







**GENERAL AIMS**

The general aim of the new Degree in Computer Engineering is to produce professionals who have the sound and extensive training background necessary to manage and perform tasks in all stages of the life cycles of systems, applications and products, solving problems in all areas of Information and Communications Technology through the application of their scientific knowledge and the methods and techniques of computer engineering, more specifically, and in accordance with Annex II of the Spanish State Gazette (BOE) of 4 August 2009, students are required to acquire the following skills:

1. The ability to design, draft, organise, schedule, develop and sign-off on projects in the field of computer engineering aimed at designing, developing and operating computer systems, services and applications, in accordance with the acquisition of skills established in the following section.
2. The ability to oversee IT projects, applying the knowledge and the skills acquired as established in the Course Programme.
3. The ability to design, develop, evaluate and ensure the accessibility, ergonomics, usability and security of IT systems, services and applications, together with the information processed therein.
4. The ability to define, evaluate and select hardware and software platforms for the development and operation of IT systems, services and applications, in accordance with the acquisition of skills established in the Course Programme.
5. The ability to design, develop and maintain IT systems, services and applications, using software engineering methods to ensure quality, in accordance with the acquisition of skills established in the Course Programme.
6. The ability to design and develop centralised and distributed IT systems and architectures, integrating hardware, software and networks, in accordance with the acquisition of skills established in the Course Programme.
7. The knowledge, understanding and capacity to work within legislation applicable to Technical Computer Engineering, and the ability to handle specifications, regulations and obligatory standards.
8. An understanding of basic materials and technologies, equipping the student to learn new methods and technologies, and conferring the versatility to adapt to new situations.
9. The ability to solve problems and take decisions with initiative, autonomy and creativity. The ability to communicate and transmit the knowledge, skills and expertise associated with Technical Computer Engineering.
10. The skills necessary to produce measurements, calculations, assessments, appraisals, evaluations, studies, reports, schedules and similar tasks within the field of IT, in accordance with the acquisition of skills established in the Course Programme.
11. The capacity to analyse and assess the social and environmental impact of technical solutions, within an understanding of the ethical and professional duties involved in Technical Computer Engineering.
12. To understand and apply the basic principles of economics, human resources management and project planning, together with the legislation, regulations and standards applicable to IT projects, in accordance with the skills acquisition established in the Course Programme.



- [Description of the degree course](#)
- [Description of credits per subject/course](#)
- [General description of the course programme](#)
- [Optional subjects and routes](#)

#### CREDIT STRUCTURE OF THE DEGREE COURSE

Subjects in the Degree in Computer Engineering, worth 6 European ECTS credits each, are organized into semesters. Students must take 5 subjects each semester in order to complete 30 credits per semester and thus, 60 credits per academic year and a total of 240 credits over the four academic years.

In order to make the course compatible with other activities, students are allowed to take a part-time course consisting of 30 credits per academic year.

#### DISTRIBUTION OF CREDITS PER SUBJECT TYPE

SUBJECT TYPE	ECTS
Core (PB)	60
Compulsory (CB)	108
Optional (OP1)	60
Final Project	12
<b>Total Credits</b>	<b>240</b>

#### GENERAL DESCRIPTION OF THE COURSE PROGRAMME

The course has been structured around three main areas:

Firstly, and in accordance with the terms of the previously mentioned Decree, the first half of the course programme contains the **core subjects**, worth a total of 60 ECTS credits, of which 54 pertain to Engineering and Architecture, while the other 6 pertain to Social and Legal Sciences (Statistics).

The second part of the programme contains the **Compulsory subjects**, aimed at guaranteeing that students acquire the required skills associated with the Degree, worth 108 ECTS credits, in addition to the obligatory Final Project, worth 12 ECTS. The Final Project is carried out in the final semester and is aimed at assessing the level of skills acquired. Prior to evaluation for the final project, the student must provide evidence of ability in a foreign language. Among other possible qualifications, at the University of Alicante the student must meet the requirements as to be awarded level B1 of the European Framework of Reference for Languages, and this requirement may be waived in the future.

