

MINISTRY OF EDUCATION AND HIGHER EDUCATION

CENTER FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

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**TECHNOLOGY CURRICULUM**

**BASIC & SECONDARY EDUCATION**

# TECHNOLOGY CURRICULUM

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## I- INTRODUCTION

Nowadays, technology takes up a primordial importance in society. The technical concepts and the terminology became an integral part of our culture and language. Therefore, it is necessary to acquire knowledge and skills in this field which enable the individual to cope with life requirements and to follow the quick evolution of today's technique.

**The Educational Reform** Plan has emphasized the importance of the technology in the new educational system. It is considered as a discipline which includes 240 periods for the basic education (elementary and intermediate levels) and 90 periods for the secondary education and to which will be added certain technical knowledge.

The technology education gives the student the opportunity to understand study and carefully use technical products. It is necessary to show him how knowledge can be mobilized and used in action. Moreover, he will realize that technical learning always conforms with the prospects and values of evolutions and discovers the job market which will help him make his career choice.

These applications or projects meet the conditions of coherence, and correspond to real life activities. The order of presentation of the various technical aspects of these projects is neither chronological nor hierarchical. The project offers an integration of knowledge into the know-how which is related to different disciplines. The student learns how to analyze and acquire a coherent overview concerning the realities of the contemporary world in which he lives, reacts and develops.

The program goes along with a variety of practical and classical realizations found on information and communication technologies (visualization simulation)

This process, being focused on projects, familiarizes the student with the scientific reasoning. The student will learn how to observe, execute measurements, exploit results interpret phenomena, use technical devices and machines, carry out sketches and undertake bibliographic and documentary research.

Thus, this education gives the student the opportunity to perform some activities individually or within a group. These activities are neither exhaustive nor restrictive; they will be carried out according to the teacher's instructions.

The opening onto the world is a condition of success to this education; it can take various forms: well-prepared visits, inquiries, specialists' intersession, etc.

## II- GENERAL OBJECTIVES

The technology education reflects its interdisciplinary aspect. It is carried out in accordance with the educational reform plan and is aimed at achieving the following objectives:

- The exploitation of specialized knowledge through concrete realizations.
- The interrelationship that exists between analysis, conception, realization and the use of a technical object.
- The comprehension of the technical phenomenon in its evolutionary context.
- Learning about the diversity of the productive organizations and the relations that exist between technical progress and the economic social developments.
- The familiarization with the various technical realizations specially those which are related to the daily human needs.
- The choice and the implementation of relevant technical solutions according to the existing constraints.
- The participation in the civic education:
  - By developing the critical attitude concerning the various forms of the commercial communications.
  - By initiating in the individual the tendency to become a well-informed consumer.
  - By enhancing the value of the sophisticated handicrafts.
- The extensive familiarity of the technical vocabulary.
- The adherence to the prevention and the security rules.
- The rational use of materials and equipment.
- The development of creativity.

### III - TABLE OF DISTRIBUTION OF PERIODS PER WEEK/ YEAR

Cycle	Basic Education									Secondary Education						
	Elementary						Intermediate			Secondary I	Secondary II		Secondary III			
Class	First			Second			7 <sup>th</sup>	8 <sup>th</sup>	9 <sup>th</sup>			Humanities	Sciences	Literature and Humanities	General Sciences	Life Sciences
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>										
Number of periods per week	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Number of periods per year	30	30		30	30	30	30	30	30	30	30	30	30	30	30	30

### IV - BASIC EDUCATION

Technology enables the student to have access to the world that was built up by man. Its education at this level is aimed at showing the relations which exist between the products and the needs of the society.

#### SCOPE AND SEQUENCE - ELEMENTARY LEVEL – FIRST CYCLE

The technology education will be provided in the first and second year of this cycle through teaching Fine Arts, globally or in integrated way, allocating 60 periods divided equally.

**SCOPE AND SEQUENCE – ELEMENTARY LEVEL – SECOND CYCLE**

Themes	Contents		
	Class 4	Class 5	Class 6
<b>1- Food and Agronomy</b>	<ul style="list-style-type: none"> <li>▪ Preparation of food stuffs (ice-cream...)</li> </ul> <p style="text-align: right;">(2 periods)</p>	<ul style="list-style-type: none"> <li>▪ Preparation of food stuffs : (chips, biscuits, chocolate truffles)</li> <li>▪ Reading carefully the consumer's labels.</li> </ul> <p style="text-align: right;">(6 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Preparation of food stuffs (cheese...)</li> <li>▪ Cutting and grafting</li> <li>▪ Drop system irrigation</li> </ul> <p style="text-align: right;">(6 Periods)</p>
<b>2- Electricity and magnetism</b>	<ul style="list-style-type: none"> <li>▪ Setting up circuits                             <ul style="list-style-type: none"> <li>– Electrical games</li> <li>– Lighting a doll's house</li> <li>– Making: a torch, games with a magnet (car that run without an engine, magnetic theater) compass.</li> </ul> </li> <li>▪ Basic principles of security.</li> </ul> <p style="text-align: right;">(10 periods)</p>	<ul style="list-style-type: none"> <li>▪ Realization of simple circuits :                             <ul style="list-style-type: none"> <li>– Making an electromagnet.</li> </ul> </li> </ul> <p style="text-align: right;">(2 periods)</p>	<ul style="list-style-type: none"> <li>▪ Realization of simple circuit :                             <ul style="list-style-type: none"> <li>– Constructing an alternator</li> <li>– Making an elevator, a simple electrical engine.</li> <li>– Producing electricity (wind + dynamo).</li> </ul> </li> </ul> <p style="text-align: right;">(6 periods)</p>
<b>3- Mechanics</b>	<ul style="list-style-type: none"> <li>▪ Simple machines                             <ul style="list-style-type: none"> <li>– Making puppets and a jumping jack.</li> <li>– Constructing roundabout.</li> </ul> </li> </ul> <p style="text-align: right;">(4 periods)</p>	<ul style="list-style-type: none"> <li>▪ Simple machines transmission and transformation of movement:                             <ul style="list-style-type: none"> <li>– Constructing levers</li> <li>– Instruments with cogwheels</li> <li>– Constructing a Roberval's balance and Steelyard</li> <li>– Constructing a winch and a windmill (salt extraction)</li> <li>– Constructing a wind sock</li> </ul> </li> <li>▪ Making a plumbline and a spirit level.</li> </ul> <p style="text-align: right;">(8 periods)</p>	<ul style="list-style-type: none"> <li>▪ Simple machines</li> <li>▪ Transmission and transformation of movement.</li> <li>▪ Transmission of movement by a chain.</li> <li>▪ Making an anemometer</li> </ul> <p style="text-align: right;">(4 periods)</p>

Themes	Contents		
	Class 4	Class 5	Class 6
<b>4- Constructing models</b>	<ul style="list-style-type: none"> <li>▪ Making small boats with various materials</li> <li>▪ Constructing aero planes, houses with various materials.</li> <li>▪ Making fancy packages.</li> <li>▪ Paper production: boxes, badges, stars, masks, envelop, relief maps, kites.</li> </ul> <p style="text-align: right;">(8 periods)</p>	<ul style="list-style-type: none"> <li>▪ Making a terrarium</li> <li>▪ Making an aquarium and reptiles farms.</li> <li>▪ Making an incubator.</li> </ul> <p style="text-align: right;">(6 periods)</p>	
<b>5- Various techniques</b>	<ul style="list-style-type: none"> <li>▪ Making recycled paper, pottery with clay, certain musical instruments.</li> </ul> <p style="text-align: right;">(6 periods)</p>	<ul style="list-style-type: none"> <li>▪ Transforming a camera into a projector.</li> <li>▪ Kaleidoscopes</li> <li>▪ Making a camera</li> <li>▪ Making spindles to mix the colors</li> <li>▪ Making a stalactite</li> </ul> <p style="text-align: right;">(8 periods)</p>	<ul style="list-style-type: none"> <li>▪ Constructing bridges with different materials, a Montgolfier, a parachute, a solar panel.</li> <li>▪ Making a telephone, crystals.</li> <li>▪ To grow crystals.</li> <li>▪ To take photos without a camera.</li> <li>▪ A mirror to heat up things.</li> </ul> <p style="text-align: right;">(12 periods)</p>
<b>6- Means of transport</b>			<ul style="list-style-type: none"> <li>▪ Familiarization with the technological aspects in the field of transport (Subways, High-speed train, Eurotunnel, cable-car).</li> </ul> <p style="text-align: right;">(2 periods)</p>
<b>Total periods</b>	<b>30</b>	<b>30</b>	<b>30</b>

