

University of Macau
Department of Electrical and Electronics Engineering
Chem110 – Physical Chemistry
Syllabus
1st Semester 2010/2011
Part A – Course Outline

Compulsory course in Electrical and Electronics Engineering

Course description:

3 Credits. This one-semester course is for first year students of Department of Electrical and Electronics Engineering. Its contents are comparable to those chemistry courses offered by universities in Portugal/United States. It deals with structure of matter, periodic table, chemical reactions, chemical bondings, chemistry of solution, chemical kinetics, chemical equilibrium and electrochemistry.

Prerequisites:

None

Textbook(s)

- Julia Burdge, *Chemistry*, 2nd Edition, McGraw Hill, 2009, ISBN: 978-0-07-122183-2

References:

- Raymond Chang, *Chemistry*, 10th Edition, McGraw Hill, 2010, ISBN: 978-0-07-017264-7

Course objectives:

1. Introduce to students applications of chemistry in modern materials while developing student understanding abstract, microscopic concepts. [a]
2. Students conduct experimental work to consolidate and to complement theories learnt in (or prior to) lectures. [a, b, c, e, g]
3. Building problem solving skills. [a, e, i]

Topics covered:

1. Atoms and molecules
2. Periodic table, electronic structure
3. Chemical bonding
4. Gases, solutions, and solids
5. Reaction kinetics and chemical equilibrium
6. Thermodynamics and electrochemistry

Class/practice schedule:

Two-hour lecture and two-hour practice per week (14 weeks)

Contribution of course to meet the professional component:

This course prepares students to work professionally in the area of **chemistry**.

Relationship to EEE program objectives and outcomes:

This course primarily contributes to Electrical and Electronics Engineering Program outcomes that develop student abilities to:

- (a) an ability to apply knowledge of mathematics, science, and engineering.
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as environmental, health and safety.

The course secondarily contributes to Electrical and Electronics Engineering program outcomes that develop student abilities to:

- (b) an ability to design and conduct experiments, as well as to analyze and interpret data.
- (e) an ability to identify, formulate, and solve engineering problems.

Course content:

100% Basic Sciences

Course coordinator:

Andy Ip W. F.

Persons who prepared this description:

Andy Ip W. F. 2010-07-29

Part B General Course Information and Policies

1st Semester 2010/2011

Instructor: Andy Ip W. F.
Office Hour: by appointment
Email: andyip@umac.mo

Office: N305
Phone: 8397 4355

Time/Venue:

Assessment:

Final assessment will be determined on the basis of:

Assignment and class quizzes	10%	Laboratory	30%
Mid-term Exam	20%	Final Exam (comprehensive)	40%

Grading System:

The credit is earned by the achievement of a grade from 'A' to 'D'; 'F' carries zero credit.

Grades are awarded according to the following system:

Letter Grades	Grade Points	Percentage
A	4.0 (Excellent)	93-100
A-	3.7 (Very good)	88-92
B+	3.3	83-87
B	3.0 (Good)	78-82
B-	2.7	73-77
C+	2.3	68-72
C	2.0 (Average)	63-67
C-	1.7	58-62
D+	1.3	53-57
D	1.0 (Pass)	50-52
F	0 (Fail)	Below 50

Comment: (Optional)

The objectives of the lectures are to explain and to supplement the text material. Students are responsible for the assigned material whether or not it is covered in the lecture. Students who wish to succeed in this course should read the assignments prior to the lecture and should work all homework and lab assignments.

Homework Policy:

The completion and correction of homework is a powerful learning experience; therefore:

- Laboratory report is due one week after conducting the corresponding experimental work unless otherwise noted, penalty is applied to late submission.
- The coursework grade (60% of total) is the summation of grades in assignments and class quizzes, mid-term exam and laboratory.

Quizzes/Mid-terms Exams (Optional)

One mid-term exam will be held during the semester. There will be a 15-minute in class exam every other week.

Note (Optional)

- No make-up exam is given except for CLEAR medical proof.
- Cheating is absolutely prohibited by the university. Copying in laboratory report is considered an infringement of academic integrity.