

## Tamkang University Academic Year 103, 2nd Semester Course Syllabus

Course Title	AVIATION WEATHER	Instructor	WAN TUNG
Course Class	TENXB3P DEPARTMENT OF AEROSPACE ENGINEERING, 3P	Details	<ul style="list-style-type: none"> <li>◆ Selective</li> <li>◆ One Semester</li> <li>◆ 3 Credits</li> </ul>
D e p a r t m e n t a l   A i m   o f   E d u c a t i o n			
<ul style="list-style-type: none"> <li>I . Apply scientific knowledge and engineering techniques to analyze and solve fundamental aerospace engineering problem.</li> <li>II. Through fundamental theory to design and implement experiments, and be able to analyze experimental data.</li> <li>III. Maintain the spirit of independent thinking, self-elevate, and continuous learning.</li> <li>IV. Uphold the responsible attitude of work ethics and team work.</li> <li>V . Will have access to information, using basic knowledge, diversification, and better ability to adapt to circumstances.</li> </ul>			
D e p a r t m e n t a l   c o r e   c o m p e t e n c e s			
<ul style="list-style-type: none"> <li>A. With basic aerospace engineering expertise.</li> <li>B. Able to solve basic engineering problems via fundamental theory.</li> <li>C. Capable of lifelong learning and research capacity for further studies.</li> <li>D. To work with a sense of mission and responsibility.</li> <li>E. Have team spirit and the ability to communicate with each other.</li> <li>F. With an international perspective, have the ability to connect with the world.</li> <li>G. Taking full advantage of information and utilization of computer-assisted problem solving skills.</li> </ul>			
Course Introduction	<p>Introduction to the aviation weather and its application to the flight, understand the tropical and mid-latitude weather phenomena.</p> <p>Understand future civil aviation flight operation and familiar English environment</p>		

**The Relevance among Teaching Objectives, Objective Levels and Departmental core competences**

I.Objective Levels (select applicable ones) :

- (i) Cognitive Domain : C1-Remembering, C2-Understanding, C3-Applying,  
C4-Analyzing, C5-Evaluating, C6-Creating
- (ii) Psychomotor Domain : P1-Imitation, P2-Mechanism, P3-Independent Operation,  
P4-Linked Operation, P5-Automation, P6-Origination
- (iii) Affective Domain : A1-Receiving, A2-Responding, A3-Valuing,  
A4-Organizing, A5-Charaterizing, A6-Implementing

II.The Relevance among Teaching Objectives, Objective Levels and Departmental core competences :

- (i) Determine the objective level(s) in any one of the three learning domains (cognitive, psychomotor, and affective) corresponding to the teaching objective. Each objective should correspond to the objective level(s) of ONLY ONE of the three domains.
- (ii) If more than one objective levels are applicable for each learning domain, select the highest one only. (For example, if the objective levels for Cognitive Domain include C3,C5,and C6, select C6 only and fill it in the boxes below. The same rule applies to Psychomotor Domain and Affective Domain.)
- (iii) Determine the Departmental core competences that correspond to each teaching objective. Each objective may correspond to one or more Departmental core competences at a time. (For example, if one objective corresponds to three Departmental core competences: A,AD, and BEF, list all of the three in the box.)

No.	Teaching Objectives	Relevance	
		Objective Levels	Departmental core competences
1	Introduction to the aviation weather and its application to the flight, understand the tropical and mid-latitude weather phenomena.	C5	ABCDEFGG

**Teaching Objectives, Teaching Methods and Assessment**

No.	Teaching Objectives	Teaching Methods	Assessment
1	Introduction to the aviation weather and its application to the flight, understand the tropical and mid-latitude weather phenomena.	Lecture, Discussion, Problem solving	Written test, Report

This course has been designed to cultivate the following essential qualities in TKU students

Essential Qualities of TKU Students	Description
◆ A global perspective	Helping students develop a broader perspective from which to understand international affairs and global development.
◆ Information literacy	Becoming adept at using information technology and learning the proper way to process information.
◆ A vision for the future	Understanding self-growth, social change, and technological development so as to gain the skills necessary to bring about one's future vision.
◇ Moral integrity	Learning how to interact with others, practicing empathy and caring for others, and constructing moral principles with which to solve ethical problems.
◆ Independent thinking	Encouraging students to keenly observe and seek out the source of their problems, and to think logically and critically.
◇ A cheerful attitude and healthy lifestyle	Raising an awareness of the fine balance between one's body and soul and the environment; helping students live a meaningful life.
◇ A spirit of teamwork and dedication	Improving one's ability to communicate and cooperate so as to integrate resources, collaborate with others, and solve problems.
◆ A sense of aesthetic appreciation	Equipping students with the ability to sense and appreciate aesthetic beauty, to express themselves clearly, and to enjoy the creative process.

#### Course Schedule

Week	Date	Subject/Topics	Note
1	104/02/24 ~ 104/03/01	Introduction to Aviation Weather Application	
2	104/03/02 ~ 104/03/08	Introduction to the atmosphere	
3	104/03/09 ~ 104/03/15	Air temperature, pressure, and humidity	
4	104/03/16 ~ 104/03/22	Instrument flight weather factors	
5	104/03/23 ~ 104/03/29	Air motion and vertical stability	
6	104/03/30 ~ 104/04/05	Water, vapor, and precipitations	
7	104/04/06 ~ 104/04/12	Cloudy flight conditions	
8	104/04/13 ~ 104/04/19	Air mass generation and impact	
9	104/04/20 ~ 104/04/26	Front generation and impact	
10	104/04/27 ~ 104/05/03	Midterm Exam Week	
11	104/05/04 ~ 104/05/10	Atmospheric turbulence	
12	104/05/11 ~ 104/05/17	Thunderstorm weathers	

13	104/05/18 ~ 104/05/24	Low-level wind shear and microburst	
14	104/05/25 ~ 104/05/31	Clear air turbulence	
15	104/06/01 ~ 104/06/07	Aircraft ice accretion	
16	104/06/08 ~ 104/06/14	Tropical weather and typhoon	
17	104/06/15 ~ 104/06/21	Weather predictions	
18	104/06/22 ~ 104/06/28	Final Exam Week	
Requirement			
Teaching Facility	Computer		
Textbook(s)	Peter F. Lester, Aviation Weather, Jeppesen, 2005		
Reference(s)	1. Ahrens, C.D., Essentials of Meteorology, An Invitation to the Atmosphere, 6th edition, Brooks/Cole, 2012. 2. Ahrens, C.D., Meteorology Today, 9th edition, Brooks/Cole, 2009. 3. Aguado, E. and Burt, J.E. Understanding Weather and Climate, 5th edition, Prentice Hall, 2010.		
Number of Assignment(s)	2 (Filled in by assignment instructor only)		
Grading Policy	◆ Attendance :           %   ◆ Mark of Usual : 40.0 %   ◆ Midterm Exam : 30.0 % ◆ Final Exam :           % ◆ Other 〈Final report〉 : 30.0 %		
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at <a href="http://info.ais.tku.edu.tw/csp">http://info.ais.tku.edu.tw/csp</a> or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at <a href="http://www.acad.tku.edu.tw/CS/main.php">http://www.acad.tku.edu.tw/CS/main.php</a> . <b>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</b>		