**SCOPE AND SEQUENCE – INTERMEDIATE LEVEL**

Themes	Contents		
	Class 7	Class 8	Class 9
<b>1- Material</b>	<ul style="list-style-type: none"> <li>▪ Material of common use.                             <ul style="list-style-type: none"> <li>– Making, using, protecting and treating (Metal and Wood).</li> </ul> </li> <li>▪ Making glue.</li> </ul> <p style="text-align: right;">(7 periods)</p>	<ul style="list-style-type: none"> <li>▪ Engraving (mordant for metal)</li> </ul> <p style="text-align: right;">(2 periods)</p>	
<b>2- Mechanics</b>	<ul style="list-style-type: none"> <li>▪ Tools and machines-simple tools.                             <ul style="list-style-type: none"> <li>– Utilization</li> </ul> </li> <li>▪ Technical drawing                             <ul style="list-style-type: none"> <li>– Initiation</li> </ul> </li> <li>▪ Measuring instruments (length, mass, density...)</li> <li>▪ Water mill.</li> </ul> <p style="text-align: right;">(16 periods)</p>	<ul style="list-style-type: none"> <li>▪ Musical instruments                             <ul style="list-style-type: none"> <li>– Characteristics</li> <li>– Functioning.</li> </ul> </li> </ul> <p style="text-align: right;">(4 periods)</p>	<ul style="list-style-type: none"> <li>▪ Transmission of movement                             <ul style="list-style-type: none"> <li>– Gear mechanics, guidance and transmission.</li> <li>– Hydraulic press</li> <li>– Hoist</li> <li>– Reaction turbine.</li> </ul> </li> </ul> <p style="text-align: right;">(6 periods)</p>
<b>3- Electricity and electronics</b>	<ul style="list-style-type: none"> <li>▪ Electromagnet                             <ul style="list-style-type: none"> <li>– Applications (crane, bell).</li> </ul> </li> </ul> <p style="text-align: right;">(4 periods)</p>	<ul style="list-style-type: none"> <li>▪ Initiation with the help of an electronic board. Simple machines                             <ul style="list-style-type: none"> <li>– Simple mountings</li> </ul> </li> <li>▪ Domestic circuits.                             <ul style="list-style-type: none"> <li>– Circuits build up.</li> </ul> </li> </ul> <p style="text-align: right;">(18 periods)</p>	<ul style="list-style-type: none"> <li>▪ Sources of electrical energy                             <ul style="list-style-type: none"> <li>– Applications</li> </ul> </li> <li>▪ Electronic mountings of common use.</li> </ul> <p style="text-align: right;">(12 periods)</p>

Themes	Contents		
	Class 7	Class 8	Class 9
<b>4- Energy</b>			<ul style="list-style-type: none"> <li>▪ Forms: <ul style="list-style-type: none"> <li>– Wind</li> <li>– Hydraelectric</li> <li>– Solar</li> </ul> </li> <li>▪ Transformation and usefulness</li> </ul> <p style="text-align: right;">(5 periods)</p>
<b>5- Sciences in daily life</b>	<ul style="list-style-type: none"> <li>▪ Making and using glue</li> <li>▪ Conserving plants, flowers, fish...</li> </ul> <p style="text-align: right;">(3 periods)</p>	<ul style="list-style-type: none"> <li>▪ Nutrition <ul style="list-style-type: none"> <li>– pH measurement colorings and conservatives</li> </ul> </li> <li>▪ Collecting and identifying minerals: rocks and fossils.</li> </ul> <p style="text-align: right;">(6 periods)</p>	<ul style="list-style-type: none"> <li>▪ food technology <ul style="list-style-type: none"> <li>– Fermentation</li> <li>– Nutriment extraction</li> </ul> </li> <li>▪ Making antiseptics <ul style="list-style-type: none"> <li>– Soap</li> <li>– Detergent.</li> </ul> </li> </ul> <p style="text-align: right;">(7 periods)</p>
<b>Total periods</b>	<b>30</b>	<b>30</b>	<b>30</b>

## **A - ELEMENTRY LEVEL**

### **a - SPECIFIC OBJECTIVES OF THE SECOND CYCLE**

The technology education is aimed to achieve some objectives which enable the learner to:

- Initiate himself into the technology and experimental procedure: to conceive, to fabricate, to transform, and to use.
- Develop certain abilities and skills: objectivity, precision, creativity, sense of invention, work in groups, ...
- Perceive the social, historical and ethical dimensions of science and technology.
- Develop an eye- hand coordination in order to conceive, to execute and to maintain technical objects.
- Utilize knowledge into new situations.

**b - CONTENTS**

SECOND CYCLE	- CLASS 4 -	SHEDULED PERIODS : 30-1P/ WEEK			
THEMES / CONCEPTS	ABILITIES /SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>1- Food and agronomy:</b> Preparation of food stuffs (2 Periods)	By the end of this program, the learner will be able: <ul style="list-style-type: none"> <li>to choose, measure and mix food in order to obtain foodstuffs</li> </ul>	<ul style="list-style-type: none"> <li>Making ice-cream Caramel</li> </ul>	X		
<b>2-Electricity and magnetism:</b> <ul style="list-style-type: none"> <li>Realization of simple circuits</li> <li>Basic principles of security</li> </ul> (10 Periods)	<ul style="list-style-type: none"> <li>To dismantle, reassemble and analyze different elements of a technical object and to characterize its function</li> <li>To acquire basic rules of security</li> </ul>	<ul style="list-style-type: none"> <li>Electrical games</li> <li>Lighting a doll's house</li> <li>Torch</li> <li>Games with magnet (car that runs without an engine)</li> <li>Making a compass with a magnet</li> <li>Danger of electrocution</li> </ul>	X X X X X X		X
<b>3- Mechanics :</b> Simple machines (4 Periods)	<ul style="list-style-type: none"> <li>To conceive and build simple mechanical objects.</li> </ul>	<ul style="list-style-type: none"> <li>Buildings a balancing pole</li> <li>Building a roundabout</li> </ul>	X X		
<b>4- Various techniques</b> (6 Periods)	<ul style="list-style-type: none"> <li>To map and realize a project of production</li> </ul>	<ul style="list-style-type: none"> <li>Making recycled paper</li> <li>Making pottery in clay</li> <li>Making certain musical instruments.</li> </ul>	X X X		X X X
<b>5- Realizing models</b> (8 Periods)	<ul style="list-style-type: none"> <li>To express his ideas through rough sketches</li> <li>To develop his creativity.</li> </ul>	<ul style="list-style-type: none"> <li>Making small boats with various materials</li> <li>Building aero planes</li> <li>Various realizations in paper: badges, stars, masks, envelops, relief maps, kites</li> </ul>	X X X		

**N.B. : The projects are not restrictive, they can be replaced by others of similar types and in the same field.**

(\*) C/P = Construction / Production      R = Research      D/V = Demonstrations / visits

SECOND CYCLE	- CLASS 5 -	SCHEDULED PERIODS: 30-1P/ WEEK			
THEMES / CONCEPTS	ABILITIES / SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>1- Food and agronomy :</b> Preparation of food stuffs (6 Periods)	By the end of this program, the learner will be able: <ul style="list-style-type: none"> <li>To choose, measure and mix food in order to obtain foods.</li> <li>to discuss the label's text</li> </ul>	<ul style="list-style-type: none"> <li>Preparation of "Chips"</li> <li>Making biscuits</li> <li>Making chocolate truffles</li> <li>How to read carefully a consumable label.</li> </ul>	X		X
<b>2- Electricity</b> Realization of simple electricity devices. (2 Periods)	<ul style="list-style-type: none"> <li>To know how to choose the constituent elements of an electromagnet and to acquire the ability to amount it.</li> </ul>	<ul style="list-style-type: none"> <li>Making an electromagnet</li> </ul>	X		
<b>3- Mechanics :</b> <ul style="list-style-type: none"> <li>Simple machines</li> <li>Transmission and transformation of movement.</li> </ul> (4 Periods)	<ul style="list-style-type: none"> <li>To properly use technical objects alone or with the teacher.</li> <li>To do experiments in order to verify a hypothesis and realize a model. .</li> </ul>	<ul style="list-style-type: none"> <li>Constructing levers</li> <li>Instruments with cartwheels</li> <li>Constructing a Roberval's balance and a steelyard</li> <li>Constructing a winch and a windmill (salt extraction)</li> <li>Constructing a wind sock</li> <li>Making a plumbline and a spirit level.</li> </ul>	X		X
<b>4- Various techniques</b> (8 Periods)	<ul style="list-style-type: none"> <li>To design a project in the optical field and to realize it.</li> </ul>	<ul style="list-style-type: none"> <li>Transforming a camera into a projector</li> <li>Kaleidoscope</li> <li>Making a camera</li> <li>Making spindles to mix the colors.</li> </ul>		X	
<b>5- Realizing models</b> (6 Periods)	<ul style="list-style-type: none"> <li>To design and realize habitat for vegetables and animal.</li> <li>To be aware of safe environment and conditions</li> </ul>	<ul style="list-style-type: none"> <li>Making a terrarium</li> <li>Making an aquarium and reptiles farm</li> <li>Making an incubator.</li> </ul>	X		X

N.B. : The projects are not restrictive, they can be replaced by others of similar types and in the same field.

