Universidad de Cádiz

Escuela Politécnica Superior de Algeciras

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Undergraduate degree in Industrial Technologies Engineering

(Approved by the Cabinet Council on November 14th, 2014)

Recommended curricular itinerary
TEACHINGS

FIRST YEAR

Code/Course	Credits
First semester	
10618001 - Algebra and Geometry (M1)	6
10618002 - Calculus (M1)	6
10618010 - Graphic Expression and Aided Design (M1)	6
10618005 - Physics I (M1)	6
10618008 - Computer Science Fundamentals (M1)	6
Second semester	
10618013 - Materials Science and Engineering (M2)	6
10618003 - Statistics (M1)	6
10618006 - Physics II (M1)	6
10618009 - Business management and administration (M1)	6
10618007 - Chemistry (M1)	6

SECOND YEAR

Code/Course	Credits
Third semester	
10618004 - Further Mathematics (M1)	6
10618018 - Elasticity and Resistance of Materials I (M2)	6
10618022 - Environmental technology (M3)	6
10618017 - Theory of Mechanisms and Machines (M2)	6
10618011 - Thermotechnics (M2)	6

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Fourth semester

10618016 - Automatics (M2)	6
10618015 - Electronics (M2)	6
10618014 - Electrotechnics (M2)	6
10618019 - Manufacturing Engineering (M2)	6
10618012 - Fluid Mechanics (M2)	6

THIRD YEAR

Code/Course	Credits

Fifth semester

10618021 - Industrial Design (M3)	6
Industrial Technology Optional Course (M4)	24

Sixth semester

10618023 - Production Management (M3)	3
10618024 - Industrial Risk Prevention (M3)	3
Industrial Technology Optional Course (M4)	24

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Industrial Technology Optional Courses (M4)

Electrical	***Semester 5º***	
	10618027 - Electrical Installations	6
	10618025 - Electrical Machines	6
	10618030 - Automatic Regulation	6
	10618029 - High Voltage Electrical Systems	6
	Semester 6º	
	10618026 - Electrical Drives	6
	10618031 - Power Stations	9
	10618028 - Electrical Lines and Networks	9
Industrial Electronics	***Semester 5º***	
	10618032 - Further Electronics	6
	10618033 - Analogue Electronics	6
	10618034 - Digital Electronics	6
	10618037 - Automatic Regulation	6
	Semester 6º	
	10618038 - Industrial Automation	6
	10618035 - Power Electronics	6
	10618039 - Industrial Computer Science	6
	10618036 - Electronic Instrumentation	6
Mechanical	***Semester 5º***	
	10618043 - Elasticity and Resistance of Materials II	6
	10618045 - Fluid Mechanic Engineering	6
	10618042 - Thermal Engineering	6
	10618046 - Materials Science and Technology	6
	Semester 6º	
	10618044 - Structures Modelling and Design	6
	10618041 - Machines Design, Construction and Testing	6
	10618040 - Graphics Engineering	6
	10618047 - Manufacturing Technologies	6
Industrial Chemical	***Semester 5º***	
	10618080 - Experimentation in Chemical Engineering I	6
	10618078 - Chemical Engineering Fundamentals	6
	10618082 - Chemical Reaction Engineering	6
	10618077 - Industrial Chemistry	6
	Semester 6º	
	10618084 - Chemical Processes Control and Instrumentation	6
	10618083 - Chemical Processes Design and Simulation	6
	10618081 - Experimentation in Chemical Engineering II	6
	10618079 - Separation Operations	6

FOURTH YEAR

Code/Course	**Credits**
Seventh semester	
Advance Training Optional Courses (M5)	24
10618020 - Engineering Projects (M2)	6
Eighth semester	
Advance Training Optional Courses (M5)	12
10618076 - End of Grade project (M7)	18

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Advance Training Optional Courses (M5)

