UNIVERSITY OF L'AQUILA

Department of Industrial and Information Engineering and Economics

2nd Cycle Degree in ELECTRICAL ENGINEERING

Laurea Magistrale in INGEGNERIA ELETTRICA

Course Catalogue

Academic year starts the last week of September and ends the first week of June.
1st Semester - *Starting date:* last week of September, *end date*: 3rd week of January
2nd Semester - *Starting date:* last week of February, *end date:* 1st week of June
Exams Sessions: I) from last week of January to 3rd week of February, II) from 2nd week of June to end of July, III) from 1st to 3rd week of September

Comprehensive Scheme of the 2nd Cycle Degree in ELECTRICAL ENGINEERING				
YEAR	**CODE**	**COURSE**	**Credits (ECTS)**	**Semester**
I	I0636	Electrical power systems	9	1
	I0743	Power Electronics	9	1
	I2L039	Electrical Energy Systems	9	1
	I2L036	Electrical Drives	6	2
	I0283	Measurements and Test of Electrical Machines and Systems	9	2
	One elective course within the following:			
	I0375	Industrial Robotics	9	1
	I0333	Digital Electronic Systems I	9	1
	I0655	Telecommunication Networks I	9	2
	I0634	Electrical Machines	9	2
II	I2L045	Electrical Automation	9	1
	I2L010	Electromagnetic Compatibility	9	1
	I2LF02	*Optional Course*	9	1/2
	I2L038	Electrical Machines Design	9	2
	DG0005	Laboratory of Electric systems	9	2
	I0379	Electric systems for mobility	9	2
	I2HAT0	*Further Language Competences*	3	1/2
	A0000157	*Traineeship*	3	1/2
	I0381	*Thesis*	6	2

Programme of "IMPIANTI ELETTRICI" "*ELECTRICAL POWER SYSTEMS*"		
I0636, COMPULSORY **2nd Cycle Degree in ELECTRICAL ENGINEERING, 1st year, 1st semester**		
Number of ECTS credits: 9 (workload is 225 hours; 1 credit = 25 hours)		
Teacher : Francesco MUZI		
1	Course objectives	The course is of applicative character and it primarily aims to provide the motivations, definitions and techniques for an effective approach on the study of power systems. Particular attention is paid to issues involving HV transmission systems both in steady state and in transients conditions. At the end of the course, the student will have sufficient knowledge in order to size, design and manage HV transmission, interconnected systems.
2	Course content and Learning outcomes (Dublin descriptors)	Topics of the module include: - Primary line constants definition and calculation, - Power flows formulation and calculation, - Voltage control, - Neutral grounding connection of three-phase systems, - Short circuit current calculations, - Power system stability, - Overvoltages in power systems. On successful completion of this module, the student should reach: o profound knowledge of transmission systems; o knowledge and understanding procedures to design and manage electrical power systems; o capacity for reading and understanding other texts on related topics.
3	Prerequisites and learning activities	The student must know the basic notions of electrical engineering, electrical machines and converters.
4	Teaching methods and language	Lectures, exercises, home work Language: Italian/English Ref. Text books: - Notes of Electrical Systems for Energy, by C. Mazzetti di Pietralata (available on internet); - Francesco Iliceto, *Impianti elettrici Vol. I*, ed. Patron, Bologna - W. Diesendorf, *Insulation co-ordination in high voltage electric power systems*, Google Book -C.L. Wadhawa, *Electrical power systems*, Google books; - F. M. Gatta, *Complementi ed applicazioni di impianti elettrici*, Esagrafica Editrice, 2002.
5	Assessment methods and criteria	Written and oral examination.

Programme of "ELETTRONICA INDUSTRIALE DI POTENZA" "*POWER ELECTRONICS*"		
I0743, COMPULSORY **2nd Cycle Degree in ELECTRICAL ENGINEERING, 1st year, 1st semester**		
Number of ECTS credits: 9 (workload is 225 hours; 1 credit = 25 hours)		
Teacher : Nicola ROTONDALE		
1	Course objectives	The goal of this course is to introduce the students to the power conversion systems. On successful completion of this module, the student should be able to know the fundamental principles of power conversion, the operation of the converters, the design criteria and their possible applications.
2	Course content and Learning outcomes (Dublin descriptors)	Topics of the module include: - Ac voltage controllers: single phase, three phase - Line commutated converters: uncontrolled, controlled and semicontrolled rectifiers. Direction of power flow-inverted operation. Commutation and overlap. Voltage and current ripples on the dc side. Three-phase dual converters - Transformers for converters: connections, power rating, harmonics line current on ac