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## **B - INTERMEDIATE LEVEL**

### **a - SPECIFIC OBJECTIVES**

The technology education at this level is aimed to achieve objectives which enable the learner:

- To increase and to carry on with certain technological realizations which have been already dealt with in the elementary level.
- To use a proper and rigorous technical language.
- To initiate himself into specific procedures of technology where the choice of the best compromise results from the various criteria taken into consideration.
- To mobilize his knowledge into various disciplines in order to resolve a real problem.
- To use the equipment and means of control at his disposal rationally respecting the security rules and the agronomical principles.
- To develop a critical attitude in order to intervene in the technological world.
- To provide a technological culture susceptible of guiding his professional choice.

**b- CONTENTS**

SECOND CYCLE	- CLASS 7 -	SCHEDULED PERIODS: 30-1P/ WEEK			
THEMES / CONCEPTS	ABILITIES / SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>1- Introduction to technology</b>  (2 Periods)	By the end of this program, the learner will be able: <ul style="list-style-type: none"> <li>▪ To have precise ideas concerning the technology evolution and its terminology, as well as the fields of use</li> </ul>			X	
<b>2- Materials :</b> <ul style="list-style-type: none"> <li>▪ Materials of common use:                             <ul style="list-style-type: none"> <li>– Making, using, protecting and treating.</li> </ul> </li> </ul> (7 Periods)	<ul style="list-style-type: none"> <li>▪ To acquire knowledge and restore it in the following fields:                             <ul style="list-style-type: none"> <li>– Wood treatment</li> <li>– Using and manufacturing metal</li> <li>– Production techniques and use of glue.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Making and using glue</li> <li>▪ Clearing and protecting metal</li> <li>▪ Treating and protecting wood</li> <li>▪ Making a technical object: tapping, threading.</li> </ul>	X		
<b>3- Technical drawing:</b> <ul style="list-style-type: none"> <li>▪ Initiation</li> <li>▪ Instrumentation</li> </ul> (4 Periods)	<ul style="list-style-type: none"> <li>▪ To map, to represent and to realize a technical object drawing.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Projection cube</li> <li>▪ Realization of a drawing</li> </ul>		X	
<b>4- Tools and simple machines</b> <ul style="list-style-type: none"> <li>▪ Familiarization and use</li> </ul> (4 Periods)	<ul style="list-style-type: none"> <li>▪ To use and to handle tools and simple machines respecting the rules of security.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Tool box</li> </ul>	X		
<b>5- Measurement instruments:</b> <ul style="list-style-type: none"> <li>▪ Pressure, density, weight, mass, length</li> </ul> (4 Periods)	<ul style="list-style-type: none"> <li>▪ To realize and to use certain measuring instruments (pressure, mass...)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Barometer</li> <li>▪ Densimeter</li> <li>▪ Dynamometer</li> <li>▪ Caliper ruler</li> </ul>	X		X

SECOND CYCLE	- CLASS 7 -	SCHEDULED PERIODS: 30-1P/ WEEK			
THEMES / CONCEPTS	ABILITIES / SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>6- Mechanics and electricity</b>  (6 Periods)	<ul style="list-style-type: none"> <li>▪ To mount realizations illustrating the relations between power and energy, action and reaction</li> </ul>	<ul style="list-style-type: none"> <li>▪ Watermill</li> <li>▪ Electromagnet crane</li> <li>▪ Electrical bell</li> <li>▪ Elevator</li> <li>▪ Simple rocket</li> </ul>	X		
<b>7- Conserving collections</b>  (2 Periods)	<ul style="list-style-type: none"> <li>▪ To acquire techniques and means of conserving collections</li> </ul>	<ul style="list-style-type: none"> <li>▪ Various collections (plants, flowers, fish)</li> </ul>	X		

**N.B. :** The projects are not restrictive, they can be replaced by others of similar types and in the same field.

(\*) C/P = Construction / Production      R = Research      D/V = Demonstrations / visits

SECOND CYCLE	- CLASS 8 -	SHEDULED PERIODS: 30-1P/ WEEK			
THEMES / CONCEPTS	ABILITIES / SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>1- Nutrition</b> <ul style="list-style-type: none"> <li>▪ pH measurement</li> <li>▪ food technology</li> </ul> <p style="text-align: right;">(4 Periods)</p>	By the end of this program, the learner will be able: <ul style="list-style-type: none"> <li>▪ To determine and measure the acidity and the basicity of food.</li> <li>▪ To know the techniques of presenting and conserving food</li> </ul>	<ul style="list-style-type: none"> <li>▪ Experimental determination of the pH:               <ul style="list-style-type: none"> <li>– Table of food , acid, base</li> </ul> </li> <li>▪ Coloring and conservatives</li> </ul>			X
<b>2- Mineral, rock and fossils</b> <p style="text-align: right;">(2 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To know how to classify and conserve mineral, rocks and fossils which go back to ancient eras.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Various collections</li> </ul>	X		
<b>3- Material:</b> <ul style="list-style-type: none"> <li>▪ Metal Works</li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To engrave metal</li> </ul>	<ul style="list-style-type: none"> <li>▪ Engraving (mordant for metal)</li> </ul>		X	
<b>4- Musical instruments:</b> <ul style="list-style-type: none"> <li>▪ Characteristics and functions</li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To make               <ul style="list-style-type: none"> <li>– A stringed instrument</li> <li>– A wind instrument</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Musical scale</li> <li>▪ Stringed instruments</li> <li>▪ Wind instruments</li> </ul>	X		
<b>5- Electricity:</b> <ul style="list-style-type: none"> <li>▪ Utility, advantages and applications</li> </ul> <p style="text-align: right;">(10 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To carry out a soldering</li> <li>▪ To realize some domestic circuits</li> <li>▪ To carry out a simple maintenance</li> </ul>	<ul style="list-style-type: none"> <li>▪ Domestic circuits:               <ul style="list-style-type: none"> <li>– Switching: simple, double directional (two-way waxing)</li> <li>– Circuit breaker, fuse</li> <li>– Plug</li> <li>– House lighting</li> </ul> </li> <li>▪ Electrical circuits in home appliances:               <ul style="list-style-type: none"> <li>– Electric iron</li> <li>– Electric heater</li> </ul> </li> <li>▪ Realization of a circuit according to a diagram.</li> </ul>	X		X
<b>6- Electronics:</b> <ul style="list-style-type: none"> <li>▪ Initiation by using an electrical board</li> </ul> <p style="text-align: right;">(8 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To realize transitional diodes mounting, transformers and motors</li> <li>▪ To carry our a simple maintenance</li> <li>▪ To carry out pewter soldering</li> </ul>	<ul style="list-style-type: none"> <li>▪ Simple mountings:               <ul style="list-style-type: none"> <li>– Electronic interrupter, command by a transistor.</li> </ul> </li> <li>▪ Potentiometer (Rhéostat)</li> </ul>	X		
				X	X

