Tamkang University Academic Year 112, 1st Semester Course Syllabus

Course Title	STRUCTURE AND MEASUREMENT OF MATERIAL (I)	Instructor	HSIAO-TSU WANG
Course Class	TSAXB3A BACHELOR'S PROGRAM IN ADVANCED MATERIALS SCIENCE, 3A	Details	◆ General Course ◆ Required ◆ One Semester
Relevance to SDGs	SDG9 Industry, Innovation, and Infrastructure		

Departmental Aim of Education

Ⅰ. Enrich the fundamental knowledge of advanced material sciences.

Ⅱ. Emphasize the ability of self-expression.

Ⅲ. Strengthen the ability to experiment and team spirit.

Ⅳ. Develop an international perspective and international exchanges.

Subject Departmental core competences

A. Possess a fundamental knowledge of mathematics, physics, chemistry and biology. (ratio:50.00)

B. Cultivate professional knowledge, experimental skills and the applications of nano, optoelectronic, biomedical and macromolecular materials.(ratio:50.00)

Subject Schoolwide essential virtues

1. A global perspective. (ratio:10.00)
2. Information literacy. (ratio:20.00)
3. A vision for the future. (ratio:5.00)
4. Moral integrity. (ratio:5.00)
5. Independent thinking. (ratio:20.00)
6. A cheerful attitude and healthy lifestyle. (ratio:5.00)
7. A spirit of teamwork and dedication. (ratio:30.00)
8. A sense of aesthetic appreciation. (ratio:5.00)

Course Introduction	Materials science focuses on how understanding the surface structure, chemical/physical character, and its technology. The lecture uses the discussion and example study to illustrate the specific method and technology.

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 introduce the properties in the optical, electrical, and atomic for the character identification of materials	Cognitive

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

No.	Core Competences	Essential Virtues	Teaching Methods	Assessment
1	AB	12345678	Lecture, Practicum	Testing, Discussion(including classroom and online), Activity Participation

Course Schedule

Week	Date	Course Contents	Note
1	112/09/11 ~ 112/09/17	Introduction	
2	112/09/18 ~ 112/09/24	Atomic structure-I	
3	112/09/25 ~ 112/10/01	Atomic structure-II	
4	112/10/02 ~ 112/10/08	Atomic structure-III	
5	112/10/09 ~ 112/10/15	Lattice and crystal structure-I	

6	112/10/16 ~ 112/10/22	Lattice and crystal structure-II	
7	112/10/23 ~ 112/10/29	Raman spectrum (theory and application)-I	
8	112/10/30 ~ 112/11/05	exam-1	
9	112/11/06 ~ 112/11/12	Instrument operations-I (Room:C130)	
10	112/11/13 ~ 112/11/19	Instrument operations-II(Room:C130)	
11	112/11/20 ~ 112/11/26	Instrument operations-III(Room:C130)	
12	112/11/27 ~ 112/12/03	Operation exam-I (Room:C130)	
13	112/12/04 ~ 112/12/10	Operation exam-II (Room:C130)	
14	112/12/11 ~ 112/12/17	Operation exam-III (Room:C130)	
15	112/12/18 ~ 112/12/24	X-ray diffration-I	
16	112/12/25 ~ 112/12/31	X-ray diffration-II	
17	113/01/01 ~ 113/01/07	Final Exam Week	
18	113/01/08 ~ 113/01/14	Synchrotron radiation-I(online)	

Key capabilities	
Interdisciplinary	
Distinctive teaching	
Course Content	Logical Thinking
Requirement	

Textbooks and Teaching Materials	Using teaching materials from other writers:Textbooks, Presentations, Instrument
References	
Grading Policy	◆ Attendance： 10.0 % ◆ Mark of Usual： % ◆ Midterm Exam： 30.0 % ◆ Final Exam： 30.0 % ◆ Other〈Operation〉：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/CS/main.php . **※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.**