**Flight Operations I**

**Course Syllabus**

**Academic Term:** August 2024 – December 2024

**Meetings:** Monday – Friday, V102, CCTAA Building

**Instructor:** Amy Archer

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**COURSE DESCRIPTION**:

Navigation and Communication are essential to the safe operation of aircraft within the airspace system. This course provides a foundation that enables the student to apply the basics of aircraft navigation and utilize efficient communication methods for safe aircraft operations. The prerequisite for this course is Fundamentals of Aerospace.

**LEARNING OUTCOMES:**

On completion of this course, the student will be able to:

1. Identify and explain climate and seasonal changes of the earth’s atmosphere.
2. Demonstrate an understanding of the relationship between air pressure, temperature, and density.
3. Demonstrate knowledge of the airplane systems and components.
4. Operate and employ weather technology and terminology.
5. Demonstrate an understanding of mid-latitude weather patterns and systems.
6. Identify and describe aviation weather hazards.
7. Demonstrate an understanding of the structure of the national airspace systems.
8. Demonstrate an understanding of the various roles of air traffic control in the airspace system.
9. Demonstrate an understanding of basic aeronautical chart and their application to flight planning.
10. Demonstrate usage of standards aviation vocabulary, phraseology, and acronyms for communications.
11. Demonstrate and describe knowledge of airports
12. Explain the operation of the Aircraft Power Plant and related systems and flight instruments and identify the components of the aircraft systems.
13. Identify instruments and develop an understanding of their functions.

**Grading:**

The semester grades are made up of a combination of Formative (40%) and Summative (60%) assessments.

* At the end of a semester course, the Final Course Average is calculated with 90% (semester grade) and the Final Exam, 10%.

