REVISED SYLLABUS ACCORDING TO CBCS NEP2020 SECOND-YEAR OF MASTER OF SCIENCE IN PHYSICS

COURSE TITLE:- EMBEDDED C PROGRAMMING
SEMESTER - III
W.E.F. 2024 - 2025

RECOMMENDED BY THE BOARD OF STUDIES IN PHYSICS
AND
APPROVED BY THE ACADEMIC COUNCIL
Devrukh Shikshan Prasarak Mandal's
Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh.
Tal.Sangmeshwar, Dist. Ratnagiri–415804, Maharashtra, India

Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce and Vid. Dadasaheb Pitre Science College, Devrukh (An Autonomous College Affiliated with University of Mumbai)

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Academic Council Item No: **dated 19 April 2024**

Name of the Implementing Institute	:	Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh. Tal. Sangmeshwar, Dist. Ratnagiri-415804,
Name of the Parent University	:	University of Mumbai
Name of the Programme	:	Master of Science
Name of the Department	:	Physics
Name of the Class	:	Second Year
Semester	:	Third
No. of Credits	:	04
Title of the Course	:	**Embedded C Programming**
Course Code	:	S602PHT
Name of the Vertical in adherence to NEP 2020	:	Major
Eligibility for Admission	:	Any student admitted to Second year of M.Sc, degree programme in adherence to Rules and Regulations of the University of Mumbai and Government of Maharashtra.
Passing Marks	:	40%
Mode of Assessment	:	Formative and Summative
Level	:	PG
Pattern of Marks Distribution for SEE and CIA	:	60:40
Status	:	NEP-CBCS
To be implemented from Academic Year	:	2024 - 2025

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Syllabus for Second Year of Master of Science in Physics

(With effect from the academic year 2024-2025)

SEMESTER - III　　　　　　　　　　　**Paper No–Physics Paper– II**

Course Title: Embedded C Programming　　　**No. of Credits - 04**

Type of Vertical: Major　　　　　　　　**COURSE CODE: S602PHT**

Learning Outcomes Based on BLOOM's Taxonomy:

After completing the course, the learner will be able to…

Course Learning Outcome No.	Blooms Taxonomy	Course Learning Outcome
CLO-01	Remember	Know the use of GNU toolchain
CLO-02	Understand	Understand the basic concepts and control structures in C language
CLO-03	Understand	Understand the advanced concepts like functions, pointers and preprocessor
CLO-04	Understand	Understand the software development methodologies.
CLO-05	Understand	Understand the various included data structures and their applications
CLO-06	Apply	Write C programmes for implementation of the data structures

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Syllabus for Second Year of Master of Science in Physics

(With effect from the academic year 2024-2025)

SEMESTER - III	**Paper No–Physics Paper– II**
Course Title: Embedded C Programming	**No. of Credits - 04**
Type of Vertical: Major	**COURSE CODE: S602PHT**

COURSE CONTENT			
Module No.	**Content**	**Credits**	**No. of Lectures**
Unit 1	**Chapter 1: Introduction to C Programming and GNU Toolchain** Overview of C programming language, Introduction to GNU Toolchain, Cross Compilers, GNU Make utility, Setting up the Linux environment and understanding vi editor, Version Control - GIT **Chapter 2: Basic concept from C programming** Tokens of C: Keywords, Data-Types, Variables, Constants, Operators, Identifiers and Storage Class Specifiers Control Flow Statements: If-else, Switch-case, Loops, Arrays and Multidimensional Arrays, Data Input & Output and String Manipulation	**01**	**15**
Unit 2	**Functions:** Declaration, Definition, Calling, Arguments, Return Values, Recursion: Concepts and Examples **Pointers:** Introduction, Pointer Arithmetic, Pointers and Arrays, Pointers and Functions, Pointers and Strings, Advanced Topics: Structures, Unions, Enum, Typedef, Bit Field Operators	**01**	**15**
Unit 3	Preprocessors in C, Files and I/O operations in C Command Line Arguments, Handling Variable Number of Arguments Software Development Methodologies, Waterfall model, V model, Agile, Sprint	**01**	**15**
Unit 4	**Data Structures and Advanced Concepts** Introduction to Data Structures: Array, Stack, Linked Lists Trees: Queues, Trees, heap Algorithm: searching, sorting, hashing, running average, CRC16/32	**01**	**15**
	Total	**04**	**60**

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<u>Reference Books:</u>

1. Data Structures Using C by E. Balgurusamy

2. Test Driven Development for Embedded C by James Grenning

Access to the Course

The course is available for all the students admitted for Master of Science in Physics.

Methods of Assessment

The assessment pattern would be 60:40, 60% for Semester End Examination (SEE) and 40% for Continuous Internal Assessment (CIA). The structure of the SEE and CIA would be as recommended by the Board of Studies and approved by the Board of Examination and the Academic Council of the college.

Pattern of Evaluation

The Examination/Evaluation pattern shall be framed by the Board of Examination with its final approval from the Academic Council of the College.

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