

Course Outline

Academic year: 2020 - 2021

Course: Industrial Techniques (**Grade 8**)

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Months	Weeks	Units	CONTENT	ASSESSMENTS
September	1		(i) <i>Types of workshop hazards: Types of workshop, worksite accidents and preventative procedures – falls and slippages, strains, injuries caused by falling objects, improper use of machines, tools and equipment, inhalation of toxic fumes.</i>	Class Activity <ul style="list-style-type: none"> ✓ Identify some common hazards on the school campus. ✓ State steps to minimize hazards
	2		(f) <i>Basic First Aid standards: (i) definitions - first aid, first aider; (ii) First Aid kit station; (iii) treating of minor burns, electric shocks, wounds and bleeding, abrasions, injuries to bone (sprains, strains); (iv) practising recovery position and mouth-to-mouth resuscitation; (v) procedures for reporting an accident and getting assistance; (vi) preparing an accident report (use of standard accident report forms).</i>	H.W #1 <ul style="list-style-type: none"> ✓ Contents of a first aid kit ✓ Fill out standard accident report form
October	3		Origin of materials Structure of material Classification of materials <ul style="list-style-type: none"> ○ Metals ○ Woods 	Assign.#1 <ul style="list-style-type: none"> ○ Company presentation on different engineering materials ○ Select material to make car from

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			<ul style="list-style-type: none"> ○ Plastics ○ Aggregates ○ Water and Gas ○ Composites ○ Smart materials 	
	4		Construction and planning <ul style="list-style-type: none"> ▪ Basic drafting and design ▪ Simple sketches <ul style="list-style-type: none"> ○ Pictorial sketches ○ Orthographic projection 	Class Activity <ul style="list-style-type: none"> ✓ Produce design sketch for animated toy car.
Nov- Dec	5		Engineering Fasteners <ul style="list-style-type: none"> ○ Adhesives ○ Metal fasteners 	<ul style="list-style-type: none"> ○ Select adhesive for project
January	6		Use of tools and equipment <ul style="list-style-type: none"> ○ Layout tools ○ Measuring tools ○ Cutting tools 	Class Activity <ul style="list-style-type: none"> ✓ Produce sketches of layout tools ✓ Read graduated measuring devices ✓ Mark-out and cut-out chassis
February – March	7		Performing bench work operations (a) <i>Safety guidelines, procedures and standards for simple projects using:</i> <i>hand tools and holding devices:</i> (i) <i>vice;</i> (ii) <i>files;</i> (iii) <i>chisels;</i> (iv) <i>hacksaws.</i> (v) <i>hammers & Mallets</i> (vi) <i>Punches</i> (vii) <i>Screw drivers & Pliers</i>	Assign #2 <ul style="list-style-type: none"> ✓ Presentation on different hand tools ✓ Use hand tools

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April	8		Mechanical drive systems <ul style="list-style-type: none"> ○ Simple machines <ul style="list-style-type: none"> ▪ Machine devices <ul style="list-style-type: none"> ✓ Gears ✓ Pulleys ✓ Belts 	Class activity <ul style="list-style-type: none"> ✓ Analyze simple machines ✓ Assemble mechanical in animated toy car
May	9		Sources of and use of energy <ul style="list-style-type: none"> ○ Sources of energy ○ Forms of energy ○ Conversion of energy Mechanical, heat, sound, light, electrical and chemical Electrical drive systems <ul style="list-style-type: none"> ○ Basic components of a circuit ○ Circuit configuration ○ DC motors ○ LED Lamps 	Class activity <ul style="list-style-type: none"> ✓ Connect circuit in series and parallel ✓ Solder connection ✓ Connect electrical system in car ✓ Test car for racing completion
June	10		Decoration and finish <ul style="list-style-type: none"> ▪ Use line and symmetry ▪ Forms and function ▪ Preparation of surfaces and materials ▪ Application and procedures ▪ Colour and lighting ▪ Aesthetics appreciation 	<ul style="list-style-type: none"> ▪ Use artistic skills to decorate car. ▪ Racing competition
			Revision	
July			End of year exams	

ASSESSMENT PROCEDURES

Assignments & Test -20% **Project -10%**

Presentations -10%

Final Examination - 60%

Special Notes

- Students **MUST** be punctual at all times.
- Student's involvement in discussions during each session is an important aspect of the course. All students should expect to fully participate in class discussion and activities during all sessions.
- There are a number of reference texts and support materials used for this class. Each student is expected to read the assigned reading in full, before the class, as stated on the outline.

READING ASSIGNMENT/QUIZZES/TESTS

1. Quizzes may be announced or unannounced. Quizzes cover the assigned reading material.
2. There will be periodic tests over sections of material covered in class lectures, reading and assignments.
3. **Assignments** should be handed in on the **specified due date**. Failing to comply with the specified date will result in a fifty **percent (50%)** reduction in the marks for each outstanding day. Assignments that are more than **2 days** late will receive **zero (0)**.
4. At the end of this module learners will be required to complete a written and/or oral and practical internal assessment to demonstrate competence.

REQUIREMENTS FOR PRACTICAL CLASSES

1. **ALL** students are expected obtain their own **Personal Protective Equipment (PPE'S)** prior to practical classes.
2. The sharing and borrowing of PPE'S and tools will **NOT** be permitted.
3. Students will **NOT** be allowed to leave their PPE'S and tools in the labs.
4. **All** students are expected to clean their work area and tools after practical lesson.
5. **Face shields are mandatory for practical classes.**
6. Students will work in groups of Three (3) but individual reports **MUST** be submitted.

CHEATING, DISHONESTY AND PLAGIARISM

Any form of cheating is sufficient for an automatic zero. The facilitator is willing and available to help any student who seeks assistance. Cheating, dishonesty, plagiarism, copying portions of another student's assignment etc. are totally unacceptable. Assignments are given to aid in the development of competency and acquisition of knowledge. Spend extra time to do your assignments with as little help from others as possible.

Resources:

- Krar, S.F., Oswald, J.W. (1990). Technology of Machine Tools 4th edition, Glencoe/McGraw-Hill. Peoria, Illinois.

- G.H THOMAS
- Sackey, J.K.N., Amoakoheme S.K. (1996). THE MOTIVATE SIRIES, Macmillan Publishers Ltd.

Note: Dates are subject to change.