**N.B. : The projects are not restrictive, they can be replaced by others of similar types and in the same field.**

(\*) C/P = Construction / Production

R = Research

D/V = Demonstrations / visits

SECOND CYCLE	- CLASS 9 -	SCHEDULED PERIODS: 30-1P/ WEEK			
THEMES / CONCEPTS	ABILITIES / SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>1- Food and technology:</b> ▪ Fermentation, nutriment extraction (3 Periods)	By the end of this program, the learner will be able: ▪ To distinguish fermentable food from non-fermentable. ▪ To realize an acetic fermentation: vinegar. ▪ To establish a table of the grain derivatives.	▪ Vinegar. ▪ Corn and derivatives ▪ Wheat and derivatives.	X	X	X
<b>2- Electricity:</b> ▪ Sources and applications (6 Periods)	▪ To identify the elements which compose a battery ▪ To rectify an alternating current rectifier ▪ To realize metal plating by electrolysis. .	▪ Making a battery: Leclanché, Volta ▪ Electroplating (silvering, copperplating, gilding) ▪ Transformer ▪ Arc Lamp ▪ Alternator	X		X
<b>3- Energy</b> ▪ Form, transformation and usefulness. (5 Periods)	▪ To identify different forms of energy and to realize certain system to transform it.	▪ Windmill ▪ Hydroelectric station ▪ Solar furnace ▪ Mini solar panel	X		X
<b>4- Electronics:</b> ▪ Mounting of common use circuits (6 Periods)	▪ To use the characteristics of electronic components in a system	▪ Receiver – radio ▪ Amplifier: - Transistor based - Operational	X		
<b>5- Mechanics:</b> ▪ Transmission of movement ▪ Hydraulic mechanic (6 Periods)	▪ To realize a system of movement transmission and a system to conserve mechanical energy ▪ To apply the hydrostatic principle and the principle of conserving the movement quantity.	▪ Gear mechanism guidance and transmission. ▪ Hoist ▪ Hydraulic press ▪ Reaction turbine	X		X
<b>6- Daily life chemistry</b> (4 Periods)	▪ To make soap, antiseptic products and detergent	▪ Making antiseptics ▪ Soap ▪ Detergent for laundry	X		X

N.B. : The projects are not restrictive, they can be replaced by others of similar types and in the same field.

(\*) C/P = Construction / Production      R = Research      D/V = Demonstrations / visits

## V- SECONDARY EDUCATION

At this level, the technology education grants a privilege to certain fields according to their influence on the great technical, economical and social evolutions. Thus it provides a better control of the technological procedure and an opening onto a technical culture which is more elaborated. When many solutions are given to the same technical problem, the learner can perceive better the evolution as a result of progress, technologies and production means. Thus he will establish a relation between the conception and realization activities and the enterprises' practices.

### SCOPE AND SEQUENCE

Themes	Secondary 1	Secondary 2	Secondary 3	
	CONTENT/THEME	SCIENCES	GENERAL SCIENCES	LIFE SCIENCES
		CONTENT/THEME	CONTENT/THEME	CONTENT/THEME
<b>1- Systems and techniques</b>	<ul style="list-style-type: none"> <li>▪ <b>Systems:</b> <ul style="list-style-type: none"> <li>– Structure, environment : Control, verification, feedback, interface, entry/ exist.</li> <li>– Representation by sketch.</li> <li>– Formalization.</li> <li>– Applications: Technical, ecological, physical, automated and computer system.</li> <li>– Sensor</li> <li>– Optics: Astronomical telescope optical fiber – endoscopy.</li> <li>– Techniques of reprinting: printing techniques printers Photostats.</li> </ul> </li> </ul> <p style="text-align: right;">(15 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Photos techniques: equipment and production</li> <li>▪ Acoustics: <ul style="list-style-type: none"> <li>– Ultrasonics: fields of use.</li> <li>– Acoustic of auditorium.</li> </ul> </li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Medicine and technology: techniques and equipment</li> <li>▪ Cartography: techniques and means of detection.</li> </ul> <p style="text-align: right;">(5 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Medicine and technology: techniques and equipment</li> <li>▪ Cartography: techniques and means of detection.</li> </ul> <p style="text-align: right;">(5 Periods)</p>

Themes	Secondary 1	Secondary 2	Secondary 3	
	CONTENT/THEME	SCIENCES	GENERAL SCIENCES	LIFE SCIENCES
		CONTENT/THEME	CONTENT/THEME	CONTENT/THEME
<b>2- Electronics</b>	<ul style="list-style-type: none"> <li>▪ Electronics:               <ul style="list-style-type: none"> <li>– Use and familiarization with passive and active components: R,C, diodes, transistors, thyristor, remote control.</li> <li>– Experimental approach.</li> </ul> </li> </ul> <p style="text-align: right;">(7 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Electronics:               <ul style="list-style-type: none"> <li>– Oscilloscope: use application.</li> <li>– Functions of communication,</li> <li>– Logical circuits</li> <li>– Logic:</li> </ul> </li> <li>▪ Bascules, coding and decoding.</li> </ul> <p style="text-align: right;">(8 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Electronics:               <ul style="list-style-type: none"> <li>– Functions : feeding , filtering oscillation, feedback, modulation</li> </ul> </li> <li>▪ Automatics:               <ul style="list-style-type: none"> <li>– Open, closed ball (feedback)</li> <li>– Liner servo-control.</li> </ul> </li> </ul> <p style="text-align: right;">(10 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Electronics:               <ul style="list-style-type: none"> <li>– Functions : feeding , filtering oscillation, feedback, modulation</li> </ul> </li> <li>▪ Automatics:               <ul style="list-style-type: none"> <li>– Open, closed ball (feedback)</li> <li>– Liner servo-control.</li> </ul> </li> </ul> <p style="text-align: right;">(10 Periods)</p>
<b>3- Energy</b>		<ul style="list-style-type: none"> <li>▪ Motor technology:               <ul style="list-style-type: none"> <li>– Mechanics: engine</li> <li>– Electricity :production and distribution</li> </ul> </li> <li>▪ Micro-waves</li> <li>▪ Furnace, radar</li> </ul> <p style="text-align: right;">(6 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Energy :               <ul style="list-style-type: none"> <li>– Solar energy and setting-up</li> <li>– Conserving energy in a fluid.</li> </ul> </li> <li>▪ Laser: fields of use.</li> </ul> <p style="text-align: right;">(5 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Energy :               <ul style="list-style-type: none"> <li>– Solar energy and setting-up</li> <li>– Conserving energy in a fluid.</li> </ul> </li> <li>▪ Laser: fields of use.</li> </ul> <p style="text-align: right;">(5 Periods)</p>
<b>4- Industry</b>	<ul style="list-style-type: none"> <li>▪ Chemical Industry:               <ul style="list-style-type: none"> <li>– Paper industry</li> <li>– Essence extraction (orange blossom, sage,)</li> <li>– Enamel work</li> <li>– Work and use of resin</li> </ul> </li> </ul> <p style="text-align: right;">(5 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Chemical industry:               <ul style="list-style-type: none"> <li>– Plastic production</li> <li>– Water proofing</li> <li>– Oil (saturated and non-saturated)</li> </ul> </li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Chemical industry :               <ul style="list-style-type: none"> <li>– Petroleum and derivatives</li> <li>– Perfumes</li> <li>– Pigment, dye</li> </ul> </li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Chemical industry :               <ul style="list-style-type: none"> <li>– Petroleum and derivatives</li> <li>– Perfumes</li> <li>– Pigment, dye</li> </ul> </li> </ul> <p style="text-align: right;">(4 Periods)</p>

Themes	Secondary 1	Secondary 2	Secondary 3	
		SCIENCES	GENERAL SCIENCES	LIFE SCIENCES
	CONTENT/THEME	CONTENT/THEME	CONTENT/THEME	CONTENT/THEME
<b>5- Communication &amp; Media</b>		<ul style="list-style-type: none"> <li>▪ Norms of technical drawings:               <ul style="list-style-type: none"> <li>– Perspectives</li> <li>– Forms of rotation</li> <li>– Projections/ cutting/ sections</li> <li>– Valuation of drawings</li> </ul> </li> <li>▪ Stocking the information</li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Numerical rotation: numerical telephone, television broadcasting, cable TV, high definition TV</li> </ul> <p style="text-align: right;">(2 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Numerical rotation: numerical telephone, television broadcasting, cable TV, high definition TV</li> </ul> <p style="text-align: right;">(2 Periods)</p>
<b>6- Economics Management</b>		<ul style="list-style-type: none"> <li>▪ Contract</li> <li>▪ Means of payments</li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Monetary system</li> <li>▪ Documents of purchase and sale.</li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Monetary system</li> <li>▪ Documents of purchase and sale.</li> </ul> <p style="text-align: right;">(4 Periods)</p>
<b>7- Security and protection</b>	<ul style="list-style-type: none"> <li>▪ Staff members, individuals</li> <li>▪ Materials</li> <li>▪ Environment</li> </ul> <p style="text-align: right;">(3 Periods)</p>			
<b>Total periods</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>

