WINTER 2020

Facilities Engineering
Cooperative Program

Project Requirements

Massachusetts Maritime Academy
Engineering Department
1/7/2020
I. GENERAL GUIDELINES:

The MMA Facilities Engineering (FENG) Cooperative Program (co-op) is intended to be both a technical and interpersonal educational experience. The student will be exposed to diverse facilities, equipment, machinery, people, and geographical locations. For the six academic credits received, the student is required to complete a minimum of **240 hours** of co-op experience for the winter term, which equates to **a minimum of six full work weeks or 30 eight hour days**. Because of holidays, etc., students will typically need at least seven weeks to satisfy the minimum requirements; however, students are encouraged to work beyond the 240 hours for the additional experience, income, and **extra credit** on their project report.

**The Winter 2019 co-op period will run from January 2nd through February 28th.**

**PROJECTS ARE DUE FRIDAY MARCH 13, 2020. TEN (10) DAYS AFTER THE START OF CLASSES ON MONDAY MARCH 2, 2020**

The purpose of the FENG co-op experience is to provide the student with practical “hands-on” experience as related to increasing technical engineering challenges and practical managerial experience as related to different organizational structures and interpersonal practices of a public or private sector facilities operation or engineering firm and its surrounding community. Your performance during your co-op term will be a determining factor in how well prepared you will be to enter the field of facilities engineering or management. Your co-op experience may also be an avenue for employment opportunities with sponsor companies participating in this program.

Some of the sponsor companies are large companies, which have considerable resources to devote to the training process of this program. Their primary concern is the training and evaluation of students in this program to develop the student as a prospective future employee. Other companies are smaller in size and have limited resources. They wholly support the program but desire a significant contribution of productive work from the student during the co-op term. The student is expected to offer their own time and service to assist in any way. The student is expected to be an opportunist and take advantage of facility and machinery status.

The student is advised to become familiar with company policies and strictly adhere to them. You are representing MMA and the Engineering Department. You are expected to be polite and courteous at all times, both at the various facilities and job sites. Your conduct in the local community may have a dramatic impact on your co-op experience. You are expected to be neat in personal appearance and adhere to company dress code policies if they exist.

Most importantly, you must become familiar with the hazards of the facilities or job sites, to which you may be exposed. Do not enter restricted areas and do not perform any operating tasks without the appropriate supervision and applicable training. **Always wear your personal protective equipment in designated areas.** Many facilities may have toxic or hazardous materials on site; you must always be prepared to escape from a hazardous area.

Your personal safety and that of your fellow workers cannot be over emphasized. You must be constantly alert to your surroundings and potential hazards. **YOU MUST FOLLOW ALL COMPANY SAFETY RULES.**
II. FENG CO-OP PROJECT REQUIREMENTS

General: Each co-op experience, FENG I, II, or III (EN-2221, EN-3221, or EN-4221), carries six academic credits. The co-op grade will be based in large part upon a formal project report, which must be submitted no later than 10 school days after the beginning of the following semester or as otherwise directed. **There will be a four (4) percent grade reduction for each school day the report is late. Reports will not be accepted after five (5) school days late.** At that point, the student will receive a failing grade and will have to repeat the co-op. Exceptions will be made for extenuating circumstances, which must be presented in writing to the Engineering Department Chair prior to the initial project due date.

Project Report: Each cadet must submit an individual project report. Use your own words in describing the facilities, equipment, systems, and procedures. Technical manuals should not be copied verbatim. General descriptions should be such that another student reading this report would be able to understand what you describe. If there is a subsection, where information is not available or readily available, explain why in detail. When using abbreviations, first identify the meaning for the abbreviation; for example - personal protective equipment (PPE).

All text in this report must be completed with Microsoft Word, and students will lose credit for mistakes in capitalization, spelling, and grammar. The report should be 3-hole punched and submitted in a white 3-ring binder (1.0-inch or 1.5-inch) with the cadet’s name on the cover and spine. Do not place the individual report pages in protective sheet covers.

The Project Report must contain a Title Page, a separate Table of Contents, a separate List of Abbreviations, and the following sections and subsections. Suitable dividers with labeled tabs must be inserted between each section of the report. The report font shall be 12 point Times New Roman. Each page shall have 1-inch margins, each paragraph shall be double spaced, and each subsection shall be indented and labeled. Complete all subsections. If a particular subsection is not applicable to a given co-op, you must still provide information for that subsection and you must provide a fully detailed substitution in lieu of.

SECTION 1: CO-OP BACKGROUND

A. Describe the company where you worked (location, size, number of employees, etc.), how long the company has existed, and what business sector(s) the company supports. Provide the company website, and if the company is publicly traded, provide the company stock symbol and stock exchange. Identify whether this is your first or a subsequent co-op with this particular company.

