

## REPORTS AND PROJECTS. INSTRUCTIONS

The topics and contents proposed for the projects are based on the contents of the 4th ESO Technology subject ([DECREE 87/2015, published in DOGV No. 7544 of 10.06.2015, page 17737](#))

### A - INTRODUCTION

The following are the 9 projects, and 46 topics proposed. Each student chooses one of the 46 topics, to specifically work on it. Each student must, based on the chosen topic:

- Individually prepare a list of key English-Spanish search words: individual vocabulary of key words to carry out the searches (vocabulary of keyword)
- Individually write a final report over 8-15 pages

But also:

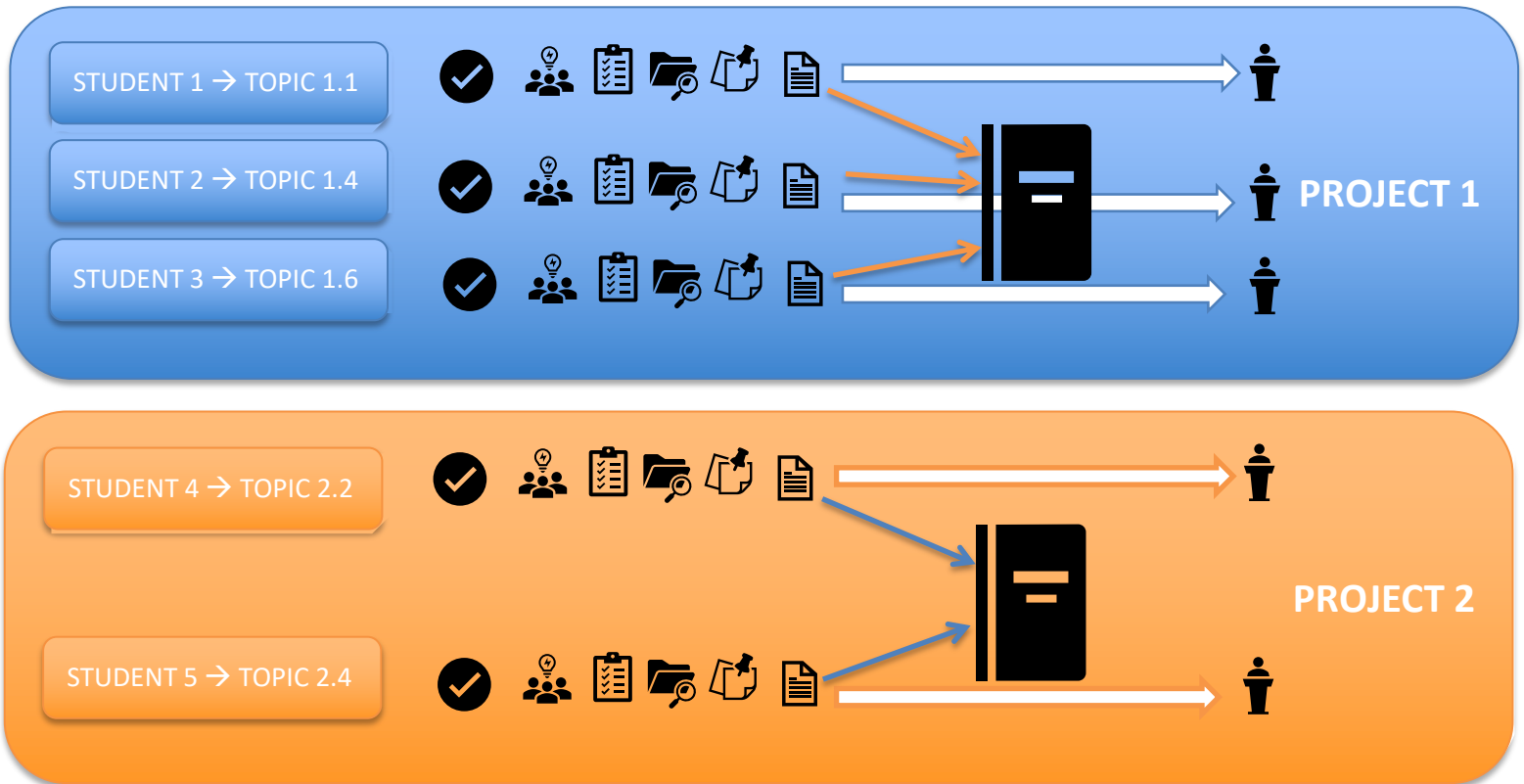
- each project is worked in workgroups which are composed by the students assigned to each topic, who must work together to combine their works to complete the project itself.
- each workgroup must integrate 2 people at least and 5 students at most.