Semester 7º	
Specialisation: Further Industry	
10618048 - Industrial Structures and Facilities	6
10618049 - Chemical Processes Engineering	6
10618050 - Industrial Thermal Installations	6
10618051 - Machines Mechanics	6
10618052 - Industrial Electrical Installations	6
10618053 - Electrical Technology	6
10618054 - Electronic Instruments of Measurement	6
10618055 - Control Engineering	6
Semester 8º	
Specialisation: Stations and Networks	
10618056 - Renewable Energy Electrical Installations	6
10618057 - Electric Energy Systems Optimisation	6
Specialisation: Machines and Electric Systems Maintenance	
10618058 - Electrical Machines Construction and Testing	6
10618059 - Electrical Industrial Maintenance	6
Specialisation: Industrial Automatics	
10618060 - Smart Control Systems	6
10618061 - Advanced Control Systems	6
Specialisation: Electronics for Communications, Instrumentation and Renewable Energies	
10618062 - Electronic Communication and Data Processing	6
10618063 - Electronics and Instrumentation in Renewable Energies	6
Specialisation: Structures	
10618064 - Metallic Structures Design	6
10618065 - Concrete Structures Design	6
Specialisation: Manufacturing	
10618066 - Quality Control in Manufacturing Processes	6
10618067 - Welding Technology	6
Specialisation: Mechanical Engineering	
10618068 - Further Mechanisms and Robots Mechanics	6
10618069 - Machinery Project and Control	6
Specialisation: Thermal Engineering	
10618070 - Thermal Energy Generation	6
10618071 - Thermal Installations in Buildings	6
Specialisation: Processes Engineering	
10618072 - Process Equipment Design	6
10618073 - Petroleum Technology and Petrochemistry	6
Specialisation: Chemical Processes Maintenance and Management	
10618074 - Industrial Pollution Assessment and Management	6
10618075 - Chemical Plants Maintenance Techniques and Management	6

4th Year Optional Courses: During the fourth year, students must choose 36 credits out of the academic offer. Moreover, they may request for the academic recognition of these credits in compliance with paragraph 5 on the Qualification Report.

ACADEMIC YEARS OF THE SYLLABUS: 4 YEARS
No. OF CREDITS: 240 CREDITS

Module	Type	Description	ECTS
M1	Mandatory	Basic training module	60
M2	Mandatory	Standard module in the industrial domain	60
M3	Mandatory	Additional industrial training module	18
M4	Optional	Training module in industrial technology	48
M5	Optional	Advance training module (EPSA)	36
M7	TFG	End of Grade project	18
		Total credits	**240**

Note: The M6 module not included refers to the advance training module at the ESI in Puerto Real.

SYLLABUS TIME ORGANISATION

FIRST YEAR

Semester 1		Semester 2	
Course	**ECTS**	**Course**	**ECTS**
Algebra and Geometry	6	Materials Science and Engineering	6
Calculus	6	Statistics	6
Graphic Expression and Aided Design	6	Physics II	6
Physics I	6	Business management and administration	6
Computer Science Fundamentals	6	Chemistry	6
Total credits	**30**	**Total credits**	**30**

SECOND YEAR

Semester 3		Semester 4	
Course	**ECTS**	**Course**	**ECTS**
Further Mathematics	6	Automatics	6
Elasticity and Resistance of Materials I	6	Electronics	6
Environmental technology	6	Electrotechnics	6
Theory of Mechanisms and Machines	6	Manufacturing Engineering	6
Thermotechnics	6	Fluid Mechanics	6
Total credits	**30**	**Total credits**	**30**

THIRD YEAR

Semester 5		Semester 6	
Course	**ECTS**	**Course**	**ECTS**
Optional (Industrial Technology Module)	24	Optional ((Industrial Technology Module)	24
Industrial Design	6	Production Management	3
		Industrial Risk Prevention	3
Total credits	**30**	**Total credits**	**30**

FOURTH YEAR

Semester 7		Semester 8	
Course	**ECTS**	**Course**	**ECTS**
4 Optional (Advance Training Optional Courses)	24	2 Optional (Advance Training Optional Courses)	12
Engineering Projects	6	End of Grade project	18
Total credits	**30**	**Total credits**	**30**

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