



HERBERT MORRISON TECHNICAL HIGH SCHOOL



Motto: Strength and Perseverance
Established 1976

Home of Science, Technology and Technical/ Vocational Education

“Promoting a Culture of Excellence”

INDUSTRIAL ARTS DEPARTMENT

TECHNICAL DRAWING

GRADE EIGHT (8)

COURSE OUTLINE

Revised for June 2017 Examination

Prepared by Mr. B. Burke

COURSE OUTLINE

Academic year: 2020 - 2021

Course: Technical Drawing (**Grade 8**)

Teacher: B. Boothe, L. Phipps

MONTH	WEEKS	SECTIONS	OBJECTIVES/ CONTENT	ASSESSMENTS
CORE				
SECTION 1: FUNDAMENTALS OF TECHNICAL DRAWING				
1A: OCCUPATIONAL HEALTH, SAFETY AND THE ENVIRONMENT				
			<p>1. Safety, health and welfare standards</p> <p>(a) Standards for:</p> <ul style="list-style-type: none">(i) workshop/laboratory;(ii) equipment;(iii) materials. <p>1A: OCCUPATIONAL HEALTH, SAFETY AND THE ENVIRONMENT (cont'd)</p> <p>(b) Occupational Health and Safety (OHS).</p> <p>(c) Guidelines for:</p> <ul style="list-style-type: none">(i) working safely;(ii) enhancing wellness;(iii) preventing injury and accident.	

			<p>2. Safety, health and welfare requirements</p> <p>(a) Inventory of materials, tools and equipment.</p> <p>(b) Workshop/laboratory and equipment maintenance plans.</p> <p>(c) Workshop/laboratory layout and shop organisation diagrams.</p> <p>(d) List of danger points.</p> <p>(e) Safety signs and symbols.</p> <p>(f) Safety lanes.</p> <p>(g) Personal Protective Equipment (PPE).</p> <p>(h) Equipment guards.</p>	
			<p>3. Safety resources</p> <p>(a) PPE:</p> <p>(i) for different tasks;</p> <p>(ii) preparing labelled diagrams of safety gear and accessories.</p>	
			<p>4. Fires and fire-fighting equipment</p> <p>(a) Types of fires:</p> <p>(i) Class A;</p> <p>(ii) Class B;</p> <p>(iii) Class C;</p> <p>(iv) Class D.</p>	

		<p>(b) Fire-fighting equipment:</p> <p>(i) fire extinguishers (Class A, Class B, Class C and Class D);</p> <p>(ii) colour codes for fire extinguishers;</p> <p>(iii) fire hydrants;</p> <p>(iv) fire hoses.</p>	
		<p>5. Using a fire extinguisher</p> <p>(a) Safety guidelines and procedures for the various ranges of fires.</p> <p>(b) Preparing and maintaining report of usage.</p> <p>(c) Storage and maintenance of fire extinguishers</p>	
		<p>6. Accident, injury and emergency</p> <p>(a) Differences.</p> <p>(b) Examples (falls, electric shock, minor damages to the eyes, broken bones, cuts).</p>	
		<p>7. First Aid</p> <p>(a) First Aid kit station.</p> <p>(b) Responsibilities of a First Aider.</p> <p>(c) Treating:</p> <p>(i) burns;</p> <p>(ii) electric burns;</p>	

			<ul style="list-style-type: none"> (iii) cuts and abrasions; (iv) heavy bleeding; (v) practising mouth-to-mouth resuscitation and recovery position. 	
			<p>8. Getting professional help</p> <ul style="list-style-type: none"> (a) Procedures for reporting an accident. (b) Emergency contacts: <ul style="list-style-type: none"> (i) police; (ii) fire services; (iii) hospital and ambulance service; (iv) Red Cross; (v) the defence force. (c) Preparing an accident report. 	
			<p>9. Hazards and hazardous substances</p> <p><i>(a) Definitions:</i></p> <ul style="list-style-type: none"> (i) hazard; (ii) hazardous substance. <p><i>(b) Materials Safety Data Sheet.</i></p> <p><i>(c) Storing materials and supplies safely.</i></p>	
			<p>10. Mock Drills</p> <ul style="list-style-type: none"> (a) Emergency procedures for a fire, an earthquake and a volcano. (b) Preparing mock drill reports. 	

SECTION 2A: GEOMETRICAL CONSTRUCTION: PLANE GEOMETRY				
			<p>ANGLES:</p> <ul style="list-style-type: none">(i) definition;(ii) types;(iii) properties;(iv) copying or transferring any given angle;(v) bisecting given angles;(vi) bisecting angles formed by two lines;(vii) constructing angles (90, 75, 60, 45, 30, 15 degrees and others);(viii) replicating geometrical shapes using angle vertices, and converging lines as points of reference;(ix) dimensioning and lettering techniques;(x) line characteristics.	