### B - STEP BY STEP

Step	Instruction	Lesson	Deliverables and items to be assessed
1	Choose the topic you like the most from the C – LIST	1	-
2	Compose the working group with the other members	1	-
3	Prepare a list of key English-Spanish search words (vocabulary) you think you need to perform the report.	1	Delivered at the end of lesson 1
4	Carry out the searches based on the keywords on the Internet, using the suitable type of search engines and the operators (Booleans, truncations, masks, etc.). <a href="#">Use the BASIC &amp; ADVANCED SEARCH notes available in Clilstore for further information.</a> Group working is allowed and appreciated.	1	The browsing history of the computer used by each student will be analysed to assess the activity
5	Individually write the final report, in 8-15 pages which may, which may contain graphics, diagrams, and images, and should contained the information searched. The reports must be combined to complete the project. Group working is allowed and appreciated.	1 and 2	The sketch or draft version will be delivered at the end of lesson 1. A second draft version will be delivered at the end of lesson 2
6	Give your oral presentation (you must use a PPT with the index) of the chosen topic of the project, delivering the final PDF of the whole project. The time for each presentation will depend on the total number of students.	3	Report (final PDF version and PPT index) and project (final PDF version). The oral presentation will be also assessed.



## C - EXAMPLES



## D - LIST OF 46 REPORT TOPICS AND 9 PROJECTS

### Project 1. Essential installations in housings

This project includes the possibility of choosing these **topics** (each student must select one)

- 1.1. Essential facilities: electrical installation, sanitary water installation and sanitation installation.
- 1.2. Regulations, symbols, analysis and assembly of essential domestic facilities.
- 1.3. Specific software for the representation of essential domestic installations.
- 1.4. Energy saving criteria and measures applicable to electrical installations, sanitary water installations and sanitation installations.
- 1.5. Planning, organization and management strategies applied to essential facilities.
- 1.6. Knowledge of cooperative learning structures and techniques applicable to essential facilities.

### Project 2. Non-essential installations in housings

This project includes the possibility of choosing these **topics** (each student must select one)

- 2.1 Heating, gas, air conditioning and home automation installations.
- 2.2 Regulations, symbols, analysis and assembly of heating, gas, air conditioning and home automation installations.

- 2.3 Specific software for the representation of heating, gas, air conditioning and home automation installations.
- 2.4 Criteria and measures for energy saving in a home applicable to non-essential facilities.
- 2.5 Planning, organization and management strategies applied to essential facilities.
- 2.6 Knowledge of cooperative learning structures and techniques applicable to non-essential facilities.

### **Project 3. Analog electronics**

This project includes the possibility of choosing these **topics** (each student must select one)

- 3.1. Analog electronics: basic components and symbology.
- 3.2. Analysis and assembly of elementary circuits.
- 3.3. Printed analog circuits.
- 3.4. Use of simulators to analyze the behavior of analog electronic circuits.
- 3.5. Standardized symbology in analog circuits.

### **Project 4. Digital electronics**

This project includes the possibility of choosing these **topics** (each student must select one)

- 4.1. Digital electronics: basic components and symbols.
- 4.2. Solving basic technological problems: logic gates and Boolean algebra.
- 4.3. Printed digital circuits.
- 4.4. Use of simulators to analyze the behavior of digital electronic circuits.
- 4.5. Standardized symbology in digital circuits.

### **Project 5. Control and robotics**

This project includes the possibility of choosing these **topics** (each student must select one)

- 5.1. Analysis of automatic systems: operation, tips and control components.
- 5.2. Robots: types, degrees of freedom and technical characteristics.
- 5.3. The computer as an element of programming and control of robotic systems.
- 5.4. Programming and application of controller cards in experimentation with designed prototypes.

### **Unit 6. Pneumatics**

This project includes the possibility of choosing these **topics** (each student must select one)

- 6.1. Pneumatic systems: fields of application.
- 6.2. Pneumatic installations: basic configuration.
- 6.3. Pneumatic components: symbology and operation.
- 6.4. Basic pneumatic circuits.
- 6.5. Simulation of pneumatic circuits using software.
- 6.6.** This project includes the possibility of choosing these topics (each student must select one)

### **Topic 7. Hydraulics**

This project includes the possibility of choosing these **topics** (each student must select one)

- 7.1. Hydraulic systems: areas of application.
- 7.2. Hydraulic installations: basic configuration.
- 7.3. Hydraulic components: symbols and operation.
- 7.4. Basic hydraulic circuits.
- 7.5. Simulation of hydraulic circuits by means of software.

### **Topic 8. Communication networks and computer programming**

This project includes the possibility of choosing these **topics** (each student must select one)

- 8.1. Information exchange and publication systems: security and responsible use.
- 8.2. Wired and wireless communication: elements, transmission media and applications.
- 8.3. Basic concepts of programming languages.
- 8.4. Development of computer programs.

### **Topic 9. Multimedia production**

This project includes the possibility of choosing these **topics** (each student must select one)

- 9.1. Realization, easy formatting and printing of text documents.
- 9.2. Design of multimedia presentations.
- 9.3. Image treatment.
- 9.4. Simple video and audio production.
- 9.5. Digital production tools on the web.
- 9.6. Copyright and Publishing Licenses.