Aviation Technology
Mississippi Curriculum Framework

Air Traffic Control (Program CIP: 49.0105 – Air Traffic Controller)
Airport Operations (Program CIP: 49.0104 – Aviation/Airway Management and Operations)
Aviation Security (Program CIP: 43.0301 – Homeland Security)
Unmanned Aerial Systems (Program CIP: 49.0101 Aeronautics/Aviation/Aerospace Science and Technology, General)

November 2020

FACULTY WRITING TEAM MEMBERS

Jay Eads, Program Manager for Unmanned Aircraft Systems, Hinds Community College, Raymond
Ron Lacour, Instructor, Hinds Community College, Raymond
Jason Moore, Instructor, Pearl River Community College

ADMINISTRATOR WRITING TEAM MEMBERS

Cindy West, Dean of Career and Technical Education, Hinds Community College, Raymond
Joe Cook, Dean & Director of Workforce, East Mississippi Community College
Josh Bower, Assistant Dean of Career and Technical Education, Hinds Community College, Raymond
Jack "Brad" McCullouch, Director of Aviation, Hinds Community College, Raymond

BUSINESS AND INDUSTRY WRITING TEAM MEMBERS

*Mike Hainsey, Executive Director, Golden Triangle Regional Airport, Columbus, MS
*Billy Bob Sekul, Industry Representative, Mississippi Department of Transportation, Jackson, MS
*Oscar Branch, Industry Representative, Former Airport Employee, Jackson, MS

*Denotes attendance at the writing team meeting

OFFICE OF CURRICULUM, INSTRUCTION, and ASSESSMENT TEAM MEMBERS

Scott Kolle, Ph.D., Director of Curriculum and Instruction, Mississippi Community College Board
Sheriece Robinson, Ed.D., Curriculum Specialist, Mississippi Community College Board
LaToya Sterling, Ph.D., Curriculum Specialist, Mississippi Community College Board

CONTENTS

RESEARCH ABSTRACT

The curriculum framework in this document reflect changes in the workplace and a number of other factors that impact local vocational–technical programs. Federal and state legislation calls for articulation between high school and community college programs, integration of academic and vocational skills, and the development of sequential courses of study that provide students with the optimum educational path for achieving successful employment. National skills standards, developed by industry groups and sponsored by the U.S. Department of Education and Labor, provide vocational educators with the expectations of employers across the United States. All of these factors are reflected in the framework found in this document.

The last validated and approved revision of this curriculum took place in 2014. In the fall of 2020, the Office of Curriculum, Instruction & Assessment met with different industry/program visits. An industry questionnaire was used to gather feedback concerning the trends and needs, both current and future, of the field. The Office of Curriculum, Instruction & Assessment met with advisory committee members who agreed the curriculum meets the workforce needs. Program faculty, administrators, and industry members were consulted regarding workforce needs and trends.

REVISION HISTORY

2014- Office of Curriculum & Instruction, Mississippi Community College Board
2020- Office of Curriculum, Instruction, & Assessment, Mississippi Community College Board

ADOPTION OF NATIONAL STANDARDS

Due to the nature of this program, adoption of national standards is not possible. However, the following standards were used as a framework and guide when developing the curriculum.

Federal Aviation Regulations   (Part 61, 65, 91, 141, 139)
    https://www.faa.gov/regulations_policies/faa_regulations/

FAA Compliance Manual (Related Components)
    http://www.faa.gov/airports/resources/publications/orders/compliance_5190_6/

International Civil Aviation Organization (ICAO) Part 14, 17, and Airport Operations
    http://www.icao.int/Pages/default.aspx

INDUSTRY JOB PROJECTION DATA

The Air Traffic Control (CIP: 49.0105) require Long-Term on-the-job training. There is expected to be 0.00% increase at the state level. Median annual income for this occupation is $67,454.40 at the state level. A summary of occupational data from the State Workforce Investment Board Data Center is displayed below:

Table 1:   Education Level

Program Occupations	Education Level
Air Traffic Controllers	Long-Term on-the-job training
Airfield Operations Specialists	Long-Term on-the-job training

Table 2:   Occupational Overview

	Region	State	United States
2018 Occupational Jobs	202	202	31,936
2028 Occupational Jobs	202	202	33,615
Total Change	0	0	1,679
Total % Change	0.00%	0.00%	5.26%
2018 Median Hourly Earnings	$32.43	$32.43	$39.59
2018 Median Annual Earnings	$67,454.40	$67,454.40	$82,342.00
Annual Openings	0	0	168

Table 3:   Occupational Breakdown

Description	2018 Jobs	2028 Jobs	Annual Openings	2018 Hourly Earnings	2018 Annual Earnings 2,080 Work Hours
Air traffic controllers	155	155	0	$39.76	$82,700.80
Airfield operations specialists	47	47	0	$25.10	$52,208.00

Table 4:   Occupational Change

Description	Regional Change	Regional % Change	State % Change	National % Change
Air traffic controllers	0	0.00%	0.00%	2.54%
Airfield operations specialists	0	0.00%	0.00%	9.13%

INDUSTRY JOB PROJECTION DATA

The Airport Operations (CIP: 49.0104) require Work Experience in Related Field. There is expected to be 3.51% increase at the state level. Median annual income for this occupation is $79,580.80 at the state level. A summary of occupational data from the State Workforce Investment Board Data Center is displayed below:

Table 1:   Education Level

Program Occupations	Education Level
Transportation, Storage & Distribution Manager	Work Experience in Related Field

Table 2:   Occupational Overview

	Region	State	United States
2018 Occupational Jobs	797	797	132,160
2028 Occupational Jobs	825	825	140,024
Total Change	28	28	7,864
Total % Change	3.51%	3.51%	5.95%
2018 Median Hourly Earnings	$38.26	$38.26	$45.54
2018 Median Annual Earnings	$79,580.80	$79,580.80	$94,723.20
Annual Openings	3	3	786

Table 3:   Occupational Breakdown

Description	2018 Jobs	2028 Jobs	Annual Openings	2018 Hourly Earnings	2018 Annual Earnings 2,080 Work Hours
Logistics Managers	797	825	3	$38.26	$79580.80

Table 4:   Occupational Change

Description	Regional Change	Regional % Change	State % Change	National % Change
Logistics Managers	28	3.51%	3.51%	5.95%

INDUSTRY JOB PROJECTION DATA

The Aviation Security (CIP: 43.0301) require Bachelor's Degree and Work Experience in Related Field. There is expected to be 4.10% increase at the state level. Median annual income for this occupation is $65,455.20 at the state level. A summary of occupational data from the State Workforce Investment Board Data Center is displayed below:

Table 1: Education Level

Program Occupations	Education Level
Emergency Management Directors	Bachelor's Degree
Managers, All Other	Work Experience in Related Field
First-Line Supervisors of Police and Detectives	Work Experience in Related Field

Table 2: Occupational Overview

	Region	State	United States
2018 Occupational Jobs	3,168	3,168	559,623
2028 Occupational Jobs	3,298	3,298	594,896
Total Change	130	130	35,273
Total % Change	4.10%	4.10%	6.30%
2018 Median Hourly Earnings	$31.47	$31.47	$45.66
2018 Median Annual Earnings	$65,455.20	$65,455.20	$94,977.55
Annual Openings	13	13	3,527

