COURSE SYLLABUS

Course Title: UAS 100 Foundations of Aeronautical Operations

Course Description: This course is designed to prepare high school students for the FAA 107 Part A Exam, which is required to obtain a remote pilot certificate. The course will cover the knowledge areas necessary for safe operation of small unmanned aircraft systems (sUAS) in the National Airspace System (NAS). Students will learn about airspace classification, operating requirements, weather, loading and performance, and other relevant topics.

Course Goals and Objectives:

- Prepare students to pass the FAA 107 Part A Exam and obtain a remote pilot certificate.
- Teach students the knowledge necessary for safe and legal operation of sUAS in the NAS.
- Develop critical thinking and problem-solving skills related to sUAS operation.
- Foster an appreciation for the importance of safety and professionalism in sUAS operation.

Course Outline:

Week 1-2: Introduction to the FAA Part 107 Exam
Overview of the exam and its purpose
Basic requirements for taking the exam
Introduction to FAA regulations and standards

Week 3-4: Airspace Classification and Operating Requirements
Review of different types of airspace
Operating requirements for different types of airspace
Rules for operating in controlled airspace

Week 5-6: Aviation Weather
Introduction to aviation weather
Understanding different types of weather reports
Identifying hazardous weather conditions

Week 7-8: Aeronautical Charts and Navigation
Introduction to aeronautical charts
Understanding chart symbols and abbreviations
Basic navigation techniques

Week 9-10: Airport Operations and Procedures
Airport markings, signs, and lighting
Procedures for airport operations
Emergency procedures

Week 11-12: Radio Communications
Introduction to radio communications
Proper radio phraseology
Communication procedures and protocols

Week 13-14: Human Factors
Understanding the impact of human factors on safety
Fatigue and stress management
Decision-making skills

Week 15-16: Principles of Flight
Understanding the principles of flight
Forces acting on an aircraft
Basic aerodynamics

Week 17-18: Performance and Limitations
Understanding aircraft performance
Calculating aircraft performance data
Limitations of the aircraft and its components

Week 19-20: Maintenance and Inspections
Introduction to aircraft maintenance and inspections
Understanding the different types of inspections
Aircraft maintenance logbook requirements

Week 21-22: Loading and Performance
Understanding the impact of weight and balance on aircraft performance
Calculating weight and balance data
Aircraft performance under different loading conditions

Week 23-24: Emergency Procedures
Types of emergencies
Emergency response procedures
Emergency equipment and procedures for different types of aircraft

Week 25-26: Regulations and Standards
Overview of FAA regulations and standards
Basic requirements for operating under Part 107
Operating rules and restrictions

Week 27-28: Risk Management
Introduction to risk management
Identifying and assessing risks
Mitigating risks and managing hazards

Week 29-30: Airspace Operations and Restrictions
Rules and regulations for operating in different types of airspace
Operating restrictions for drones
Understanding Temporary Flight Restrictions (TFRs)

Week 31-32: Navigation Systems and Equipment
Introduction to navigation systems and equipment
Understanding GPS and other navigation aids
Basic use and operation of navigation equipment

Week 33-34: Communication and Navigation Failures
Procedures for dealing with communication and navigation equipment failures
Backup systems and emergency procedures
Responding to emergencies and making decisions under pressure

Week 35-36: Review and Exam Preparation
Review of all topics covered in the course
Practice questions and exams
Final exam review and preparation.
Weekly quizzes: 30%
Final Exam: 50%
Participation and attendance: 20%

Textbook:
Remote Pilot – Small Unmanned Aircraft Systems Study Guide (FAA-G-8082-22)

Materials Required:
Access to a computer and the internet
Notebook and pen