PIPE FABRICATION CONCENTRATION

Course Number:	FAB207	**Faculty:**	Rick Brooker
Course Title:	Advanced Pipe Fabrication I	**Office:**	Room 303 Schoodic
Pre-requisite:	FAB205	**Phone:**	974-4814
Total Course Hours:	76 (Lab 30 hrs., Shop 46 hrs.)	**Semester:**	Fall 2005
Credits:	2.0	**Office E-mail:**	rbrooker@emcc.edu
Office Hours:	By appointment	Website:	http://www.emcc.edu/faculty/rbrooker/

COURSE DESCRIPTION:

This course provides the student with the opportunity develop skill in the use of applied trigonometry for solving pipe fabrication problems and fabricating complex pipe fittings for a variety of applications. The student will also develop skills using the scientific calculator for solving advanced problems in trigonometry related to the pipe fitting trade. Students will practice skill development in field fabricating branch connection fittings and installing rolling offsets. Fabrication of pipe supports will also be introduced and students will practice skill development in support fabrication.

OVERALL OBJECTIVE OF THE COURSE:

Students completing this course will successfully demonstrate skill development pertaining to all areas mentioned above in the course description. Successful completion of this module will satisfy the pre-requisite for FAB209. FAB209 is the next course offered in the progression of the Pipe Fabrication Concentration for the Spring Semester.

TYPE OF COURSE: Pipe Fabrication

BACKGROUND & MISCELLANEOUS INFORMATION:

My qualifications to teach this course are derived from my employment background in pipe fitting and engineering. I worked as a pipe fitter in the Engineering Services and a draftsman in the Central Engineering Department at Great Northern Paper Company for fifteen years. I have applied mathematical calculations in designing, planning, and installation of major piping projects on high-pressure steam/boiler and various process flow, process control, hydraulic, air, fiberglass and other types of mechanical piping systems.

If you have questions or need assistance in the evening while you're working on assignments at home, you may email me at rbrooker@emcc.edu. I will check for messages until 9:00 and reply with a suitable response, if it is possible.

COURSE OUTLINE AND PERFORMANCE OBJECTIVES FOR WEL244:

I. Hobart Pipe Layout for Fitters and Welders:

A. Apply basic mathematics to pipe fabrication and layout
B. Apply trigonometry, basic mathematics equations and the use of charts to properly fabricate pipe connections
C. Calculate and lay out angles to be cut on the end of pipe
D. Calculate welded offsets
E. Calculate and lay out offsets other than 45^o and 90^o
F. Calculate and lay out two-piece parallel offsets
G. Calculate and lay out offsets around obstructions
H. Lay out elliptical holes, brackets, and blind flanges
I. Produce pipe template pattern and fabricate 45^o lateral branch pipe connection
J. Calculate and lay out rolling offsets
K. Field fabricate, align and install a 45^o rolling offset
L. Calculate and field fabricate angle iron pipe supports
M. Calculate and fabricate pipe sleeve

NOTE:

It may be necessary to vary this course outline and scheduling to accommodate special circumstances. Special circumstances will be determined at the discretion of the instructor.

GRADE ELEMENT EXPLANATION

Skill Evaluations: Manipulative skill tests scores will be derived from evaluating technical skills acquired in the process of conducting laboratory projects.

Exams: Examinations will be given upon completion of major topics that are covered in this module. Exams will include both take-home pencil and paper exams and practical exam that will require an application of technology in the form of a laboratory project. Exams will be based on objectives given for each section of material that we have covered. You will be responsible for all material covered in the assigned text even if it is not covered in a lecture period. I encourage you to thoroughly read all assigned materials and ask questions regarding anything you do not understand. This action will often inspire enlightening discussion that will benefit both students and the instructor.

Quizzes / Homework: Quizzes will be given at any time on selected topics. I urge you to keep current with your reading assignments. Homework is due at the beginning of the class period for which it is assigned. If the assignment is not submitted at the assigned deadline, it will be scored as a zero. Homework makeup is subject to the makeup procedure listed under the attendance policy.

Applied Technology Analysis Report: Write a technical analysis describing the elements of applied technology in this course. Describe problems you have encountered and identified and write about how you applied the information offered in lectures, films, demonstrations, laboratory manual, or other reference text sources. The paper must be a minimum of two full pages double spaced 12 point New Times Roman font with one inch margins on all sides. It must be word-processed. It must include a title page. It must clearly present the application of skills introduced and demonstrate how it has improved the overall skill development for the student in this course. Include strengths and weaknesses of the course in the analysis. Offer suggestions to improve the course as well.