Table 3: Occupational Breakdown

Description	2018 Jobs	2028 Jobs	Annual Openings	2018 Hourly Earnings	2018 Annual Earnings 2,080 Work Hours
Emergency Management Directors	34	43	1	$18.53	$38,542.40
Compliance Managers	2,364	2,443	8	$34.68	$72,134.40
First-Line Supervisors of Police and Detectives	770	812	4	$23.00	$47,840.00

Table 4: Occupational Change

Description	Regional Change	Regional % Change	State % Change	National % Change
Emergency Management Directors	9	26.47%	26.47%	5.15%
Compliance Managers	79	3.34%	3.34%	6.63%
First-Line Supervisors of Police and Detectives	42	5.45%	5.45%	4.70%

INDUSTRY JOB PROJECTION DATA

The Unmanned Aerial Systems (CIP: 49.0101) require Work Experience in Related Field. There is expected to be 3.51% increase at the state level. Median annual income for this occupation is $79,580.80 at the state level. A summary of occupational data from the State Workforce Investment Board Data Center is displayed below:

Table 1:   Education Level

Program Occupations	Education Level
Transportation, Storage & Distribution Manager	Work Experience in Related Field

Table 2:   Occupational Overview

	Region	State	United States
2018 Occupational Jobs	797	797	132,160
2028 Occupational Jobs	825	825	140,024
Total Change	28	28	7,864
Total % Change	3.51%	3.51%	5.95%
2018 Median Hourly Earnings	$38.26	$38.26	$45.54
2018 Median Annual Earnings	$79,580.80	$79,580.80	$94,723.20
Annual Openings	3	3	786

Table 3:   Occupational Breakdown

Description	2018 Jobs	2028 Jobs	Annual Openings	2018 Hourly Earnings	2018 Annual Earnings 2,080 Work Hours
Storage and Distribution Managers	797	825	3	$ 38.26	$ 79580.80

Table 4:   Occupational Change

Description	Regional Change	Regional % Change	State % Change	National % Change
Storage and Distribution Managers	28	3.51%	3.51%	5.95%

ARTICULATION

There is no statewide articulation agreement. Local agreements and dual credit partnerships are encouraged.

TECHNICAL SKILLS ASSESSMENT

Colleges should report the following for students who complete the program with a career certificate, technical certificate, or an Associate of Applied Science Degrees for technical skills attainment.

MS-CPAS2 Core Assessment of the following courses:

1. ANT 1113   Introduction to Aviation
2. ANT 1123   Aviation Systems
3. ANT 1213   Private Pilot Ground I
4. ANT 2113   Applied Meteorology
5. ANT 1313   Airport Management and Operations
6. ANT 1513   Aviation Security

To use the approved Alternate Assessment for the following programs of study, colleges should provide a Letter of Notification to the Director of Career Technical Education at the MS Community College Board. Please see the following link for further instructions: http://www.mccb.edu/wkfEdu/CTDefault.aspx.

CIP Code	Program of Study	
49.0105 **49.0104** **43.0301** **49.0101**	**Air Traffic Control** **Airport Operations** **Aviation Security** **Unmanned Aerial Systems**	
Level	**Standard Assessment**	**Alternate Assessment**
Accelerated /15 Hour	**Unmanned Aerial Systems**- Part 107 Remote Pilot Certificate	
Level	**Standard Assessment**	**Alternate Assessment**
Career	MS-CPAS-1 for any concentrations	
Level	**Standard Assessment**	**Alternate Assessment**
Technical/AAS	**Airport Operations-** American Association of Airport Executives(AAAE) - Airport Certified Employee (ACE) - Operations Test **Aviation Security-** American Association of Airport Executives(AAAE) - Airport Certified Employee (ACE) - Security Test **Air Traffic Control-**MS-CPAS-2	

ONLINE AND BLENDED LEARNING OPPORTUNITIES

Course content included lecture and laboratory semester credit hours. Faculty members are encouraged to present lecture related content to students in an online or blended learning environment. Training related to online and blended learning will be available to faculty members through the MS Community College Board.

CREDIT BY EXAMINATION

Each exam will serve as the state recommended exam to reward credit for prior learning experiences. Colleges have the local autonomy to create a college-level exam when awarding credit.

Course	Assessment Information
ANT 1213	Recreational Pilot and Private Pilot http://www.faa.gov/training_testing/testing/test_standards/media/FAA-S-8081-14B.pdf
ANT 2343	Airport Certified Employee – Operations of the American Association of Airport Executives (AAAE)
ANT 2513	Airport Certified Employee – Security of the American Association of Airport Executives (AAAE)

PROGRAM DESCRIPTION

The Aviation Technology program consists of an 18 semester hour core that consists of general knowledge and skill preparation that will enhance students overall knowledge of aviation technology. Additionally, the program consists of four program concentrations:

1. Air Traffic Control
2. Airport Operations
3. Aviation Security
4. Unmanned Aerial Systems

The Air Traffic Control Technology concentration prepares students for employment in air traffic control careers. There are no restrictions on age or physical condition of students entering the program. However, students desiring employment with the Federal Aviation Administration should be aware of FAA employment requirements, such as the air traffic control specialist medical examination and a 31-year-old maximum age restriction for students anticipating employment in terminal or en route options.

The Airport Operations Technology concentration prepares students for employment in airport operations, airport management, ramp service, aircraft services, airline services, flight attendant services, cargo services, and other positions within the aviation industry. The concentration provides a general knowledge of the aviation industry relating to airports. The concentration focuses on preparing the student to take the operations segment of the Airport Certified Employee (ACE) test. This test is administered by the American Association of Airport Executives to ensure that airport operators and inspectors meet industry standards

The Aviation Security Technology concentration prepares students for employment in airport security and other aviation security positions. It also prepares students for employment in the Transportation Security Administration of the U.S. Department of Homeland Security. The student obtains a general knowledge of the aviation industry relating to airports. The concentration focuses on preparing the student to take the security segment of the Airport Certified Employee (ACE) test. This test is administered by the American Association of Airport Executives to ensure that airport operators and security specialists meet industry standards.

The Unmanned Aerial Systems (UAS) concentration prepares students for employment as unmanned aerial vehicle operators and coordinators. The concentration involves hands-on operation of UAV and it involves full-scale simulator software/hardware systems for operating UAS. It takes students from the basic stages to the advanced stages and includes launch/recovery techniques, autopilot operation, construction/repair, risk awareness, data link and sensors, and rotary aircraft. The concentration includes commercial applications such as aerial photography, agriculture, and surveying industries.

