

Tamkang University Academic Year 102, 2nd Semester Course Syllabus

Course Title	LINEAR ALGEBRA	Instructor	CHU, LIU
Course Class	TPIAB1A DIVISION OF SOFTWARE ENGINEERING, DEPARTMENT OF INNOVATIVE INFORMATION AND TECHNOLOGY, 1A	Details	<ul style="list-style-type: none"> ◆ Required ◆ One Semester ◆ 3 Credits
<p>Departmental Aim of Education</p>			
<p>Cultivate professional talents in software engineering and communication technology.</p>			
<p>Departmental core competences</p>			
<ul style="list-style-type: none"> A. Capability of computer program coding, process planning, and problem solving. B. Capability of applying basic mathematics and information technology related mathematics. C. Capability of applying knowledge of internet structure and protocol in communication system. D. Capability of data collecting and analyzing, and organizing software and hardware. E. Capability of understanding and integrating system structure for problem solving. F. Capability of system analyzing, modeling, and designing. G. Capability of management utilizing information technology system. 			
<p>Course Introduction</p>	<p>The course gives an introductory concept of Linear Algebra with examples and application contents in order to establish foundations for advanced courses.</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	1. Linear System 2.Matrices 3.Determinant 4.Vector Space 5.Inner Product Space 6.Linear Tranformation	C5	BDFG

Teaching Objectives, Teaching Methods and Assessment

No.	Teaching Objectives	Teaching Methods	Assessment
1	1. Linear System 2.Matrices 3.Determinant 4.Vector Space 5.Inner Product Space 6.Linear Tranformation	Lecture	Written test, Participation, 出席狀況

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	103/02/17 ~ 103/02/23	Ch 1. System of Linear Equations and Matrices	
2	103/02/24 ~ 103/03/02	Ch 2. Determinants	
3	103/03/03 ~ 103/03/09	Ch 3. Vectors in 2-Space and 3-Space	
4	103/03/10 ~ 103/03/16	Ch 3. Vectors in 2-Space and 3-Space	
5	103/03/17 ~ 103/03/23	Ch 3. Vectors in 2-Space and 3-Space	
6	103/03/24 ~ 103/03/30	Ch 4. Euclidean Vector Spaces	
7	103/03/31 ~ 103/04/06	Ch 4. Euclidean Vector Spaces	
8	103/04/07 ~ 103/04/13	Ch 4. Euclidean Vector Spaces	
9	103/04/14 ~ 103/04/20	Ch 4. Euclidean Vector Spaces	
10	103/04/21 ~ 103/04/27	Midterm Exam Week	
11	103/04/28 ~ 103/05/04	Ch 5. General Vector Spaces	
12	103/05/05 ~ 103/05/11	Ch 5. General Vector Spaces	

13	103/05/12 ~ 103/05/18	Ch 5. General Vector Spaces	
14	103/05/19 ~ 103/05/25	Ch 6. Inner Product Spaces	
15	103/05/26 ~ 103/06/01	Ch 6. Inner Product Spaces	
16	103/06/02 ~ 103/06/08	Ch 6. Inner Product Spaces	
17	103/06/09 ~ 103/06/15	Ch 7. Eigenvalues, Eigenvectors	
18	103/06/16 ~ 103/06/22	Final Exam Week	
Requirement	<p>課堂及測驗以英語進行。 為避免影響整體教學與學習成效，課堂中不得聊天、飲食、使用行動電話，進入課堂服裝依規定穿著，不得穿拖鞋。以上違反著視同不假缺席。 因故缺席須事先請假，缺席每次扣總分1分，不假缺席每次扣總分5分。</p>		
Teaching Facility	Computer, Projector		
Textbook(s)	Elementary Linear Algebra, Anton and Rorres, John Wiley and Sons, 10th edition.		
Reference(s)			
Number of Assignment(s)	(Filled in by assignment instructor only)		
Grading Policy	<p>◆ Attendance : % ◆ Mark of Usual : 40.0 % ◆ Midterm Exam : 20.0 % ◆ Final Exam : 20.0 % ◆ Other 〈 課堂表現 〉 : 20.0 %</p>		
Note	<p>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/CS/main.php .</p> <p>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</p>		