

**Anno scolastico 2024/2025**

**classe 5^A MEC**

**Programma svolto di Inglese**

**Prof.ssa Ferrari Alessandra**

**LIBRO “Mechpower”**

**MODULE 1**

**Unit 1 : HISTORY OF MATERIALS AND MACHINES**

* The first industrial revolution
* The second industrial revolution
* The British economic decline
* The steam engine

**MODULE 2**

**Unit 3 : DIGITAL ELECTRONICS**

* Analogue vs digital
* Algorithms and flowcharts
* Computers, 1
* Computers, 2
* How computers work: the information processing cycle
* Technical support to industries
* PLC

**Unit 4 : DRAWING**

* CAD
* Types of CAD

**MODULE 4**

**Unit 7 : SHAPING MATERIALS CONVENTIONALLY**

* Metalworking
* Casting and forging
* Rolling, extruding and drawing
* Sheet and powder forming
* Machine tools
* Turning and milling
* Drilling and grinding

**MODULE 5**

**Unit 10 : AUTOMATION**

* What is mechatronics? Definition and objectives
* Automation processes
* Sensors
* Programmed commands in CNC systems

**Unit 11 : ROBOTICS**

* What is a robot?
* Robotic arms
* Industrial robots
* Why a robot?
* Mobile robots

**Unit 12 : ENGINES**

* General characteristics
* The four-stroke petrol engine
* The two-stroke petrol engine
* The four-stroke diesel engine

**MODULE 6**

**Unit 13 : FUELS**

* What is energy?
* Renewable and non-renewable energy sources
* Fossil fuels
* Biofuels (only definition – first paragraph p.226)

**Unit 14 : ENERGY SOURCES**

* Energy production: primary and secondary sources
* Thermoelectric power plants
* Hydroelectric power plants

**SLIDES PROVIDED BY THE TEACHER**

**The American industrial revolution:**

* Eli Whitney and interchangeable parts
* Steel mass production: Bessemer’s converter
* New uses for steel: infrastructures and buildings
* Thomas Edison: the light bulb and the power station
* Electricity spreads: the AC/DC battle
* Tesla and Westinghouse: the Niagara Falls hydroelectric power plant
* Airplanes: the Wright brothers

**The automobile and Henry Ford:**

* Who invented the automobile?
* Mass production: Frederick Taylor and Henry Ford
* Henry Ford’s moving assembly line

**FILM**

* “The Imitation Game” (synopsys: “Mechpower”, p.84)

**CITIZENSHIP**

**Political systems (photocopies provided by the teacher):**

* A presidential system: the USA
* The main EU institutions (the EU: European Parliament, European Commission, Council of the Union, Treaty of Lisbon)

**E-SOURCES**

* Reading and listening comprehensions for Invalsi

Parma, 30/05/2025 L’insegnante

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