

**60 AND  
SOARING!**

**EMBRY-RIDDLE  
AERONAUTICAL  
UNIVERSITY**

60 YEARS OF AVIATION EXCELLENCE  
**EMBRY-RIDDLE  
AERONAUTICAL  
UNIVERSITY**  
1926-1986



## 60 and Soaring

Soar (sôr, sôr) *intr.v.* 1. To fly upward or rise high into the air; climb swiftly and powerfully. 2. To ascend suddenly above the normal or usual level. 3. To be inspired. Latin *ex-*, out of + *aura*, the air, from Greek.

Shown soaring on our cover are John Paul Riddle, the University's first and most famous flight instructor, and Ellis M. Jones, from Cave City, Kentucky. The year? 1926, of course. The plane? A Waco-9, one of two planes owned by what was then called the Embry-Riddle Flying School. The engine? An OX5, the reliable and much-admired engine that powered the JN-4, the World War I U.S. Army Trainer.

Americans fell in love with flying because of the Jenny and the OX5. Many soldiers learned to fly on the Jenny, of course, but it was really the 6,000 leftover Jennies sold at bargain prices after the war that caught America's fancy. They sold for \$500 each, an extra propeller for \$4.95. Barnstormers snapped them up, and soon Americans everywhere were attending impromptu airshows.

Ellis Jones owned and flew one, and was an expert in OX5 maintenance. He was a Lifetime Member of the OX5 Society, and never tired of telling stories about his Jenny.

The Jenny and the OX5 are the stuff of legends and museums now. Like them, other planes and engines, aircraft designs, airlines, and yes, aviation schools, have come and gone. Aviation's needs changed; they didn't.

Not so Embry-Riddle Aeronautical University. And that's what we're celebrating this year during our Diamond Jubilee. Sixty years of aviation excellence. What does that mean? In John Paul Riddle's words: "We were contented but never satisfied. Other schools fell by the wayside. We kept improving all the time, striving for perfection. I'm sure that's why we grew."

What started as a flight school developed into a university with academic programs to prepare men and

women for all aspects of aviation on the ground as well as in the air. The curriculum of the world's only completely aviation-oriented University is strong in the humanities, social sciences, and natural sciences as well as the technical and managerial aspects of aviation.

During our 60-year history, more than 50,000 students have studied at Embry-Riddle. From more than 80 campuses in the continental United States and in Hawaii, Italy, England, Spain, West Germany, and the Netherlands, Embry-Riddle graduates have successfully launched careers around the world. No doubt about it. We encourage soaring.



# Embry-Riddle Aeronautical University

Serving the world of aviation through  
higher education for 60 years

## EXECUTIVE OFFICES

Embry-Riddle Aeronautical  
University  
Star Route Box 540  
Bunnell, FL 32010  
(904) 673-3180

## WESTERN U.S. CAMPUS

Embry-Riddle Aeronautical  
University  
3200 N. Willow Creek Road  
Prescott, AZ 86301  
(602) 778-4130

## EASTERN U.S. CAMPUS

Embry-Riddle Aeronautical  
University  
Regional Airport  
Daytona Beach, FL 32014  
(904) 252-5561

## INTERNATIONAL CAMPUS

Embry-Riddle Aeronautical  
University  
Star Route Box 540  
Bunnell, FL 32010  
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## In Europe contact:

HQ USAFE/DPPEF  
Embry-Riddle Aeronautical University  
APO New York 09633  
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Wiesbaden Civilian: 06121-810608  
Wiesbaden Military: 3723

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# \* ERAU CALENDAR 1986-87

## FALL TRIMESTER 1986

August 27-29 .....	Registration
September 1 .....	HOLIDAY — Labor Day
September 2 .....	Classes begin
September 4 .....	Last day for late registration
November 27-28 .....	HOLIDAY — Thanksgiving
December 5 .....	Last day of classes
December 6, 8-11 .....	Final Examinations
December 13 .....	Commencement

## SPRING TRIMESTER 1987

January 6-7 .....	Registration
January 8 .....	Classes begin
January 12 .....	Last day for late registration
February 16 .....	HOLIDAY — President's Day
April 16 .....	Last day of classes
April 17 .....	HOLIDAY — Good Friday
April 18, 20-23 .....	Final Examinations
April 25 .....	Commencement

## SUMMER TRIMESTER (TERM A) 1987

May 4-5 .....	Registration for Terms A, B
May 6 .....	Classes begin
May 8 .....	Last day for late registration
May 25 .....	HOLIDAY — Memorial Day
June 19 .....	Last day of classes
June 22-23 .....	Final Examinations

## SUMMER TRIMESTER (TERM B) 1987

June 25 .....	Registration for Term B
June 26 .....	Classes begin
June 30 .....	Last day for late registration
July 3 .....	HOLIDAY — Independence Day
August 10 .....	Last day of classes
August 12-13 .....	Final Examinations
August 15 .....	Commencement

\* Daytona Beach and Prescott Campuses only. International Campus students should contact the local ERAU Resident Center Director for the Academic Calendar applicable to their specific location.

## Orientation

Orientation programs for all new students are planned and scheduled by each campus, and are conducted before registration each trimester. A special orientation program for new foreign students is held prior to the general orientation required for all new students. New students will receive specific information regarding the date, time, and place of orientation activities for their campus from Admissions approximately thirty calendar days in advance of the activities.

## A MESSAGE FROM THE PRESIDENT

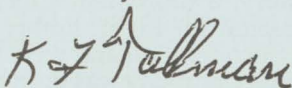
Since 1926, Embry-Riddle Aeronautical University has been dedicated to preparing men and women for their role in shaping the future of aviation. Celebrating "60 years of aviation excellence," Embry-Riddle has set the stage for continuing this tradition of excellence into the future.

Embry-Riddle graduates are a pervasive force in every facet of aviation — as engineers, pilots, computer experts, managers and avionics and aviation maintenance technicians. Their success paves the way for future graduates — YOU.

Embry-Riddle's mission is to provide you with the academic environment and impetus to shape your career in aviation. Your classmates now will be your colleagues (and your competition) in the future. Make the decision to succeed now and you will.

We welcome you to Embry-Riddle and invite you to accept the challenge that aviation presents. The challenge is to be the best that you can — for yourself, for aviation, and ultimately for the future of the world.

Sincerely,

A handwritten signature in cursive script that reads "K. L. Tallman".

Kenneth L. Tallman  
Lt. General, USAF (Ret.)  
President

# General Information

## Purpose of the University

The purpose of Embry-Riddle Aeronautical University is to provide an aeronautically oriented educational program of such fundamental background, scope and excellence that students may achieve competency and proficiency for productive careers, and in doing so, develop character, judgement, breadth of view and understanding of our social and economic systems.

## History of Embry-Riddle

Since its beginning, Embry-Riddle Aeronautical University has played a unique and important role in aviation. Two years before Charles Lindbergh made his historic flight, John Paul Riddle bought two Waco biplanes and opened a flying service. Soon after, he met T. Higbee Embry, a prominent Cincinnati businessman, who shared Riddle's passion for flight. Embry contributed some badly needed funding to the operation and went into partnership with Riddle. The Embry-Riddle Company was born May 19, 1926 at Lunken Airport in Cincinnati.

Despite Embry's strong financial backing, the company still faced a number of problems. There was the constant need — and constant shortage — of everything from hangar space to spare parts. Even trained mechanics to repair the Wacos and pilots to fly them safely were in short supply. It was this particular need that later would play an important part in setting a new direction of growth for the Embry-Riddle Company.

The original company remained intact until late 1928, when it was sold to become the first unit of what is now American Airlines.

In 1932, Riddle resigned from American Airlines and moved to Miami, Florida. Aviation education still occupied his mind, and he was convinced that he had a better way to develop it. The company's original name was retained, and Embry-Riddle's first Florida-based home was established along Miami's causeway.

In the late 1930's, Riddle and his new partner, John G. McKay, expanded Embry-Riddle to become the world's largest aviation school. The company operated flight training centers at Florida's Carlstrom, Dorr and Chapman Airfields, Miami's Riddle-McKay Aero College, and the Riddle-McKay Institute in Tennessee, as well as other facilities.

As war approached, allied nations sent thousands of fledgling airmen to Miami to become pilots, mechanics and aviation technicians of all kinds. According to best estimates, somewhere near 50,000 aviation candidates were trained by Embry-Riddle during the war years.



In 1944, Embry-Riddle's curriculum was expanded again, and the onetime flight school became the Embry-Riddle International School of Aviation. Shortly thereafter, it developed an even stronger academic orientation and was redesignated as the Embry-Riddle Aeronautical Institute.

In 1962, the Institute hired Jack Hunt, an aviation consultant, as its business advisor. Hunt reorganized Embry-Riddle as a non-profit institution, planned for further expansion and development, and found a new location — one that offered room for growth. Trimming an initial list of more than 30 Florida locations, Hunt settled on Daytona Beach as the first choice.

On April 24, 1965, a convoy of 30 trucks rolled into the Daytona Beach Airport. On board was everything the Institute owned, from student desks to engine displays. Two-hundred thirty-nine students, a staff of about 75, and a collection of rented buildings at the Regional Airport were what Embry-Riddle consisted of when it began its first classes at Daytona Beach.

Shortly after the relocation, Embry-Riddle acquired an 86-acre land tract at the airport. That location has become Embry-Riddle's Eastern Campus. In 1970, Embry-Riddle became a university, and the name was changed to the one known today.

Resident Centers were established by the University at four United States military aviation centers in 1970. The Centers were established in response to requests from military officials that the University offer its programs at selected locations in order to serve the educational needs of active duty military personnel.

There are now more than 80 resident centers at civilian as well as military locations in the U.S. and Europe. This global network became known as the International Campus in 1979 and now provides flexible educational services to over 26,000 working adults. Embry-Riddle offers three masters level programs at many of these International Campus locations.

In 1978 Embry-Riddle introduced its Western Campus in Prescott, Az. This campus is situated on 510 acres and boasts of superb flying weather, making it an outstanding educational facility.

The Independent Studies program was established in 1980 to serve individuals in the aviation industry who, for various reasons, are unable to attend regularly scheduled classes. Curricular requirements are satisfied by completing a series of independent study courses developed by the University that consist of study guides and audio cassette tapes in addition to textbooks.

Career opportunities in national and international sectors continue to multiply. Embry-Riddle will continue to provide the technically and academically trained personnel needed for the future.

Embry-Riddle is truly an international university. Students from many countries attend ERAU classes. The foreign students comprise approximately one-tenth of the total ERAU student body and constitute another important element in the total educational exposure for

students. Aviation is an international business, and the University faculty and staff believe that the mixing of U.S. and foreign students is a valuable experience for all.

## **Accreditations and Affiliations**

Embry-Riddle Aeronautical University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (SACS). The Bachelor's Degree program in Aeronautical Engineering at the Daytona Beach Campus is accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET). The Bachelor's Degree program in Aircraft Engineering Technology is accredited by the Technology Accreditation Commission (TAC) of ABET.

Federal Aviation Administration (FAA) approved certification programs include Maintenance Technology (Airframe and Powerplant) and Flight (Private, Commercial, Instrument, Multi-Engine, Flight Instructor and Instrument Flight Instructor ratings). Additionally, a number of the University's degree programs have recently been identified by the FAA as meeting the criteria of the model Airway Science Curriculum which was developed by the FAA in conjunction with the University Aviation Association. This recognition provides additional career opportunities for Embry-Riddle graduates.

Embry-Riddle is also a member institution of the Service Members Opportunity Colleges (SOC) four year and associate degree programs (SOCAD and SOCNAV). As a member, Embry-Riddle recognizes the unique problems confronting active duty service personnel in achieving their educational goals and thus, offers a Contract for Degree arrangement. This arrangement enables students enrolled in ERAU courses and programs at International Campus locations, who are subsequently reassigned on military orders to installations not served by the University, to complete their degree programs.

Students interested in applying for a Contract for Degree may obtain additional information and application forms from ERAU Directors or Registrars at the resident centers or write the International Campus Director of Records and Registration, Embry-Riddle Aeronautical University, Star Route Box 540, Bunnell, FL 32010.

# University Campuses

## DAYTONA BEACH CAMPUS

Since moving to Daytona Beach in 1965, the ERAU Daytona Beach Campus has grown from a small group of rented, World War II vintage buildings to a modern, multi-million dollar complex dedicated to aviation education and located adjacent to the Daytona Beach Regional Airport.

This ideal site allows easy airport access and year-round flying weather for the campus fleet of 45 Cessna 172, 172 RG, and 303 Crusader aircraft.

The flight center, located on the border of the airport, is named the Gill Robb Wilson Aviation Technology Center and houses classrooms, single and multi-engine simulators, a weather room and dispatch headquarters.

Near the flight center is the Samuel Goldman Aviation Maintenance Technology Center. Here, instruction is given in maintenance and repair of fixed-wing and helicopter airframes, powerplants (reciprocating and turbine), and avionics. This four building complex contains laboratories and classrooms equipped with the most modern tools to provide the student with aircraft maintenance theory as well as "hands-on" techniques for readying aircraft for flight. Three laboratories are dedicated to Avionics Technology training including basic electronics, digital and avionics labs. The avionics lab (FAA Certified Repair Station 707-50) is designed and equipped with state of the art equipment to simulate the avionics environment that students will encounter upon graduation.

Engine test cells (both reciprocating and turbine) provide students with an exceptional means for determining how well the engine they have just repaired and assembled performs in a "live" situation. The advanced reciprocating engine lab is FAA Certified Repair Station 708-55, and overhauls engines for the ERAU fleet as well as privately owned aircraft.

Adjacent to the Maintenance Technology Center is the Engineering Science Laboratories building. This facility, designed for the Aeronautical Engineering and Aircraft Engineering Technology programs, houses subsonic and supersonic wind tunnels and a smoke tunnel. These enable the student to visualize complex air flow patterns and to measure flow velocity, pressure distributions, and aerodynamic forces on airfoil and airplane models. This building also includes structures, materials, aircraft design and composite materials laboratories, as well as the latest in computer technology including a CAD-CAM design system.

The Lindbergh Center, near the Engineering Science Laboratories, provides modern classroom facilities for students pursuing various

degree programs and is home to reading, chemistry and physics laboratories. The computer science programs taught here offer programming in five languages, and provide excellent "hands-on" experience through computer labs.

Next to the Lindbergh Center is the new Jack R. Hunt Memorial Library. This facility offers a wide variety of information to support the research requirements of students. Open seven days a week, the library is staffed by professionals who teach students to access pertinent resources. In addition to an outstanding aviation collection, many other curriculum support materials are available in a variety of formats.

