**Graduation Project Proposal**

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| Project Title | Design and FEA of Cast Underbody of an Automobile |
| Classification | Research project |
| Supervisor | Fatih DARICIK |
| Abstract | Giga casting supplies several advantages to automobile manufacturers. These are reduction of part count and weight, improved structural integrity, less manufacturing scraps and finally cost savings. Global automobile manufacturers have been experimenting with giga casting in one-piece underbody production in recent years. In this project; a series of design criteria will be determined for underbody of a C segment sedan automobile, solid model of the underbody will be designed and finally the model will be analyzed with Ansys Workbench. |

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 202 |
| Corequisites | SEC 401.2 Intermediate Strength of Materials |
| Requirements | Intermediate solid modeling knowledge,Intermediate Ansys Workbench knowledge |
| Workflow | * Literature surveyStudy on the chassis design of automobiles
* Determining design criteria
* Conceptual designs and preliminary design
* Determining loads and boundary conditions
* Preliminary analysis
* Project report and final presentation
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| Course Name | MEC 402 Graduation Project |
| Prerequisites | MEC 104, MEC 201, MEC 202 |
| Corequisites | SEC 402.2 Experimental Mechanics |
| Requirements | Intermediate solid modeling knowledge,Intermediate Ansys Workbench knowledge |
| Workflow | * Extended analysis to reduce weight
* Improvement of solid design
* Further investigations with different aluminum alloys.
* Project report and 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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