



Instituto Superior Politécnico Gaya

STUDY GUIDE – 2008/9



PRESENTATION

Gaya Superior Polytechnic Institute is a private polytechnic institute in the north of Portugal with approximately 900 students.

It was founded in 1990 to create and convey the latest science and engineering knowledge in ways that would be most useful to the society.

The *curricula* has been continuously reshaped and adapted to satisfy the evolution of needs and expectations of both students and the labour market but has remained true to its original mission of fusing academic inquiry with social needs and linking new knowledge to applications.

The institution aims to promote the full development of the personality of the students through a technical-scientific, socio-cultural integrated formation.

Based on the human values, ISPGaya gives special relevance to the personal and communitarian dimension, preparing the students for a responsible freedom, flexibility in the change, solidarity and participative responsibility.

ISPGaya also aims to stimulate the creation and diffusion of culture and science through the publication of a scientific journal and the edition of documents, studies and books.

TELECOMMUNICATIONS AND COMPUTER ENGINEERING (adjusted to the Bologna model)

Course Presentation

The course has the objective of providing a solid and wide scope instruction in the sciences of the speciality, forming superior level technicians capable of developing functions of planning, consulting, maintenance and projects in the systems of telecommunications, analysis and signal processing, computer networks and programming areas.

With a solid instruction in basic sciences, it intends to provide an easier and more efficient adaptation to the fast technological evolution. Through a wide scope instruction in the associated sciences, it gives a more flexible and larger vision of the set of professional exits. Any of these objectives is essential for the instruction of a professional in the area of the Telecommunications and Computer Engineering.

The course is recognized by the National Association of Technical Engineers (ANET) up to the year 2010.

Professional Exits

Engineer in the area of the development of projects of Telecommunications and Software

Product Manager in the area of Telecommunications and Computer Science

Telecommunications Project Manager

Consultant in the area of Telecommunications

Advertising Technician in the area of Telecommunications and Computer Science

Communications Systems Auditor

Team Coordinator project/work in the area of Telecommunications

Entrance Exams (2008/2009): Physics and Chemistry (Physics) or Mathematics or Portuguese

Course Plan

	H	ECTS
1st Semester (1st Year – 1st semester)		
Algebra	3,0	5
Mathematical Analysis I	4,5	6
Digital Systems and Instrumentation	4,5	6
Algorithms and Programming Models	4,5	6
Electrical Circuits	3,0	4
Communication and Interpersonal Relations	1,5	3
Total	21	30
2nd Semester (1st Year- 2nd semester)		
Physics	3,0	5
Mathematical Analysis II	4,5	5
Digital Systems Projects	3,0	6
Programming and Computers	4,5	6
Electronics	4,5	5
Research Methodologies	1,5	3
Total	21	30
3rd Semester (2nd Year - 1st semester)		
Electromagnetism	3,0	6
Telecommunication Electronics	4,5	6
Radiation and Propagation	4,5	7
Languages and Computation Theory	3,0	6
Computer Architecture	3,0	5
Total	18	30
4th Semester (2nd Year - 2nd semester)		
4 ^o Semester (2 ^o Year - 2 ^o semester)		
Statistics and Probability	3,0	5
Operational Research	3,0	5
Telecommunications	4,5	7
Operative Systems	3,0	6
Data Communication	4,5	7
Total	18	30
5th Semester (3rd Year - 1st semester)		
Networks and Computers	3,0	6
Telecommunication Systems	3,0	5
Signal Processing	3,0	4
Telecommunication Project in Company Context I	6,0	10
Engineering Complements I	3,0	5
Total	18	30
6th Semester (3rd Year - 2nd semester)		
6 ^o Semester (3 ^o Year - 2 ^o semester)		
Economy and Management Seminar	3,0	5
Project Telecommunications in Company Context II	6,0	10
Optical Communications	3,0	5
Advanced Networks in Telecommunications	3,0	5
Engineering Complements II	3,0	5
Total	18	30

PUBLIC ADMINISTRATION (adjusted to the Bologna model)

Course Presentation

The objectives to be achieved with this course can be synthesized in the following topics:

- To instruct Public Administration graduates capable of a fast and harmonious integration in the context (in a European perspective), sensible to a new form of social and professional intervention/and with a set of abilities that allow them to react appropriately to the challenges of the new knowledge society based on the omnipresent information technologies. Besides "knowing how to make", the graduates will be involved in a whole "knowing to learn" culture in a perspective of permanent instruction throughout life and in a "knowing how to be" culture in order to develop an active and constructive position while as citizens.
- To instruct Public Administration graduates oriented to the direct supervising of the conception and project development, production and maintenance, with autonomy and quality of new capable projects and adapting them to the new challenges of their professional activity.
- To instruct professionals capable to keep a dialogue with a variety of departments and people, develop their taste for learning and research and for finding new solutions and integrating different scopes of science in their activity.

