

CHME SUMMER PRACTICE GUIDE

GENERAL

1. Our curriculum requires each student to have two summer practices in industrial plants (CHME 300 and CHME 400), each for a duration of at least 20 working days.
2. CHME102, CHME 203 or CHME 204 is a prerequisite for Summer Practice I, while CHME102, CHME 323 or CHME 325 is a prerequisite for Summer Practice II.
3. Summer practice is done **only during summer months**, which should start after the spring semester final exam period. It should end before the fall semester registration period. Students enrolled in summer semester may start their practice **after the termination of summer semester**.
4. CHME 300 and CHME 400 should be done in two separate plants **in one continuous period**. Work solely done in laboratories or R&D sections, domestic or abroad, is not acceptable.
5. Students may themselves find the plants for summer practice, subject to approval by the Summer Practice Program Coordinator; or may request placement by the University.

ADMINISTRATIVE ISSUES

1. Administrative Issues are handled by the Student Affairs Office.
2. Students Affairs Office from time to time issue announcements related to general conduct of summer practice. Students should be attentive to these announcements.
3. Letters asked by companies indicating the obligatory nature of summer practice can be obtained from the Student Affairs Office.
4. A letter of acceptance obtained by a student from a company (note that it has to be on a formal form) has to be approved by the Summer Practice Program Coordinator and then has to be submitted to the Student Affairs Office.
5. Following the call, students should submit a 'Student Information Form' to Student Affairs Office.

6. At least 3 weeks before the starting date of their summer practice, students should make their decision with respect to which company they will have their summer practice at, and this should be communicated to the Students Affairs Office so that insurance procedures can be completed.
7. Before starting summer practice students should collect the Insurance Policy Statement from the Students Affairs Office.

DESCRIPTION OF SUMMER PRACTICE

Summer practice for a chemical engineering student aims at giving him/her an opportunity for practical experience. Therefore, students are expected to familiarize themselves with all aspects of plant operation; from raw materials to final products, from management to quality control, and from plant utilities to maintenance and environmental protection. This may not be realized due to time limitations or other constraints. Students should preferably visit and study different sections of the plant for a reasonably short period, and then concentrate their efforts on a selected production unit. **A representative**

time schedule for summer practice is as follows:

- | | |
|--|----------------|
| - Organization, management, accounting | : A few days |
| - Raw materials, main processes, products | : 1 - 2 weeks |
| - Process monitoring and control laboratories | : A few days |
| - Collection of data-Calculations | : 1- 2 weeks |
| - Process utilities, water and waste treatment, others | : Up to 1 week |

It is known that some plant managers have an attitude to give the students a short tour and then have them spend the rest of the practice period in laboratories. **Such practice is not acceptable on our part.**

During their summer practice, students should consider themselves as a temporary personnel of the plant. Thus they are expected to function similar to other personnel, such as an ordinary employee, technician, or pre-engineer, depending on their assignment. They are expected to learn during the practice, but simultaneously **they must serve the plant.**

Students, during their first summer training should probably consider material and energy balance applications, pump work calculations, or thermodynamic analysis on a **suitable unit or system of the plant**. A steam generator might be a typical example. It is highly desirable for students having their second summer practice to get involved with more sophisticated equipment related to **fluid flow, heat and mass transfer units and/or reactors** (if applicable) and present calculations regarding those systems.

SUMMER PRACTICE ACTIVITIES

1. Summer practice work is recorded and presented in two written formats:
 - a) A **Notebook** of about 50 pages in which all the work carried out during practice is recorded **daily** in sufficient detail, then approved and signed by a related plant manager (**should be written in English**),
 - b) A **Summer Practice Report**, not exceeding 5000 words, which should include specific information about the plant, work done by the student, and personal opinions and impressions of the student about the plant.
2. Program Summer Practice Coordinator informs students about summer practice in meetings and approves or allocates work places,
3. Students, after completing their practice, register to CHME 300 or 400 during the registration period of Fall Semester.
4. **Summer Practice Report and approved Daily Notebook are together submitted to the Program Secretariat by the announced date.** Late reports will not be accepted. This will cause the students to repeat their summer practice.
5. The confidential "Summer Practice Performance Sheet", approved by plant authorities must also be submitted to the University. **The students are strongly recommended to bring this sheet themselves in a closed envelope.** Some companies may prefer to send this sheet directly to the University. In such cases the student should follow its receipt by the University. A U grade will be given to students whose performance sheets have not been received by the University before the end of Fall semester.
6. **The notebook and the report are evaluated by the assigned supervisor and the outcome is reported back to the students by the announced date. The supervisor**

may accept the report or may ask for a modification. In such a case the corrected report have to be submitted to the supervisor by the announced date.

7. Supervisors will either give a 'satisfactory (S)', 'unsatisfactory (U)' or 'incomplete (I)' grade. I grade will be given in rare occasions.
8. **Students who get a U grade must repeat the practice next summer at a different plant and has to enroll the course once again.**
9. All graded reports and notebooks will be collected at the end of the semester from the supervisors by the Program Secretariat and archived.

SUMMER PRACTICE REPORT

An important aspect of summer practice is to give students a chance to develop their skills in preparing a technical report. Such a report must reflect **what the student has done in the plant.** The report should preferably be completed **during the practice.**

The actual work done is recorded in the Daily Notebook, thus the Report must present descriptive information about the plant and its processes; have an orderly presentation of the work done, without a repetition of what is already present in the notebook; a personal view about the plant and its practices.

The content of the report should be limited to a total of 5000 words; that means one should be selective in what is to be presented.

