

Introduction to the Course

Lecture 0

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- **Course Number and Name:**

CSE 3142, `Programming in Python`

- **Credits and Course Format:**

Grading Pattern = 5

Credits = 3

Course format: 6 hours/week (2 labs/week, 2hrs/lab, 1 Problem solving class/week, 2hrs/class)

- **Target Students:**

Programme: B.Tech. (5th Semester)

Branch: CSE

- **Text Book(s):**

- (1) Python Programming, A modular approach by Sheetal Taneja and Naveen Kumar, Pearson India

- **Specific Course Information:**

- (a) **Course Description:** Python Programming: An Introduction, Functions, Control Structures, Debugging, Scope, Strings, Mutable and Immutable Objects, Recursion, Files and Exceptions, Classes I, Classes II, List Manipulation, Data Structures I: Stack and Queues, Data Structures II: Linked Lists, Data Structure III: Binary Search Trees
- (b) **Prerequisites:** Introduction to Computer Programming (CSE 1001), Data Structure and Algorithms (CSE 2001)

Course Outcomes(COs)

● **Course Outcomes (COs) :**

By the end of course through lectures, readings, homeworks, laboratory, assignments and exams students will be able to:

- CO 1. Understand the basic programming syntax, semantics and building blocks of python.
- CO 2. Develop python applications using the programming constructs like control structures, functions and strings.
- CO 3. Analyze, debug and test the programs and correctly predict their output.
- CO 4. Illustrate the process of structuring the data using lists, sets, tuples and dictionaries.
- CO 5. Solve the real life problems using object oriented concepts, modular approaches, files and exception handling.
- CO 6. Design application using sorting, searching and the concept of stack, queues, linked lists and trees.

- **Evaluation scheme (under Grading Pattern-5) out of 100%:**

Attendance: 05%

Weekly Assignments/Quizzes : 20%

Mid-Term : 15%

End-Term Examination: 60%

Program Outcomes

- There are twelve program outcomes (1-12) and two program specific outcomes for the Computer science & Engineering B. Tech program:

Program Outcomes (POs)

- 1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- 2. Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

PSO1: The ability to understand, analyze and develop computer programs in the areas related to business intelligence, web design and networking for efficient design of computer-based systems of varying complexities.

PSO2: The ability to apply standard practices and strategies in software development using open-ended programming environments to deliver a quality product for business success.

Thank You
Any Questions?