

# University of Management and Technology

## Course Outline

Course code: ET 337

Course title: Aircraft Maintenance Practices - I

Program	BSc Aircraft Maintenance Engineering Technology	
Credit Hours	02+01	
Duration	15 weeks	
Prerequisites	ET101 Intro to maintenance engineering ET233 Materials and Hardware 2	
Resource Person	Zukhraf Jamil	
Counseling Timing (Room# )	Monday	10:00 to 13:00
	Wednesday	11:00 to 16:00
	Friday	10:00 to 14:00
Contact	Zukhraf.jamil@umt.edu.pk	

Chairman/Director signature.....

Dean's signature.....

Date.....

## **Learning Objective:**

The course is aimed to impart the students with an in-depth understanding of safety and maintenance practices on aircraft and in workshops. The course introduces the safety and preventive workshop practices; use of hand and measurement tools and general test equipment; calibration of tools and calibration standards.

Upon successful completion of the course, the student should be able to:

<b>S No</b>	<b>CLO Statement</b>	<b>PLO</b>	<b>Learning Domain and level</b>
1.	Define and analyze the concepts of aircraft maintenance.	1	C1
2.	Demonstrate the fluent use of safety and maintenance tools and equipment in industrial environments	5	C3
3	Demonstrate personal responsibility when dealing with equipment and procedures ensuring safety and smooth operations	8	C3
4	Conduct and Interpret the results of experiments based on the principles of aircraft maintenance.	3	P3
5	Effectively communicate experiment results through both written reports and oral Presentations.	10	P3

## 1. CLO – PLO MAPPING:

CLOs	PLOs											
	Engineering Technology Knowledge	Problem Analysis	Design / Development of Solutions	Investigation	Modern Tool Usage	Engineering Technologist Environment and Sustainability	Ethics	Individual and Team Work	Communication	Project Management	Lifelong Learning	
	1	2	3	4	5	6	7	8	9	10	11	12
1	C1											
2					C3							
3								C3				
4			P3									
5										P3		

### Learning Methodology:

- The course will be delivered via class lectures mainly consisting of theory, tutorials, and worked examples
- Workshop practice is also included to ensure student’s acquaintance with procedures and tools used in aviation hardware technology
- Assessment criteria is based on Assignments, Lab tasks, and quizzes (**both announced and unannounced**) during the semester along with final assessments.

### Recommended Text Books:

“Maintenance Practices, Cat B1, Module 7” by AeroBildung, 2014

### Reference Books:

“Aviation Maintenance Technician Handbook” by U.S. Department of Transportation, Federal Aviation Administration, 2008.

## **Grade Evaluation Criteria**

Following is the criteria for the distribution of marks to evaluate final grade in a semester.

### **Theory:**

<b>Marks Evaluation</b>	<b>Marks in percentage</b>
Quizzes (x6)	15%
Assignments (x2)	10%
Evaluation(Viva)	5%
Presentation	5%
Mid Term Examination	25%
End Term Examination	40%
<b>Total</b>	<b>100 %</b>

### **Practical:**

<b>Marks Evaluation</b>	<b>Marks Percentage</b>
<b>Class activity</b>	5%
<b>Team work</b>	5%
<b>Quizzes</b>	15%
<b>Viva</b>	5%
<b>Lab Report</b>	10%
<b>Final Evaluation</b>	60%
<b>Total</b>	<b>100%</b>

## Calendar of Course contents to be covered during semester

Course code: ET 337

Course title: Aircraft Maintenance Practices - I

Week	Course Contents	Reference Chapter(s)	Quizzes	Assignments	CLO No
1	Safety Precautions At workshop At aircraft	7.1	1		1,2
2	Tools and test equipment Measuring systems Fits and tolerances Calibration of tools and equipment	7.2			
3-4	Description and usage of hand and power tools used in maintenance engineering Tools and equipment lubrication methods Introduction and usage of measurement tools Operation, function, and usage of Electrical Test Equipment	7.3			
5	Description and usage of general Avionics Test Equipment Fundamentals of Engineering Drawing Introduction to Scales, Size, and Standards Style, type, and dimensioning of lettering	7.4 7.5			

