



## 54. Course Specification of Industrial Training

I. Course Identification and General Information:						
1.	Course Title:	Industrial Training				
2.	Course Code & Number:	PME416				
3.	Credit hours:	C.H				Total
		Th.	Tu.	Pr	Tr.	
		1	-	-	4	3
4.	Study level/ semester at which this course is offered:	5 <sup>th</sup> Level/2 <sup>nd</sup> Semester				
5.	Pre –requisite (if any):	NA				
6.	Co –requisite (if any):	NA				
7.	Program (s) in which the course is offered:	All Programs				
8.	Language of teaching the course:	English/Arabic				
9.	Location of teaching the course:	Industry, Labor Market, Industrial Firms.				
10.	Prepared By:	Asst. Prof. Dr. Adel Al-Shogairy				
11.	Date of Approval					

II. Course Description:
<p>Industrial Training refers to the work experience that is relevant to professional development in which students will relate knowledge and skills learned at the university with practical skills and the applications in the industry. This course describes how the students can perform their industrial training at the labor market. Each organization or factory requires different knowledge regarding the courses which have been taken in the previous years. During the industrial training, the students can build a platform and compare the theoretical aspects with the practical one which exists in the prescribed industry. The course is divided into 14 weeks and the students will spend a number of weeks in the industries. Industrial training could be arranged through correspondence between the Faculty of Engineering and Industrial Plants.</p>

III. Course Intended learning outcomes (CILOs) of the course	Referenced PILOs	
a1	Define general and specific working procedures in the field of engineering related to the industry.	A1,A2

Head of Department  
 Asst. Prof. Dr. Adel Ahmed Al-Shakiri

Quality Assurance Unit  
 Assoc. Prof. Dr. Mohammad Algorafi

Dean of the Faculty  
 Prof. Dr. Mohammed AL-Bukhaiti

Academic Development Center & Quality Assurance  
 Assoc. Prof. Dr. Huda Al-Emad

Rector of Sana'a University  
 Prof. Dr. Al-Qassim Mohammed Abbas



<b>a2</b>	Obtain exposure and practical experience in the related field.	A4
<b>b1</b>	Investigate suitable methods for solving Electrical Engineering problems.	B2
<b>b2</b>	Contrast the problems related to the real applications.	B3
<b>c1</b>	Conduct experiments in the specialized areas.	C1
<b>c2</b>	Solve industrial problems Using knowledge taught .	C2
<b>d1</b>	<b>Commit to</b> duty, professional responsibility and ethics of an engineer	D1, D4
<b>d2</b>	Write technical report for the training undertaken.	D2
<b>d3</b>	Communicate effectively in the working environment.	D3, D4

<b>(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<b>a1-</b> Define general and specific working procedures in the field of engineering related to the industry.	<ul style="list-style-type: none"> <li>▪ Active Lectures.</li> <li>▪ Orientation and Organization.</li> <li>▪ Field Visit.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Follow up Scheme.</li> <li>▪ Seminar.</li> <li>▪ Oral Discussion.</li> <li>▪ Field Supervision Report.</li> </ul>
<b>a2-</b> Obtain exposure and practical experience in the related field.	<ul style="list-style-type: none"> <li>▪ Active Lectures.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Presentation.</li> <li>▪ Written Assessment.</li> </ul>

<b>(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<b>b1-</b> Investigate suitable methods for solving Electrical Engineering problems.	<ul style="list-style-type: none"> <li>▪ Active Lectures.</li> <li>▪ Orientation and Organization.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Written Reports.</li> <li>▪ Seminar.</li> <li>▪ Field Supervision Report.</li> </ul>
<b>b2-</b> Contrast the problems related to the real applications.	<ul style="list-style-type: none"> <li>▪ Active Lectures.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Written Reports.</li> <li>▪ Seminar.</li> </ul>

<b>(C) Alignment Course Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies

Head of  
 Department  
 Asst. Prof. Dr.  
 Adel Ahmed Al-  
 Shakiri

Quality Assurance  
 Unit  
 Assoc. Prof. Dr.  
 Mohammad Algorafi

Dean of the Faculty  
 Prof. Dr. Mohammed  
 AL-Bukhaiti

Academic  
 Development  
 Center & Quality  
 Assurance  
 Assoc. Prof. Dr.  
 Huda Al-Emad