SUGGESTED COURSE SEQUENCE

Unmanned Aerial Systems /15 Hour Certificate

| Course Number | Course Name | Semester Credit Hours | SCH Breakdown | | Total Contact Hours | Clock Hour Breakdown | | Certification Information |
			Lecture	Lab		Lecture	Lab	Certification Name
ANT 1213	Private Pilot Ground I	3	3	0	45			
ANT 1613	Small Unmanned Aerial Systems Part 107	3	2	2	60			
ANT 2113	Applied Meteorology	3	3	0	45			
ANT 2613	Basic Flight Skill Development	3	2	2	60			
ANT 2623	Intermediate Flight Skill Development	3	2	2	60			
	TOTAL	**15**						

Accelerated Integrated Career Pathway/15 Hour Certificate

| Course Number | Course Name | Semester Credit Hours | SCH Breakdown | | Total Contact Hours | Clock Hour Breakdown | | Certification Information |
			Lecture	Lab		Lecture	Lab	Certification Name
ANT 1113	Introduction to Aviation	3	3	0	45			
ANT 1123	Aviation Systems	3	3	0	45			
ANT 1213	Private Pilot Ground I	3	3	0	45			
	Electives approved by instructor per local community college policy	6						
	TOTAL	**15**						

Career Certificate Required Courses

| Course Number | Course Name | Semester Credit Hours | SCH Breakdown | | Total Contact Hours | Clock Hour Breakdown | | Certification Information |
			Lecture	Lab		Lecture	Lab	Certification Name
ANT 1113	Introduction to Aviation	3	3	0	45			
ANT 1123	Aviation Systems	3	3	0	45			
ANT 1213	Private Pilot Ground I	3	3	0	45			
ANT 1313	Airport Management and Operations	3	3	0	45			
ANT 1513	Aviation Security	3	3	0	45			
ANT 2113	Applied Meteorology	3	3	0	45			

			SCH Breakdown			Clock Hour Breakdown		Certification Information
	Electives approved by instructor per local community college policy	12						
	TOTAL	**30**						

Technical Certificate Required Courses – Air Traffic Control Concentration

			SCH Breakdown			Clock Hour Breakdown		Certification Information
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Total Contact Hours	Lecture	Lab	Certification Name
ANT 2133	Tower Operations and Procedures	3	2	2	60			
ANT 2143	Radar Operations and Procedures	3	2	2	60			
ANT 2153	Tower Applications	3	2	2	60			
ANT 2163	Radar Applications	3	2	2	60			
	Elective approved by instructor per local community college policy	3						
	TOTAL	**15**						

Technical Certificate Required Courses – Airport Operations Concentration

			SCH Breakdown			Clock Hour Breakdown		Certification Information
Course Number	Course Name	Semester Credit Hours	Lecture	Lab	Total Contact Hours	Lecture	Lab	Certification Name
ANT 2323	Airport Safety and Inspection	3	3	0	45			
ANT 2333	Air Transportation	3	3	0	45			
ANT 2343	Airport Certified Employee Preparation - Operations	3	3	0	45			
ANT 2513	Aviation Security and Inspection	3	0	0	45			
	Elective approved by instructor per local community college policy	3						
	TOTAL	**15**						

Technical Certificate Required Courses – Aviation Security Concentration

| Course Number | Course Name | Semester Credit Hours | SCH Breakdown | | Total Contact Hours | Clock Hour Breakdown | | Certification Information |
			Lecture	Lab		Lecture	Lab	Certification Name
ANT 2513	Aviation Security and Inspection	3	3	0	45			
ANT 2523	Introduction to Homeland Security	3	3	0	45			
ANT 2533	Intelligence Analysis and Security Management	3	3	0	45			
ANT 2543	Transportation and Border Security	3	3	0	45			
ANT 2553	Airport Certified Employee Preparation - Security	3	3	0	45			
TOTAL		**15**						

Technical Certificate Required Courses – Unmanned Aerial Systems Concentration

| Course Number | Course Name | Semester Credit Hours | SCH Breakdown | | Total Contact Hours | Clock Hour Breakdown | | Certification Information |
			Lecture	Lab		Lecture	Lab	Certification Name
ANT 2613	Basic Flight Skill Development	3	2	2	60			
ANT 2623	Intermediate Flight Skill Development	3	2	2	60			
ANT 2633	Advanced Flight Skill Development	3	2	2	60			
ANT 2643	Autonomous Systems	3	2	2	60			
	Elective approved by instructor per local community college policy	3						
TOTAL		**15**						

General Education Core Courses

To receive the Associate of Applied Science degree, a student must complete all of the required coursework found in the Career Certificate option, Technical certificate option, and a minimum of 15 semester hours of General Education core. The courses in the General Education Core may be spaced out over the entire length of the program so that students complete some academic and Career Technical courses each semester or provided primarily within the last semester. Each community college will specify the actual courses that are required to meet the General Education Core Requirements for the Associate of Applied Science degree at their college. The Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) Section 9 Standard 3 of the *Principles of Accreditation: Foundations for Quality Enhancement[1]* describes the general education core.

Section 9 Standard 3:

3. The institution requires the successful completion of a general education component at the undergraduate level that

    a) is based on a coherent rationale.

    b) is a substantial component of each undergraduate degree program. For degree completion in associate programs, the component constitutes a minimum of 15 semester hours of the equivalent; for baccalaureate programs, a minimum of 30 semester hours or the equivalent.

    c) ensures breadth of knowledge. These credit hours include at least one course from each of the following areas: humanities/fine arts, social/behavioral sciences, and natural science/mathematics. These courses do not narrowly focus on those skills, techniques, and procedures specific to a particular occupation or profession.

General Education Courses

Course Number	Course Name	Semester Credit Hours	SCH Breakdown		Total Contact Hours	Contact Hour Breakdown		Certification Information
			Lecture	Lab		Lecture	Lab	Certification Name
	Humanities/Fine Arts	3						
	Social/Behavioral Sciences	3						
	Math/Science	3						
	Academic electives	6						
	TOTAL	**15**						

[1] Southern Association of Colleges and Schools Commission on Colleges. (2017). *The Principles of Accreditation: Foundations for Quality Enhancement*. Retrieved from http://www.sacscoc.org/2017ProposedPrinc/Proposed%20Principles%20Adopted%20by%20BOT.pdf

Approved Electives

| Course Number | Course Name | Semester Credit Hours | SCH Breakdown | | Total Credit Hours | Credit Hour Breakdown | | Certification Information |
			Lecture	Lab		Lecture	Lab	Certification Name
SSP 100(2-3)	Smart Start 101	2-3						
ANT 1613	Small Unmanned Aerial Systems Part 107	3	2	2	60			
ANT 2713	Fixed Wing Airframe Setup and Maintenance	3	2	2				
ANT 2723	Rotary UAS Airframe Setup and Maintenance	3	2	2				
ANT 2813	UAS Commercial Applications I	3	2	2				
ANT 2823	Commercial Applications II	3	2	2				
ANT 2853	Linux Essentials-UAS	3	3	0				
ANT 2863	Linux System Administration I - UAS	3	3	0				
ANT 2873	Linux System Administration II - UAS	3	3	0				
ANT 291(1-6)	Special Problems in Aviation Technology	1-6	0	2-12	30-180			
ANT 292(1-6)	Supervised Work Experience	1-6			45-270			
WBL 191(1-3) WBL 192(1-3) WBL 193(1-3) WBL 291(1-3) WBL 292(1-3) WBL 293(1-3)	Work-Based Learning	1-3						
WLT 2812	Welding Metallurgy	2						
	Other electives approved by instructor per local community college policy							