Across from the library is the University Center, an area set aside for student cultural development and activities. Within the Center are a full-service cafeteria, a fully-equipped bookstore, mailroom, cashier, the Career Planning and Placement Center, Cooperative Education, Student Employment, the Counseling Center, Health Services, the Flight Deck grill and meeting rooms. Social events are regularly scheduled by the Director of Student Activities. An atmosphere of informal relaxation characterizes the University Center, where there are many opportunities to exchange viewpoints with other students and to meet foreign students from over 70 different countries.

The recreation area is next to the University Center and includes intramural fields, swimming pool, racquetball courts and a Nautilus fitness center operated by the Student Government Association.

Both on-campus and off-campus accommodations are available to students who prefer to reside in University-managed housing. On-campus facilities include a three-story residence hall and a two-story residence hall which, when combined with the University's two off-campus apartment complexes, house over 1,100 students. All facilities are coeducational and fully staffed with professional supervisors.

For those desiring non-University housing, the Off-Campus Housing Office maintains a referral service of units in the Daytona Beach area for both married and single students.

## PRESCOTT CAMPUS

The Western Campus of ERAU is located in Prescott, Arizona, 100 miles north of Phoenix. Here in one of the most picturesque portions of the Grand Canyon State, a mile above sea level, students can pursue an education on a fully equipped campus surrounded by unsurpassed beauty.

With modern classrooms, resident halls and the latest in equipment and facilities, Prescott provides the highest caliber programs. In addition to the Aeronautical Science degree program, Prescott offers baccalaureate degrees in Aeronautical Studies, Aviation Business Administration, Professional Aeronautics, Aeronautical Engineering and Electrical Engineering.

Flight instruction is given in the ERAU Prescott fleet of Cessna single engine trainers and Piper Seminole multi-engine aircraft. All of these contemporary aircraft are equipped with the most technically advanced equipment. Flight operations are conducted from the Flight Training Center at the Prescott Municipal Airport just minutes from the campus. In addition, Prescott provides single and multi-engine aircraft simulators to enhance the students' ability to perfect their flying technique. Prescott's pride is its Flight team, which competes in regional and national air meets sponsored by the National Intercollegiate Flying Association.

Air Force and Army ROTC are available to all qualified men and women. ROTC studies prepare students for active duty assignments as commissioned officers in their respective services.

On the Prescott campus, students learn the aviation business from professionals. The majority of the faculty have a solid aviation background in addition to superb academic qualifications. On the ground and in the air, students benefit from the knowledge of former airline pilots, Navy and Air Force aviators, FAA inspectors, meteorologists and a host of other aviation professionals.

The smaller size of the student body at Prescott benefits both students and faculty. With a lower student-teacher ratio, students benefit from individual attention in the classroom and on the flight line. They also benefit from a professionally staffed, modern 25,000 volume Library that includes special education materials, newspapers, magazines, and other periodicals. Nearby is the audio-visual center where students may use a wide range of sophisticated electronic learning aids.

Another outstanding facility is the campus auditorium. Used for seminars, workshops, and many other events, this 375 seat facility has superb acoustics, and is equipped with two concert grand pianos, theatrical lighting, and complete audio visual systems.

Because Prescott is located in one of the finest recreational areas in the Southwest, students, faculty and staff enjoy an unlimited variety of outdoor recreational opportunities. Hiking, skiing, boating, rock climbing, lake fishing, and river rafting, along with the Grand Canyon, Indian country, ghost towns and Arizona deserts within a two hours drive. Within six hours driving time, one can enjoy the beaches, deep-sea fishing and other attractions of southern California; the international flavor of old Mexico with its fiestas, bullfights, shopping bargains; or Broadway shows and big name entertainment at Las Vegas.

On campus, the Student Activities Department, in coordination with the Student Association, organizes a wide range of activities including dances, barbecues, concerts, movies and special events. The Student Activities Department sponsors intramural athletic competition in many popular team, dual and individual sports, as well as intercollegiate club activities in soccer and rugby. Campus recreational facilities include a gymnasium, weight room, swimming pool, racquetball courts, jogging trails and a game room.

The city of Prescott also has much to offer students. Recently named one of the "10 Most Livable Cities in America" by a national news magazine, it boasts an old west tradition going back to the world's oldest rodeo held on the 4th of July. Due to its mile high location, and mild four season climate (it enjoys 350 flying days a year), Prescott has become a popular retirement and tourist community. A city of about 25,000, with an equal number of people living in a 30 mile radius, Prescott has one of the most complete recreational programs in the Southwest.

With its beautiful natural surroundings, complimented by two golf courses, 16 tennis courts, a half dozen fishing lakes, and many other recreational opportunities, Prescott offers something for everyone. But most of all, it offers the finest aviation education in the world.

## INTERNATIONAL CAMPUS

More than fifteen years ago, Embry-Riddle recognized that many of those employed in both the military and civilian sectors of the aviation industry were subject to frequent temporary absences from home, frequent changes in location, and irregular work schedules. At the same time, it was clear that these working professionals were most eager to pursue an aviation higher education. However, their occupational and personal commitments prevented them from enrolling in a conventional university program with routine daytime class periods. Thus, the University opened its first resident center at Fort Rucker, Alabama in 1970. Classes were, and still are, scheduled to complement the work schedules of the student population. Classes may meet in the very early morning, during lunch periods, in the evenings, on weekends, or at any other time that serves the needs of the students. Likewise, term lengths are variable from eight to twelve weeks. Since 1970, the adoption of these and other innovative methods of instruction has stimulated the International Campus network of education centers to grow to more than 80 sites extending from Hawaii to western Europe. Roughly half of the locations are spread throughout the continental United States and Hawaii, while the balance are situated in England, West Germany, Spain, Italy, and the Netherlands.

The resident centers offer associates', bachelors', and masters' degree programs in a variety of aviation specialties to civilians from all segments of the aviation industry and to members of the United States Air Force, Army, Coast Guard, Marine Corps, and Navy. Many centers are located on military installations and are authorized to enroll civilian government employees, dependents, and local civilians in addition to servicemembers. The International Campus serves Florida from south of Miami up the coast to Cape Canaveral and inland to Orlando in the center of the state. This region is home for many domestic air carriers, manufacturers of aircraft, aircraft components and equipment, a large FAA contingent, and Air Force installations, and is served by many other domestic and foreign air carriers. The

concentration of aviation professionals in this area of Florida provides an excellent pool of top notch aviation faculty and guest lecturers. All resident centers are approved by the appropriate agencies of the states in which they are located and for veterans educational benefits.

The International Campus maintains a comprehensive system of academic quality control. The curricula and academic standards and policies are identical to those used throughout the University. Course content is standardized through the course outlines, textbooks, and instructional support materials supplied to all International Campus locations by the Department of Academic Standards and Support. A student can move from one center to another confident that previous work will synchronize perfectly with courses at the new site. To keep pace with the needs of today's student, the University is introducing more and more computer applications into its full range of course offerings. Faculty selection is based upon the currency and relevancy of academic credentials and professional experience. American and foreign aviation executives, professional pilots, military and civilian technical specialists and professors from prestigious academic institutions are prevalent among the International Campus graduate and undergraduate faculty. All faculty candidates are reviewed and approved by the International Campus Dean of Academics.

Resident center students have some unique advantages over their colleagues at more traditional campuses. Their efforts in the classroom are concurrent with their work. A special exchange of knowledge occurs which enhances the relevance and value of both activities. They often study with faculty who are actively involved in the current challenges of aviation and business and have the opportunity to witness, first-hand, the application of the newest tools and techniques. The resident center student graduates with a unique and valuable combination of academic and experiential credentials.

# Admission To The University

## GENERAL PROCEDURES

### Daytona Beach and Prescott Campuses

To apply for admission to programs at the Daytona Beach, Florida or Prescott, Arizona campuses, send the below-listed items to:

Embry-Riddle Aeronautical University  
Department of Admissions  
Executive Offices  
Star Route, Box 540  
Bunnell, Florida 32010  
(800) 222-ERAU

1. Completed application form and \$25 application fee as early as possible but not later than 60 calendar days\* prior to desired enrollment date;
2. Official copy of high school academic records (must be sent directly to Embry-Riddle by the high school),  
OR  
evidence of completion of the General Education Development Test (GED). (Scores must be sent directly by the testing agency);
3. FAA Medical Certificate, Class I or II, at least 60 calendar days prior to desired enrollment date (only required of flight students);
4. Students for whom English is not the primary language must either attain a minimum score of 500 on the Test of English as a Foreign Language (TOEFL), or achieve a grade of "C" or higher in the Level 9 Reading and Writing courses conducted by an English Language Services (ELS) Center. Results must be sent directly to Embry-Riddle by the testing agency;
5. \*\*ACT or SAT scores (must be sent directly to Embry-Riddle by the testing agency or included on the official high school transcript). Since these tests are given several times a year on a nationwide basis, the student *must* take the test before arriving on the Prescott or Daytona Beach Campuses. Students should contact their high school guidance counselor or principal to determine the location of the nearest testing center. When a student registers for the test, he or she should indicate in the proper space that a transcript of the scores should be sent to Embry-Riddle.

\* Applications and other documents required for admission received fewer than 60 calendar days prior to the desired enrollment date will be processed but students can



expect delays in date of admission and enrollment.

\*\* Not required for foreign or International Campus students.

ALL APPLICABLE ITEMS MUST BE RECEIVED BEFORE THE UNIVERSITY CAN COMPLETELY PROCESS THE APPLICATION.

Students accepted for admission must submit a \$150 advance tuition deposit to the Department of Admissions within 30 calendar days of notice of acceptance in order to confirm the offer of admission. The advance tuition deposit is refundable, provided the Department of Admissions is notified in writing of the student's intention not to enroll at least sixty calendar days before the first day of registration for the trimester in which the student was to have first enrolled.

If the prospective student misses the deadline for the advance tuition deposit refund, the deposit is held in the student's account for one year should the student decide to enroll at the University during that period. After one year, the deposit is permanently forfeited.

A prospective student who cancels an application at any point in the admission process may reactivate the application at no additional charge during the ensuing twelve months at any time up to the admission deadline for the same trimester of the next academic year. After that time, a new application, fee, and supporting documents must be submitted.

## International Campus

To apply for admission to International Campus locations:

- Contact the ERAU representative at the nearest resident center.
- Independent Studies Program, contact:  
Director, Center for Independent Studies  
Embry-Riddle Aeronautical University  
Regional Airport  
Daytona Beach, FL 32014
- South Florida programs, contact:  
Director, South Florida Center  
Embry-Riddle Aeronautical University  
Executive Airport  
5601 N.W. 15th Avenue  
Fort Lauderdale, Florida 33309  
(305) 493-8788

For more information about International Campus programs and specific resident center locations, contact the Dean of Academics, International Campus or the nearest resident center.

## PROCEDURES FOR FOREIGN STUDENTS\*

\*Refers to nonresident, nonimmigrant students on a United States F-1 or J-1 visa.

To apply for admission to programs at the Daytona Beach, Florida or Prescott, Arizona Campus, send the below-listed items to:

Embry-Riddle Aeronautical University  
Department of Admissions  
Executive Offices  
Star Route, Box 540  
Bunnell, Florida 32010

1. Completed ERAU application for admission and \$50 application fee at least 180 calendar days prior to desired enrollment date;
2. A detailed evaluation of foreign college transcripts, if applicable, by Educational Credentials Evaluators, Inc., PO Box 17499, Milwaukee, WI 53217. The evaluation must be sent directly to ERAU by the evaluator. (This agency charges a fee for this service.)
3. A Test of English as a Foreign Language (TOEFL) minimum score of 500 is required of all students for whom English is not the primary language or students must have achieved a grade of "C" or higher in the Level 9 Reading and Writing courses conducted by an English Language Services (ELS) Center. Results must be sent directly to Embry-Riddle by the testing agency.
4. A bank letter, affidavit of financial support or scholarship letter.

**THESE ITEMS MUST BE RECEIVED BEFORE THE UNIVERSITY CAN FULLY EVALUATE THE APPLICATION.**

If accepted for admission, the prospective foreign student must:

1. Submit an advance deposit of \$5,000 to the Department of Admissions. Upon receipt, the University will send a letter confirming enrollment and issue a Form I-20: Certificate of Eligibility.
2. Present the Certificate of Eligibility to a U.S. Embassy or Consulate to obtain a visa for entry into the United States. (The I-20 must be in the student's possession prior to departure from home country.)

## TRANSFER STUDENT PROCEDURES

Transfer students are those who have earned academic credit from another institution of higher education.

To apply for admission as a transfer student, all items listed under General Procedures must be provided, plus the following additional items:

1. Official transcripts from all other previously attended institutions of higher education (*transcripts must be sent to ERAU directly from the institution*).

2. Upon request only, the catalog(s) from such institutions with the descriptions of courses satisfactorily completed marked therein.

## TRANSFER CREDIT

1. Transfer credit may be granted under the following conditions:
  - (a) Only the credit hours for courses completed with a grade of C or better, or the equivalent as determined by ERAU are transferable.
  - (b) Grades are not transferable.
  - (c) Previous flight experience may be accepted in accordance with the ERAU policy as stated in the Advanced Standing section of this chapter.
  - (d) Credit hours are transferable if earned at collegiate institutions which are accredited by the appropriate regional accrediting agency. Credit will be accepted only if it was earned within the seven calendar years immediately preceding transfer to ERAU. ERAU has sole discretion in determining which and how many transfer credit hours will be accepted toward degree requirements.
  - (e) Embry-Riddle evaluates previous academic credit on a course-by-course basis. Acceptable transfer work will be indicated on the ERAU transcript. If the work is not applicable to the student's degree program at Embry-Riddle, the work will be considered as electives in excess of minimal degree requirements. The level of credit (upper or lower division) is determined by the college or university initially granting the credit, regardless of the level of the ERAU equivalent course.
2. Students who have been granted credit for the first level English and mathematics courses appropriate to their degree are exempt from placement testing requirements. All other students, except those who are exempted on the basis of their ACT or SAT scores, will be required to take the examinations described under Basic Skills Requirement and will be subject to ERAU regulations governing these tests.
3. Students on academic probation at the last institution attended will be placed on probation when enrolled. They must earn a grade point average of at least 2.0 the first trimester or they will be subject to possible suspension.
4. Embry-Riddle may, in its discretion, require an evaluation examination for any course submitted for transfer credit if there is doubt concerning the equivalency of the transfer course with a similar course offered at Embry-Riddle.
5. The transfer student's records (transcripts, etc.) will be evaluated according to the rules, regulations and policies in the Catalog and in University Standards in effect at the time of enrollment and registration, on campus or at a resident center, as a

degree candidate. After evaluation, the student will be advised by the University of the status of credit transferred.