Students must create a title page for this assignment. Included on the title page will be the title of the

article, the course number and name, the institution and program the assignment is being completed for, the person the assignment is being prepared for, the person who is preparing the assignment, and the due date of the assignment must be included.

Grading Rubric for Applied Technology Analysis Report:

To receive a grade of 90% and above, all the criteria listed above must be satisfied allowing only five formatting, grammatical, and spelling errors on the paper.

To receive a grade between 80% and 90%, most of the criteria listed above must be satisfied and allowing up to ten formatting, grammatical and spelling errors on the paper..

To receive a grade between 70% and 80%, some of the criteria listed above must be satisfied allowing no more than fifteen formatting, grammatical and spelling errors on the paper.

Unless some major effort to achieve the criteria list above is not met, a failing grade for this project can be expected.

Your final grade for this course will be calculated on the following grade weighting:

EVALUATION PROCEDURES	% of Grade
Skill Evaluations	50
Exam (Take-home I & Take-home II)	30
Quizzes/Homework	10
Applied Technology Analysis Report	10

PIPE FABRICATION CONCENTRATION GRADES:

A 93 - 100 A- 90 – 92 B+ 86 - 89 B 80 - 85 C 76 - 79 D 73 - 75 D- 70 - 72 F 0 - 69

NAME OF TEXT: Laboratory Manual - Fitting Pipe
AUTHOR: Richard E. Brooker

SUPPLEMENTAL TEXT: The Pipe Fitter's and Pipe Welder's Handbook
AUTHOR: Thomas W. Frankland

INSTRUCTIONAL METHODS:	Hrs. per week
Laboratory/Audio-Visual/Demonstration	7.9
Shop Hours	12.1

Any student that misses end of semester shop cleanup will have a grade of incomplete registered for this course. The makeup work will be cleaning the fluid in the base of the milling machine in the Welding Test Center.

ATTENDANCE POLICY:

Attendance simply means that you were at the location where a scheduled class took place during the scheduled time. The student will be responsible to sign in and out on a sign in sheet made available by the instructor. Attendance will be taken at the beginning of class and at dismissal. If you are present at both gatherings, you will be marked present. If you are not, you will be marked absent. You will be marked as late if you are not in the classroom at the beginning of class.

If you are going to miss a class, you must notify the instructor in person, by phone, or by email. If you fail to notify the instructor you will receive a zero for any graded work performed during the class period you've missed as well as be dismissed from the next class period without makeup options.

There is no direct penalty for accumulated absences in this course. However, it's important to remember that if you want me to be a reference for a future job, then you need to understand I will include your attendance history with whatever else I might say about you.

Tardiness: If a student arrives late for class, it is expected the student will take their place as quietly as possible without causing any disruptions. It is further expected the student will gather any notes or information, which were presented before arrival, from classmates or the instructor, when appropriate, without disrupting the class that is already in session. Reasonable consideration will be given to tardiness if it affects a deadline. The instructor reserves all rights to define reasonable.

The theme of this course focuses on developing independence and meeting deadlines. Schedules will be posted for projects' due dates. Failure to meet deadlines will result in a score of zero for that assignment. If portions of your assignment can be completed at home, you're welcome to work at home. I would encourage you to use lab time wisely in completing piping projects that can't be advanced as homework. I encourage you to utilize me as a resource in solving technical problems, making adjustments to project requirements, and completing projects.

Makeup: Any makeup work will occur at the discretion of the instructor. Students will assume the responsibility of initiating arrangements for any and all makeup work in this course. Extenuating circumstances will be considered at the discretion of the instructor if communication regarding circumstance is offered beforehand.

DISMISSAL:

Attendance will be taken for the second time at the end of shop cleanup. If you are eager to leave, agree to gather before you go to your lockers. If someone goes to their locker or into the bathroom, we will wait for everyone to gather before dismissal.

Dismissal is an important event in the laboratory period. You will be given assignments, evaluations, and information during this time. If you miss this important event, it is incumbent on you to be responsible for any information disseminated at that time. You must also be present for dismissal if you expect to be counted in attendance for the day. Remember that the responsibility to sign in and out is owned by the student. (Review rule #21 – General Laboratory Rules – for specific consequence for leaving before dismissal).

NOTE:

Eastern Maine Community College is committed to providing an equal opportunity for students and complies with all state and federal equal opportunity laws. If you have a hidden disability, you must disclose the disability and provide documentation before accommodations can be made.