Course Listing Aviation Technology

Course Number	Course Name	Semester Credit Hours	SCH Breakdown		Total Contact Hours	Program Certifications
			Lecture	Lab		
ANT 1113	Introduction to Aviation	3	3	0	45	
ANT 1123	Aviation Systems	3	3	0	45	
ANT 1213	Private Pilot Ground I	3	3	0	45	
ANT 1313	Airport Management and Operations	3	3	0	45	
ANT 1513	Aviation Security	3	3	0	45	
ANT 1613	Small Unmanned Aerial Systems Part 107	3	2	2	60	
ANT 2113	Applied Meteorology	3	3	0	45	
ANT 2133	Tower Operations and Procedures	3	2	2	60	
ANT 2143	Radar Operations and Procedures	3	2	2	60	
ANT 2153	Tower Applications	3	2	2	60	
ANT 2163	Radar Applications	3	2	2	60	
ANT 2323	Airport Safety and Inspection	3	3	0	45	
ANT 2333	Air Transportation	3	3	0	45	
ANT 2343	Airport Certified Employee Preparation - Operations	3	3	0	45	
ANT 2513	Aviation Security and Inspection	3	0	9	135	
ANT 2523	Introduction to Homeland Security	3	3	0	45	
ANT 2533	Intelligence Analysis and Security Management	3	3	0	45	
ANT 2543	Transportation and Border Security	3	3	0	45	
ANT 2553	Airport Certified Employee Preparation - Security	3	3	0	45	
ANT 2613	Basic Flight Skill Development	3	2	2	60	
ANT 2623	Intermediate Flight Skill Development	3	2	2	60	
ANT 2633	Advanced Flight Skill Development	3	2	2	60	
ANT 2643	Autonomous Systems	3	2	2	60	
ANT 2713	Fixed Wing Airframe Setup and Maintenance	3	2	2	60	
ANT 2723	Rotary UAS Airframe Setup and Maintenance	3	2	2	60	

ANT 2813	UAS Commercial Applications I	3	2	2	60	
ANT 2823	Commercial Applications II	3	2	2	60	
ANT 2853	Linux Essentials-UAS	3	3	0	45	
ANT 2863	Linux System Administration I-UAS	3	3	0	45	
ANT 2873	Linux System Administration II-UAS	3	3	0	45	
ANT 291(1-6)	Special Problems in Aviation Technology	1-6	0	2-12	30-180	
ANT 292(1-6)	Supervised Work Experience	1-6			45-270	

Course Descriptions

Course Number and Name: **ANT 1113   Introduction to Aviation**

Description: The development of aviation from early attempts of flight to space travel, including career opportunities in the aviation industry. This course includes a brief survey of the National Airspace System, the airport environment, and the air traffic control environment.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1.   Define the aviation environment and the air traffic control environment.

2.   Investigate career opportunities as it relates to aviation technology.

3.   Describe the history and development of the National Airspace System (NAS).

4.   Describe the airport environment.

5.   Become oriented with the various navigation systems including ground and satellite based systems.

6.   Discuss the basics of aviation communications.

7.   Identify aircraft recognition factors (single engine, multi-engine, transport, etc.).

Course Number and Name: **ANT 1123**   **Aviation Systems**

Description: This course is a study of the structure of the aviation system and its functions, including familiarity with the language of air traffic control, the operating principles of navigational equipment, and the federal rules affecting the movement of aircraft.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Identify and discuss systems within the aviation industry including the aviation traffic control system (ATC) and the National Airspace System (NAS).

2. Discuss orders, manuals, standard operating practices and the Federal Aviation Regulations (FARs).

3. Interpret airspace and aviation charting within the NAS.

4. Describe the principles of flight and the pilot's environment.

5. Synthesize the critical phases of flight including the approach to takeoff and landing.

6. Understand and identify the role of the various components of the aviation system that include, but is not limited to:
   a. Aviation Terminology
   b. Aircraft Types (single engine, multi-engine, transport, etc.)
   c. Airspace
   d. Charting
   e. Communication System
   f. Security

Course Number and Name: **ANT 1213**   **Private Pilot Ground I**

Description: This course includes principles of flight; the flight environment; aircraft systems; and, performance.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Comprehend and demonstrate understanding of:
   a. Airplane systems
   b. Power plants and related systems
   c. Flight instrument
   d. Four forces of flight and the aerodynamics of flight
   e. Airports, aeronautical charts, and airspace
   f. Radar and ATC services, radio procedures, and sources of flight information

Course Number and Name: **ANT 1313**   **Airport Management and Operations**

Description: Examines the administration of public airports and their relationship with airlines, fixed-base operators, and the FAA. Federal airport standards for security, fuel handling and storage, noise abatement, bird control, clear zones, lighting, and federal and state financial aid programs to airports for improvements and upgrades.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1.   Identify general structure and discuss the components of:
   a.   Commercial airports
   b.   General aviation airports

2.   Describe airport operations management under 14 CFR Part 139.

3.   Explain components of the airport terminal design.

4.   Explain airport security requirements and relationships with federal agencies.

5.   Discuss airport planning, capacity, and delays.

6.   Discuss revenue generation and use.

Course Number and Name: **ANT 1513**   **Aviation Security**

Description: This course is a study of the security framework of commercial airports including familiarity with the process of balancing security needs with economic needs of an airport. Provides a broader view of aviation security beyond the airport.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1.   Discuss the history and development of aviation security regulations.

2.   Demonstrate an understanding of:
   a. Security measures related to aviation security
   b. Screening process for passengers and cargo at airports
   c. Security technology
   d. Access controls and perimeter security

Course Number and Name: **ANT 1613**   **Small Unmanned Aerial Systems Part 107**

Description: This course is designed to enable students to demonstrate a high level of understanding of small Unmanned Aerial Systems (sUAS) including regulations, aeronautical decision making, airspace, flight restrictions, navigation, airport operations, physiological effects of drugs and alcohol, and weather. After course completion, students will be prepared to take the FAA 107 Remote Pilot Certification Exam and be eligible to become FAA Certified Commercial Drone Operators.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Apply federal regulations regarding operation of sUAS in the National Airspace System,

2. Distinguish between sUAS crew certification requirements for civil and public UAS operations.

3. Apply the roles and responsibilities of sUAS crew members including the Pilot in Command (PIC) to aircraft operational scenarios.

4. Recall the personal minimums in regards to risk, including the effects of drugs and alcohol, weather, and mission requirements utilizing appropriate checklists.

5. Recall the effects of stress, fatigue, exhaustion, dehydration, and heat stress on decision making and performance.

6. Apply the regulations and limitations placed on UAS Operations by 14 CFR Part 107.

7. Analyze risks to sUAS operations created by conditions such a terrain, weather, obstructions, manned aviation, and airspace classification.

8. Identify and interpret information presented on FAA Sectional Aeronautical Charts.

9. Identify type of airports and aeronautical facilities using FAA Aeronautical charts and publications.

10. Classify the effects of weather on the performance of sUAS and apply weather briefings to simulated flight operations.

11. Define visual meteorological conditions and the minimum acceptable weather for sUAS operations.

12. Evaluate conditions for a sUAS flight and make appropriate "go/no-go" decisions.

Course Number and Name: **ANT 2113**   **Applied Meteorology**

Description: Basic weather theory and information services available, including how to interpret various reports and forecasts provided by the National Weather Service and the Federal Aviation Administration.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Demonstrate knowledge and an understanding of:
   a. Basic weather theory including air masses and weather patterns.
   b. Hazardous weather conditions and its effects on aviation.
   c. Weather data, including routine weather reports and forecasts.
   d. Controller responsibilities regarding the presentation of current weather conditions.
   e. Techniques for providing weather information to the flying public.