The final part of the programme contains the **optional ECTS**, of which 48 correspond to one of the specializations established in the Regulations published in the Spanish State Gazette (BOE) on 4 August 2003, while the other 12 ECTS, broken down into 6 plus 6 credits, allow students to combine and choose from work experience, optional subjects from other routes, and English, offered in order to enable students to meet one of the targets established under Art. 16.3 of the University of Alicante regulations, or for credit transfer and validation, in accordance with the system proposed by the University of Alicante, in accordance with the terms of Art. 13 of Royal Decree 1303/2007. Students can thus choose their own curricular direction.

#### OPTIONAL SUBJECTS AND ROUTES

SUBJECT	ECTS	SEMESTER
<b>SOFTWARE ENGINEERING</b>		
ADVANCED SOFTWARE SPECIFICATION TECHNIQUES	6	6B
HYBRID SOFTWARE DEVELOPMENT METHODS	6	5F
DISTRIBUTED APPLICATIONS ON THE INTERNET	6	5F
WEB ENGINEERING	6	5F
COMBINATORIAL DESIGN OF APPLICATIONS	6	6F
SOFTWARE DESIGN RELIABILITY	6	6B
SOFTWARE QUALITY MANAGEMENT	6	6B
METHODS AND TECHNIQUES FOR SYSTEMS INTEGRATION	6	6B
<b>COMPUTER ENGINEERING</b>		
COMPUTER AND NETWORK MAINTENANCE ENGINEERING	6	6B
REAL-TIME SYSTEMS	6	5F
CONCURRENT PROGRAMMING	6	5F
DOMESTIC AND INTELLIGENT ENVIRONMENTS	6	5F
IMMERSED SYSTEMS	6	5F
EMBEDDED SYSTEMS	6	6B
SOFTWARE DEVELOPMENT IN PARALLEL ARCHITECTURES	6	6B
AUTONOMOUS AND ROBOTICS	6	6B
<b>INFORMATICS</b>		
ANALYTICAL PROCESSING	6	6B
THEORY OF REPRESENTATION	6	5F
ALGORITHMIC REASONING	6	5F
INTERACTIVE GRAPHIC SYSTEMS	6	5F
PROGRAMMING CHALLENGES	6	5F
ARTIFICIAL INTELLIGENCE	6	6B
LANGUAGE PROCESSING	6	6B
ROBOTIC TECHNOLOGY AND ARCHITECTURE	6	6B
<b>INFORMATION SYSTEMS</b>		
ELECTRONIC BUSINESS MANAGEMENT	6	6B
DATA PROCESSING FOR INFORMATION SYSTEMS	6	5F
IMPLEMENTATION OF SOFTWARE DEVELOPMENT AND PROCESSING	6	5F
REQUIREMENTS ENGINEERING	6	5F
BUSINESS MANAGEMENT	6	5F
TECHNOLOGICAL BUSINESS MANAGEMENT	6	6B
BUSINESS INTELLIGENCE AND PROCESS MANAGEMENT	6	6B
DATA MANAGEMENT	6	6B
<b>INFORMATION TECHNOLOGIES</b>		
MANAGEMENT AND IMPLEMENTATION OF COMPUTER NETWORKS	6	6B
DEVELOPING INTERNET APPLICATIONS	6	5F
MANAGEMENT AND IMPLEMENTATION OF INTERNET SERVICES	6	5F
ONLINE PERFORMANCE AND MANAGEMENT	6	5F
NETWORK INTERCONNECTIONS	6	5F
SECURITY STRATEGIES	6	6B
OPERATIONAL TECHNOLOGY MANAGEMENT AND CONTROL	6	6B
INTERNET CONTENT AND USER MANAGEMENT SYSTEMS	6	6B
<b>WORK EXPERIENCE</b>		
WORK EXPERIENCE I	6	1
WORK EXPERIENCE II	6	7
<b>ENGLISH</b>		
ENGLISH I	6	1
ENGLISH II	6	7

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**LANGUAGE REQUIREMENT (IN A FOREIGN LANGUAGE)**

Students who study an undergraduate degree at the University of Alicante must complete a minimum level of B1 in a foreign language in B1 is recommended) in order to obtain the diploma.

The required language level is in accordance with the Common European Framework of Reference for Languages.

The language accreditation requirement can be obtained previously or at any time during university studies. However, the language requirement will be necessary in order to assess the final year project.

The different ways of obtaining such language requirement can be consulted in the additional information in this section.