		side, power factor, THD. - Chopper: step-down and step-up operation, two/four quadrant chopper - Resonant pulse converters: series and series-parallel resonant inverter - Inverter: single-phase and three-phase bridge, PWM and SPWM modulation, advanced modulation techniques - Power supplies: buck, boost, buck-boost regulators, full bridge converter On successful completion of this module, the student should: o have profound knowledge of the converters operation, o have knowledge and understanding of the topics, o understand and explain the design criteria; o understand the concepts of Power Electronics and be aware of their applications in the fields of engineering, o demonstrate skill in mathematical reasoning and ability to conceive a project, o demonstrate capacity for reading and understand other texts on related topics.
3	Prerequisites and learning activities	The student must know the electric circuits,, the electronic and electrical machines contained in the exams Electrotechnic, Electronic and Electrical Machines, offered in he 1st cycle of Industrial Engineering.
4	Teaching methods and language	Lectures, exercises, home work Language: Italian Ref. Text books: -Muhammad H. Rashid, Power Electronics, Prentice Hall international, 1993, Italian translation: *Elettronica di Potenza vol. 1 e 2*, Pearson Prentice Hall, Ed. 2007 -Mohan, Undeland, Robbins, Power Electronics, John Wiley & Sons, 1989, Italian translation: *Elettronica di Potenza*, Hoepli, Ed. 2003 -Didactic Material provided by the teacher
5	Assessment methods and criteria	Oral examination.

Programme of "SISTEMI ELETTRICI PER L'ENERGIA" ***"ELECTRICAL ENERGY SYSTEMS"***		
I2L039, COMPULSORY **2nd Cycle Degree in ELECTRICAL ENGINEERING, 1st year, 1st semester**		
Number of ECTS credits: 9 (workload is 225 hours; 1 credit = 25 hours)		
Teacher : Alberto PRUDENZI		
1	Course objectives	Delivery of sustainable, reliable and competitive energy is one of the largest and most important global challenges of our time. Our dependency of fossil fuels and the global climate challenge requires an urgent technological transformation of all parts of the electrical energy system. Novel electric plants and components have to be developed, and power systems have to be redesigned and transformed into smart user-interactive grids enable integration of a variety of sources. This course aims to develop the expertise on all aspects concerning a modern electrical energy chain from energy generation, both from conventional and renewable sources (RES), up to electrical energy end-use and the various possible energy applications at customers'. On successful completion of this module, the student should be able to deeply analyse every competing electrical energy system in terms of its technical characteristics and design, its economic performances and its environmental impact. The student should also be able to design main strategies for energy efficiency improvement of electricity applications in different segments of end use.
2	Course content and Learning outcomes (Dublin descriptors)	Topics of the module include: - Electrical energy fundamentals: Main concepts, definitions, metric units, energy conversion, energy sources, electrical energy chain, the Italian electrical system - Environmental impact of electrical energy systems: Number and types of impact, different emissions, climate change and global warming, Kioto protocol, 20-20-20 Directive, LCC, LCA, VIA, VAS - Renewable Energy Sources (RES): Introduction to RES, types of RES, RES market trends in Italy, Europe and World. Economics of RES. - Thermal power plants: Energy generation from conventional sources, modern technologies, typical layouts, costs, applications and case studies, environmental impact

