

ChE 3951 COOP Contract

Name: _____ Student ID# _____

Major: Chemical Engineering

Session (circle one) Fall Spring Summer Year: _____

Credits (circle one) 1 2 3

Faculty Supervisor: Richard Davis, Department of Chemical Engineering

COOP Company Name & Address: _____

Dates of COOP Employment: _____

Course/Project Description (See the attached course syllabus. Define your goals and the specific tasks you plan to do in order to complete them. Use the space below or attach an outline or plan to this form:

Evaluation Procedure:

- A written report as defined by the syllabus. Report Due dates

| | |
|-----------------|-------------|
| Fall Semester | December 15 |
| Spring Semester | May 15 |
| Summer | August 15 |
- Coop experience evaluation surveys submitted by the student and employer-supervisor (Available on the course web site). Due at the end of the coop.
- One or more presentations to the Chemical Engineering Department Industrial Advisory Committee or the UMD Student Chapter of AIChE. Please make arrangements with the head of the department.

I have read the syllabus and agree to the terms of this contract:

Student Signature _____ Date _____

Department Head
Signature _____ Date _____

Copies:

1. Original to Faculty Supervisor (Faculty record notes on student performance on back)
2. Copy to Student
3. Copy to Chemical Engineering Department, 176 Enginee

ChE 3951 Syllabus

Course Description: Co-op involves engineering related work experience in industry or government. These positions are typically paid and generally involve 40 hours/week for one to three semesters. Students must receive department approval before registering for a co-op.

Reporting Requirement: Each time students enrolls for co-op credit they must prepare (1) a co-op report detailing the work experience, (2) self-evaluation survey (3) request their supervisor to send a one-page evaluation survey of the co-op work, and (4) make presentations to the Chemical Engineering Department's Industrial Advisory Committee or at an AIChE student chapter meeting. For a student going for a consecutive second "term" (semester following a summer or summer following a semester) only one set of "final" report, evaluation and presentations is required. The final report must be submitted before grade reporting time for the semester or summer term.

Evaluations: Students and employer-supervisors must complete an anonymous survey of the student's co-op experience. Evaluations may be returned to the UMD Chemical Engineering Department by email, fax, or post. The student should provide a copy of the survey and a self-addressed, stamped envelope to their employer/supervisors.

Report Format: Typical report length is 5 to 15 pages (for 1 to 3 credits), not including appendices. This report and evaluation surveys are submitted to the Department Head before grade reporting time for the semester or summer term. The report should summarize the student's work experience and discuss in detail a variety of educational aspect of the experience. The report should strive to demonstrate how their educational experience has prepared them for co-op and how co-op has affected their education. In particular, the report should discuss and assess multidisciplinary experiences. The report should be written for someone technically literate, but who may not be familiar with what was done. Inappropriate report items include confidential material, overly technical discussion of the work, heavy reliance on internal jargon, chronological listings of tasks ("Dear Diary ..."), or other topics that do not demonstrate a synthesis of the co-op experience and the student's education.

The report should consist of the following parts:

Cover page with your identifying information. **Number all pages** of the report. **Use sections headings** on a separate line for each section.

Executive Summary/Abstract – Describe briefly the main tasks you performed. This should be a short (less than a page), concise, description of what you accomplished. Length: maximum 1 page.

Introduction – Describe the place where the work was done including what materials or services it provides. Next give the problem statement(s) and background information you were given from your supervisor or co-workers. This is also a good place to describe the disciplines of people you worked with (engineers, business, sales, etc). You may have done multiple projects or only one, so the length will vary accordingly. Length: 1 to 3 pages.

Background – Discuss what ideas you needed to use in order to accomplish your objectives and how did they relate to your education. This would be a good place to discuss any new material you needed to learn. Length: 1 to 3 pages.