6-7	Geometrical tolerances (form and position) Normal and special projections Prismatic work pieces	7.5 Additional Work Problems	1		1,2
7	Basic rules and standards of dimensioning Indicating surface texture and tolerances	7.5 Additional Work Problems	1		1,2
8	Mid Term Examination				
9	Air engineering drawings and standards Standards of maintenance documentation Aircraft zoning General units, standards, and definitions  fundamentals of power circuits wiring diagrams	7.5 Additional Work Problems	2	1	1,2
10	Introduction to Fits and Clearances Standards of fits and clearances Inspection tools Aircraft parts' inspection methods	7.6			
11	Maintenance practices on Electrical cables and connectors	7.7	1		2

	Introduction to riveting tools and techniques	7.8			
13-14	Introduction to pies, hoses, installation techniques, and testing equipment and techniques for pies and hoses	7.9			
15	Inspection, testing, and maintenance of springs	7.10			

### Aircraft Maintenance Practices – I Lab Outline

SR No.	Experiment Title.	CLOs
1	Enlist and interpret the safety signs and safety equipment placed in the aircraft hangar and workshop	4,5
2	Identify the hand and power cutting and drilling tools available in the workshop and enlist their function	
3	Measure the torque in the nuts and screws using torque wrenches and log data	
4	Measure shaft eccentricity and wobbling using dial indicator and log data	
5	Make a rectangular tray using the given sheet metal and hand tools	
6	Make a connection to two lights controlled by one switch in series	
7	Make a connection to two lights controlled by one switch in parallel	
8	Make a connection to one light controlled by 2 two way switches	
9	Prepare a marked specimen (to prepare a T fit) to given dimensions using the measuring tools	
10	Prepare the specimen (T fit) using hand cutting tools as per given instructions	
11	Make rivets on a metal sheet using marking and riveting tools	
12	Measure failure strength and efficiency of riveted joints under UTM.	



## Class Policy

### STUDENTS ARE REQUIRED TO READ AND UNDERSTAND ALL ITEMS OUTLINED IN THE PARTICIPANT HANDBOOK

**CLASS ATTENDANCE:** Students need to be in class at the assigned time. After 10 minutes past the assigned time, the students will be marked absent.

**TURN OFF MOBILE PHONE!** It is unprofessional to be texting or otherwise.

**READ EMAILS!** Participants should regularly check their university emails accounts regularly and respond accordingly. Students would be responsible if they miss a deadline because of not reading the emails.

**CLASS ATTENDANCE POLICY:** A minimum of 80% attendance is required for a participant to be eligible to sit in the final examination. Being sick and going to weddings is absence and will not be counted as present. Participants with less than 80% of attendance in a course will not be allowed to take end term exams. International students who will be leaving for visa during semester should not use any days off except for visa trip to avoid reaching short attendance.

**MOODLE:** UMT –LMS (Moodle) is an Open Source Course Management System (CMS), also known as a learning Management System (LMS). Participants should regularly visit the course website on MOODLE Course Management system, and fully benefit from its capabilities. In case of any problem while using MOODLE, visit <http://oit.umt.edu.pk/moodle>. For queries email [moodle@umt.edu.pk](mailto:moodle@umt.edu.pk)

**HARASSMENT POLICY:** Sexual or any other harassment is prohibited and is constituted as punishable offence. Sexual or any other harassment of any participant will not be tolerated. All actions categorized as sexual or any other harassment when done physically or verbally would also be considered as sexual harassment when done using electronic media such as computers, mobiles, internet, emails etc.

**USE OF UNFAIR MEANS/ HONESTY POLICY:** Any participant found using unfair means or assisting another participant during a class test/quiz, assignments or examination would be liable to disciplinary action.

**PLAGIARISM POLICY:** All students are required to attach a “Turnitin” report on every assignment, big or small. Any student who attempts to bypass “Turnitin” will receive “F” grade which will count towards the CGPA. The participants submit the plagiarism report to the resource person with every assignment, report, project, thesis etc. If student attempts to cheat Turnitin, a second “F” will be awarded that will count towards the CGPA. There are special rules on plagiarism for final reports etc. all outlined in your handbook.

**COURSE WITHDRAWAL POLICY:** Students may withdraw from a course till the end of the 12th week of the semester. Consequently, grade ‘W’ will be awarded to the student which shall have no impact on the calculation of the GPA of the student. A Student withdrawing after the 12th week shall be automatically awarded “F” grade which shall count in the GPA.

**COMMUNICATION OF RESULTS:** The results of quizzes and assignments are communicated to the participants during the semester and answer books are returned. It is the responsibility of the course instructor to keep the participants informed about his/her progress during the semester. The course instructor will inform a participant at least one week before the final examination related to his or her performance in the course.

**Faculty Signature .....**

**s Date.....**