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| **Department of Mechanical Mechatronics Engineering** |
| **Computer Applications of Mechanical Engineering (67300)** |
| **Total Credits** | **1** |
| **major compulsory** |
| **Prerequisites** | P1 : Computer Programming (66111) |
| **Course Contents** |
| This course introduces the most popular used software (MAT LAB) for matrix operations, and solution of linear equations. Programming methods in MATLAB software (m-files) and the software library of m-defined functions. Graphical representation of data structures and analysis of Mechanical systems. |
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| **Intended Learning Outcomes (ILO's)** | **Student Outcomes (SO's)** | **Contribution** |
| 1 | Use basic Matlab variables, functions, commands and operators |  K  | 30 % |
| 2 | Create Matlab functions |  K  | 15 % |
| 3 | Create Branching statements: if statement, switch statement …etc. And program Matlab loops |  K  | 55 % |

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| **Textbook and/ or Refrences** |
| Matlab Programming for Engineers, 4th Ed. Chapman S. J. |
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| **Assessment Criteria** | **Percent (%)** |
| First Exam | 20 % |
| Second Exam | 20 % |
| Quizzes | 20 % |
| Final Exam | 40 % |

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| **Course Plan** |
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| **Week** | **Topic** |
| 1 & 2 | Introduction to Matlab |
| 2, 3, 4 & 5 | Matlab basics: variables, workspace, figures, principle commands … etc. |
| 6 & 7 | Built-in functions and Matlab help |
| 8 | MIDTERM EXAM 1 |
| 8, 9, & 10 | Branching statements (if, switch-case, while…) |
| 11, 12 & 13 | Loops |
| 13 | MIDTERM EXAM 2 |
| 14 & 15 | User defined functions. |
| 16 | Animated figures |
| 16 | Final Exam |

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