Mechanical Engineering Department
Policy for Undergraduate Internships
Procedure to obtain course credit for MENG 4370 (Undergraduate Internship)

DEADLINE: Project Proposal must be submitted to the ME department one month prior to the beginning of the internship semester. Submit this proposal only after successfully completing all your junior-level engineering courses. Sample proposal can found in Appendix A.

- A description of the proposed internship must be submitted to the ME department by the student working for the sponsoring company or organization.
    - An internship mentor/supervisor will be identified at the company or organization.
    - The proposal will include an outline of engineering-related duties and responsibilities to be undertaken by the student.
    - Specific deliverables that the student will make to the company or organization will be outlined.
    - The student will attach copies of his or her resume and unofficial transcripts to the proposal.
    - The proposal package will be submitted to the ME department for approval one month prior to the beginning of the internship semester.
    - The student will find an ME faculty project mentor who is willing to oversee the internship and the name of the faculty project mentor must be included in the proposal.
    - The faculty project mentor will review the proposal and make appropriate recommendation to the ME department.
    - The ME faculty project mentor must have the opportunity to visit the company or organization to meet with the student and internship mentor/supervisor during the course of the internship.
- Two interim reports on the student's progress, endorsed by the internship mentor/ supervisor, will be submitted during the course of the internship (use the Internship Periodic Experience Report form.See Appendix C.) The first report is due on the first day of the sixth week of the semester and the second report is due on the first day of the eleventh week.
- A substantial engineering report will be submitted at the end of the internship.
    - All relevant activities, projects and deliverables will be described in the report.
    - All reports will be endorsed by the internship mentor/supervisor and will be reviewed by the faculty mentor.
- The materials used to determine the grade for MENG 4370 will be reviewed by the ME department to confirm the grade earned for the course. A grade of 80 or above is required for technical elective consideration.

Procedure to obtain credit for a Technical Elective in addition to credit for MENG 4370

- The internship experience must require application of junior level mechanical design/science or thermal/fluid science engineering skills.
- Upon completion of the internship course (see the requirements above) the ME department will determine if senior level Technical Elective credit has been satisfied.
- If approved, the grade assigned to the technical report will be substituted for the technical elective.

Internship Final Report Outline

The final report on your internship is part of your semester grade. Approach it as you would any engineering report. Use the cover sheet provided in Appendix B.

You must cover the following points, in the order given, providing as much detail as possible and including specific examples. Sanitize any confidential or proprietary information you use in the report. Seek advice from your supervisor on these issues.

1. Brief description of the company or organization and the products or services the company or organization provides.
2. **Internship Goals: state** the goals of your internship and which ones were achieved during the internship.
3. Work Performed:
   3.1. describe the general nature of the work that you did throughout the internship.
   3.2. give a detailed description of one of the projects in which you were involved. Include:

   Problem: Provide a succinct description of the problem you are trying to solve. Include whether you were working alone or as part of a team. If part of a team, how many people were on the team and what part did you play on the team?
   Research methods: Where did you look for the solution to the problem - Books, Internet search, discussions with colleagues? Were you sent to a training course for a particular technology?
   Experiments/Techniques: How did you go about solving the problem? Did you create prototypes? If so, what did they reveal? What experiments did you perform?
   Discussion: You gathered information in the steps above. How did this influence your results and conclusions?
   Results**:** How did you present the results? To whom did you present the results? Was the problem solution acceptable? Why or why not?
   Conclusions: What conclusion did you reach?
   Recommendations: Provide suggestions on how you would better perform this task in the future.
4. Educational Value: describe what you learned about your career field and the business environment through the work you performed.
5. Relationship to Classroom Experience: describe any connections you found between the work you performed as an intern and your classroom experiences prior to and during the internship. Try to be very specific
6. Professional development (i.e., interpersonal communication skills, working with specific software, presentation skills).
7. Professional Value: describe the contacts made and future benefit of these contacts.
8. Evaluation of Internship Program
   8.1. Describe what you consider to be the advantages and/or disadvantages of participating in the internship program.
   8.2. Was it intellectually challenging?

