

University of Management and Technology

Course Outline

Course code: ET 330

Course title: Aeroplane Aerodynamics, Structures and Systems II

Program	BSc Aircraft Maintenance Engineering Technology	
Credit Hours	03+01	
Duration	15 weeks	
Prerequisites	AT 335	
Resource Person	Fatima Najeeb Khan	
Counseling Timing (Room#)	Tuesday	14:00 to 17:00
	Thursday	14:00 to 17:00
	Friday	14:00 to 17:00
Contact	fatima.najeeb@umt.edu.pk	

Chairman/Director signature.....

Dean's signature.....

Date.....

Learning Objective:

The course covers the structural and functional aspects of the flight controls, water/waste systems, pneumatic and hydraulic systems. A detailed understanding of the landing gear and the on board maintenance systems is also included. Knowledge of this subject allows the student to understand that safe and efficient structures play an important role in aircraft operational safety. Student will be equipped with relevant structural knowledge for the maintenance and repair of aircraft.

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

S No	CLO Statement	PLO	Learning Domain and level
1.	Demonstrate a theoretical knowledge of aircraft systems and structures and interrelationships with other systems.	1	C2
2.	Provide a detailed description of the subject using theoretical fundamentals and specific examples of aircraft systems. and to interpret results from various sources and measurements and apply corrective action where appropriate.	1	C3
3.	Conduct and Interpret the results of experiments and demonstrations of aircraft systems.	3	P3
4.	Effectively communicate experiment results through both written reports and oral Presentations	10	P3

1. CLO – PLO MAPPING:

CLOs	PLOs											
	Engineering 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	C3											
3			P3									
4										P3		

Learning Methodology:

- The teaching of the course will be via a series of lectures. This will be complemented by the use of textbook, and an extensive range of web resources plus handouts/articles and video clips.
- Participants should expect 5-6 class activities during the semester which will form the basis for evaluation (viva). 2 assignments, individual/group presentations and quizzes. These activities will be complemented with discussions and analysis to strengthen the learning.

Recommended Text Books:

1. "Aeroplane Aerodynamics, Structures and Systems" by AERO-Bildung Germany [2015]

Reference Books:

1. "Aeroplane Aerodynamics, Structures and Systems"-Aviation Maintenance Technician Certification Series by Aircraft Technical Book Company

Grade Evaluation Criteria

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

Theory:

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

Practical:

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

Calendar of Course contents to be covered during semester

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Week	Course Contents	Reference Chapter(s)	Quiz	Assignments	CLO No
1-2	Flight Controls (ATA 27) Mechanical Flight Control Systems	11.9	1	1	1
3-4	Fuel Systems (ATA 28) <ul style="list-style-type: none"> • Layout of Aircraft Fuel Systems • Fuel Storage System • Fuel System Installation • Fuel System Metering. 	11.10	2	1	1
5-7	Hydraulic Power (ATA 29) <ul style="list-style-type: none"> • System Layout • Hydraulic Fluids • Hydraulic Components • Pressure Generation • Aircraft Systems. 	11.11		1	1
8	Mid Term Examination				

9-10	Landing Gear (ATA 32)	11.13	3	2	3,4
11	Pneumatic/Vacuum (ATA 36) <ul style="list-style-type: none"> • System Layout • Sources, Storage, Charging and Distribution • Pressure Control • Distribution 	11.16			
12-13	Water/Waste (ATA 38) <ul style="list-style-type: none"> • Aircraft Water and Waste Systems • Potable Water Systems • Waste Water Systems • Corrosion Aspects 	11.17			
14-15	On Board Maintenance Systems (ATA 45) Integrated Modular Avionics	11.18	4	2	2

Aeroplane Aerodynamics, Structures and Systems II Lab Outline

Week	Experiment No.	Title of Experiment	CLO
1	1	Inspect, service, operate, and test a hydraulic system	3,4
2	2	Service a high pressure accumulator	
3	3	Disassemble, inspect, service and reassemble air/oil shock struts	
4	4	Identify best source of reference for troubleshooting hydraulic problems.	
5	5	Inspect fuel control system	
6	6	Identify landing gear components	
7	7	Inspect, service, and inflate aircraft tire.	
8	8	Disassemble and identify parts of brakes; assemble	
9	9	Research and explain Undercarriage retraction and extension system on aircraft	
10	10	Inspect, service, operate, and test a pneumatic system.	

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.

Faculty Signature

Date.....