Professional exits

Project Manager in the Public Administration; Superior Technician of municipal and Inter-Municipal Companies; Superior Technician of Public Administration; Accountancy Official Technician; Manager of Non-Governmental Organizations

Entrance Exams (2008/2009): Economy or Geography or Portuguese

Course Plan

	H	ECTS
1st Semester (1st Year – 1st semester)		
Research Methodologies	3	5
Information and Communication Technologies	3	4
Introduction to Economics	3	5
Culture and History of Civilizations	3	4
Quantitative Methods	3	5
Public Administration Principles	3	5
Academic Integration Seminar	-	2
Total	18	30
2nd Semester (1st Year- 2nd semester)		
Applied Statistics	3	5
Introduction to the Management of Organizations	3	4
Psycho-pedagogical Communication	3	5
Politics Science	3	4
Portuguese Public Administration	3	5
Applied Economy	3	5
Professional Identity Seminar	-	2
Total	18	30
3rd Semester (2nd Year - 1st semester)		
General Law Principles	3	4
Portuguese Economy	3	5
Models of Public Administration	3	5
Public Politics	3	5
Compared Public Administration	3	5
Introduction to Accounting	3	4
Professional Integration Seminar	-	2
Total	18	30
4th Semester (2nd Year - 2nd semester)		
Human Resources Management	3	4
Administrative Law	3	4
Public Finance	3	5
Government and Local Administration	3	5
Financial Accounting	3	4
Financial Calculus	3	5
New Challenges in Public Administration Seminar	-	3
Total	18	30

5th Semester (3rd Year - 1st semester)

Ethics and Deontology	3	4
Analysis and Evaluation of Projects	3	4
Local Finance	3	5
Tax law	3	4
Management Accounting (optional)	3	5
Economy and Industrial Organization (optional)	3	5
Complements of Financial Accounting (optional)	3	5
Economy and Regional Development (optional)	3	5
External Seminar	-	3

Total **15** **30**

6th Semester (3rd Year - 2nd semester)

Financial Management	3	4
Public Accounting	3	4
Training and Curricular Project	-	8
Fiscal Organization	3	4
Auditing Public Institutions (optional)	3	4
International Economy (optional)	3	4
Complements of Management Accounting (optional)	3	4
Economic Policies (optional)	3	4
Employability Seminar	-	2

Total **15** **30**

ELECTRONIC AND AUTOMATION ENGINEERING (adjusted to the Bologna model)

Course Presentation

The graduates have scientific/technological knowledge that allows them to build, handle, assemble and use any structure or system associated with electronics and automation. With autonomy, capable of adapting to the challenges of the professional activity and, on the other hand, keeping a dialogue with other departments and people cultivating the taste for learning and research, for the development of new solutions and integrating different scopes of science in their activity.

The graduate is able to perform the installation, control, programming, commercialization and direction of electronic systems in domotics, microelectronics, industrial automation, robotics, electromedicine, etc.

The course is recognized by the National Association of Technical Engineers (ANET) up to the year 2010.

Professional exits

Electronic and Automation Projects Development Engineer
 Superior Technician of Systems Maintenance
 Electronics and Automation Product Manager
 Consultant in the area of Electronics and Automation

Entrance exams (2008/2009): Physics and Chemistry (Physics) or Mathematics or Portuguese

