



**SCHOOL OF AGRICULTURAL AND
FORESTRY ENGINEERING**

UNIVERSITY OF CORDOBA (SPAIN)
—E CORDOBA01—

SOCRATES-ERASMUS

ECTS

European Credit Transfer System

2007/2008 Academic Year

Forestry Engineering

FIRST CYCLE

FIRST YEAR

COURSE	PHYSICAL BASES OF ENGINEERING			SIGA Code 7930001
Type Core	Year 1st	Period Annual	Hours per week 10	ECTS Credits 12
Course description	Mechanical physics. Electricity. Thermodynamics. Fluid mechanics.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	MATHEMATICS I			SIGA Code 7930004
Type Core	Year 1st	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Linear algebra			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	BIOLOGICAL BASES OF PLANT PRODUCTION			SIGA Code 7930002
Type Core	Year 1st	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Biology: the cell as a unit of life. Genetics and evolution. Plant anatomy.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	BIOCHEMISTRY			SIGA Code 7930006
Type Core	Year 1st	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Organic chemistry. Biochemistry. Principal constituents of living beings. Enzymology. Bioenergetics and cell metabolism.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	GENERAL CHEMISTRY			SIGA Code 7930005
Type Core	Year 1st	Period 1st semester	Hours per week 6	ECTS Credits 7.5
Course description	General chemistry. Basic chemistry operations for the sector.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ENGINEERING DRAWING			SIGA Code 7930009
Type Core	Year 1st	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Orthogonal contour projection. Axonometric drawing. Conventional drawing systems.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	PRINCIPLES OF INSTRUMENTAL CHEMICAL ANALYSIS			SIGA Code 7930008
Type Core	Year 1st	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	Instrumental analysis. Chromatographic, optic and electroanalytical instrumental techniques.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	FUNDAMENTALS OF FOREST BOTANY			SIGA Code 7930003
Type Core	Year 1st	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Fundamentals of morphology, nomenclature and plant systematics of plants of interest to forestry. Biodiversity.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	TOPOGRAPHY			SIGA Code 7930010
Type Core	Year 1st	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	Instruments, methods and topographic uplifting. Photogrammetry. Cartography.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	MATHEMATICS II			SIGA Code 7930007
Type Core	Year 1st	Period 2nd semester	Hours per week 6	ECTS Credits 7.5
Course description	Infinitesimal calculus. Integration. Differential equations. Statistics. Numerical methods.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	GEOLOGY AND CLIMATOLOGY			SIGA Code 7930011
Type Core	Year 1st	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	Geology and climatology.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

SECOND YEAR

COURSE	ECONOMICS			SIGA Code 7930013
Type Core	Year 2nd	Period 2nd semester	Hours per week 6	ECTS Credits 7.5
Course description	General economics. Applied economics for the agroforestry sector. Assessment.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	HYDRAULICS AND HYDROLOGY			SIGA Code 7930012
Type Core	Year 2nd	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Real liquid hydraulics. Flow measurement. Hydraulic calculation of forced flows. Hydrology. The hydrologic cycle. Flow circulation. Hydraulic resource management.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	APPLIED STATISTICS			SIGA Code 7930017
Type Compulsory	Year 2nd	Period 1st semester	Hours per week 5	ECTS Credits 6
Course description	Introduction to probability calculus. Descriptive statistics. Data analysis. Computer science. Applications in agriculture.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	CALCULUS OF STRUCTURES AND CONSTRUCTION			SIGA Code 7930014
Type Core	Year 2nd	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Fundamentals of materials resistance. Fundamentals of structures analysis. Actions on buildings. Fundamentals of metallic structures. Fundamentals of reinforced concrete structures.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	PLANT ANATOMY AND PHYSIOLOGY			SIGA Code 7930015
Type Core	Year 2nd	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Plant physiology. Water relations. Mineral and organic nutrition. Growth and development. Anatomy of woody species.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ADVANCED MATHEMATICS			SIGA Code 7930016
Type Compulsory	Year 2nd	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Differential equations. Numerical calculus.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	MOTORS AND MACHINES			SIGA Code 7930019
Type Core	Year 2nd	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Motors: characteristics, assays and selection. Machines: transmissions and mechanisms.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ENVIRONMENTAL SCIENCE AND TECHNOLOGY			SIGA Code 7930021
Type Core	Year 2nd	Period 2nd semester	Hours per week 6	ECTS Credits 7.5
Course description	Ecology. Environmental impact: assessment and remediation.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ELECTROTECHNOLOGY			SIGA Code 7930020
Type Core	Year 2nd	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	Electrotechnology. Fundamentals of electric power systems and electric machines. Electric and electronic control systems.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	EDAPHOLOGY			SIGA Code 7930022
Type Core	Year 2nd	Period 2nd semester	Hours per week 5	ECTS Credits 6
Course description	Edaphology			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	REMOTE SENSING			SIGA Code 7930023
Type Core	Year 2nd	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	Principles of remote sensing. Remote sensors. Spatial remote sensing systems. Visual analysis. Visual treatment of images.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	VERTEBRATE ZOOLOGY			SIGA Code 7930018
Type Core	Year 2nd	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description				
Methodology	Theoretical and practical classes			
Assessment	Exam			

