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|  |  | Winter 2016MW 6:00 – 7:50 PMRoom 17-1631 |
| ARO 406Advance Dynamics and Vibration of Aerospace Systems [Class No. 14346] |  | Instructor: Try LamE-Mail: trylam@cpp.eduPhone: x2615Office: 17-2120Office Hours: By Appointment  |
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| OverviewVector dynamics of aerospace systems; moving coordinates and vehicle motion; Lagrangian dynamics; equations of motion and free forced vibrations of single and multi-degree of freedom and continuous systems. Applications of Fourier analysis. Random analysis.  Schedule

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| **Week** | **Monday** | **Wednesday** |
| 1/4 | Introductions | Review of Forces and Moments |
| 1/11 | Conservation Laws | Energy MethodLagrange Equation |
| 1/18 | Holiday (No Class) | Homework Walkthrough Quiz #1 |
| 1/25 | Fundamental of Vibrations | Fundamental of Vibrations |
| 2/1 | Free Vibration | Forced Vibration |
| 2/8 | Damped Free Vibration | Midterm Exam |
| 2/15 | Damped Free Vibration | Damped Forced Vibration |
| 2/22 | Damped Forced Vibration | Homework Walkthrough Quiz #2 |
| 2/29 | Multi-degree Vibration | Multi-degree Vibration |
| 3/7 | Homework Walkthrough Quiz #3 | Special TopicsClass Review |
| 3/14 | Final Exam (6-8 PM) |  |

PrerequisitesENG 103, ENG 104, ENG 107, ENG 109, ENG 110, IGE 120, IGE 121, or IGE 122; and C or better in ME 215 and MAT 318Grades20% Homework, 30 % Quizzes (10% each), 10% Project, 20% Midterm Exam, 20% Final Exam |  | Textbooks* Thorby, Structural Dynamics and Vibration in Practice – An Engineering Handbook
* Curtis, Orbital Mechanics for Engineering Students

Dates1/18/2016Holiday – Campus Closed1/20/2016Quiz #12/10/2016Midterm Exam2/24/2016Quiz #23/7/2016Quiz #33/14/2016Final Exam 6-8 PM |