

**FACULTY OF ENGINEERING**  
**1<sup>st</sup> Year 1<sup>st</sup> Semester**

| KIM 103 E Chemistry               |                                                                                                                                                                                                                                                                                                            |        |      | FACULTY OF ENGINEERING |                     |       |       |                |             |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|------|------------------------|---------------------|-------|-------|----------------|-------------|
| Semester                          | Methods of Education                                                                                                                                                                                                                                                                                       |        |      |                        |                     |       |       | Credits        |             |
|                                   | Lecture                                                                                                                                                                                                                                                                                                    | Recit. | Lab. | Project / Field Study  | Homework            | Other | Total | Credit         | ECTS Credit |
| 1                                 | 56                                                                                                                                                                                                                                                                                                         |        | -    | -                      | -                   | 84    | 140   | 4              | 5.0         |
| Language                          | English                                                                                                                                                                                                                                                                                                    |        |      |                        |                     |       |       |                |             |
| Compulsory / Elective             | Compulsory                                                                                                                                                                                                                                                                                                 |        |      |                        |                     |       |       |                |             |
| Prerequisites                     | None                                                                                                                                                                                                                                                                                                       |        |      |                        |                     |       |       |                |             |
| Course Contents                   | Chemical Calculations. Structure of Atom. Periodic System. Chemical Bonds. Gases, liquids, solids and solutions. Chemical Kinetic and Equilibrium. Acids and Bases. Reactions in Aqueous Solutions and Ion Equilibrium. Electrochemistry. Thermodynamics.                                                  |        |      |                        |                     |       |       |                |             |
| Course Objectives                 | The aim of this course is to teach the basic concepts of chemistry, which are in accordance with some fields such as biology, medicine, engineering, environment and agriculture by considering that the students taking general chemistry course improve themselves on the other fields except chemistry. |        |      |                        |                     |       |       |                |             |
| Learning Outcomes and Competences | In consequence of the high probability of facing with problems related to biological sciences, engineering and environmental sciences, both chemistry will be a part of life and the developments are obtained in professional fields owing to the acquisitions of this course.                            |        |      |                        |                     |       |       |                |             |
| Textbook and /or Reference        | 1.Ralph H. Petrucci, William S. Harwood, F. Geoffy Herring, Genel Kimya 2.Charles E. Mortimer, Genel Kimya                                                                                                                                                                                                 |        |      |                        |                     |       |       |                |             |
| Assessment Criteria               |                                                                                                                                                                                                                                                                                                            |        |      |                        | If any, mark as (x) |       |       | Percentage (%) |             |
|                                   | Midterm Exams                                                                                                                                                                                                                                                                                              |        |      |                        | X                   |       |       | 50             |             |
|                                   | Quizzes                                                                                                                                                                                                                                                                                                    |        |      |                        |                     |       |       |                |             |
|                                   | Homeworks                                                                                                                                                                                                                                                                                                  |        |      |                        |                     |       |       |                |             |
|                                   | Projects                                                                                                                                                                                                                                                                                                   |        |      |                        |                     |       |       |                |             |
|                                   | Term Paper                                                                                                                                                                                                                                                                                                 |        |      |                        |                     |       |       |                |             |
|                                   | Laboratory Work                                                                                                                                                                                                                                                                                            |        |      |                        |                     |       |       |                |             |
|                                   | Other                                                                                                                                                                                                                                                                                                      |        |      |                        |                     |       |       |                |             |
|                                   | Final Exam                                                                                                                                                                                                                                                                                                 |        |      |                        | X                   |       |       | 50             |             |
| Week                              | Subject                                                                                                                                                                                                                                                                                                    |        |      |                        |                     |       |       |                |             |
| 1                                 | Chemical Relations, Chemical Reactions                                                                                                                                                                                                                                                                     |        |      |                        |                     |       |       |                |             |
| 2                                 | Gases                                                                                                                                                                                                                                                                                                      |        |      |                        |                     |       |       |                |             |
| 3                                 | Thermochemistry                                                                                                                                                                                                                                                                                            |        |      |                        |                     |       |       |                |             |
| 4                                 | Electronic Structures and Periodic Properties of Atoms                                                                                                                                                                                                                                                     |        |      |                        |                     |       |       |                |             |
| 5                                 | Chemical Bonds                                                                                                                                                                                                                                                                                             |        |      |                        |                     |       |       |                |             |
| 6                                 | Liquids, Solids and Intermolecular Forces                                                                                                                                                                                                                                                                  |        |      |                        |                     |       |       |                |             |
| 7                                 | Solutions                                                                                                                                                                                                                                                                                                  |        |      |                        |                     |       |       |                |             |
| 8                                 | Chemical Equilibrium                                                                                                                                                                                                                                                                                       |        |      |                        |                     |       |       |                |             |
| 9                                 | Acids, Bases and Equilibrium in Aqueous Solutions                                                                                                                                                                                                                                                          |        |      |                        |                     |       |       |                |             |
| 10                                | Thermodynamics                                                                                                                                                                                                                                                                                             |        |      |                        |                     |       |       |                |             |
| 11                                | Midterm                                                                                                                                                                                                                                                                                                    |        |      |                        |                     |       |       |                |             |
| 12                                | Electrochemistry                                                                                                                                                                                                                                                                                           |        |      |                        |                     |       |       |                |             |
| 13                                | Radioactivity                                                                                                                                                                                                                                                                                              |        |      |                        |                     |       |       |                |             |
| 14                                | Organic Chemistry                                                                                                                                                                                                                                                                                          |        |      |                        |                     |       |       |                |             |