

**SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY**

**SAULT STE. MARIE, ON**

**COURSE OUTLINE**

**COURSE TITLE:**            **TEMPLATE DESIGN and LAYOUT**

**CODE NO.:**            **WLD114**            **SEMESTER:**            **FALL**

**PROGRAM:**            **WELDING and FABRICATING-Techniques**  
                              **AVIATION WELDING**

**AUTHOR:**                **D. SOCCHIA**

**DATE:**    **AU'V^'UP**            **PREVIOUS OUTLINE DATED:**    **August 1995**

**APPROVED:**            *1 Co*  
                              **DEAN**

*AHAI '96*  
                              **DATE**

**TOTAL CREDITS**    **1**

**PREREQUISITE(S):**    **A secondary school diploma with grade 10 general mathematics.**

**LENGTH OF COURSE:**    **30 Hours... comprised of**  
                                      **25 Lab/Shop Contact Hours with Professor**  
                                      **5 Lab Non-Contact Hours**

**TOTAL CREDIT HOURS**    **30**

**COURSE DESCRIPTION:** This course deals with the concepts and calculations required for the development of templates that may be used in the fabrication of cones, cylinders and transition pieces. Students will use a variety of trade specific formula to calculate mean diameter and bend allowance as well as bevel / slope relationships. A significant amount of technical mathematics will be included.

**II LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**  
(Generic Skills Learning Outcomes placement on the course outline will be determined and communicated at a later date.)

Upon successful completion of this course the student will demonstrate the ability to:

**1) *Demonstrate by means of lab / shop tests and independent assignments, the ability to develop a template for square-to-square transition pieces from basic field dimensions.***

Potential Elements of the Performance:

- determine the necessary field dimensions for a square-to-square transition piece
- apply the concepts and formula for 'bend allowance' to field dimensions
- calculate all 'working dimensions' necessary for the template
- identify and select the required layout tools
- develop the template from the calculated 'working dimensions'
- verify the accuracy of the completed template shape against the supplied list of outcome tolerances
- verify the accuracy of the completed template size against the supplied list of outcome tolerances

*NOTE: This learning outcome will constitute 40% of the course grade*

**2) *Demonstrate by means of lab/shop tests and independent assignments, the ability to develop a template for cylinders and right cones from basic field dimensions.***

Potential Elements of the Performance:

- determine the necessary field dimensions for a cylinder and / or right cone
- apply the concepts and formula for 'mean diameter' to field dimensions
- calculate all 'working dimensions' necessary for each template
- identify and select the required layout tools

**n. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE**  
**(Continued)**

- develop the template for a right cone from the calculated 'working dimensions'
- develop the template for a cylinder from the calculated 'working dimensions'
- verify the accuracy of each completed template shape against the supplied list of outcome tolerances
- verify the accuracy of the completed template size against the supplied list of outcome tolerances

*NOTE: This learning outcome will constitute ASYo of the course grade.*

***Demonstrate by means of regular attendance, punctuality, respect for fellow students as well as lab/shop equipment, a willingness to assume the responsibilities of employment.***

Potential Elements of the Performance;

- be present for all scheduled classes
- be in the lab/shop or classroom within 5 minutes of the scheduled starting time
- be present for the taking of attendance
- provide a satisfactory reason to the professor for having to leave class early
- provide a reasonable excuse to the professor for being absent from class
- provide a written statement to the professor explaining the reason(s) for being absent on an assignment due date or the day of a scheduled test
- demonstrate behaviour that does not interfere with or obstruct the over-all learning environment
- actively participate in all course assignments and projects
- operate any and all lab / shop equipment according to guidelines prescribed by the college and / or course professor

*NOTE: This learning outcome will constitute 15% of the course grade*

**in. TOPICS:**

**Note I:** These topics sometimes overlap several areas of skill development and are not necessarily intended to be explored in isolated learning units or in the order below.

- 1) The Shop Application and Use of Technical Mathematics .
- 2) Basic Methods of Template Development
- 3) The Selection and Use of Common Layout Tools
- 4) Employment Readiness

**rV. REQUIRED RESOURCES/TEXTS/MATERIALS:**

Scientific Calculator (Basic Math Functions plus Trig Ratios)  
Basic Math Set (compass, divider, protractor, 30° / 45° squares)  
2 Pens - (blue ink only)  
4 Pencils - (HB lead)  
1 12 inch Ruler (clear plastic)  
1 Feh Marker - (fine tip)  
Texts: The Metal Trades Handbook  
Mathematics for Sheet Metal Fabrication

**V. EVALUATION PROCESS/GRADING SYSTEM**

The evaluation for Learning Outcomes # 1 and # 2 will consist of both independent assignments and practical lab/shop tests for which students must demonstrate proficiency in both 'knowledge' and 'hands on' skill.

All *independent assignments* will represent 30% of the mark for each of the above Learning Tasks and will be '*open book*' using WLDI 14 course notes and identified resources / texts.

All *practical lab /shop tests* will represent the other 70% of the mark for each of the above Learning Tasks and will be '*closed book*' using WLDI 14 course notes and identified resources / texts.

While all tests and assignments are designed to be completed with the specified time limit ( or less), students **MUST** report to the lab / shop fully prepared. Your professor will supply only the assignment or test instructions.

The evaluation for Learning Outcome # 3 will consist of a day to day recording of the Elements of Performance listed. Each infraction will constitute the loss of one percentage point from the total number of points allocated to this outcome.

### **Course Grading Scheme**

A+	90 - <b>100%</b>	Outstanding Achievement
A	80 - 89%	Above Average Achievement
B	70 - 79%	Average Achievement
C	60 - 69%	Satisfactory Achievement
U		Unsatisfactory, only given on the midterm report
S		Satisfactory , only given on the midterm report
R		Repeat, signifies a failing grade
X		A temporary grade that is limited to instances where special circumstances have prevented the student from demonstrating the required elements of performance by the end of the course semester. An 'X' grade must have the Dean's approval and has a maximum time limit of 120 days after which it becomes an 'R' grade.

### **VI. SPECIAL NOTES:**

1. Special Needs

If you are a student with special needs (eg. physical limitations, visual impairments, hearing impairments, learning disabilities), you are encouraged to discuss required accommodations with the instructor and/or contact the Special Needs Office, Room E1204, Ext. 493, 717, 491 so that support services can be arranged for you.

2. Retention of Course Outlines

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other post-secondary institutions.

3. Course materials that are discussed and / or explained during any and all lab or shop demonstrations are subject to evaluation. Students are therefore responsible for the content of all lab / shop demonstrations.
4. Your Professor reserves the right to modify the course as he/she deems necessary to meet the needs of students.
5. Substitute Course Information is available at the Registrar's Office.
6. Any person caught cheating or substituting another person's work in place of their own for the purpose of grading or evaluation will automatically fail the said assignment or test. College policy\* also dictates that such persons may be subject to immediate dismissal.

\* Students should refer to the definition of "academic dishonesty" provided in the Sault College "Statement of Student Rights and Responsibilities" .

#### **Vn. PRIOR LEARNING ASSESSMENT**

Students who wish to apply for advanced credit in the course should consult the instructor. Credit for prior learning will be given upon successful completion of the following:

1. The successful completion of a computer literacy course with Learning Outcomes and Elements of Performance that are at least 80% compatible with this course outline...  
AND
2. The successful challenge of all lab tests identified by this course outline.

<OR>

3. Documented proof of at least three (3) years of competent trade experience involving the development and laying out of templates that are compatible with Learning Outcomes described in WDL1 14.  
AND
4. The successful challenge of all lab tests identified by this course outline.