Syllabus and Course Outline AeroStem 2022-2023

Course Name **: AOPA 9**
Teacher Name **: Mr. J. Morse**
Teacher Contact information:
Email : jmorse@aerostem.org
Room : 201

Welcome to AOPA Class!

We will be studying everything aviation related in preparations for your future in aviation.

Core Subject Description:

This subject is designed to provide a general background for the understanding of the science Aviation / UAS. This course develops an appreciation of the beauty of life from beginning with the intention of a 12th grade certification is so desired.

General Standards:

The learner demonstrates an understanding of basic concepts as deepened by other disciplines. The learner is able to analyze/solve problems critically, think innovatively / creatively, and make informed decisions to enhance the integrity.

Materials:

If there is any difficulty obtaining these materials, please let your teacher know as soon as possible.

- 2" binder (durable please)
- District/Personal Laptop
- Lined Paper
- Dividers
- Blue or Black Pens and Pencils
- Folder MEAD 5-star
- Markers and colored pencils
- Gluesticks
- Ruler and protractor.

Grading Procedures:

Formative assignments are graded as "Formative" or "Participation". Flight and Space notes and other forms of written work, including Engineering Notebook (ISN) activities which are done in class are considered "Formative" will be graded as Complete, Incomplete, No Evidence, or Re-done as described by the given scale.

Isometric Drawing and designs in the Engineering Notebook will be "Participation", and graded by the rubric on the following page.

This class will use the following codes to help communicate with you regarding your homework and group work progress.

C - Complete. Assignment was completed and turned in on time. The work provided demonstrates thoughtful assessment of the material and question. **Full Credit.**
I - Incomplete. Assignment was turned in, however, questions were incomplete or some were incorrect. **Half Credit.**
NE - No Evidence. Assignment was not turned in, was less than half complete or most answers were incorrect. **No Credit.**
RD - Re-Done. Student revised or completed a similar assignment to improve their grade. **Average Credit**.

Summative assessments demonstrate a student's mastery of the standards.

Unit exams, and quizzes will be assigned percentage grades.
Large projects, research papers, classroom presentations, or video submissions will be assessed using rubrics.
Short written answers will be graded using the C,I, NE, RD, Scale.

Students are encouraged to retake or revise assessments if they struggled to demonstrate the mastery expected. This has to take place within the same Learning Period.

Quarter grades will be calculated from cumulative points per quarter from weighted categories. Semester grades will be calculated with each quarter being 40% and the final being the remaining 20%. Letter grades are assigned based on the scale listed below:

A = 90% - 100%	Quarter 1	= 40%	Assessments	= 35%
B = 80% - 89%	Quarter 2	= 40%	Class works & HW	= 30%
C = 70% - 79%	Final Exam	= 20%	Labs/Simulations	= 20%
D = 60% - 69%			Participation	= 15%
F = 50% - 59%	**Total**	**= 100**		
			Total	**= 100%**

Checking your Grades:

It is **expected** that students and parents regularly access Power School and Google Classroom to check grades. Also, students are expected to access their grades at least once a week and report on their progress grade through a grade check.

Classroom Expectations:

- **A. Classroom Routine**
- 1. Enter the Class Room Quietly. Go to your seat and begin to work on the warm up (Warm ups are handed in weekly).
- 2. During Roll Please Say "Here".
- 3. The instructor will take this time to check on homework completion.
- 4. Announcements.
- 5. Lecture Time -- please do not talk and take notes.
- 6. Have all materials needed READY for the day!

Policies Classroom Policies:

1. **Dress Code:** Please refer to the dress code in the handbook. No hats or Hoodies in Class.
2. **Environment:** No distracting noises, gestures, or talking. Only those things appropriate for school are acceptable, No Phones at anytime in class, no chewing gum in class, and do not through anything in the classroom.
3. **Language:** Please follow school rules for appropriate language use, no inappropriate language will be tolerated. .
4. **Active Participation** in class is expected from each student is expected.
5. **Raise Your Hand**: If you have questions, or need something please raise your hand and ask the teacher.
6. **Technology in the Classroom**: Only those sites, WebPages, or programs that are part of the class work are acceptable.
7. **Laptop Policies**: The teacher may mute or stop the video, lock out a site, or close a tab of any student who is not meeting expectations, this way the student may remain in the class.
8. **During Classes**, everyone is expected to respect the speaker may it be your teacher or fellow students. Avoid distracting the class any means possible to avoid sanctions.
9. **Lab Procedures**: From time to time there will be Lab assignments. It is imperative for the safety of all that ALL SAFETY regulations are obeyed to during lab times, no horseplay or other un sanctioned activities will be tolerated.
10. **Tools and Equipment**: All tools and equipment are to utilized only with the proper safety precautions: If you break it the

total price of the tool or equipment will be charged to you.