Themes	Secondary 1	Secondary 2	Secondary 3	
		HUMANITIES	LITERATURE & HUMANITIES	SOCIOLOGY & ECONOMICS
	CONTENT/THEME	CONTENT/THEME	CONTENT/THEME	CONTENT/THEME
<b>1- Systems and techniques</b>	<ul style="list-style-type: none"> <li>▪ <b>Systems :</b> <ul style="list-style-type: none"> <li>– Structure, environment :</li> <li>– Control, verification, feedback, interface, entry/exist.</li> <li>– Representation by sketch...</li> <li>– Formalization.</li> <li>– Applications: Technical, ecological, physical, automated and computerized systems.</li> <li>– Sensor</li> <li>– Optics: astronomical telescope optical fiber: endoscopy.</li> <li>– Techniques of reprinting: printing techniques printers Photostats.</li> </ul> </li> </ul> <p style="text-align: right;">(15 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Photos techniques: equipment and production</li> <li>▪ Acoustics: <ul style="list-style-type: none"> <li>– Ultrasonics: fields of use.</li> <li>– Acoustic of auditorium.</li> </ul> </li> </ul> <p style="text-align: right;">(7 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Medicine and technology: techniques and equipment</li> <li>▪ Cartography: techniques and means of detection.</li> <li>▪ Meteorology: forecast card</li> </ul> <p style="text-align: right;">(9 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Medicine and technology: techniques and equipment</li> <li>▪ Cartography: techniques and means of detection.</li> <li>▪ Meteorology: forecast card</li> </ul> <p style="text-align: right;">(9 Periods)</p>
<b>2- Electronics</b>	<ul style="list-style-type: none"> <li>▪ Electronics: <ul style="list-style-type: none"> <li>– Use and familiarization with passive and active components: R,C, diodes, transistors, thyristor, remote control.</li> <li>– Experimental approach.</li> </ul> </li> </ul> <p style="text-align: right;">(7 Periods)</p>			
<b>3- Energy</b>		<ul style="list-style-type: none"> <li>▪ Motor technology: <ul style="list-style-type: none"> <li>– Mechanics: engine</li> <li>– Electricity :production and distribution</li> </ul> </li> <li>▪ Micro-waves</li> <li>▪ Furnace, radar</li> </ul> <p style="text-align: right;">(7 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Energy : <ul style="list-style-type: none"> <li>– Solar energy and setting-up</li> <li>– Conserving energy in a fluid.</li> </ul> </li> <li>▪ Laser: fields of use.</li> </ul> <p style="text-align: right;">(5 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Energy : <ul style="list-style-type: none"> <li>– Solar energy and setting-up</li> <li>– Conserving energy in a fluid.</li> </ul> </li> <li>▪ Laser: fields of use.</li> </ul> <p style="text-align: right;">(5 Periods)</p>

Themes	Secondary 1	Secondary 2	Secondary 3	
		HUMANITIES	LITERATURE & HUMANITIES	SOCIOLOGY & ECONOMICS
	CONTENT/THEME	CONTENT/THEME	CONTENT/THEME	CONTENT/THEME
<b>4- Industry</b>	<ul style="list-style-type: none"> <li>▪ Chemical Industry: <ul style="list-style-type: none"> <li>– Paper industry</li> <li>– Essence extraction (orange blossom, sage,...)</li> <li>– Enamel work</li> <li>– Work and use of resin</li> </ul> </li> </ul> <p style="text-align: right;">(5 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Chemical industry: <ul style="list-style-type: none"> <li>– Petroleum and derivatives</li> <li>– Perfumes</li> <li>– Pigment, dye</li> </ul> </li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Chemical industry : <ul style="list-style-type: none"> <li>– Petroleum and derivatives</li> <li>– Perfumes</li> <li>– Pigment, dye</li> </ul> </li> <li>▪ Food processing industry: <ul style="list-style-type: none"> <li>origin, conservation</li> <li>sterilization</li> </ul> </li> </ul> <p style="text-align: right;">(8 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Chemical industry : <ul style="list-style-type: none"> <li>– Petroleum and derivatives</li> <li>– Perfumes</li> </ul> </li> <li>▪ Food processing industry: <ul style="list-style-type: none"> <li>origin, conservation</li> <li>sterilization</li> </ul> </li> </ul> <p style="text-align: right;">(8 Periods)</p>
<b>5- Communication and Media</b>		<ul style="list-style-type: none"> <li>▪ Stocking the information</li> <li>▪ Cinema</li> <li>▪ Advertising media</li> <li>▪ Television (broadcast and reception)</li> </ul> <p style="text-align: right;">(8 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Numerical rotation: <ul style="list-style-type: none"> <li>– Numerical telephone, television broadcasting, cable TV, high definition TV</li> </ul> </li> </ul> <p style="text-align: right;">(2 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Numerical rotation: <ul style="list-style-type: none"> <li>– Numerical telephone, television broadcasting, cable TV, high definition TV</li> </ul> </li> </ul> <p style="text-align: right;">(2 Periods)</p>
<b>6- Economics Management</b>		<ul style="list-style-type: none"> <li>▪ Contract</li> <li>▪ Means of payments</li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Monetary system</li> </ul> <p style="text-align: right;">(6 Periods)</p>	<ul style="list-style-type: none"> <li>▪ Monetary system</li> <li>▪ Documents of purchase and sale</li> </ul> <p style="text-align: right;">(6 Periods)</p>
<b>7- Security and protection</b>	<ul style="list-style-type: none"> <li>▪ Staff members, individuals</li> <li>▪ Materials</li> <li>▪ Environment</li> </ul> <p style="text-align: right;">(3 Periods)</p>			
<b>Total periods</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>

## FIRST YEAR

### a - Specific Objects

The education of technology at the secondary I level aims to achieve objectives which reflect the specificity of this class as a common basis and enable the learner:

- to dispose of an approach based on the systems and the functions.
- to favor the analytic attitude.
- to develop the sense of production
- to realize more elaborated useful mountings
- to acquire a critical attitude towards recent techniques

### b- Contents

	- Secondary 1 -	SCHEDULED PERIODS : 30-1P/ WEEK			
THEMES / CONCEPTS	ABILITIES /SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>1- Systems:</b> <ul style="list-style-type: none"> <li>▪ Structure, environment :</li> <li>▪ Control, verification, feedback, interface, entry/exist.</li> <li>▪ Representation by sketch...</li> <li>▪ Formalization.</li> <li>▪ Applications:               <ul style="list-style-type: none"> <li>- Technical system</li> <li>- Ecological system</li> <li>- Computer system</li> </ul> </li> <li>▪ Sensor</li> </ul> <p style="text-align: right;">(8 Periods)</p>	By the end of this program, the learner will be able: <ul style="list-style-type: none"> <li>▪ To identify and analyze a system</li> </ul>	<ul style="list-style-type: none"> <li>▪ Temperature measurement Thermocouple, bimetallic strip,</li> <li>▪ Pressure measurement: membrane.</li> <li>▪ Advertisement creation</li> <li>▪ Marine environment, forest, ...</li> <li>▪ Overhead projector, slide projector</li> <li>▪ Production line</li> <li>▪ Check printing, ...</li> </ul>	X		
			X		
			X		X
			X		X

	- Secondary 1 -	SCHEDULED PERIODS : 30-1P/ WEEK			
THEMES / CONCEPTS	ABILITIES /SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>2- Security and protection</b> <ul style="list-style-type: none"> <li>▪ Of staff</li> <li>▪ Of materials</li> <li>▪ Of environment</li> </ul> (3 Periods)	<ul style="list-style-type: none"> <li>▪ To take the elementary measures of security and prevention</li> </ul>	<ul style="list-style-type: none"> <li>▪ Electrocutation, gas mask</li> <li>▪ Using the UPS, differential circuit breaker</li> <li>▪ Recycling</li> </ul>		X	X
					X
<b>3- Electronics:</b> <ul style="list-style-type: none"> <li>▪ Use and familiarization with passive and active components: R,C, diodes, transistors, thyristor, remote control.</li> </ul> (7 Periods)	<ul style="list-style-type: none"> <li>▪ to initiate himself into using electronic components and to carry out mountings of common use circuits</li> </ul>	Simple circuits mounting	X		
<b>4- Optics</b>  (3 Periods)	<ul style="list-style-type: none"> <li>▪ To build an optical system</li> </ul>	<ul style="list-style-type: none"> <li>▪ Astronomical telescope</li> <li>▪ Optical fiber: endoscope</li> </ul>	X	X	X
<b>5- Chemical industry</b>  (5 Periods)	<ul style="list-style-type: none"> <li>▪ To extract consumables and products of common use</li> </ul>	<ul style="list-style-type: none"> <li>▪ Paper Industry</li> <li>▪ Essence extraction (orange, blossom, sage)</li> <li>▪ Enamel work</li> <li>▪ Work and use of resin</li> </ul>	X		X
			X		X
			X		X
<b>6- Techniques of reprinting</b>  (4 Periods)	<ul style="list-style-type: none"> <li>▪ To acquire a critical attitude towards printing techniques</li> </ul>	<ul style="list-style-type: none"> <li>▪ Printing techniques</li> <li>▪ Printers</li> <li>▪ Photostats</li> </ul>	X		X
			X		X
			X		X

N.B. : The projects are not restrictive, they can be replaced by others of similar types and in the same field.