SECOND CYCLE

THIRD YEAR

COURSE	BASIC SILVICULTURE			SIGA Code 7930024
Type Core	Year 3rd	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Silviculture: basic principles and methods.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	PISCICULTURE AND HUNTING RESOURCE PLANNING			SIGA Code 7930027
Type Core	Year 3rd	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Wildlife planning: hunting resources and pisciculture resources.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ENGLISH FOR AGROFORESTRY ENGINEERING			SIGA Code 7930028
Type Compulsory	Year 3rd	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Reading and comprehension of the English used in forestry technology.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	BUSINESS ECONOMICS			SIGA Code 7930025
Type Core	Year 3rd	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Business economics. Production functions. Costs. Profitability and investments. Agricultural assessment.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ENGLISH FOR AGROFORESTRY ENGINEERING			SIGA Code 7930029
Type Core	Year 3rd	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Reading and comprehension of the English used in agricultural technology.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	MARKETING FOREST PRODUCTS			SIGA Code 7930026
Type Core	Year 3rd	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Commercialisation of forest products. Market research for the forestry sector.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	NON-WOOD FOREST PRODUCTS: TECHNOLOGIES AND INDUSTRIES			SIGA Code 7930031
Type Core	Year 3rd	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Making use of forest products and the forest environment.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	FOREST WORKS AND ELEMENTS OF ELECTRICAL INSTALLATIONS			SIGA Code 7930034
Type Compulsory	Year 3rd	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Resistant structures of warehouses and containment walls. Elements of electrical installations.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	AGROSILVOPASTURE			SIGA Code 7930033
Type Core	Year 3rd	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Pasciculture and agro-silvipastoral techniques			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	FOREST INVENTORY			SIGA Code 7930030
Type Core	Year 3rd	Period 2nd semester	Hours per week 5	ECTS Credits 6
Course description	Inventories. Tree measurements and cadastral surveying.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	FOREST ENTOMOLOGY			SIGA Code 7930035
Type Compulsory	Year 3rd	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	Pest diagnosis and control.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	WATERSHED MANAGEMENT			SIGA Code 7930032
Type Core	Year 3rd	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Management of hydrological watersheds and continental waters. Planning.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