Course Plan

	H	ECTS
1st Semester (1st Year – 1st semester)		
Algebra	3,0	5
Mathematical Analysis 1	4,5	6
Digital Systems and Instrumentation	4,5	6
Algorithms and Programming Models	4,5	6
Electric circuits	3,0	4
Communication and Interpersonal Relations	1,5	3
Total	21	30
2nd Semester (1st Year- 2nd semester)		
Mathematical Analysis 2	4,5	5
Electronics 1	4,5	5
Digital Systems Project	3,0	6
Programming and Computers	4,5	6
Physics	3,0	5
Research Methodologies	1,5	3
Total	21	30
3rd Semester (2nd Year - 1st semester)		
Numerical Analysis	3,0	5
Electromagnetism	3,0	6
Microprocessors	4,5	6
Instrumentation and Transducers	3,0	7
Electronics 2	4,5	6
Total	18	30
4th Semester (2nd Year - 2nd semester)		
Programmable Logic Controllers	4,5	7
Electrical machines	3,0	6
Embedded Systems Projects	4,5	7
Probabilities and Statistics	3,0	5
Electrical installations	3,0	5
Total	18	30
5th Semester (3rd Year - 1st semester)		
Robotics	3,0	6
Power Electronics	3,0	6
Pneumatic and Hydraulic Circuits	4,5	6
Industrial Data Communications	4,5	7
Complements of Engineering 1	3,0	5
Total	18	30
6th Semester (3rd Year - 2nd semester)		
Command and Automation	3,0	5
Power Control Electronic Systems	3,0	5
Economy and Management Seminar	3,0	5
Complements of Engineering 2	3,0	5
Electronic and Automation Project in the Company Context	6,0	10
Total	18	30

Course Presentation

The objectives of the course are:

- To develop an ample and solid instruction that prepares the graduates to direct and carry through all the tasks of the cycle of life of software systems, guided for the direct monitoring of conception and project, development, production, quality and maintenance, with autonomy, capable of adapting themselves to the challenges in the professional activity, applying scientific knowledge and the methods and appropriate engineering techniques.
- To instruct graduates capable of keeping a dialogue with some departments and people, developing their taste for learning and research, finding new solutions and integrating different scopes of science in their activity.
- To prepare professionals that, throughout their careers, assume tasks of responsibility in the organizations, not only in the technical area but also in direction, and contribute for the management of information and knowledge.
- To develop the abilities required for the professional practice of engineering: to be able to direct projects, to communicate in a clear and effective way, to work in a team, to guide multidisciplinary teams, to adapt to changes and earn autonomously throughout life.
- To prepare to learn and use, in an effective way, the techniques and tools in Computer science Engineering that will appear in the future. This versatility becomes especially valid in the organizations where permanent innovation is necessary.

The course is recognized by the National Association of Technical Engineers (ANET) up to the year 2010.

Professional exits:

Systems Engineer (development and administration of systems)

Programming Engineer

Network Engineer

Information systems project manager

Computer science advertising technician

Superior functions in public and private companies, whose activity involves directly or indirectly the use of computers, computer networks, information technologies and information systems.

Entrance Exams: 2008/2009: Physics and Chemistry (Physics) or Mathematics or Portuguese

Course Plan

	H	ECTS
1st Semester (1st Year – 1st semester)		
Algebra	3,0	5
Mathematical Analysis 1	4,5	6
Digital Systems and Instrumentation	4,5	6
Algorithms and Programming Models	4,5	6
Electrical Circuits	3,0	4
Communication and Interpersonal Relations	1,5	3
Total	21	30
2nd Semester (1st Year- 2nd semester)		
Physics	3,0	5
Mathematical Analysis 2	4,5	5
Digital Systems Project	4,5	6
Programming and Computers	4,5	6
Probabilities and Statistics	3,0	5
Research Methodologies	1,5	3
Total	21	30
3rd Semester (2nd Year - 1st semester)		
Numerical Analysis	3,0	5
Databases	4,5	7
Languages and Computing Theory	4,5	7
Architecture of Computers	3,0	5
Networks and Computers	3,0	6
Total	18	30
4th Semester (2nd Year - 2nd semester)		
Operational Research	3,0	5
Languages and Paradigms of Programming	4,5	7
Operative systems	3,0	6
Graphical Computation and Multimedia	4,5	7
Economy and Management Seminars	3,0	5
Total	18	30

5th Semester (3rd Year - 1st semester)

Systems Administration	3,0	5
Processing of Information - Applications and Technologies	4,5	5
Information Systems	4,5	5
Complements of Engineering 1	3,0	5
Informatics Project in Enterprise Context	3,0	10
Total	18	30

6th Semester (3rd Year - 2nd semester)

Software Engineering	3,0	5
Interconnection and Management of Informatics Systems	3,0	5
Distributed Systems	3,0	5
Complements of Engineering 2	3,0	5
Informatics Training in Company Context	6,0	10
Total	18	30