8.3. Indicate your expectations about how the internship will change your approach to school and impact your career.

Appendices

- Include the proposal you submitted with your request for course credit for the internship.
- Include other information you deem pertinent to your report.
- Include all of your Internship Periodic Experience Reports.

Internship Report Guideline

Introduction

The purpose of technical writing is to communicate technical information as clearly and effectively as possible. You should not use language that is excessive or complex. This is typically achieved by writing at an 8th grade level. This does not mean you have to dumb down your engineering. Define terminology that might be confusing, avoid wordiness, and avoid jargon. Don't be dramatic; drama is used in creative writing to elicit an emotional response. Technical writing is centered on the use of logic.

General Format Issues

- The Interim and Final Reports must be of professional quality, and entirely computer generated.
- Each Interim report can be submitted in Blackboard or email to faculty mentor.
- The Final signed report must be submitted in Blackboard or email to faculty mentor.
- A 30 page maximum length is ***suggested,*** excluding Appendices and cover sheet.
- You may also use the table of content format used in ME lab courses.

Margins: Set your margins as indicated below for the entire manuscript.

Top: 1 inch Right: 1 inch
Bottom: 1 inch Left: 1¼ (one and one-quarter) inch

Margins should be justified to give a professional appearance

Fonts: Use Times New Roman or Arial fonts. You must be consistent in using the font you choose throughout the entire Final Report.

Font Size: 10-12 point regular
Exception: Footnotes and entries within a table/figure may be as small as 8 point. 14 point is acceptable for major headings. Consistency in use of font size is essential.

Font Style: Use italics in place of underlining throughout the manuscript.
Do not use bold fonts except for headings and when required as part of a formula.

Corrections: Only a clear print copy is acceptable. Corrections made by hand or using correction fluid or correction tape are unacceptable.

Spacing: Text must be 1.5 spaced or double-spaced, but be consistent with your choice. Single space and indent block quotes and numbered lists. Preferred paragraph indentation is one-half inch (5 to 7 spaces).

Grammar: Good grammar and spelling are essential.

Voice: The report can be written in either passive ("a concept was selected") or active ("we selected a concept") voice. Pick whichever sounds more natural and use it

predominantly. However, do not use the passive voice exclusively. Doing so can lead to wordy and highly convoluted sentences.

Use the passive voice to change the order of information in a sentence, to vary the sentence structure for variety's sake, or to eliminate the true subject if it is not important. Typically, passive sentences use more words to express an idea.

Tense: Use past tense to describe what you did or found out. For example, "We built and tested a prototype." Use present tense to describe things that were known before your project. For example, "Squirrels are warm-blooded."

Use future tense to describe what has not yet been done but what will be done. The present and future tenses may be used in the interim reports.

Headings and Sub-Headings:

Left justify section titles. Use the same numbering as shown in the Organization sections.

Divide your information up into small, manageable chunks. Use headings and subheadings to categorize the information so people can easily find it. You should have at least one heading on each page.

Pagination: Center page numbers at the bottom of the page. Use the same font and size as the text (check auto-numbering to ensure proper sizing). Page numbers should appear one-half to one inch from the edge of the paper. Do not use sub-numbers or alpha-numeric values such as 34-A or 76.1 to indicate manuscript pages.

Preliminary Pages:

Number the Table of Contents, List of Tables, and List of Figures pages in lower case Roman numerals (i, ii, iii, etc.) in the same font and size as the rest of the text. The first numbered page (i) is the Table of Contents. Do not place a page number on the Title Page or Executive Summary.

Text: Beginning with the first page of the text (Section I), number pages consecutively with Arabic numerals (starting with the number "1") through the last page of Section VIII, including full-page tables, figures, and all other illustrations lying therein. Number each appendix separately, with the page number preceded by the appendix letter (e.g., A1, A2, ..., B1, B2, …)

Illustrations: Colored drawings, photographs, charts, maps, graphs, and pictures are not acceptable except as original copy in appendices. High quality black and white images of each of

these can be used in the body of the report since they can be reproduced with black and white xerography. All illustrations are referenced as figures. Figures will have captions and will be numbered sequentially starting with “1.” The word “Figure” is abbreviated “Fig.” unless it is the first word of a sentence. All illustrations that are in landscape format must be inserted in the Report such that they can be read correctly when the Document/Report is rotated so that the “binding” is at the top. Such pages should be paginated, however, as though they were in portrait format.

