Prerequisites: Computer Science

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1) UE18CS101: Introduction to Computing Using Python

1. Introduction to Programming	• Computational Problem Solving • Limits of Computational Problem Solving • Computer Algorithm • Computer Hardware • Digital Computer • Operating System • Limits of IC Technology • Computer Software • Syntax, Semantics and Program Translation.
2. Process of Computational Solving	• Introduction to Python Programming Language • Output Function • Variables • Types • Operators and Expressions • Control Structures • Lists • Dictionaries • Sets • Tuples • Strings.
3. Functions	• Definition, Call • Positional and Keyword Parameters • Default Parameters • Variable Number of Arguments • Modules - Import Mechanisms • Functional Programming - map, filter, reduce, max, min and lambda functions, List Comprehension.
4. Object-oriented Programming	• Classes and Objects • Inheritance • Polymorphism • Error Handling and Exceptions - try, except and raise, Exception Propagation.
5. File Processing	• Reading and Writing Files.

2) UE18CS151: Problem Solving with C

1. Counting
   - Introduction to Programming
   - Salient Features of 'C'
   - Program Structure
   - Variables
   - Data Types
   - Operators and Expressions,
   - Control Structures,
   - Input/ Output Functions.

2. Text Processing and String Manipulation
   - Single Character Input and Output
   - Arrays and Pointers
   - Strings, String Manipulation.

3. Prioritized Scheduling
   - Functions
   - Structures and Unions
   - Dynamic Memory Management
   - Lists
   - Priority Queue.

4. Sorting
   - Sorting
   - Combination of Structures and Arrays and Pointers
   - Callback, Sorting using Callback.

5. Portable programming and interfaces
   - File Handling
   - Enums
   - Bit Fields
   - Storage Class
   - Qualifiers
   - Life and Scope
   - Pre-Processor Directives
   - Conditional Compilation, Pragmas.