جامعة ظفار
Dhofar University

College of Engineering

Practical Training Manual

DHOFAR UNIVERSITY
COLLEGE OF ENGINEERING
Practical Training Manual

Practical Training Details

Student Name									
ID									
Academic Year				Semester					
Department									
Major									
Contact Number									
E-mail									

Internal Supervisor	
Contact Number	
E-mail	

Training Site/ Organization				
Address				
Training period	From		To	
External Supervisor				
Contact Number				
E-mail				

Student's Signature: **Internal Supervisor's Signature:** **External Supervisor's Signature:**

DHOFAR UNIVERSITY

COLLEGE OF ENGINEERING

Student Agreement Form

Student Name	
ID	
Phone No.	
E-mail	
Year	
Semester	
Department	
Course Code	
Training organization	

I am a student enrolled for Practical Training at the above mentioned organisation with my knowledge and consent. I have been given the Practical Training Manual. I have attended the orientation session given at the College. I have also read my roles and responsibilities and the code of ethics and they have also been explained to me during the orientation.

I agree to carry out this Practical Training to the best of my ability. I understand that if I violate any of the code of ethics and do not carry out these roles and responsibilities I can be dropped from the course, based on the feedback from my internal or external supervisor.

Signature of Student Date:

Signature of Internal Supervisor Date:

Contents

1. Introduction

The College of Engineering (CE) at Dhofar University (DU) recognizes the importance of Training Program (TP) in Engineering Education. The learning environment at the College is different than that of the field or factory. The aim of TP is to bridge this gap, and familiarize the students with their prospective careers. The training is a period in which the student spends time with an organization to gain the work experience. It is also an opportunity to network with the potential employers. It is expected that the period in industry will satisfy and strengthen students' knowledge of Engineering.

The objectives of the TP are the following:

- To enable the students to apply the knowledge and skills gained at University.
- To encourage the students to explore and consider a career related to their specialization.
- To provide students with an opportunity to experience the real work situations.
- To equip the students with the skills that are required for job applications.

Upon the completion of the TP, the student will be able to achieve the following Program outcomes:

- Knowledge and appreciation of professional working environments.
- Recognize the link between theory and practical.
- Be confident working within the norms of organizational culture.
- Be able to communicate effectively and work with professionals in any field.
- Some recognition of the problems encountered in industry and how to solve them.

2. Training Details

2.1. Student

For a student to be eligible to register for a TP, the following eligibility criteria shall apply:

1) The prospective student must be enrolled in the University.
2) A Diploma student is eligible to register if he/she has completed the second year of their course.
3) A Bachelor student is eligible to register if he/she has completed the third year of their course.
4) TP is not allowed during a semester in which a student is registered 6 credit hours or more.
5) Any financial responsibilities toward the University have been met.
6) All Departmental pre-training course requirements have been completed.

2.2. Internal Supervisor

The TP shall be managed by the Training Coordinator (TC). The Dean of the College of Engineering will assign a TC in coordination with the University Academic Council; typically, a senior faculty with proper experience in a work system of both the public and private sector. The TC will usually serve for more than one semester. A reduction in the teaching work load will be provided for duties carried out by the TC.

The TC is responsible for the following:

1) Coordinating the stages of the TP.
2) Meeting with the student, and allocating him/her to an accepted training organization.
3) Follow up by visiting the site of training at a later stage.

2.3. Training Organization

The Training Organization (TO) shall be agreed with the TC in advance. The following shall apply to the proposed organization:

1) Be a government body or a reputable registered company.
2) Be willing to appoint a supervisor for the student during the Training.
3) Be willing to keep and provide a record documenting the student's activities during the Training.
4) In some cases, students may gain experience with the University's facilities (Laboratories, Engineering Workshops).

2.4. External Supervisor

The External Supervisor is a person designated by the TO to supervise the student(s) and ensure that the training objectives are met. The External Supervisor will be in consultation with the TC throughout the duration of the TP.

3. Procedure for Training of Students

The following is a brief summary of the TP:

1) The student is encouraged to find his/her own Training opportunity. Alternatively, the TC's Office shall assist the student (s) in finding a suitable TO.
2) A student may acquire the Training experience abroad subject to the approval of the TC's Office, and meeting the condition identified in Section 2.3 above.
3) A Faculty Advisor shall be assigned to each Trainee. The role of the Advisor is to provide guidance and support to the trainee on technical issues and assess the Final Training Report.
4) The duration of the Training should be a minimum of eight weeks. It is expected that the student will work a minimum of 5 hours per day (subject to a total of 200 hours minimum), on mutually agreeable tasks related to the student's field of study.
5) Once the Training commences, the student shall directly report and coordinate with his/her Work Supervisor on the tasks to be accomplished.
6) A student shall complete "Student Attendance Form" and "Students Daily Activity Form" to record his/her attendance and all activities performed during training (Appendix A & B). These forms will help to prepare the final report that will be submitted to the TC's Office after the end of the Training period.
7) The TC shall monitor the progress of student during the Training and manage the Training process from its inception until its completion.