Oversized Objects:

Oversized project plans, graphs, illustrations, etc. may be folded. Once folded, the top, right and bottom edges of the piece should be at least one half inch smaller than text pages to avoid being cut in the binding process.

"Z-folding": All sheets larger than 8-1/2 x 11" must be Z-folded to allow easy unfolding. A proper Z-fold will expose the right 11" edge of the paper to allow its legend or title block to be seen. Thus the identification of that sheet must be in the lower right quarter of the sheet.

Computer printouts must be cut or separated into individual sheets and arranged in proper sequence to be read as pages in a book. If the printer paper is wider than 8-1/2" then each page must be individually and separately Z-folded.

APPENDIX A

Project Proposal

MENG 4370 - Undergraduate Internship

Department of Mechanical Engineering

College of Engineering

The University of Texas at Tyler

DEADLINE: Project Proposal must be submitted to the ME department one month prior to the beginning of the internship semester. Submit this proposal only after successfully completing all your junior-level engineering courses.

Proposal Submitted By: _____

(printed name): XXXX

Date Submitted: _____

Internship Period: _____

Name of the Company & City: YYYY

I have been the primary project supervisor. I have read the proposal and approve of its content. Signatures and printed names are required.

Project Supervisor: _____

(printed name): ZZZZ

ME Faculty Project Mentor: _____

(printed name): _____

_____

_____

Department Chair: _____

(printed name): M. Sathyamoorthy

(SAMPLE)

Internship Proposal

My name is XXXX and I would like to obtain course credit for MENG 4370 (Undergraduate Internship). Below is a description of the proposed internship at YYYY, Inc.

The internship supervisors will be ZZZZ. I plan on working XX hours per week during the fall (or spring) semester (and/or Summer) (minimum of 150 total hours required) and will be assisting the company YYYYwith the following:

- Planning, drilling, operating, supervising, and completing wells;
- Developing and reviewing geological prospects;
- Evaluation of oil and gas production, injection, and disposal prospects;
- Pipeline design and installation;
- Reserves and economic evaluation and forecasting;
- 3D seismic interpretation and evaluation;
- Reservoir modeling and simulation;
- Digital mapping and data handling;
- Research and filing of various Railroad Commission forms and applications;
- Preparation of contingency plans;
- Production data retrieval and analysis;
- Computer software and hardware planning, support and troubleshooting;
- Spill prevention control and countermeasure planning;
- Forensic engineer studies;
- Property acquisitions;
- Research and data collection; and
- Hydrogen Sulfide (H2S) operations.

(You may write more if needed)

APPENDIX B

Final/ Report

MENG 4370 - Undergraduate Internship

Department of Mechanical Engineering

College of Engineering

The University of Texas at Tyler

[Insert Project Title]

Report Submitted By: _____

(printed name): _____

Date Submitted: _____

Internship Period: _____

I have been the primary project supervisor. I have read the report and approve of its content.

Signature: _____

(printed name): _____

APPENDIX C

Page ____ of _____ pages

INTERNSHIP PERIODIC EXPERIENCE REPORT

STUDENT INTERN'S FULL NAME: _____

DESCRIPTION OF ENGINEERING WORK PERFORMED

REPORT NO. _____ FROM: _____ TO: _____ (dates)

NAME OF EMPLOYER AND LOCATION: _____

INTERNSHIP SUPERVISOR NAME: _____

I certify that the above is true and correct to the best of my knowledge.

Supervisor's Signature	Date	Student's Signature	Date

The Internship Periodic Experience Report is patterned after the Supplementary Experience Record (SER) form used by the Texas Board of Professional Engineers for applicants for the PE license to document their engineering experience. The following is an excerpt of their instructions for preparing the SER.

