SAULT COLLEGE OF APPLIED ARTS & TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

Course Title: MACHINE SHOP

Code No. N/A

Program: WELDER/FITTER

Semester: N/A

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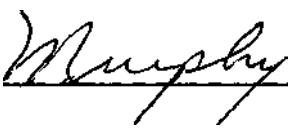
Author: R. ZUCCATO

New: Revision: XX

APPROVED: Chairperson 

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Date /

MACHINE SHOP N/A

Course Name **Course Nuaber**

PHILOSOPHY/GOALS;

To demonstrate the close working relationship and inter dependence that exists between the welding and machinist trade. Also to develop an awareness of the problems that arise when machining parts that are welded as well as preparing parts to be welded.

METHODS OF ASSESSMENT (GRADING METHOD);

Students will be assessed on attendance, initiative, co-operation and ability. Good attendance is of vital importance on any job and for this reason we stress it in this program. Generally good attendance is directly related to a students other qualities or abilities.

THEORY TESTS	-	40%
LAB ASSIGNMENTS	-	40%
ATTENDANCE	-	20%

TEXTBOOK(S):

MACHINE SHOP TRAINING - BY S.F. KRAR
4TH EDITION

OBJECTIVES;

To become familiar with and use hand tools, measuring tools, power tools and metal cutting machines used in the machinist trade.

To machine parts to close tolerances outlined on shop drawings or the working relationship between one part and another.

To develop a working knowledge of machining various types of metals and materials on different machine tools with a variety of cutters depending on the application required for a particular job or part.

TOPIC NO.	PERIODS	TOPIC DESCRIPTION	REFERENCE
TEXT - MACHINE SHOP TRAINING			
		INTRODUCTION AND COURSE OUTLINE	
1		- organization of machine shop	CH.2/P.3-4
2		- safety regulations	CH.3/P.5-6
		MEASUREMENT	CH.4/P.7-14
3		- Binary system (the steel rule)	P.7-8
4		- Decimal system (the micrometer .001")	P.10-12
5		- the Vernier principle .0001"	P.13
6		- the Vernier Caliper - construction	P.13-14
		- graduation	P.14
		LAYOUT	CH.5/P17-24
7		- definition; preparing the surface	P.17
8		- use of layout tools; layout table	P.17
9		- layout operations	P./18-24
		SELECTION AND USES OF HAND TOOLS	CH.7/P.34-36
10		- the machinist's vise(safety jaws)	P.34-35
11		- the hammer; hand hacksaw	P.35-37
12		- chisels—common types, sharpening	P.37-38
13		- files; filing	P.38-40
14		- taps in a set—national Thread Series	P.41
15		- calculate the tap drill size	P.42-42
15(a)		- classification of twist drills	P.62&162
16		- tapping a hole with tap and tap wrench	P.43
17		- threading dies; threading with stock & die	P.43-44
18		- metal fasteners; wrenches	P.44-47
		THE POWER SAW	CH.8/P.49-56
19		- cut off saw - parts; saw blades	P.49-50
20		- contour - cutting bandsaw	P.51
21		- welding a saw blade	P.53
		ASSIGNMENT QUESTIONS	**P.**57
		THE DRILL PRESS	CH.9/P.58-70
22		- drill press parts	P.58-•59
23		- drill holding devices	P.59--60
24		- twist drill parts	P.60--61
25		- systems of drill sizes	P.62
26		- speeds and feeds of drills	P.62--63
27		- cutting oils and cutting compounds	P.63--64
28		- combination drill and countersink	P.64--65
29		- work holding devices	P.65--67
30		- drill to a layout	P.67--68
31		- countersinking; counterboring	P.69
32		- reaming; boring; spotfacing	P.69--70

TOPIC NO.	PERIODS	TOPIC DESCRIPTION	REFERENCE
		THE LATHE	CH.IO/P.73-106
33		- identification of main parts; function of each	P.73-75
34		- select speeds and feeds	P. 76
35		- calculate spindle speed	P.77-78
36		- work holding devices	P.79-82
37		- alignment of lathe centres	P.82
38		- end facing	P.84
39		- decimal equivalents; micrometer collars	P.85
40		- basic turning operations - rough turning	P.85 P.86
41		-finish turning	P.90
42		- standard tapers used in industry	P.90-91
43		- taper calculations	P.91-92
44		- taper turning - offset tailstock method	P.92
45		- turn tapers and angles - using compound rest	P.93-94
		- fit a taper to a gauge	
		LATHE CHUCKS - UNIVERSAL, INDEPENDENT	CH.IO P.94-98
46		- chucking operations	
		STANDARD THREAD FORMS	CH.IO/P.99-100
47		thread terms(parts of a thread)	P.99
48		thread formulae; calculations	P.100-101
49		thread cutting on lathe	P.101-105
50		measuring the thread for size	P.106
51		tapping a hole by power	
		- drill press	P.70
		- lathe	P.98
		NON-FERROUS METALS USED IN INDUSTRY	CH.6./P.30
52		- turning soft metals	
53		- drilling and tapping non-ferrous metals	
54		- reamers	
55		- reaming non-ferrous metals	
		THE PEDESTAL GRIIIDER - PARTS	CH.13/P.143
		- DRESS AND TRUE A WHEEL	P.144-145
56		- sharpen chisels	
57		- sharpen lathe tool bits	P.145-146
58		- sharpen twist drills(P.61)	P.147
		THE SURFACE GRINDER	CH.13/P.150-152
59		- truing and dressing a grinding wheel	P.151
60		- grind a flat surface	P.152