

Tamkang University Academic Year 114, 2nd Semester Course Syllabus

Course Title	GENERAL CHEMISTRY	Instructor	HSIEH, HSIAO-CHI
Course Class	TEDXB1B DEPARTMENT OF CHEMICAL AND MATERIALS ENGINEERING, 1B	Details	◆ General Course ◆ Required ◆ 2nd Semester ◆ 2 Credits
Relevance to SDGs	SDG4 Quality education		
Departmental Aim of Education			
Education Objectives: Cultivation of chemical/materials engineering experts possessing professional knowledge, skills, and literacy.			
Subject Departmental core competences			
A. Qualified basic and core knowledge of chemical/materials engineering.(ratio:60.00) B. Qualified capabilities to conduct chemical/materials engineering experiments and analyze experiment results.(ratio:5.00) C. Qualified capabilities to use the techniques and tools for solving chemical/materials engineering problems.(ratio:5.00) D. Qualified capability to analyze and design the components, processes, and systems of chemical/materials engineering.(ratio:5.00) E. Qualified capability to manage and integrate cross-field projects and to communicate and cooperate with team members.(ratio:5.00) F. Qualified capability to explore, analyze, and handle engineering problems while considering sustainable development.(ratio:5.00) G. Comprehend contemporary issues and understand the interplay between chemical/materials engineering technologies, environmental sustainability, and societal cultural well-being, and develop the capability and habits of lifelong learning.(ratio:10.00) H. Understand professional information ethics and social responsibility for chemical/materials engineers.(ratio:5.00)			
Subject Schoolwide essential virtues			
1. A global perspective. (ratio:10.00) 2. Information literacy. (ratio:15.00) 3. A vision for the future. (ratio:15.00)			

4. Moral integrity. (ratio:15.00)				
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	This course aims to provide an introduction to the basic principles and practical applications of data processing and analysis, as well as topics such as chemical equilibrium and titration within the field of analytical chemistry. Students can learn the principles and applications of analytical chemistry through this course, serving as foundational knowledge for future studies in related disciplines.			
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	Data processing and analysis Analysis of chemical equilibrium Titration methods			Cognitive
The correspondences of teaching objectives : core competences, essential virtues, teaching methods, and assessment				
No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	ABCDEFGH	12345678	Lecture, Discussion	Testing, Study Assignments
Course Schedule				
Week	Date	Course Contents		Note
1	115/02/23 ~ 115/03/01	Introduction of Analytical Chemistry		

2	115/03/02 ~ 115/03/08	Sampling and Sample Preparation	
3	115/03/09 ~ 115/03/15	Gravimetric and Combustion Analysis	
4	115/03/16 ~ 115/03/22	Introduction of Titrimetric Analysis	
5	115/03/23 ~ 115/03/29	Applications of Titrimetric Analysis-(Acis-Base Titrations)	
6	115/03/30 ~ 115/04/05	Applications of Titrimetric Analysis-(Buffers)	
7	115/04/06 ~ 115/04/12	Applications of Titrimetric Analysis-(Polyprotic Acis-Base)	
8	115/04/13 ~ 115/04/19	Applications of Titrimetric Analysis-(Polyprotic Acis-Base)	
9	115/04/20 ~ 115/04/26	期中考/期中評量週(老師得自行調整週次)	
10	115/04/27 ~ 115/05/03	Applications of Titrimetric Analysis-(Chemical Equilibrium)	
11	115/05/04 ~ 115/05/10	Applications of Titrimetric Analysis-(EDTA Titrations)	
12	115/05/11 ~ 115/05/17	Electroanalytical methods-(Redox Potentials)	
13	115/05/18 ~ 115/05/24	Electroanalytical methods-(Electrode Potentials)	
14	115/05/25 ~ 115/05/31	Electroanalytical methods-(Electrode Measurements)	
15	115/06/01 ~ 115/06/07	Introduction to Spectrochemical methods	
16	115/06/08 ~ 115/06/14	Final Week of Diverse Assessments	
17	115/06/15 ~ 115/06/21	Final Week of Diverse Assessments/Flexible Teaching Week for Teachers	
18	115/06/22 ~ 115/06/28	Flexible Teaching Week for Teachers	
Key capabilities		self-directed learning Problem solving	
Interdisciplinary			
Distinctive teaching			

Course Content	Logical Thinking Green Energy
Requirement	
Textbooks and Teaching Materials	Self-made teaching materials:Presentations Using teaching materials from other writers:Textbooks Name of teaching materials: John Kenkel,Analytical Chemistry for Technicians 4th Daniel C. Harris, Exploring Chemical Analysis 5th
References	
Grading Policy	<p>◆ Attendance : 10.0 % ◆ Mark of Usual : % ◆ Midterm Exam : 35.0 %</p> <p>◆ Final Exam : 35.0 %</p> <p>◆ Other 〈作業、課堂問答〉 : 20.0 %</p>
Note	<p>This syllabus may be uploaded at the website of Course Syllabus Management System at https://web2.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>※"Adhere to the concept of intellectual property rights" and "Do not illegally photocopy, download, or distribute." Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</p>