**Course Schedule:**

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| **Week** | **Topics** | **Activities** |
| 1 | Introduction and Study Fundamentals | * **Discussion**: Introductions * Development of a personal study schedule for the course * **Presentation**: Current event * **Writing**: Narrative on your Interests in Aviation |
| 2 | Identify and explain climate and seasonal changes of the earth’s atmosphere | * **Discussion**: FAA Regulation Questions * **Project:** Create a PowerPoint that Identifies and explains the structure of the earth’s layers of the atmosphere and become knowledgeable of the history of the study of meteorology. * **Presentation:** Narrate presentation for class discussion. |
| 3 | Demonstrate an understanding of the relationship between air pressure, temperature, and density. | * **Discussion**: FAA Regulation Questions * **Research**: Create a PowerPoint that Identifies and explains vertical airflow and atmospheric stability. Demonstrating an understanding of the effects of moisture in the atmosphere. Demonstrate an understanding of the relationship between cloud development and precipitation. * **Presentation:** Narrate presentation for class discussion. * **\*\* FAA Regulations Quiz** |
| 4 | Demonstrate knowledge of the airplane systems and components | * **Discussion**: FAA Regulation Questions * **Research**: Create a PowerPoint that Differentiate among class and category of aircraft. Demonstrate knowledge of aircraft components. * **Presentation:** Narrate presentation for class discussion. |
| 5 | Operate and employ weather technology and terminology | * **Discussion**: FAA Regulation Questions * **Presentation**: Create a PowerPoint that Observe and record weather data using units of measurement (i.e., degrees, knots, miles per hour, etc.). Operate and employ weather tools (i.e. thermometer, barometer, and hygrometer, etc.). * **Presentation:** Narrate presentation for class discussion. * **\*\* FAA Regulations Quiz** |
| 6 | Operate and employ weather technology and terminology | * **Discussion**: FAA Regulation Questions * **Presentation:** Create a PowerPoint that Demonstrate an understanding of weather symbols and weather coding. Describe atmospheric conditions using appropriate terminology. * **Presentation:** Narrate presentation for class discussion. |
| 7 | Aviation Careers | * **Research**: The students will create a graphic organizer on their top 5 aviation careers of interest. * **Writing**: Write a 1-2-page Resume for a career you would like to have in aviation. * **Project: Interviews/Guest Speakers** |
| 8 | Demonstrate an understanding of mid latitude weather patterns and systems. | * **Discussion**: FAA Regulation Questions * **Project:** Create a PowerPoint that Demonstrate an understanding of the horizontal and vertical circulation of low and high pressure systems. Identify air masses and monitor daily weather phenomena. Use weather tools and units of measurement. Employ meteorological terminology and coding procedures. * **Presentation:** Narrate presentation for class discussion. |
| 9 | Demonstrate an understanding of mid latitude weather patterns and systems. | * **Discussion**: FAA Regulation Questions * **Project/Presentation:** Create a PowerPoint that Demonstrate an understanding of synoptic weather structure. Demonstrate an understanding of temperature, pressure & dew point. Demonstrate an understanding of frontal systems. Demonstrate an understanding of weather patterns. * **Presentation:** Narrate presentation for class discussion. * **\*\* FAA Regulations Quiz** |
| 11 | Identify and describe aviation weather hazards. | * **Discussion**: FAA Regulation Questions * **Presentation**: Create a PowerPoint that Identify and describe convective weather activity threats such as wind shear, thunderstorms, and heavy rain. Recognize and describe the danger of instability in atmospheric conditions such as freezing levels, turbulence, and significant precipitation. Examine and describe the importance of visual flight rules (VFR) * **Presentation:** Narrate presentation for class discussion. |
| 12 | Demonstrate an understanding of the structure of the national airspace system. | * **Discussion**: FAA Regulation Questions * **Presentation:** Create a PowerPoint that Identify and describe the intended use of different airways. Describe the basic Visual and Instrument Flight Rules required for safe operation of aircraft. * **Presentation:** Narrate presentation for class discussion. * **\*\* FAA Regulations Quiz** |
| 13 | Demonstrate an understanding of the various roles of air traffic control in the airspace system | * **Discussion**: FAA Regulation Questions * **Project:**  Create a PowerPoint that Identify and explain the differences in the responsibilities and duties of Air Traffic Controllers in TRACONS (Terminal Radar Approach Control) and ARTCC (Air Route Traffic Control Centers). Recognize and describe information used by air traffic controllers to track aircraft and manage traffic flows. Demonstrate an understanding of airspace classification. * **Presentation:** Narrate presentation for class discussion. |
| 14 | Demonstrate an understanding of basic aeronautical charts and their application to flight planning. | * **Discussion**: FAA Regulation Questions * **Presentation**: Create a PowerPoint that Distinguish between different types of aeronautical charts and their intended uses. Demonstrate the use of symbols, colors, and scale to interpret aeronautical charts. * **Presentation:** Narrate presentation for class discussion. * **\*\* FAA Regulations Quiz** |
| 15 | Demonstrate usage of standard aviation vocabulary, phraseology, and acronyms for communications. | * **Discussion**: FAA Regulation Questions * **Presentation**: Create a PowerPoint that Exhibit competence in utilizing the International Phonetic Alphabet. Utilize standardized identifiers for aircraft and airports. Demonstrate an understanding of standardized lighting, light signals and markings used at airports. Demonstrate use of proper protocol required for radio communications. * **Presentation:** Narrate presentation for class discussion. |
| 16 | Demonstrate and describe knowledge of airports. | * **Discussion**: FAA Regulation Questions * **Presentation**: Create a PowerPoint that Demonstrates knowledge of the difference between controlled, uncontrolled, and private airports. Identify and explain traffic patterns. Identify and describe markings and signs in the airport environment. Identify and describe airport lighting systems. * **Presentation:** Narrate presentation for class discussion. * **\*\* FAA Regulations Quiz** |
|  | Explain the operation of Aircraft Power Plant & related systems and flight instruments and identify the components of the aircraft system. | * **Discussion: FAA Regulation Questions** * **Presentation:** Create a PowerPoint that Identifies and explains the use of aircraft engine systems. Identify and explain the use of aircraft fuel and oil systems. Identify and explain the use of aircraft cooling systems. Explain the uses of different propellers in aircraft systems. Identify and explain the use of aircraft electrical systems. * **Presentation:** Narrate presentation for class discussion. |
| 17 | Identify instruments and develop an understanding of their functions. | * **Discussion**: FAA Regulation Questions * **Writing**: Create a PowerPoint that Identifies and explains the functions of all basic flight instruments. Identify and explain the purpose of each flight instrument. Identify and explain flight instrument usage. * **Presentation:** Narrate presentation for class discussion. |
| 18 |  | * **Final Exam Week** |

Submitted by: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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