		- Hydroelectric plants: Hydroelectric generation systems, theory, technology, large conventional systems, typical layouts, costs, applications and case studies, mini and micro hydro, new systems: wave energy, tidal energy - Wind energy: Theory, technology, typical layouts, costs, off-shore plants, design, applications and case studies - Solar energy: PV systems: theory, technology, typical layouts, costs, design, applications and case studies; solar heating systems: theory, technology, typical layouts, costs, applications and case studies; solar-thermal systems, technology, applications and case studies - Dispersed generation : Dispersed generation, combined heat and power, tri-generation, smart grids - Open access electricity market: Theory and models, Italian market, organization and structure, main actors - Energy efficiency and energy management: theory and main strategies, energy codes, appliance labelling, energy efficiency in buildings, ESCO and TPF, benchmarking, commissioning, guidelines and case studies - Power quality: Definitions and standard, disturbances classification, origins, mitigation techniques, PQ indices, custom power, PQ costs On successful completion of this module, the student should: o have knowledge and understanding of energy basics; o have knowledge of mechanisms and technologies of conventional electric energy production; o have knowledge of renewable electrical energy systems with their characteristics and design o have knowledge of the fundamental concepts and evaluation procedures of environmental impact of energy processes; o have knowledge of economic analysis of competing energy alternatives; o have knowledge of the impact of dispersed generation on existing grids, and design for new grid development; o have knowledge of the principles of energy efficiency and energy management; o have knowledge of power quality problems and solutions.
3	Prerequisites and learning activities	The student should have completed a programming course and several mathematical courses and should be able to analyse electrical energy circuits, and conduct mathematical analyses. It is assumed that the student has a broad scientific and engineering background, and can for example perform energy balance analysis of renewable energy systems. The student must have notions of electrical engineering and electric power systems taught in the courses of Electrical Engineering, Power Systems offered in the 1st Cycle Degree of Industrial Engineering.
4	Teaching methods and language	Lectures, classroom exercises, team work. Language: Italian / English Ref. Text books: -Didactic Material provided by the teacher
5	Assessment methods and criteria	Oral examination and homework/project.

Programme of "AZIONAMENTI ELETTRICI" "*ELECTRICAL DRIVES*"		
I2L036, COMPULSORY 2nd Cycle Degree in ELECTRICAL ENGINEERING, 1st year, 2nd semester		
Number of ECTS credits: 9 (workload is 225 hours; 1 credit = 25 hours)		
Teacher : Francesco PARASILITI COLLAZZO		
1	Course objectives	The goal of this course is to provide principles of theory and control of the main Electrical Drives
2	Course content and Learning outcomes (Dublin descriptors)	Topics of the module include: - Introduction to adjustable speed drives. - Steady state Electrical Machines models: DC Motors, Induction Motors, Synchronous Motors. - Stationary and rotating reference models.

		- DC Motor speed control and multi-quadrant operation. Separately excited DC Motors: armature voltage control, armature current control, field control. - Induction Motor speed control: variable voltage, constant voltage/frequency control, current control, flux weakening operation, vector control. - Synchronous Motor, Permanent Magnet Motor, Reluctance Motor speed vector control. - DC Converters: rectifier and chopper. - DC Motor Drives: single and multi-quadrant drives. - AC Converter: voltage source inverter. Six-step inverter and PWM inverter, modulation techniques, current control. - Speed control AC Motor Drives: voltage/frequency control and field-oriented control. - AC Motor operation with non-sinusoidal supply waveforms. On successful completion of this module, the student should: o have knowledge and understanding of the theory and control of the main Electrical Drives o understand and explain the physical mechanisms of the Electrical Drives and the principles of the electrical motor speed control o demonstrate skill and ability in the choice, design and operation of Electrical Drives and their applications o demonstrate capacity for reading and understand other texts on related topics.
3	Prerequisites and learning activities	The student must know the contents of the course "Electrotechnics", "Electrical Machines"
4	Teaching methods and language	Lectures and practical lab experiences, home work Language: Italian Ref. Text books: -Lectures Notes; -G. K. Dubey, *Power Semiconductor Controlled Drives*, Prentice-Hall International Ed.; -J.M.D. Murphy, F.G. Turnbull, *Power Electronic Control of AC Motors*, Pergamon Press; -W. Leonahrd, *Control of Electrical Drives*, Springer-Verlag; -P. Vas, *Vector Control of AC Machines*, Oxford Science Publications.
5	Assessment methods and criteria	Oral examination.

