**TEACHING ELEMENTARY MATHEMATICS PROGRAM**

**PROGRAM INFORMATION**

**History:**Teaching Elementary Mathematics program accepts students since 2013.

**Goal:** The aim of Teaching Elementary Mathematics Program is to prepare well-educated and talented candidates in line with teacher competencies determined by the Ministry of National Education.

**Objective:** Teacher candidates are expected to integrate various knowledge and skills while teaching and be a representative mathematics teacher for their colleagues. They are equipped with theoretical and practical knowledge about mathematics, teaching mathematics, teaching and learning theories, curriculum development, measurement and assessment, educational research, and educational and school system.

**Qualification Awarded:** Teaching Elementary Mathematics Program’s graduates take Bachelor in Science degree when they accomplish all courses and fulfill the requirements of the program.

**Level of Qualification:**First Cycle

**Admission Requirements:**The general requirements explained in “General Admission Requirements” which is under “Information about the Institution” part are applied for admission of students.

**Recognition of Prior Learning:** The rules and regulations for recognition of formal prior learning are well defined. Transfer can be made among the institutions of which equivalency is recognized by Higher Education Council. Also successful vocational school graduates to continue their education to obtain Bachelor’s degrees if they are successful in the selection and the placement examination (DGS, i.e. vertical transfer examination) are admitted. The courses to be taken by these students are determined by the relevant department, on the basis of courses they have completed in the programs from which they have graduated. Recognition of prior non-formal and in-formal learning is at the beginning stage in Turkish Higher Education Institutions. Yeditepe University and hence of the department is not an exception to this.

**Program Profile:** The aim of Teaching Elementary Mathematics Program is to prepare well-educated and talented candidates in line with teacher competencies determined by the Ministry of National Education.

**Employment Opportunities of the Graduates and Transition to the Upper Level*:*** The graduates of the program work as elementary mathematics teachers in public or private schools or institutions.

**Access to Further Study:** The graduates are eligible to apply master or doctoral programs in the same or related fields in Turkey or abroad if they satisfy other requirements, such as graduate examination record or English proficiency of the programs.

**Exam Regulations, Assessment and Grading:** Students are required to take a mid-term examination and/or complete other assigned projects/homework during the semester and, additionally, are required to take a final examination and/or complete a final project for course evaluation. The assessment for each course is described in detail in “Individual Course Description”.

**Graduation Requirements:** Graduation requirements are explained in the section “Qualification Requirements and Regulations.

**Mode of Study:** Full time

**Program Director or ECTS Coordinator:**

Department Head and Bologna Coordinator: Assist. Prof. Hulya Kilic

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**Facilities of Program:** One professor, four assistant professors and one research assistant are employed in the program. The program is offered under Faculty of Education and there are three computer laboratories, one math activity room and one smart class in the faculty.

**Program Learning Outcomes**

The learning outcomes of the program are given below.

1. Knows historical, cultural and scientific developments of the mathematical and geometrical concepts covered in elementary school mathematics curriculum.
2. Applies fundamental mathematical and geometric concepts into other disciplines and real life situations.
3. Applies mathematical processes (e.g. problem solving, proving theorems, etc.) into given cases accurately.
4. Plans for teaching mathematics in line with the elementary school mathematics curriculum’s vision, philosophy and goals.
5. Uses teaching strategies and techniques that are appropriate for students’ age, grade level, individual differences and readiness level.
6. Determines and applies appropriate strategies and materials to foster and evaluate students’ mathematical thinking skills.
7. Uses and develops appropriate resources and materials to teach mathematics.
8. Monitors students’ learning process, development and achievement and assesses them by using appropriate assessment tools.
9. Improves professional knowledge by following recent issues in mathematics education
10. Contributes to the development of mathematics education by doing scientific research

**Course & Program Outcomes Matrix:**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Course code** | **Course title** | **PO1** | **PO2** | **PO3** | **PO4** | **PO5** | **PO6** | **PO7** | **PO8** | **PO9** | **PO10** |
| EDEM 103 | Fundamentals of Mathematics 1 | X | X | X |  |  |  |  |  |  |  |
| EDEM 104 | Fundamentals of Mathematics 2 | X | X | X |  |  |  |  |  |  |  |
| EDEM 111 | History of Mathematics | X | X |  |  |  |  |  |  |  |  |
| EDEM 208 | Probability | X | X | X |  |  |  |  |  |  |  |
| EDEM 211 | Approaches in Learning and Teaching Mathematics |  | X |  | X | X | X |  |  |  |  |
| EDEM 212 | Elementary Mathematics Curricula | X | X |  | X |  |  | X |  |  |  |
| EDEM 230 | Algorithm and Programming |  | X | X |  |  |  | X |  |  |  |
| EDEM 305 | Statistics | X |  | X |  |  |  |  |  |  |  |
| EDEM 311 | Teaching Numbers | X | X |  | X | X | X | X | X |  |  |
| EDEM 312 | Teaching Algebra | X | X |  | X | X | X | X | X |  |  |
| EDEM 313 | Teaching Geometry and Measurement | X | X |  | X | X | X | X | X |  |  |
| EDEM 314 | Teaching Probability and Statistics | X | X |  | X | X | X | X | X |  |  |
| EDEM 320 | Connections in Mathematics |  | X | X |  | X | X |  |  |  |  |
| EDEM 401 | Teaching Practice 1 | X | X |  | X | X | X | X | X | X |  |
| EDEM 402 | Teaching Practice 2 | X | X |  | X | X | X | X | X | X |  |
| EDEM 411 | Misconceptions in Mathematics | X | X |  |  | X | X | X | X |  |  |
| EDEM 412 | Philosophy of Mathematics | X | X | X |  |  |  |  |  |  |  |
| EDEM 421 | Problem Solving in Mathematics | X | X | X | X | X | X | X | X |  |  |
| EDEM 423 | Logical Reasoning | X | X | X |  | X | X | X | X |  |  |
| EDEM 424 | Modelling in Mathematics | X | X | X | X | X | X | X | X |  |  |
| EDEM 280 | Computer Assisted Mathematics Instruction  |  | X | X |  |  |  | X | X | X | X |
| EDEM 281 | Culture and Mathematics | X | X |  | X |  | X |  |  | X |  |
| EDEM 282 | Teaching Primary Mathematics |  |  |  | X | X | X | X | X |  |  |
| EDEM 283 | Analysis of Mathematics Textbooks |  |  |  | X | X | X | X | X |  |  |
| EDEM 284 | Mainstreaming in Mathematics Education |  |  |  | X | X | X | X | X |  |  |
| EDEM 285 | Self-Regulation in Mathematic Education |  |  |  |  | X |  |  | X | X | X |
| EDEM 286 | Task Design for Teaching Mathematics |  | X |  | X | X | X | X | X | X | X |
| EDEM 287 | Material Design for Teaching Mathematics |  | X |  | X | X | X | X | X | X | X |
| EDEM 288 | Out-of-school Learning Environments for Teaching Mathematics |  |  |  |  |  | X | X | X |  |  |
| EDEM 289 | Communication in Mathematics Classroom |  |  | X |  | X | X | X |  |  |  |
| EDEM 290 | Teaching Mathematics to Talented Students |  |  |  | X | X | X | X |  | X | X |
| EDEM 291 | Teaching Mathematics Through Games |  | X | X | X | X | X | X | X |  | X |
| EDEM 292 | Evaluation of In-Class Learning |  |  |  | X |  | X | X | X |  |  |