The purpose of the Supplementary Experience Record (SER) is to explain in detail the engineering performed in the employment engagements you list on your application in Section 3, Experience. A SER must be provided for **ALL** engineering experience claimed. Descriptions of non-engineering engagements are not needed for your SER. The SER **MUST** be **TYPED IN BLACK** and must be written in the first person, narrative form, using complete sentences and active engineering type verbs.

In describing your experience, use specific tasks such as: I designed, I calculated, I analyzed, I recommended, etc. Avoid using vague terms such as: I was assigned to, I was responsible for, in charge of, participated in, etc.

In general, you should include in the description of your engineering experience the following:

(1) The general nature of your position in each engagement,

(2) The engineering work that you personally performed,

(3) The elements of engineering design and analysis,

(4) The identity of the projects by name, location, size, etc., and

(5) If you performed several projects which were similar in nature in an engagement, you may describe some typical projects in detail and then list similar ones by name, location, size, etc. identifying any unique differences.

An example of an SER is provided on the next page.

EXAMPLE

USE APPROPRIATE PAGE NUMBERS

SUPPLEMENTARY EXPERIENCE RECORD Page no. 1 of 9 pages

REFER TO THE REVERSE SIDE OF THIS FORM FOR INSTRUCTIONS FOR COMPLETING THE SUPPLEMENTARY EXPERIENCE RECORD.

SAME NUMBER AS APPLICABLE SECTION OF APPLICATION

DESCRIPTION OF ENGINEERING PERFORMED:
(Use complete sentences written in first person.)

ENGAGEMENT NO. _____. FROM: _____ TO: _____ (dates)

NAME OF EMPLOYER AND LOCATION: ABC Engineering Company, Dallas, Texas

ENGINEERING SUPERVISOR'S NAME(S): Samuel J. Smythe, P.E.

GENERAL: WHEN, WHERE, AND WHAT

My first year and a half of experience entailed being a member of the engineering production staff designing Wal Mart Stores. **I performed analysis and design on** 29 Wal Mart Stores in 7 different states.

TYPE OR DESCRIPTION OF WORK

Each project included the design of foundation, walls, and roof and the interface of each. Occasionally special structures were included. Local codes were considered in each situation.

I designed the roof framing, which consisted of a joist/joist girder system supported by tube columns, the masonry walls, the foundation systems (spread footing or pier and grade beam). **I also designed** a two-way flat plate slab supported by timber piles for the Wal Mart in Philadelphia, PA.

TELL US IN DETAIL WHAT YOU PERSONALLY PERFORMED

One of the more challenging projects **I designed** is located in Hallandale, Florida. **I analyzed and designed** the 12" load bearing masonry walls for 100 mph wind forces under the South Florida Building Code. The lateral system involved 2 C-shaped cantilevered diaphragms separated by an expansion joint. **I calculated** the deck shears for the C-shaped diaphragm taking into account a rigid diaphragm analysis. Due to the high deck shears, **I determined** that zones of heavier gauge roof deck must be used along the perimeter of the shear walls. **I also calculated** the tension/compression chord forces of the cantilevered diaphragm **and sized** the chord angles. **I designed** the spread footing foundation system for gravity loads as well as the large uplift loads. **I concluded** that for an economical design, the footing must be placed 2.5 feet below the finished floor to take advantage of the dead load of the soil above the footing. This particular Wal Mart also had a wood framed canopy along the front of the building. **I designed** all the connections necessary (i.e., hurricane ties to hold the canopy down at the ledger and adhesive anchors to anchor the ledger to the masonry wall) to resist the wind uplift forces.

The projects, ranging in size from 90,000 to 120,000 square feet, were located in the following cities:

Aberdeen, MD	Albuquerque (E), NM	Hallandale, FL
Bedford Park, IL	Boca Rotan, FL	Coshocton, OH
Philadephia, PA		

YOU MAY LIST ADDITIONAL SIMILAR PROJECTS BY TITLE, SIZE, LOCATION, ETC. BELOW OR ON AN ADDITIONAL SHEET OF PAPER.

Samuel Smythe, P.E. 11-7-96
Reference's Signature Date

Your Name 11/1/96
Applicant's Signature Date