Rector of Sana'a University  
 Prof. Dr. Al-Qassim Mohammed  
 Abbas



<b>c1-</b> Conduct experiments in the specialized areas.	<ul style="list-style-type: none"> <li>▪ Active Lectures.</li> <li>▪ Lab. Specifications.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Seminar.</li> <li>▪ Field Supervision Report.</li> <li>▪ Lab. Report.</li> </ul>
<b>c2-</b> Solve industrial problems Using knowledge taught .	<ul style="list-style-type: none"> <li>▪ Active Lectures.</li> <li>▪ Lab. Specifications.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Seminar.</li> <li>▪ Lab. Report.</li> </ul>

<b>(D) Alignment Course Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:</b>		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
<b>d1-</b> <b>Commit</b> to duty, professional responsibility and ethics of an engineer	<ul style="list-style-type: none"> <li>▪ Orientation and Organization.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Seminar.</li> <li>▪ Field Supervision Report.</li> <li>▪ Academic Supervision Report.</li> </ul>
<b>d2-</b> Write technical report for the training undertaken.	<ul style="list-style-type: none"> <li>▪ Orientation and Organization.</li> <li>▪ Field Supervisor.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Seminar.</li> <li>▪ Field Supervision Report.</li> <li>▪ Academic Supervision Report.</li> </ul>
<b>d2-</b> Communicate effectively in the working environment.	<ul style="list-style-type: none"> <li>▪ Active Lectures.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Field Supervision Report.</li> <li>▪ Academic Supervision Report.</li> </ul>

<b>IV. Field Training Aims:</b>
<b>1. Brief Description of the Main Learning Outcomes for Students Participating in the Field of Training Tasks:</b>
<p>The Aims of the Course are:</p> <ul style="list-style-type: none"> <li>• To relate the concept learned at the Faculty level to industrial application in the field of Electrical Engineering.</li> <li>• To develop work attitudes like curiousness, self-confidence, maturity and self-reliance.</li> <li>• To acquire additional knowledge, upgrade their skills and modify their studies.</li> <li>• To obtain knowledge of potential careers and develop new areas of interest.</li> </ul>

Head of Department  
 Asst. Prof. Dr. Adel Ahmed Al-Shakiri

Quality Assurance Unit  
 Assoc. Prof. Dr. Mohammad Algorafi

Dean of the Faculty  
 Prof. Dr. Mohammed AL-Bukhaiti

Academic Development Center & Quality Assurance  
 Assoc. Prof. Dr. Huda Al-Emad

Rector of Sana'a University  
 Prof. Dr. Al-Qassim Mohammed Abbas



<ul style="list-style-type: none"> <li>• To develop practical and communication skills / competencies of future engineers.</li> <li>• To strengthen industrial/Faculty partnership.</li> <li>• To develop the student's personality and understanding of individuals and groups in work situations.</li> <li>• To understand the constraints of working life and functional relationships within and between organizations.</li> <li>• To analyze and interpret a complete system available in the industry.</li> </ul>
<p><b>2. Briefly Describe any Plans for Developing and Improving the Field of Training Tasks which are being Implemented:</b></p>
<ol style="list-style-type: none"> <li>1. Proper orientation and supervision between the Faculty of Engineering and industrial firm.</li> <li>2. Correspondence with the firms to ensure the vacancies regarding the training.</li> <li>3. Justification that the students have obtained their training in a proper way through field visits.</li> <li>4. Proper selection of the firms related to the applications of Electrical Engineering.</li> <li>5. Feedback received from the industrial firms.</li> </ol>

<p><b>V. Description of Field Training Tasks:</b></p>
<p><b>1. At What Stage or Stages during the Program does the Field Training Occur?</b></p>
<p>The field training will occur in the fifth year second semester of the program.</p>
<p><b>2. Procedures of Training:</b></p>
<ol style="list-style-type: none"> <li>1. Registration of the qualified students for the training.</li> <li>2. Orientation of the students regarding the importance of the training.</li> <li>3. Organization for the training.</li> <li>4. Assigned academic supervision.</li> <li>5. Academic supervisors have to conduct several field visits.</li> <li>6. Correspondence between the Faculty of Engineering and the industrial firms.</li> </ol>