## READMISSION TO THE UNIVERSITY

A Daytona Beach or Prescott Campus student whose attendance at the University is interrupted may be required to apply for readmission. A new Application for Admission must be filed with the University Admissions Department in the following circumstances:

- a. A student enrolls for 12 or more trimester hours, or equivalent, with other educational institutions between two periods of attendance at the University.
- b. The student is not enrolled at the University for a period of two or more calendar years.

International Campus students should contact their Resident Center representative for information on readmission.

## ADVANCED STANDING

Advanced standing results from credit awarded for postsecondary educational, work and/or training experience or programs. Normally, all documentation of previous course work, military experience, credit by examination, and any FAA licenses should be submitted for evaluation along with the formal application for admission to the University.

At the Daytona Beach and Prescott Campuses, all academic evaluations for advanced standing will be completed *prior to the end of the student's first trimester* of attendance at (or readmission to) the University. Formal application for advanced standing for flight training must be made prior to the end of the student's first trimester of attendance at the Daytona Beach or Prescott Campus. International Campus students should submit this documentation with their applications for admission as degree-seeking candidates. The student will be provided a copy of the completed official evaluation and given 30 calendar days (International Campus: 60 calendar days) to question the credit awarded.

Advanced standing and transfer credit, granted in accordance with these procedures, will be authenticated by the Admissions Office and maintained by the Campus Records Office for official records purposes. An evaluation form will be provided to the student.

Examination scores, training in military service schools, and professional background experience may be submitted as a basis for admission to an advanced level. Credit may be awarded as follows:

1. The University offers advanced placement credit toward a college degree to those students who present official College Entrance Examination Board (CEEB) Advanced Placement Test scores of 5, 4 or 3 on any examination, and 2 or better on the Calculus examinations.
2. Embry-Riddle follows the standards recommended by the American Council on Education for awarding credit for the

College Level Examination Program (CLEP) General examinations. Scores on these tests must be submitted prior to initial enrollment as a degree candidate to be officially evaluated for credit. The disciplines and hours of credit recognized by Embry-Riddle for these examinations are as follows:

Communications	6 credit hours
Humanities	6 credit hours
Social Sciences	6 credit hours
Natural Sciences	6 credit hours
Mathematics	6 credit hours

3. The University has approved certain CLEP subject examinations, Defense Activity for Non-Traditional Educational Support (DANTES) examinations, and American College Testing program proficiency examinations (ACT PEP) for award of credit as applicable to the student's program. Scores on these examinations must be submitted prior to initial enrollment as a degree candidate to be officially evaluated for credit. Credit for these examinations may not be applied toward the last 30 credit hours required for a baccalaureate or the last 12 credit hours required for an associate degree. International Campus students may apply credit for approved examinations subsequent to their enrollment when advance authorization is granted by their Center or Area Director.
4. Training in military service schools will be considered for credit by each curriculum division, based on the recommendation of the American Council of Education.
5. Applicants with certain professional experience in areas related to the curriculum in which they request enrollment may be allowed credit toward advanced standing. Training and experience which satisfy educational objectives of courses in the applicant's curriculum may be credited for advanced standing.
6. Advanced standing may be granted for specific Aeronautical Science courses on the basis of flight related experience and training acquired prior to enrollment at Embry-Riddle. The student must provide documentation to substantiate his/her background to the appropriate Embry-Riddle authority *during the first trimester of attendance at the University*. If the student has attended an FAA approved flight school, a transcript of all flight training, signed by the school's Chief Instructor, must be provided.
7. International Campus students holding FAA Maintenance Certificates at the time of admission to a degree program are eligible for advanced standing in the ERAU Type 65 Aviation Maintenance Technology program (see the Guide to the Curriculum section for description of the Type 65 program) and will receive credit depending upon the ratings possessed.
8. Other degree programs for which holders of the FAA A&P Certificate may receive advanced standing are Aircraft Main-

tenance, Aviation Technology, Aviation Maintenance Management, Professional Aeronautics, and Aeronautical Studies with an area of concentration in AMT.

9. Holders of the FCC 1st Class Radiotelephone Operator's License, the FCC 2nd Class Radiotelephone Operator's License, or the FCC General Radiotelephone Operator's License may be granted advanced standing credit for EL 207 or EL 208 Basic Radiotelephone Equipment Theory and Operation.
10. Advanced standing information on the Professional Aeronautics degree is contained in the description of that degree in the Degree Programs chapter.

## COURSE EQUIVALENCY EXAMINATION

A student who possesses qualifications not listed above and who considers that his or her background warrants consideration for advanced standing may submit appropriate evidence of experience for evaluation, or the student may request administration of a course equivalency examination for specific courses. Flight experience will be evaluated in accordance with procedures outlined in the Advanced Standing section of this chapter.

Applications to take course equivalency examinations are to be filed at the Campus Records Office or Resident Center. A non-refundable fee of \$45 is charged for administering each written examination. The fee for a flight course equivalency examination depends upon aircraft utilization. An examination may be taken only once for each course. Students who fail an examination must take the course in residence.

## VETERANS

All ERAU degree programs have been approved by the appropriate state approving agencies for enrollment of veterans eligible for U.S. Veterans' Administration benefits under the various public laws.

Veterans planning to further their education under Veterans' Administration benefits at Embry-Riddle should contact the campus Veterans' Affairs Office for information and the appropriate application. Admission procedures for veterans are the same as those for other students.

- A. In order to continue receiving VA educational benefits at the Daytona Beach or Prescott Campus, degree candidates (regardless of program) must register for at least 12 credit hours per full trimester (six credits per summer term). Repeat courses do *not* count toward the 12 (or 6) credit hour requirement. Students should check with the campus Veterans' Affairs Office for more information.
- B. Students at International Campus locations should contact the appropriate ERAU resident center representative for information regarding VA benefits.

- C. All VA supported students, regardless of program, should read the following carefully:

Title 38, United States Code, sections 1674 and 1724, requires that educational assistance benefits to veterans and other eligible persons be discontinued when the student ceases to make satisfactory progress toward completion of his or her training objective.

Veterans' progress will be measured solely according to University standards, as published in this Catalog and the rules and regulations of the V.A. The criteria used to evaluate progress is subject to change. Application and interpretation of the criteria is solely in the discretion of ERAU. Students are solely responsible for maintaining compliance with V.A. requirements.

### **DEGREE COMPLETION PROGRAM/ ACTIVE DUTY MILITARY PERSONNEL**

All branches of the Armed Services offer various "Bootstrap" and degree completion programs to qualified personnel. Embry-Riddle offers assistance to the military applicant wishing to participate in one of these programs.

Upon application and receipt of all supporting documents, the International Campus Records Office will evaluate previously completed college courses, military education and experience to determine eligibility for advanced academic credit.

Each applicant receives a copy of the University evaluation form stating specifically the courses for which credit has been granted.

Applications must be submitted at least 90 calendar days prior to the proposed enrollment date.

### **REGISTRATION FOR HANDICAPPED STUDENTS**

Early registration for handicapped students may be arranged through the Department of Admissions. Eligibility to take advantage of this is contingent on proper forms being filed with this Department. Staff members will be available to provide necessary assistance to handicapped students for early registration.

# Guide To The Curriculum

## DEGREE PROGRAMS

Embry-Riddle Aeronautical University reserves the right to terminate or modify program requirements, content, and sequence of program offerings from trimester to trimester for educational, financial or other reasons which it determines are sufficient to warrant such action.

The University currently offers the following degree programs:

### Bachelor of Science

- Aeronautical Engineering — D,P
- Aeronautical Science — D,P,I
- Aeronautical Studies — D,P,I
- Aircraft Engineering Technology — D
- Airway Science — D
- Aviation Business Administration — D,P,I
- Aviation Maintenance Management — D,I
- Aviation Technology — D,I
- Avionics Technology — D
- Computer Science with Aviation Applications — D,P,I
- Electrical Engineering — P
- Professional Aeronautics — D,P,I

### Associate in Science

- Aeronautical Science — D,P,I
- Aircraft Maintenance — D,I
- Aviation Business Administration — D,P,I
- Aviation Safety — I
- Avionics Technology — D
- Professional Aeronautics — D,P,I

### Associate

- Aviation Maintenance Technology — D

### Master of Science

- Aeronautical Engineering — D



## Master

- Aeronautical Science — I
- Aviation Management — I
- Business Administration/Aviation — I

I Available at International Campus Locations.

P Available at the Prescott Campus.

D Available at the Daytona Beach Campus.

## Areas of Concentration

Students enrolled in the Aeronautical Studies and Airway Science baccalaureate degree programs are required to select a particular area of concentration. These areas of concentration consist of courses — supplemental to the core courses — which provide entry level career focus by imparting specialized knowledge and skills. Specific career options are determined to a large degree by the area of concentration selected by the student.

Areas of Concentration in the Professional Aeronautics degree program are determined by the professional aviation background possessed by the student.

Most of the other baccalaureate degree programs contain a sufficient number of elective courses to enable students to pursue their special interests outside of the basic degree in areas such as flight, management, etc.

## BASIC SKILLS REQUIREMENT

Embry-Riddle recognizes the importance of communications and related skills in all areas of aviation. Successful pilots, airport managers, aviation maintenance technicians or other aviation professionals must possess these skills in order to perform their jobs effectively. Because of this, Embry-Riddle requires all students to demonstrate proficiency in the areas of expressive and receptive communications and quantitative skills. Proficiency may be demonstrated either by passing the Basic Skills Placement tests, making qualifying scores on SAT or ACT tests, or transferring credit for first level English and Mathematics courses. If proficiency is not demonstrated as stated above, students must enroll in the Basic Skills Courses described below.

The Reading and Study Skills course (HU 117) offers methods of developing the reading and listening skills necessary for effective communications. The Developmental English course (HU 106) trains students in writing and speech. The Quantitative Skills course (MA 105) helps to prepare students for the introductory mathematics courses in the various curricula such as MA 111, MA 120 and MA 140.

Proof of proficiency in the above basic skills areas is required during the student's first trimester. All new students (including transfer students) must either register for the basic skills courses or successfully

# Guide To The Curriculum

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- Aircraft Engineering Technology — D
- Airway Science — D
- Aviation Business Administration — D,P,I
- Aviation Maintenance Management — D,I
- Aviation Technology — D,I
- Avionics Technology — D
- Computer Science with Aviation Applications — D,P,I
- Electrical Engineering — P
- Professional Aeronautics — D,P,I

### Associate in Science

- Aeronautical Science — D,P,I
- Aircraft Maintenance — D,I
- Aviation Business Administration — D,P,I
- Aviation Safety — I
- Avionics Technology — D
- Professional Aeronautics — D,P,I

### Associate

- Aviation Maintenance Technology — D

### Master of Science

- Aeronautical Engineering — D

## Master

- Aeronautical Science — I
- Aviation Management — I
- Business Administration/Aviation — I

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Proof of proficiency in the above basic skills areas is required during the student's first trimester. All new students (including transfer students) must either register for the basic skills courses or successfully

complete the University placement tests before they will be permitted to complete their registrations. Some students may exempt these basic skills courses based on their ACT or SAT scores.

Students for whom English is not the primary language will be tested and required to demonstrate advanced English proficiency by achieving a satisfactory score on the test. Students lacking in such proficiency will be required to take appropriate basic skills courses in their first trimester of attendance at ERAU.

**NOTE:** The Basic Skills courses do not apply toward minimum degree requirements. These courses are provided to assist the students' transition to first level curriculum courses.

## GENERAL EDUCATION REQUIREMENTS

Embry-Riddle's baccalaureate programs are intended to provide students the opportunity to acquire (1) sufficient specialization for the student to enter the aviation field; (2) sufficient general management and/or technical training for the student to advance in his chosen career field; (3) sufficient general education background for the student to lead a meaningful, responsible life in a complex democratic society; and (4) sufficient communications background to give, receive, or exchange information effectively.

The following general education requirements must be completed by all candidates for the bachelor's degree:

DISCIPLINE	CREDITS
Communicative Skills	9
Technical Report Writing	3
Other Humanities/Social Sciences	6
Mathematics	6
Physical Science	6
Economics	3
Computer Science	3
	<hr/>
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## AERONAUTICAL ENGINEERING

Embry-Riddle offers the Bachelor of Science degree in Aeronautical Engineering at the Daytona Beach and Prescott campuses.

The Aeronautical Engineering program provides the student the opportunity to acquire specific aircraft design skills, as well as a broad exposure to theory and modern analysis, measurement, communica-

tions and computational techniques essential for a wide range of entry level engineering positions in the aerospace industry.

## **ELECTRICAL ENGINEERING**

Embry-Riddle offers a Bachelor of Science degree in Electrical Engineering at the Prescott Campus.

The Electrical Engineering program provides the student with the opportunity to acquire a broad background in circuit theory, communication sciences, computers, control systems, electromagnetic fields, energy sources and systems, materials and electronic devices. The student also gains specialization in avionics appropriate for entry level engineering positions in the aerospace industry. This added emphasis in avionics places the ERAU Electrical Engineering program in a unique position compared to others and increases student employment opportunities after graduation.

## **AIRCRAFT ENGINEERING TECHNOLOGY PROGRAM**

The Aircraft Engineering Technology program at the Daytona Beach campus is designed to provide the aerospace industry with graduates trained to fill support and liaison roles related to aeronautical engineering activities. The course work concentrates on the application of scientific and engineering principles.

## **COMPUTER SCIENCE PROGRAM**

In recognition of the rapidly expanding usage of computer technology in the aviation industry, the Computer Science degree program is offered to prepare students for careers as computer specialists. The Bachelor of Science in Computer Science with Aviation Applications consists of a solid foundation in general education requirements (Mathematics, Physical and Social Sciences and Humanities), a core curriculum in Computer Science subjects, and sufficient electives for each student to develop an individual area of specialization.

## **AVIATION MAINTENANCE TECHNOLOGY PROGRAMS**

Embry-Riddle has been training aviation maintenance technicians since 1926. The Aviation Maintenance Technology (AMT) Division moved into the Samuel Goldman Aviation Maintenance Technology

Center on the Daytona Beach Campus in 1977. Maintenance technology training may be taken as an integral part of the Associate in Aviation Maintenance Technology, the Associate in Science in Aircraft Maintenance, Bachelor of Science in Aviation Technology, and the Aviation Maintenance Management programs. In addition, the AMT courses may be pursued as an Area of Concentration in other selected degree programs and/or selected courses may be used as elective credit in most ERAU degree programs.

