University of Management and Technology

Course Outline

Course code: ET 233L Course title: Aircraft Hardware Lab

Program	BSc Aircraft Maintenance Engineering Technology
Credit Hours	01
Duration	16 weeks
Prerequisites	ET 232L
Resource Person	Hasham Noor Bin Rizwan
Contact	Hasham.noor@umt.edu.pk

Faculty Signature ……. **Date…….**

Chairman/Director signature…….

Dean's signature…… **Date…….**

Learning Objective:

This course equips students with the knowledge of the hardware used in the construction, maintenance and repair of aircraft. The course introduces hardware classification. After studying this course, students will have detailed understanding of hardware nomenclature, types, classification, and designation. The applications and characteristics will be discussed along with the practical implementation. It also covers corrosion recognition, prevention and control while the content on hardware includes fastening and locking devices, piping and transmission hardware and flexible control cables.

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

CLO No	**CLO Statement**	**PLO**	**Learning Domain and level**
1	***Describe*** common aircraft fasteners and general hardware used in fluid and power transmission.	**1**	**C2(cognative)**
2	***Execution*** of lab work using nuts, bolts. Cables, bearings and wires	**5**	**P4 (Pysomotor)**
3	***Analyze*** the outcomes of experiments through report	**4**	**C4**
4	Ability to ***assist*** and work as a team member for the multitask activities in lab	**9**	**A2 (affective)**

1. CLO – PLO MAPPING:

CLOs	PLOs											
	Engineering Technology Knowledge	Problem Analysis	Design / Development of Solutions	Investigation	Modern Tool Usage	The Engineering Technologist and Society	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	**C2**											
2					**P4**							
3				**C4**								
4									**A2**			

Learning Methodology:

- The teaching of the course will be via a series of experiments
- Participants will be evaluated through lab reports, quizzes, project, viva and final exam

Recommended Text Books:

1. “Materials and Hardware” by AERO-Bildung Germany [2014]

Reference Books:

1. “Materials and Hardware”-Aviation Maintenance Technician Certification Series by Aircraft Technical Book Company

Lab Handouts

Grade Evaluation Criteria

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

Practical:

Marks Evaluation	Marks Percentage
Project	20%
Lab Reports	30%
Final Evaluation (Exam + Viva)	50%
Total	100%

Calendar of Course contents to be covered during semester

Sr. No.	Objective	Experiment Number	CLOs
1	Identification of Standards and Derive the Specification for Bolts	1	CLO1 CLO2 CLO3 CLO4
2	Fitting and removal of cotter pin, plain washer and nylon lock nut	2	
3	Demonstrate competence on wire locking a variety of assembly: bolt heads and turnbuckle	3	
4	Identification of the control cables and cable dimensions	4	
5	Preparation of cable ends using cable crimping tools and crimping cables	5	
6	Identification of a range of solid and blind rivets and a range of rivet setting equipment	6	
7	Bearing cleaning, fitting & lubrication	7	
8	To obtain Right hand screw threaded work piece of given dimensions	8	
9	Identification of pipes and types of flexible/ rigid pipes, as well as their connectors	9	
10	Identification of standard unions for aircraft fuel, oil, and pneumatics pipes	10	
11	Demonstrate the principle of operation of gear mesh assy.	11	
12	Examine the Reduction Gear system with application	12	
13	Identification of types of spring - its material, characteristics, and application	13	
14	Identify the characteristics of ferrous and nonferrous material in aircraft	14	

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

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.