

<b>Course Number :</b> CHEM101	<b>Course Title :</b> General Chemistry
<b>Required / Elective :</b> Elective <b>Bazı bölümler için zorunlu olabilir.</b>	<b>Pre / Co-requisites :</b> None
<b>Catalog Description:</b> Fundamental concepts of chemistry, atomic structure, periodic trends, chemical bonding, gases, liquids, solids, solutions.	<b>Textbook / Required Material :</b> General Chemistry: Principles and Modern Applications, R. H. Petrucci, W. S. Harwood, F. G. Herring, J. D. Madura, 9th Edition, Prentice Hall, 2007.
<b>Course Structure / Schedule :</b> (3+0+0) 3 / 6 ECTS	
<b>Extended Description :</b> Why Teach Chemistry to Engineers? Matter-Its Properties and Measurement, Uncertainty and Significant Figures, Dimensional Analysis. Atoms and Atomic Theory, Atomic Mass and Mole Concept. Chemical Compounds, Molecular and Ionic Compounds, Composition, Oxidation States. Chemical Reactions, Stoichiometry, Reactions in Solutions, Limiting Reactant. Introduction to Reactions in Aqueous Solutions, Precipitation, Acid-Base, and Oxidation-Reduction Reactions, Titrations. Gases, Gas Laws, Ideal Gas Equation, Gases in Reactions, Mixtures of Gases, Kinetic Molecular Theory. Thermochemistry, Heat, Work, First Law of Thermodynamics, Heats of Reaction, Calorimetry, Hess's Law. Electrons in Atoms, Electromagnetic Radiation, Atomic Spectra, Quantum Theory, Electron Configurations. The Periodic Table and Some Atomic Properties, Chemical Bonding, Lewis Theory, Covalent Bonding, Shapes of Molecules.	
<b>Design content :</b> None	<b>Computer usage:</b> None
<b>Course Learning Outcomes</b> [relevant program outcomes in brackets]: Upon successful completion of this course, students should be able to: a) demonstrate knowledge of fundamental concepts in chemistry [1]; b) identify and apply principles of chemistry to problems in everyday life and engineering, and visualize their physical significance [1,2]; c) apply knowledge of mathematics and science [2]; d) develop skills in problem solving and critical thinking [2,6].  <b>Köşeli parantez içinde gösterilen rakamlar ilgili program çıktıları olup elektronik bölümü web sayfasındaki program çıktıları esas alarak belirlenmiştir. Başka bölümler için bu rakamlar değişebilir.</b>	

**Recommended reading :**

Chemistry: The Central Science, T. L. Brown, H. E. Lemay, B. E. Burnsten, 10th Edition, Prentice-Hall, 2006.

**Teaching methods :**

Lectures, short movies and animations, interactive problem solving sessions, homework problems assigned at the end of each chapter.

**Assessment methods (Related to course outcomes):**

Two mid-term exams, final exam, quizzes.

**Student workload:**

Lectures and Problem Sessions	45 hrs
Preparatory Studying	30 hrs
Homework	45 hrs
Independent Studying	27 hrs
Final Exam	3 hrs
<b>TOTAL.....</b>	<b>150 hrs.....to match 25 x 6 ECTS</b>

**Prepared by :** Ş. Birgül Tantekin-Ersolmaz, 03.02.2010

**Revision Date :**