Programme of "COLLAUDI DI MACCHINE E IMPIANTI ELETTRICI" ***"MEASUREMENTS AND TEST OF ELECTRICAL MACHINES AND SYSTEMS"***		
I0283, COMPULSORY **2nd Cycle Degree in ELECTRICAL ENGINEERING, 1st year, 2nd semester**		
Number of ECTS credits: 9 (workload is 225 hours; 1 credit = 25 hours)		
Teacher : Edoardo FIORUCCI		
1	Course objectives	The goal of this course is to acquire specific expertise in the field of measurements, testing and verifications on electrical power systems, for the experimental characterization of electrical machines and installations. On successful completion of this course, the student should be able to perform tests and measurements according to the international standards, for application in industrial and research fields.
2	Course content and Learning outcomes (Dublin descriptors)	Topics of the module include: - Measurement techniques and instrumentation for inspections and testing on electrical installations: visual inspection of electrical installations, grounding resistance measurement, step voltage and contact voltage measurement, fault loop impedance measurement; insulation resistance measurement, lighting systems verification, photovoltaic systems performance measurement, IEC, CEI and UNI standards. - Techniques and instrumentation for electrical power measurements on polyphase systems: definitions of power parameters in sinusoidal and distorted conditions; power meters, voltage and current transducers, IEEE and IEC standards. - Testing of electrical machines: experimental characterization and testing of power voltage transformers, induction motors, synchronous generators, DC machines, frequency characterization of windings, efficiency measurements, measurement of

		moment of inertia, IEEE and IEC standards. - Insulation measurements: high voltage transformers, impulse voltage generators, voltage dividers and measurement instrumentation, insulating oil testing, IEEE and IEC standards. - Power quality measurements: techniques and instrumentation for the measurement of voltage and current harmonic content and waveforms distortion, transient phenomena, light flicker, voltage unbalance, frequency variations, IEEE and IEC standards. - Electrical energy measurements: energy counters, measuring instruments directive MID, IEEE and IEC standards On successful completion of this module, the student should: o have profound knowledge of measurement techniques for electrical machines and electrical installations, o have knowledge and understanding of the testing procedure and of international standards concerning electrical machines and electrical installations, o understand and explain the procedures for the implementation of testing setups o understand the fundamentals of international standards concerning the measurements and instrumentation o demonstrate skill in elaborating experimental results and ability to draw up a technical report, o - demonstrate capacity for reading and understand other texts on related topics.
3	Prerequisites and learning activities	The student must know notions taught in the courses of Electrical Machines, Electrical Power Systems and Electrical Measurements in the 1st Cycle of Industrial Engineering.
4	Teaching methods and language	Lectures and practical lab experiences, home work Language: Italian Ref. Text books: - Giuseppe Zingales: *Misure Elettriche* – Utet 1992 -Giuseppe Zingales: *Misure sulle Macchine e sugli Impianti Elettrici* – Cleup 1977 -Massimo D'Apuzzo, Nello Polese: *Sistemi e Metodi di Misura per Applicazioni ndustriali* – Vol. 1 e2 – Centro Stampa Opera Universitaria Napoli 1988 -Giovanni Quinci – *Manuale di Collaudi di Impianti Elettrici* – DEI Multimedia 2002 -Pippo Sergio Mistretta: *Principi di Ingegneria Forense* - Dario Flacco Editore 2011
5	Assessment methods and criteria	Oral examination.

Programme of "AUTOMAZIONE ELETTRICA" ***"ELECTRICAL AUTOMATION"***		
I2L045, **COMPULSORY** **2nd Cycle Degree in ELECTRICAL ENGINEERING, 2nd year, 1st semester**		
Number of ECTS credits: 9 (workload is 225 hours; 1 credit = 25 hours)		
Teacher: Marco TURSINI		
1	Course objectives	The goal of this course is to provide specialist level expertise on electrical motion components, systems, and design tools. On successful completion of this module, the student should be aware of the advanced motion and motor control techniques and should be able to analyze, simulate and design micro-controller based automation systems.
2	Course content and Learning outcomes (Dublin descriptors)	Topics of the module include: Part I – Theory - Electrical motors & drives: permanent magnets, variable and switched reluctance motors; - AC & DC brushless, multiphase and fault tolerant drives; current regulated voltage source inverters; optimum & flux-weakening control strategies; sensorless control. - Motion control: current, speed, and position control; standard & multivariable regulators; real time control and simulation. - Sensors & transducers: encoders, resolvers, Hall sensors. Part II – Laboratory - Simulation of drives: using Matlab/Simulink.