## **AIRFRAME AND POWERPLANT TECHNOLOGY**

Embry-Riddle offers two distinct types of AMT degree programs for students who wish to prepare for the FAA Airframe and/or Powerplant (A&P) examinations and/or pursue degree programs which require that knowledge and skill. AMT degree programs are not available at the Prescott Campus.

Type 147: This program, offered only at the Daytona Beach Campus, presents a carefully selected blend of theory and practical applications, which provides the student an opportunity to prepare for, and upon successful completion establishes eligibility to take, the FAA Airframe and/or Powerplant examinations. Students perform actual repairs and overhaul of engines and accessories, including those used in Embry-Riddle's fleet of aircraft. Other academic courses may be taken concurrently (including Avionics Technology) to minimize the time and expense necessary to meet degree requirements. The Samuel Goldman AMT Center at the Daytona Beach Campus is fully approved under Part 147 of the Federal Aviation Regulations and holds Air Agency Certificate No. 277 and FAA Repair Station Certificate No. 708-55.

Type 65: Embry-Riddle offers special AMT courses to students on the International Campus who are experienced but unlicensed aircraft maintenance specialists. These courses deal largely with the theory and concepts of all aspects of airframe and powerplant maintenance and with the problems, considerations and practices involved in maintaining aircraft in an airworthy condition. The courses, together with the on-the-job experience, and/or successful completion of the A&P examinations, may be applied toward meeting the requirements of various ERAU degree programs. Type 65 courses are offered at various centers of the International Campus.

## **AVIATION TECHNOLOGY**

The Bachelor of Science degree in Aviation Technology uniquely prepares the student for a career in aviation by merging Avionics/Aircraft Maintenance, Avionics/Flight or Aircraft Maintenance/Flight options with general education courses. Graduates of the Aviation Technology program are qualified for challenging careers with major airlines, fixed base operations, aircraft manufacturers and aerospace industries.

## **AVIONICS TECHNOLOGY**

The Avionics Technology program prepares individuals for challenging careers in aviation high technology as Avionics technologists and technicians. The program provides an understanding of electronics theory, avionics system theory, avionics equipment operation and repair, system design analysis, logistic support, and a strong foundation in general education. The University offers programs in Avionics Technology that lead to a Bachelor or Associate in Science degree. Avionics Technology can also be applied to various degree programs as an area of concentration.

## **BUSINESS ADMINISTRATION PROGRAMS**

The University offers three degree programs to prepare students for managerial roles in the Aviation Industry. Aviation Business Administration is the primary four year degree allowing students to prepare for a career in any aspect of business, and it includes a particular focus on the needs of the aviation industry. Aviation Business Administration — Capstone is a two-year upper level program designed for students who desire to enter the business field at the beginning of their junior year. The four year degree program in Aviation Maintenance Management is more narrowly focused on the supervisory role and technological requirements of aviation maintenance activities. All three programs provide sufficient electives for students to pursue certain individual specializations for career objectives within the field.

## **FLIGHT PROGRAMS**

All flight training which is encompassed in various degree programs at Embry-Riddle utilizes late-model, fully-equipped training aircraft. Aircraft type and flight configuration are optimized for the given training location and environment.

Mockups, procedures trainers, part-task trainers, and simulators provide the student with a safe, flexible and cost-effective training environment. As with aircraft types, the controlled environment training configuration is optimized to the location and training environment.

The ERAU flight training program uses the "Gemini-Flight" concept whereby two students fly together on dual instructional flights. One student flies the aircraft, and the other student participates from the rear seat while the instructor conducts the lesson. The concept increases and reinforces the learning experience of both students without additional expense to the student.

Flight training may be taken as an integral part of the Aeronautical Science degree program, as an area of concentration in other selected degree programs, or as elective credit in most degree programs. The student is cautioned to investigate the applicability of specific courses to specific degree programs prior to making the commitment and investment.

The flight training programs at the Daytona Beach and Prescott Campuses operate under different FAA General Aviation District Offices and therefore may differ in specific rules, regulations and requirements. **THE STUDENT WILL BE RESPONSIBLE FOR ADHERING TO ALL RULES, REGULATIONS AND PROCEDURES CONTAINED IN THE LOCAL CAMPUS BULLETIN AND FLIGHT OPERATIONS MANUAL.** These University and FAA rules and regulations are incorporated herein by this reference.

## ADULT EDUCATION

The University recognizes that many working adults who are eager to pursue higher education in aviation may be prevented from enrolling in a conventional university program with routine daytime class schedules due to occupational or personal commitments. Embry-Riddle's International Campus schedules classes in the evenings and on weekends to complement the work schedules of this working adult student population. Likewise, term lengths vary from 8 to 12 weeks. The network of more than 80 resident centers in the U.S. and Europe facilitates degree completion for military and civilian students whose education would otherwise be disrupted by change of job location.

## INDEPENDENT STUDIES

Although the network of resident centers continues to make aviation higher education available to an increasingly greater share of the aviation population, a sizeable group remains unserved. The industry employs many people at remote, isolated locations which are not served by a resident center and whose work schedules are regular only in their irregularity. The Center for Independent Studies was developed to provide this group with an opportunity to study. The general education degree requirements may be completed through regionally accredited local colleges or universities or nationally standardized testing programs (CLEP/DANTES). The aviation oriented and other curricular requirements are satisfied by completing a series of independent study courses developed by the University. The instructional materials for each course include textbooks, study guides, and audio cassette tapes. Twelve weeks are allowed to complete a course which culminates with a proctored, comprehensive final examination. There is no requirement for on-campus study.



## GRADUATE PROGRAMS

For the bachelor degree holder seeking advanced study in aeronautical science and management of aviation entities, three program alternatives are available at the Master level.

The Master of Business Administration in Aviation (MBA-A) blends further development of management skills, tools and techniques with study of the unique features of the aviation industry, placing emphasis on the educational needs of the practitioner. The Master of Aeronautical Science (MAS) incorporates study in the major technical specialties of aviation. The technically oriented students in this program probe the state of the art in areas such as air traffic communications and control, aircraft systems, maintenance management, safety and accident investigation, and then select areas of study suited to individual career preferences. The Master of Aviation Management (MAM) departs from the more conventional business administration curriculum by weighting the course of study in favor of the managerial skills most useful to the leaders of teams of aviation specialists. Greater opportunity is available to tailor one's program to the operational challenges of a particular part of aviation.

For more information, request a current Graduate catalog by contacting one of the following:

1. The nearest Embry-Riddle Resident Center location.
2. The Director, Student Records and Registration, International Campus, at the Bunnell, Florida address given in the front of the catalog.

## AIR TRAFFIC CONTROL

ERAU currently participates in cooperative agreements with several of the Federal Aviation Administration (FAA) Regions. Students who meet the eligibility requirements and are selected by the FAA can, upon approval by ERAU, gain on-the-job training in air traffic control career positions while earning college credits. Students who successfully complete two six-month internship periods at an Air Traffic Control Center and all other requirements for the Bachelor's degree are eligible to apply for non-competitive, career-conditional appointments with the FAA. For more information, contact the Career Center at the Daytona Beach Campus or the Office of Student Development at the Prescott Campus.

## COOPERATIVE EDUCATION

The Cooperative Education (Co-op) concept is based on the theory

that learning is reinforced by practical work experience. The Co-op program is optional and open to full-time undergraduate students enrolled in degree programs.

Through Co-op, students are provided an opportunity to bridge the gap between the classroom and the working world and can earn up to six credit hours per Co-op assignment, plus other significant benefits related to the selected career field and relevant to their chosen academic programs. Co-op also provides an opportunity to assess career goals and academic programs while earning wages commensurate with the work assignment.

To apply for the program, students must have a GPA of 2.25 or better, have completed their freshmen academics (first two trimesters), or, if transfer students, have completed one trimester at Embry-Riddle. Participation in the program requires the approval of the Co-op faculty advisor and the Co-op Education Department Director, attendance at a Co-op seminar, and the student's success in securing a position. Citizenship requirements may be specified by the employer. Final selection for a Co-op job is in the sole discretion of the employer.

Veterans should contact the Veterans' Affairs Coordinator to determine VA benefit options related to the Co-op program. Foreign students should contact the Foreign Student Advisor regarding visa requirements for working in the United States.

Students interested in the program should contact the Career Center, located in the University Center at the Daytona Beach Campus or the Office of Student Development at the Prescott Campus.

## **RESERVE OFFICER TRAINING**

Not all of the Reserve Officer Training Programs described below are available at all University Campuses or locations. The student should contact the University Admissions Office to determine program availability. Reserve Officer Training Programs are subject to the control of the service branch which sponsors them and are operated pursuant to the rules and regulations established by the service branch which may be changed from time to time without notice or obligation.

### **AIR FORCE RESERVE OFFICER TRAINING CORPS**

Embry-Riddle students may enroll in the Air Force Reserve Officer Training Corps (AFROTC) courses and receive open elective course credit in ERAU programs. Upon graduation, those students who successfully complete AFROTC may receive commissions as officers in the United States Air Force.

Any qualified student may pursue this opportunity provided he or

she has a minimum of four trimesters remaining at the University (AF-ROTC courses are not offered at ERAU during the summer term). The curriculum offers a choice of either a two or four-year program.

### **Four-Year Program**

Enrollment procedures for the first two years of the four-year program, the General Military Course (GMC), are the same as for any other college course. The student simply selects the appropriate AFROTC class during registration. Students in the GMC are under no obligation to the Air Force and may withdraw from the class in the same manner as they might withdraw from any other course. Those who decide to continue in the final two years, the Professional Officer Course (POC), receive a monetary allowance and incur an obligation to serve in the Air Force upon commissioning. Prior to entering the POC, each student must pass a medical examination, receive a competitive score on the Air Force Officer Qualifying Test (AFOQT), and complete a four-week summer field training session at an Air Force base.

### **Two-Year Program**

The two-year program is identical to the last two years of the four-year program but is preceded by a six-week summer field training session at an Air Force base. Two-year program students must also receive a competitive score on the AFOQT and pass an Air Force medical examination prior to attending field training.

### **Finances**

Textbooks for all AFROTC courses are free. Students enrolled in the POC receive a \$100-per-month tax-free subsistence allowance (up to a total of \$2000 for the two years). In addition, those attending summer field training receive travel pay to and from the Air Force base hosting the session plus free room and board and receive pay while attending the session.

Embry-Riddle students have enjoyed a high selection rate for AFROTC scholarships that pay full tuition, lab and incidental fees, textbooks, and the \$100 monthly tax-free subsistence allowance. Four-year scholarships are available, on a competitive basis, to high school graduates interested in Aeronautical Engineering while additional technical scholarships are reserved for students already enrolled in the AFROTC program at Embry-Riddle.

For information, contact AFROTC Det. 157, Embry-Riddle Aeronautical University, Daytona Beach, FL 32014, or AFROTC Det. 027A, Embry-Riddle Aeronautical University, Prescott, AZ 86301.

## **ARMY RESERVE OFFICER TRAINING CORPS**

The Army Reserve Officer Training Corps (ROTC) program provides an opportunity to acquire the skills and knowledge necessary for

commissioning as a lieutenant in the U.S. Army, U.S. Army Reserve or National Guard. The program offers both a four-year and two-year option. The two-year option allows students with at least two academic years remaining in either undergraduate or graduate studies to meet all requirements for commissioning. The ROTC courses may be applied toward open elective requirements in any degree program.

The Military Science curriculum is divided into three phases:

### **1. Basic Military Science**

The Basic Military Science courses are designed for four-year participants and are normally offered during the freshman and sophomore years. These courses address military organization, equipment, weapons, map reading, land navigation, use of a compass, grade structure, the Threat, communications, leadership, and physical training. The courses consist of both classroom and a mandatory lab.

### **2. Advanced Military Science**

The Advanced Military Science courses are normally taken during the junior and senior years. These courses specialize in small unit tactics, how to prepare and conduct military training, military justice system, staff procedures, decision making and leadership, managerial concepts, problem analysis, military writing, the ethic of the professional soldier, and physical training. The courses consist of both classroom and a mandatory lab.

### **3. Advanced Camp**

Prior to commissioning, each cadet must successfully complete an evaluation of the skills learned. This evaluation is conducted at Fort Bragg, NC, during June and July. Advanced camp requirements apply only to Advanced Military Science students.

### **4. Basic Camp**

A summer training program is offered for students who are academic juniors without previous ROTC or military training. This consists of a six-week course at Fort Knox, KY. This will qualify a student for entry into the Advanced Course, thus allowing completion of all requirements for commissioning within two years. Students attending the summer course at Fort Knox receive approximately \$800 pay.

All students in the Advanced Military Science Course receive a tax-free monetary allowance of \$100 per month.

Scholarships are available to qualified ROTC students. These scholarships provide full tuition, fees and required textbooks. Additionally, scholarship recipients receive \$100 tax-free per month.

Requisites for admission to the Basic Course are the following:

1. Be enrolled in a baccalaureate or master's program
2. Be at least 18 years of age at time of entry but not more than 28 years of age at time of graduation
3. Be a U.S. citizen.

Requisites for admission to the Advanced Course are the following:

1. Successful completion of Basic Course or equivalent
2. Successful completion of an Army officer qualifying test
3. Successful completion of an Army physical examination
4. Selection by the Professor of Military Science
5. Agreement to complete the Advanced Course requirements and serve on active, reserve, or National Guard duty as a commissioned officer
6. Maintain a 2.0 Academic and ROTC GPA.

All of the above are subject to the control of, and administered by and under the rules and regulations of the Department of the Army and are subject to change from time to time.

## MARINE CORPS COMMISSIONING

For freshmen, sophomores and juniors, the Marine Corps has the Platoon Leaders Class Program (PLCP). Freshmen and sophomores attend two six-week training sessions, and juniors attend one 10-week session at Quantico, VA.

There is no requirement to take military science courses or wear a uniform on campus while in college. Time spent in the PLC program counts for pay purposes while on active duty. There is no obligation to the program; candidates have until the end of their senior year to decide on their commission. A guaranteed pilot and flight officer program is available to qualified personnel.

For seniors, there is the Aviation Officer Candidate Program (AOC) and the Unrestricted Officer Candidate Program (OC). Guaranteed pilot and flight officer programs are also available. Application is made during the senior year and precommissioning training (10 weeks) occurs after graduation.

Applicants for either the PLC, AOC or OC Program are paid during the training.