8) At the end of the Training period the external supervisor shall prepare and submit the "External Supervisor Feedback Form" to the TC's Office (Appendix F)
9) At the end of the Training period, the trainee shall submit the Training Reports within a month after the completion of the Training to the TC's Office (Appendix H).
10) The trainee is required to give a presentation about his/her experience.
11) A Diploma or Bachelor student who has been employed in a related field for more than two years may submit a petition with supporting documents requesting exemption from the Training experience.

The following is a brief summary of the training procedures:

1) The student chooses an TO from the posted list or suggests an TO he/she has contacted and fills the "Summer Training Offer Form" and submits it to the TC's Office. If the employer is chosen by the student, the form should be accompanied with a confirmation letter from the employer with the name and contact information of the appointed supervisor.
2) DU has developed standard training plans for all majors within CE (Appendix I). DU will send letters to training venues requesting them to define training tasks conducted on their premises in order to develop a training database.
3) The TC prepares a letter to the Work Supervisor, along with the adjusted training plan and sends it along with the Training Plans and External Supervisor Feedback Form that should be completed by the supervisor and returned to the TC's Office upon completion of the Training period.

4. Orientation

4.1. Internal

The TC will meet with students to explain the following:

1) The importance of Training Program.
2) What is expected of the student during and after the Training.
3) Arrange for all the training requirements and sends students to the TO with the relevant documents.

4.2. External

The External Supervisor will meet with the student, collect all the relevant paperwork. He/she will explain the policies and procedures related to the training, including health and safety procedures, and arrange gate passes and permissions. The External Supervisor, in conjunction with the internal supervisor, is responsible for solving any problem which arises during the Training Program.

5. Instructions and Guidelines (Roles & Responsibilities)

5.1. Student

Every student in the CE undertaking a Training should abide by the workplace rules and regulations with regards to health and safety. They should adhere to the instructions given by External Supervisor. The students must strictly adhere and ensure their health and safety at the workplace by adhering to the following:

1) Students should not ENTER or VISIT specific areas which are designated as NOT PERMITTED/ DANGEROUS areas.
2) Students must protect themselves and follow any instructions given by the External Supervisor.
3) Students should make an effort to gain as much knowledge and experience as possible from the Training.

5.2. Internal Supervisor

The TC plays an important role and should be involved in the entire training process. The training procedure is divided into three stages. In each stage, the TC is responsible for several tasks as follows.

I) Stage One (beginning of training)

1) The TC should brief the student about the nature of work at the TO. He should clarify what is expected of the student during the training period and what is expected of him after the completion of the training.
2) The TC should complete the relevant forms, provide the student with the relevant paperwork.
3) The TC should brief the External Supervisor about the objectives and requirements of the training.

II) Stage Two (during the training)

1) Assist the student and provide information and advice with planning the training by identifying the goals and objectives of the practical training.
2) Encourage the student development in a manner consistent with DU Code of Ethics.
3) Review the schedule of the training with the External Supervisor.
4) Advise the student on how to apply and connect the theory with applications, and benefit from the work experience.
5) Advise the external supervisor on integrating the learning outcomes and objectives during the training.
6) Assists students in solving problems and overcoming any difficulties that may arise.
7) Conduct follow up visits to the site to monitor the student progress and welfare. The number of visits should be a minimum of two, one of the visits can be replaced by a phone call to the student. The visits should be timed to cover the period of the training.

8) Review the Student Attendance Record.
9) Oversee the assessment process and provide grades at the end of the training.
10) Assists students and External Supervisor with the evaluation process.

III) Stage 3 (end of training)

1) Request that the External Supervisor complete the External Supervisor Feedback Form.
2) Collect the necessary forms and information from the External Supervisor.
3) Collect the Training Report from the student
4) Arrange for a presentation to be given by the student.

5.3. External Supervisor

The main duties of the External Supervisor are to provide the student with an opportunity to gain valuable work experience. The External Supervisor should have a Training Plans for the student, this should be agreed with the TC. In general, it is expected that the External Supervisor and TC should work together to ensure a successful training. The responsibilities of the External Supervisor include:

I) Stage One (beginning of training)

1) Understand the requirements of the training session.
2) Read the Practical Training Manual (PTM) and consult with the TC to finalize the arrangements for the training.
3) Prepare the training Schedule in view of the organization capability and the PTM requirements.
4) Provide the student with an inductions and familiarize him/her with the organization and work system.
5) Make the student aware of their rights and responsibilities.
6) Provide the student with any information regarding access and clearance to the training site.

II) Stage Two (during the training)

The External Training Supervisor must ensure, as far as practicable, that:

1) The place of work is safe of any hazard or risk, and if any risks are present, the student is made aware of.
2) Provide the student with adequate supervision and clear instruction to achieve the goals of the training.
3) Provide a Training Plan and schedule for the student to better manage the training period and ensure that the tasks are followed accordingly.
4) Monitor the student attendance by checking the Student Attendance Record and Student Daily Activities Form.
5) Inform the TC of any issues that involve the student behavior or discipline, including any inexcusable absence.
6) The Student Attendance Record Form is timely filled and maintained.

