

Contents

UNIT	CONTENT	FINAL SECTIONS
1 Technological entrepreneurship	<ol style="list-style-type: none"> 1. Technological entrepreneurship 2. Collaborative project management 3. Needs analysis and validation 4. Ideation and creativity: <i>design thinking</i> 5. Project development 6. Presenting and sharing a project 7. Effective communication 8. Entrepreneurship and perseverance 	Revision activities Working with computers Designing a <i>One Pager</i> Making an advert for our project Video editing Emerging technologies and sustainability Unicorn companies Work on your key competences LS Using your idea to make a <i>One Pager</i>
2 Designing and manufacturing	<ol style="list-style-type: none"> 1. Product life cycles 2. Choosing materials 3. Manual construction techniques 4. Mechanical construction techniques for metal and plastic 5. Digital production methods: numerical control machines (CNC) and 3D printing 	Actividades de consolidación y síntesis Technology workshop Types of chairs Working with computers Designing pencil holders (Tinkercard and OpenSCAD) Emerging technologies and sustainability Sustainable production Work on your key competences LS Designing an everyday object: a pencil holder
3 Electronics	<ol style="list-style-type: none"> 1. Electronics 2. Stages of electronic systems 3. Designing circuits with logic gates 	Revision activities Working with computers Simulating circuits in Windows (Yenka) Simulating circuits in Linux (KTechlab) Simulating circuit online (Tinkercad Circuits) Working with technology Designing circuits Using a polimetre Emerging technologies and sustainability Cutting-edge technologies: Artificial Intelligence and and gene technology Work on your key competences LS Designing a solar-powered electrical system
4 Pneumatics and hydraulics	<ol style="list-style-type: none"> 1. Pneumatic and hydraulic circuits 2. Components of pneumatic circuits 3. Designing pneumatic circuits 4. Hydraulic circuits 5. Designing hydraulic circuits 	Revision activities Technology workshop The hydraulic press Working with computers Simulating pneumatic circuits (FluidSIM) Working with technology Automatic watering systems Emerging technologies and sustainability Pneumatic systems and train applications Work on your key competences LS Designing a pneumatic hammer

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5 Control systems and robotics	<ol style="list-style-type: none"> Automatic systems Digital and analogue sensors Automatic systems: components Control cards Control systems and computer programs Robots How robots move 	Revision activities Working with computers Simulating control systems (<i>Tinkercad Circuits</i>) Working with technology Analysing control systems Emerging technologies and sustainability Protecting the environment with robots and automatic systems
		Work on your key competences LS Designing a smart home
6 Telecommunications and the Internet of Things	<ol style="list-style-type: none"> Communication systems Wired and wireless communication Digital control systems and telecommunications The Internet The Internet of Things Artificial Intelligence (AI)? Programming and the Internet of Things 	Revision activities Working with computers AI and IoT applications (PictoBlox) Simulating IoT projects (Wokwi) Working with technology Build you "IoT trainer" Using your mobile to control devices Emerging technologies and sustainability AI applications: virtual and augmented reality, intelligent <i>chatbots</i>
		Work on your key competences LS Designing for smart cities using the Internet of Things
7 Sustainable technology	<ol style="list-style-type: none"> Sustainable development Indicators of sustainability Sustainable consumption Efficiency and certification Bioclimatic architecture Sustainable transport Technological volunteering 	Revision activities Technology workshop Analysis of a bioclimatic home Working with computers Buying vs repairing: using a spreadsheet Emerging technologies and sustainability Photocatalytic painting: purifying the air
		Work on your key competences LS Sustainable homes: history and evolution
8 Household utilities	<ol style="list-style-type: none"> Household utilities Electrical distribution The water supply cycle Heating and air conditioning How fuels reach homes Communication systems Home automation 	Revision activities Working with technology Household utilities: maintenance, security and energy efficiency Working with computers Drawing diagrams of household utilities Technology workshop Electrical wiring diagrams Emerging technologies and sustainability Efficient heating and air conditioning systems
		Work on your key competences LS Assessing your household utilities
PROJECTS		
PROJECT I LS	Design a tracking robot	
PROJECT II LS	Design and monitor a vertical garden	
PROJECT III LS	Volunteering with the elderly. Technological training	
GUIDED PROJECT LS	Electronic control of a greenhouse	