



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Ingegneria
ACADEMIC YEAR	2022/2023
BACHELOR'S DEGREE (BSC)	BIOMEDICAL ENGINEERING
SUBJECT	BIOMEDICAL COMPUTER SCIENCE
TYPE OF EDUCATIONAL ACTIVITY	A
AMBIT	50292-Matematica, informatica e statistica
CODE	22207
SCIENTIFIC SECTOR(S)	ING-INF/05
HEAD PROFESSOR(S)	GAMBINO ORAZIO Ricercatore Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	96
COURSE ACTIVITY (Hrs)	54
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	1
TERM (SEMESTER)	2° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	GAMBINO ORAZIO Monday 10:00 12:00 Chat di Teams, previo appuntamento concordato via email. Tuesday 10:00 12:00 Chat di Teams, previo appuntamento concordato via email.

DOCENTE: Prof. ORAZIO GAMBINO

PREREQUISITES	Basic knowledge of any operating system and basic computer skills.
LEARNING OUTCOMES	Knowledge and understanding The student, at the end of the course, will have acquired the basic concepts of programming and a programming language, which is specifically identified in Python. Python allows an easy introduction of basic programming concepts and is a powerful tool for the rapid prototyping of programs, which allows problems to be solved using a wide range of libraries. The student will have acquired the algorithm concept, as a useful tool for solving a well formulated problem. The student will be able to use the most popular spreadsheets. The student will be able to understand the problems related to the design and programming of computer applications. The student will have acquired the basic concepts of the application level of computer networks. Applying knowledge and understanding Ability to use the tools to solve problems related to the design and programming of computer applications and the most popular spreadsheets. Making judgments Ability to analyze and formalize the constraints of a problem, to find the algorithm required to solve the problem, proposing the most efficient solution for its implementation in the specific context of information systems of small and medium enterprises. Communication skills Ability to communicate and express issues related to the subject of the course and to support conversations on issues of design and programming of computer applications. Learning Ability Learning a set of basic concepts that have determined the development of the discipline and ability to continue and deepen studies independently.
ASSESSMENT METHODS	Written test. It consists of 16 multiple-choice questions. Each correct answer is worth 2 points, while a wrong answer is worth -1 point. Any empty answer is worth 0. The student has 60 minutes to complete the test.
EDUCATIONAL OBJECTIVES	The course aims to provide the basis for knowledge and understanding of the fundamental concepts for the design and programming of computer applications using the Python language. The course also aims to provide fundamental knowledge for the conduct of integrated computerization and business process planning initiatives with particular reference to information systems, the main technologies and the applications that characterize them.
TEACHING METHODS	The course is mainly based on frontal knowledge transfer lessons, using appropriate practical examples where necessary.
SUGGESTED BIBLIOGRAPHY	Kenneth A. Lambert - Programmazione in Python 2°Ed. - Apogeo Education - Maggioli Editore ISBN 978-88-916-2889-3 Materiale didattico fornito dal docente

SYLLABUS

Hrs	Frontal teaching
2	Introduction to the computer structure
2	Numerical systems and information representation
4	Algorithms: definition and attributes. Classification of algorithms based on their order of complexity.
2	Representation of the algorithms: pseudocode and flow chart.
5	Spreadsheet applications: spreadsheet logic, mathematical, statistical, logical and text functions, charts, pivot tables.
4	Introduction to the Python language and development environment configuration
4	Variables and data types: comments, strings, tuples, lists, dictionaries and sets
4	Python programming: conditional statements, loops, list comprehensions
2	Python functions and exception handling.
3	Elements of object-oriented programming.
2	Fundamentals of the network application layer: architectures and protocols
2	Network Application Layer Fundamentals: Web and HTTP.
Hrs	Practice
3	Representation of the algorithms: pseudocode and flow chart.
4	Spreadsheet applications: spreadsheet logic, mathematical, statistical, logical and text functions, charts, pivot tables.
3	Variables and data types: comments, strings, tuples, lists, dictionaries and sets
3	Python programming: conditional statements, loops, list comprehensions
2	Python functions and exception handling.

Hrs	Practice
3	Object Oriented Programming in Python.