7) A record of the tasks completed, and performance is kept. This should aid in filling the External Supervisor Feedback Form for reference.
8) Be present to meet with the TC during site visits to discuss the student's performance.

III) Stage 3 (end of training)

At the end of the training, the External Supervisor should complete the Assessment Sheet and kindly fill the External Supervisor Feedback Form for the student (s) undertaking the training. The External Supervisor Feedback Form is useful in improving education by incorporating skills and knowledge that our students may be lacking. All forms should be returned to the TC.

6. Assessment Criteria

6.1. Assessment Mechanism

After the completion of the training, the Student should submit a "Training Report" (Appendix H). He/she is also required to give a presentation outlining his/her work experience. The procedure for the assessment of the training module is as follows:

1) The student submits a formal report on his/her experience. This has to be submitted within one month of the end of training. The report has to be checked using Turnitin.
2) The student is then required to give a PowerPoint presentation. This must be prepared by the student and will be presented in front of Faculty assigned by the respective Chairperson who will grade the presentation.
3) The assessment components of the practical experience consist of:
    a) Student Daily Activities Form
    b) Training Report
    c) Presentation
    d) Assessment Forms
4) The following are the outcomes of the assessment:
    a) Pass
    b) Resubmit
    c) Interview
    d) Fail

6.2. Assessment Areas

The aim of the training is to strengthen the student's knowledge in his/her chosen subject, and improve confidence and communication skills. The areas that should form the basis of the assessment should:

1) Disciplinary and Professional Behavior: This should include the student's attendance, commitment and enthusiasm (can be verified from site visits and the external examiner feedback).
2) Technical Skills: These vary and depend on the different departments (CHE/CVE/ECE/MME/AE). Each department should identify the required technical outcomes expected from the training.

3) Communication Skills: The ability to communicate ideas and proposal effectively, either in writing e.g., through emails, letters and reports or verbally through presentations (can be verified from report and presentation and any other formal communication).
4) Interpersonal Skills: The ability to build and maintain the professional relationships in the work place (can be verified from site visits and External Supervisor feedback).
5) Personal Qualities: Enthusiasm, constructing arguments, confidence, creativity and judgment (can be verified from the report and presentation).

7. Appendices

A. Student Attendance Record
B. Student Daily Activity Form
C. Internal Supervisor's Visit/Phone Call Report
D. Student's Feedback Form
E. Internal Supervisor's Feedback Form
F. External Supervisor's Feedback Form
G. Report Grading Form
H. Training Report Format
I. Practical Training Plans

APPENDIX A - STUDENT ATTENDANCE RECORD

This form is to be filled by the student (Trainee) for each day during the Training period.

Week	Date	Time		Signature	
		In	Out	Trainee	Supervisor
1					
2					
3					
4					
5					
6					
7					
8					

APPENDIX B - STUDENT DAILY ACTIVITY FORM

This form is to be filled by the student (Trainee) on tasks accomplished during the Training period.

Week	Date	Description of Tasks	# Hours Spent	Outcome*	Signature of Supervisor
1					
2					
3					
4					

5					
6					
7					
8					
	* A – Accomplished, NA – Not Accomplished				

APPENDIX C - INTERNAL SUPERVISOR'S VISIT/PHONE CALL REPORT

This form is to be filled by the Internal Supervisor.

Visit No.	Date	Type of Visit	Brief Comments	Signature
1		On Site		
		Phone Call		
2		On Site		
		Phone Call		
3		On Site		
		Phone Call		
4		On Site		
		Phone Call		
Final Comments of Internal Supervisor:				
Internal Supervisor's Signature:			Date:	

APPENDIX D – STUDENT'S FEEDBACK FORM

This form is to be filled by the Student (Trainee) after completing the Training experience.

1. The training experience tasks were challenging and rewarding.								
	Strongly Agree		Agree		Neutral		Disagree	Strongly Disagree
2. The training tasks required the use of skills and knowledge learned in the major courses.								
	Strongly Agree		Agree		Neutral		Disagree	Strongly Disagree
3. The training supervisor was helpful and available when needed.								
	Strongly Agree		Agree		Neutral		Disagree	Strongly Disagree
4. I was able to get along with all that I worked with.								
	Strongly Agree		Agree		Neutral		Disagree	Strongly Disagree
5. The training environment helped me better understand the how the real world operates.								
	Strongly Agree		Agree		Neutral		Disagree	Strongly Disagree
6. As a result of the training experience I have a better understanding of what the real world needs.								
	Strongly Agree		Agree		Neutral		Disagree	Strongly Disagree
7. I will accept an offer to work for the company after graduation.								
	Strongly Agree		Agree		Neutral		Disagree	Strongly Disagree
8. I am satisfied with the training experience venue.								
	Strongly Agree		Agree		Neutral		Disagree	Strongly Disagree
9. The learning activities at DU prepared me to take on new tasks and accomplish them successfully.								
	Strongly Agree		Agree		Neutral		Disagree	Strongly Disagree

State the things you wished you had experienced during the training period.