COMPUTER SCIENCE FOR MANAGEMENT (adjusted to the Bologna Model)

Course Presentation - The course aims to provide a wide knowledge in management and its techniques in conciliation with the potential of the information and communication technologies. It aims to facilitate company management taking the best out of computer science and information systems and so making possible for organizations to be effective and efficient. The graduates will also present the abilities to play an active role in both areas. Therefore, the objectives are to instruct graduates qualified:

- to conceive and implement business processes supported by information systems and informatic tools that promote organizational competitiveness.
- to apply models of information flow that facilitate top and intermediate management decision taking.
- to deal with the needs of information of organizations and the management of knowledge in the organizational system.
- to assume a dynamic paper of interconnection between management agencies and the computer science technical area.
- to assume, throughout their professional career, tasks of responsibility in the organizations, either at the technical or at the direction level, and contribute for the management of information and knowledge.
- to keep a dialogue with some departments and people, cultivating the taste for learning and research which contribute for the development of new abilities that allow the organization to reach sustainable competitive advantages.
- to learn and use in an effective way the techniques and tools that appear in the future. This versatility becomes especially valid in organizations where permanent innovation is necessary.
- to develop entrepreneurship in economical activities associated with the Information and Communication technologies;
- to enrol in further studies, in Portugal or abroad (Master or PhD).

Professional exits - Technician of informatic applications in the Management area; Information Systems Consultant in organizations; Manager of Computer Science Centres; Product Manager of Information Technologies; Small/Big Company Manager and Entrepreneur

Entrance exam (2008/2009): Economy or Mathematics or Portuguese

Course Plan		
	H	ECTS
1st Semester (1st Year – 1st semester)		
Management and Organization of Companies	4,5	6
Mathematics	4,5	6
Accountancy	4,5	6
Operative systems	3,0	5
Computers Architecture	3,0	4
Introduction to Social Sciences	1,5	3
Total	21	30
2nd Semester (1st Year- 2nd semester)		
Informatic applications	3,0	5
Mathematics for Economy and Management	4,5	6
Financial Accounting	4,5	6
Economy	4,5	6
Commercial and Social Law	3,0	4
Research Methodologies	1,5	3
Total	21	30
3rd Semester (2nd Year - 1st semester)		
Databases	4,5	7
Programming I	4,5	6
Computer networks and Services	3,0	6
Statistics and Probabilities	3,0	5
Marketing	3,0	6
Total	18	30
4th Semester (2nd Year - 2nd semester)		
Management Applied Informatic tools I	3,0	6
Programming II	3,0	6
Financial Calculus	4,5	6
Information Systems	3,0	5
Decision Support Systems	4,5	7
Total	18	30
5th Semester (3rd Year - 1st semester)		
Management Applied Informatic tools II	4,5	7
Technology and Business	3,0	5
Quality Management	3,0	5
Management Applied Quantitative Methods	4,5	6
Seminars	3,0	7
Total	18	30
6th Semester (3rd Year - 2nd semester)		
Management Applied Informatics tools III	4,5	7
Strategic Management and Innovation	3,0	4
Production Management and Logistics	3,0	5
Human Resources Management	3,0	4
Project	4,5	10
Total	18	30

Course Presentation

The course is based on a set of objectives of social, economical, environmental and cultural nature, that have the underlying purpose of promoting the human development and the psychosocial life quality of the individuals, through the valorisation of the contexts where they interact.

It is intended to develop the following objectives:

- To instruct technicians for the segment "Tourism in Urban Areas";
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- To develop interaction abilities of some valences of Tourism, especially visible in the periphery of great population areas;
- To contribute actively for the promotion of a set of professional, personal and social abilities that allow the development of skills in the following areas:
 - To define techniques of management and support decision planning;
 - To know the concepts and theories that are used to understand tourism, as well as the concrete operations carried through in the scope of this activity;
 - To understand, in a critical form, the state of knowledge in its action sectors;
 - To dominate the functional codes and the processes of dynamic interaction of all the agents integrated in the tourist dynamics (tourist, public and private guest community, economic agents);
 - To know the organizational structures of tourism (local, regional, national and international) and to apply their directives;
 - To get integrated in the different types of institutions and tourism companies and respective ways of organization management and specific action domains;
 - To understand the need to develop a multidisciplinary and an inherent interdisciplinary view of the tourist activity;
 - to enhance the capacity of operating projects of tourism development;
 - To develop the capacity of research and qualification for the resolution of problems, understanding the methods to acquire, interpret and analyze the appropriate information in its academic and professional context;
 - To make an adequate inventory of resources needed for the tourist system to work;
 - To optimize the instruments of tourist communication (oral and written) as a basic tool;
 - To use operative tools of research and management of information and tourist animation;
 - To deal with the different types of tourist operations;
 - To understand the contribution of the several disciplines that help to explain the nature and development of tourism;
 - To have critical conscience concerning moral, ethical, environmental and legal orientations that support the best practices;
 - To understand the intercultural dimension of tourism

