



**FIRST-YEAR OF BACHELOR OF SCIENCE
COMPUTER SCIENCE VOCATIONAL SKILL
ENHANCEMENT COURSE RELATED TO MINOR
REVISED SYLLABUS ACCORDING TO CBCS
NEP2020**

**COURSE TITLE: Lab skills of Digital Electronics and Programming
with Python I
SEMESTER-I, W.E.F. 2023-2024**

**Recommended by the Board of Studies in Computer Science
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. Sangameshwar, Dist. Ratnagiri-415804, Maharashtra,
India

Academic Council Item No: _____

Name of the Implementing Institute	:	Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh. Tal. Sangameshwar, Dist. Ratnagiri-415804,
Name of the Parent University	:	University of Mumbai
Name of the Programme	:	Bachelor of Science
Name of the Department	:	Computer Science
Name of the Class	:	First Year
Semester	:	First
No. of Credits	:	02
Title of the Course	:	Lab skills of Digital Electronics and Programming with Python I
Course Code	:	CSVS101
Name of the Vertical in adherence to NEP 2020	:	Vocational Skill Enhancement Course
Eligibility for Admission	:	Any 12 th Pass seeking Admission to 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	:	UG
Pattern of Marks Distribution for TE and CIA	:	50:50
Status	:	NEP-CBCS
To be implemented from Academic Year	:	2023-2024
Ordinances /Regulations (if any)	:	

Syllabus for First Year of Bachelor of Science in Chemistry

(With effect from the academic year 2023-2024)

SEMESTER-I

Paper No.– 7

Course Title: Lab skills of Digital Electronics

No. of Credits - 02

and Programming with Python I

Type of Vertical: Vocational Skill Enhancement Courses COURSE CODE: CSVS101

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	Synthesize	Perform basic laboratory procedures and protocols in future lab situations.
CLO-02	Apply	Maintain laboratory records compliant with current industry standards.
CLO-03	Apply	Utilize troubleshoot measures during laboratory processes.
CLO-04	Analyse	Analyse laboratory data with accuracy.
CLO-05	Comprehend	Explain MSDS data of various chemicals.

Syllabus for First Year of Bachelor of Science in Chemistry

(With effect from the academic year 2023-2024)

SEMESTER-I

Paper No.– 7

Course Title: Lab skills of Digital Electronics

No. of Credits - 02

and Programming with Python I

Type of Vertical: Vocational Skill Enhancement Courses COURSE CODE: CSVS101

Course: CSVS101	Lab skills of Digital Electronics and Programming with Python I
Module I	<p style="text-align: center;">Lab skill of Computer Organization and Design</p> <ol style="list-style-type: none"> 1. Study and verify the truth table of various logic gates (NOT, AND, OR, NAND, NOR, EX-OR, and EX-NOR). 2. Simplify given Boolean expression and realize it. 3. Design and verify a half/full adder 4. Design and verify half/full subtractor 5. Design a 4 bit magnitude comparator using combinational circuits. 6. Design and verify the operation of flip-flops using logic gates. 7. Verify the operation of a counter. 8. Verify the operation of a 4 bit shift register 9. Using SPIM, write and test an adding machine program that repeatedly reads in integers and adds them into a running sum. The program should stop when it gets an input that is 0, printing out the sum at that point. 10. Using SPIM, write and test a program that reads in a positive integer using the SPIM system calls. If the integer is not positive, the program should terminate with the message “Invalid Entry”; otherwise the program should print out the names of the digits of the integers, delimited by exactly one space. For example, if the user entered “528,” the output would be “Five Two Eight.” <p># Practical No. 1 to 8 can be performed using any open source simulator (like Logisim) (Download it from https://sourceforge.net/projects/circuit/)</p> <p># Practical No. 9 and 10 are required to be done using SPIM. SPIM is a self-contained simulator that will run MIPS R2000/R3000 assembly language programs.</p>

	# Latest version is available at https://sourceforge.net/projects/spimsimulator/
Module II	<p>Lab skill of Programming with Python I</p> <ol style="list-style-type: none"> 1. Installing and setting up the Python IDLE interpreter. Executing simple statements like expression statement (numeric and Boolean types), assert, assignment, delete statements; the print function for output. 2. Script and interactive modes; defining a function in the two modes; executing a script; interactively executing a statement list (semicolon-separated sequence of simple statements); the input function. 3. Programs based on lists, conditional constructs, the for statement and the range function; interactively using the built-in functions len, sum, max, min 4. Programs related to string manipulation 5. Programs based on the while statement; importing and executing built-in functions from the time, math and random modules 6. Programs using break and continue statements. 7. Programs related to dictionaries 8. Programs using list comprehensions and anonymous functions 9. Programs using the built-in methods of the string, list and dictionary classes

Required Previous Knowledge

Students should know the types of basic computer handling and computer applications

Access to the Course

The course is available for all the students who have selected Computer Science as a major DSC.

Forms of Assessment

The assessment of the course will be of Practical type. At the end of the semester, 80 Marks practical examination will be conducted. 10 marks will be for journal and 10 marks for viva based on the experiments.

Semester End Practical Examination (100 Marks)
Question Paper Pattern
Time: 3 hours

Question No.	Unit/s	Question Pattern	Marks
Q.1	All	Certified Journal	05
Q.2	All	Any two experiments	40
Q.3	All	Viva based on experiments	05
		Total	50

Grading Scale 10 points grading scale will be used. The grading scale used is O to F. Grade O is the highest passing grade on the grading scale, and grade F is a fail. The Board of Examinations of the college reserves the right to change the grading scale.