

COLLEGE OF TECHNOLOGY

M. Wesley Shultz, *Dean*
 Gerald W. Coy, *Associate Dean*
 Harrigan Hall, Room 200
 (616) 471-3413
 FAX: (616) 471-6292
<http://www.andrews.edu/COT/>

ASSOCIATE DEGREE GENERAL EDUCATION REQUIREMENTS

General Education course requirements for the Associate in Engineering Technology and the Associate of Technology degrees are as follows:

	<u>AET</u>	<u>AT</u>
Religion	8	8
REL100		
One of the following: RELB210, 225, RELP400, RELT250, 340		
Arts and Humanities	4-6	3-4
or		
Social Sciences		
Selected from HIST115, 116; IDSC211, 212, 237; PSYC101; SOCI119; ANTH200; GEOG110; PLSC104; ECON225.		
Physical/Natural Sciences	12	0
PHYS151, 152, 153		
Language and Communication		
ENGL111	3	3
COMM104	3	3
Mathematics and Computer Science		
MATH106		4
MATH162, 163, 165 or 171, 172	8-12	
INSY110		4
COSC125	4	
Wellness		
HLED130	3	3
Core		
ENGR120	2	
TCED125		4
Total credits required	47-5332-33	

BACCALAUREATE DEGREE CORE REQUIREMENTS

The BSET, BSIT, and BT core requirements are as follows:

BSET	
ENGR120	2
ELCT151, 152, 205	10
MECT185, 186, 265	9
MECT121	3
INDT450	4
AGRI395 or ENGT396 or GTEC395 or INDT315	4
BSIT	
AGRI395 or ENGT396 or GTEC395 or INDT315	4
27 credits chosen from the following two groups of courses:	27
A minimum of 12 credits selected from INDT310, 320, 410, 440, 450, 460; MECT120, 121; TCED254, 456	
A minimum of 8 credits selected from ACCT111, 112, 113; BSAD210, 341, 342, 355, 374, 415, 436; ECON226; FNCE387; MKTG310, 320, 330	
BT	
AGRI395 or GTEC395 or INDT314	4
INDT310	4

See inside back cover for symbol code. (Credits)

GTEC110

Freshman Seminar

College success and life enrichment skills. Included are an introduction to the resources of the university, principles of critical thinking, and Christian values clarification.

GTEC115

College Seminar

See description under GTEC110. Repeatable to 8 credits.

GTEC298

Prior Learning Assessment

Prior Learning Assessment (PLA) is a process which validates learning experiences occurring outside traditional college/university academic programs. A portfolio of evidence for demonstrating experience and competency justifies and determines the amount of credit granted. Repeatable with different topics.

GTEC395

Cooperative Work Experience

Supervised (by the dean or his appointee) on-the-job work experience with a cooperating industry. A minimum of 150 hours of work is required per credit. The student must submit a report of the cooperative work experience as specified by the instructor. Repeatable to 6 credits. Graded S/U. Prerequisites: an associate degree in technology or equivalent and permission of the dean. Students must apply and be accepted one quarter in advance of their planned Cooperative Education experiences.

GTEC498

Prior Learning Assessment

See description under GTEC298. Total prior learning assessment credits (GTEC298 and 498) may not exceed 48 credits.

INDIVIDUALIZED PROGRAMS OF STUDY

For students who have career goals or special interests in areas other than those provided in one of the established majors or minors, a special individualized concentration is available in the following degrees: Bachelor of Science, Bachelor of Science in Engineering Technology, Bachelor of Science in Industrial Technology, Bachelor of Technology, Associate of Engineering Technology, and Associate of Technology. An individualized concentration may be planned to meet the career goals of a student. Before the beginning of the junior year for baccalaureate-degree students or the beginning of the sophomore year for associate-degree students, the student, with the assistance of his or her adviser, prepares a proposed program of study. The program must be approved by a department faculty and the College of Technology Academic Policies and Curricula Committee.

AERONAUTICAL TECHNOLOGY

Seamount Building (Airpark), Room 203
 (616) 471-3548
airinfo@andrews.edu
 (2) <http://www.andrews.edu/AVIA/>

Faculty

Allen Bernet, *Chair*
 Kevin Jacobs
 (1-48) Richard L. Kaping
 Harry Lloyd
 Gary A. Marsh

Academic Programs	Credits
BSET: Aircraft Engineering Technology	134
BSIT: Aircraft Maintena	

General Courses

BSIT: Aircraft Maintenance

(Maintenance and Business)

Students may combine business and maintenance. This, along with the General Education requirements, is the basis for aviation business responsibilities.

Maintenance courses (see below)	84
Degree core	31
General Education requirements	71-74
General electives	<u>1-4</u>
Total credits for degree	190

BT: Aviation Technology

Students taking the Bachelor of Technology degree may choose to combine two of the specialization options—flight, maintenance, business, and avionics—or they may combine areas (see below) to meet specific career goals or limit their specialization to a single area—flight or maintenance.