Professional exits

Responsible technician for the survey, planning and tourist promotion in public and private companies

Responsible technician for the study and evaluation of tourist markets

Teaching

Public relations

Event Manager

Responsible technician for the organization and support of tourist itineraries

Cultural Animation Technician

Consultant

Instruction Manager

Entrance Exams (2008/2009): English or History or Portuguese

Course Plan

	H	ECTS
1st Semester (1st Year – 1st semester)		
Research Methodologies	3	5
Basic English	3	4
Culture and History of the Civilizations	3	4
Information and Communication Technologies	3	4
Introduction to Tourism	3	6
Tourism Geography	3	5
Academic Integration Seminar	-	2
Total	18	30
2nd Semester (1st Year- 2nd semester)		
Introduction to the Organization Management	3	4
Intermediate English	3	4
Psycho-pedagogical Communication	3	5
Applied statistics	3	5
Tourism Politics and Management	3	5
Creation and Management of Itineraries	3	5
Professional Identity Seminar	-	2
Total	18	30
3rd Semester (2nd Year - 1st semester)		
Hotel Management and Direction	3	6
Basic English Applied to Tourism	3	4
Tourism and Development	3	6
Basic French	3	4
Communication and Interpersonal Relation	3	4
Portuguese History of Art	3	4
Professional Integration Seminar	-	2
Total	18	30
4th Semester (2nd Year - 2nd semester)		
Human Resources Management	3	4
Elaboration of Plans and Strategies in Tourism	3	6
French Applied to Tourism	3	4
Business-oriented Tourism and Incentives	3	6
Socio-cultural animation	3	4
Advanced English Applied to Tourism	3	4
Trends and Challenges in Tourism Seminar	-	2
Total	18	30
5th Semester (3rd Year - 1st semester)		
Ethics and Deontology	3	4
Entrepreneurship in Tourism	3	5
Urban tourism	3	3
Analysis and Evaluation of Projects	3	4
Management and Operations in Travel agencies	3	4
Tourism Training period	-	8
External seminar	-	2
Total	15	30
6th Semester (3rd Year - 2nd semester)		
Leisure and Recreation Techniques	3	5
Tourism and Transports	3	5
Development of New Tourist Products	3	4
Marketing	3	3
Tourism Economy	3	4
Tourism Project	-	8
Employability Seminar	-	1
Total	15	30

ACCOUNTANCY AND MANAGEMENT (adjusted to the model of Bologna)

Course Presentation

This course instructs accounting superior technicians, guided for the direct support to management with autonomy and adapted to the constant evolutions of specific contents and capable of developing active management. It is a recognized course by the Official Chamber of Accounting Technicians (CTOC) that functions in day and night regimens with a great practical component, but also supported by solid theoretical bases.

Professional exits

Accountant
Accounting Official technician (by means of admission in the CTOC)
Superior Technician of the Administrative and Financial area
Financial and Fiscal Consultant
Official Copyholder of Accounts (by means of admission in the OROC)

Test of Ingression for school year 2008/2009: Economy or Mathematics or Portuguese

