**Graduation Project Proposal**

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| Project Title | Assessment of strain measurement techniques in 3D printed materials |
| Classification | Research project |
| Supervisor | Fatih DARICIK |
| Abstract | Strain measurement is important in mechanical testing. A wide variety of techniques exists for measuring strain in the tensile test; namely the strain gauge, extensometer, stress and strain determined by machine crosshead motion, Geometric Moire technique, optical strain measurement techniques and others. Each technique has its own advantages and disadvantages. The purpose of this study is to quantitatively compare the strain measurement techniques; electrical strain gauge and digital image correlation. We will apply these two measurement techniques on the polymer (PLA and epoxy) specimens produced with fused deposition modeling (FDM) and steorolithography (SLA). Then we will determine mechanical properties of the specimens. Finally, we will compare the results with provided data from PLA and epoxy manufacturers. |

The graduation project is the subject of the MEC 401 Mechanical Engineering Design and MEC 402 Graduation Project courses offered in the 7th and 8th semesters, respectively.

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| Course Name | MEC 401 Mechanical Engineering Design |
| Prerequisites | MEC 104, MEC 201, MEC 306 |
| Corequisites | SEC 401.2 |
| Requirements | Basic knowledge of a MATLAB, Intermediate knowledge of solid modelling |
| Workflow | * Literature survey * Study on the theory of measurement techniques * Setting up experimental equipment * Midterm presentation * Experimental analysis * Project report * Final presentation |

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| Course Name | MEC 402 Graduation Project |
| Prerequisites | MEC 104, MEC 201, MEC 306, SEC 401.2 |
| Corequisites | SEC 402.2 |
| Requirements | None |
| Workflow | * Extended analysis on DIC * Comments on the results * Midterm presentation * Project report * Final presentation |

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| Term |  | | |
| Date |  | | |
| Project Title |  | | |
| Supervisor Name and Signature |  | | |
| Students | | | |
| First Name | Last Name | Student Number | Signature |
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