(\*) C/P = Construction / Production      R = Research      D/V = Demonstrations / visits

## SECOND YEAR - HUMANITIES

### a - Specific Objectives

The education of technology at the Secondary II level, "Humanities" section, favors the research and aims to achieve objectives which enable the learner;

- To use technical instruments properly.
- To foresee the importance of the maintenance and the repairing notions.
- To familiarize himself with the techniques used in communication means
- To be aware of the important role played by advertisement in society.

### b- Contents

		Secondary 2 - Humanities	SCHEDULED PERIODS : 30-1P/ WEEK		
THEMES / CONCEPTS	ABILITIES /SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>1- Acoustics</b> <ul style="list-style-type: none"> <li>▪ Ultrasonics: fields of use</li> <li>▪ Acoustics of an auditorium</li> </ul> (4 Periods)	By the end of this program, the learner will be able: <ul style="list-style-type: none"> <li>▪ To familiarize himself with ultrasonic's techniques.</li> <li>▪ To organize the means of sound proofing an auditorium.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ultrasound</li> <li>▪ Sound proofing of an auditorium</li> </ul>	X	X	X
<b>2- Motor technology:</b> <ul style="list-style-type: none"> <li>▪ Mechanic: engine</li> <li>▪ Electricity: production and distribution.</li> </ul> (5 Periods)	<ul style="list-style-type: none"> <li>▪ To adopt a process of diagnosis and motor car breakdown</li> <li>▪ To provide the routine maintenance</li> <li>▪ To carry out a simple repairing</li> </ul>	<ul style="list-style-type: none"> <li>▪ Electricity and self-propelled motor.</li> </ul>	X		X
<b>3- Chemical industry</b> <ul style="list-style-type: none"> <li>▪ Plastic production</li> <li>▪ Water proofing</li> <li>▪ Oil(saturated and non –saturated)</li> </ul> (4 Periods)	<ul style="list-style-type: none"> <li>▪ to make plastic products</li> <li>▪ to initiate himself into waterproofing techniques</li> <li>▪ to familiarize himself with techniques of oil extraction</li> </ul>	<ul style="list-style-type: none"> <li>▪ PVC, nylon, textile fibers,...</li> <li>▪ Fabrics, paper</li> <li>▪ Oil extraction</li> </ul>	X	X	X

	Secondary 2 - Humanities	SCHEDULED PERIODS : 30-1P/ WEEK			
THEMES / CONCEPTS	ABILITIES /SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>4- Various technologies:</b> <ul style="list-style-type: none"> <li>▪ Stocking information</li> <li>▪ Photographs techniques: <ul style="list-style-type: none"> <li>– Camera</li> <li>– Auto focus</li> </ul> </li> <li>▪ microwaves</li> </ul> <p style="text-align: right;">(6 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To exploit potentialities of common use apparatus video camera, Microwaves, camera – photo.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Recording on audio-video film, video camera, CD</li> <li>▪ Exposure, enlargement, processing.</li> <li>▪ Slide production</li> <li>▪ Furnace, radar</li> </ul>	X		X
			X		X
			X	X	X
<b>5- Economics</b> <ul style="list-style-type: none"> <li>▪ Contract</li> <li>▪ Means of payment</li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To identify and use different means of payment, to interpret the contract clauses.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Writing a contract</li> <li>▪ Bill of exchange, draft, traveler's check, credit transfer</li> </ul>	X		
			X		
<b>6- Communication and media</b> <ul style="list-style-type: none"> <li>▪ Cinema</li> <li>▪ Advertising media</li> <li>▪ Television (Broadcast and reception)</li> </ul>	<ul style="list-style-type: none"> <li>▪ To analyze technical means used in the cinema and television</li> <li>▪ To discover the role of advertisement in the modern economy</li> <li>▪ To interpret and realize a publicity project</li> </ul>	<ul style="list-style-type: none"> <li>▪ Special effects</li> <li>▪ Simulation, ...</li> <li>▪ advertising</li> </ul>		X	X
				X	X
			X	X	X

**N.B. : The projects are not restrictive, they can be replaced by others of similar types and in the same field.**

(\*) C/P = Construction / Production      R = Research      D/V = Demonstrations / visits

## SECOND YEAR - SCIENCES

### a - Specific Objectives

The education of technology at the Secondary II level: Sciences: section, aim to achieve objectives which enable the learner:

- To realize technical drawings as means of communication and to initiate himself into it.
- To use technical instruments properly.
- To identify and to interpret the logical relations of a system
- To foresee the importance of the maintenance and the repairing notions
- To acquire fundamental notions about market economy.

### b- Contents

		Secondary 2 - Sciences	SHEDULED PERIODS : 30-1P/ WEEK		
THEMES / CONCEPTS	ABILITIES /SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>1- Norms of technical drawings</b> <ul style="list-style-type: none"> <li>▪ Perspectives</li> <li>▪ Forms of rotation</li> <li>▪ Projections (cuttings /sections)</li> <li>▪ Valuation of drawings</li> </ul> <p style="text-align: right;">(3 Periods)</p>	By the end of this program, the learner will be able: <ul style="list-style-type: none"> <li>▪ To distinguish sizes and signification of technical drawings types, to carry out drawings of certain objects</li> </ul>	Drawings technical objects	X		
<b>2- Electronics</b> <ul style="list-style-type: none"> <li>▪ Oscilloscope: use, application</li> <li>▪ Functions of communication</li> <li>▪ Logical circuits</li> </ul> <p style="text-align: right;">(8 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To use an oscilloscope as an instrument of measurement</li> <li>▪ To realize an electronic mountings:               <ul style="list-style-type: none"> <li>- Analogical</li> <li>- Digital</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Measurement with an oscilloscope</li> <li>▪ Mounting: indication, graduator, flash light</li> <li>▪ Adder</li> <li>▪ Comparator</li> <li>▪ Bascule with a memory</li> <li>▪ Coder with 7 segments</li> </ul>	X		
			X		
			X		X
			X		X
			X		X

THEMES / CONCEPTS	Secondary 2 - Sciences	SCHEDULED PERIODS : 30-1P/ WEEK			
	ABILITIES /SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>3- Acoustics</b> <ul style="list-style-type: none"> <li>▪ Ultrasonics: fields of use</li> <li>▪ Acoustics of an auditorium</li> </ul> (2 Periods)	<ul style="list-style-type: none"> <li>▪ To familiarize himself with transonic techniques.</li> <li>▪ To organize the means of sound proofing an auditorium.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ultrasound</li> <li>▪ Sound proofing of an auditorium</li> </ul>	X	X	X
<b>4- Economics</b> <ul style="list-style-type: none"> <li>▪ Contract</li> <li>▪ Means of payment</li> </ul> (4 Periods)	<ul style="list-style-type: none"> <li>▪ To identify and use different means of payment, to interpret the contract clauses.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Writing a contract</li> <li>▪ Bill of exchange, draft, traveler's cheque, credit transfer.</li> </ul>	X		X
<b>5- Motor technology</b> <ul style="list-style-type: none"> <li>▪ Mechanic: engine</li> <li>▪ Electricity: production and distribution.</li> </ul> (5 Periods)	<ul style="list-style-type: none"> <li>▪ To adopt a process of diagnosis and motor car breakdown</li> <li>▪ To provide the routine maintenance</li> <li>▪ To carry out a simple repairing</li> </ul>	<ul style="list-style-type: none"> <li>▪ Electricity and self-propelled motor.</li> </ul>	X		X
<b>6- Chemical industry</b> <ul style="list-style-type: none"> <li>▪ Plastic production</li> <li>▪ Water proofing</li> <li>▪ Oil (saturated and non – saturated)</li> <li>▪ (4 Periods)</li> </ul>	<ul style="list-style-type: none"> <li>▪ To make plastic products</li> <li>▪ To initiate himself into waterproofing techniques</li> <li>▪ To familiarize himself with techniques of oil extraction</li> </ul>	<ul style="list-style-type: none"> <li>▪ PVC, nylon, textile fibers, ...</li> <li>▪ Fabrics, paper</li> <li>▪ Oil extraction</li> </ul>	X		X
<b>7- Various technologies</b> <ul style="list-style-type: none"> <li>▪ Stocking information</li> <li>▪ Photographs techniques:               <ul style="list-style-type: none"> <li>– Camera</li> <li>– microwaves</li> </ul> </li> </ul> (4 Periods)	<ul style="list-style-type: none"> <li>▪ To exploit potentialities of common use apparatus video camera, Microwaves, camera – photo.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Recording on audio-video film, video camera, CD</li> <li>▪ Exposure, enlargement, processing, ...</li> <li>▪ Slide production</li> <li>▪ Furnace, radar</li> </ul>	X		X
			X	X	X