Course Plan		
	H	ECTS
1st Semester (1st Year – 1st semester)		
Mathematics	4,5	6
Introduction to Accounting	4,5	6
Management and Organization of Companies	4,5	6
Macroeconomics for Management	3,0	5
General principles of Right and Civil law	3,0	4
Introduction to Social Sciences	1,5	3
Total	21	30
2nd Semester (1st Year- 2nd semester)		
Mathematics for Economy and Management	4,5	6
Financial Accounting	4,5	6
Computer science Applied to Management	3,0	5
Microeconomy	4,5	6
Commercial and Society Law	3,0	4
Research Methodologies	1,5	3
Total	21	30
3rd Semester (2nd Year - 1st semester)		
Probabilities and Statistics	3,0	5
Management Accounting	4,5	7
Fiscal Organization	4,5	7
Financial Accounting Complements	3,0	6
Work and Social Security Law	3,0	5
Total	18	30
4th Semester (2nd Year - 2nd semester)		
Professional Project 1	4,5	6
Enterprise Rendering of Accounts and Concentrations	3,0	6
Financial calculation	4,5	6
Complements of Fiscal Organization	3,0	6
Management Complements of Accounting	3,0	6
Total	18	30
5th Semester (3rd Year - 1st semester)		
Professional Project 2	4,5	6
Financial and Economical Analysis	4,5	7
Ethics and Deontology	3,0	5
Financial Auditorship	3,0	6
Marketing	3,0	6
Total	18	30
6th Semester (3rd Year - 2nd semester)		
Professional Project 3	4,5	6
Accounting of Sectorial Plans	3,0	5
Advanced Financial Accounting	4,5	7
Management Planning and Control	3,0	6
Human Resources Management	3,0	6
Total	18	30

ENGINEERING AND INDUSTRIAL MANAGEMENT (adjusted to the Bologna model)

Course Presentation

With the creation of this course it is intended to widen the Engineering courses offers with a course of practical instruction and strong industrial implication graduating technicians that apply, with a high level of technical, scientific and ethical values, their knowledge and abilities. Thus, the model of organization of the course relies on the development of a set of very diversified abilities that allow us to assure to the students and professionals of engineering with the conditions of professional integration in a relatively vast set of professional exits and, in similar circumstances with the ones offered by the university institutions of reference in the European space.

The industrial organizations, according to their mission, vision and strategy, have the need to manage their resources in an efficient and effective way balancing all the internal and external perspectives.

They focus on the customer and on the remaining interested parts with which they interact and simultaneously they know and organize the industrial processes having as a basis the scientific knowledge – technological, technical and of management.

The Course of Engineering and Industrial Management intends to form professionals that unite the knowledge in the scientific areas of Engineering and Industrial Management, mechanics and economy and management in order to be able to give an answer to the increasing needs of industry in terms of management, organization and industrial modernization. It does not intend to frame the knowledge but to broaden it in such a way that it becomes flexible in its function inside of the organization to give answers to strategic challenges.

The process of accreditation for the National Association of the Technical Engineers (ANET) is in appreciation phase.

Professional exits

Engineer in Project Offices
 Operation Planning Engineer
 Operations, Processes, Logistic and Distribution Engineer
 Project Manager
 Quality, Environment and Technology Manager
 Information Systems for Management Technician
 Project Consultant and Evaluator in Service Companies
 Commercial Technician

Entrance exams (2008/2009): Physics and Chemistry (Physics) or Mathematics or Economy

Course Plan		
	H	ECTS
1st Semester (1st Year – 1st semester)		
Algebra	3,0	5
Mathematical Analysis I	4,5	6
Technical Drawing	4,5	6
Algorithms and Programming Models	4,5	6
Electrical Circuits	3,0	4
Communication and Interpersonal Relations	1,5	3
Total	21	30
2nd Semester (1st Year- 2nd semester)		
Physics	3,0	5
Mathematical Analysis II	4,5	5
Mechanical Drawing	4,5	7
Programming and Computers	4,5	6
Industrial Legislation	3,0	4
Research Methodologies	1,5	3
Total	21	30
3rd Semester (2nd Year - 1st semester)		
Numerical Analysis	3,0	5
Probabilities and Statistics	3,0	5
Thermodynamics	4,5	7
Materials' Technology	3,0	7
Management Accounting	4,5	6
Total	18	30
4th Semester (2nd Year - 2nd semester)		
Operational Research	3,0	5
Environment Management	4,5	7
Reliability and Maintenance	4,5	7
Mechanics Technology	3,0	5
Complements of Management Accounting	3,0	6
Total	18	30

5th Semester (3rd Year - 1st semester)

Complements of Engineering I	3,0	5
Management and Organization of Companies	4,5	6
Management of the Quality and Metrology	4,5	7
Marketing	3,0	6
Innovation and Technological Techniques	3,0	6
Total	18	30

6th Semester (3rd Year - 2nd semester)

Complements of Engineering II	3,0	5
Work Safety and Health Management	3,0	6
Human resources management	3,0	4
Production and logistics management	3,0	5
Project of Engineering and Industrial Management in Company context.	6,0	10
Total	18	30

