# ME-403

## Mechanical Systems Design

*LAB MANUAL*: Engineering Design with SolidWorks 2013, Planchard & Planchard, SDC Publications  

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
<th>PROJECT ASSIGNMENTS</th>
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| 1    | Introduction/Engineering Design  
Search on Process/CAE/CAD/CAM/CAE  
Library Awareness User Skills | **Proj #1**: MCAE Software  
Literature Search. |
| 2    | Structured and Unstructured Problems |  |
| 3    | Design Methods |  |
| 4    | Creative Design/Ideation | **Proj #2**: Solid Model Design |
| 5    | Innovations in Engineering Design |  |
|      | **EXAM # 1** |  |
| 6    | Design Synthesis/Mathematical Models |  |
| 7    | Decision Processes/Material Selection | **Proj #3**: FEA Simulation in  
Mechanical Systems |
| 8    | Decision Support: Selection Problem |  |
| 9    | Finite Element Analysis/Modeling and Simulation in  
Mechanical and Thermal/Fluid Systems | **Proj #4**: FEA Simulation in  
Thermal Systems |
|      | **EXAM #2** |  |
| 10   | Decision Support: Compromise Problem |  |
| 11   | Optimization Methods in Design: Overview |  |
| 12   | Optimization/Mathematical Methods | **Proj #5**: Design Proposal For  
ME 408 |
| 13   | Leadership and Professionalism in Engineering/  
Engineering Law/Engineering Ethics |  |
| 14   | **FINAL EXAM** |  |

May 3, 2013 (Kountouras)