FOURTH YEAR

COURSE	TIMBER TECHNOLOGY AND INDUSTRIES			SIGA Code 7930038
Type Compulsory	Year 4th	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Forest and forest environment technology and industries: woody products.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	USE AND TRANSPORT OF FOREST PRODUCTS			SIGA Code 7930036
Type Core	Year 4th	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Use of forest products and the forest environment.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	REFORESTATION			SIGA Code 7930037
Type Core	Year 4th	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Reforestation systems			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	FOREST PATHOLOGY			SIGA Code 7930039
Type Compulsory	Year 4th	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Fundamentals of forest pathology. Phytopathogenic agents. Pathogenesis. Epidemiology. Diagnosis and control of forest diseases.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	APPLIED SILVICULTURE			SIGA Code 7930040
Type Core	Year 4th	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Silviculture. Applied silviculture treatments.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	FOREST MANAGEMENT			SIGA Code 7930041
Type Core	Year 4th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Forest and regional management. Landscape architecture.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	PROTECTION AND DEFENCE AGAINST FOREST FIRES			SIGA Code 7930042
Type Core	Year 4th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Protection and defence of the forest system.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	PROTECTED NATURAL AREAS MANAGEMENT			SIGA Code 7930043
Type Core	Year 4th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Protected areas			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	PROJECTS			SIGA Code 7930044
Type Core	Year 5th	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Project methodology, organisation and management.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

