**Syllabus: MAE 1105- Section 001**

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| **Instructor Information** | | |
| Name: | Miguel Amaya, Ph.D. |  |
| Office hours: | M W F 9:00-10:30 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: Tuesday, 1:00 pm, Woolf Hall 313  Week 2-6: Friday, 10:00 am, Nedderman Hall 100  Week 7-8: Tuesday, 1:00 pm, Woolf Hall 313  Week 9: No Class  Week 10-15: Tuesday, 1:00 pm, Woolf Hall 313 |  |
| Prerequisites: | 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** | | |
| 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 Integrity** | | |
|  | Students enrolled in this course are expected to adhere to the UT Arlington Honor Code:  *I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*  *I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.* |  |
| **Attendance** | | |
|  | 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 Feedback Survey** | | |
|  | At the end of each term, students enrolled in classes categorized as “lecture,” “seminar,” or “laboratory” shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>. |  |

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| **Americans with Disabilities Act** | | |
|  | The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the Americans with Disabilities Act (ADA). All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364. |  |
| **Late Homework Policy** | | |
|  | No late homework accepted. |  |
| **Drop Policy** | | |
|  | Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. Students will not be automatically dropped for non-attendance. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://wweb.uta.edu/aao/fao/>). |
| **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. 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 1105-001**

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| ***Tuesday, 1:00 PM-WOOLF HALL ROOM 313*** | | | | | |
| **Week** | **DAY** | **CLASSROOM** | **TOPIC** | **ASSIGNMENT** | **DUE DATE** |
| 1 | Tuesday  Jan. 14 | WH 313 | Schedule and Blackboard Introduction  Sample Report, Word, Excel  Design and Delivery of Presentations | E-mail | Jan. 24 |

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| ***Friday, 10:00 AM-NEDDERMAN HALL ROOM 100*** | | | | | |
| **Week** | **DAY** | **CLASSROOM** | **TOPIC** | **ASSIGNMENT** | **DUE DATE** |
| 2 | Friday  Jan. 24 | NH 100 | MAE Advising | Memorandum | Jan. 31 |
| 3 | Friday  Jan. 31 | NH 100 | Automotive Engineering | Automotive Lab Assignment | Feb. 14 |
| 4 | Friday  Feb. 7 | NH 100 | Mechanics and Design | ----------------------- | -------------- |
| 5 | Friday  Feb. 14 | NH 100 | Fluid Mechanics and Aerodynamics | ------------------------ | ------------- |
| 6 | Friday  Feb. 21 | NH 100 | Thermal Science and Energy | ------------------------ | -------------- |

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| ***Tuesday, 1:00 PM-WOOLF HALL ROOM 313*** | | | | | | | |
| **Week** | **DAY** | **CLASSROOM** | **TOPIC** | | **ASSIGNMENT** | **DUE DATE** | |
| 7 | Tuesday  Feb. 25 | WH 313 | Wind Tunnel Simulation | | FoilSim Assignment (In-Class) | ------------- | |
| 8 | Tuesday  Mar. 4 | WH 313 | Energy Lab | | (In-Class) Assignment | ------------- | |
| 9 | Tuesday  Mar. 11 | NO CLASS | | | | | |
| 10 | Tuesday  Mar. 18 | WH 313 | | Mechanics and Design | Mechanics and Design  (In-Class) | |  |
| 11 | Tuesday  Mar. 25 | WH 313 | Robotic Design Lessons | | (In-Class) Tutorials |  | |
| 12 | Tuesday  Apr. 1 | WH 313 | Robotic Design Project (Intro) & Programming tips | | Robotic Design Report  Robotic Competition  Robotic Design Presentation | Apr. 22 | |
| 13 | Tuesday  Apr. 8 | WH 313 | Robotic Design Project | | ----------------------- | ------------- | |
| 14 | Tuesday  Apr. 15 | WH 313 | Robotic Design Project | | ------------------------- | ------------- | |
| 15 | Tuesday  Apr. 22 | WH 313 | | Team Presentations/Competition-LEGO Kit Inventory | ------------------------- | ------------- | |