Head of Department Asst. Prof. Dr. Adel Ahmed Al-Shakiri	Quality Assurance Unit Assoc. Prof. Dr. Mohammad Algorafi	Dean of the Faculty Prof. Dr. Mohammed AL-Bukhaiti	Academic Development Center & Quality Assurance Assoc. Prof. Dr. Huda Al-Emad	Rector of Sana'a University Prof. Dr. Al-Qassim Mohammed Abbas
-------------------------------------------------------------	--------------------------------------------------------------	-------------------------------------------------------	----------------------------------------------------------------------------------	-------------------------------------------------------------------



7. Training will be conducted for the duration of 9 weeks in different industrial firms.
8. Student training report should be completed under the supervision of the field supervisor and the academic supervisor from the Faculty.
9. Industrial feedback report regarding the performance and attendance of the students.
10. Seminar and presentation after completion of the training.
11. General evaluation from the Department Staff.

**3. Students Tasks:**

1. Students should complete a minimum of 150 credit hours before the commencement of the training.
2. The students are encouraged to apply for the industrial training (either a state institution or a private company).
3. The place chosen for the training should give some exposure in the field of Electrical Engineering.
4. Students should follow the rules and regulations of the required firm during the training course.
5. Completion of the training should be implemented in the scheduled duration.
6. The students should participate in an academic way to reach to the target of the training.
7. The students are required to apply their knowledge earned during their study in a more systematic way during the training.
8. The students should submit detailed report regarding their training.
9. The students should give presentation of their work after completion of the training.

**4. Students Assignments or Reports:**

1.	Introduction	The introduction should contain the detailed technical description of the plant and the brief history of the industrial firm.
2.	Aim of the training	The aim of the training should be explained in details in the selected firm.

Head of  
 Department  
 Asst. Prof. Dr.  
 Adel Ahmed Al-  
 Shakiri

Quality Assurance  
 Unit  
 Assoc. Prof. Dr.  
 Mohammad Algorafi

Dean of the Faculty  
 Prof. Dr. Mohammed  
 AL-Bukhaiti

Academic  
 Development  
 Center & Quality  
 Assurance  
 Assoc. Prof. Dr.  
 Huda Al-Emad

Rector of Sana'a University  
 Prof. Dr. Al-Qassim Mohammed  
 Abbas



3.	Activities implemented during the training	The field supervisor should make a plan of different activities for the students during the field training.
4.	Analysis of the results	The students should analyze their technical results after completion of the training.
5.	Feedback and recommendations	The students have to submit their feedback from the training and make their recommendations for future students training.
6.	Submission of the final report	The students should submit detailed report to Faculty of Engineering-Electicalr Engineering Department for the preparation of presentation.
<b>5. Students Follow-up:</b>		
The Electrical Engineering Department will arrange academic supervisors to follow- up the students in the industrial firms to make sure that all the students are implementing their training according to the scheduled planning between Faculty of Engineering-Electrical Engineering Departments and the industrial firms.		
<b>6. Responsibilities of Academic Supervision in the Field Training:</b>		
<ul style="list-style-type: none"> <li>a. To orient the students in a systematic way.</li> <li>b. To make the correspondence with the industrial firms under the supervision of Dean of Faculty of Engineering.</li> <li>c. To divide students into groups according to the needs of the firm.</li> <li>d. To meet the supervisory staff from the industrial firm to explain the necessity of the training.</li> <li>e. To visit the students during the duration of the training.</li> <li>f. To follow-up the training activities.</li> <li>g. To supervise the students for preparation of the technical reports.</li> <li>h. To examine the students during presentation and evaluation.</li> </ul>		
<b>7. Responsibilities of Supervisory from the Field:</b>		
<ul style="list-style-type: none"> <li>1. Dividing the students into groups.</li> <li>2. Explaining the structure of the firm.</li> </ul>		