These programs are subject to the control of, and administered by and under the rules and regulations of the U.S. Marine Corps and are subject to change from time to time.

NOTE: Additional information concerning financial assistance can be found in the Financial Assistance chapter of this catalog.

# Degree Programs

In this chapter, degree programs are grouped into several aviation disciplines:

- Aeronautical Engineering Program
- Aircraft Engineering Technology Program
- Electrical Engineering Program
- Aviation Computer Programs
- Aviation Maintenance and Technology Programs
- Aviation Business and Management Programs
- Flight Related Programs

At the beginning of each group, degree programs and related Areas of Concentration are listed. Within each degree program, listings show the courses, both required and elective, which must be taken to attain the degree. The listings are guides for arranging optimum sequences of courses with their prerequisites. In many cases, it is not mandatory that courses be taken in the exact order shown.

## AERONAUTICAL ENGINEERING PROGRAM

### *Aeronautical Engineering*

**Bachelor of Science**

#### ADMISSION REQUIREMENTS

To enter this program, students should have demonstrated a competence in mechanical drawing, mathematics, physics and chemistry in high school. They should be prepared to enter Calculus I, having demonstrated proficiency in algebra and trigonometry. Students can prepare themselves for this program, if required, by taking MA 140 College Algebra, MA 141 Trigonometry, and ET 101 Engineering Graphics at Embry-Riddle prior to taking MA 241 Calculus and Analytical Geometry I and ET 110 Drafting and Descriptive Geometry.

#### DEGREE REQUIREMENTS

The Bachelor of Science in Aeronautical Engineering degree program requires successful completion of a minimum of 136 credit hours. The program may be completed in eight trimesters and a summer term assuming appropriate background and full-time enrollment. The courses necessary to earn this degree are listed below.

TRIMESTER	COURSE NUMBER/TITLE	CREDITS
FIRST	ET 110 Drafting and Descriptive Geometry	2
	MA 241 Calculus and Analytical Geometry I	4
	PS 110 Chemistry for Engineers	5
	HU 122 English Composition and Literature I	3
	SS 110 World History OR	
	SS 120 American History	3
		<hr/>
		17
SECOND	MA 242 Calculus and Analytical Geometry II	4
	PS 201 Engineering Physics I	5
	HU 123 English Composition and Literature II	3
	CS 210 Scientific Programming	3
		<hr/>
		15
THIRD	ES 201 Statics	3
	MA 243 Calculus and Analytical Geometry III	4
	PS 202 Engineering Physics II	5
	HU 221 Technical Report Writing	3
		<hr/>
		15
FOURTH	ES 302 Solid Mechanics	3
	ES 303 Dynamics	3
	PS 303 Modern Physics	3
	HU 219 Speech	3
	MA 345 Differential Equations and Matrix Methods	4
		16
SUMMER SESSION (May be taken any summer term)		
	EC 210 Microeconomics OR	
	EC 211 Macroeconomics	3
	SS 210 Introduction to Sociology OR	
	SS 220 Introduction to Psychology	3
	ES 304 Fluid Mechanics	3
		<hr/>
		9
FIFTH	AE 301 Aerodynamics I	3
	AE 304 Aircraft Structures I	3
	ES 305 Thermodynamics	3
	MA 441 Advanced Engineering Mathematics I	3
	ES 307 Engineering Materials Science w/Lab	3
		<hr/>
		15
SIXTH	AE 302 Aerodynamics II	3
	AE 309 Experimental Aerodynamics	2
	AE 404 Aircraft Structures II	3
	AE 413 Airplane Stability and Control	3
	ES 402 Electrical Engineering I w/Lab	3
	HU/SS Elective (300-400 Level)	3
		<hr/>
		17

SEVENTH	AE 408	Turbine and Rocket Engines	3
	AE 420	Aircraft Preliminary Design	3
	AE 430	Control Systems Analysis and Design	3
	ES 405	Electrical Engineering II Technical Elective	3 3
			<hr/> 15
EIGHTH	AE 421	Aircraft Detail Design	3
	ES 410	Structures and Instrumentation Lab Technical Elective	2 3
	HU/SS	Electives (300-400 Level)	6
		Open Electives	3
			<hr/> 17
TOTAL			136

#### TECHNICAL ELECTIVES:

AE 399, 401, 402, 407, 411, 415, 425, 433, 499  
 ES 399, 403, 406, 408, 409, 412, 499  
 CS 335, 338, 350, 430  
 CE (AE): By Special Arrangement  
 MA 412, 430, 442, 443

Students may substitute upper level AF and MY courses or aeronautical certificates for a maximum of 6 credits of the Math/Technical electives.

#### HUMANITIES/SOCIAL SCIENCES ELECTIVES:

HU 300, 305, 310, 320, 330, 345  
 SS 310, 320, 331, 340, 398

Students may substitute other upper level HU/SS courses with approval of the Department Chair.

## AIRCRAFT ENGINEERING TECHNOLOGY PROGRAM

### *Aircraft Engineering Technology*

**Bachelor of Science**

#### ADMISSION REQUIREMENTS

Students entering this program should have a basic background in math, physics and chemistry. College algebra and trigonometry are entry level math courses. Students wishing to strengthen their backgrounds in the basic sciences before enrolling in the prescribed course sequence should consult the Department Chair for guidance in course selection.



## DEGREE REQUIREMENTS

The Bachelor of Science degree in Aircraft Engineering Technology requires successful completion of 130 trimester credit hours, as outlined in the course list below.

TRIMESTER	COURSE NUMBER/TITLE	CREDITS
FIRST	PS 101 Basic Chemistry	3
	HU 122 English Composition and Literature I	3
	ET 101 Engineering Graphics	2
	MA 140 College Algebra	3
	MA 141 Trigonometry	2
	SS 110 World History OR	
	SS 120 American History	3
	<hr/>	16
SECOND	PS 110 Chemistry for Engineers	5
	HU 123 English Composition and Literature II	3
	ET 110 Drafting and Descriptive Geometry	2
	MA 241 Calculus and Analytical Geometry I	4
	EC 210 Microeconomics	3
	<hr/>	17
THIRD	HU 219 Speech	3
	PS 201 Engineering Physics I	5
	MA 242 Calculus and Analytical Geometry II	4
	CS 210 Scientific Programming	3
	<hr/>	15
FOURTH	PS 202 Engineering Physics II	5
	MA 245 Applied Technical Mathematics	3
	SS 210 Sociology OR	
	SS 220 Psychology	3
	HU 221 Technical Report Writing	3
	ET 201 Technical Mechanics	4
	<hr/>	18
FIFTH	ET 301 Applied Aerodynamics I w/Lab	3
	ET 302 Applied Strength of Materials w/Lab	3
	ET 305 Applied Thermodynamics with Lab	4
	ET 312 Applied Electrical Science with Lab	4
	HU/SS Elective	3
	<hr/>	17
SIXTH	ET 304 Aircraft Structural Analysis w/Lab	4
	ET 307 Manufacturing Processes and Materials with Lab	4
	ET 308 Applied Aerodynamics II	3
	MS 105 American Business Enterprise	3
	HU/SS Elective	3
		<hr/>

SEVENTH	ET 303	Aircraft Drafting	3
	ET 401	Mechanical Design	3
	ET 402	Applied Instrumentation Lab	3
	ET 404	Aircraft Performance and Design MA/Technical Elective	3 3
			<hr/> 15
EIGHTH	ET 403	Aircraft Detail Design	3
	ET 405	Non-Destructive Testing and Quality Assurance with Lab	3
	ET 406	Aircraft Systems Analysis and Design	3
		MA/Technical Elective Open Elective	3 3
			<hr/> 15
TOTAL			130
<b>MATHEMATICS/TECHNICAL ELECTIVES:</b>			
	ET 399, 499		
	CS 301, 335, 350, 360		
	MA 412		
	PS 303		
	CE (ET): By Special Arrangement		

## ELECTRICAL ENGINEERING PROGRAM

### *Electrical Engineering*

Bachelor of Science

#### ADMISSION REQUIREMENTS

To enter this program, students should have demonstrated a competence in mathematics, physics, and chemistry in high school. They should be prepared to enter Calculus I, having demonstrated proficiency in algebra and trigonometry. Students can prepare themselves for this program, if required, by taking MA 140 College Algebra and MA 141 Trigonometry at Embry-Riddle prior to taking MA 241 Calculus and Analytical Geometry I.

#### DEGREE REQUIREMENTS

The Bachelor of Science in Electrical Engineering degree program requires 135 credit hours. The program can be completed in nine trimesters; four years if the student attends two summer terms. The courses necessary to earn this degree are listed below.

TRIMESTER	COURSE NUMBER/TITLE	CREDITS
FIRST	MA 241 Calculus and Analytical Geometry I	4
	PS 110 Chemistry for Engineers	5

	HU 122	English Composition and Literature I	3
	SS 110	World History OR	
	SS 120	American History	3
			<hr/>
			15
SECOND	MA 242	Calculus and Analytical Geometry II	4
	PS 201	Engineering Physics I	5
	HU 123	English Composition and Literature II	3
	CS 210	Scientific Programming	3
			<hr/>
			15
THIRD	EE 201	Linear Circuits Analysis I	3
	EE 203	Electrical Engineering Laboratory I	1
	MA 243	Calculus and Analytical Geometry III	4
	PS 202	Engineering Physics II	5
	HU 221	Technical Report Writing	3
			<hr/>
			16
FOURTH	EE 202	Linear Circuits Analysis II	3
	EE 204	Electrical Engineering Laboratory II	1
	EE 210	Electronic Devices and Circuits	3
	EE 212	Electronic Circuits Laboratory	1
	MA 345	Differential Equations and Matrix Methods	4
	ES 201	Statics	3
			<hr/>
			15
FIFTH	EE 220	Digital Circuit Design	3
	EE 222	Digital Circuit Laboratory	1
	EE 230	Operational Amplifiers and A/D-D/A Circuits	3
	MA 441	Advanced Engineering Mathematics I	3
	ES 303	Dynamics	3
	MA 412	Probability and Statistics	3
			<hr/>
			16
SIXTH	EE 303	Signals and Filters	3
	EE 320	Introduction to Computer Engineering	3
	EE 322	Computer Engineering Laboratory	1
	EE 340	Electric and Magnetic Fields	3
	ES 305	Thermodynamics	3
	HU 219	Speech	3
			<hr/>
			16
SEVENTH	EE 350	Control Systems Analysis and Design	3
	EE 360	Control Systems Laboratory	1
	EE 410	Communications Systems	3
	EE 412	Communications Systems Laboratory	1
	ES 307	Engineering Materials Science w/Laboratory	3
	*	Technical Elective	3
			<hr/>
			14

EIGHTH	HU/SS	Elective	3
	ES 403	Heat Transfer	3
	EE 420	Avionics Preliminary Design	3
	EC 210	Microeconomics OR	
	EC 211	Macroeconomics	3
	*	Technical Elective	3
			<hr/> 15
NINTH	EE 450	Elements of Power Systems	3
	EE 452	Power Systems Laboratory	1
	EE 421	Avionics Detail Design	3
	HU/SS	Electives	6
			<hr/> 13
TOTAL			135

\*Technical Electives: PS 303 and MA 443 are highly recommended.

Students may substitute upper level AF and MY courses or aeronautical certificates for a maximum of 6 credits of technical electives.

# AVIATION COMPUTER PROGRAM

## *Computer Science with Aviation Applications*

**Bachelor of Science**

### DEGREE REQUIREMENTS

The Bachelor of Science degree can be earned in eight trimesters assuming appropriate background and full-time enrollment. Successful completion of a minimum of 126 trimester hours of credit is required.

Students entering this program are expected to have completed a basic typing or word-processing course. Those who haven't should enroll in CS 101 - Introduction to Keyboard Operations during their first trimester of attendance. Students should have demonstrated a competence in mathematics and science (preferably in physics). They should be prepared to enter Calculus I, having demonstrated proficiency in algebra and trigonometry. Students can prepare themselves for this program by taking MA 140, College Algebra, and MA 141, Trigonometry, prior to taking MA 241. For those students who have not taken physics in high school it is recommended that PS 103, Technical Physics I be taken prior to PS 201.

### General Education Requirements

COURSE NUMBER/TITLE	CREDITS
EC 210      Microeconomics	3
EC 211      Macroeconomics	3
HU 122      English Composition and Literature I	3
HU 123      English Composition and Literature II	3
HU 219      Speech	3
HU 221      Technical Report Writing	3
MA 241      Calculus and Analytical Geometry I	4
MA 242      Calculus and Analytical Geometry II	4
MA 412      Probability and Statistics	3
MA 430      Linear Algebra	3
MS 201      Principles of Management	3
PS 201      Engineering Physics I	5
PS 202      Engineering Physics II	5
SS 110      World History OR	
SS 120      American History	3
SS 220      Introduction to Psychology	3
HU/SS      Elective (300-400 Level)	3
	<hr/>
	54

## Computer Science Requirements

COURSE NUMBER/TITLE		CREDITS
CS 115	Computer Programming I	3
CS 215	Computer Programming II	3
CS 220	Digital Logic and Computer Operations	3
CS 222	Introduction to Discrete Structures	3
CS 230	Organization of Programming Languages	3
CS 235	Assembly Language Programming	3
CS 240	Introduction to File Processing	3
CS 315	Data Structures	3
CS 330	Systems Design and Documentation	3
CS 335	Introduction to Computer Graphics	3
CS 338	Numerical Methods	3
CS 341	Database Management Systems	3
CS 370	Computer Organization	3
CS 372	Introduction to Microprocessors	3
CS 420	Operating Systems	3
CS	(300-400) Level Electives	6
		<hr/>
		51
Electives		
	Open (300-400) Level Electives	3
	Open Electives	12
	Technical Electives (300-400 Level)	6
		<hr/>
		21
TOTAL		126

Students enrolled in the Army or Air Force ROTC program may substitute MY or AF courses for the stated open elective courses.

Technical electives must be chosen from AE, CS, ES, MA, or PS courses.

Computer science electives must be chosen from CS 350, 399, 430, 441, 455, 460, 465, or 499.

