



Summer Training Plans for Design and Production Engineering Students

Introduction

The current study bylaws of the Faculty of Engineering – Ain Shams University require that each student in the Design and Production Engineering Program (DPE) should achieve 12 weeks of Field Training as a requirement for graduation. The Faculty Administration together with the Departments and Programs Coordinators are working towards availing training opportunities for the students through agreements with reputable engineering facilities in Egypt.

Overall Objectives of the Field Training

The overall objectives of the Field Training include:

- Exposing the student to the engineering work environment and practicing the engineering profession.
- Acquiring the technical and personal skills through working in a real environment.
- Implementing the engineering concepts in solving real-life problems.
- Familiarizing with contemporary technologies and using new tools and specialized software programs.

Compatibility with the Study Plan

In order to maximize the benefits of the summer training, it is necessary to match the specific objectives of any training period with the study plan of the students. The following are proposed specific objectives for the training as per the student advancement in his/her study plan.

Level 1 (Sophomore)

Students at this level study courses related to the Mechanical Engineering requirements. Accordingly the proposed objectives of the training include exposing the students to engineering systems implementing common concepts in mechanical engineering. These systems may include but not limited to the following:

1. Thermal systems and power plants, etc.
2. Fluid systems such as water plants, and petroleum pipelines, etc.
3. Material processing such as steel plants, machining workshops, etc.
4. Using graphical communication tools such as CAD and 3D modeling software and training in drafting offices.
5. Assembly and disassembly activities such as in overhaul workshops and service centers.



Level 2 (Junior)

Students at this level study courses related to the Design and Production Engineering requirements. Accordingly, the proposed objectives of the training include exposing the students to engineering systems such as:

1. Design and selection of machine elements as in Design Offices using computer-aided tools and contemporary software.
2. Design of products as in Design Offices implementing proper standards, developing the necessary calculations, construction and working drawings, and selecting suitable materials.
3. Calculation and minimization of costs and conducting value engineering.
4. Preparation of process and operation sheets, selection of processes and process parameters, and setting of production machines as in Production facilities and workshops.
5. Measure process parameters and inspect products.
6. Maintain and troubleshoot mechanical equipment as in Maintenance Departments, Production Workshops, and Construction sites.

Level 3 (Senior)

Students at this level study courses related to the Design and Production Engineering concentrations. Accordingly, the proposed objectives of the training include exposing the students to engineering environments involving:

1. Design of production lines and linking different manufacturing processes to achieve desired levels of quality and process performance.
2. Using contemporary machine tools such as CNC machines, machining centers, welding robots, assembly robots, PLC systems, etc.
3. Analysis and design of mechanical systems in design offices and developing technical reports including construction and working drawings as well as calculation sheets and simulations.
4. Operation and analysis of production lines and assembly lines as in Automotive production facilities.
5. Design of Metal Forming dies and metal forming technologies.
6. Prepare business plans and feasibility studies for new startups.



Potential Facilities for DPE Students' Training

The table below lists potential facilities for training DPE students and the link with the study level of those students.

Potential Training Facilities	Level		
	1	2	3
Factories and Production Facilities	√	√	√
Assembly Lines	√	√	√
Engineering Design and Consultation Offices		√	√
Power Plants	√	√	
Water Plants	√	√	
Pipelines Installation and Operation	√	√	
Oil and Gas Production facilities	√	√	
Service Centers	√	√	
Overhaul workshops	√	√	
Railways workshops	√	√	
Construction Companies and Sites		√	√
Machine Condition Monitoring and Services		√	√
Power generation and HVAC Construction and Maintenance	√	√	
Die design and manufacturing workshops			√
National Projects	√	√	√
Startups and Small Enterprises		√	√