Head of Department  
 Asst. Prof. Dr. Adel Ahmed Al-Shakiri

Quality Assurance Unit  
 Assoc. Prof. Dr. Mohammad Algorafi

Dean of the Faculty  
 Prof. Dr. Mohammed AL-Bukhaiti

Academic Development Center & Quality Assurance  
 Assoc. Prof. Dr. Huda Al-Emad

Rector of Sana'a University  
 Prof. Dr. Al-Qassim Mohammed Abbas



<ol style="list-style-type: none"> <li>3. Supervision during the training period.</li> <li>4. Correspondence with Faculty of Engineering-Electrical Engineering Department if the students are not attending the training.</li> <li>5. Submitting the feedback related to the students training activities to the Faculty of Engineering-Electrical Engineering Department.</li> </ol>		
<b>8. Description of the Procedures to be used for Students' Guidance and Support:</b>		
<ol style="list-style-type: none"> <li>1. Proper orientation and guidance to the students.</li> <li>2. Motivating the students during the period of training.</li> <li>3. Supporting the students to implement their training and how to relate the theoretical results with the practical one.</li> </ol>		
<b>9. What are the Facilities and Support given from the Institution in the Field of Training for Students?</b>		
1.	Accommodation	Faculty Auditorium and Industrial Firms.
2.	Computer Resources	Computer lab. which is already available for allowing the students for the completion of the technical report after the training.
3.	Learning Support and Materials	<ol style="list-style-type: none"> <li>a. Text books which are available in the Faculty library according to each specialization.</li> <li>b. Different industrial manuals and manufacturer documents.</li> <li>c. Safety regulation manuals of the different firms.</li> </ol>
4.	Others	<ol style="list-style-type: none"> <li>a. Rules and regulations of the training institution.</li> <li>b. Field visits.</li> <li>c. Arrangement of transportation for the academic staff.</li> </ol>

<b>VI. Preparation and Co-ordination:</b>
<b>1. Identification of Field Placements:</b> According to the application of Electrical Engineering.

Head of Department Asst. Prof. Dr. Adel Ahmed Al-Shakiri	Quality Assurance Unit Assoc. Prof. Dr. Mohammad Algorafi	Dean of the Faculty Prof. Dr. Mohammed AL-Bukhaiti	Academic Development Center & Quality Assurance Assoc. Prof. Dr. Huda Al-Emad	Rector of Sana'a University Prof. Dr. Al-Qassim Mohammed Abbas
-------------------------------------------------------------	--------------------------------------------------------------	-------------------------------------------------------	----------------------------------------------------------------------------------	-------------------------------------------------------------------





- 2. Preparation of Field Supervisors:** According to the required aim of the training.
- 3. Preparation of Students:** The students should be divided into groups according to the necessity of the training.
- 4. Safety and Risk Management:** Each firm is kindly required to orient the students according to rules and regulations of the firm and orienting the students towards the safety and risk to be taken into account during the implementation of the training or working in critical places.

<b>VII. Student Assessment:</b>		
<b>1. Bases of Assessment:</b>		
Order	Description	Mark
1.	Attendance, discipline and industrial supervision report.	25
2.	Single group monthly report.	30
3.	Training report.	50
4.	Participation of team work.	10
5.	Oral tests discussion.	15
6.	Final exam technical report and oral presentation.	20
<b>Total</b>		<b>150</b>
<b>2. Field Supervisors Responsibility for Assessment:</b>		
Follow- up of the students during the training (ethics, discipline, rules and regulations of the firm).		
<b>3. Supervision of Faculty Responsibility for Assessment:</b>		
<ol style="list-style-type: none"> <li>a. Orientation and organization for the training.</li> <li>b. Follow-up of the students.</li> <li>c. Follow-up of the obstacles faced during the training.</li> </ol>		

Head of  
 Department  
 Asst. Prof. Dr.  
 Adel Ahmed Al-  
 Shakiri

Quality Assurance  
 Unit  
 Assoc. Prof. Dr.  
 Mohammad Algorafi

Dean of the Faculty  
 Prof. Dr. Mohammed  
 AL-Bukhaiti

Academic  
 Development  
 Center & Quality  
 Assurance  
 Assoc. Prof. Dr.  
 Huda Al-Emad

Rector of Sana'a University  
 Prof. Dr. Al-Qassim Mohammed  
 Abbas





- d. Follow-up of the technical report.
- e. Follow-up the students and supporting them during preparation of the reports.
- f. Supervision for the final report and conducting presentation.