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**LANGUAGE TEACHING COMPETENCE CERTIFICATE**

Students who want to take a course in the university teaching which they finish their studies are recommended to obtain the teaching competence certificate (certificate under foreign languages).

The certificate can be obtained by taking specific courses in your university studies or by taking the BA teaching competence course in Valencià, German, French and English.

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**FINAL YEAR PROJECT (TFG)**

All the official undergraduate degrees must be completed by preparing and defending a final year project, which must be done in the final phase of the studies and be aimed at the assessment of competences associated to the degree.

The final year project must be an original, independent and personal work. The evaluation of it may be individual or coordinated. Each student will prepare the project under the supervision of a tutor. Defending students to show the required content in an integrated way, as well as the required competences associated to the undergraduate degree.

In order to register in the final year project, students must comply with the requirements established in the "Regulation for coordination studies for students registered in undergraduate degrees at the University of Alicante". Among the requirements established to be able to register in the final year project, a minimum of 180 credits must be passed in undergraduate degrees with a total of 240 credits, and a minimum of 228 credits in undergraduate degrees with a total of 300 credits or more.

In order for the final year project to be assessed in B1 level of a foreign language (B2 is recommended) must be confirmed.

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- Access routes
- Procedure for applying for admission
- International applications
- Number of places and courses
- A.B.A. Group High Academic Achievement

**ACCESS ROUTES**

Admission to this degree course is open to any applicant who meets one of the following entrance requirements:

- 1. **SPANISH BACCALAUREATE COURSE (UNIVERSITY ENTRANCE EXAM PAU)** through students can access university by means of any Baccalaureate specialization, the recommended one is Science.

**ADMISSION SCORES FOR THIS DEGREE CAN BE IMPROVED BY TAKING THE SPECIFIC MODULES OF THE UNIVERSITY ENTRANCE EXAM (PAU) AS INDICATED IN THE TABLE BELOW WITH THEIR RESPECTIVE WEIGHTINGS.**

MÓDUL	Computer Engineering	
	Weighting	Weighting

- 2. **PREVIOUS BACCALAUREATE WITH OR WITHOUT A PASS IN THE UNIVERSITY ENTRANCE EXAM (PAU)** (Students who have completed their Baccalaureate under previous education systems and have passed the PAU will be able to use the mark obtained in their application.

**HOWEVER, STUDENTS CAN TAKE SPECIFIC EXAM MODULES DURING THE VOLUNTARY PAU EXAM PERIOD IN ORDER TO IMPROVE THEIR ADMISSION SCORE AS SHOWN IN TABLE 1. THEY CAN ALSO SIT FOR THE OBLIGATORY PAU EXAMS, IN WHICH CASE THEY WILL HAVE TO TAKE ALL THE EXAMS SCHEDULED DURING THIS PERIOD.**

**ADMISSION SCORES CAN BE IMPROVED BY TAKING THE PAU EXAM IN UP TO 4 OF THE MODULES IN TABLE 1.**

- 3. **STUDENTS FROM EDUCATION SYSTEMS IN COUNTRIES OF THE EUROPEAN UNION OR OTHER STATES WITH WHICH SPAIN HAS AN INTERNATIONAL AGREEMENT** (Accreditation is required and issued by *Ministerio Nacional de Educación e Innovación (MINEI)*).

**STUDENTS CAN SIT FOR EXAMS IN SUBJECTS INCLUDED IN THE PRUEBAS DE COMPETENCIAS ESPECÍFICAS (PCE), ORGANISED BY THE UNED, IN ORDER TO IMPROVE THEIR ADMISSION SCORE UP TO 14 POINTS AS INDICATED IN THE WEIGHTINGS IN TABLE 1.**

**ADMISSION SCORES CAN BE IMPROVED BY TAKING THE PAU EXAM IN UP TO 4 OF THE MODULES IN TABLE 1.**

**THE WEIGHTINGS INDICATED IN TABLE 1 WILL BE APPLIED TO CORE AND/OR OPTIONAL SUBJECTS.**

- 4. **OTHER:** University degrees and other similar qualifications. University entrance exams for students over 25 (governmental option: Engineering and architecture). Access on the basis of professional experience (applicants over 40 years of age). Access to applicants aged 45 years or more by means of an exam.