Requirements of the report may be summarized as:

- a. The report should be in English and prepared with a word processor. A printed version and a soft copy should be simultaneously presented (the soft copy should be sent to ncchme@metu.edu.tr).
- b. The main body of the text should be in logical order. Titles and subtitles should be presented in a table of contents in the same order, in the same font and format as they appear in the text.
- c. Drawings should conform to standards. Table numbers and titles should be at the top of tables, while figure captions should be at the bottom. Curves on a graph should not

be plotted by hand drawing. Graphs should be prepared by a software such as Excel but the product should be reviewed and properly adjusted. The appearance on the page, the coordinates, the fonts, and other details must be carefully selected and organized.

- d. References to the sources cited in preparing the report must be indicated by conventional means (e.g., by numbers, 12; or by the author surname and year, “Köksal, 2001”). References must be listed orderly (by consecutive numbers or alphabetically) and presented in the “References” section.

A format for a summer practice report is given below. The format will be the same for all reports; details may vary depending on the plant.

Title Page: This is the cover page of the report. It should include at least the following: The heading of Summer Practice Report; **CHME 300 or CHME 400**, as appropriate; the year and the name of the plant where the practice is conducted, the names of the University, the Department, and the student.

Approval Page: Approval Page should be placed here.

Abstract: An abstract gives the essence of the report (usually less than one page). Abstract is written after the report is completed. It must contain the purpose and scope of practice, the actual work done in the plant, and conclusions arrived at. **CHME 400 reports** should include a brief statement indicating where and when the practice of CHME 300 had been completed.

Table of Contents: This page presents all the main-, and sub-titles appearing in the report, and should be accompanied with the corresponding page numbers.

The Company: This section gives general information describing the company and its main area of activity, and usually contains the following:

- Name, location, and a brief history of the company,
- Products, production method (batch/continuous), number of shifts in the plant,
- Installed plant capacity (and, if different, the actual production capacity),
- Brief technical specification of products,
- Main raw materials and their sources (domestic or foreign),
- Main consumers or sectors (domestic or foreign) of the products,
- A scheme describing the organization of the company,
- Number of employees and the breakdown with respect to their functions,
- The functions of chemical engineers in the plant.

Production Processes: This section should contain a **summary** of various aspects and processes of production. **Operations, operating conditions and chemical/physical changes must be explained with reference to a process flow diagram prepared by the student.** Detailed process flow diagrams provided by the company should be presented in Appendices. This section should be reasonably short, however students usually tend to “exaggerate”, since “rich sources” are available in the plant. **Do not use such material or material from internet sources as they are received. Contents obtained** from all those sources should be first read and digested and than **written in your own words.**

Plant Auxiliaries: This section should contain a brief description of auxiliary units and main utilities. Some titles of interest could be the following (if applicable):

- Process utilities (water, steam, air, energy production and distribution)
- Measurement and control of process parameters
- Routine and control laboratories; quality control departments, ISO 9000 studies
- Water treatment for process use, waste treatment for environmental protection
- Storage and transportation; safety and fire protection
- Routine and preventive maintenance

Work Done in the Plant: This is the most important section since it reflects the activities of the student in the plant. The academic supervisor evaluating the report will be more

interested **in this section than any other section of the report**. Contents written in the **Daily Notebook** will be important in evaluating the work done by the student. Students should present in this section,

- Measured or collected data of various operations, and their interpretation,
- Detailed process flow diagrams of units on which they have concentrated,
- Sample calculations, presentation of results in appropriate form

Presentation of any calculation should follow the following steps:

- a- A proper **statement of the problem** considered and the purpose of making the calculations. A short description of the unit studied and the available data (e.g. flow rate, temperature, pressure, composition, etc.).
- b- A clear **analysis of the problem**: Itemization of knowns and unknowns and a method of attack to find the unknowns.
- c- A sample calculation of the problem. Checking the validity of solution.
- d- An **evaluation of the results**. Checking internal consistency of results.

Discussion and Conclusions: The student should discuss various aspects of plant operations, in particular those related to production, productivity, safety, environment, etc., and should arrive at some conclusions. Personal observations about the plant and the overall impression obtained by the student may also be included. He/she may present recommendations with respect to plant operations. Additionally the data collected, the methods utilized, and the results obtained should be carefully discussed. Finally the personal gain obtained during summer practice should be briefly summarized.

References: Literature sources used in the preparation of the report should be listed conforming to accepted standards.

Nomenclature: This should be added if symbols are used extensively.

Appendices (if needed): This section contains additional data and information considered to be relevant to the report, but not appropriate to be included in the main text. Original or prepared tables, drawings, flow sheets, plant layouts, product specification sheets and the like can be presented in Appendices. This section may be divided to subsections such as Appendix A, Appendix B, etc.

Some points to watch

1. The report should be presented in a two hole file (the file and the notebook should be securely bound together).
2. Write only on one side of the paper with 1.5 line spacing
3. All major sections should start on a new page, otherwise you should continue with the next subsection when you are writing
4. Material should be put into proper tabular and graphical form whenever appropriate
5. Abstract should be placed prior to Table of Contents
6. The same captions should be used in Table of Contents and actual text
7. In figure and table captions watch for the use of capital and regular letters
8. In abstract the aim is not to describe the contents but give some factual information

On the next pages a sample of the 'title page' and a sample 'table of contents' are provided. You should conform to their format.

MIDDLE EAST TECHNICAL UNIVERSITY

NORTHERN CYPRUS CAMPUS

CHEMICAL ENGINEERING PROGRAM

SUMMER PRACTICE I REPORT

Submitted by : (name and number)

Submission Date: (dd/mm/year)

COMPANY : (official name of company)

Plant: (name of plant)

Section: (name of section)

Training Period: (dd/mm/year to dd/mm/year)

Kalkanlı – Güzelyurt – NORTHERN CYPRUS

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