		<p>TRIANGLES:</p> <p>(i) definitions;</p> <p>(ii) types;</p> <p>(iii) properties;</p> <p>(iv) constructing a triangle (given three sides; two angles and one side; two sides and included angle; perimeter and proportion of sides; altitude and base angles; perimeter and base angles).</p>	
		<p>Mathematical and graphical representation of areas of figures</p> <p>Differences in shapes and functions of mathematical and graphical representation of:</p> <p>(a) rectangles;</p> <p>(b) squares;</p> <p>(c) triangles;</p> <p>(d) circles;</p> <p>(e) regular and irregular polygons.</p>	
		<p>QUADRILATERALS:</p> <p>(i) definitions;</p> <p>(ii) types;</p> <p>(iii) properties;</p> <p>(iv) constructing a square (given the length of one side, the perimeter, the diagonal);</p>	

(v) constructing a rectangle (given the length of the diagonal and one side, perimeter and the length of one side);

(vi) constructing a parallelogram (given the lengths of two adjacent sides and an angle, perpendicular height, one side and one internal angle);

(vii) constructing a rhombus (given the length of the sides; one diagonal and the length of one side);

(viii) constructing a trapezium (given the lengths of the sides, perpendicular distance between them and one angle).

(e) Polygons:

(i) definitions (regular and irregular polygons);

(ii) types;

(iii) properties;

(iv) constructing any regular polygon(given the length of a side; diagonal or within a given circle);

(v) constructing any irregular polygon (given the length of the sides, the included angles.

SECTION 1: FUNDAMENTALS OF TECHNICAL DRAWING

1B: EQUIPMENT, TOOLS, MATERIALS, LETTERING, LINE WORK, DIMENSIONS AND SCALES

Free-hand sketching

- (a) Using grid and plane papers.
- (b) Pictorial and orthographic drawings.
- (c) Sketching in proportion.
- (d) Graphic symbols.
- (e) Line work.
- (f) Sketching of building and engineering components

The design process

- (a) Identification of the problem.
- (a) Design of initial ideas to solve the problem.
- (b) Proposed solution.
- (c) Development and testing of models/prototypes.
- (d) Development of working drawings, notes and sketching to explain each step in the process.

MONTHLY ASSESSMENT MARKS ALLOCATION

CLASS WORK	-10%
Portfolio & Presentation	-30%
TEST	- 60%

Special Notes

- Students **MUST** be punctual at all times.
- **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 **NOT BE COLLECTED**.
- At the end of this module learners will be required to complete a written and/or oral and practical internal assessment to demonstrate competence.
- 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.

READING ASSIGNMENT/QUIZZES/TESTS

1. 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.
2. Quizzes may be announced or unannounced. Quizzes cover material covered in previous classes.
3. There will be periodic tests over sections of material covered in class lectures, reading and assignments.

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.

PORTFOLIO DEVELOPMENT

A portfolio is an organised convenient means of collection and presentation of materials which records and verifies a candidate's or student's learning achievements and relates them to the depth and breadth of work required by each topic covered. The depth and breadth of work should include a diversity of exhibits which reflects the following criteria:

- Writing, Reading and Comprehension Skills
- Critical Thinking and Problem Solving Skills
- Technology Skills - Practical Skills
- Teamwork Skills

The outline of the portfolio should include information under the following headings:

- Cover Page
- Table of Contents
- Introduction
- Supporting Evidence (Depth & Breadth of Work)
- Self Assessment/Reflection

Details of EACH Heading

Cover Page

- Name of School
- Grade and Course
- Teacher's Name
- Candidate's and Student's Name
- Year

Table of Contents

- By units or main headings
- Number pages

Introduction

- Portfolio of candidate to include personal data, background information on education and expectations.

Supporting Evidence

Provides information on the key formative and summative assignments / projects undertaken by the candidates/ students to achieve the objectives for each topic covered. All evidence supplied by the student should be reviewed by the teacher using the criteria given. Evidence must be signed and dated on the date of the review by the teacher or assessor.

Suggestions for supporting evidence:

Written Assignment

- ❖ Oral Questions (checklist format)
- ❖ Projects
- ❖ Work Samples
- ❖ Research Assignments
- ❖ Fieldtrip reports
- ❖ Summative evaluation of practical work
- ❖ Digital photographs of candidates performing critical task

Resources:

Green, J.N. *Technical Drawing for CSE and GCE*

Morling K. *Geometric and Engineering Drawing, Third Edition*