# ABSTRACT ALGEBRA I

| | | |
|---|---|---|
| 1 | Course Title: | ABSTRACT ALGEBRA I |
| 2 | Course Code: | MAT6201 |
| 3 | Type of Course: | Optional |
| 4 | Level of Course: | Third Cycle |
| 5 | Year of Study: | 1 |
| 6 | Semester: | 1 |
| 7 | ECTS Credits Allocated: | 5.00 |
| 8 | Theoretical (hour/week): | 3.00 |
| 9 | Practice (hour/week): | 0.00 |
| 10 | Laboratory (hour/week): | 0 |
| 11 | Prerequisites: | None |
| 12 | Language: | Turkish |
| 13 | Mode of Delivery: | Face to face |
| 14 | Course Coordinator: | Prof. Dr. İSMAİL NACİ CANGÜL |
| 15 | Course Lecturers: | Prof. Dr. Süleyman ÇİFTÇİ, Doç. Dr. Ahmet TEKCAN, Yrd. Doç. Dr. Musa DEMİRCİ, Yrd. Doç. Dr. Hacer ÖZDEN |
| 16 | Contact information of the Course Coordinator: | cangul@uludag.edu.tr, 0 224 2941756,<br>Fen-Edebiyat Fakültesi, Matematik Bölümü, Görükle / Bursa |
| 17 | Website: | |
| 18 | Objective of the Course: | The aim of this course is to teach former algebraic notions intensively and in detail and to maket hem differentiate between results on different algebraic structures |
| 19 | Contribution of the Course to Professional Development: | |
| 20 | Learning Outcomes: | |

| | | |
|---|---|---|
| | 1 | Can list the transformations between algebraic structures and their properties |
| | 2 | Knows the advanced notions on algebraic structures |
| | 3 | |
| | 4 | |
| | 5 | |
| | 6 | |
| | 7 | |
| | 8 | |
| | 9 | |
| | 10 | |

| | |
|---|---|
| 21 | Course Content: |

**Course Content:**

| Week | Theoretical | Practice |
|---|---|---|
| 1 | Algebraic transformations | |
| 2 | Properties of algebraic transformations | |
| 3 | Isomorphism theorems | |
| 4 | p-groups | |

| | | |
|---|---|---|
| **5** | Structure of p-groups | |
| **6** | Sylow theorems | |
| **7** | Group representations | |
| **8** | Rings and domains | |
| **9** | Ring mappings | |
| **10** | Subrings and subfields | |
| **11** | Ideals | |
| **12** | Quotient rings | |
| **13** | Characteristic | |
| **14** | Group action on a set | |

| | | |
|---|---|---|
| **22** | Textbooks, References and/or Other Materials: | 1. Lecture Notes, İsmail Naci Cangül<br>2. Elementary Number Theory, Gareth Jones & Mary Jones, Springer<br>3. A First Course in Abstract Algebra, John B. Fraleigh,<br>4. A First Course in Abstract Algebra, Joseph J. Rotman |
| **23** | Assesment | |

| **TERM LEARNING ACTIVITIES** | **NUMBER** | **WEIGHT** |
|---|---|---|
| Midterm Exam | 0 | 0.00 |
| Quiz | 0 | 0.00 |
| Home work-project | 3 | 30.00 |
| Final Exam | 1 | 70.00 |
| Total | 4 | 100.00 |
| Contribution of Term (Year) Learning Activities to Success Grade | | 30.00 |
| Contribution of Final Exam to Success Grade | | 70.00 |
| Total | | 100.00 |
| Measurement and Evaluation Techniques Used in the Course | | |

**24 ECTS / WORK LOAD TABLE**

| Activites | Number | Duration (hour) | Total Work Load (hour) |
|---|---|---|---|
| Theoretical | 14 | 3.00 | 42.00 |
| Practicals/Labs | 0 | 0.00 | 0.00 |
| Self study and preperation | 14 | 6.00 | 84.00 |
| Homeworks | 3 | 12.00 | 36.00 |
| Projects | 0 | 0.00 | 0.00 |
| Field Studies | 0 | 0.00 | 0.00 |
| Midterm exams | 0 | 0.00 | 0.00 |
| Others | 0 | 0.00 | 0.00 |
| Final Exams | 1 | 33.00 | 33.00 |
| Total Work Load | | | 195.00 |
| Total work load/ 30 hr | | | 6.50 |
| ECTS Credit of the Course | | | 5.00 |

| 25 | CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **PQ1** | **PQ2** | **PQ3** | **PQ4** | **PQ5** | **PQ6** | **PQ7** | **PQ8** | **PQ9** | **PQ10** | **PQ11** | **PQ12** | **PQ13** | **PQ14** | **PQ15** | **PQ16** |
| **ÖK1** | 0 | 3 | 3 | 0 | 2 | 5 | 4 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **ÖK2** | 0 | 3 | 3 | 0 | 2 | 5 | 4 | 0 | 3 | 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** | | | |