Additional Comments:

Student's Signature: Date:

APPENDIX E - INTERNAL SUPERVISOR'S FEEDBACK FORM

This form is to be filled by the Internal Supervisor after completion of training.

The trainee exhibited an overall positive attitude toward his work ☐ Strongly Agree ☐ Agree ☐ No Opinion ☐ Disagree ☐ Strongly Disagree				
The trainee's work performance was always to the expected quality ☐ Strongly Agree ☐ Agree ☐ No Opinion ☐ Disagree ☐ Strongly Disagree				
The trainee exhibited organizational and planning skills ☐ Strongly Agree ☐ Agree ☐ No Opinion ☐ Disagree ☐ Strongly Disagree				
The trainee was cooperative and performed well as a team player ☐ Strongly Agree ☐ Agree ☐ No Opinion ☐ Disagree ☐ Strongly Disagree				
Please rate the trainee in the following areas:				
Attendance	Excellent	Good	Satisfactory	Poor
Punctuality	Excellent	Good	Satisfactory	Poor
Initiative	Excellent	Good	Satisfactory	Poor
Judgment	Excellent	Good	Satisfactory	Poor
Self-reliance	Excellent	Good	Satisfactory	Poor
Responsibility	Excellent	Good	Satisfactory	Poor
Adaptability	Excellent	Good	Satisfactory	Poor
Follow Rules	Excellent	Good	Satisfactory	Poor
Ability to Learn	Excellent	Good	Satisfactory	Poor
Communication Skills	Excellent	Good	Satisfactory	Poor
Overall Performance: ☐ Excellent ☐ Very Good ☐ Good ☐ Satisfactory ☐ Unsatisfactory				
What is the student's most positive attribute?				
In what area(s) can the student improve?				
How do you feel DU has prepared this student? ☐ Exceptionally Well ☐ Very Good ☐ Sufficiently ☐ Insufficiently				
Additional Comments:				
Internal Supervisor's Signature: Date:				

APPENDIX F - EXTERNAL SUPERVISOR'S FEEDBACK FORM

This form is to be filled by the External Supervisor after completion of Training.

The trainee exhibited an overall positive attitude toward his work ☐ Strongly Agree ☐ Agree ☐ No Opinion ☐ Disagree ☐ Strongly Disagree				
The trainee's work performance was always to the expected quality ☐ Strongly Agree ☐ Agree ☐ No Opinion ☐ Disagree ☐ Strongly Disagree				
The trainee exhibited organizational and planning skills ☐ Strongly Agree ☐ Agree ☐ No Opinion ☐ Disagree ☐ Strongly Disagree				
The trainee was cooperative and performed well as a team player ☐ Strongly Agree ☐ Agree ☐ No Opinion ☐ Disagree ☐ Strongly Disagree				
Please rate the trainee in the following areas				
Initiative	Excellent	Good	Acceptable	Poor
Judgment	Excellent	Good	Acceptable	Poor
Self-reliance	Excellent	Good	Acceptable	Poor
Responsibility	Excellent	Good	Acceptable	Poor
Adaptability	Excellent	Good	Acceptable	Poor
Punctuality	Excellent	Good	Acceptable	Poor
Attendance	Excellent	Good	Acceptable	Poor
Accepts Criticism	Excellent	Good	Acceptable	Poor
Follow Rules	Excellent	Good	Acceptable	Poor
Ability to Learn	Excellent	Good	Acceptable	Poor
Communication Skills	Excellent	Good	Acceptable	Poor
Overall Performance: ☐ Excellent ☐ Very Good ☐ Good ☐ Satisfactory ☐ Unsatisfactory				
What is the student's most positive attribute?				
In what area(s) can the student improve?				
How do you feel DU has prepared this student? ☐ Exceptionally Well ☐ Very Good ☐ Sufficiently ☐ Insufficiently				
Additional Comments				
External Supervisor's Signature: Date:				

APPENDIX G - REPORT GRADING FORM

1) Report Contents

Report Contents	Yes	No
Cover Page		
Table of Contents		
Introduction		
Conducted Tasks		
Conclusions		
References		
Appendices		

(Please tick the appropriate box)

2) Report Layout

Report Contents	Yes	No
Proper English Language		
Justified Margins		
Titles and Subtitles		
Page Numbering		
Titles of Figures		
Titles of Tables		
Unified Format		

(Please tick the appropriate box)

3) Authenticity and Academic Integrity

4) Additional Remarks

5) Final Grade

P	Pass	
R	Resubmit	
I	Interview	
F	Fail	

(Please tick the appropriate box)

Faculty Advisor's Signature: **Date:**

APPENDIX H - TRAINING REPORT FORMAT

A trainee should follow the format given below. Additional sections may be added.