MÓDUL	Weighting of the subjects of the specific group of the Proof of Access to the University (PAU) in the previous system	Weightings of the subjects of the specific group of the Proof of Access to the University (PAU) in the previous system																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
2015-16	0.1																					
2016-17	0.2																					
2017-18	0.1																					
2018-19	0.2																					
2019-20	0.1																					

**PROCEDURE FOR APPLYING FOR ADMISSION: PRE-ENROLLMENT AND REGISTRATION**

- Anticipated number of places offered during the first pre-enrollment session: 240
- In order to apply for a place, the procedure and pre-enrollment periods established each year must be observed: [University website: the admission calendar: Pre-enrollment](#)
- Applicants admitted to a course must formally register within the timeframe established annually in the enrollment calendar: Registration: [univ-al.es](#)

**RECOMMENDED APPLICANT PROFILE**

The recommended educational background would be a high school diploma specialising in Science and Technology, with a solid grounding in Mathematics and Physics.

Students should also possess the following aptitudes and skills:

- Numerical ability, ability, speed and accuracy when dealing with figures and problem-solving
- Logical reasoning: capacity to understand the relationship between events and find the causes, predict consequences and thus resolve problems coherently.
- Abstract reasoning: ability to separate or extract aspects of a situation or problem.
- Observant: capacity to perceive the details of objects, phenomena or events, detecting their distinguishing qualities and appreciating their differences with respect to others.
- Capacity for attention: concentration, ability to voluntarily focus the senses and attention on an object or activity, disregarding other events happening at the same time.

Although the students will already have formed their own personalities, it would be an advantage if they were open, critical thinkers, responsible and dynamic, and interested in new advances. To summarise, new students should ideally possess the capacity for work (persistence, method and rigour), the capacity for reasoning and critical analysis, the ability to work individually or as part of a team, the capacity to obtain, interpret and apply knowledge, problem-solving skills, the capacity for synthesis and abstraction and good communication skills.

**NUMBER OF PLACES AND PASS MARKS**

COURSES	NUMBER OF PLACES	PASS MARKS						
		2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
2015-16	240	4.000	4.000	4.000	4.000	4.000	4.000	4.000
2016-17	240	4.000	4.000	4.000	4.000	4.000	4.000	4.000
2017-18	240	4.000	4.000	4.000	4.000	4.000	4.000	4.000
2018-19	240	4.000	4.000	4.000	4.000	4.000	4.000	4.000
2019-20	240	4.000	4.000	4.000	4.000	4.000	4.000	4.000
2020-21	240	4.000	4.000	4.000	4.000	4.000	4.000	4.000
2021-22	240	4.000	4.000	4.000	4.000	4.000	4.000	4.000

- \*Pass marks\* indicated correspond to the results of the first adjudication of June.
- The definitive marks can be inferior to the here collected.

**A.B.A. GROUP (HIGH ACADEMIC ACHIEVEMENT)**

The group of high performance students (HPS), to enhance the potential of the most distinguished students since the beginning of their university studies offering part of teaching in English, as well as a series of aid and support for their training.

Students who want to receive teaching in a group ABA must request it at the time of enrollment table phase. Shall be assessed the academic record and accredited knowledge of English.

[General information about ABA groups](#)

[Application procedure](#)



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**PROFESSIONAL PROFILES OF DEGREE HOLDERS**

This degree qualifies graduates to work as Computer Engineering Technicians, in accordance with Act 12/1980, applying their professional skills to the field of Information Technology.

Graduates may also attend on professional Master's Degree courses, research courses and other post-graduate courses, in accordance with current legislation.

Demand currently exists for competent Computer Engineering Technicians possessing extensive knowledge in all fields of ICT, capable of heading projects, of identifying problems, assessing risks, proposing effective solutions, and demonstrating the capacity to learn and adapt to possible changes, in order to form part of a rapidly changing environment.

The Degree in Computer Engineering course aims to teach technical and scientific knowledge and practical skills in different areas of IT, enabling graduates both to draw on the current and future possibilities of the discipline and to enter the labour market as engineers in IT research and development.

Degree holders are experts in software technology, computer architecture and technology, computer network technology and electronic equipment. This knowledge qualifies them to work in all types of companies and their departments, although principally in their IT departments.

Accordingly, graduates must be able to enter successfully into companies in the ICT sector, or into the IT departments of companies in any sector implementing new technologies, in order to design, develop, maintain and market equipment and systems incorporating telecommunications and informatics subsystems.