Major*	90-110
Degree core	8
General Education requirements	71
General electives	<u>1-21</u>
Total credits for degree	190

***Major Options**

Flight

- Flight—60 credits
- Aviation electives—30 credits

Flight and Business

- Flight—60 credits
- Aviation electives—8 credits
- Business—41 credits

(to meet pre-MBA requirements)

Flight and Maintenance

- Flight—30 credits
- Maintenance—80 credits

Maintenance

- Maintenance—80 credits
- Flight electives—10 credits

AT: Aviation Technology

Students may earn an Associate of Technology degree by taking courses beyond those required for the certificate in either the flight or maintenance area. The additional courses give students a broader General Education base, prepare them better to perform the activities acquired by the certificate program, and facilitate study for an advanced degree.

Major*	68-84
General Education requirements	28-29
Degree core	<u>4</u>
Total credits for degree	100-117

***Majors**

Flight

- Flight—60 credits
- Aviation electives—8 credits

Maintenance

- Maintenance—84 credits

Minor in Aviation Technology

Requirements: A minimum of 30 credits in either flight or maintenance. Additional aviation electives must be approved by the department chair.

Students earn a minor in Aviation Technology by completing one of the following:

Flight (23-30 credits): AVIA105, 106, 205, 206, 305, 306. A Commercial Pilot certificate and instrument rating are required.

Maintenance: Complete either the Airframe or Powerplant License and obtain a Private Pilot License.

FAA Certification

FAA-Approved Instruction. The Department of Aeronautical Technology operates an Airframe and Powerplant Maintenance Technician School as well as a Flight School (FAA-approved under Part 141 and Part 147). Students enrolled in programs at these schools must take one religion course a year.

FAA Maintenance Certificates. Students may earn the following FAA-approved certificates from the Airframe and Powerplant Maintenance Technician School:

- Aircraft Airframe
- Aircraft Powerplant

FAA Flight Certification Programs. Students may take flight instruction to qualify for several levels of certification. Students wishing only to

aircraft construction and repair. Emphasis on weld-quality identification.

shop requirements must be approved by the department.

- AVIA145** (2) **AVIA251** (4)
Aircraft Systems I (Instruments, Navigation, Communication, Ice and Rain Control Systems)
 A familiarization of aircraft instruments and their functions; communication and navigation equipment; de-ice, anti-ice, and rain-control systems. Includes installation, removal, and repair as allowed by Federal Regulations and the manufacturer's instructions.
- AVIA152** (6) **AVIA252** (4)
Turbine Engines
 Introduction to the basic principles of jet propulsion including Newton's laws of motion, types of turbine powerplants, turbine auxiliary and ground power units, performance characteristics, theory of operation, basic construction, maintenance, ground operation, and adjustment of turbine engines, including troubleshooting and trimming.
- AVIA205** (3)
Commercial Pilot Ground School
 Advanced navigation, FAR parts 61, 91, and 135 for air taxi, complex aircraft systems, weight and balance, and performance charts included to prepare students for the commercial pilot written examination. Prerequisite: AVIA105 or Private Pilot certification.
- AVIA206** (3)
Commercial Pilot Flight Training
 Instruction and solo flight to prepare the student for the FAA commercial pilot examination. Prerequisites: Private Pilot certificate, AVIA205 (or corequisite). Repeatable to 6 credits.
- AVIA233** (4)
Aircraft Fuel and Fire Protection Systems
 A study of aircraft fuels and their characteristics, along with the inspection, maintenance, repair, and troubleshooting of aircraft fuel systems and components. Includes a study of fire warning and extinguishing systems, their components, operation, service, and repair.
- AVIA235** (2)
Aircraft Cabin Atmosphere Systems
 Pressurization, air conditioning, heating, ventilation, and oxygen systems in aircraft.
- AVIA237** (4)
Aircraft Landing Gear, Hydraulic and Pneumatic Systems
 Operation and maintenance of aircraft hydraulic and pneumatic systems including the repair of components and of systems, aircraft landing gear and gear retraction-system analysis, shock-strut servicing, brake-lining replacement, and wheel and tire replacement.
- AVIA240** (4)
Non-Metallic Aircraft Structures
 A brief study of the use of wood structures and fabric covering in aircraft construction and the recognition of defects in each. An in-depth study of composite structures, resins, bonding methods, tool and machine usage, repairs and defect recognition.
- AVIA248** (1-4)
Workshop
 Provides flexibility for the occasional workshop when appropriate to offer aviation credit. Work-

AVIA456 (3)

Flight Instructor Flight Training

Teaching and analysis of maneuvers to prepare students for the FAA Flight Instructor practical test. Prerequisites: Commercial Pilot License with an Instrument Rating and AVIA455 (or corequisite).

AVIA459 (2)

Basic Ground Instructor

Tena