Absences and Make-up Work:

- It is the student's responsibility to obtain any missed work and notes in cases of excused absences.
- If a long-term assignment has been assigned before the absence, the due date stands.
- Make-up work must be received within the number of days (s) of the excused absence and according to the time of the assignment or it will be treated as late work.
- Students will not receive any credit for work from an unexcused absence. It is important to be present every day in class.

Late Work:

Due dates are posted several times and you are responsible for knowing these. If an assignment is not handed in when asked for or due, it is considered late.

- If late: You will not be reminded to turn in late work.
- Late work will be accepted at teacher discretion.
- Any late work accepted by the teacher will have a 5% deduction per day from the final grade.

Each assignment or assessment is graded on a scale between 0 and 5. Here is what the number really means:

Mastery 5	Your answers reflect that you know the content or skill and you demonstrated your knowledge at an excellent level. Not only did you demonstrate your knowledge, you also demonstrated that you can incorporate other content or skills in your assessment. Your answers are compelling and insightful.
Very Good 4	You know the content or skill and have demonstrated it as a grade appropriate level. You need to provide more detailed support for your answer to earn mastery.
Competent 3	You have attempted to show that you know the content or skill, but the information you presented is only partially correct or demonstrated a minimal amount of mastery. At this time, it would be good to come in for extra help or review and possibly redo assessments to show that you have mastered the content.
Developing 2	You attempted to answer the question, but your answers showed no **reference** of the content or skill. At this time it would be good to reevaluate what you are doing in the class and ask for help. I may ask you to stay after school or visit in study hall so you can review the material, and redo assessments.
Needs Improv. 1	You attempted to answer the question, but your answers showed no **evidence** of the content or skill. At this time it would be good to reevaluate what you are doing in the class and ask for help. I may ask you to stay after school or visit in study hall so you can review the material, and redo assessments.
No Evidence 0	You have not attempted to show that you know the content; you have turned in no work showing any evidence of knowledge. At this time it would be good to reevaluate what you are doing in the class and ask for help. I may ask you to stay after school or visit in study hall so you can provide me with more evidence.

Class Expectations:

1. Engage in productive work.
2. Share the classroom space effectively.
3. Maintain a safe environment.
4. Be present and prepared for live sessions.
5. Respect yourself and others.

Disciplinary Procedures:

1. Verbal Warning/ Redirection
2. Action Plan / Circle
3. Letter from student to class.
4. Parent / Teacher/ Student Collaboration.

*These procedures are at the discretion of the teachers and s staff.

Classroom Procedures:

These will practiced in class during the first week. Keep the syllabus and the list of basic classroom procedures in your binder at all times for reference. They should both be signed.

Classroom Policy Signature:

Please review the previous pages with your child, and contact me with any questions. Once the policies are clear to you, please sign below, and have your child return this page to class. You can keep the first two pages for reference.

I have read the above information with my child, _____, and we are aware and understand Mrs. Burke's grading policy.

Student Signature: _____

Parent/Guardian Signature: _____

Movie Permission Request:

From time to time we will watch videos. I very rarely show a whole movie, however, I will often use small five to ten minute excerpts to illustrate a particular concept. The following is a list of videos that I've found to be helpful in previous years. I'll also show news clips regarding current events if I find them to be relevant. This is not a complete list, as sometimes I find new resources during the school year. For the most part, videos will be assigned as independent study work.

Fighter Pilot Podcast
NASA videos and virtual tours
Guest Speaker Live Sessions
TED-Ed Videos (ted.com)
YouTube, school approved videos

While all of these videos or music are unrated, and "made for TV," they do contain some small moments that might be considered "inappropriate" for a seventh grade audience. I will censor those moments.

By granting permission below, you will allow me to use my own discretion when showing videos or playing music to your child.

Parent/Guardian Signature: _____

If you'd like any further details, please let me know. I can certainly provide a detailed synopsis. (Some of these videos I have watched quite a few times.)

Note This Class has Monday Work!!