# AVIATION MAINTENANCE AND TECHNOLOGY PROGRAMS

*Aircraft Maintenance*

*Aviation Maintenance Management*

*see Aviation Business Programs*

*Aviation Maintenance Technology*

*Aviation Technology*

AMT/Flight Option

AMT/Avionics Option

Avionics/Flight Option

*Avionics Technology*

## *Aircraft Maintenance*

Associate in Science

### DEGREE REQUIREMENTS

The Associate in Science degree in Aircraft Maintenance requires successful completion of the following:

ERAU Type 147 Aviation Maintenance Technology Program (60 Credits)

OR

ERAU Type 65 Aviation Maintenance Technology Program (21 Credits) plus 15 hours of electives chosen from the following disciplines:

AMT/AS/AV/CS/EL/FA/MS; OR AMT 355 and AMT 455

AND

33 designated credits as follows:

COURSE NUMBER/TITLE	CREDITS
HU 122 English Composition and Literature I	3
HU 123 English Composition and Literature II	3
HU 219 Speech OR	
HU 221 Technical Report Writing	3
EC 211 Macroeconomics	3
MA 111 College Mathematics for Aviation I	3
MA 112 College Mathematics for Aviation II OR	
MA 211 Statistics with Aviation Applications	3
MS 105 American Business Enterprise OR	
MS 201 Principles of Management	3
AS 253 History and Regulation of Aviation OR	

SS 110	World History OR	3
SS 120	American History	3
PS 102	Explorations in Physics	3
SS 220	Introduction to Psychology	3
CS 105	Introduction to Computers in Aviation OR	
CS 109	Introduction to Computer Programming w/BASIC OR	3
CS 210	Scientific Programming	3
		<hr/>
		33

Total credits required vary from 69 to 93 depending upon the method of obtaining the maintenance qualification.

All of the courses in the Associate in Science degree in Aircraft Maintenance are creditable toward the Bachelor of Science degrees in Aviation Maintenance Management, Aviation Technology and Aviation Business Administration, with the exception of CS 105 which cannot be credited toward the Bachelor of Science degree in Aviation Maintenance Management.

## *Aviation Maintenance Technology*

### Associate

This degree program is open only to Type 147 students at the Daytona Beach Campus.

### DEGREE REQUIREMENTS

Degree requirements for the Associate degree in Aviation Maintenance Technology are outlined in the vertical listing below:

TRIMESTER	COURSE NUMBER/TITLE	CREDITS
FIRST	(General Aeronautics)	
AMT 101	Physical Mathematics	2
AMT 102	Aviation Regulations, Records and Documents	2
AMT 103	Basic Electricity	3
AMT 104	Aircraft Servicing Procedures	2
AMT 105	Aviation Material	3
		<hr/>
		12
SECOND	(Airframe I)	
AMT 201	Aircraft Structures and Sheet Metal Fabrication	4
AMT 202	Aircraft Wood, Fabric and Finishes	2
AMT 203	Aircraft Instruments and Communication/Navigation Systems	2
AMT 204	Aircraft Welding, Assembly and Rigging	4
HU 122	English Composition and Literature I	3
		<hr/>
		15



THIRD	(Airframe II)	
AMT 205	Aircraft Electrical Systems	4
AMT 206	Hydraulic and Pneumatic Systems	2
AMT 207	Aircraft Environmental and Fuel Systems	3
AMT 208	Aircraft Landing Gear Systems	3
MA 111	College Math for Aviation I	3
		<hr/>
		15
FOURTH	(Powerplant I)	
AMT 209	Aircraft Reciprocating Engines	3
AMT 210	Aircraft Powerplant Systems	3
AMT 211	Engine Electrical and Ignition Systems	3
AMT 212	Propellers and Propeller Systems	3
	Specified Electives	3
		<hr/>
		15
FIFTH	(Powerplant II)	
AMT 213	Engine Installation and Operation	2
AMT 214	Reciprocating Engine Overhaul	4
AMT 215	Turbine Engines and Turbine Engine Systems	6
MS 105	American Business Enterprise	3
		<hr/>
		15
TOTAL		<hr/>
		72

Specified electives must be chosen from AS 253, CS 109, HU 123, HU 219, MA 112 or MS 201.

## *Aviation Technology*

### Bachelor of Science

#### DEGREE REQUIREMENTS

The Bachelor of Science in Aviation Technology requires successful completion of 120 to 148 credit hours. The student must complete a core program and two of the three options in avionics, flight, or maintenance.

#### CORE

COURSE NUMBER/TITLE	CREDITS
CS 109 Introduction to Computer Programming w/BASIC OR	
CS 210 Scientific Programming	3
EC 210 Microeconomics OR	
EC 211 Macroeconomics	3
HU 122 English Composition and Literature I	3
HU 123 English Composition and Literature II	3
HU 219 Speech	3
HU 221 Technical Report Writing	3

HU 250	Introduction to Logic	3
HU/SS	(300-400) Level Elective	3
MA 111	College Mathematics for Aviation I	3
MA 112	College Mathematics for Aviation II	3
PS 101	Basic Chemistry	3
PS 103	Technical Physics I	3
PS 104	Technical Physics II	3
SS 210	Introduction to Sociology OR	
SS 220	Introduction to Psychology	3
		<hr/>
		42

Students who select the Avionics option are required to take MA 140, MA 141, MA 241, and PS 110 in place of MA 111, MA 112, and PS 101.

### AVIONICS OPTION

COURSE NUMBER/TITLE	CREDITS
EL 106 Direct and Alternating Current Fundamentals and Circuit Analysis with Lab	6
EL 220 Introduction to Pulse and Digital Circuits with Lab	4
EL 223 Solid State Theory and Circuit Analysis with Lab	6
EL 320 Advanced Digital Circuits and Systems with Lab	4
EL 323 Electronics Systems Analysis with Lab	5
EL 372 Microprocessor Systems with Lab	3
AV 310 Aircraft Communications, Navigation and Landing Systems	3
AV 319 Aircraft Pulse Systems	3
AV 323 Low Frequency and Area Navigation Systems	3
AV 340 Avionics Equipment Troubleshooting and Repair Lab	2
AV 341 Advanced Avionics Equipment Troubleshooting and Repair Lab	2
	<hr/>
	41

### FLIGHT OPTION

COURSE NUMBER/TITLE	CREDITS
AS 150 Aeronautics I	5
AS 201 Meteorology I	3
AS 250 Aeronautics II	3
AS 251 Aeronautics III	3
AS 253 History and Regulation of Aviation	3
AS 309 Basic Aerodynamics	3
AS 310 Aircraft Performance	3
AS 357 Flight Physiology	3
AS 408 Flight Safety	3
AV 301 Avionics for Aviators	3
FA 104 Primary Flight	2
FA 105 Private Pilot Certification	2
FA 205 Basic Attitude Instrument and Advanced Flight Maneuvers	2

FA 206	Instrument Flight Transition	2
FA 302	Commercial Pilot Certification	2
		<hr/>
		42

AV 301 is not required if the Avionics option is selected.

## MAINTENANCE OPTION

The student must:

a. Complete the Type 147 AMT Program (60 Credit Hours)

OR

b. Complete the Type 65 AMT Program (21 Credit Hours)

PLUS

Electives from AMT/AS/AV/CS/EL/FA/MS (15 Credit Hours)

OR

c. Possess an FAA A&P Maintenance Certificate (36 Credit Hours will be granted).

## AVIATION TECHNOLOGY TYPE 147\* AMT

COURSE NUMBER/TITLE	CREDITS
AMT 101 Physical Mathematics	2
AMT 102 Aviation Regulations, Records and Documents	2
AMT 103 Basic Electricity	3
AMT 104 Aircraft Servicing Procedures	2
AMT 105 Aviation Material	3
AMT 201 Aircraft Structures and Sheet Metal Fabrication	4
AMT 202 Aircraft Wood, Fabric and Finishes	2
AMT 203 Aircraft Instruments and Communications/Navigation	2
AMT 204 Aircraft Welding, Assembly and Rigging	4
AMT 205 Aircraft Electrical Systems	4
AMT 206 Hydraulic and Pneumatic Systems	2
AMT 207 Aircraft Environmental & Fuel Systems	3
AMT 208 Aircraft Landing Gear Systems	3
AMT 209 Aircraft Reciprocating Engines	3
AMT 210 Aircraft Powerplant Systems	3
AMT 211 Engine Electrical & Ignition Systems	3
AMT 212 Propellers and Propeller Systems	3
AMT 213 Engine Installation and Operation	2
AMT 214 Reciprocating Engine Overhaul	4
AMT 215 Turbine Engines and Turbine Engine Systems	6
	<hr/>
TOTAL	60

\*This program available only at the Daytona Beach Campus.

## AVIATION TECHNOLOGY TYPE 65\*\* AMT

COURSE NUMBER/TITLE	CREDITS
**AMT 240 General Aeronautics and Applications	3

**AMT 260	Aircraft Electrical Systems Theory	3
**AMT 270	Airframe Structures and Applications	4
**AMT 280	Powerplant Theory and Applications	4
**AMT 360	Airframe Systems and Applications	3
**AMT 380	Aircraft Propulsion Systems and Applications	4
	Electives (AMT/AS/AV/CS/EL/FA/MS or AMT 355 and AMT 455)	15
		<hr/>
TOTAL		36

\*\*These courses are available only at International Campus locations.

## *Avionics Technology*

**Bachelor of Science  
Associate in Science**

### DEGREE REQUIREMENTS

The Bachelor of Science degree in Avionics Technology requires successful completion of 129 trimester credit hours, as outlined in the course list below.

TRIMESTER COURSE NUMBER/TITLE			CREDITS
FIRST	HU 122	English Composition and Literature I	3
	MA 140	College Algebra	3
	MA 141	Trigonometry	2
	PS 110	Chemistry for Engineers	5
	SS 110	World History OR	
	SS 120	American History	3
		<hr/>	16
SECOND	EL 106	Direct and Alternating Current Fundamentals and Circuit Analysis w/Lab	6
	MA 241	Calculus and Analytic Geometry I	4
	HU 123	English Composition and Literature II	3
	EC 210	Microeconomics OR	
	EC 211	Macroeconomics	3
		<hr/>	16
THIRD	EL 220	Introduction to Pulse and Digital Circuits with Laboratory	4
	EL 223	Solid State Fundamentals and Circuit Analysis with Laboratory	6
	MA 242	Calculus and Analytic Geometry II	4
	CS 210	Scientific Programming	3
		<hr/>	17
FOURTH	EL 320	Advanced Digital Circuits and Systems with Laboratory	4
	EL 323	Electronic Systems Analysis with Laboratory	5

	PS 201	Engineering Physics I	5
	HU 219	Speech	3
			<hr/>
			17
FIFTH	EL 372	Microprocessor Systems	3
	MA 245	Applied Technical Mathematics	3
	PS 202	Engineering Physics II	5
	HU 221	Technical Report Writing	3
	ET 101	Engineering Graphics	2
			<hr/>
			16
SIXTH	AV 310	Communication and Navigation Systems	3
	AV 319	Aircraft Pulse Systems	3
	AV 340	Avionics Equipment Troubleshooting and Repair Laboratory	2
	ET 201	Technical Mechanics	4
	SS 210	Introduction to Sociology OR	
	SS 220	Introduction to Psychology	3
			<hr/>
			15
SEVENTH	AV 401	Avionics Communication System Design Considerations	3
	ET 302	Applied Strength of Materials with Laboratory	3
	ET 305	Applied Thermodynamics with Laboratory	4
	AV 402	Avionics Pulse System Design Considerations	3
		Open Elective	3
			<hr/>
			16
EIGHTH	AV 411	Integrated Aviation Logistics Support	3
	AV 421	Avionics System Integration and Design	3
	ET 307	Manufacturing Processes and Materials with Laboratory	4
	HU/SS	Elective (300-400 Level)	3
		Open Elective	3
			<hr/>
			16
TOTAL			129

### Associate in Science

### DEGREE REQUIREMENTS

The Associate in Science degree in Avionics Technology requires successful completion of 76 to 78 trimester credit hours as indicated in the following outline.

	TRIMESTER	COURSE NUMBER/TITLE	CREDITS
FIRST	EL 106	Direct and Alternating Current Fundamentals and Circuit Analysis with Laboratory	6

	MA 140	College Algebra	3
	MA 141	Trigonometry	2
	HU 122	English Composition and Literature I	3
			<hr/>
			14
SECOND	EL 223	Solid State Fundamentals and Circuit Analysis with Laboratory	6
	EL 220	Introduction to Pulse and Digital Circuits with Laboratory	4
	MA 241	Calculus and Analytical Geometry I	4
	ET 101	Engineering Graphics	2
			<hr/>
			16
THIRD	EL 323	Electronic Systems Analysis with Laboratory	5
	EL 320	Advanced Digital Circuits & Systems with Laboratory	4
	HU 123	English Composition and Literature II	3
	CS 109	Introduction to Computer Programming w/BASIC OR	
	CS 210	Scientific Programming	3
			<hr/>
			16
FOURTH	AV 340	Avionics Equipment Troubleshooting and Repair Laboratory	2
	AV 310	Aircraft Communications and Navigation Systems	3
	AV 319	Aircraft Pulse Systems	3
	PS 103	Technical Physics I OR	3
	PS 201	Engineering Physics I	5
	HU 221	Technical Report Writing	3
	EL 372	Microprocessor Systems with Laboratory	3
			<hr/>
			17
FIFTH	AV 341	Advanced Avionics Equipment Troubleshooting and Repair Lab	2
	AV 323	Low Frequency and Area Navigation Systems	3
	AV	Elective	3
	SS 210	Introduction to Sociology OR	
	SS 220	Introduction to Psychology	3
	EC 210	Microeconomics OR	
	EC 211	Macroeconomics	3
			<hr/>
			14
TOTAL			76 or 78
<b>AVIONICS ELECTIVES:</b>			
AV 320, AV 324, AV 325			

# AVIATION BUSINESS AND MANAGEMENT PROGRAMS

## *Aviation Business Administration* *Aviation Maintenance Management*

Type 147 Option

Type 65 Option

Avionics Option

## *Aviation Business Administration (Capstone)*

Bachelor of Science

### ADMISSION REQUIREMENTS

Admission to the Bachelor of Science in Aviation Business Administration (Capstone) program is limited to students possessing one of the following prerequisites:

- a. An Associate Degree which includes a minimum of 24 credit hours of general education courses of which 6 hours must be in communications skills and 6 hours must be college level mathematics; OR
- b. 60 trimester (or equivalent) credit hours of approved course work which must be comprised of:

<b>Courses</b>	<b>Credits</b>
Communication Skills (English Composition is required and one course from among rhetoric, speech or writing)	6
College Math (algebra, and/or trigonometry and/or calculus)	6
General Education (sciences, economics, humanities/social sciences, mathematics)	24
Open Electives	9
Electives selected from the following disciplines: finance, accounting, personnel, psychology, maintenance, operations analysis, computer science, marketing, engineering, business administration, management, transportation.	15
<b>TOTAL</b>	<b>60</b>

## DEGREE REQUIREMENTS

### CORE

COURSE NUMBER/TITLE		CREDITS
CS 109	Introduction to Computer Programming w/BASIC	3
CS 218	COBOL Programming	3
EC 210	Microeconomics	3
EC 310	Labor Economics	3
HU 219	Speech	3
HU 221	Technical Report Writing	3
HU/SS	Elective (300-400 Level)	3
MA 222	Business Statistics	3
MA 320	Decision Mathematics	3
PS	Electives	6
		<hr/>
		33

### BUSINESS ADMINISTRATION

COURSE NUMBER/TITLE		CREDITS
MS 201	Principles of Management	3
MS 210	Financial Accounting I	3
MS 212	Financial Accounting II	3
MS 311	Marketing	3
MS 312	Managerial Accounting	3
MS 314	Human Resource Management	3
MS 317	Organizational Behavior	3
MS 320	Business Information Systems	3
MS 332	Corporate Finance I	3
MS 390	Business Law	3
MS 401	Management Planning and Control	3
MS 431	Business Policy	3
		<hr/>
TOTAL		36
		69

Students whose prior academic program includes courses from the above curriculum must take an equivalent number of credit hours of AS/CS/EC/MS or CE courses.