		- Micro-controllers for automation: PWM, A/D, capture and compare units, serial interface, examples of applications. On successful completion of this module, the student should: o have deep knowledge of advanced motor control strategies; o have knowledge and understanding of motion control principles; o understand and explain the fundamental concepts of real-time control in automation. o understand the operating principles of some basic sensors and transducers employed in automation; o demonstrate skills in advanced control of AC drives and their simulation techniques; o demonstrate capacity to evaluate and select the appropriate drive system for a given application based on technical/economical reasoning and ability to design the motion control.
3	Prerequisites and learning activities	Basic notions of electrical machines, power converters and control contained in the exams of Electrical Machines, Power Electronics and Automatic Control are recalled during the course.
4	Teaching methods and language	Lectures, classroom exercises with PCs, laboratory team work Language: Italian / English Ref. Text books : -H. Bühler: "*Electronique de reglage et de commande*", Ed. Dunod , Traité d'électricité, d'électronique et d'électrotechnique, 1982; -W. Leonhard: "*Control of electrical drives"*, Springer, 2001.
5	Assessment methods and criteria	Oral examination or laboratory project (student choice)

Programme of "COMPATIBILITÀ ELETTROMAGNETICA" *"ELECTROMAGNETIC COMPATIBILITY"*		
I2L010, **COMPULSORY** **2nd Cycle Degree in ELECTRICAL ENGINEERING, 2nd year, 1st semester**		
Number of ECTS credits: 9 (workload is 225 hours; 1 credit = 25 hours)		
Teacher: Giulio ANTONINI		
1	Course objectives	The goal of this course is to provide specialist level expertise on electromagnetic compatibility, leading to full understanding of the aspects related to generating mechanisms of electromagnetic interferences and to their propagation. On successful completion of this module, the student should be able to evaluate EMC problems in electrical, electronic devices and equipments, according to their technical characteristics and functionalities, and to provide solutions.
2	Course content and Learning outcomes (Dublin descriptors)	Topics of the module include: - Signal Spectra-the Relationship between the Time Domain and the Frequency Domain: The Fourier Series Representation of Periodic Signals, The Spectrum of Trapezoidal (Clock) Waveforms, Spectral Bounds for Trapezoidal Waveforms, Spectrum Analyzers, Representation of Nonperiodic Waveforms. - Multiconductor Transmission Lines and crosstalk: The Transmission-Line Equations, The Per-Unit-Length Parameters, The Inductive–Capacitive Coupling Approximate Model, Shielded Wires, Twisted Wires. - Shielding: Shielding Effectiveness: Far-Near Field Sources, Low-Frequency, Magnetic Field Shielding. - Radiated Emissions and Susceptibility: Differential-Mode versus Common-Mode Currents, Differential- and Common Mode Current Emission Model. - Conducted Emissions and Susceptibility: The Line Impedance Stabilization Network (LISN), Power Supply Filters, Power Supplies, Conducted Susceptibility. On successful completion of this module, the student should: o have deep knowledge of mechanisms of generation of electromagnetic interferences; o have knowledge and understanding of crosstalk and the principles to reduce it; o understand and explain the fundamental concepts of radiated and conducted emissions; o understand the principles of shielding of high and low frequency electromagnetic fields; o demonstrate skills in modeling EMC problems and simulation techniques;

		o demonstrate capacity , given a complex electromagnetic environment, to be able to identify the possible interferences sources, the coupling paths and the potential victims and select the appropriate solution based on technical/economical reasoning and ability to correctly design electrical systems.
3	Prerequisites and learning activities	The student must have notions of electrical engineering, electromagnetic fields, electrical measurements taught in the exams of Electrical Engineering, Electrical Measurements offered in the 1st Cycle Degree on Industrial Engineering.
4	Teaching methods and language	Lectures, classroom exercises with PCs, team work. Language: Italian / English Ref. Text books : -C. R. Paul: *"Introduction to Electromagnetic Compatibility",* Ed. Wiley, 2006. -Didactic material provided by the teacher.
5	Assessment methods and criteria	Oral examination and homework/project.