August 8-12

Class Introduction and Orientation

1. Teacher Introduction
2. Classroom and Learning Rules
3. Grading System
4. White Board and Cabinets Orientation
5. Chrome Books Sites we will use.
6. Classroom Contracts

August 16-19

Unit 1

Pre-Course Exam
Pre-Course Exam Review
Section A
Lesson 1 Introduction to Aerospace Studies
Lesson 2 Engineering Practices in Action-1

August 23-26

Monday - Lesson 2 Engineering Practices in Action-2
Lesson 2 Engineering Practices in Action -3
Lesson 3 Aviation Careers Are For You!
Section B Overview of commercial, Military, and General Aviation.
Lesson 1 Intro to Commercial Aviation
Lesson 2 Intro to Military Aviation

August 30-Sept 2

Lesson 3 Intro to General Aviation
Section C Introduction to Unmanned Aircraft Systems
Lesson 1 UAS Fundamentals -1
Lesson 1 UAS Fundamentals -2
Lesson 2 UAS Operation and Safety

Sept 6-9

Section D Introduction to Space Exploration
Lesson 1 Current and Future Space Exploration-1
Lesson 1 Current and Future Space Exploration-2
Lesson 1 Current and Future Space Exploration-3
******Quarter Quiz******

Sept 13-16

Unit 2 Taking Flight - Early Aviation Innovations
Section A - Aviation's Primitive Beginnings
Monday Lesson 1 Flight in Greek Mythology
Lesson 2 Da Vinci and His Flying Machines -1
Lesson 2 Da Vinci and His Flying Machines -2
Section B - Lighter Than Air
Lesson 1 Hot Air and Gas Ballooning -1
Lesson 1 Hot Air and Gas Ballooning -2

Sept 20-23 --Grades Go In

Monday Lesson 1 Hot Air and Gas Ballooning -3
Lesson 1 Hot Air and Gas Ballooning -4
Section C - Gliders
Lesson 1 From Birds to Gliders
Lesson 2 Glider flight and Early Innovators-1
Lesson 2 Glider flight and Early Innovators-2

Break Sept 26-30

Oct 4-7

Monday Lesson 2 Glider flight and Early Innovators-3
Section D - Powered, Controlled Flight
Lesson 1 The "Wright" Approach-1
Lesson 1 The "Wright" Approach-2
Lesson 2 Build and Test a Wind Tunnel -1
Lesson 2 Build and Test a Wind Tunnel -2

Oct 11-14

Monday Lesson 2 Build and Test a Wind Tunnel -3
Lesson 2 Build and Test a Wind Tunnel -4
Lesson 2 Build and Test a Wind Tunnel -5
Lesson 2 Build and Test a Wind Tunnel -6
Lesson 3 The "Wright Attitude"

Oct 18-21

Unit 2 Exam
Unit 3 begin
Section A - First Practical Applications of Airplanes, Commercial and Military.
Lesson 1 Beginnings of U.S. Commercial Airline Service
Lesson 2 Aviation and World War 1 -1
Lesson 2 Aviation and World War 1 -2

Oct 24-28

Monday Lesson 3 Airmail and the Transcontinental Airway System
Section B - Women in Early Aviation
Lesson 1 Women in Early Aviation-1
Lesson 1 Women in Early Aviation-2
Section C - World War II
Lesson 1 Aviation Innovation and World War II -1
Lesson 1 Aviation Innovation and World War II -2

Nov 1-4

Monday Lesson 1 Aviation Innovation and World War II -3
Lesson 2 One for all , all for one - 1
Lesson 2 One for all , all for one - 2
Unit 3 Exam
Unit 4
Lesson 1 Development of the Jet Engine -1
Lesson 1 Development of the Jet Engine -2

Nov 8-10 No School 11th

Lesson 1 Development of the Jet Engine -3
Lesson 2 Commercial Air Travel -1
Lesson 2 Commercial Air Travel -2
Section B - The Space Race
Lesson 1 The Space Race Begins

Note This Class has Monday Work!!

Nov 15-18
Monday Lesson 2 To the Moon -1
Lesson 2 To the Moon -2
Lesson 2 To the Moon -3
Lesson 3 The Space Race Winds Down -1
Lesson 4 The Shuttle Program -1

*****Thanks Giving Break Nove 20-24*****

Nov 28-Dec 2
Lesson 4 The Shuttle Program -2
Unit 4 Exam-
Unit 5: Creating the Future—What's New and Next in Aviation and Aerospace
Section A – Modern Aircraft Design
Lesson 1 Fly-by-Wire and "Glass" Cockpits*
Lesson 2 Aircraft Navigation

Dec 6-9
Monday Lesson 3 Composites and Structures
Section B – Government and Commercial Space
Lesson 1 Government and Commercial Space
Section C – End of Semester Project
Lesson 1 End of Semester Project -1
Lesson 1 End of Semester Project -2
Lesson 1 End of Semester Project -3

Dec 13-16
Lesson 1 End of Semester Project -4
Lesson 1 End of Semester Project -5
Unit 5 Exam Review
Unit 5 Exam --Grades Go In

