| Department Mathematics | Identification | Subject MA | ATH 310, Applied Differential Ed | uuations, 6 ECTS | | |
|---|-------------------|---|--|---------------------------|--|--|
| Program | | | | quations, o De 15 | | |
| Term | | - | | | | |
| Instructor Seide.memmedova@physics.science.az, memmedova@physics.science.az, memmedova@physics.science.az, memmedova@physics.science.az, memmedova@physics.science.az, memmedova.ge.side.fiz@mail.ru Classroom/hours Thursday: 08:30-10:00, Friday 10:10-11:40 Prerequisites Applied Differential Equations is a second-year, first-semester course. The prerequisite is Calculus 2. Language English Required Required Required Required Required Extbooks and course materials Utiliam E.Boyce and Richard C. DiPrima, Elementary Differential Equations and Boundary Value problems, 10th edition, 2012 Supplementary book | | | | | | |
| E-mail: seide.memmedova@physics.science.az, memmedova_seide.fiz@mail.ru | | <u> </u> | | | | |
| memmedova_seide.fiz@mail.ru | | | 1 3 | | | |
| Classroom/hours | | | * • | e.az, | | |
| Prerequisites | | | | 0.11.10 | | |
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| | | • 10 find eigenvalu | ues and eigenvectors | | | |
| | Teaching methods | Lecture | | v | | |
| Group discussion x | - Judinia monions | Group discussion | | | | |
| Experiential exercise x | | | | | | |
| Course paper x | | _ | | | | |
| Evaluation Methods Date/deadlines Percentage (%) | Evaluation | | Date/deadlines | | | |
| Midterm Exam 30 | | Midterm Exam | | 9 | | |
| Class Participation 5 | | Class Participation | | 5 | | |
| Quizzes 20 (2 quizzes) | | | | 20 (2 quizzes) | | |
| Activity 5 | | Quizzes | | | | |
| Final Exam 40 | | - | | | | |
| Total 100 | | Activity | | 5 | | |
| Policy Preparation for class | | Activity Final Exam Total | | 5 40 | | |

Due to the pandemic situation the course will be organized by using Teams application. The structure of this course makes your individual study and preparation outside the class extremely important. The lecture material will focus on the major points introduced in the text. Reading the assigned chapters and having some familiarity with them before class will greatly assist your understanding of the lecture. After the lecture, you should study your notes and work relevant problems and cases from the end of the chapter and sample exam questions. Throughout the semester we will also have a large number of review sessions. These review sessions will take place during the regularly scheduled class periods.

Attendance

Students who do not attend more than 25% of online classes will not be allowed to take the exam.

Quizzes and examinations

Quizzes may be given unannounced throughout the term. There will be no make-up quizzes.

Withdrawal (pass/fail)

This course strictly follows grading policy of the School of Science and Engineering. Thus, a student is normally expected to achieve a mark of at least 60% to pass. In case of failure, he/she will be required to repeat the course the following term or year.

Cheating/plagiarism

Cheating or other plagiarism during the Quizzes, Mid-term and Final Examinations will lead to paper cancellation. In this case, the student will automatically get zero (0), without any considerations.

Professional behavior guidelines

The students shall behave in the way to create favorable academic and professional environment during the class hours. Unauthorized discussions and unethical behavior are strictly prohibited.

Ethic

Use of any electronic devices is prohibited in the classroom. All devices should be turned off before entering class. This is a university policy and <u>violators will be</u> reprimanded accordingly!

Students should not arrive in late to class!

| | Tentative Schedule | | | | |
|----------|----------------------|--|--------------------------|--|--|
| We ek | Date/Day (tentative) | | Textbook/ Assignments | | |
| 1. | 19.09.24 20.09.24 | Linear Equations; Method of integrating factorSeparable equations | 2.1, 2.2 | | |
| 2. | 26.09.24 27.09.24 | Exact equation, integrating factorsPractice | 2.6 | | |
| 3. | 03.10.24 | Second Order Linear Equations. Homogeneous equations with constant coefficients | 3.1, 3.2 | | |
| | 04.10.24 | Solutions of linear homogeneous equations; the Wronskian | | | |
| 4. | 10.10.24 | Complex roots of the characteristic equation | 3.3, 3.4 | | |
| | 11.10.24 | Repeated roots; Reduction of order | | | |
| 5. | 17.10.24 18.10.24 | Nonhomogeneous Equations; Method of Undetermined Coefficients | 3.5 | | |

| | | Practice | |
|-----|----------|--|---|
| 6. | 24.10.24 | Variation of parameters | 3.6 |
| | 25.10.24 | Practice | Quiz (10 pts) |
| 7. | 31.10.24 | Homogeneous equations with constant coefficients | |
| | 01.11.24 | The Method of Undetermined | 4.2, 4.3 |
| | | Coefficients | |
| 8. | 07.11.24 | The method of variation of parameters | 4.4 |
| | 08.11.24 | Holiday | |
| 9. | 14.11.24 | Definition of the Laplace Transform | |
| | 15.11.24 | Midterm Exam | 6.1 |
| 10 | 21 11 24 | | |
| 10. | | Solution of Initial Value Problem | (2.62 |
| | 22.11.24 | Step Functions | 6.2, 6.3 |
| 11. | 28.11.24 | Review of Matrices | |
| | 29.11.24 | Systems of Linear Algebraic Equations; Linear | 7.2, 7.3 |
| | | independence; Eigenvalues; Eigenvectors | |
| 12. | | Homogeneous Linear systems with Constant coefficients | 7.5, 7.6 |
| | 06.12.24 | Complex Eigenvalues | , in the second |
| 13. | | Fundamental Matrices | 7.7 |
| | 13.12.24 | Practice | Quiz (10 pts) |
| 14. | | Repeated Eigenvalues | 7.8 |
| | 20.12.24 | Practice | 7.0 |
| 15. | | | |
| | 27.12.24 | Nonhomogeneous Linear Systems | 7.9 |
| | | Practice | |
| | TBA | Einel Engar | |
| | | Final Exam | |

This syllabus is a guide for the course and any modifications to it will be announced in advance.