**N.B: The projects are not restrictive; they can be replaced by others of similar types and in the same field.**

(\*) C/P = Construction / Production      R = Research      D/V = Demonstrations / visits

## THIRD YEAR - Literature and Humanities

### a- Specific Objectives

The education of technology at the Secondary III level, "Literature and Humanities" section, aims to achieve objectives which enable the learner:

- To appreciate the importance of the technological realizations in the medicine progress.
- To use the available energy in useful purposes.
- To have an open mind concerning the usefulness of the technical implication in the commercial field and in the financial markets.
- To acquire knowledge concerning the technical progress in the transformation of the energy and in the petroleum industry.
- To put the techniques of essence extraction into practice.
- To familiarize himself with the new techniques of meteorology
- To acquire a rational attitude concerning the food hygiene.

### b- Contents

THEMES / CONCEPTS	Secondary 3 - Literature and Humanities	SCHEDULED PERIODS : 30-1P/ WEEK			
	ABILITIES /SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>1- Medicine and technology</b> ▪ Techniques and equipment  (5 Periods)	By the end of this program, the learner will be able: ▪ To be aware of the interdependence between technological realizations and medicine.	▪ SMR (Scanning by Magnetic Resonance) ▪ Pace Maker ▪ X-ray photograph ▪ Scanner (Scanning) ▪ Scintigraphy ▪ ECG ▪ EEG ▪ Tomography		X	X
<b>2- Energy</b> ▪ Transformation of energy ▪ Conservation of energy in a fluid (4 Periods)	▪ To apply the principles of related to energy, to its transformation and its conservation	▪ Solar energy and setting-up ▪ Water pump ▪ Venture tube	X		X
			X	X	
				X	

THEMES / CONCEPTS	Secondary 3 - Literature and Humanities	SCHEDULED PERIODS : 30-1P/ WEEK			
	ABILITIES /SKILLS	PROJECTS			TYPE *
		SUBJECTS	C/P	R	
<b>3- Economics</b> <ul style="list-style-type: none"> <li>▪ Monetary system</li> <li>▪ Documents of purchase and sale</li> </ul> <p style="text-align: right;">(6 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To familiarize himself with the new techniques in the commercial field:</li> <li>▪ To identify and to use current commercial documents (credit card),to write an order form</li> <li>▪ To read and to check up an invoice</li> </ul>	<ul style="list-style-type: none"> <li>▪ Plastic money, credit card, supply, order form, invoice, payment proofs.</li> </ul>		X	X
<b>4- Various technologies</b> <ul style="list-style-type: none"> <li>▪ Laser: fields of use</li> <li>▪ Numerical rotation</li> <li>▪ Cartography: <ul style="list-style-type: none"> <li>- Methods</li> <li>- Using satellites</li> </ul> </li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To locate the techniques of advancement in the transmissions and remote detection fields</li> </ul>	<ul style="list-style-type: none"> <li>▪ Numerical telephone</li> <li>▪ Television broadcasting, cable TV</li> <li>▪ High definition TV</li> <li>▪ Remote detection</li> </ul>		X	X
<b>5- Chemical industry</b> <ul style="list-style-type: none"> <li>▪ Extraction, distillation, refining</li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To identify and to choose useful products and derivatives from the petroleum industry.</li> <li>▪ To prepare certain pigments and perfumes</li> </ul>	<ul style="list-style-type: none"> <li>▪ Petroleum and derivatives</li> <li>▪ Perfume</li> <li>▪ Pigment, dye</li> </ul>	X	X	X
<b>6- Meteorology</b> <p style="text-align: right;">(3 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To read and to understand a forecast card</li> </ul>	<ul style="list-style-type: none"> <li>▪ Forecast card</li> </ul>			X
<b>7- Food industry</b> <ul style="list-style-type: none"> <li>▪ Origin, conservation, sterilization</li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To avoid the risks by being aware of the food hygiene (conserving food) and to acquire a well-considered behavior concerning the consumption field</li> <li>▪ To evaluate and to decide as to the similarity of a product according to the norms</li> </ul>	<ul style="list-style-type: none"> <li>▪ Drinks, tins of food, frozen food, deep-frozen food,...</li> </ul>	X		X

**N.B. : The projects are not restrictive, they can be replaced by others of similar types and in the same field.**

(\* ) C/P = Construction / Production

R = Research

D/V = Demonstrations / visits

## THIRD YEAR - GENERAL SCIENCES

### a- Specific Objectives

The education of technology at the secondary III level, "General Sciences" Section aims to achieve objectives which enable the learner:

- To realize electronic and automatic mountings which meet determined functions.
- To appreciate the importance of the technological realizations in the medicine progress.
- To use the available energy in useful purposes.
- To have an open mind concerning the usefulness of the technical implication in the commercial field and in the financial markets.
- To acquire knowledge concerning the technical progress in the transmission field and in the petroleum industry.
- To put the techniques of essence extraction into practice.

### b- Contents

THEMES / CONCEPTS	Secondary 3 - General Sciences	SCHEDULED PERIODS : 30-1P/ WEEK			
	ABILITIES /SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>1- Electronics:</b> <ul style="list-style-type: none"> <li>▪ Functions: feeding, filtering, oscillation, feedback, formulation</li> </ul> <p style="text-align: right;">(6 Periods)</p>	By the end of this program, the learner will be able: <ul style="list-style-type: none"> <li>▪ To identify the functions in electronics and to realize mountings in different fields.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Stabilized feeding</li> <li>▪ Active and passive filters</li> <li>▪ Oscillators</li> <li>▪ AM transmitter</li> </ul>	X		
<b>2- Automatics:</b> <ul style="list-style-type: none"> <li>▪ Open and closed ball (feedback)</li> <li>▪ Linear servo-control</li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To analyze the functionality of an automated system and to realize simple mountings of regulation and servo-control.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Temperature regulator</li> <li>▪ Servo-control of position</li> </ul>	X		

THEMES / CONCEPTS	Secondary 3 - General Sciences	SCHEDULED PERIODS : 30-1P/ WEEK			
	ABILITIES /SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>3- Medicine and technology:</b> ▪ Techniques and equipment  (4 Periods)	▪ To be aware of the interdependence between technological realizations and medicine.	▪ SMR (Scanning by Magnetic Resonance) ▪ Pace Maker ▪ X-ray photograph ▪ Scanner (Scanning) ▪ Scintigraphy ▪ ECG ▪ EEG ▪ Tomography		X X X X X X X	X X X X X X X
<b>4- Energy</b> ▪ Transformation of energy ▪ Conservation of energy in a fluid (4 Periods)	▪ To apply the principles of related to energy, to its transformation and its conservation	▪ Solar energy and setting-up ▪ Water pump ▪ Venture tube	X X	X	X X
<b>5- Economic:</b> ▪ Monetary system ▪ Documents of purchase and sale  (4 Periods)	▪ To familiarize himself with the new techniques in the commercial field: to identify and to use current commercial documents (credit card,...), to write an order form to read and to check up an invoice	▪ Plastic money, credit card, supply, order form, invoice, payment proofs.		X	X
<b>6- Various technologies</b> ▪ Laser: fields of use ▪ Numerical rotation ▪ Cartography: - Methods - Using satellites  (4 Periods)	▪ To locate the techniques of advancement in the transmissions and remote detection fields	▪ Numerical telephone ▪ Television broadcasting, cable TV ▪ High definition TV ▪ Remote detection		X	X X X X
<b>7- Chemical industry:</b> ▪ Extraction, distillation, refining  (4 Periods)	▪ To identify and to choose useful products and derivatives from the petroleum industry. ▪ To prepare certain pigments and perfumes	▪ Petroleum and derivatives ▪ Perfume ▪ Pigment, dye	X X	X	X X X

**N.B :** The projects are not restrictive, they can be replaced by others of similar types and in the same field.

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## THIRD YEAR - LIFE SCIENCES

### a- Specific Objectives

The education of technology at the Secondary III Level “ Life Sciences ”, section, aims to achieve objectives which enable the Learner:

- To realize electronic and automatic mountings which meet determined function.
- To appreciate the importance of the technological realizations in the medicine functions.
- To appreciate the importance of the technological realizations in the medicine progress.
- To use the available energy in useful purposes.
- To have an open mind concerning the usefulness of the technical implication in the commercial field and in the Financial markets.
- To acquire knowledge concerning the technical progress in the transmission field and in the petroleum industry.
- To put the techniques of essence extraction into practice.

