

## Course Syllabus

1. Course number and name: 020IF2CI4 Programming 3
2. Credits and contact hours: 2 ECTS credits, 2 x1:15 course hours
3. Instructor's or course coordinator's name: Tony Nicolas
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 covers advanced programming concepts using Python. Topics include the LIFO and FIFO approaches, and some existing sorting algorithms with the calculation of their temporal complexity. It also covers the basics of object oriented programming and its application to data abstraction by introducing object instantiation, attributes and methods. This course also introduces the implementation of relational databases in Python. Also some basic algorithms on graph.
  - b. prerequisites: 020IF1CI2
  - c. Required/Elective/Selected Elective: Required
6. Specific goals for the course
  - a. Specific outcomes of instruction:
    - Explain and write the code for the sorting algorithms
    - Calculate the temporal complexity of a sorting algorithm
    - Write object oriented algorithms
    - Use classes for data abstraction
    - Explain and apply class constructors
    - Modify the states of class attributes
    - Create simple SQL requests to query a relational database.
    - Analyze and write recursive code for a graph

b. KPIs addressed by the course.

KPI	a1	c2	k2
Covered	x	x	x
Assessed	x	x	x
Give Feedback	x	x	x

7. Topics and approximate lecture hours:

- LIFO-FIFO structures (3 Lecture)
- Basic sorting algorithms and time complexity (4 Lecture)
- Oriented Object Programming (8 Lectures)
- Relational database (5 Lectures)
- Graph (3 Lectures)
- Supplementary exercise (2 Lectures)
- Lab sessions ( 3 Lectures)