JAI HIND COLLEGE
BASANTSING INSTITUTE OF SCIENCE
&
J.T.LALVANI COLLEGE OF COMMERCE
(AUTONOMOUS)

"A" Road, Churchgate, Mumbai - 400 020, India.

Affiliated to
University of Mumbai

Program : BSc

Proposed Course: Physics (APPLIED COMPONENT)

Semester VI

Credit Based Semester and Grading System (CBGS) with effect from the academic year 2020-21

T.Y.B.S.c Physics* (Applied Component) *Syllabus

Academic year 2020-2021

Semester VI			
Course Code	**Course Title**	**Credits**	**Lectures /Week**
SPHY6AC	8085 microprocessor and C++ programming	2.5	4
SPHY6ACPR	Practical	2.5	4

Semester VI Applied Component – Theory

Course Code: SPHY6AC	Course Title -: (Applied Component) 8085 microprocessor and C++ programming. (Credits: 2.5, Lectures/Week: 04)	
	Objectives The course introduces students to microprocessor and C++ programming techniques and application. **Outcomes:** To understand microprocessor programming and application. To understand C++ programming and application.	
Unit – I	**Introduction to 8085 assembly language programming** Concept of multiplexer, demultiplexer and D-latch Introduction : Microprocessor as a programmable device; Organization of microprocessor based system, low-level and high-level languages. 8085 Programming Model. 8085 instruction, data format and storage. 8085 microprocessor architecture. 8085 basic instructions, their operations and their applications : Data transfer operations, Addressing Modes, Logic Operations, Branch Operations, writing assembly language programs.	**15L**
Unit – II	**Advanced 8085 programming and 8255(PPI)** Programming techniques : Looping, Counting, and Indexing. Advanced instructions and applications : Additional instructions and instructions related to 16-bit operations and their applications. The 8255 Programmable peripheral Interface: Block Diagram of the 8255, Mode 0 – simple input/ output mode, BSR (Bit Set/Reset Mode)	**15L**
Unit – III	**C++ programming I** A look at the Procedure-Oriented Programming, Object-Oriented Programming Paradigm; Data types and Operators. Control Statements: if statement, if-else-if statement, switch statement, Loop Statements : for loop, while loop, do-while loop, Breaking Control statements : break statement, continue statement, goto statement. Functions: The Main Function, Function Prototyping, Call by Reference, Return by Reference, Inline Function, Default Arguments, Constant Argument, Function Overloading, Math Library Functions.	**15L**
Unit – IV	**C++ programming II** Arrays : Array notation, Array declaration, Array initialization, Processing with array, Functions and Arrays, Multidimensional array. Pointers : Pointer operator, Address operator, Pointer declaration, Pointer arithmetic, Pointer and functions, Pointer and arrays. Introduction to structures, classes and objects: Structure declaration, Structure initialization, Declaration of classes, Member functions, Defining object of a class.	**15L**
CA (Continuous Assessment)	Class test/Seminars/ Assignments and Class performance.	

References:

Ramesh Gaonkar (5th Ed.)*Microprocessor Architecture, programming & Application with the 8085* , Prentice Hall of India.

D. Ravichandran, *Programming with C++* , Tata McGraw-Hill Publishing Company Limited.

Tony Gaddis (3rd Ed.) *Starting out with C++* Addison Wesley Publishing Company.

E Balagurusamy (3rd Ed.) *Object Oriented Programming with C++* , Tata McGraw-Hill Publishing Company Limited.

Course Code SPHY6ACPR	**SEMESTER-VI EI PRACTICALS (Credits: 2.5, Lectures/Week: 04)**
	1. Study of 8085 microprocessor kit and commands. Execution of simple programs like 8-bit addition, subtraction. 2. Assembly language program to add given set of numbers. Store and display the result. 3. Assembly language program to add two 16-bit numbers. Store and display the result. 4. Assembly language program to multiply two 8-bit numbers. Store and display the result. 5. Assembly language program to transfer a memory block from one location to another. Store and display the result. 6. Assembly language program to divide two, 8-bit nos. Display quotient & remainder. 7. Assembly language program to arrange given set of 8-bit numbers in ascending/descending order. 8. Write a program to blink Port C bit n (n = 0 to 7 any one) of the 8255 PPI available on your 8085 kit. Use Bit Set/Reset mode. 9. C++ program based on Input, Output Statements. 10. C++ program based on Control Statements. 11. C++ program to study function declaration, function calling & function prototype. 12. C++ program based on Arrays 13. C++ program based on Pointers. 14. C++ program based on Classes and Objects.
CA (Continuous Assessment)	Continuous practical evaluation /seminar / Journal Report and Viva-voce.

References:	Ramesh Gaonkar (5th Ed.)*Microprocessor Architecture, programming & Application with the 8085* , Prentice Hall of India. D. Ravichandran, *Programming with C++* , Tata McGraw-Hill Publishing Company Limited. Tony Gaddis (3rd Ed.) *Starting out with C++* Addison Wesley Publishing Company. E Balagurusamy(3rd Ed.) *Object Oriented Programming with C++* , Tata McGraw-Hill Publishing Company Limited.

[A] Students will come for one turn of 3 hours per week for the laboratory sessions(performing practicals) .

A minimum of 8 experiments from practical course are to be performed and reported in the journal.

The certified journal must contain a minimum of 8 experiments from the practical course.

Evaluation Scheme

[A] Evaluation scheme for Theory course SPHY6AC

- **Continuous Assessment (C.A.) - 40 Marks**
  - **C.A.-I : Test – 20 Marks of 40 mins. Duration**
  - **C.A. –II: Assignment of problems/seminars/class performance**
- **Semester End Examination (SEE)- 60 Marks**

[B] Evaluation scheme for Practical course

Total marks : 100				
Continuous Assessment (CA) **40% (40 marks)**			**Semester End Examination (SEE)** **60% (60 marks)**	**Total**
Rough journal	**Journal**	**Viva-Voce**	**Experiment**	**Total**
20	**10**	**10**	**60**	**100**

Practical examination will be of two and half hours. Students will perform 1 experiment of two and half hours duration.

Note: Certified journal is a must for the student to appear for practical examination.