Course Number and Name: **ANT 2133**   **Tower Operations and Procedures**

Description: Provides an understanding of the operation of an airport control tower. The student will achieve a working knowledge of the various components of the tower and positions of operation, the phraseologies, the separation criteria, the flight data process, the equipment and the rules and procedures for each component.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Interpret aviation charting and identify data pertinent to airport control duties.

2. Apply air traffic control systems and duties to pertinent airport situations.

3. Interpret orders, manuals, standard operating practices and the FARs.

4. Apply the principles of flight and the pilot's environment.

5. Apply the appropriate rules regarding critical phases of flight in the airport environment.

6. Interpret and apply procedures to aircraft and vehicle emergencies.

Curriculum Standards

Specific standards for this course is based on the FAA training materials.

Course Number and Name: **ANT 2143   Radar Operations and Procedures**

Description: This course provides an understanding of the operation of an approach control facility or en route control facility. The student will achieve a working knowledge of the various components of the facilities and the positions of operation, the phraseologies, and separation criteria, the flight data process, the equipment and the rules.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Outcomes:

1.   Interpret aviation charting and identify data pertinent to radar control duties.

2.   Apply air traffic control systems and duties to pertinent situations.

3.   Interpret orders, manuals, standard operating practices and the FARs.

4.   Apply the principles of flight and the pilot's environment.

5.   Apply the appropriate rules regarding critical phases of flight in the radar environment.

6.   Interpret and apply procedures to airborne aircraft in emergencies and distress.

Curriculum Standards
Specific standards for this course is based on the FAA training materials.

Course Number and Name: **ANT 2153**   **Tower Applications**

Description: This course will allow the student to apply the various facets of air traffic control that were learned in the prerequisite courses to a simulated tower environment.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Outcomes:

1.   Prioritize the separating and sequencing of airport traffic.

2.   Utilize judgment in prioritizing airport control actions, i.e., timely and appropriate.

3.   Analyze adverse and emergency situations and take timely corrective actions.

4.   Comprehend equipment capabilities and requirements.

5.   Listens effectively and applies solutions to situations.

6.   Utilize prescribed tower phraseology.

Curriculum Standards

Specific standards for this course is based on the FAA training materials.

Course Number and Name: **ANT 2163   Radar Applications**

Description: This course will allow the student to apply the various facets of air traffic control that were learned in the prerequisite courses to a simulated radar environment.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Outcomes:

1.   Prioritize the separating of radar arrivals and departures.

2.   Initiate, coordinate, and utilize traffic management procedures appropriately.

3.   Utilize judgment in prioritizing radar control actions, i.e., timely and appropriate.

4.   Analyze adverse and emergency radar situations and takes timely corrective actions.

5.   Comprehend equipment capabilities and requirements.

6.   Listens effectively and applies solutions to situations.

7.   Utilize prescribed phraseology.

Curriculum Standards
Specific standards for this course is based on the FAA training materials.

Course Number and Name: **ANT 2323**   **Airport Safety and Inspection**

Description: Provides an overview of aviation safety programs and systems including trends in aviation safety practices with emphasis on future safety enhancements. Provides a workable knowledge of the safety inspection of airports as prescribed in Federal Aviation Regulation 139.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1.   Identify and understand the role of each element of 14 CFR Part 139 regulations:
    a.   Aviation safety related to flight and to airports
    b.   Aircraft Rescue and Fire Fighting (ARFF)
    c.   The process of inspecting airports for safety of operation
    d.   Airport safety requirements related to air carrier operations
    e.   Federal requirements related to aircraft accidents
    f.   Ground Operations
    g.   Notice to Airmen (NOTAM)
    h.   Training requirements and records management
    i.   Field Condition Reporting (FICON)

Curriculum Standards
Title 14 CFR Part 139

Course Number and Name: **ANT 2333**   **Air Transportation**

Description: Provides an overview of the aviation industry. Describes the economic aspects of passenger and cargo air transportation, including practices, problems, and regulations.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1.   Demonstrate a general knowledge of the:
    a. Aerospace industry
    b. Air transportation industry
    c. General aviation industry
    d. Air cargo industry
    e. Airline industry to include scheduling, pricing, and regulation
    f. International aviation

Curriculum Standards
Title 14 CFR Part 139

Course Number and Name: **ANT 2343**   **Airport Certified Employee Preparation - Operations**

Description: Provides for assessment and skill enhancement for preparation for the
                                    Airport Certified Examination (ACE), the national certifying examination for
                                    Airport Operations Specialists. The ACE is administered by the American
                                    Association of Airport Executives (AAAE).

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

    1.   Discuss the characteristics of airport operations and airport safety inspections.

    2.   Demonstrate the knowledge and understanding of the following:
          a.   Components of 14 CFR Part 139, Airport Certification and Inspection
          b.   Components of Advisory Circular 150/5200-18C, Airport Safety Self- Inspection
          c.   Components of an Airport Certification Manual (ACM)
          d.   Components of an Airport Emergency Plan (AEP)
          e.   Modules of the Airport Certified Employee – Operations of the
              American Association of Airport Executives (AAAE)

Curriculum Standards
Title 14 CFR Part 139

Course Number and Name: **ANT 2513   Aviation Security and Inspection**

Description: Provides an overview of aviation security programs and systems including trends in aviation security practices with emphasis on future security enhancements. Provides a workable knowledge of the security process at airports as prescribed in Transportation Security Regulations 1542, 1544, and 1546.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1.   Demonstrate the knowledge and understanding of the following:
    a.   Characteristics of aviation security and aviation security inspections
    b.   Components of 49 CFR Part 1542 Transportation Security Regulations – Airport Security
    c.   Components of 49 CFR Part 1544 Transportation Security Regulations – Aircraft Operator Security
    d.   Components of 49 CFR Part 1546 Transportation Security Regulations – Foreign Air Carrier Security
    e.   Components of an Airport Security Program (ASP)
    f.   Components of ICAO Annex 17

Curriculum Standards
Title 14 CFR Part 139
Title 49 TRS 1542

Course Number and Name: ANT 2523 Introduction to Homeland Security

Description: Introduces students to the vocabulary and important components of Homeland Security. Explores the state, national, and international laws impacting Homeland Security. Includes an examination of the most critical threats confronting Homeland Security.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Discuss the history of the Department of Homeland Security.

2. Discuss the statutory authority related to the threat to aviation.

3. Describe the Emergency Management Reform Act.

4. Describe the federal organizational structure related to homeland security.

5. Describe the terrorist-related threats.

Curriculum Standards
Title 49 TRS 1542

Course Number and Name: **ANT 2533   Intelligence Analysis and Security Management**

Description: Examines intelligence analysis and its indispensable relationship to the security management of terrorist attacks and other threats. Explores vulnerabilities of our national defense and private sectors, as well as the threats posed to these institutions by terrorists, man-made disasters, and natural disasters. Students will discuss substantive issues regarding intelligence support of Homeland Security.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1.   Discuss the agencies involved in aviation safety and security.

