

Tamkang University Academic Year 113, 2nd Semester Course Syllabus

Course Title	STATICS	Instructor	WANG YI-REN
Course Class	TENXB1A DEPARTMENT OF AEROSPACE ENGINEERING, 1A	Details	<ul style="list-style-type: none"> ◆ General Course ◆ Required ◆ One Semester ◆ 3 Credits
Relevance to SDGs	SDG4 Quality education SDG9 Industry, Innovation, and Infrastructure		
Departmental Aim of Education			
I. Apply scientific knowledge and engineering techniques to analyze and solve fundamental aerospace engineering problem. II. Through fundamental theory to design and implement experiments, and be able to analyze experimental data. III. Maintain the spirit of independent thinking, self-elevate, and continuous learning. IV. Uphold the responsible attitude of work ethics and team work. V. Will have access to information, using basic knowledge, diversification, and better ability to adapt to circumstances.			
Subject Departmental core competences			
A. With basic aerospace engineering expertise.(ratio:30.00) B. Able to solve basic engineering problems via fundamental theory.(ratio:30.00) C. Capable of lifelong learning and research capacity for further studies.(ratio:20.00) D. To work with a sense of mission and responsibility.(ratio:5.00) E. Have team spirit and the ability to communicate with each other.(ratio:5.00) F. With an international perspective, have the ability to connect with the world.(ratio:5.00) G. Taking full advantage of information and utilization of computer-assisted problem solving skills.(ratio:5.00)			
Subject Schoolwide essential virtues			
1. A global perspective. (ratio:10.00) 2. Information literacy. (ratio:30.00) 3. A vision for the future. (ratio:10.00) 4. Moral integrity. (ratio:5.00)			

- 5. Independent thinking. (ratio:30.00)
- 6. A cheerful attitude and healthy lifestyle. (ratio:5.00)
- 7. A spirit of teamwork and dedication. (ratio:5.00)
- 8. A sense of aesthetic appreciation. (ratio:5.00)

Course Introduction

Statics is the specific field of study dealing with forces in equilibrium and/or bodies held in equilibrium by the forces acting on them. Statics is a part of the broad field of mechanics which is the study of the action of forces on material bodies. In the course, the rigid body (bodies) in equilibrium, the elements of statics in two and three dimensions, centroids, analysis of structures and machines are considered.

The correspondences between the course's instructional objectives and the cognitive, affective, and psychomotor objectives.

Differentiate the various objective methods among the cognitive, affective and psychomotor domains of the course's instructional objectives.

- I. Cognitive : Emphasis upon the study of various kinds of knowledge in the cognition of the course's veracity, conception, procedures, outcomes, etc.
- II. Affective : Emphasis upon the study of various kinds of knowledge in the course's appeal, morals, attitude, conviction, values, etc.
- III. Psychomotor: Emphasis upon the study of the course's physical activity and technical manipulation.

No.	Teaching Objectives	objective methods
1	To make students understand the equilibrium of a system of particles or rigid bodies in two and three dimensions.	Cognitive
2	To make students understand the analysis of a basic engineering structure - trusses.	Cognitive
3	To make students understand the inertia properties of plane areas.	Cognitive
4	To make students develop the ability of analyzing engineering problems with mathematics and physics theorems.	Cognitive

The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	AC	13	Lecture, Discussion	Testing, Study Assignments, Report(including oral and written)

2	BD	24	Lecture, Discussion	Testing, Study Assignments, Report(including oral and written)
3	CE	57	Lecture, Discussion	Testing, Study Assignments
4	FG	68	Lecture, Discussion	Testing, Study Assignments

Course Schedule

Week	Date	Course Contents	Note
1	114/02/17 ~ 114/02/23	Introduction, basic laws	
2	114/02/24 ~ 114/03/02	Forces and Particle Equilibrium	
3	114/03/03 ~ 114/03/09	Equilibrium of a System of Particles	
4	114/03/10 ~ 114/03/16	Moment of a Force About a Point	
5	114/03/17 ~ 114/03/23	Moment of a Force About a Line	
6	114/03/24 ~ 114/03/30	Equilibrium of Force Systems	
7	114/03/31 ~ 114/04/06	Fundamental Applications of the Equilibrium Equations	
8	114/04/07 ~ 114/04/13	Trusses-The Method of Joints	
9	114/04/14 ~ 114/04/20	Midterm Exam/Midterm Assessment Week (teachers can adjust the week as needed)	
10	114/04/21 ~ 114/04/27	Trusses-The Method of Sections	
11	114/04/28 ~ 114/05/04	Space Trusses	
12	114/05/05 ~ 114/05/11	Centroids and Mass Centers	
13	114/05/12 ~ 114/05/18	The Method of Composite Parts	
14	114/05/19 ~ 114/05/25	The Theorems of Pappus	
15	114/05/26 ~ 114/06/01	Inertia Properties of Plane Areas	
16	114/06/02 ~ 114/06/08	The Parallel –Axis Theorem	
17	114/06/09 ~ 114/06/15	Final Exam/Final Assessment Week (teachers can adjust the week as needed)	
18	114/06/16 ~ 114/06/22	Flexible Teaching Week: Generally, no in-person classes; teachers may arrange teaching activities or final assessments, among other options.	

Key capabilities	
Interdisciplinary	
Distinctive teaching	
Course Content	Environmental Safety
Requirement	1.本課程期待同學以積極態度參與學習，踴躍發問或提出建設性的意見。課程內容有連貫性，缺席可能造成以後的內容不易瞭解。2.教學內容是以英文撰寫，所有考試(期中、及期末考)皆以英文命題
Textbooks and Teaching Materials	Self-made teaching materials:Handouts Using teaching materials from other writers:Handouts
References	R. C. Hibbeler, "Engineering Mechanics - Statics," 11th Ed. Pearson & Prentice Hall歐亞書局代理
Grading Policy	◆ Attendance : % ◆ Mark of Usual : 30.0 % ◆ Midterm Exam : 30.0 % ◆ Final Exam : 40.0 % ◆ Other () : %
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/CS/main.php . ※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.