Procedures – Describe any new procedures you may have learned and how they were needed to accomplish your objectives. Do not provide details of operation, just a summary of the new equipment used and its purpose (i.e. I learned to use a dissolved oxygen meter to test for the presence of oxygen in boiler water which can cause corrosion in boiler tubes). Length: 1 to 4 pages.

Results – Describe what was accomplished based on the work you did. Write about any new information or procedures you helped develop. Length: 1 to 4 pages. Include information about working in a multidisciplinary environment.

Discussion – Provide your interpretation of the results of your project(s). It is acceptable to discuss them even if nothing was changed, or your project failed to find a better solution. You should also discuss the value this opportunity provided to your education in terms of engineering skills and working in multidisciplinary environments. Length: 1 - 3 pages.

UMD Chemical Engineering Co-Op Student Survey

Grade Level ____Fr ____So ____Jr ____Sr

Co-Op date: _____ start to _____ end

Please rate the following attributes with respect to your overall satisfaction in how well the department prepared you to work as a chemical engineer as well as how important you believe the attribute is (was) for your particular situation.

Use 1=Very Dissatisfied through 5 = Very Satisfied for column 'Your Preparation'.

Use 1= Not useful through 5 = Very Useful for column 'Perceived Importance'.

Use NA for any issue that is (was) not applicable to your situation.

| Issue | Your Preparation | Perceived Importance |
|--|------------------|----------------------|
| Apply knowledge of mathematics, science, and engineering | | |
| Design and conduct experiments (large or small in scale), as well as analyze and interpret data, using modern experimental and computing techniques. | | |
| Design a system, component, or process to meet desired needs. | | |
| Function on multi-disciplinary team | | |
| Identify, formulate, and solve engineering problems | | |
| An understanding professional and ethical responsibility in the profession of chemical engineering | | |
| Communicate effectively in writing | | |
| Communicate effectively orally | | |
| The broad education necessary to understand the impact of engineering solutions in a global and societal context | | |
| A recognition of the need for, and an ability to engage in life-long learning | | |
| A knowledge of contemporary issues | | |
| Use techniques, skill, and modern engineering tools necessary for chemical engineering practice | | |
| Ability to use applied statistics and design of experiment concepts toward your specific job. | | |
| Understanding of the environmental aspects of your engineering projects | | |

Return survey to:

Department of Chemical Engineering, University of Minnesota Duluth, 176 Engineering Building, 1303 Ordean Court, Duluth, MN 55812

Email: che@d.umn.edu

Fax: (218) 726-6907

UMD Chemical Engineering Co-Op Employer Survey

Please rate the following attributes with respect to your overall satisfaction in how well the student you supervised is (was) prepared to work as an engineer as well as how important you believe the attribute is (was) for your particular situation.

Use 1=Very Dissatisfied through 5 = Very Satisfied for column 'Student's Preparation'.

Use 1= Not useful through 5 = Very Useful for column 'Perceived Importance'.

Use NA for any issue that is (was) not applicable to your situation.

| Issue | Student's Preparation | Perceived Importance |
|--|-----------------------|----------------------|
| Apply knowledge of mathematics, science, and engineering | | |
| Design and conduct experiments (large or small in scale), as well as analyze and interpret data, using modern experimental and computing techniques. | | |
| Design a system, component, or process to meet desired needs. | | |
| Function on multi-disciplinary team | | |
| Identify, formulate, and solve engineering problems | | |
| An understanding professional and ethical responsibility in the profession of chemical engineering | | |
| Communicate effectively in writing | | |
| Communicate effectively orally | | |
| The broad education necessary to understand the impact of engineering solutions in a global and societal context | | |
| A recognition of the need for, and an ability to engage in life-long learning | | |
| A knowledge of contemporary issues | | |
| Use techniques, skill, and modern engineering tools necessary for chemical engineering practice | | |
| Ability to use applied statistics and design of experiment concepts toward your specific job. | | |
| Understanding of the environmental aspects of your engineering projects | | |

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