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| **CMSE 492 Selected Topics in Software Engineering II**  |
| **Department:**   Computer Engineering   |
| **Instructor Information****Name:** Assoc. Prof. Dr. Alexander Chefranov**E-mail:** Alexander.chefranov@emu.edu.tr**Office:** CMPE 219**Office Tel:** 0 392 630 1190                                   |
| **Assistant Information****Name:  TBD****E-mail:** **Office:** **Office Tel:**                 |
| **Meeting times and places**Tuesday, 8.30-10.20, CMPE129, LectureWednesday, 12.30-14.20, CMPE129, LectureThursday, 18.30-20.20, CMPE238, Lab |
| **Program Name:**  FORMTEXT Computer Engineering  | **Program** **Code:** 25 |
| **Course Code** CMSE 492 | **Credits** 4  | **Year/Semester**2020-2021 Spring |
|  FORMCHECKBOX   Required Course          FORMCHECKBOX   Elective Course |
|  **Prerequisite(s):** CMPE211 - Object Oriented Programming  |
| **Catalog Description**  This course is to be arranged as seminar course. Students and faculty members participate in studying recent articles published on the research interests of the department. (4'th year standing). (Prerequisite: none) **Aims & Objectives**Teaching the basic concepts of software engineering with specific emphasis on the practical issues involved in software project management through the use of a one-semester design project.The students will work in teams on projects of interest to industry and will be involved in analysis of requirements, architecture and design, implementation, testing & validation, project management, software process, software maintenance, and software re-engineering.  |
|  **Course Web Page** http://cmpe.emu.edu.tr/en/CourseLoad.aspx?id=CMSE492 |
| **Textbook(s)**   |
| **Indicative Basic Reading List:**  |
| **Topics Covered and Tentative Class Schedule****(4 hours of lectures per week)**

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| **Week  1** | Steganography methods: Transformation domain, spatial domain |   |
| **Week  2** | Steganography methods: Spatial LSB-based |   |
| **Week  3** | Steganography methods: Spatial LSB-based | . |
| **Week  4** | Steganography methods: Spatial PVD-based |   |
| **Week  5** | Steganography methods: Spatial PVD-based |   |
| **Week  6** | Steganography methods: Spatial Hybrid LSB+PVD |   |
| **Week  7**  | Steganography methods Spatial EMD-based |   |
| **Weeks  8, 9**  | MIDTERMS |   |
| **Week 10** | Steganography methods: Reversible data hiding |   |
| **Week 11** | Steganalysis methods: pixel value histograms and pixel valued difference histograms |   |
| **Week 12** | Steganalysis methods: RS-diagrams |   |
| **Week 13** | Steganalysis methods: RS-diagrams |   |
| **Week 14** | Steganalysis methods: SPAM analysis |   |
| **Weeks 15-17** | FINAL EXAMS |   |

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| **Lab Schedule (Tentative)**

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| **Weeks 3-4** | Implementation of LSB-based stego methods |
| **Weeks 5-6**  | Implementation of PVD-based stego methods |
| **Weeks 6-7** | Implementation of LSB+PVD-based stego methods |
| **Weeks 10-11** | Implementation of steganalytic methods: histograms |
| **Weeks 12-13** | Implementation of steganalytic methods: RS-diagrams |

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| **Course Learning Outcomes** Upon successful completion of the course, students are expected to have the following competencies:1. To know steganography methods classification
2. To know LSB-based methods and to be able to apply them
3. To know PVD-based methods and to be able to apply them
4. To know LSB+PVD-based methods and to be able to apply them
5. To know EMD methods and to be able to apply them
6. To know reversible steganography methods concepts
7. To know about steganalysis methods
8. To know histogram-based steganalysis methods
9. To know RS-diagrams steganalysis method and to be able to apply it
10. To know SPAM method and to be able to apply it
11. Work on the Term project in a team
12. Participate in the seminars on the course topics
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| **Assessment** | **Method** | **No** | **Percentage** |
| Midterm Exam(s) | 1 | 20% |
| Final Examination | 1 | 30% |
|  | Seminar work | 6-7 | 20% |
|  | Attendance | - | 0% |
|  | Labs | 5 | 10% |
|  | Term project | 1 | 20% |
|  **Attendance grade:**No grade will be given. However, it is compulsory |
| **Policy on makeups:** For eligibility to take a makeup exam, the student should bring a doctor's report within 3 working days of the missed exam. |
| **Policy on the NG grade:** If more than 20% of classes missed and/or poor performance is shown in assignments (including exams), NG grade may be given.  |
| **Policy on missed seminars and labs:** There will be no makeup for missed seminars and labs.  |
|  **Relationship of the course to Student Outcomes**The course has been designed to contribute to the following student outcomes:1.  an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors3. an ability to communicate effectively with a range of audiences5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives |
| **Prepared by:** Assoc.Prof. Dr. Alexander Chefranov | **Date Prepared:** 2 March 2021 |
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