MECHANICAL ENGINEERING (adjusted to the Bologna model)

Course Presentation

With the creation of this course it is intended to widen the offer in the engineering field with another course of practical instruction and strong industrial implication graduating technicians that apply, with a high level of technical, scientific and ethical values, their knowledge and abilities

Therefore, the model of organization of the course relies on the development of a very diversified set of abilities that allow the conditions of professional integration in a relatively vast set of professional exits and in similar circumstances to the ones offered by the university institutions of reference in the European space with special reference to the project offices, the industries of mechanical and thermal equipment manufacture, the companies of energy production and acclimatization, the activities of maintenance and management of operations, the tasks of evaluation of projects and consulting in companies of services (banks and insurance), technico-commercial activities and research and industrial development laboratories.

The abilities to be developed must clearly be the meeting point of a set of very diversified areas of knowing and knowing to make, global definitions of the educational project of ISPGaya, together with the basic principles of Bologna that are to work to know, to work to know how to make.

The course is under analysis in the process of accreditation by the National Association of the Engineers Technician

Professional exits

Engineer in Project Offices

Mechanical and Thermal Equipment Production Engineer

Energy Production and Acclimatization Engineer

Maintenance and Operation Management Engineer

Project Consultant and Evaluator in Service Companies

Technician-Commercial

Entrance exams (2008/2009): Physics and Chemistry (Physics) or Mathematics or Descriptive Geometry

Course Plan

	H	ECTS
1st Semester (1st Year – 1st semester)		
Algebra	3,0	5
Mathematical Analysis I	4,5	6
Drawing Techniques	4,5	6
Algorithms and Programming Models	4,5	6
Electrical Circuits	3,0	4
Communication and Interpersonal Relations	1,5	3
Total	21	30
2nd Semester (1st Year- 2nd semester)		
Physics	3,0	5
Mathematical Analysis II	4,5	5
Mechanical Drawing	4,5	7
Programming and Computers	4,5	6
Technology Mechanics	3,0	4
Research Methodologies	1,5	3
Total	21	30
3rd Semester (2nd Year - 1st semester)		
Numerical Analysis	3,0	5
Electromagnetism	3,0	6
Thermodynamics	4,5	7
Materials' Technology	3,0	7
Practical workshops	4,5	5
Total	18	30
4th Semester (2nd Year - 2nd semester)		
Operational Research	3,0	5
Electrical Machines	3,0	6
Dynamics	3,0	6
Materials Resistance	4,5	6
Programmable Logic Controllers	4,5	7
Total	18	30

5th Semester (3rd Year - 1st semester)

Robotics	3,0	6
Computerized Numerical Command	4,5	7
Machine Organs	3,0	6
Pneumatic and Hydraulical circuits	4,5	6
Complements of Engineering I	3,0	5
Total	18	30

6th Semester (3rd Year - 2nd semester)

Work Security and Health Management	3,0	6
Fluid Mechanics	3,0	4
Production Management and Logistics	3,0	5
Complements of Engineering II	3,0	5
Engineering and Industrial Management Project in Company Context	6,0	10
Total	18	30

Course Presentation

Management, as social science, must develop a perspective of interdisciplinary knowledge and of the evolution of science. In the process of decision taking, the key of success is in the capacity of anticipation of future events, and who decides comes across daily with the challenge to give an answer to change, in a world where the nets of interconnections are established and broken, at an unprecedented rhythm. It is in this scene of decisions taken in an atmosphere of uncertainty and risk, but whose instrumental models it is aimed to support, that this course was built.

Professional exits

- Entrepreneur
- Company Manager
- Administrative and Financial Superior Technician
- Project Manager
- Accountant
- Accounting Official Technician (by means of admission in the CTOC)
- Accounting Official Reviser (by means of admission in the OROC)

Entrance exams (2008/2009): Economy or Mathematics or Portuguese

Plano de Estudos		
	HLS	ECTS
1st Semester (1st Year – 1st semester)		
Mathematics	4,5	6
Introduction to Accounting	4,5	6
Company Management and Organization	4,5	6
Management Macroeconomics	3,0	5
General Principles of Law and Civil Law	3,0	4
Introduction to Social Sciences	1,5	3
Total	21	30
2nd Semester (1st Year- 2nd semester)		
Mathematics for Economics and Management	4,5	6
Financial accounting	4,5	6
Computer science Applied to the Management	3,0	5
Microeconomics	4,5	6
Commercial and Social Law	3,0	4
Research Methodologies	1,5	3
Total	21	30
3rd Semester (2nd Year - 1st semester)		
Probabilities and Statistics	3,0	5
Management Accounting	4,5	7
Fiscal Organization	4,5	7
Marketing	3,0	6
Work and Social Security Law	3,0	5
Total	18	30
4th Semester (2nd Year - 2nd semester)		
Management Support Information Systems	4,5	6
Strategical Management and Innovation	3,0	6
Financial Calculus	4,5	6
Human resources Management	3,0	6
Complements of Management Accounting	3,0	6
Total	18	30
5th Semester (3rd Year - 1st semester)		
Portuguese Economy and European Integration	3,0	6
Economic and Financial Analysis	4,5	7
Quantitative Methods Applied to Management	4,5	6
Quality Management and Safety	3,0	6
Marketing and Electronic Commerce	3,0	5
Total	18	30
6th Semester (3rd Year - 2nd semester)		
Company Project, Seminars and Entrepreneurship	4,5	7
Financial Management	4,5	7
Production Management and Logistics	3,0	5
Planning and Management Control	3,0	6
International Economy	3,0	5
Total	18	30

SOCIAL WORK (adjusted to the Bologna model)

Course Presentation

The Social Work Superior Technician will be able to, in multidisciplinary teams, contribute to the promotion of the integral and global development of the individuals, by using abilities that enable a more active and constructive participation in their environment, becoming protagonists of their own process of change, as well as the one of their own community.

The course intends to provide graduates with academic instruction so that they are able to intervene in the social community, making use of a body of scientific and technical abilities for the promotion, animation, development and evaluation of initiatives in the scope of:

- Psychosocial Counselling;
- Prevention and Remediation of deviant behaviours (toxic dependence, delinquency, crime);
- Social (Re)education;
- Instruction Management;
- Social and Cultural Animation;
- Social Reinsertion;
- Integration/Socio-professional rehabilitation.

Professional exits

Social Assistant (Social Work Superior Technician)

Psycho-Social Advising Technician

Instruction Manager

Social and Professional Reinsertion Technician

Entrance exams (2008/2009): Geography or History or Portuguese

Course Plan		
	HLS	ECTS
1st Semester (1st Year – 1st semester)		
Research Methodologies	3	5
Introduction to Economy	3	5
Culture and History of Civilizations	3	4
Information and Communication Technologies	3	4
Pedagogy and Educational Theories	3	6
General principles of Law	3	4
Academic Integration Seminar	-	2
Total	18	30
2nd Semester (1st Year- 2nd semester)		
Social politics: Historical Evolution	3	5
Introduction to the Management of Organizations	3	4
Cultural Anthropology	3	5
Applied Statistics	3	5
Psycho-pedagogical Communication	3	5
Law Applied to Social Work	3	4
Professional Identity Seminar	-	2
Total	18	30
3rd Semester (2nd Year - 1st semester)		
Project Conception and Development	3	6
Developmental Psychology: Infancy and Adolescence	3	5
Group Dynamics and Dramatic Expression	3	4
Contemporary Social Politics	3	5
Contemporary Sociology	3	4
Communication and Interpersonal Relations	3	4
Professional Integration Seminar	-	12
Total	18	30
4th Semester (2nd Year - 2nd semester)		
Observation Training Period	-	7
Developmental Psychology: Adulthood and Elderness	3	5
Work Psycho-sociology	3	4
Socio-cultural Animation	3	4
Educational Resource Management	3	4
Human Resources Management	3	4
Social Contemporary Challenges Seminar	-	2
Total	15	30

5th Semester (3rd Year - 1st semester)

Social Work Training Period	-	12
Social Management Techniques	3	3
Psychopathologies and Deviant Behaviours	3	3
Community Psycho-sociology	3	3
Social Work Theories and Models	3	3
Ethics and Deontology	3	4
Social Work Seminar	-	2
Total	15	30

6th Semester (3rd Year - 2nd semester)

Social Intervention Project	-	10
Environmental Psychology	3	4
Socio-cultural Mediation	3	4
Social Work Quality	3	3
Social Work Practice and contexts	3	4
Criminology and Social Reinsertion	3	3
Employability Seminar	-	2
Total	15	30

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