Programme of "COSTRUZIONI ELETTROMECCANICHE" ***"ELECTRICAL MACHINES DESIGN"***		
I2L038, **COMPULSORY** **2nd Cycle Degree in ELECTRICAL ENGINEERING, 2nd year, 2nd semester**		
Number of ECTS credits: 9 (workload is 225 hours; 1 credit = 25 hours)		
Teacher: Marco VILLANI		
1	Course objectives and Learning outcomes	The goal of this course is to provide advanced knowledge and understanding about the construction and design of the electrical machines. The course provides to the students the basis and the methodologies to a correct design of the electrical machines (transformers, rotating AC machines and DC machines). Innovative tools and techniques will be used for the design optimization of the electrical machine for industrial, automotive and aerospace applications. The applying of knowledge and understanding capabilities will allow at the graduate to approach the problem linked to the design of the electrical machines.
2	Dublin descriptors	Topics of the module include: - General considerations on the design of the electric machines. Specifications. Machine design criteria. Sizing equations. Construction of the electrical machines. Materials employed in the construction of the electrical machines. Magnetic analysis, losses and thermal analysis. - Design of traditional electrical machines for standard applications: design of three-phase transformers and Induction motors. - Design of electrical machines for electrical drives for industrial, automotive and aerospace applications: brushless PM motors, synchronous reluctance motors, switched-reluctance motors, PM linear synchronous motors, axial-flux PM brushless motors, fault-tolerant brushless motors. - Computer-aided-design: innovative tools and techniques for the electrical machines design. Design optimization of electrical machines. Use of software for the electromagnetic field analysis. - Laboratory of design optimization and Finite Element analysis of electrical machines. - Visit to Electromechanical Company at the end of course.
3	Prerequisites and learning activities	The student must know the basic notions of Electromagnetism, Applied Thermodynamic and Heat Transfer, Electrical Machines and Electric Drives.
4	Teaching methods and language	Lectures and exercises. Language: Italian / English Ref. Text books -Lecture notes by the teacher (in english and italian); -E. Di Pierro ,"*Costruzioni Elettromeccaniche*", vol. I e II, (in italian), Ed.Siderea; -Juha Pyrhonen, Tapani Jokinen, Valeria Hrabovcova, *"Design of Rotating Electrical Machines",* Wiley Ed.; - J.F. Gieras, M. Wing, *"PM Motor Technology: Design and Applications*", Marcel Dekker Ed., 2002; -I. Boldea*, "Reluctance Synchronous Machines and Drives",* Oxford Science Publications, 1996; -Ramu Krishnan, "*Switched Reluctance Motor Driver: Modeling, Simulation, Analysis,*

		Design, and Applications, CRC Press, 2001; -J.F. Gieras, M.J. Kamper*, "Axial-Flux Permanent Magnet Brushless Machines",* Springer, 2008 -P.P. Silvester and R.l. Ferrari *"Finite Elements for Electrical Engineering*", Cambridge Univ. Press, 1996
5	Assessment methods	Oral exam.

Programme of "SISTEMI ELETTRICI PER LA MOBILITÀ" ***"ELECTRIC SYSTEMS FOR MOBILITY"***		
I20379, **COMPULSORY** **2nd Cycle Degree in ELECTRICAL ENGINEERING, 2nd year, 2nd semester**		
Number of ECTS credits: 9 (workload is 225 hours; 1 credit = 25 hours)		
Teacher: Antonio OMETTO		
1	Course objectives	The goal of this course is to provide specific knowledge on: - electric railway systems from the point of view of both power supply and on board equipment; - pure and hybrid electric vehicles.
2	Course content and Learning outcomes	Topics of the module include: - General aspects of traction system: technical aspects of railway electrification; train dynamics and speed-time characteristics. - Traction motors and drives: DC and AC collector motors, AC motors, single-phase drives; chopper drives; inverter drives. Principles of powering and regenerative braking; blended regenerative and rheostatic brake control. - AC and DC railways: 50 Hz/DC, 3 phase/single phase 50 Hz and 16 2/3 Hz railway power substations: power quality issues; impact to traction system and public; electrical parameters of traction systems and voltage drop. The 2x25 kV traction system. - Electric and hybrid vehicles: introduction to electric vehicles (EVs); EV configurations; motor drives; energy storage systems; hybrid electric vehicles (HEVs): types and operating modes. On successful completion of this module, the student should o have knowledge and understanding of both previous and present traction systems and drives. o have knowledge and understanding of electric vehicles and of the main architectures of hybrid propulsion systems for vehicles.
3	Prerequisites and learning activities	The student must know notions of electrical machines, power electronics and electrical power systems.
4	Teaching methods and language	Lectures. Language: Italian Ref. Text books: - F. Perticaroli, "*Sistemi elettrici per i trasporti*", Ambrosiana, Milano 2001 - Lecture notes by the teacher
5	Assessment methods and criteria	Oral exam.