

Alanya Alaaddin Keykubat University | Rafet Kayış Faculty of Engineering
Engineering Fundamental Sciences Department
 2024-2025 Fall Semester

Syllabus

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| Code/Name | GBM 107 / Chemistry |
| Type | Required |
| Credit/ECTS | 4/4 |
| Hour per Week | 3 (3+0) |
| Level/Year | Undergraduate/1 |
| Semester | Fall |
| Classroom | WWF A103 |
| Content | This course is intended to provide engineering students with a background in important concepts and principles of chemistry. Emphasis will be placed on those areas considered most relevant in an engineering context and practical applications in engineering and technology will be examined. Fundamental laws of chemistry including topics such as atomic and molecular structure, stoichiometry, chemical bonding, kinetics, reaction equilibria, acids, bases and electrochemistry. |
| Prerequisites | - |
| Textbooks | <p><i>Primary</i> Class Notes</p> <p><i>Supplementary</i> Raymond Chang, Jason Overby, Chemistry, Mc-Graw-Hill Education, 14th Ed., 2022. Ralph H. Petrucci, General Chemistry: Principles and Modern Applications, Pearson Canada, 11th Ed., 2017. Theodore E. Brown, Eugene H. Lemay, Chemistry the Central Science, Pearson Education 13th Ed., 2014.</p> |
| Objectives | <ul style="list-style-type: none"> • To learn the scientific method • To learn the skills for problem solving • To have general chemistry knowledge • To make a connection to the principles that govern the natural world • To connect basic principles of chemistry to issues in engineering professions |
| Course Outcomes | <p>In this course you will be able to:</p> <p>C01 Have a basic chemical terminology, facts, principles and methods</p> <p>C02 Identify the synthesis, structure and periodic relationships between elements</p> <p>C03 Understand the theoretical basis for atomic structure, chemical bonding and molecular structure</p> <p>C04 Learn molecular structures and properties to describe and solve real world problems</p> <p>C05 Use problem solving skills to quantitatively evaluate a chemical system and to describe chemical equilibrium, thermochemistry and reaction kinetics</p> |
| Weekly Schedule of Topics | |
| W | Topic |
| 1 | Introduction to Chemistry |
| 2 | Matter and Measurement |
| 3 | Atoms, Molecules and Ions |
| 4 | Periodic Relationship Among the Elements |
| 5 | Mass Relationships in Chemical Reactions |

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| 6 | Gases |
| 7 | Thermochemistry |
| 8 | Chemical Bonding I |
| 9 | Chemical Bonding II |
| 10 | Physical Properties of Solutions |
| 11 | Chemical Kinetics |
| 12 | Chemical Equilibrium |
| 13 | Acids and Bases |
| 14 | Electrochemistry |

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| Professional Contribution | Ability to explain the relationship between experimental observations, chemical principals and theories. |
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Contribution to Program Outcomes*

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|
| CO1 | 5 | 5 | 2 | 5 | 1 | 3 | 4 | 0 | 5 | 4 | 5 |
| CO2 | 5 | 5 | 2 | 4 | 1 | 3 | 4 | 0 | 5 | 4 | 5 |
| CO3 | 5 | 5 | 2 | 5 | 1 | 3 | 4 | 0 | 5 | 4 | 5 |
| CO4 | 5 | 5 | 4 | 5 | 4 | 3 | 4 | 2 | 5 | 4 | 5 |
| CO5 | 5 | 5 | 4 | 4 | 1 | 3 | 4 | 0 | 5 | 4 | 5 |

* Contribution Level | 0: None | 1: Very Low | 2: Low | 3: Medium | 4: High | 5: Very High

Special Conditions -

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| Requirements | Basic knowledge of a usage of scientific calculator with mathematical functions | | | | | | | | | | |
| Course Policy | <ul style="list-style-type: none">• Be in the class on time.• English should always be used to communicate with one another.• At least 70% attendance is required, otherwise a grade of DZ will be assigned. | | | | | | | | | | |
| Cheating & Plagiarism | <ul style="list-style-type: none">• Copying or letting someone copy your work on exams, assignments, or reports is cheating.• Cutting and pasting text, figures and tables from web sources or any other electronic source is plagiarism.• The consequence of academic dishonesty is to receive a grade of FF for the course. | | | | | | | | | | |
| Evaluation | Midterm 40% | | | | | | | | | | |
| | <u>Final Exam</u> 60% | | | | | | | | | | |
| | Total 100% | | | | | | | | | | |

Instructor

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|--------------|-------------------|--------------|---------------------------------|
| Name/Surname | Çiğdem Dülgerbaki | Email | cigdem.dulgerbaki@alanya.edu.tr |
| Room | 417 | Office Hours | W 15.30-16.30 T 10.30-12.30 |

Prepared by Çiğdem Dülgerbaki on October 21st, 2024.