

**HERBERT MORRISON TECHNICAL
INDUSTRIAL TECHNOLOGY DEPARTMENT
MECHANICAL ENGINEERING TECHNOLOGY**

Course Outline

Academic year: 2020 - 2021

Course: Industrial Techniques

Grade: 7

Teacher: B. Streete, D. Dixon & L. Phipps

MONTHS	SECTIONS	CONTENT	SUGGESTED ASSESSMENT
Oct	Core: <i>section 1</i> <i>Fundamentals of industry</i>	<i>Occupational Health and Safety Standards</i> (a) Industry health and safety regulations: Safety in the workshop i. definition- safety ii. consequences of working in an unsafe manner Areas of safety: i. Personal ii. General iii. Safety rules iv. signs/symbols	<ul style="list-style-type: none"> ✓ Quiz ✓ Presentation (written/ oral, PowerPoint) ✓ Class Activity ✓ Assignment ✓ Research
Oct		<i>Personal Protective Equipment(PPE):</i> (a) Eye Protection (i) Safety Glasses, Goggles, Face shield (b) Hand Protection (ii) leather gloves, Rubber gloves, vinyl gloves (c) Head protection (iii) Hard Hats Other PPEs : <ul style="list-style-type: none"> ✓ Lab coats, overall and aprons, Ear muffs and Ear Plugs, Protective Shoes, Respirators and dust mask. Accident- definition Causes of accidents: Carelessness, ignorance, unsuitable clothing, untidiness, hand Tools, exposed eyes, machine tools, improper lifting techniques.	<ul style="list-style-type: none"> ✓ Quiz ✓ Presentation (written/ oral, PowerPoint) ✓ Class Activity ✓ Assignment ✓ Research
Nov	National Standard Curriculum (NSC)	<i>Exploring Resources and Technology:</i> <i>What are resources?</i> <ul style="list-style-type: none"> ✓ How important are resources to everyday life. ✓ classification of resources: <i>Human:</i> skilled, semi-skilled, unskilled, professional, the importance of human resources, identifying and working with human resources <i>Non-Human:</i> Renewable resources, non-renewable resources, resource conservation. <i>What is Technology?</i> <ul style="list-style-type: none"> ✓ classification of technology: <i>Simple Technology</i> <i>Advance Technology</i> ✓ Impact of technology on modern society. ✓ Advantages and disadvantages of technology 	<ul style="list-style-type: none"> ✓ Quiz ✓ Presentation (written/ oral, PowerPoint) ✓ Simulation ✓ Class Activity ✓ Assignment ✓ Research
Nov		<i>Selecting and working with resources:</i> The importance of: (i) Timber – Parts of a tree, structure of a tree (ii) Metals – properties of metal, classification of metals: Ferrous, Nonferrous, High Temperature, Precious metals, Rare metal. Production of iron and steel: –types of furnaces used (blast furnaces, Bessemer converter, basic oxygen furnace, open heart and electric furnace. iii) Plastics – uses, advantages and disadvantages,	<ul style="list-style-type: none"> ✓ Quiz ✓ Presentation (written/ oral, power point) ✓ Simulation ✓ Class Activity ✓ Research

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		examples. iv) Composites materials- uses, advantages and disadvantages, examples. V) Smart materials- uses, examples	
Nov- Dec	NSC	Introduction to tools and equipment Introduction to power tool: <ul style="list-style-type: none"> ✓ portable power tools – examples and uses ✓ Stationary power equipment- examples and uses ✓ pneumatic tools – examples and uses ✓ electric tools- examples and uses ✓ safety in using tools and equipment ✓ maintenance of tools and equipment 	<ul style="list-style-type: none"> ✓ Quiz ✓ Presentation (written/ oral, power point) ✓ Class Activity ✓ Assignment ✓ Research
Jan-Feb	Option: Metal work, electrical, and wood work section 1: hand tools and processes	Classifications of hand tools Hand tools for bench work: (a) marking out tools; -types , uses (b) measuring tools; -types, uses (c) holding; - types, uses (d) cutting- types, uses (e) drilling (hand drill) – parts, uses Labelled diagrams and sketches of hand tools.	
Mar - May	NSC	Energy and sources of electricity Definition of energy Classification of energy: <ul style="list-style-type: none"> ✓ Renewable ✓ Non- renewable Sources of energy- Solar, Wind, Chemical, Hydro etc. Basic electrical circuits: <ul style="list-style-type: none"> ✓ elements/components of electrical circuits ✓ types circuits- Series, Parallel (characteristics) Definitions of: Voltage, current, resistance Equipment for measuring: Voltage, current resistance. Communication through graphics and designs Elements of design Principles of design Design drawing types- sketches, working drawings, Design drawing styles: <ul style="list-style-type: none"> ✓ Orthographic ✓ Pictorial- isometric, perspective, oblique. The Design Process: <ul style="list-style-type: none"> ✓ identify needs ✓ consider resources/alternative solutions ✓ plan the work ✓ make the product or solution ✓ evaluate Introduction to Basic Technical Drawing: <ul style="list-style-type: none"> ✓ technical drawing instrument (traditional)- T-square, set squares, pencils, compass set, ✓ Bordering, lettering, numbering. 	<ul style="list-style-type: none"> ✓ Quiz ✓ Presentation (written/ oral, power point) ✓ Simulation ✓ Class Activity ✓ Assignment ✓ Model ✓ Research
May		Revision	✓ Quiz
June		EXAM	✓ EXAM