<b>VIII. Learning Resources:</b>	
<ul style="list-style-type: none"> <li>• <i>Written in the following order: ( Author - Year of publication – Title – Edition – Place of publication – Publisher).</i></li> </ul>	
<b>1- Required Textbook(s) ( maximum two ).</b>	
	<ol style="list-style-type: none"> <li>1. All the required text books from the library.</li> <li>2. Catalogues from the firms.</li> </ol>
<b>2- Essential References.</b>	
	<ol style="list-style-type: none"> <li>1.</li> </ol>
<b>3- Electronic Materials and Web Sites etc.</b>	
	<ol style="list-style-type: none"> <li>1.</li> </ol>

<b>IX. Course Policies:</b>	
	<b>Class Attendance:</b>
1	The students should have more than 75 % of attendance according to rules and regulations of the Faculty.
	<b>Tardy:</b>
2	The students should respect the timing of attending the lectures. They should attend within 10 minutes from starting of the lecture.
	<b>Exam Attendance/Punctuality:</b>
3	The student should attend the exam on time. The punctuality should be implemented according to rules and regulations of the faculty for mid-term exam and final exam.
	<b>Assignments &amp; Projects:</b>
4	The assignment is given to the students after each chapter, the student has to submit all the assignments for checking on time.
5	<b>Cheating:</b>

Head of  
 Department  
 Asst. Prof. Dr.  
 Adel Ahmed Al-  
 Shakiri

Quality Assurance  
 Unit  
 Assoc. Prof. Dr.  
 Mohammad Algorafi

Dean of the Faculty  
 Prof. Dr. Mohammed  
 AL-Bukhaiti

Academic  
 Development  
 Center & Quality  
 Assurance  
 Assoc. Prof. Dr.  
 Huda Al-Emad

Rector of Sana'a University  
 Prof. Dr. Al-Qassim Mohammed  
 Abbas



	If any cheating occurred during the examination, the student is not allowed to continue and he has to face the examination committee for <b>enquiries</b> .
<b>6</b>	<b>Plagiarism:</b> The student will be terminated from the Faculty, if one student attend the exam on another behalf according to the policy, rules and regulations of the university.
<b>7</b>	<b>Other policies:</b> <ul style="list-style-type: none"> <li>• All the teaching materials should be kept out the examination hall.</li> <li>• The mobile phone is not allowed.</li> <li>• There should be a respect between the student and his teacher.</li> </ul>

<b>Reviewed By</b>	<b><u>Vice Dean for Academic Affairs and Post Graduate Studies: Asst. Prof. Dr. Tarek A. Barakat</u></b> <b><u>President of Quality Assurance Unit: Assoc. Prof. Dr. Mohammed Algorafi</u></b> <b><u>Name of Reviewer from the Department: Assoc. Prof. Dr. Radwan Al bouthigy</u></b>
	<b><u>Deputy Rector for Academic Affairs Asst. Prof. Dr. Ibrahim AlMutaa</u></b> <b><u>Assoc. Prof. Dr. Ahmed Mujahed</u></b> <b><u>Asst. Prof. Dr. Munasar Alsubri</u></b>

Head of  
Department  
Asst. Prof. Dr.  
Adel Ahmed Al-  
Shakiri

Quality Assurance  
Unit  
Assoc. Prof. Dr.  
Mohammad Algorafi

Dean of the Faculty  
Prof. Dr. Mohammed  
AL-Bukhaiti

Academic  
Development  
Center & Quality  
Assurance  
Assoc. Prof. Dr.  
Huda Al-Emad

Rector of Sana'a University  
Prof. Dr. Al-Qassim Mohammed  
Abbas

Sana'a University  
Faculty of Engineering  
Department: Electrical Engineering  
Title of the Program: Electrical Power and Machines Engineering



Head of  
Department  
Asst. Prof. Dr.  
Adel Ahmed Al-  
Shakiri

Quality Assurance  
Unit  
Assoc. Prof. Dr.  
Mohammad Algorafi

Dean of the Faculty  
Prof. Dr. Mohammed  
AL-Bukhaiti

Academic  
Development  
Center & Quality  
Assurance  
Assoc. Prof. Dr.  
Huda Al-Emad

Rector of Sana'a University  
Prof. Dr. Al-Qassim Mohammed  
Abbas