*****Winter Break Dec 19- Jan 6******

SECOND SEMESTER

Jan 10-13
Pre-Course Exam
Section A - Role of Government in Aviation Safety
Lesson 1 Fundamentals of Aviation Safety -1
Lesson 1 Fundamentals of Aviation Safety -2
Lesson 2 The Federal Aviation Administration-1

Jan 17-20
Lesson 2 The Federal Aviation Administration-2
Section B - Accident Investigation
Lesson 1 The Investigative Process -1
Lesson 1 The Investigative Process -2
Lesson 1 The Investigative Process -3

Jan 24-27
Lesson 2 Accident Case Study -1
Lesson 2 Accident Case Study -2
Lesson 2 Accident Case Study -3
Section C Aviation Weather Services
Lesson 1 Aviation Weather Reports and Forecasting -1

Jan 31 - Feb 3
Lesson 1 Aviation Weather Reports and Forecasting -2
Unit 6 Exam
Unit 7: Exploring Careers in Aviation and Aerospace
Section A - Flying
Lesson 1 Flying Aircraft and Drones -1

Feb 7-10
Lesson 1 Flying Aircraft and Drones -2
Lesson 1 Flying Aircraft and Drones -3
Lesson 1 Flying Aircraft and Drones -4
Section B – Engineering
Lesson 1 Becoming an Aerospace Engineer -1

Feb 14-17 ---Grades Go In
Lesson 1 Becoming an Aerospace Engineer -2
Section C – Other Great Aviation Careers
Lesson 1 Becoming an Air Traffic Controller-1
Lesson 1 Becoming an Air Traffic Controller-2
Lesson 2 Becoming an Aircraft Mechanic
Unit 7 Exam

*****No School Feb 20-24*****

Feb 28-Mar 3
Unit 8: Aviation Innovation and Problem Solving
Lesson 1 Reducing Aviation's Environmental Impact-1
Lesson 1 Reducing Aviation's Environmental Impact-2
Lesson 1 Reducing Aviation's Environmental Impact-3
Section B – Modernizing Airspace
Lesson 1 Next Generation Air Transportation System

Mar 7-10
Lesson 2 Integrating Drones-1
Lesson 2 Integrating Drones-2
Lesson 2 Integrating Drones-3
Section C – Future Aircraft
Lesson 1 Supersonic Aircraft-1

Mar 14-17
Lesson 1 Supersonic Aircraft-2
Lesson 1 Supersonic Aircraft-3
Lesson 2 Autonomous Aircraft -1
Lesson 2 Autonomous Aircraft -2

Mar 21-24
Lesson 2 Autonomous Aircraft -3
Lesson 3 Electric Aircraft-1
Lesson 3 Electric Aircraft-2
Section D – Future Space Travel
Lesson 1 Colonizing Space-1

Mar 28-31
Lesson 1 Colonizing Space-2
Lesson 1 Colonizing Space-3
Unit 8 Exam

Note This Class has Monday Work!!

April 4-6 no school on 7th

Unit 9: Innovation Challenge

Section A – "Peep Odyssey"

Lesson 1 "Peep Odyssey" Innovation Challenge-1
Lesson 1 "Peep Odyssey" Innovation Challenge-2
Lesson 1 "Peep Odyssey" Innovation Challenge-3
Lesson 1 "Peep Odyssey" Innovation Challenge-4

April 18-21

Lesson 1 "Peep Odyssey" Innovation Challenge-5
Lesson 1 "Peep Odyssey" Innovation Challenge-6
Lesson 1 "Peep Odyssey" Innovation Challenge-7
Lesson 1 "Peep Odyssey" Innovation Challenge-8

NO School **April 11 -14 Easter**

April 25-28

Unit 10: Thinking About a Career in Aviation
Lesson 1 Developing a Mission Statement*-1
Lesson 1 Developing a Mission Statement*-2
Lesson 2 Investigating Education Options After High school*-1
Lesson 2 Investigating Education Options After High school*-2

May 2-5

Section B – Developing Professionalism
Lesson 1 Professional Skills and Conduct*-1
Lesson 1 Professional Skills and Conduct*-2
Lesson 2 Building Communication Skills*-1
Lesson 2 Building Communication Skills*-2

May 9-12

Lesson 1 Building a Career Portfolio-1
Lesson 2 Looking at FTL -1
Lesson 2 Looking at FTL -2
Lesson 2 Looking at FTL -3

May 16-19

Lesson 1 Building a Career Portfolio-1
Lesson 1 Building a Career Portfolio-2
Lesson 1 Building a Career Portfolio-3
Lesson 1 Building a Career Portfolio-4
Lesson 1 Building a Career Portfolio-5

May 23-26

*****Unit 10 Exam****
*****Post Course Exam*****

May 30 - June 2

Reflection