1. Cover Page

To include: Title, Name, ID Number, College, Department, Major, and Date of Submission.

2. Table of Contents

To include: all sections with relevant page numbers.

3. Report Summary

To include: summary of training and skills acquired.

4. Tasks Accomplished

To include: the major tasks listed in the *Student Daily Activity Form* and brief description.

4.1. Task 1

4.1.1 Task

Describe the task.

4.1.2 Duration

Number of hours/days/weeks spent.

4.1.3 Description

This section should briefly summarize the task.

4.2. Task 2

4.2.1 Task

Describe the task.

4.2.2 Duration

Number of hours/days/weeks spent.

4.2.3 Description

This section should briefly summarize the task.

(and so on)

5. Conclusions and Recommendations

What did you learn? What did you find most useful? What would you improve? What are your recommendations?

6. Reference

Clearly list all reference materials (books, journals, reports, website, newspapers, etc.)

7. Appendices

Include any further documentation deemed relevant for this report.

APPENDIX I – PRACTICAL TRAINING PLAN

APPENDIX I/1- Practical Training Plan typical tasks expected to be covered – (ECE) Majors. CCE and EEE

Task No.	Dept.	Task	Task Definition (Electrical Engineering related)	Training venue	
				Tick if task valid	Comments
1	Administration Tasks	Administration of the training venue	Get to know the structure of organization (company, firm, institute, etc.), its divisions, and outline the administrative and technical duties for each division. Inform trainees about the safety measurements and regulations in the organization.		
2		Structure of the divisions broadly related to Electrical Engineering	Understand the specific structure of the divisions related to Electrical Engineering (e.g. electrical, computer, communication, etc.) and outline the administrative and technical duties for each component.		
3	Electrical Maintenance	Structure of the maintenance department	Understand the structure and main duties of this division and the level of maintenance that forms the scope of duties.		
4		Apparatus and tools used by maintenance personal	Understand the main tools, instruments, and apparatus that are used during maintenance and introduce a trainee to their use.		
5		Maintenance procedure	Get to know the procedure followed when maintenance is required (administrative and technical). Emphasize the technical process during maintenance (e.g. how to diagnose the fault, how to test basic components using the instruments).		
6	Computers and IT	Main parts of a computer	Recognize the main parts of the computer and show them to the trainee (e.g. CPU, Memory, storage devices, power supply, I/O interfaces, etc.). Emphasize on confidentiality policy and regulations followed in the organization.		
7		Computer installation	Introduce trainee to the steps and procedures followed during computer installation, and involve them to carry out some of these tasks.		
8		Computer maintenance	Get to know the common possible problems in computers (e.g. viruses) and the ways to diagnose them as well as the possible prevention methods.		

9		Software packages used	Figure out the software packages that are used in the organization. Both generic (e.g. Microsoft office, SQL, etc.) and customized (e.g. automation of the machines in the organization, customized SCADA, etc.).		
10	Networks	Network topology	Understand the topological structure of the network used in the training venue (star, bus, mesh, wireless , etc.), and the arrangement of various elements (links, nodes, etc.).		
11		Skills of a network engineer	Understand the skills required from a computer engineer in an organization. Link these skills with the network in the training venue.		
12		Practice some of the day to day tasks	Introduce the trainee to some computer network's day-to-day tasks (e.g. installing new software and/or hardware, setting new accounts, finding and fixing faults, etc.).		
13	Telecommunications	Components of a telecommunication system	Get to know the main components of a telecommunication system (e.g. terminals, channels, messages, control software, protocols, etc.).		
14		Telecommunication engineer responsibilities	Introduce trainees to the normal telecommunication engineer responsibilities and show them how they are practiced in real life (e.g. conducting site visits, identify technical problems, responding to urgent situations, etc.).		
15		Relate information theory with telecommunications	Understand the involvement of information theory aspects (source coding, channel coding, cryptography, etc.) and their application in the real systems in use.		
16	Electrical Power	Electrical power generation	Understand the electrical power generation technology used in the training venue (e.g. Fossil fuel, hydro power, etc.), the capacity of generators, the main parts of the adopted technology. Introduce the utilization of renewable energy sources (e.g. solar, wind, etc.) in the region.		
17		Electrical power grid	Get to know the electrical transmission and distribution network (power grid) and its components in the region, and the parts covered with overhead and underground.		
18		Electrical protection systems	Comprehend the electrical protection systems that are adopted in the organization (e.g. circuit breakers, overload relays, earthling system, etc.)		