**Course Structure Diagram with Credits:**

**Course Category List:**

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| **Course Categories** |
| **Expertise / Field Courses**  | **ECTS** | **Expertise / Field Courses**  | **ECTS** |
| Fundamentals Mathematics 1 | 2 | Problem Solving in Mathematics | 3 |
| Basic Mathematics | 5 | Misconceptions in Mathematics | 3 |
| History of Mathematics  | 3 | Logical Reasoning | 3 |
| Fundamentals Mathematics 2 | 4 | Teaching Practice 1 | 10 |
| Calculus I | 6 | Teaching Practice 2 | 12 |
| Introduction the Set Theory and Logic | 8 | Philosophy of Mathematics | 3 |
| Calculus II | 6 | Modelling in Mathematics | 4 |
| Analytical Geometry | 9 | Computer Assisted Mathematics Instruction | 4 |
| Linear Algebra | 6 | Culture and Mathematics | 4 |
| Basic Algebraic Structures | 8 | Teaching Primary Mathematics | 4 |
| Probability | 3 | Analysis of Mathematics Textbooks | 4 |
| Algorithm and Programming | 2 | Teaching Mathematics to Talented Students | 4 |
| Elementary Mathematics Curricula | 3 | Self-Regulation in Mathematic Education | 4 |
| Approaches in Learning and Teaching Mathematics | 3 | Task Design for Teaching Mathematics | 4 |
| Teaching Numbers | 5 | Material Design for Teaching Mathematics | 4 |
| Teaching Geometry and Measurement | 4 | Out-of-school Learning Environments for Teaching Mathematics | 4 |
| Statistics | 2 | Mainstreaming in Mathematics Education | 4 |
| Teaching Algebra | 5 | Teaching Mathematics to Talented Students | 4 |
| Teaching Probability and Statistics | 4 | Teaching Mathematics Through Games | 4 |
| Connections in Mathematics | 4 | Evaluation of In-Class Learning | 4 |
| Fundamentals of Mathematics 1 | 2 | Problem Solving in Mathematics | 3 |
| Basic Mathematics | 5 | Misconceptions in Mathematics | 3 |
| History of Mathematics | 3 | Logical Reasoning | 3 |
| Fundamentals of Mathematics 2 | 4 | Teaching Practice 1 | 10 |
| Calculus I | 6 | Teaching Practice 2 | 12 |
| Introduction to Set Theory and Logic | 8 | Philosophy of Mathematics | 3 |
|  **Total 182** |

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| **Course Categories** |
| **Basic Occupational Courses**  | **ECTS** | **Basic Occupational Courses**  | **ECTS** |
| Introduction to Education | 3 | Classroom Management | 3 |
| Educational Sociology | 3 | Ethics and Moral Issues in Education | 3 |
| Educational Psychology | 3 | Measurement and Evaluation in Education | 3 |
| Philosophy of Education | 3 | Turkish Education System and School Management | 3 |
| Instructional Technology | 3 | Special and Inclusive Education | 3 |
| Instructional Principles and Methods | 3 | Guidance in School | 3 |
| History of Turkish Education | 3 | Research in Education | 3 |
|  **Total 42**  |
| **Supplementary Courses**  | **ECTS** | **Supplementary Courses**  | **ECTS** |
| Academic English I | 4 | Information Technologies | 5 |
| Academic English II | 4 |  |  |
|  **Total 13** |
| **Humanities, Communication and Management Skills Courses**  | **ECTS** | **Humanities, Communication and Management Skills Courses**  | **ECTS** |
| Turkish Language 1 (Faculty of Education) | 5 | History of Turkish Revolution 1 | 2 |
| Turkish Language 2 (Faculty of Education) | 5 | History of Turkish Revolution 2 | 2 |
| Community Service in Practice | 3 |  |  |
|  **Total 17** |
|  **Total ECTS credits of all courses 254** |