2.   Discuss methods of intelligence flow in the United States.

3.   Discuss the process for intelligence collection.

4.   Discuss processes for analyzing intelligence.

5.   Describe covert action and counter-intelligence.

6.   Discuss accountability and civil liberties.

Curriculum Standards
Title 49 TRS 1542

Course Number and Name: **ANT 2543   Transportation and Border Security**

Description: Provides an in-depth view of modern border and transportation security. Specific topics include security for seaports, ships, aircraft, trains, trucks, pipelines, buses, etc. Focuses on the technology need to detect terrorists and their weapons as well as includes discussion on legal, economic, political, and cultural aspects of the problem.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1.   Discuss legal aspects of border crossings.

2.   Discuss processes for mitigating risks of security breaches.

3.   Discuss processes for prevention and preparedness.

4.   Discuss processes for analyzing intelligence.

5.   Describe procedures for response to a security breach.

Curriculum Standards
Title 49 TRS 1542

Course Number and Name: **ANT 2553   Airport Certified Employee Preparation - Security**

Description: Provides assessment and skill enhancement to prepare for the Airport Certified Examination (ACE), the national certifying examination for Airport Security. The ACE is administered by the American Association of Airport Executives (AAAE).

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1.   Demonstrate the knowledge and understanding of the following:
    a.   Characteristics of security and inspections.
    b.   Components of 49 CFR Part 1542 Transportation Security Regulations – Airport Security
    c.   Components of 49 CFR Part 1544 Transportation Security Regulations – Aircraft Operator Security.
    d.   Components of 49 CFR Part 1546 Transportation Security Regulations – Foreign Air Carrier Security
    e.   Modules of the AAAE Airport Certified Employee – Security

Curriculum Standards
Title 49 TRS 1542

Course Number and Name: **ANT 2613**   **Basic Flight Skill Development**

Description: Introduce the student to basic flight training using flight simulators, small drones in a closed, hangar environment and outdoor flight training at John Bell Williams Airport.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	2	2	60

*For safety flight training will be limited to 2 students per instructor. That and weather conditions may require flexible scheduling.

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Students will receive initial training in small UAS basic flight skills and apply them to:
   a. Preflight and systems check
   b. Aircraft flight maneuvers
   c. Recovery from unusual attitudes
   d. Emergency actions

2. Students will observe and understand practical sUAS applications in an external environment including videography and precision data collection.

Curriculum Standards
Title 14 Part 107

Course Number and Name: **ANT 2623   Intermediate Flight Skill Development**

Description: Orientation and familiarization with full-scale aircraft simulation software and hardware systems; intermediate flight skills training to include aircraft preflight and systems check, recovery from unusual attitudes, and flight dynamics of heavily-loaded, high-performance aircraft; practical application in external flight training of basic and advanced UAS aircraft.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Outcomes:

1.   Identify the differences between a multi-rotor and fixed wing simulator.

2.   Demonstrate operational proficiency in using computer based multi-rotor and fixed wing _flight simulators_ using the following procedures:
   a.   Taxiing
   b.   Flying
   c.   Landing
   d.   Hovering (only for multi-rotor)

3.   Demonstrate operational proficiency in using computer based multi-rotor and fixed wing _aircraft_ using the following procedures:
   a.   Taxiing
   b.   Flying
   c.   Landing
   d.   Hovering (only for multi-rotor)

Curriculum Standards
Title 14 Part 107

Course Number and Name: **ANT 2633**   **Advanced Flight Skill Development**

Description: Advanced UAS systems overview including video and data link operation; introduction to First Person View (FPV) in basic and advanced UAS aircraft; launch/recovery techniques and UAS operations in airport environment.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Successfully perform advanced flight maneuvering with a fixed wing and a multi-rotor aircraft (heavier, faster, higher performance aircraft).
   a. Practice obstacle and collision avoidance.
   b. Practice emergency or evasive flight maneuvering.

2. Demonstrate flight proficiency in first person view utilizing fixed wing and multi-rotor aircraft.

3. Practice and recover from unusual attitude exercises.

4. Perform corrective actions needed to resolve emergency situations.

Curriculum Standards
Title 14 Part 107

Course Number and Name: **ANT 2643**   **Autonomous Systems**

Description: Introduction of autonomous systems theory including UAS autopilot operation, setup, tuning, and troubleshooting; practical application of UAS mission planning and aircraft flight testing including launch/recovery, flight following, situational awareness, Crew Resource Management, risk awareness and emergency procedures.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Demonstrate an understanding of the components associated with the autopilot system that include, but are not limited to:
    a. GPS
    b. Compass
    c. Camera and Various Sensors
    d. Mission Planning
    e. Flight Monitoring

2. Demonstrate the ability to set-up, tune, and troubleshoot the autopilot system.

3. Demonstrate the practical application of:
    a. Autonomous mission planning
    b. Aircraft test system including launch and recovery
    c. Flight following
    d. Situational awareness
    e. Crew resource management
    f. Risk awareness
    g. Emergency procedures

Curriculum Standards
Title 14 Part 107

Course Number and Name: **ANT 2713**   **Fixed Wing Airframe Setup and Maintenance**

Description: Airframe construction and repair techniques, aircraft tuning, weight/balance considerations; installation of data link, sensors, and autopilot systems.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Construct and repair autonomous fixed wing flight vehicles

2. Tune autonomous fixed wing flight vehicles

3. Proficiently operate autonomous fixed wing flight vehicles

Course Number and Name: **ANT 2723**   **Rotary UAS Airframe Setup and Maintenance**

Description: Emphasis on rotary airframe construction and repair techniques, aircraft tuning, and weight/balance considerations; installation of data link, sensors, and autopilot systems.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Construct and repair autonomous rotorcraft flight vehicle.

2. Tune autonomous rotorcraft flight vehicle.

3. Proficiently operate autonomous rotorcraft flight vehicle.

Course Number and Name: **ANT 2813**   **UAS Commercial Applications I**

Description: Commercial applications of UAS technology within the agricultural, surveying, and film and videography industries.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Create an operational mission plan for the following commercial applications:
   a. Precision Agriculture
   b. Surveying
   c. Film and Videography

2. Demonstrate control of the multi-rotor and fixed wing aircraft to execute missions for precision agriculture, surveying, and film and videography.

3. Download, process, and interpret the data received from the UAS mission.

4. Using the data received from the UAS mission, produce and present findings.

Course Number and Name: **ANT 2823** **Commercial Applications II**

Description: Commercial applications of UAS technology including: aerial photography, film, and videography; structural inspections; law enforcement; search and rescue (SAR); sports video; and, real estate marketing.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	2	2	60

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Create an operational mission plan for the following commercial applications:
   a. Aerial photography
   b. Film and videography
   c. Structural inspections
   d. Law enforcement
   e. Search and rescue
   f. Sports video
   g. Real estate marketing

2. Demonstrate control of the multi-rotor and fixed wing aircraft to execute missions for precision agriculture, surveying, and film and videography.

3. Download, process, and interpret the data received from the UAS mission.

4. Using the data received from the UAS mission, produce and present findings.

Course Number and Name: **ANT 2853**   **Linux Essentials - UAS**

Description: The fundamentals of the Linux operating system and command line. Students will understand Linux as an operating system, basic open source concept, and how it is used. Students will become familiar with the application of Linux to autopilot technology.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Understand Linux as an operating system; explain considerations for the system.