19		Main skills expected that an EP engineer has	Understand the main skills required from an electrical power engineer (e.g. problem solving, control and monitoring, data acquisition, etc.) and linking them with real life practice.		
20	Production and Processing	Consistency with regulations and standards	Get to know that products have to be of consistent high quality, where a company complying with regulations and standards will avoid product failures and recalls, and help entering new markets.		
21		Main responsibilities of an electrical engineer in production and processing plant	Understand the main skills required from an electrical engineer in production and processing plant. (e.g. operation monitoring, equipment maintenance, knowledge of automation, etc.) and linking them with real life practice.		
	Tasks that are Suggested, added and/or Changed by the Training Venue				

APPENDIX I/2 - Practical Training Plan typical tasks expected to be covered – (MME)

Task No.	Dept.	Task	Task Definition (Mechanical Engineering related)	Training venue	
				Tick if task valid	Comments
1	Administration Tasks	Administration of the training venue	Get to know the structure of organization (company, firm, institute, etc.), its divisions, and outline the administrative and technical duties for each division. Inform trainees about the safety measurements and regulations in the organization.		
2		Structure of the divisions broadly related to mechanical engineering	Understand the specific structure of the divisions related to Mechanical Engineering (e.g. Raw material, Production or Machining, Quality, Instrumentation, Assembly, Testing, Utilities, etc.) and outline the administrative and technical duties for each component.		
3	Raw Material	Structure of the raw material department.	Understand the structure and main duties of this division and learn how to check the quality of the raw material.		
4	Production (machining) and Processing	Apparatus and tools, software used for production facility	Understand the main tools, instruments, simulation software and apparatus those are used during production and introduce a trainee to their use.		
5		Consistency with regulations and standards	Get to know that products have to be of consistent high quality, where a company complying with regulations and standards will avoid product failures and recalls, and help entering new markets.		
6		Main responsibilities of an mechanical engineer in production and processing plant.	Understand the main skills required from a mechanical engineer in production and processing plant. (e.g. operation monitoring, equipment maintenance, knowledge of automation, etc.) And linking them with real life practice.		
7		Line tracing & trouble shooting	Get to know the procedure followed when maintenance is required (administrative and technical). Emphasize the technical process during maintenance (e.g. how to diagnose the fault, how to test basic components using the instruments).		

8	Assembly and Quality Insurance	Assembly department	Get to know the procedure and machine used by assembly department for assembly of different components.		
9		Quality testing lab.	Identify the equipment used by the quality department to check the quality of the final product.		
10		Hands on experience	Introduce trainee to the procedures followed during testing, and involve them to carry out some of these tasks and should have knowledge how to fix common problems facing in testing samples. And should learn which parameters are important to accept or reject any component.		
11		Reporting	Trainee should know, how to report all the result carried by machine in technical way.		
12		Software packages used	Figure out the software packages those are used in the organization. Both generic (e.g. Microsoft office.) and customized (e.g. 2D and 3D modeling, automation of the machines in the organization, and different analysis software.).		
13	Research & Development (R & D)	Supervisor, parts, testing machine development	Trainee should work with one of the staff member in R & D section so he/she can understand how to design a component or machine and make development of the their product for the better understanding of process.		
14	Instrumentation	General instrumentation	Trainee should get knowledge what kind of instrumentation involve in each section of organization.		
15		Plant/Field instrumentation	Understand the skills required from an engineer in an organization. Link these skills with the distributed control system (DCS) & field in the training venue.		
16		Practice some of the daily tasks	Introduce the trainee to some field day-to-day tasks (e.g. how to use different instruments, apparatus, machining, assembling, testing etc.).		

17	Utilities Section	Structure of the department	Trainee should know the structure of the following division, so in case of work they can contact the right person.		
18		Facilities	Trainee should know to fix the common problem which he/she will face during operation/production or machining by knowing all kind of facilities available with different department.		
19	Supervisor	Reporting	Trainee should make a comprehensive report for the supervisor with presentation & poster same he/she can present in his/her institution for the evaluation.		
	Tasks that are Suggested, added and/or Changed by the Training Venue				

APPENDIX I/3 - Practical Training Plan typical tasks expected to be covered – (CHE)

Task No.	Department	Task	Task Definition (Chemical Engineering related)	Training venue	
				Tick if task valid	Comments
1	Administration Tasks	Administration of the training venue	Get to know the structure of organization (company, firm, institute, etc.), its divisions, and outline the administrative and technical duties for each division. Inform trainees about the safety measurements and regulations in the organization.		
2		Structure of the divisions broadly related to Chemical Engineering	Understand the specific structure of the divisions related to Chemical Engineering (e.g. Production, Quality, Instrumentation, Utilities etc.) and outline the administrative and technical duties for each component.		
3	Production and Processing	Structure of the Production department	Understand the structure and main duties of this division and the level of that forms the scope of duties.		
4		Apparatus and tools, Software used for Production facility	Understand the main tools, instruments, software and apparatus that are used during production and introduce a trainee to their use.		
5		Consistency with regulations and standards	Get to know that products have to be of consistent high quality, where a company complying with regulations and standards will avoid product failures and recalls, and help entering new markets.		
6		Main responsibilities of an Chemical engineer in production and processing plant	Understand the main skills required from a Chemical engineer in production and processing plant. (e.g. operation monitoring, equipment maintenance, knowledge of automation, etc.) And linking them with real life practice.		
7		Line tracing & Trouble shooting	Get to know the procedure followed when maintenance is required (administrative and technical). Emphasize the technical process during maintenance (e.g. how to diagnose the fault, how to test basic components using the instruments).		
8	Quality & Production	Quality testing lab.	Identify the equipment used by the Quality department to check the quality of the final product.		

