HERBERT MORRISON TECHNICAL
INDUSTRIAL TECHNOLOGY DEPARTMENT
MECHANICAL TECHNOLOGY

Course Outline

Academic year: 2020-2021

Course: Mechanical Technology

Teacher: Mr. K. Coke

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MONTH	SECTIONS	CONTENT	ASSESSMENTS
		Term #1	
Sept.	SECTION 1 – FUNDAMENTALS OF INDUSTRY	(g) *Basic emergency response standards.* (h) *Getting professional help when an accident occurs:* *(i) listing of emergency numbers (police, fire services, hospital, ambulance, Red Cross, the defence force);* *(ii) assessing and controlling hazardous substances – spillages and leakages of chemicals and other hazardous substances;* *(iii) responding to evacuation alarm sounds;* *(iv) using evacuation route maps, gathering points and bulletin boards;* *(v) performing emergency procedures for fires and natural disasters (hurricanes, earthquakes, floods, tsunami, volcanoes);* *(vi) maintaining accountability systems in emergency operations.*	**Practical #1-** Simulation
		5.3 Engineering production *(a) ASME Codes.* *(b) WTO codes.* *(c) ISO.* *Relating to: (i) components;*	**H.W #1 –** Codes

MONTH	SECTIONS	CONTENT	ASSESSMENTS
		(ii) processes, systems, equipment, material; *(iii) ethics in engineering practices.* ***5.4 Building Construction*** *(a) ASNI, BSI and ISO standards.* *(b) Regional standards:* *CUBIC. Standards relating to:* *(i) building designs, plans, contracts and construction;* *(ii) building materials, finishing materials, systems and processes;* *(iii) building construction and natural disasters;* *(iv) furniture design, materials and construction*	
		(iv) preparing and posting safety signs and symbols in relevant areas of a Workshop/worksite; *(v) marking out safety lanes;* *(vi) using safety manuals for workshop and worksite tools and equipment;*	**Practical #** - **Mount safety signs** - **Mark safety lane in labs**
	SECTION 3: PRODUCTION ENGINEERING	**Machining operations**	

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Oct,	✓ Power saw	(a) Power Saws: (i) safety guidelines, procedures and standards for: - cross-cut saws, - chop saws - band saws. (ii) operations: - select and set speeds and feeds; - select materials (mild steel, cast iron) for sawing operations; - remove and replace saw blades; - measure and cut materials (angular and square cutting); - saw to scribed lines by using a metal band saw; - cut and weld band-saw blades for contour sawing. Steps of procedures for practical	**Assignment # 1-** Types of saws **Quiz#1** **Practical #1** - Cutting material for S.B.A
Nov. – Dec.	✓ Grinder,	**(c) Operating Grinding Machines:** (i) Safety guidelines, procedures and standards for grinding machines: - inspect grinding wheels; - balance grinding wheels; - true grinding wheels; - dress grinding wheels. (ii) attach and align work pieces for grinding; (ii) select and set feeds and speeds for grinding machines; (iii) grind parallel flat surfaces; (iv) grind to a shoulder; (v) grind a taper.	**Practical #2** - Set up and maintain machine. **Practical #3** - Grinding materials for S.B.A **Practical #4** - Sharpening hand tools **Paper & Pencil test #1**
Term #2			

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MONTH	SECTIONS	CONTENT	ASSESSMENTS
Jan. – Feb	✓ Drill Press	(b) **Drill Presses:** (i) safety guidelines, procedures and standards for: - bench drill presses; - radial arm drill presses; - pedestal drill presses. (ii) **Setting machine controls:** - set up drill press vice; - set up work in vice; set up work with different clamps and fittings; - calculate and select machine speeds and feeds; - determine reamer allowances for reaming after drilling; - select drill bits. (iii) **Operations:** - ream; - counter bore; - counter sink; - drill; - centre drill; - spot face; - fit and remove tapered shank drills.	**Assignment # 2** - Drill Press operations **Practical #5** - Set up and maintain machine. **Practical #6** - Perform different drill press operation **Paper & Pencil test #2**
March -April	Lathe	- Lathe parts and functions - Lathe accessories - Cutting tool geometry - Sharpening lathe tools - Lathe operations - Cutting speed, depth of cut & feed - Lathe safety & maintenance	**Assignment#3-** Lathe operations
Term #3			

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MONTH	SECTIONS	CONTENT	ASSESSMENTS
May		**S.B.A #1 – Machine project**	**Proposed Practical #** - Chipping Hammer - Parallel clamp - Vice
June	Revision		
	End of year exam		

MONTHLY ASSESSMENT MARKS ALLOCATION
QUIZ -10%

Project & Presentation -20%

TEST - 70%

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 receive **zero (0).**
- 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 the assigned reading material.
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 unaccepted. 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 learning achievements and relates them to the depth and breadth of work required by each unit of the occupational standards. 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 - Title Page - Table of Contents - Introduction - Supporting Evidence (Depth & Breadth of Work) - Self Assessment/Reflection

Details of EACH Heading

Cover Page

- Name of School - Occupational Area CVQ Level 1 - Assessors Name - Candidate's Name - Year

Title Page

- Caribbean Vocational Qualification - CVQ Level 1 - Occupational Area - Year

Table of Contents

- By units - Number pages

Introduction

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

Supporting Evidence

Provides information on the key formative and summative assignments / projects undertaken by the candidates to achieve the performance criteria in each unit on the Occupational Standards. All evidence supplied by the candidate should be reviewed by the assessor using the criteria given. Evidence must be signed and dated on the date of the review by the 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 tasks

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.