OPTIONAL COURSES

COURSE	AGROSILVOPASTORAL GUIDELINES AND FOREST PLANNING			SIGA Code 7930201
Type Optional	Year 4th	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Forest seeds, seed analysis. Production of plants with naked roots and in containers. Design of forest nurseries. Production organisation.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	FOREST PLAGUES AND DISEASES			SIGA Code 7930202
Type Optional	Year 4th	Period 2nd semester	Hours per week 6	ECTS Credits 7.5
Course description	Description, biology and integrated control of principal plagues and diseases in Mediterranean forest species.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	HYDRAULICS AND TORRENTIAL HYDROLOGY			SIGA Code 7930203
Type Optional	Year 4th	Period 2nd semester	Hours per week 5	ECTS Credits 6
Course description	Impulsion systems. Free currents. Fluvial hydraulics. The hydrologic cycle. Interception by plants, infiltration and runoff. Hydrologic models. Erosive processes in high areas.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ADVANCED FOREST BOTANY			SIGA Code 7930204
Type Optional	Year 4th	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	Introduction to forest botany. Principal species of forestry, pisciculture and ornamental interest in cryptogams, gymnosperms, dicotyledons and monocotyledons.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	AGROSILVOPASTORAL SYSTEMS			SIGA Code 7930205
Type Optional	Year 5th	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Principles of agrosilvopastoral systems. System techniques in agroforestry engineering. Analysis of ecological, economic and social relations in agrosilvopastoral systems. Description and classification of agrosilvopastoral practices.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	USE OF NON-WOOD FOREST PRODUCTS			SIGA Code 7930208
Type Optional	Year 5th	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Techniques for using cork, resins, fruits and other forest products.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	LANDSCAPE PLANNING AND DESIGN			SIGA Code 7930209
Type Optional	Year 5th	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Design of landscape resources in rural and urban environments. Landscape management.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	SPECIAL TREATMENTS IN FOREST STANDS			SIGA Code 7930210
Type Optional	Year 5th	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	Analysis of forest uses: perspectives. Structure, specific composition and methods to benefit from forests in relationship to demand. Silviculture and forest planning models for transforming or converting Spanish forest stands.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	FOREST FIRES			SIGA Code 7930207
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Forest fires and forest fire propagation. Types of fires. Fire behaviour: plant fuel, climatic and topographic factors. Methods for extinguishing fires and organising fire-fighting work. Managing fire-fighting crews. Preventive silviculture and the use of fire.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	BREEDING OF FOREST SPECIES			SIGA Code 7930211
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Genetic principles for the breeding of forest species. Assessment and maintenance of genetic variability. Breeding methods for obtaining, conserving and propagating reproductive material.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	WILDLIFE MANAGEMENT			SIGA Code 7930212
Type Optional	Year 5th	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	Methods for estimating the size of animal populations. Censuses. Protected species. Interaction with human activities. Habitat management and infrastructure design. Conservation programmes and techniques to recover species.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ELECTRICAL AND AUTOMATION ENGINEERING IN FORESTRY INDUSTRIES			SIGA Code 7930213
Type Optional	Year 4th	Period 1st semester	Hours per week 5	ECTS Credits 6
Course description	Study of the electric machines and installations used in the forestry industry. Elements of protection, manoeuvrability and control. Study of logic functions. Programmable automatic machines.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	FOREST CONSTRUCTIONS			SIGA Code 7930214
Type Optional	Year 4th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Competences of analysis and calculation of structures. Computer applications.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	AUTOMATICS: CONTROL AND INSTRUMENTATION			SIGA Code 7930216
Type Optional	Year 4th	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	Elements of an automatic system. Input and output: sensors and actuators. Programming.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ENVIRONMENTAL IMPACT AND RISK PREVENTION			SIGA Code 7930219
Type Optional	Year 5th	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Environmental impact in forestry engineering and forestry industries. Occupational risk prevention.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	WOODEN ARCHITECTURAL CONSTRUCTIONS			SIGA Code 7930221
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Design and calculation of wooden structures.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	AGROFORESTRY BIOCHEMISTRY			SIGA Code 7930224
Type Optional	Year 4th	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Constitution, recombination, transmission and expression of hereditary material.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	BIOTECHNOLOGY AND CELL METABOLISM			SIGA Code 7930225
Type Optional	Year 4th	Period 2nd semester	Hours per week 5	ECTS Credits 6
Course description	Theoretical and practical principles of plant biotechnology. Biotechnological applications based on the manipulation of primary, secondary and other metabolic pathways. Biotechnological applications based on the manipulation of stress response.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	BREEDING OF FOREST SPECIES			SIGA Code 7930211
Type Optional	Year 4th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Genetic principles for the breeding of forest species. Evolution and maintenance of genetic variability. Breeding methods for obtaining, conserving and propagating reproductive material.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	AGRI-FORESTRY GENETIC ENGINEERING			SIGA Code 7930218
Type Optional	Year 5th	Period Annual	Hours per week 5	ECTS Credits 12
Course description	Methods of genetic analysis used in plant and animal biotechnology; genetic transformation.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	SYSTEMS FOR ANIMAL BREEDING			SIGA Code 7930267
