Course Syllabus

1. Course number and name: 020IF1NI2 Programming 1

2. Credits and contact hours: 4 ECTScredits, 2x1:15 course hours

3. Instructor's or course coordinator's name: Chantal Hajjar

4. Text book, title, author, and year
    a. other supplemental materials:
    Professor textbook and course material

5. Specific course information
    a. catalog description :
    This course introduces computer structure and the basic principles of high-level programming using Python. It provides the necessary understanding and skills to design algorithms and translate them to computer programs using the following concepts: variables and primitive datatypes, simple statements for basic calculations, control statements for decision making or looping, built-in composite datatypes, integrated and user-defined functions with a glimpse on recursion.

    b. prerequisites : None

    c. Required/Elective/Selected Elective: Required

6. Specific goals for the course
    a. specific outcomes of instruction :
        - Recognize the roles of main computer components
        - Design algorithms to solve scientific problems
        - Translate algorithms to computer programs
        - Define and use variables of different data types
        - Identify and use the suitable control structure for a particular case
        - Identify and write the code to be modularized as functions
        - Define simple functions
        - Identify and analyze a recursive structure
        - Use a function defined in an external module
        - Develop a computer program using Python

b. KPIs addressed by the course.

KPI	a1	k2
Covered	x	x
Assessed	x	x
Give Feedback	x	x

7. Topics and approximate lecture hours:

- Computer hardware components, programming languages, binary-decimal conversion (2 Lectures)
- Introduction to Python, IDLE, simple statements using print function and arithmetic operators (1 Lecture)
- Variables, expressions, data types, conversion between data types, input function (3 Lectures)
- Logical tests and conditional control structures (3 Lectures)
- Functions from external modules (1 Lecture)
- Iterative control structures (while and for loops) (3 Lectures)
- Function definition and call (2 Lectures)
- Recursion (1 Lecture)
- Strings and their methods, their traversal, searching through them, selecting elements (3 lectures)
- Lists and tuples and their methods, their traversal, searching through them, selecting elements (3 Lectures)
- Dictionaries and their methods, their traversal, searching through them, selecting elements (3 Lectures)
- Lab sessions (3 Lectures)