



# UNIVERSITÀ DEGLI STUDI DI PALERMO

<b>DEPARTMENT</b>	Ingegneria
<b>ACADEMIC YEAR</b>	2018/2019
<b>BACHELOR'S DEGREE (BSC)</b>	ELECTRICAL ENGINEERING
<b>SUBJECT</b>	DOMOTICS AND ENERGY MANAGEMENT
<b>TYPE OF EDUCATIONAL ACTIVITY</b>	B
<b>AMBIT</b>	50298-Ingegneria elettrica
<b>CODE</b>	18562
<b>SCIENTIFIC SECTOR(S)</b>	ING-IND/33
<b>HEAD PROFESSOR(S)</b>	RIVA SANSEVERINO      Professore Ordinario      Univ. di PALERMO ELEONORA
<b>OTHER PROFESSOR(S)</b>	
<b>CREDITS</b>	6
<b>INDIVIDUAL STUDY (Hrs)</b>	102
<b>COURSE ACTIVITY (Hrs)</b>	48
<b>PROPAEDEUTICAL SUBJECTS</b>	
<b>MUTUALIZATION</b>	
<b>YEAR</b>	3
<b>TERM (SEMESTER)</b>	2° semester
<b>ATTENDANCE</b>	Not mandatory
<b>EVALUATION</b>	Out of 30
<b>TEACHER OFFICE HOURS</b>	<b>RIVA SANSEVERINO</b> <b>ELEONORA</b> Monday    12:00    13:00    DEIM, Ed 9 - Viale delle scienze - II piano Thursday   12:30    13:30    Polo didattico Caltanissetta

**DOCENTE:** Prof.ssa ELEONORA RIVA SANSEVERINO

<b>PREREQUISITES</b>	Basic competences of maths, physics, circuit electrotechnics and power systems (strongly suggested).
<b>LEARNING OUTCOMES</b>	The student will have knowledge of the basic tools for structuring a calculation program. He will have knowledge of intelligent techniques for solving problems of management and planning and data analysis in electrical engineering . The student will understand the reference technical language in home automation and building automation field . The student will have the ability to understand the specific language in the resolution of problems of management of optimized systems. The student will also develop independent judgment in choice of components and technologies for a project in the home automation field. The student will have the ability to use the appropriate terminology in reference areas (information technology, building automation ). The student will have the foundation for acquiring new auto technologies and intelligent management of technical installations in buildings.
<b>ASSESSMENT METHODS</b>	The assessment of learning is done either through a written ongoing evaluation based on multiple choice and through a final oral exam. The ongoing evaluation includes around 30 multiple choice questions and my assessment is through a graduated scale which provides a sufficiently (at least half of the questions correctly addressed); a good vote (at least 75% of the questions correctly addressed); an excellent rating (at least 90% of the questions correctly addressed). The ongoing evaluation includes questions on the first part of the course that addresses the telecommunications fundamentals and some basic elements of computer science. The oral test, lasting about 20 minutes, regards the presentation of different topics covered during the second part of the course. The final assessment, properly graded, will be made on the basis of the following conditions: a) rating at least enough in the written ongoing exam. sufficient knowledge of the subjects dealt with theories and teaching; sufficient degree of awareness and autonomy in the application of theories to solve problems (18-21 rating); b) Rated at least enough in the written ongoing exam. Good knowledge of the subjects and theories addressed in teaching; fair degree of awareness and autonomy in the application of theories to solve problems (22-25 rating); c) rating at least as good in written ongoing test. Good knowledge of the topics addressed and theories in teaching; good degree of awareness and autonomy in the application of theories to solve problems (26-28 rating); d) Very good in the written ongoing test. Excellent knowledge of the topics and addressed theories in teaching; excellent level of awareness and autonomy in the application of theories to solve problems (29-30L vote).
<b>EDUCATIONAL OBJECTIVES</b>	The student will have the ability to identify the design/operational objectives within a given technical environment. the student will have the ability to identify simple technical solutions for home automation and building automation field. The student will be able to use the technical language of reference and will have the ability to interact with other professionals and skilled workers in the industry.
<b>TEACHING METHODS</b>	Lessons and class exercises
<b>SUGGESTED BIBLIOGRAPHY</b>	Dispense della docente Intelligent buildings and building automation by S. Wang – ed. Spon Press

## SYLLABUS

Hrs	Frontal teaching
2	Introduction - notion of AI. Agents
2	Elaboration systems. Digital and analog quantities
4	Basic notions of programming techniques. Algorithms, pseudo-codes and flow diagrams
4	C language and sorting algorithms
2	Management problems in power systems with special attention to buildings
4	Telecommunication systems (network architectures, Building automation protocols, ISO/OSI)
4	Modulation and multiplexing
4	Physical and logical address, router, bridgem, switch, media access
4	building automation components, microprocessors and microcontrollers. BCU role and functionalities.
6	Intelligent systems for Building automation. Tehcnologies for automatic technical infrastructures. Closed and Open loop regulation
6	Energy management and HVAC systems
6	Security and Safety building automation systems