Students enrolled in the Army or Air Force ROTC programs may substitute MY or AF courses for the stated open elective courses.

## *Aviation Business Administration*

### Bachelor of Science

## DEGREE REQUIREMENTS

The Bachelor of Science degree requires successful completion of a minimum of 126 trimester credit hours, normally completed within eight trimesters.



Students may select a major in Aviation Administration, Computer Information Systems, or General Business.

## Aviation Administration Major

### CORE

#### GENERAL EDUCATION

COURSE NUMBER/TITLE	CREDITS
CS 109 Introduction to Computer Programming w/BASIC	3
EC 211 Macroeconomics	3
HU 122 English Composition and Literature I	3
HU 123 English Composition and Literature II	3
HU 219 Speech	3
HU 221 Technical Report Writing	3
HU/SS Elective (300-400 Level)	3
HU/SS Electives	6
MA 120 Quantitative Methods I	3
MA 220 Quantitative Methods II	3
PS Electives	6
SS 110 World History OR	
SS 120 American History OR	
AS 253 History and Regulation of Aviation	3
SS 220 Introduction to Psychology	3
	<hr/>
	45

#### BUSINESS ADMINISTRATION

COURSE NUMBER/TITLE	CREDITS
CS 218 COBOL Programming	3
EC 210 Microeconomics	3
EC 310 Labor Economics	3
MA 222 Business Statistics	3
MA 320 Decision Mathematics	3
MS 201 Principles of Management	3
MS 210 Financial Accounting I	3
MS 212 Financial Accounting II	3
MS 311 Marketing	3
MS 312 Managerial Accounting	3
MS 317 Organizational Behavior	3
MS 332 Corporate Finance I	3
	<hr/>
	36

### MAJOR

MS 314 Human Resource Management	3
MS 320 Business Information Systems	3

MS 390	Business Law	3
MS 401	Management Planning and Control	3
MS 431	Business Policy	3

Fifteen credit hours must be taken from the list of specified electives.

## SPECIFIED ELECTIVES

COURSE NUMBER/TITLE	CREDITS
AS 360 Introduction to Air Traffic Control	3
AS 401 Airport Development and Operations	3
AS 405 Aviation Law	3
AS 408 Flight Safety OR	
AS 409 Aviation Safety	3
AS 412 Corporate and Business Aviation	3
EC 420 Economics of Air Transportation	3
MS 322 Aviation Insurance	3
MS 405 General Aviation Marketing	3
MS 408 Airport Management	3
MS 410 Management of Air Cargo	3
MS 412 Airport Planning and Design	3
MS 415 Airline Management	3
MS 419 Aviation Maintenance Management	3
MS 425 Trends and Current Problems in Air Transportation	3
	<hr/>
	30
Open Electives	15
<b>TOTAL</b>	<b>126</b>

## Computer Information Systems Major

This major is available only at the Daytona Beach Campus.

## CORE

### GENERAL EDUCATION

COURSE NUMBER/TITLE	CREDITS
CS 109 Introduction to Computer Programming w/BASIC	3
EC 211 Macroeconomics	3
HU 122 English Composition and Literature I	3
HU 123 English Composition and Literature II	3
HU 219 Speech	3
HU 221 Technical Report Writing	3
HU/SS Electives (300-400 Level)	3
HU/SS Electives	6
MA 120 Quantitative Methods I	3
MA 220 Quantitative Methods II	3
PS Electives	6
SS 110 World History OR	
SS 120 American History OR	

AS 253	History and Regulation of Aviation	3
SS 220	Introduction to Psychology	3
		<hr/>
		45

## BUSINESS ADMINISTRATION

COURSE NUMBER/TITLE	CREDITS	
EC 210	Microeconomics	3
EC 310	Labor Economics	3
MA 222	Business Statistics	3
MA 320	Decision Mathematics	3
MS 201	Principles of Management	3
MS 210	Financial Accounting I	3
MS 212	Financial Accounting II	3
MS 311	Marketing	3
MS 312	Managerial Accounting	3
MS 317	Organizational Behavior	3
MS 332	Corporate Finance I	3
		<hr/>
		33

## MAJOR

Students entering this major are expected to have completed a basic typing or word-processing course. Those who have not should enroll in CS 101 - Introduction to Keyboard Operations.

COURSE NUMBER/TITLE	CREDITS	
CIS 110	Introduction to Computer-Based Systems	3
CIS 220	Applications Program Development I	3
CIS 230	Applications Program Development II	3
CIS 300	Systems Analysis Methods	3
CIS 305	Structured Systems Analysis and Design	3
CIS 310	Data Structures	3
CIS 400	Database Program Development	3
CIS 405	Applied Software Development Project	3

Three credits must be taken from the list of aviation electives.

## AVIATION ELECTIVES

COURSE NUMBER/TITLE	CREDITS	
AS 360	Introduction to Air Traffic Control	3
AS 401	Airport Development and Operations	3
AS 405	Aviation Law	3
AS 408	Flight Safety OR	3
AS 409	Aviation Safety	3
AS 412	Corporate and Business Aviation	3
EC 420	Economics of Air Transportation	3
MS 322	Aviation Insurance	3
MS 405	General Aviation Marketing	3
MS 408	Airport Management	3
MS 410	Management of Air Cargo	3
MS 412	Airport Planning and Design	3
MS 415	Airline Management	3

MS 419	Aviation Maintenance Management	3
MS 425	Trends and Current Problems in Air Transportation	3

Six credit hours must be taken from the list of specified electives.

### SPECIFIED ELECTIVES

COURSE NUMBER/TITLE	CREDITS
CIS 410 Software and Hardware Concepts	3
CIS 415 Office Automation	3
CIS 420 Decision Support Systems	3
CIS 425 Advanced Database Concepts	3
CIS 430 Distributed Data Processing	3
CIS 435 EDP Audit and Controls	3
CIS 440 Information Systems Planning	3
CIS 445 Information Resource Management	3
	<hr/>
	33
Open Electives	15
TOTAL	126

### General Business Major

#### CORE

#### GENERAL EDUCATION

COURSE NUMBER/TITLE	CREDITS
CS 109 Introduction to Computer Programming w/BASIC	3
EC 211 Macroeconomics	3
HU 122 English Composition and Literature I	3
HU 123 English Composition and Literature II	3
HU 219 Speech	3
HU 221 Technical Report Writing	3
HU/SS Elective (300-400 Level)	3
HU/SS Electives	3
MA 120 Quantitative Methods I	6
MA 220 Quantitative Methods II	3
PS Electives	3
SS 110 World History OR	6
SS 120 American History OR	
AS 253 History and Regulation of Aviation	3
SS 220 Introduction to Psychology	3
	<hr/>
	45

#### BUSINESS ADMINISTRATION

COURSE NUMBER/TITLE	CREDITS
CS 218 COBOL Programming	3
EC 210 Microeconomics	3

EC 310	Labor Economics	3
MA 222	Business Statistics	3
MA 320	Decision Mathematics	3
MS 201	Principles of Management	3
MS 210	Financial Accounting I	3
MS 212	Financial Accounting II	3
MS 311	Marketing	3
MS 312	Managerial Accounting	3
MS 317	Organizational Behavior	3
MS 332	Corporate Finance I	3
		<hr/>
		36

## MAJOR

COURSE NUMBER/TITLE	CREDITS	
MS 314	Human Resource Management	3
MS 320	Business Information Systems	3
MS 390	Business Law	3
MS 401	Management Planning and Control	3
MS 431	Business Policy	3

Three credits must be taken from the list of aviation electives.

## AVIATION ELECTIVES

COURSE NUMBER/TITLE	CREDITS	
AS 360	Introduction to Air Traffic Control	3
AS 401	Airport Development and Operations	3
AS 405	Aviation Law	3
AS 408	Flight Safety OR	
AS 409	Aviation Safety	3
AS 412	Corporate and Business Aviation	3
EC 420	Economics of Air Transportation	3
MS 322	Aviation Insurance	3
MS 405	General Aviation Marketing	3
MS 408	Airport Management	3
MS 410	Management of Air Cargo	3
MS 412	Airport Planning and Design	3
MS 415	Airline Management	3
MS 419	Aviation Maintenance Management	3
MS 425	Trends and Current Problems in Air Transportation	3

Twelve credits must be taken from the list of specified electives.

## SPECIFIED ELECTIVES

COURSE NUMBER/TITLE	CREDITS	
CS 320	Advanced COBOL w/Aviation Applications	3
EC 312	Money and Banking	3
MS 308	Public Administration	3
MS 335	International Business	3
MS 420	Industrial Management	3
MS 421	Small Business Management	3
MS 432	Strategic Marketing Management	3

MS 433	Management of the Sales Force	3
MS 434	Corporate Finance	3
MS 435	Taxation	3
		<hr/>
		30
	Open Electives	15
<b>TOTAL</b>		<b>126</b>

Students enrolled in the Army or Air Force ROTC program may substitute MY or AF courses for the open elective courses.

### ASSOCIATE IN SCIENCE

The Associate in Science in Aviation Business Administration degree requires successful completion of 63 credit hours.

COURSE NUMBER/TITLE		CREDITS
CS 109	Introduction to Computer Programming w/BASIC	3
EC 210	Microeconomics	3
EC 211	Macroeconomics	3
HU 122	English Composition and Literature I	3
HU 123	English Composition and Literature II	3
HU 219	Speech	3
HU 221	Technical Report Writing	3
MA 120	Quantitative Methods I	3
MA 220	Quantitative Methods II	3
MA 222	Business Statistics	3
MS 201	Principles of Management	3
MS 210	Financial Accounting I	3
MS 212	Financial Accounting II	3
MS 314	Human Resource Management	3
MS 317	Organizational Behavior	3
MS 320	Business Information Systems	3
PS	Elective	3
SS 110	World History OR	
SS 120	American History OR	
AS 253	History and Regulation of Aviation	3
SS 220	Introduction to Psychology	3
	Specified Electives	3
	Open Electives	3
		<hr/>
<b>TOTAL</b>		<b>63</b>

#### SPECIFIED ELECTIVES:

AS 360, AS 405, AS 408, AS 409, AS 412  
 EC 420  
 MS 322, MS 405, MS 408, MS 410, MS 412, MS 415, MS 419, MS 425

## Aviation Maintenance Management

Bachelor of Science

### DEGREE REQUIREMENTS

The Bachelor of Science degree in Aviation Maintenance Management may be attained by successfully completing one of the following

options plus the Core and Business Administration curricula:

- |   |    |            |
|---|----|------------|
| a. Type 147 AMT Program   |    | 60 Credits |
|   | OR |            |
| b. Type 65 AMT Program  |    | 21 Credits |
| Electives from AMT/AS/AV/CS/EL/FA/MS or<br>AMT 355 and AMT 455    |    | 15 Credits |
|   | OR |            |
| c. Possession of Airframe & Powerplant Maintenance<br>Certificate |    | 36 Credits |
|   | OR |            |
| d. Avionics Technology Program                                    |    | 41 Credits |

## CORE

COURSE NUMBER/TITLE	CREDITS
CS 109 Introduction to Computer Programming with BASIC	3
EC 210 Microeconomics	3
EC 211 Macroeconomics	3
EC 310 Labor Economics	3
HU 122 English Composition and Literature I	3
HU 123 English Composition and Literature II	3
HU 219 Speech	3
HU 221 Technical Report Writing	3
HU/SS Elective (300-400 Level)	3
*MA 120 Quantitative Methods I	3
*MA 220 Quantitative Methods II	3
MA 222 Business Statistics	3
MA 320 Decision Mathematics	3
MS 419 Aviation Maintenance Management	3
*PS Electives	6
SS 110 World History OR	
SS 120 American History OR	
AS 253 History and Regulation of Aviation	3
SS 220 Introduction to Psychology	3
	54

\*Avionics Option requires MA 241 and PS 103.

## BUSINESS ADMINISTRATION

COURSE NUMBER/TITLE	CREDITS
MS 201 Principles of Management	3
MS 210 Financial Accounting I	3
MS 212 Financial Accounting II	3
MS 311 Marketing	3
MS 312 Managerial Accounting	3
MS 314 Human Resource Management	3
MS 332 Corporate Finance I	3
MS 317 Organizational Behavior	3
MS 320 Business Information Systems	3
MS 390 Business Law	3

MS 401	Management Planning and Control	3
MS 431	Business Policy	3
		<hr/> 36

Total credits required will vary from 126 to 150 depending upon the method of obtaining the maintenance qualification.

### AVIATION MAINTENANCE MANAGEMENT TYPE 147\*

#### AMT

COURSE NUMBER/TITLE	CREDITS
AMT 101 Physical Mathematics	2
AMT 102 Aviation Regulations, Records and Documents	2
AMT 103 Basic Electricity	3
AMT 104 Aircraft Servicing Procedures	2
AMT 105 Aviation Material	3
AMT 201 Aircraft Structures and Sheet Metal Fabrication	4
AMT 202 Aircraft Wood, Fabric and Finishes	2
AMT 203 Aircraft Instruments and Communications/Navigation	2
AMT 204 Aircraft Welding, Assembly and Finishes	4
AMT 205 Aircraft Electrical Systems	4
AMT 206 Hydraulic and Pneumatic Systems	2
AMT 207 Aircraft Environmental & Fuel Systems	3
AMT 208 Aircraft Landing Gear Systems	3
AMT 209 Aircraft Reciprocating Engines	3
AMT 210 Aircraft Powerplant Systems	3
AMT 211 Engine Electrical & Ignition Systems	3
AMT 212 Propellers and Propeller Systems	3
AMT 213 Engine Installation and Operation	2
AMT 214 Reciprocating Engine Overhaul	4
AMT 215 Turbine Engines and Turbine Engine Systems	6
TOTAL	<hr/> 60

\*This program available only at the Daytona Beach Campus.