### b- Contents

THEMES / CONCEPTS	Secondary 3 - General Sciences	SHEDULED PERIODS : 30-1P/ WEEK			
	ABILITIES /SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>1- Electronics</b> <ul style="list-style-type: none"> <li>▪ Functions: feeding, filtering, oscillation, feedback, formulation</li> </ul> <p style="text-align: right;">(6 Periods)</p>	By the end of this program, the learner will be able: <ul style="list-style-type: none"> <li>▪ To identify the functions in electronics and to realize mountings in different fields.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Stabilized feeding</li> <li>▪ Active and passive filters</li> <li>▪ Oscillators</li> <li>▪ AM transmitter</li> </ul>	X		
<b>2- Automatics</b> <ul style="list-style-type: none"> <li>▪ Open and closed ball (feedback)</li> <li>▪ Linear servo-control</li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To analyze the functionality of an automated system and to realize simple mountings of regulation and servo-control.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Temperature regulator</li> <li>▪ Servo-control of position</li> </ul>	X		

THEMES / CONCEPTS	Secondary 3 - General Sciences	SCHEDULED PERIODS : 30-1P/ WEEK			
	ABILITIES /SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
	C/P		R	D/V	
<b>3- Medicine and technology</b> ▪ Techniques and equipment  (4 Periods)	▪ To be aware of the interdependence between technological realizations and medicine.	▪ SMR (Scanning by Magnetic Resonance) ▪ Pace Maker ▪ X-ray photograph ▪ Scanner (Scanning) ▪ Scintigraphy ▪ ECG ▪ EEG ▪ Tomography		X	X
<b>4- Energy</b> ▪ Transformation of energy ▪ Conservation of energy in a fluid  (4 Periods)	▪ To apply the principles of related to energy, to its transformation and its conservation	▪ Solar energy and setting-up ▪ Water pump ▪ Venture tube	X X	X	X X X
<b>5- Economic</b> ▪ Monetary system ▪ Documents of purchase and sale  (4 Periods)	▪ To familiarize himself with the new techniques in the commercial field: to identify and to use current commercial documents (credit card,..), to write an order form to read and to check up an invoice	▪ Plastic money, credit card, supply, order form, invoice, payment proofs.		X	X
<b>6- Various technologies</b> ▪ Laser: fields of use ▪ Numerical rotation ▪ Cartography: - Methods - Using satellites  (4 Periods)	▪ To locate the techniques of advancement in the transmissions and remote detection fields	▪ Numerical telephone ▪ Television broadcasting, cable TV ▪ High definition TV ▪ Remote detection		X	X X X X
<b>7- Chemical industry</b> ▪ Extraction, distillation, refining  (4 Periods)	▪ To identify and to choose useful products and derivatives from the petroleum industry. ▪ To prepare certain pigments and perfumes	▪ Petroleum and derivatives ▪ Perfume ▪ Pigment, dye	X X	X	X X X

N.B. : The projects are not restrictive, they can be replaced by others of similar types and in the same field.

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## THIRD YEAR - SOCIOLOGY AND ECONOMICS

### a- Specific Objects

The education of technology at the Secondary III Level, “ Sociology and Economy’’ section, aims to achieve objectives which enable the learner:

- To appreciate the importance of the technology realizations in the medicine progress.
- To use the available energy in useful purposes.
- To have an open mind concerning the usefulness of the technical implication in the commercial field and in the financial markets.
- To acquire knowledge concerning the technical progress in the transmission field and in the petroleum industry.
- To put the techniques of essence extraction into practice.
- To familiarize himself with the new techniques of meteorology.
- To acquire a rational attitude concerning the food hygiene.

### b- Contents

THEMES / CONCEPTS	Secondary 3 - Sociology & Economics	SCHEDULED PERIODS : 30-1P/ WEEK			
	ABILITIES /SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>1- Medicine and technology:</b> <ul style="list-style-type: none"> <li>▪ Techniques and equipment</li> </ul> <p style="text-align: right;">(5 Periods)</p>	By the end of this program, the learner will be able: <ul style="list-style-type: none"> <li>▪ To be aware of the interdependence between technological realizations and medicine.</li> </ul>	<ul style="list-style-type: none"> <li>▪ SMR (Scanning by Magnetic Resonance)</li> <li>▪ Pace Maker</li> <li>▪ X-ray photograph</li> <li>▪ Scanner (Scanning)</li> <li>▪ Scintigraphy</li> <li>▪ ECG</li> <li>▪ EEG</li> <li>▪ Tomography</li> </ul>		X	X
<b>2- Energy</b> <ul style="list-style-type: none"> <li>▪ Transformation of energy</li> <li>▪ Conservation of energy in a fluid</li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To apply the principles of related to energy, to its transformation and its conservation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Solar energy and setting-up</li> <li>▪ Water pump</li> <li>▪ Venture tube</li> </ul>	X	X	X

THEMES / CONCEPTS	Secondary 3 - Sociology & Economics	SCHEDULED PERIODS : 30-1P/ WEEK			
	ABILITIES /SKILLS	PROJECTS			
		SUBJECTS	TYPE *		
			C/P	R	D/V
<b>3- Economics</b> <ul style="list-style-type: none"> <li>▪ Monetary system</li> <li>▪ Documents of purchase and sale</li> </ul> <p style="text-align: right;">(6 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To familiarize himself with the new techniques in the commercial field: to identify and to use current commercial documents (credit card,..), to write an order form to read and to check up an invoice</li> </ul>	<ul style="list-style-type: none"> <li>▪ Plastic money, credit card, supply, order form, invoice, payment proofs.</li> </ul>		X	X
<b>4- Various technologies</b> <ul style="list-style-type: none"> <li>▪ Laser: fields of use</li> <li>▪ Numerical rotation</li> <li>▪ Cartography: <ul style="list-style-type: none"> <li>– Methods</li> <li>– Using satellites</li> </ul> </li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To locate the techniques of advancement in the transmissions and remote detection fields</li> </ul>	<ul style="list-style-type: none"> <li>▪ Numerical telephone</li> <li>▪ Television broadcasting, cable TV</li> <li>▪ High definition TV</li> <li>▪ Remote detection</li> </ul>			X X X X
<b>5- Chemical industry</b> <ul style="list-style-type: none"> <li>▪ Extraction, distillation, refining</li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To identify and to choose useful products and derivatives from the petroleum industry.</li> <li>▪ To prepare certain pigments and perfumes</li> </ul>	<ul style="list-style-type: none"> <li>▪ Petroleum and derivatives</li> <li>▪ Perfume</li> <li>▪ Pigment, dye</li> </ul>	X X	X	X X X
<b>6- Meteorology</b> <p style="text-align: right;">(3 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To read and to understand a forecast card</li> </ul>	<ul style="list-style-type: none"> <li>▪ Forecast card</li> </ul>			X
<b>7- Food industry</b> <ul style="list-style-type: none"> <li>▪ Origin, conservation, sterilization</li> </ul> <p style="text-align: right;">(4 Periods)</p>	<ul style="list-style-type: none"> <li>▪ To avoid the risks by being aware of the food hygiene (conserving food) and to acquire a well-considered behavior concerning the consumption field</li> <li>▪ To evaluate and to decide as to the similarity of a product according to the norms</li> </ul>	<ul style="list-style-type: none"> <li>▪ Drinks, tins of food, frozen food, deep-frozen food, ...</li> </ul>	X		X

**N.B. : The projects are not restrictive, they can be replaced by others of similar types and in the same field.**

(\*) C/P = Construction / Production      R = Research      D/V = Demonstrations / visits