9		Hands on experience	Introduce trainee to the procedures followed during Testing, and involve them to carry out some of these tasks and should have knowledge how to fix common problems facing in testing samples.		
10		Reporting	Trainee should know, how to report all the result carried by machine in technical way.		
11		Software packages used	Figure out the software packages that are used in the organization. Both generic (e.g. Microsoft office, SQL, etc.) and customized (e.g. automation of the machines in the organization, customized SCADA, etc.).		
12	Research & Development	Supervisor	Trainee should work with one of the staff member in R & D so he can understand how to design a process and make development of the their product for the better understanding of process.		
13	Instrumentation	General instrumentation	Trainee should get knowledge what kind of instrumentation involve in each section of organization.		
14		Plant/field instrumentation	Understand the skills required from a Process engineer in an organization. Link these skills with the distributed control system (DCS) & Field in the training venue.		
15		Practice some of the day to day tasks	Introduce the trainee to some field day-to-day tasks (e.g. how to use different instruments , apparatus, valve operation, pump bypassing, cleaning etc.).		
16	Utilities Section	Structure of the department	Trainee should know the structure of the following division, so in case of work they can contact the right person.		
17		Facilities	Trainee should know to fix the common problem which he/she will face during operation/production by knowing all kind of facilities available with department.		
18	Supervisor	Reporting	Trainee should make a comprehensive report for the supervisor with presentation & Poster same he can do present in her institution for the evaluation.		

	Tasks that are Suggested, added and/or Changed by the Training Venue				

Additional points

1. Ability of students to make system analysis and produce mathematical model using numerical technique.
2. Ability of students to understand the mechanism of process like heat exchanger, fluidized bed, distillation column, etc.
3. Ability of students to optimize control system and evaluate control parameters like overshoot, decay ratio, rise time, response time and IAE (integral absolute error).
4. Ability of students to understand mechanism operation of mass transfer.
5. Ability of students to understand mechanism operation of heat transfer.
6. Ability of students to understand mechanism operation of fluid flow and pipe design.
7. Ability of students to understand waste water treatment in all states.
8. Ability of students to understand mechanism of chemical reaction.

Training period between the 1st to 2nd week.

- Early in the training period, the student should be introduced to the problem on which he/she will be working.
- The aims/objectives of the work should be explained to the student and should be clearly understood by him/her.
- The student should be encouraged to work as independently as possible, but feedback to a responsible person/supervisor on a regular basis will be required to guide the student's work.
- Wherever possible the student should be given challenging tasks, in keeping with his/her level of development. Routine tasks should preferably not be performed for extended periods.

Training period between the 3rd and 5th week.

- Process work on a chemical plant. Introduction to process equipment and plant operation, shift-work, control room and investigational work on the plant.
- Material and energy balance problems and investigations.
- Process efficiency and economics.
- Chemical engineering research-preferably of a practical nature.

Training period between the 5th and6th week.

- General work on a chemical plant - especially production and process orientated.
- including maintenance planning, investigation into efficiency of production units, general organisation, construction, etc.
- Design and planning of extensions, including economic aspects.
- Design and evaluation of possible process changes and/or new projects.
- Projects of a research and development nature.

General guidelines

1. The allocation of a problem which would test the ingenuity of the student would be particularly useful. The substance of such work could then be used in report writing and as a topic for class discussions.
2. It is recommended that a detailed practical training programme be drawn up beforehand and that the student be given a copy of this.
3. Wherever possible, the student should be directly responsible to an engineer. It is in any case necessary that the student should know at all times who his/her immediate supervisor is.
4. The student gains maximum benefit from the practical training if the problem he/she is working on is known and if the aims/objectives are very clearly stated.

APPENDIX I/4 - Practical Training Plan Typical Tasks expected to be covered – (CVE)

Task No.	Department	Task	Task Definition (Civil Engineering related)	Training venue	
				Tick if Task is valid	Comments
1	Administration Tasks	Understand the organization's structure	Understand the organization (company, firm, consultancy, etc.) structure, components and outline the administrative and technical duties for each component.		
2		Understand project's structure	Understand the specific site structure and components, different parties involved in the project, and outline the administrative and technical duties for each component.		
3	Design & Draft Tasks	Assets in producing civil and detailing solutions	Produce civil engineering solutions in the form of sketches to solve detailing and constructional problems.		
4		Participate in working drawing production	Produce shop drawings in AutoCAD format to assist in project detailing and construction		
5	Project Management Tasks	Attending meetings	Attending meeting and recording meeting minutes (without disturbing the meeting).		
6		Attend site inspections and site visits	Attending site inspection/visits and writing report (without disturbing the inspection/visit).		
7		Understand project paper work	Describe paper work used in the project in detail and submitting examples for these documents (variation order, progress report, etc.		
8		Understand payment procedures	Describe main contractor payment procedures implemented in the project and participating in calculating and measuring finished portions.		
9		Project Management procedures implemented in the project	Describe project management procedures and methods implemented in the project to control (time-cost-quality).		

