# ANALYTICAL CHEMISTRY LABORATORY II

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| 1 | Course Title: | ANALYTICAL CHEMISTRY LABORATORY II |
| 2 | Course Code: | KIM2006 |
| 3 | Type of Course: | Compulsory |
| 4 | Level of Course: | First Cycle |
| 5 | Year of Study: | 2 |
| 6 | Semester: | 4 |
| 7 | ECTS Credits Allocated: | 4.00 |
| 8 | Theoretical (hour/week): | 0.00 |
| 9 | Practice (hour/week): | 0.00 |
| 10 | Laboratory (hour/week): | 4 |
| 11 | Prerequisites: | - |
| 12 | Language: | Turkish |
| 13 | Mode of Delivery: | Face to face |
| 14 | Course Coordinator: | Prof. Dr. SALİHA ŞAHİN |
| 15 | Course Lecturers: | Prof. Dr. Belgin İZGİ<br>Prof. Dr. M. Haluk TÜRKDEMİR<br>Prof. Dr. Elif Tümay ÖZER<br>Doç. Dr. Ümran SEVEN ERDEMİR |
| 16 | Contact information of the Course Coordinator: | salihabilgi@uludag.edu.tr<br>0 224 29 41 724 |
| 17 | Website: | |
| 18 | Objective of the Course: | To teach gravimetric and volumetric analyses an quantitative analyses and to comprehend the skill of quantitative chemical analysis in laboratory. |
| 19 | Contribution of the Course to Professional Development: | Students gain the ability to apply quantitative chemical analysis. |
| 20 | Learning Outcomes: | |
| | 1 | Knows and applies the methods of gravimetric analysis in the laboratory. |
| | 2 | Knows and applies the methods of volumetric analysis in the laboratory. |
| | 3 | Prepares standard solutions and they can do titration in laboratory. |
| | 4 | Puts into practice an analysis method in laboratory. |
| | 5 | Calculates chemical analysis results and evaluates these results. |
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| 21 | Course Content: | |

**Course Content:**

| Week | Theoretical | Practice |
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| 1 | | Calibration of glass material and information on laboratory |
| 2 | | Gravimetric iron analysis |

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| **3** | | Acid-base titrations |
| **4** | | Base-acid- titrations |
| **5** | | Precipitation titrations |
| **6** | | Complexometric titrations |
| **7** | | Redox titrations with permanganate |
| **8** | | Redox titrations with dichromate |
| **9** | | Redox titrations (iodometry) |
| **10** | | |
| **11** | | Real Example applications (error of indicators) |
| **12** | | Real Example applications (determination of total hardness in water) |
| **13** | | Real Example applications (determination of vitamin C) |
| **14** | | Real Example applications (Gravimetric nickel analysis) |

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| **22** | Textbooks, References and/or Other Materials: | 1) Skoog, West, Holler, çeviri editörleri (Prof.Dr.E.Kılıç, Prof.Dr.F.Köseoğlu), 1996 “Analitik Kimya” Cilt 1. ve 2.<br>2) Prof.Dr.T.Gündüz, 1990, “Kantitatif Analiz Ders Kitabı”<br>3) Prof.Dr.T.Gündüz, 1984, “Kantitatif Analiz Laboratuvar Kitabı”<br>4) KMY 2252 Analitik Kimya II Laboratuvarı Deney Föyü<br>5) Daniel C.Harris, çeviri editörleri (Prof.Dr.G.Somer), 1994, "Analitik Kimya" kitabı<br>6) J.S.Fritz, G.H.Schenk, 1987, " Quantitative Analytical Chemistry"<br>9) R. Belcher. A.J. Nutten, A.M.G. Macdonald, 1970, “Quantitative Inorganic Analysis” |

| Activites | Number | Duration (hour) | Total Work Load (hour) |
|---|---|---|---|
| Theoretical | 0 | 0.00 | 0.00 |
| Practicals/Labs | 14 | 4.00 | 56.00 |
| Self study and preperation | 14 | 1.00 | 14.00 |
| Homeworks | 13 | 2.00 | 26.00 |
| Projects | 0 | 0.00 | 0.00 |
| Field Studies | 0 | 0.00 | 0.00 |
| Midterm exams | 1 | 10.00 | 10.00 |
| Others | 0 | 0.00 | 0.00 |
| Final Exams | 1 | 15.00 | 15.00 |
| Total Work Load | | | 121.00 |
| Total work load/ 30 hr | | | 4.03 |
| ECTS Credit of the Course | | | 4.00 |

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| **23** Assessment | |
| Midterm Exam | 25.00 |
| Quiz | 0.00 |
| Home work-project | 13.00 |
| Final Exam | 60.00 |
| Total | 100.00 |
| Contribution of Term (Year) Learning Activities to Success Grade | 40.00 |

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| Total | 100.00 |
| Measurement and Evaluation Techniques Used in the Course | Classic exams with multiple choice and/or open-ended questions |

**24 ECTS / WORK LOAD TABLE**

**25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS**

| | **PQ1** | **PQ2** | **PQ3** | **PQ4** | **PQ5** | **PQ6** | **PQ7** | **PQ8** | **PQ9** | **PQ10** | **PQ11** | **PQ12** | **PQ13** | **PQ14** | **PQ15** | **PQ16** |
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| **ÖK1** | 4 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK2** | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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| **ÖK3** | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK4** | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK5** | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**LO: Learning Objectives PQ: Program Qualifications**

| **Contribution Level:** | **1 very low** | **2 low** | **3 Medium** | **4 High** | **5 Very High** |
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