**Syllabus: MAE 1105- Section 006**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Instructor Information** | | | | | |
| Name: | | Miguel Amaya, Ph.D. <https://www.uta.edu/mentis/public/#profile/profile/view/id/3238/> | | |  |
| Office hours: | | T,TH 10:00-11:30 am (RM 204D WH) | | |  |
| Contact: | | 817-272-9266/ [mamaya@uta.edu](mailto:mamaya@uta.edu) | | |  |
| **Course Information** | | | | | |
| Course title: | | Introduction to Mechanical and Aerospace Engineering | | |  |
| Course number: | | MAE 1105 | | |  |
| Discipline: | | Mechanical & Aerospace Engineering | | |  |
| Description: | | This is the MAE laboratory course accompanying MAE 1104 Introduction to Engineering. It introduces the student to some basic mechanical and aerospace engineering concepts including fluid mechanics, aerodynamics and propulsion, thermal science and energy, mechanics & design, and automotive engineering. Students will also be given a group project to design and program a mobile robot using the Lego Mindstorm Kit. Opportunities are provided to develop skills in oral and written communication as well as department-specific material. | | |  |
| Meeting  Days, Times and Locations: | | **Week 1: Tues, 5:00-5:50 pm, Woolf Hall 313**  Week 2-6: Wed, 4:00-5:00pm, Nedderman Hall 100  Week 7-8: Tues, 5:00-7:50pm, Woolf Hall 313  Week 9-15: Tues, 5:00-7:50pm, Woolf Hall 313 | | |  |
| Prerequisites: | | C or better in MAE 1104 (or concurrent enrollment); and C or better in MATH 1302 or C or better in MATH 1322 (or concurrent enrollment) or C or better in MATH 1323 (or concurrent enrollment) or C or better in MATH 1426 (or concurrent enrollment). | | |  |
| **Course Goals** | | | | | |
|  | | To expose students to: typical aerospace engineering experiments, practical aspects of building structures and mechanisms, programming concepts for control and automation, practical aspects of automotive engineering, and introduction to heat transfer and data analysis, report writing, teamwork and public speaking. | | |  |
| **Academic Dishonesty Policy** | | | | | |
|  | | It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspensions or expulsion from the University. “Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.” (Regents’ Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22). | | |  |
| **Attendance and Drop Policy** | | | | | |
|  | | Standard University Policy. Students are required to sign in at the beginning of every class. The sign in sheet will be removed 10 minutes after the class starts and any student that has not signed in at this time will be considered absent. | | |  |
| **Student Evaluation of Teaching** | | | | | |
|  | | Standard University Policy | | |  |
| **Americans with Disabilities Act** | | | | |
|  | | The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 93112-The Rehabilitation Act of 1973 as amended. With the passage of new federal legislation entitled Americans with Disabilities Act – (ADA), pursuant to section 504 of The Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens. As a faculty member, I am required by law to provide “reasonable accommodation” to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels. If you require an accommodation based on disability, I would like to meet with you in the privacy of my office during the first week of the semester to make sure that you are properly accommodated. |  | |
| **Policy on Late Homework** | | | | |
|  | | No late homework accepted. |  | |
| **Emergency Exit Procedures** | | | | |
|  | | Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located at the nearest end of the hallway, to the right, as one exits the classroom. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals. Any handicapped person not able to evacuate themselves shall go to the stairway and wait for rescue personnel to take them downstairs. |  | |
| **(ABET Requirement) Key Assignment** | | | | |
|  | | This course specifically assesses your ability to: 1. Design system, component or process to meet needs, 2. Function on multi-disciplinary teams, 3. Communicate effectively. Robotics Robotic Design Project is designated as a key assignment to further and assess these abilities. Design Projects (Key Assignments) include:   * 1. Robotic Design Report   2. Robotic Competition   3. Robotic Design Presentation |  | |
| **Grading** | | | | |
|  | | **Grading Scheme: A:** 90-100%; **B**: 80-89%; **C**: 70-79%; **D**: 60-69%; **F**: <60% |  | |



**Schedule: MAE 1105-006**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Tuesday, 5:00 PM-WOOLF HALL ROOM 313*** | | | | | |
| **Week** | **DAY** | **CLASSROOM** | **TOPIC** | **ASSIGNMENT** | **DUE DATE** |
| 1 | Tuesday  Aug. 27 | WH 313 | Schedule and Blackboard Introduction  Sample Report, Word, Excel  Design and Delivery of Presentations | E-mail | Sept. 4 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***Wednesday, 4:00 PM-NEDDERMAN HALL ROOM 100*** | | | | | |
| **Week** | **DAY** | **CLASSROOM** | **TOPIC** | **ASSIGNMENT** | **DUE DATE** |
| 2 | Wed.  Sept.4 | NH 100 | MAE Advising | Memorandum | Sept. 11 |
| 3 | Wed.  Sept.11 | NH 100 | Automotive Engineering | Automotive Lab Assignment | Sept. 25 |
| 4 | Wed.  Sept.18 | NH 100 | Mechanics and Design | ----------------------- | -------------- |
| 5 | Wed.  Sept.25 | NH 100 | Fluid Mechanics and Aerodynamics | ------------------------ | ------------- |
| 6 | Wed.  Oct. 2 | NH 100 | Thermal Science and Energy | ------------------------ | -------------- |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Tuesday, 5:00 PM-WOOLF HALL ROOM 313*** | | | | | | | | |
| **Week** | **DAY** | **CLASSROOM** | **TOPIC** | | | **ASSIGNMENT** | **DUE DATE** | |
| 7 | Tuesday  Oct. 8 | WH 313 | Wind Tunnel Simulation | | FoilSim Assignment (In-Class) | | ------------- | |
| 8 | Tuesday  Oct. 15 | WH 313 | Energy Lab | | | (In-Class) Assignment | ------------- | |
| 9 | Tuesday  Oct. 22 | WH 313 | | Mechanics and Design | | Mechanics and Design  (In-Class) | |  |
| 10 | Tuesday  Oct. 29 | WH 313 | Robotic Design Lessons: | | | (In-Class) Tutorials |  | |
| 11 | Tuesday  Nov. 5 | WH 313 | Robotic Design Project (Intro) & Programming tips | | | Robotic Design Report  Robotic Competition  Robotic Design Presentation | Dec. 3 | |
| 12 | Tuesday  Nov. 12 | WH 313 | Robotic Design Project | | | ----------------------- | ------------- | |
| 13 | Tuesday  Nov. 19 | WH 313 | Robotic Design Project | | | ----------------------- | | ------------- |
| 14 | Tuesday  Nov. 26 | WH 313 | NO CLASS | | | | | |
| 15 | Tuesday  Dec. 3 | WH 313 | | Team Presentations/Competition-LEGO Kit Inventory | | ------------------------- | ------------- | |