



ESOGÜ Mathematics and Computer Sciences Department
COURSE INFORMATION FORM

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|-----------------|--------|
| SEMESTER | Spring |
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| COURSE CODE | 821618024 | COURSE NAME | Integral Equations II |
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| SEMESTER | WEEKLY COURSE PERIOD | | | COURSE OF | | | |
|---|----------------------|----------|--|-----------|------|----------------------------|-----------|
| | Theory | Practice | Labratory | Credit | ECTS | TYPE | LANGUAG E |
| 8 | 2 | 2 | 0 | 3 | 5 | COMPULSORY(x) ELECTIVE () | Turkish |
| COURSE CATAGORY | | | | | | | |
| Mathematics | | | Computer | | | SocialScience | |
| x | | | | | | | |
| ASSESSMENT CRITERIA | | | | | | | |
| MID-TERM | Evaluation Type | | Quantity | | % | | |
| | 1st Mid-Term | | 1 | | 40 | | |
| | 2nd Mid-Term | | | | | | |
| | Quiz | | | | | | |
| | Homework | | | | | | |
| | Project | | | | | | |
| | Report | | | | | | |
| Others (.....) | | | | | | | |
| FINAL EXAM | | | | | 1 | | 60 |
| PREREQUIEITE(S) | | | None. | | | | |
| COURSE DESCRIPTION | | | Applications of Fredholm Theory Free Vibrations of an elasticstring Constrained Vibrations of an elasticstring Auxiliary theorems on harmonic functions Fredholm's Solution of Dirichlet's problem | | | | |
| COURSE OBJECTIVES | | | Giving the student the basic knowledge of the integral equations in applied mathematics in implementing other areas of interest | | | | |
| ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION | | | To create a base to students who want to master's degree in Applied Mathematics | | | | |
| COURSE OUTCOMES | | | Gain sufficient knowledge of Integral Equations subject, related with science and own branch; an ability to apply theoretical and practical knowledge on solving problems. | | | | |
| TEXTBOOK | | | İntegral Denklemler (Prof.Y. Aksoy) Integral Equations (M.Krasnov, A. Kiselev,G.Makeronko) | | | | |
| OTHER REFERENCES | | | Integral Equations and Applications (C.Corduneanu) Linear Integral Equations (W. V. Lovitt) | | | | |
| TOOLS AND EQUIPMENTS REQUIRED | | | None. | | | | |

| COURSE SYLLABUS | |
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| WEEK | TOPICS |
| 1 | Free Vibrations of an elastic string |
| 2 | Reduction to a one dimensional boundary problem |
| 3 | Construction of Green's function |
| 4 | Constrained Vibrations of an elastic string |
| 5 | Differential equation of the problem |
| 6 | Remarks on solution of the boundary problem |
| 7 | Remarks on solution of the boundary problem |
| 8 | Midterm |
| 9 | Auxiliary theorems on harmonic functions |
| 10 | Harmonic Functions |
| 11 | Definition about curves |
| 12 | Green's theorem |
| 13 | Fredholm's Solution of Dirichlet's problem |
| 14 | Reduction to an integral equation |
| 15 | Solution of the integral equation |
| 16 | Final |

| NO | PROGRAM OUTCOMES | 3 | 2 | 1 |
|----|---|---|---|---|
| 1 | The ability to apply knowledges of Mathematics - Computer, | x | | |
| 2 | To have sufficient theoretical and practical knowledge of Mathematics at international level, | x | | |
| 3 | The ability of describing, modelling and solving of mathematical problems at Mathematics and related subjects, | x | | |
| 4 | The skill to solve and design a problem process in accordance with a defined target, | x | | |
| 5 | Skills to analyze data, interpret and apply to other datum and using these data on computer, | | x | |
| 6 | The skill to use the modern techniques and computational tools needed for mathematical applications, | x | | |
| 7 | The skill to make team work within the discipline and interdisciplinary, | x | | |
| 8 | The ability to improve oneself by following the developments on other modern, scientific and technological subjects as well as Mathematics - Computer, | | x | |
| 9 | The skill to communicate orally and in written way, in a clear and concise manner by having individual work skills and ability to independently decide and analytical thinking, | x | | |
| 10 | The skill to have professional and ethical responsibility, | x | | |
| 11 | The skill to have consciousness for quality issues and scientific research, | x | | |
| 12 | The skill to be sensitive to environmental issues related with problems and development of living area and consistent in the social relations, | | x | |
| 13 | Ability to solve problems in the working life faced to find an appropriate algorithms via mathematical modeling and to write computer programs, | x | | |
| 14 | The skill to developed design of software systems at different complex levels, | x | | |
| 15 | The credence of necessity of life-long learning and ability to apply the formation long-life learning. | x | | |

1:None. 2:Partially contribution. 3:Completely contribution.

Instructor(s): Prof. Dr. Filiz TAŞCAN

Signature:

Date:

