Tamkang University Academic Year 2012, 2nd Semester

Course Syllabus

Course Title	Aviation Weather	Instructor	Tung Wan

Department/Year/Class	Course Details			
Department of Aerospace Engineering/Junior/A,B	□Required ●Selective	□0（One Semester） □1（1st Semester） ●2（2nd Semester） □3（3rd Semester）	Credits	3 Credits

Aim of Education	Core Competences
1. Apply scientific knowledge and engineering techniques to analyze and solve fundamental aerospace engineering problem. 2. Through fundamental theory to design and implement experiments, and be able to analyze experimental data. 3. Maintain the spirit of independent thinking, self-elevate, and continuous learning. 4. Uphold the responsible attitude of work ethics and team work. 5. Will have access to information, using basic knowledge, diversification, and better ability to adapt to circumstances.	A. With basic aerospace engineering expertise. B. Able to solve basic engineering problems via fundamental theory. C. Capable of lifelong learning and research capacity for further studies. D. To work with a sense of mission and responsibility. E. Have team spirit and the ability to communicate with each other. F. With an international perspective, have the ability to connect with the world. G. Taking full advantage of information and utilization of computer-assisted problem solving skills.

Course Introduction (50 to 100 words)	Introduction to the most flight affecting weather phenomena such as the atmosphere layers, wind and air parcel stability, airmass and fronts generation, precipitation, gust wind, low level wind shear, thunderstorm, ice accretion, etc.

The Relevance among Teaching Objectives, Objective Levels and 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 Core Competences：

(I)Determine the objective level(s) in any one of the three learning domains (cognitive, psychomotor, and affective) corresponding to the teaching objectives. 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 core competences that correspond to each teaching objective. Each objective may correspond to one or more core competences at a time. (For example, if one objective corresponds to three core competences: A, AD, and BEF, list all of the three in the box.)

Teaching objectives	Relevance	
	Objective Levels	Core Competences
1 Introduction to the aviation weather and its application to the flight, understand the tropical and mid-latitude weather phenomena.	C5	ABFG
2 Understand future civil aviation flight operation and familiar English environment	C5	ABFG

Teaching Objectives, Teaching Methods and Assessment

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.	Oral presentation/Discussion	Test, oral presentation, class performance

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

Essential Qualities of TKU Students	Description
●global perspectives	翻譯建構中
□a vision for the future	
●□information literacy	
□ethical and moral principles	
●independent thinking	
□an awareness of healthy living	
□effective teamwork	
□an appreciation of the arts	

Course Schedule

Week	Date	Subject/Topics	Note
1	2/18	Introduction to Aviation Weather Application	
2	2/25	Introduction to the atmosphere	
3	3/04	Air temperature, pressure, and humidity	
4	3/11	Instrument flight weather factors	
5	3/18	Air motion and vertical stability	
6	3/25	Water, vapor, and precipitations	
7	4/01	Cloudy flight conditions	
8	4/08	Air mass generation and impact	
9	4/15	Front generation and impact	
10	4/22	Midterm Exam Week	
11	4/29	Atmospheric turbulence	
12	5/06	Thunderstorm weathers	

13	5/13	Low-level wind shear and microburst	
14	5/20	Clear air turbulence	
15	5/27	Aircraft ice accretion	
16	6/03	Tropical weather and typhoon	
17	6/10	Weather predictions	
18	6/17	Final Exam Week	
Requirement	Once the weather system is formed, it will be relatively difficult for mankind to modify it. Thus the more we know about aviation weather, the better it will be for airline operation.		
Teaching Facility	●Computer □Overhead Projector □Other（_____）		
Textbook(s)	Peter F. Lester, Aviation Weather, Jeppesen, 2005		
Suggested Readings	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. 4. Anthes, R.A., Tropical Cyclones, Their Evolution, Structure, and Effect, American Meteorological Society, Boston, 1982.		
Number of Assignment(s)	2 Assignments		
Grading Policy	◆Class evaluation : 40.0 % ◆Midterm Exam：30.0 % ◆Final Report：30.0 %		
Note	This syllabus may be uploaded at the website of Course Syllabus Management System at **http://info.ais.tku.edu.tw/csp** or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/index.asp. **※Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.**		

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