

**Autonomous Vehicle Systems**

**Course Description**

This course is designed to give students a deeper look into the world of robotics, with specific focus on autonomous vehicles.  Throughout this course, students will gather introductory information and apply their findings to many real-world, hands-on laboratory experiments.  Participants will be exposed to state-of-the-art instrumentation, sensors, robotic components, and software. Time has been built into this program to allow students to share and enhance their technical understanding through the development of written and oral communication skills.

**Course Objectives**

By the end of this course, WMAA students will be able to perform the following tasks:

* Engage in conversations by asking and answering questions about a wide variety of topics related to the fields of robotics.
* Gather and organize information from a variety of sources.
* Present information and ideas orally to small and large groups of students on a variety of topics related to this course.
* Understand core character traits and professional employability skills used in technology and engineering career areas.
* Develop a technical vocabulary and improve written communication skills.
* Program a microcomputer.
* Construct and program self driving robots.

**Textbooks**

Introduction to Robotic Systems will use a laboratory-text book designed and written specifically for the West Michigan Aviation Academy.  The curriculum is centered on real-world, hands-on application of the aviation and space industries.  Unit contents were developed through consultation with individuals from GE Aviation, Carnegie Mellon University Robotics Institute, Western Michigan University School of Aviation, and Rockwell Automation.  Every unit in the lab-text book provides students with specific information on a variety of technical topics, a vocabulary list, handouts, laboratory experiments, a “flight-plan checklist”, homework assignments, and a unit test review.  This course will also use the internet to acquire information related to unit goals and laboratory activities.

**Grades**

Students will earn a final grade each semester based on mastery of the course objectives. The cumulative semester course work will comprise 80% of the final semester grade; the cumulative semester exam will comprise 20% of the final semester grade. The final semester grade will be used in determining a student’s grade point average (GPA).

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| **West Michigan Aviation Academy Grading Scale** |
| **Letter Grade** | **Percentage** | **Grade Point** |  |
| A | 95-100% | 4.0 |  |
| A- | 90-94% | 3.7 |  |
| B+ | 87-89% | 3.3 |  |
| B | 83-86% | 3.0 |  |
| B- | 80-82% | 2.7 |  |
| C+ | 77-79% | 2.3 |  |
| C | 73-76% | 2.0 |  |
| C- | 70-72% | 1.7 |  |
| F | 0-69% | 0.0 |  |
| INC | Incomplete Coursework | N/A |  |

**Character**

Additionally, students will be evaluated on their character choices for each course.  The character evaluation will reflect student mastery of WMAA’s critical character expectations: be respectful, be responsible and do your personal best.

3 – Exceeding Expectations

2 – Meeting Expectations

1 – Not Meeting Expectations

**Gradebook – Available Online**

I have read and understand the syllabus for this course.

Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent/Guardian Signature \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_