Type Optional	Year 5th	Period Annual	Hours per week 3	ECTS Credits 7.5
Course description	Reproduction management systems. Principles and techniques of interest in biotechnology. Animal breeding using classic methods and biotechnology.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	BIOTECHNOLOGICAL APPLICATIONS IN ENTOMOLOGY			SIGA Code 7930268
Type Optional	Year 5th	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Biotechnology in studies of the systematics, behaviour, ecology, etc. of insects. Controlling plagues of insects of agricultural, forestry and medical-veterinarian interest using biotechnological methods. Genetic manipulation of predators, parasitoids and entomopathogenic microorganisms. Transgenic plants resistant to insects: their role in integrated pest control. The use of genetic manipulation in beneficial insects: apiculture and sericulture.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	INTEGRATED WEED CONTROL			SIGA Code 7930269
Type Optional	Year 5th	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Classification and mode of action of herbicides. Transgenic plants resistant to herbicides. Their role in integrated weed control.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	BIOTECHNOLOGICAL APPLICATIONS IN PHYTOPATHOLOGY			SIGA Code 7930270
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Biotechnology for the diagnosis and characterisation of phytopathogenic agents. Resistance in the plant-pathogen interaction. Biotechnological applications in disease control.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	CHEMICAL, ANALYTICAL AND MICROBIOLOGICAL PROCESSES IN ENVIRONMENTAL ENGINEERING			SIGA Code 7930228
Type Optional	Year 4th	Period 1st semester	Hours per week 5	ECTS Credits 6
Course description	Chemical analysis of environmental parameters. Chemical processes in environmental engineering. Microbiological processes.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ELECTRONIC INSTRUMENTATION AND MEASUREMENT SYSTEMS IN BIOENGINEERING			SIGA Code 7930215
Type Optional	Year 4th	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	Fundamentals of electronics. Software. Applications. Measuring and controlling noise and vibrations.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	FOREST BIOMASS AND XYLOENERGY			SIGA Code 7930230
Type Optional	Year 4th	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	Forest biomass as a renewable resource. Processes to transform energy. Environmental industry.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ENVIRONMENTAL CONTROL			SIGA Code 7930231
Type Optional	Year 4th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Environmental monitoring. Theory of the localisation of sampling points. Physical principals of capture systems (transducers). Signal processing and fitting. Generation, transmission and automatic processing of information. Measurement integration and environmental control projects.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ENVIRONMENTAL ECONOMICS AND POLICY			SIGA Code 7930274
Type Optional	Year 5th	Period 1st semester	Hours per week 6	ECTS Credits 7.5
Course description	Basic concepts and institutions. Economic analysis of natural resources. Economics of contamination. The environment and development. Economic assessment of environmental goods			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	GEOGRAPHIC INFORMATION SYSTEMS IN ENGINEERING			SIGA Code 7930271
Type Optional	Year 5th	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Geographic information and GIS. Spatial data: sources and capture methods. Digital terrain models. Data structure and storage.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	WATER PLANNING AND MANAGEMENT			SIGA Code 7930275
Type Optional	Year 5th	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Water resource planning. Demands and resources. Vulnerability. Joint management of surface and ground resources. Floods and drought. Water resource planning and management models.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	TECHNOLOGY AND AUTOMATISATION IN ENVIRONMENTAL ENGINEERING			SIGA Code 7930272
Type Optional	Year 5th	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Hydraulic and pneumatic equipment and facilities. Automatisation. Digital and analogic principles. Automised treatment of digital and analogic signals.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	REHABILITATION AND DESIGN OF WASTE TREATMENT PLANTS			SIGA Code 7930276
Type Optional	Year 5th	Period 1st semester	Hours per week 6	ECTS Credits 7.5
Course description	Sanitary engineering. Wastewater and rainwater. Wastewater treatment plants. Purification systems. Purifiers.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ENVIRONMENTAL DEGRADATION: SOIL AND WATER. CAUSES, PROCESSES AND CONTROL			SIGA Code 7930277
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	The origin of contamination. Substance transport processes. Transfer of contaminants. Spatial and temporal distribution of contaminants in waters and soils. Recovery methods.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	AGROENERGY AND EMISSIONS CONTROL			SIGA Code 7930273
Type Optional	Year 5th	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	The energy sector. Energy crops. Using agricultural wastes as sources of energy. Biofuels. Air pollution and emissions control.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ENVIRONMENTAL MANAGEMENT AND AUDITING. LANDSCAPE MANAGEMENT			SIGA Code 7930278
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Environmental policies in companies. Regulations. Environmental auditing. Landscape assessment. Visual impact of works in construction engineering. Assessment and control measures.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ENGLISH FOR AGROFORESTRY ENGINEERING II			SIGA Code 7930234
Type Optional	Year 5th	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Study of advanced texts, comprehension of formal oral texts. Scientific content with video and audio tapes. Formal scientific writing.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	OCCUPATIONAL RISK PREVENTION IN THE RURAL ENVIRONMENT			SIGA Code 7930242
Type Optional	Year 5th	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Basic concepts concerning social security and health in the workplace. General risks and their prevention. Specific risks in the agricultural and forestry sector and their prevention.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ORGANIC FARMING			SIGA Code 7930255