2. Understand the basics of open source software and licensing.

3. Acquire knowledge and basic Linux skills for:
   a. command line; navigation help systems; files and directories
   b. searching and extracting data; scripting
   c. components of desktop and server computers
   d. location of stored data

4. Identify various types of users on a Linux system; create users and groups.

5. Manage file permissions and ownership: understand special directories and files.

6. Understand the utilization of Linux software in UAS operations.

Course Number and Name: **ANT 2863**   **Linux System Administration I - UAS**

Description: Provides the knowledge necessary to perform basic Linux server administration at a professional level. Install, configure and administer Linux systems; process text and build complex commands. Students will learn to perform flight data processing and retrieval applications.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1.   Determine and configure hardware settings; boot the system.

2.   Change run levels and shutdown or reboot system.

3.   Acquire knowledge and Linux skills for:
   a.   Design hard disk layout; install a boot manager; manage shared libraries.
   b.   Use Debian package management; use RPM and YUM package management.
   c.   Work on the command line; process text streams; perform file management.
   d.   Create, monitor, and kill processes; modify execution priorities; search files.
   e.   Perform file editing using vi; create partitions and file systems.
   f.   Manage disk quotas; manage file permissions and ownership.
   g.   Implement updated controls to facilitate ground-based UAV operations.

4.   Create and change hard and symbolic links.

5.   Find system files and place files in the correct location.

Course Number and Name: **ANT 2873**   **Linux System Administration II - UAS**

Description: Provides the knowledge necessary to perform basic Linux server administration at a professional level. Write shell scripts, manage databases, work with user desktop interface settings, perform administration tasks, configure and run essential services, configure and trouble shoot networking and security tasks. Students will learn to perform telemetry management.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
3	3	0	45

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Customize and use the shell environment and write scripts.

2. Manage SQL data; install and configure X11; setup a display manager.

3. Acquire knowledge and Linux skills for:
   a. Managing user and group accounts; scheduling jobs; maintain system time
   b. System logging; Mail Transfer Agent (MTA) basics; manage printers
   c. Internet protocols; network configuration and troubleshooting
   d. Configure client side DNS
   e. Applying Linux applications to UAS equipment and operations

4. Perform Security administration tasks:
   a. Setup host security
   b. Secure data with encryption

Course Number and Name: **ANT 291(1-6)   Special Problems in Aviation Technology**

Description: This course provides students with an opportunity to utilize skills and knowledge gained in other Aviation Technology courses. The instructor and student work closely together to select a topic and establish criteria for completion of the project.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Clock Hours
1	0	2	30
2	0	4	60
3	0	6	90
4	0	8	120
5	0	10	150
6	0	12	180

Prerequisite: Instructor Approved

Student Learning Outcomes:

1.   Develop a written plan which details the activities and projects to be completed.
   - a.   Use a written plan which details the activities and projects to be completed.
   - b.   Perform written occupational objectives in the special problem.

2.   Assess accomplishment of objectives.
   - a.   Prepare daily written assessments of accomplishment of objectives.
   - b.   Present weekly written reports to the instructor of activities performed and objectives accomplished.

3.   Use and follow a set of written guidelines for the special problem.
   - a.   Develop and follow a set of written guidelines for the special problem.

Course Number and Name: **ANT 292(1-6)**   **Supervised Work Experience**

Description: This course provides an internship opportunity in area of specialization. Supervised work in government or industry to gain experience in the aviation fields.

Hour Breakdown:

Scheduled Hours	Lecture	Lab	Internship	Clock Hours
1	0	0	3	45
2	0	0	6	90
3	0	0	9	135
4	0	0	12	180
5	0	0	15	225
6	0	0	18	270

Prerequisite: Instructor Approved

Student Learning Outcomes:

1. Follow a set of instructor-written guidelines for the supervised work experience program.

2. Apply skills needed to be a viable member of the workforce.
   a. Prepare a description of skills to be developed in the supervised work experience program.
   b. Practice skills needed to be a viable member of the workforce.

2. Practice human relationship skills in the supervised work experience program.

3. Practice positive work habits, responsibilities, and ethics.

4. Develop written occupational objectives in the supervised work experience program.

6. Assess performance of occupational skills.
   a. Prepare daily written assessments of work performance as specified in the occupational objectives.
   b. Present weekly written reports to the instructor of activities performed and objectives accomplished.

Course Number and Name: **WBL 191(1-3), WBL 192(1-3),** Work-Based Learning I, II, III, IV, V, and VI
WBL 193(1-3), WBL 291(1-3),
WBL 292(1-3), and WBL 293(1-3)

Description: A structured work-site learning experience in which the student, program area teacher, Work-Based Learning Coordinator, and worksite supervisor/mentor develop and implement an educational training agreement. Designed to integrate the student's academic and technical skills into a work environment. Includes regular meetings and seminars with school personnel for supplemental instruction and progress reviews. (1-3 sch: 3-9 hours externship)

Hour Breakdown:

Semester Credit Hours	Lecture	Lab	Contact Hours
4	2	4	90

Prerequisite: Instructor approved

Student Learning Outcomes:
1. Apply technical skills and related academic knowledge needed to be a viable member of the workforce
   a. Apply technical skills needed to be a viable member of the workforce
   b. Apply skills developed in other related courses in a work-based setting
   c. Perform tasks detailed in an educational training agreement at the work setting

2. Apply general workplace skills to include positive work habits and responsibilities necessary for successful employment
   a. Demonstrate pro-active human relationship skills in the work setting to include conflict resolution, team participation, leadership, negotiation, and customer/client service
   b. Demonstrate time, materials, and resource management skills
   c. Demonstrate critical thinking skills such as problem solving, decision making, and reasoning
   d. Demonstrate acquiring, evaluating, organizing, maintaining, interpreting, and communicating information
   e. Demonstrate positive work habits and acceptance of responsibilities necessary for successful employment

APPENDIX A: RECOMMENDED TOOLS AND EQUIPMENT

Capitalized Items

1. Eclipse Flight Yokes (4)
2. ProPedals (USB) (4)
3. Table Top Display Board (Airport Layout)
4. Communications Simulator (mixer, microphones, headsets)
5. Desktop Computers (6)
6. Laptop Computers (2)
7. Hand held Radios (Transceivers) with detachable headsets (4)
8. RF9 Flight Simulator Program
9. Syma X5 Beginning UAV's
10. AutelEVO-1 UAV's
11. Parrot AnafiUAV's
12. PIX4D Software
13. Phantom 4 Prog (2)
14. M200 (1)
15. eBeeX(1)
16. Firefly 6Pro (1)

Other equipment items can be added when deemed appropriate by the community college industry craft committee or by industry/business training requirements.

Non-Capitalized Items

1. Web Cameras (4)
2. Head Set (microphone and speaker)
3. GoPro
4. Duet T
5. S.).D.A 3D
6. X5s
7. XT 2
8. Z30

Other equipment items can be added when deemed appropriate by the community college industry craft committee or by industry/business training requirements.

