and output in C.
6	V	Make programs using If, If-else, If-else-if and Nested If statements.
7	V	Make programs using break, continue, goto and switch statements.
8	V	Write programs to understand simple For loop and nested loops.
9	V	Write programs using While Loop and Do-while loop.
10	VI	Write programs using one dimensional arrays. (Sorting, merging, finding particular value etc.)
11	VI	Write programs using Two dimensional arrays. (Basic Matrix operations like addition and subtraction of matrix)

7. SUGGESTED LIST OF PROPOSED STUDENT ACTIVITIES

Following is the list of proposed student activities:

- Search and Identify areas where C programming is widely used as sole programming language.
- Development of Algorithm and charts explaining various flow chart features.
- **Other activities to be carried out by students are:** course/topic based seminars, internet based assignments, teacher guided self learning activities, course/library/internet/lab-based debate etc.

8. SUGGESTED LEARNING RESOURCES

A. List of Books

S. No.	Author	Title of Books	Publication
1	Balagurusamy E	Programming in ANSI 'C'	TMH
2	Rajaraman V.	Fundamentals Of Computers (3rd Edition)	PHI
3	Kanetkar Yashwant	Let us 'C'	Tech Media
4	Venu Gopal	Programming in 'C'	TMH

B. List of Major Equipment/ Instrument

- Computer System loaded with Appropriate Operating System

C. List of Software/Learning Websites

- TURBO C Compiler
- WINDOWS VISTA/7
- www.w3schools.com

9. COURSE CURRICULUM DEVEDLOPMENT COMMITTEE

Faculty Members from Polytechnics

- **Shri S. A. Patel**, Lecturer in Power Electronics, Dr. S. & S. S. Ghandhy Collge of Engg. And Tech., Surat.
- **Shri S. J. Molia**, Lecturer in I.T, L. E. College, Morbi.

Coordinator and Faculty Members from NITTTR Bhopal

- **Prof. A.S.Walkey**, Associate Professor, Dept. of Electrical & Electronics Engg, NITTTR, Bhopal.
- **Prof. R. K. Kapoor**, Associate Professor, Dept. of Computer Engg and Applications, NITTTR, Bhopal.