10	Construction site Tasks	Understand safety procedures in the site.	Understand the safety concepts and procedures implanted in the site and the procedures implemented in case of emergencies and accidents.		
11		Materials tests	Comprehend the materials tests (steel, fresh concrete, aggregates, cement, etc.) being conducted for the project at site.		
12		Construction machinery	Comprehend the use of construction machinery used at construction site.		
13		New Materials	Comprehend the use of new civil engineering materials for finishing and other related activities.		
14		Understand the structure system in the Project	Understand the structural system in the project and its different components (Footings, columns, beams, slabs, stairs, etc.) (This task would be accomplished by reviewing structural drawings with the assistant of the civil engineer).		
	Tasks that are Suggested, added and/or Changed by the Training Venue				

Remarks

- Some tasks may be not applicable in certain organizations or project sites, in this case certain tasks can be repeated.
- For the tasks 1 and 2 the assistance of senior staff is required.
- For the tasks 7-14 the assistance of civil engineer is required.

APPENDIX I/5 - Practical Training Plan Typical Tasks expected to be covered – (AE)

Task No.	Department	Task	Task Definition (Architecture Engineering related)	Training venue	
				Tick if task is Valid	Comments
1	Administration Tasks	Understand the organization's structure	Understand the organization (company, firm, consultancy, etc.) structure, components and outline the administrative and technical duties for each component.		
2		Understand project's structure	Understand the specific site structure and components, different parties involved in the project, and outline the administrative and technical duties for each component.		
3	Architectural Tasks	Areas study	Study and analyze areas for different spaces of the building and implement a comparison study between areas of different types of the building. Example Administration, Support, Accommodation, Commercial, Service, Structure and Circulation spaces, buildings verses landscape and others.		
4		Assets in Producing architectural and detailing solution	Produce architectural solutions in the form of sketches to solve detailing and constructional problems.		
5		Participate in working drawing production	Produce shop drawings in AutoCAD format to assist in project detailing and construction.		
6		Understand safety procedures in the site.	Understand the safety concepts and procedures implanted in the site and the procedures implemented in case of emergencies and accidents.		
7	Project Management Tasks	Attending meetings	Attending technical meeting and recording meeting minutes (without disturbing the meeting).		
8		Attend site inspections and site visits	Attending site inspection/visits and writing report (without disturbing the inspection/visit).		
9		Understand project paper work	Describe paper work used in the project in detail and submitting examples for these documents (variation order, progress report, etc.).		
10		Understand payment procedures	Describe main contractor payment procedures implemented in the project and participating in calculating and measuring finished portions.		

11		Project Management procedures implemented in the project.	Describe project management procedures and methods implemented in the project to control (Time-cost-quality).		
12	Con. Task	Understand the structure system in the building	Understand the structural system in the building and its different components (This task would be accomplished by reviewing structural drawings with the assistant of the civil engineer).		
13	Env. Systems Tasks	Understand the fire alarm and firefighting systems in the building	Understand the fire alarm and firefighting systems in the building and its different components (This task would be accomplished by reviewing mechanical drawings with the assistance of the mechanical engineer).		
14		Understand the Heating, ventilating and air conditioning systems in the building	Understand the heating, ventilating and air conditioning systems in the building and its different components (This task would be accomplished by reviewing mechanical drawings with the assistance of the mechanical engineer).		
15		Understand the water supply system in the building	Understand the water supply system in the building and its different components (This task would be accomplished by reviewing mechanical drawings with the assistance of the mechanical engineer).		
16		Understand the power supply system in the building	Understand the water supply system in the building and its different components (This task would be accomplished by reviewing mechanical drawings with the assistance of the mechanical engineer).		
17		Understand the water drainage system in the building	Understand the water drainage system in the building and its different components (This task would be accomplished by reviewing mechanical drawings with the assistance of the mechanical engineer).		
	Tasks that are Suggested, added and/or Changed by the Training Venue				

Remarks

- Some tasks may be not applicable in certain organizations or project sites, in this case certain tasks can be repeated.
- For the tasks 1 and 2 the assistance of senior staff is required.
- For the tasks 4-9 the assistance of architectural staff is required.
- For the tasks 10-12 the assistance of civil engineer staff is required.
- For the tasks 13-17 the assistance of mechanical engineering staff is required.

8. Abbreviations

AE	------	Architectural Engineering
CE	------	College of Engineering
CHE	------	Chemical Engineering
CVE	------	Civil Engineering
DU	------	Dhofar University
ECE	------	Electrical and Computer Engineering
MME	------	Mechanical and Mechatronics Engineering
PTM	------	Practical Training Manual
TC	------	Training Coordinator
TO	------	Training Organization
TP	------	Training Program


جامعة ظفار
Dhofar University