Recommended Instructional Aids

It is recommended that instructors have access to the following items:

1. Computer with CD/DVD (1)
2. Printer (1)
3. Screen, Data Projector (1)
4. DVD Player (1)
5. Web Camera (1)
6. Laptop Computer (1)
7. Head set (microphone and speaker) (1)

Recommended Software

1. Flight Simulator software
2. GFD (Guided Flight Discovery)
3. Radar Simulator software

APPENDIX B: CURRICULUM DEFINITIONS AND TERMS

Course Name – A common name that will be used by all community colleges in reporting students

Course Abbreviation – A common abbreviation that will be used by all community and junior colleges in reporting students

Classification – Courses may be classified as the following:
   a. Career Certificate Required Course – A required course for all students completing a career certificate.
   b. Technical Certificate Required Course – A required course for all students completing a technical certificate.
   c. Technical Elective – Elective courses that are available for colleges to offer to students.

Description – A short narrative that includes the major purpose(s) of the
   Prerequisites – A listing of any courses that must be taken prior to or on enrollment in the course
   Corequisites – A listing of courses that may be taken while enrolled in the course
   Student Learning Outcomes – A listing of the student outcomes (major concepts and performances) that will enable students to demonstrate mastery of these competencies

The following guidelines were used in developing the program(s) in this document and should be considered in compiling and revising course syllabi and daily lesson plans at the local level:
The content of the courses in this document reflects approximately 75% of the time allocated to each course. The remaining 25% of each course should be developed at the local district level and may reflect the following:

   Additional competencies and objectives within the course related to topics not found in the state framework, including activities related to specific needs of industries in the community college district
   Activities that develop a higher level of mastery on the existing competencies and suggested objectives
   Activities and instruction related to new technologies and concepts that were not prevalent at the time the current framework was developed or revised
   Activities that include integration of academic and career–technical skills and course work, school-to-work transition activities, and articulation of secondary and postsecondary career–technical programs
   Individualized learning activities, including work-site learning activities, to better prepare individuals in the courses for their chosen occupational areas.

Sequencing of the course within a program is left to the discretion of the local college. Naturally, foundation courses related to topics such as safety, tool and equipment usage, and other fundamental skills should be taught first. Other courses related to specific skill areas and related academics, however, may be sequenced to take advantage of seasonal and climatic conditions, resources located outside of the school, and other factors. Programs that offer an Associate of Applied Science Degree must include all of the required Career Certificate courses, Technical Certificate courses **AND** a minimum of 15 semester hours of General Education Core Courses. The courses in the General Education Core may be spaced out over the entire length of the program so that students complete some academic and Career Technical courses each semester. Each community college specifies the actual courses that are required to meet the General Education Core Requirements for the Associate of Applied Science Degree at their college.

In order to provide flexibility within the districts, individual courses within a framework may be customized by doing the following:

   Adding new student learning outcomes to complement the existing competencies and suggested objectives in the program framework.
   Revising or extending the student learning outcomes
   Adjusting the semester credit hours of a course to be up 1 hour or down 1 hour (after informing the Mississippi Community College Board [MCCB] of the change)

APPENDIX C: COURSE CROSSWALK

Course Crosswalk					
Aviation Technology					
Note: Courses that have been added or changed in the 2020 curriculum are highlighted.					
Existing			Revised		
2014 MS Curriculum Framework			2020 MS Curriculum Framework		
Course Number	Course Title	Hours	Course Number	Course Title	Hours
ANT 1113	Introduction to Aviation	3	ANT 1113	Introduction to Aviation	3
ANT 1123	Aviation Systems	3	ANT 1123	Aviation Systems	3
ANT 1213	Private Pilot Ground I	3	ANT 1213	Private Pilot Ground I	3
ANT 1313	Airport Management and Operations	3	ANT 1313	Airport Management and Operations	3
ANT 1513	Aviation Security	3	ANT 1513	Aviation Security	3
ANT 1613	Small Unmanned Aerial Systems Part 107	3	ANT 1613	Small Unmanned Aerial Systems Part 107	3
ANT 2113	Applied Meterology	3	ANT 2113	Applied Meterology	3
ANT 2133	Tower Operations and Procedures	3	ANT 2133	Tower Operations and Procedures	3
ANT 2143	Radar Operations and Procedures	3	ANT 2143	Radar Operations and Procedures	3
ANT 2153	Tower Applications	3	ANT 2153	Tower Applications	3
ANT 2163	Radar Applications	3	ANT 2163	Radar Applications	3
ANT 2323	Airport Safety and Inspection	3	ANT 2323	Airport Safety and Inspection	3
ANT 2333	Air Transportation	3	ANT 2333	Air Transportation	3
ANT 2343	Airport Certified Employee Preparation-Operations	3	ANT 2343	Airport Certified Employee Preparation-Operations	3
ANT 2513	Aviation Security and Inspection	3	ANT 2513	Aviation Security and Inspection	3
ANT 2523	Introduction to Homeland Security	3	ANT 2523	Introduction to Homeland Security	3
ANT 2533	Intelligence Analysis and Security Management	3	ANT 2533	Intelligence Analysis and Security Management	3
ANT 2543	Transportation and Border Security	3	ANT 2543	Transportation and Border Security	3
ANT 2553	Airport Certified Employee Preparation-Security	3	ANT 2553	Airport Certified Employee Preparation-Security	3
ANT 2613	Basic Flight Skill Development-UAS	3	ANT 2613	Basic Flight Skill Development	3
ANT 2623	Intermediate Flight Skill Development-UAS	3	ANT 2623	Intermediate Flight Skill Development	3
ANT 2633	Advanced Flight Skill Development-UAS	3	ANT 2633	Advanced Flight Skill Development	3
ANT 2643	Autonomous Systems-UAS	3	ANT 2643	Autonomous Systems	3
ANT 2713	Fixed Wing Airframe Setup and Maintenance-UAS	3	ANT 2713	Fixed Wing Airframe Setup and Maintenance	3
ANT 2723	Rotary Airframe Setup and Maintenance-UAS	3	ANT 2723	Rotary UAS Airframe Setup and Maintenance	3
ANT 2813	Commercial Applications I-UAS	3	ANT 2813	UAS Commercial Applications I	3
ANT 2823	Commercial Applications II-UAS	3	ANT 2823	Commercial Applications II	3

ANT 2853	Linux Essentials-UAS	3	ANT 2853	Linux Essentials-UAS	3
ANT 2863	Linux System Administration I-UAS	3	ANT 2863	Linux System Administration I-UAS	3
ANT 2873	Linux System Administration II-UAS	3	ANT 2873	Linux System Administration II-UAS	3
ANT 291(1-6)	Special Problems in Aviation Technology	1-6	ANT 291(1-6)	Special Problems in Aviation Technology	1-6
ANT 292(1-6)	Supervised Work Experience	1-6	ANT 292(1-6)	Supervised Work Experience	1-6

APPENDIX D: RECOMMENDED TEXTBOOK LIST

Recommended Textbook List		
Aviation Technology		
Book Title	**Author(s)**	**ISBN**
Airman Knowledge Testing Supplement for Sport Pilot, Recreational Pilot, Remote Pilot, and Private Pilot		
U.S. Department of Transportation	Federal Aviation Administration FAA-CT-8080-2H	
Guided Flight Discovery – Private Pilot	Jeppesen	978-0-88487-660-1, 201
Airport Planning and Management, 7thEd	Young, Seth, B., and Wells, Alexander, T.	978-1260143324
Aviation and Airport Security: Terrorism and Safety Concerns, 2thEd.	Sweet, Kathleen, M.	978-1 4200-8816-8
Pilots Handbook of Aeronautical Knowledge	FAA-H-8083-25A	