B. Describe the particular site(s) where you worked (location; number, age and size of buildings including total gross square footage; property acreage; etc.) and any unique features or engineering characteristics.

C. Describe your job setting (department, name of supervisor(s), and key co-workers (union or non-union) and their backgrounds). Describe your job responsibilities. Describe your work schedule; days of the week and times/hours per day. If this is a return co-op, comment on changes in responsibilities from the prior co-op and clearly describe what you did differently from the prior co-op.
D. **Describe the company’s organizational structure.** Provide a computer generated drawing showing (1) the organizational structure from the corporate CEO/President level down to your facility location and (2) at your facility from top management down through the department level to your co-op position.

**SECTION 2: HUMAN RESOURCES (HR)**

A. **Describe in detail** how you found or received this co-op, the check-in process and what steps HR took to initiate your co-op. Describe the company’s HR staff.

B. **Describe, refer to, and include** a copy of the company’s Equal Employment Policy.

C. **Describe, refer to, and include** a copy of the company’s Sexual Harassment Policy.

D. **Identify, describe, and include** a copy of other noteworthy HR policy(s).

**SECTION 3: OPERATIONS, MAINTENANCE (O&M), AND SUSTAINABILITY**

A. **Describe** the general nature of facilities operations. **Provide** a CAD generated facility site plan of specific building(s) or the entire site. If the facility is a manufacturing plant, provide a CAD line diagram showing production flow from raw materials to finished product. **Identify the major utility providers for the facility or job site(s).** For co-ops EN-3221 and EN-4221, also provide a CAD drawing of the electrical, water, waste water, steam, or other distribution system.

B. **Describe major equipment** (boilers, turbines, HVAC systems, waste water, or purification systems, etc.) produced and/or serviced by the company or operated on-site at the facility.

C. **Describe the preventive maintenance, inventory control, or other O&M system.** Include an example copy of a system document, such as a Job Order, Work Order, Purchase Order, or Service Contract and describe the process involved with this document.

D. **Describe the corporate or companywide sustainability** programs and goals. Also **describe** local site specific programs or initiatives with regard to energy conservation and environmental sustainability.

**SECTION 4: SAFETY AND ENVIRONMENTAL HEALTH (SEH)**

A. **Describe the overall SEH program requirements** associated with the company and/or facility. Note any unique or unusual municipal, state, or federal requirements for the particular industry or business sector supported.
B. **Describe, refer to, and include** a copy of the company’s Safety Policy or Training Program. If this is a lengthy document, only include the policy/program and executive summary pages.

C. **Describe, refer to and include** a copy of the company’s Environmental Compliance Policy regarding recycling and hazardous material and/or waste management.

D. **Describe, refer to, and include** a copy of an MSDS or Hazardous Waste Manifest that was applicable to your co-op.

**SECTION 5: APPENDICES** (provide a separate title page or tab for each appendix)

APPENDIX A **DAILY LOG**

A typed journal that documents your co-op experience by **day and date**. This should include but not be limited to: work performed, training received, human resource issues, and unique problem solving or other experiences. The typed pages should be **1-inch margins** with each paragraph **single spaced**. Note: Log entries should be continuous, so there should not be a single page for each day.

APPENDIX B **CO-OP CORRESPONDENCE**

Include a **copy** of your **letter** (business letter format) to the Engineering Department Chair discussing the aspects of the co-op program and this specific co-op. **Comment** on what you learned, possible co-op or curriculum improvements, and whether to continue this particular co-op.

Include a **copy** of the **thank you letter** (business letter format) that you sent to your immediate supervisor upon completing your co-op. Include copies of any other thank you letters you may have sent.

APPENDIX C **STUDENT EVALUATION**

**Provide** a tab for Appendix C. **Complete** the required Career Services’ Student Evaluation (Job Description) on line. Career Services will provide a copy to the Engineering Department for the co-op report.

APPENDIX D **RESUME**

**Include** a copy of your resume, **updated** to reflect this co-op experience.

APPENDIX E **PHOTOGRAPHS**

**Required** for co-op EN-3221 and EN-4221. **Include, list, label**, and briefly describe **six to ten** photographs with and without people that are representative of the co-op.

Any additional Appendix is optional and should be labeled and described appropriately.
EN-4221
FENG COOPERATIVE III

BUCCANEER MANUFACTURING, INC.
Buzzards Bay, MA

WINTER 2020

DATE SUBMITTED: 13 March 2020
SUBMITTED BY: I. M. Ready

Note: EN-2221 is FENG Cooperative I
EN-3221 is FENG Cooperative II
EN-4221 is FENG Cooperative III