Type Optional	Year 5th	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Theory and practice of agroecology and sustainable rural development. Sociological aspects. Types of organic farming. Field trips to organic farms.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	CARTOGRAPHIC ENGINEERING			SIGA Code 7930259
Type Optional	Year 5th	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Geodesy and reference systems. Cartography. Digital and analytical photogrammetry. Global positioning systems. Satellite mapping.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	RURAL SOCIOLOGY			SIGA Code 7930247
Type Optional	Year 5th	Period 1st semester	Hours per week 3	ECTS Credits 3.5
Course description	Sociological analysis of the institutions related to the agroforestry sector. Rural sociology and natural resource management.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	STATISTICAL SOFTWARE PACKAGES			SIGA Code 7930265
Type Optional	Year 5th	Period 1st semester	Hours per week 4	ECTS Credits 5
Course description	Software packages for DOS, UNIX and WINDOWS: BMDP, SPSS, EVIEWS, STATGRAPHICS, etc.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	RURAL CONSTRUCTION AND ARCHITECTURE			SIGA Code 7930240
Type Optional	Year 5th	Period 2nd semester	Hours per week 6	ECTS Credits 7.5
Course description	Architecture for rural constructions: design, calculations, installations, legislation and environmental impact.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	MANAGEMENT AND EXECUTION OF WORKS			SIGA Code 7930244
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Quality control in the construction of rural infrastructures. Designing agrifoods industry plants.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	AGRICULTURAL AND FORESTRY EXTENSION			SIGA Code 7930248
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Classic and contemporary concepts and theories regarding rural extension. Methods and techniques. Rural extension in the FAO and different countries. The case of Spain and its autonomous communities.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	SOCIOLOGY OF SPANISH AGRICULTURE			SIGA Code 7930246
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Social aspects of the processes of agricultural transformation in 20th-century Spain. Agricultural and social structure in Andalusia.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	RENEWABLE ENERGIES			SIGA Code 7930249
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Introduction. Solar radiation. Photovoltaic solar energy. Using solar energy for technical purposes. Minihydraulic energy. Aeolic energy.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	QUALITY ASSURANCE SYSTEMS			SIGA Code 7930252
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Review of general aspects. Quality planning, control and improvement. Design, development and implementation of quality systems according to ISO guidelines: assessment models.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	COMPUTER-ASSISTED DATA ANALYSIS			SIGA Code 7930258
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Computer-assisted data analysis. Statistical, numerical and graphic software. BMPD and other computer programming languages. Solving technical problems.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	COMPUTER-ASSISTED DESIGN FOR FORESTRY ENGINEERING			SIGA Code 7930232
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Study of computer-assisted drawing. Application to a commercial programme.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	GEOMETRIC BASES FOR FOREST ENGINEERING DESIGN			SIGA Code 7930233
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Lines and surfaces. Classification. Land representation. Maps.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	GENERAL AND AGRICULTURAL ACCOUNTING			SIGA Code 7930236
Type Optional	Year 5th	Period 2nd semester	Hours per week 5	ECTS Credits 6
Course description	Business patrimony. Balance analysis. Double-entry accounting. General accounting plan (GPC). Sources of financing for enterprises: internal and external sources of long-term financing.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ECONOMIC ORGANISATION OF THE AGROFORESTRY SECTOR			SIGA Code 7930237
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Agriculture and silviculture in Spain. Historical background, current reality and structural, institutional and organisational aspects that are key to the future of the sector. Agriculture and silviculture in the EU and the world.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	FORESTRY PROGRAMMING AND MODELS			SIGA Code 7930238
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Complex production: multi-criteria decision models for assigning uses. Geographic information systems for the planning and control of forestry management. Forestry growth and production models. Simulators.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	ENGINEERING PROJECT ESTIMATES			SIGA Code 7930262
Type Optional	Year 5th	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	Computerised estimates. Estimates, measurements and certifications. Reports and issuing of documents. Cost analysis and control. Purchasing management.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	MICROBIOLOGY			SIGA Code 7930245
Type Optional	Year 5th	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	Microbiology. Principles of manipulation, cultivation, identification and taxonomy of microorganisms.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	FORESTRY LAW AND LEGISLATION			SIGA Code 7930254
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Theory of public patrimonies. Legal code concerning forests, waters and mines.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	FOREST MACHINERY			SIGA Code 7930256
Type Optional	Year 5th	Period 2nd semester	Hours per week 3	ECTS Credits 3.5
Course description	Machinery for silviculture treatments and for the handling and transportation of forest products.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	OPERATIONAL RESEARCH			SIGA Code 7930260
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Optimisation. Linear programming. Dynamic programming. Tails and inventory. Simulation.			
Methodology	Theoretical and practical classes			
Assessment	Exam			

COURSE	RURAL DEVELOPMENT			SIGA Code 7930235
Type Optional	Year 5th	Period 2nd semester	Hours per week 4	ECTS Credits 5
Course description	Concepts and methods. Approaches to development. Rural development in the EU. Development planning.			
Methodology	Theoretical and practical classes			
Assessment	Exam			