The most customary professional fields include: computer centres, hardware and software companies, finance, telecommunications, electricity, high technology, security, IT consultancy, etc.

The specific tasks of Computer Engineering Technicians include:

analysis, supervision of IT and development departments; management and organisation of IT projects and data programming centres; infrastructure maintenance; architecture, analysis and design of IT systems, systems, database and communications systems technician; technical consultancy; artificial intelligence and new technologies; design, selection and assessment of computation and logical infrastructures; optimisation of methods and means of communication between computers and users; design of projects and applications for subsequent analysis and execution; research, training, teaching; commercial technicians and management positions in all company departments, in addition to post-graduate studies in economics and/or IT.

**IMPLEMENTATION**

The new Polytechnic University College Degree in Computer Engineering will be implemented year by year.

YEAR	ACADEMIC YEAR:			
	2010/2011	2011/2012	2012/2013	2013/2014
First	Degree	Degree	Degree	Degree
Second		Degree	Degree	Degree
Third			Degree	Degree
Fourth				Degree

Academic Year	TIMESCALE			
	Implementation of the new Degree in COMPUTER ENGINEERING	Phasing out of the old Degree in COMPUTED ENGINEERING	Phasing out of TECHNICAL ENGINEERING IN MANAGEMENT IT	Phasing out of TECHNICAL ENGINEERING IN SYSTEMS IT
2010-2011	1st Year	1st Year	1st Year	1st Year
2011-2012	2nd Year	2nd Year	2nd Year	2nd Year
2012-2013	3rd Year	3rd Year	3rd Year	3rd Year
2013-2014	4th Year	4th Year		
2014-2015	5th Year			

Once a course has been phased out, the subjects corresponding to the course will no longer be taught. Students who do not wish to take the new degree course subjects are entitled to sit four examinations in the two academic years following the end of each year. Any students wishing to continue their studies after sitting and failing these tests will be required to follow the new plan, according to the adaptation system established in the new plan.











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- Internal Quality Assurance System (IQAS) of the Title
    - Structure of the Centre for Quality
      - Quality Management System
      - Quality Policy
      - Quality Objectives
      - Quality Manual
      - Quality Procedures
      - Quality Records
    - Follow-up of the Title
      - Internal Quality Assurance System (IQAS)
      - External Quality Assurance System (EQAS)
      - Other Quality
      - Quality Improvement



Information about the Centre	General information for students
<ul style="list-style-type: none"> <li>• Polytechnic University College Telephone + 34 96 330 2048 Fax + 34 96 330 2044 Email: <a href="mailto:info@polytechnic.us.es">info@polytechnic.us.es</a></li> <li>• <a href="#">Mobile Programmes</a></li> <li>• <a href="#">Work sessions with computers and printers</a></li> <li>• <a href="#">Course/Study guide</a></li> <li>• <a href="#">Research and science events</a></li> <li>• <a href="#">Personal Action Programmes</a></li> <li>• Frequently asked questions about Computer Engineering</li> <li>• <a href="#">Commonly asked questions about the implementation of courses of the implementation of degrees in the Polytechnic University of Alicante</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Grants and assistance</a></li> <li>• <a href="#">Accommodation</a></li> <li>• <a href="#">Student information and services</a></li> <li>• <a href="#">Insurance</a></li> <li>• <a href="#">Academic medical care</a></li> <li>• <a href="#">Insurance</a></li> <li>• <a href="#">Services for students with special needs</a></li> <li>• <a href="#">Student representation and participation</a></li> <li>• <a href="#">University student identity card (DUA)</a></li> <li>• <a href="#">Property subject questions</a></li> </ul>
<p>UK: General Regulations</p> <ul style="list-style-type: none"> <li>• <a href="#">Academic regulations and standards of the University of Alicante</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Information about qualifications</a></li> <li>• <a href="#">Other Study Degrees (BSc) programmes of course structure</a></li> <li>• <a href="#">Degree courses</a></li> <li>• <a href="#">Qualifications</a></li> <li>• <a href="#">Registration document for the course of studies</a></li> <li>• <a href="#">Information pamphlet</a></li> <li>• <a href="#">Video presentation of the centre</a></li> </ul>