### AVIATION MAINTENANCE MANAGEMENT TYPE 65\*\*

#### AMT

COURSE NUMBER/TITLE	CREDITS
**AMT 240 General Aeronautics and Applications	3
**AMT 260 Aircraft Electrical Systems Theory	3
**AMT 270 Airframe Structures and Applications	4
**AMT 280 Powerplant Theory and Applications	4
**AMT 360 Airframe Systems and Applications	3
**AMT 380 Aircraft Propulsion Systems & Applications	4
TOTAL	<hr/> 21

\*\*These courses are available only at International Campus locations.



## AVIATION MAINTENANCE MANAGEMENT AVIONICS

<b>COURSE NUMBER/TITLE</b>	<b>CREDITS</b>
EL 106 Direct and Alternating Current Fundamentals and Circuit Analysis with Laboratory	6
EL 220 Introduction to Pulse and Digital Circuits with Laboratory	4
EL 223 Solid State Theory and Circuit Analysis with Laboratory	6
EL 320 Advanced Digital Circuits and Systems with Laboratory	4
EL 323 Electronic Systems Analysis with Laboratory	5
EL 372 Microprocessor Systems with Laboratory	3
AV 310 Aircraft Communications, Navigation and Landing Systems	3
AV 319 Aircraft Pulse Systems	3
AV 323 Low Frequency and Area Navigation Systems	3
AV 340 Avionics Equipment Troubleshooting and Repair Lab	2
AV 341 Advanced Avionics Equipment Troubleshooting and Repair Lab	2
	<hr/>
	41

# FLIGHT RELATED PROGRAMS

## *Aeronautical Science*

## *Aeronautical Studies*

Aviation Maintenance Technology

Avionics

Computer Science

Management

Radiotelephone Maintenance Technology

## *Airway Science*

Aircraft Systems Management

Airway Computer Science

Aviation Maintenance Management

## *Aviation Safety*

## *Professional Aeronautics*

## *Aeronautical Science*

Bachelor of Science  
Associate in Science

## ADMISSION REQUIREMENTS

Students must meet the general University requirements for admission and the age and physical qualifications for a flight training program, as outlined in the Admission to the University chapter of this catalog.

## REQUIRED FLIGHT COURSES

All flight students are required to take FA 104, FA 105 and FA 205. The specific flight courses taken thereafter will vary according to the type of multi-engine aircraft operated by a particular campus.

See the Academic Regulations and Procedures chapter of this catalog for additional information concerning University policies with respect to flight courses.

## DEGREE REQUIREMENTS

The Bachelor of Science degree in Aeronautical Science may be attained in eight trimesters. To earn the degree, successful completion of a minimum of 125 credit hours is required. Students must complete seven flight courses. Upon completion of the curriculum, the student is qualified to be examined for the FAA Commercial Pilot Certificate with Instrument, Single-Engine, and Multi-Engine ratings.

An Associate in Science degree in Aeronautical Science is granted upon completion of 63-64 credit hours and may be obtained in five trimesters. Students must complete six flight courses. Upon completion of the curriculum, the student is qualified to be examined for the FAA Commercial Pilot Certificate with Instrument and Single-Engine or Multi-Engine ratings.

COURSE NUMBER/TITLE	CREDITS
AS 150 Aeronautics I	5
AS 201 Meteorology I	3
AS 250 Aeronautics II	3
AS 251 Aeronautics III	3
AS 253 History and Regulation of Aviation	3
AS 305 Aircraft Engines - Reciprocating	3
AS 309 Basic Aerodynamics	3
AS 310 Aircraft Performance	3
AS 311 Aircraft Engines - Turbine	3
AS 352 Meteorology II	3
AS 355 Global Navigation	3
AS 356 Aircraft Systems and Components	3
AS 357 Flight Physiology	3
AS 408 Flight Safety	3
AS Electives (300-400 level)	12
AV 301 Avionics for Aviators	3
CS 109 Introduction to Computer Programming w/BASIC OR	
CS 210 Scientific Programming	3
EC 210 Microeconomics OR	
EC 211 Macroeconomics	3
FA 104 Primary Flight	2
FA 105 Private Pilot Certification	2
FA 205 Basic Attitude Instrument and Advanced Flight Maneuvers	2
FA 206 Instrument Flight Transition - S.E. OR	
FA 207 Multi-Engine Transition	2
FA 302 Commercial Pilot Certification - S.E. OR	
FA 314 Instrument Flight Transition - M.E.	2
FA 340 Multi-Engine Class Rating OR	
FA 315 Commercial Pilot Certification - M.E.	1
FA Elective (300-400 level)	1
HU 122 English Composition and Literature I	3
HU 123 English Composition and Literature II	3
HU 219 Speech	3
HU 221 Technical Report Writing	3
SS 220 Introduction to Psychology	3
HU/SS Elective (300-400 level)	3
MA 111 College Math for Aviation I	3
MA 112 College Math for Aviation II	3
MS 105 American Business Enterprise OR	
MS 201 Principles of Management	3
PS 103 Technical Physics I	3

PS 104	Technical Physics II	3
	Open Electives	15
TOTAL		<u>125</u>

Students enrolled in the Army or Air Force ROTC program may substitute MY or AF courses for the stated open elective courses.

## ASSOCIATE IN SCIENCE DEGREE AERONAUTICAL SCIENCE

COURSE NUMBER/TITLE	CREDITS
AS 150 Aeronautics I	5
AS 201 Meteorology I	3
AS 250 Aeronautics II	3
AS 251 Aeronautics III	3
AS 253 History and Regulation of Aviation	3
CS 109 Introduction to Computer Programming with BASIC OR	
CS 210 Scientific Programming	3
EC 210 Microeconomics OR	
EC 211 Macroeconomics	3
FA 104 Primary Flight	2
FA 105 Private Pilot Certification	2
FA 205 Basic Attitude Instrument and Advanced Flight Maneuvers	2
FA 206 Instrument Flight Transition - S.E. OR	
FA 207 Multi-Engine Transition	2
FA 302 Commercial Pilot Certification OR	
FA 314 Instrument Flight Transition - M.E. AND	2
FA 315 Commercial Pilot Certification - M.E.	1
HU 122 English Composition and Literature I	3
HU 123 English Composition and Literature II	3
HU 219 Speech OR	
HU 221 Technical Report Writing	3
HU/SS Elective	3
MA 111 College Mathematics for Aviation I	3
MA 112 College Mathematics for Aviation II	3
MS 105 American Business Enterprise OR	3
MS 201 Principles of Management	3
PS 103 Technical Physics I	3
SS 220 Introduction to Psychology	3
Open Electives	3

Total credits required are 63-64 depending upon the flight option selected.

## *Aircraft Dispatcher Certification Program*

### INTRODUCTION

For the student interested in airline flight operations management, Embry-Riddle offers a program of instruction designed to prepare the student for Aircraft Dispatcher Certification testing. The FAA awards the Aircraft Dispatcher Airman Certificate to graduates of the

approved program upon successful completion of a standardized written examination and a practical test.

Licensed dispatchers are employed by all non-commuter airlines to manage the ground-based tasks vital to the successful execution of an airline flight. Dispatchers share responsibility with the captain for preflight planning and preparation of the dispatch release, and they are included in the decision loop involving equipment failures, weather variations, or traffic delays encountered during the flight. In addition, they are responsible for monitoring the progress of the flight, issuing safety-of-flight information to the crew, and canceling or redispaching the flight, if they or the captain deem it necessary.

To properly carry out these tasks, dispatchers must be knowledgeable in aircraft performance capabilities, meteorology, operating regulations, air traffic control, and instrument flight procedures. Furthermore, they must be able to make sound judgments incorporating company economic and scheduling considerations.

## **CERTIFICATION REQUIREMENTS**

The Aircraft Dispatcher Certification Program is available only at the Daytona Beach Campus and is recommended for students in any degree program; the only requirement being the completion of the applicable Aeronautical Science courses. Students in programs other than Aeronautical Science must be sure to complete the applicable prerequisites for required courses. Dispatcher preparation is predicated upon the successful completion of the following Aeronautical Science courses with 100 percent attendance required:

- AS 150 Aeronautics I
- AS 201 Meteorology I
- AS 250 Aeronautics II
- AS 251 Aeronautics III
- AS 305 Aircraft Engines - Reciprocating
- AS 310 Aircraft Performance
- AS 311 Aircraft Engines-Turbine
- AS 356 Aircraft Systems and Components
- \*AS 410 Air Carrier Operations

\*AS 410 is an elective course in the Aeronautical Science curriculum and serves as the capstone to the Dispatcher Program.

In order to credit any of the courses listed above toward the Aircraft Dispatcher Certification Program, the student must enroll in the program prior to taking the courses and must maintain a record of 100 percent attendance throughout the course.

## ***Aeronautical Studies***

### **Bachelor of Science**

## **DEGREE REQUIREMENTS**

The Bachelor of Science Degree in Aeronautical Studies may be earned in eight trimesters. Successful completion of a minimum of 122 trimester credit hours is required.

The core program consists of 83 credit hours in the following disciplines:

Aeronautical Science  
 Computer Science  
 Humanities  
 Mathematics  
 Management/Economics  
 Physical Science  
 Social Science

In addition to the core courses, an Area of Concentration is required. This provides the student with sufficient skills and knowledge in a chosen discipline preparatory for entry into a specific career field in aviation.

### AREAS OF CONCENTRATION

Aviation Maintenance Technology  
 Avionics  
 Computer Science  
 Management  
 Radiotelephone Maintenance Technology

A general description of each Area of Concentration and the courses required are listed on the following pages.

### CORE CURRICULUM

COURSE NUMBER/TITLE	CREDITS
AS 150 Aeronautics I	5
AS 201 Meteorology I	3
AS 211 Aircraft Engines and Systems	3
AS 250 Aeronautics II	3
AS 253 History and Regulation of Aviation	3
AS 405 Aviation Law	3
AS 409 Aviation Safety	3
CS 109 Introduction to Computer Programming w/BASIC	3
EC 210 Microeconomics OR	3
EC 211 Macroeconomics	3
HU 122 English Composition and Literature I	3
HU 123 English Composition and Literature II	3
HU 219 Speech	3
HU 221 Technical Report Writing	3
HU/SS Elective (300-400 level)	3
MA 111 College Math for Aviation I OR	3
MA 120 Quantitative Methods I	3
MA 112 College Math for Aviation II OR	3

MA 220	Quantitive Methods II	3
MS 105	American Business Enterprise OR	
MS 201	Principles of Management	3
PS	Electives (3 credits must be Physics)	6
SS 110	World History OR	
SS 120	American History	3
SS 210	Introduction to Sociology OR	
SS 220	Introduction to Psychology	3
	Open Electives (300-400 Level)	6
	Open Electives	12

TOTAL CORE CREDITS	83
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## AREAS OF CONCENTRATION

### Aviation Maintenance Technology

The individual who wishes to combine maintenance training and experience with an academic degree program and who may be interested in the supervision of aircraft maintenance activities will find this area of concentration fills those requirements. This program integrates the knowledge and experience of aircraft and powerplant maintenance with the broader perspective of management, science and the humanities.

#### Type 147 AMT Program

(Available only to students at the Daytona Beach Campus. For a listing of courses required in the Type 147 AMT program, see the Aviation Maintenance Management Degree with the Type 147 AMT Option in the Aviation Management section of this chapter.)

For this Area of Concentration, students complete the Type 147 AMT program (60 credit hours) in addition to the Core program. A total of 143 credit hours is required for the degree.

#### TYPE 65 AMT Program

(Available only to students at International Campus locations.)

COURSE NUMBER/TITLE	CREDITS	
AMT 240	General Aeronautics and Applications	3
AMT 260	Aircraft Electrical Systems Theory	3
AMT 270	Airframe Structures and Applications	4
AMT 280	Powerplant Theory and Applications	4
AMT 360	Airframe Systems and Applications	3
AMT 380	Aircraft Propulsion Systems and Applications	4
	Designated Electives	15
	AMT/AS/AV/CS/EL/FA/MS	
	(At least nine of these credits must be upper level)	
	Open electives (upper level)	6
TOTAL		42

All open electives including the Core must be upper level. AS 211 replaced in the Core by open elective (300-400 level).

## Avionics

The goal of the Avionics Area of Concentration is to provide highly specialized technical knowledge in the theory of operation, troubleshooting and repair of avionics equipment. Special attention is given to laboratory presentations and hands-on participation by the students.

COURSE NUMBER/TITLE	CREDITS
AV 310 Aircraft Communication, Navigation, and Landing Systems	3
AV 319 Aircraft Pulse Systems	3
AV 323 Low Frequency and Area Navigation Systems	3
AV 340 Avionics Equipment Trouble Shooting and Repair Laboratory	2
AV 341 Advanced Avionics Equipment Troubleshooting and Repair Laboratory	2
EL 106 Direct and Alternating Current Fundamentals and Circuit Analysis with Laboratory	6
EL 220 Introduction to Pulse and Digital Circuits	4
EL 223 Solid State Fundamentals and Circuit Analysis with Laboratory	6
EL 320 Advanced Digital Circuits and Systems	4
EL 323 Electronics Systems Analysis with Laboratory	5
EL 372 Microprocessor Systems with Laboratory	3
	41

Requires MA 111, MA 112 and PS 103 in the Core Program.

## Computer Science

The increasing use of computers in all phases of the aviation industry makes this area of concentration a highly relevant program. The program can be applied to manufacturing, marketing, or general operation of aircraft and the many related career areas. The student augments the core programs of aeronautical science, general science and humanities with training in the theory and utilization of computers.

COURSE NUMBER/TITLE	CREDITS
CS 210 Scientific Programming	3
CS 216 Structured Programming	3
CS 218 COBOL Programming	3
CS 301 Introduction to Discrete Structures	3
CS 330 Systems Design and Documentation	3
CS 410 Data Structures	3
CS 440 Database Management Systems	3
CS Electives (300-400 level)	12
MA 211 Statistics with Aviation Applications OR	



MA 222	Business Statistics	3
MS 320	Business Information Systems	3
	Open Electives (300-400 Level)	3
		<hr/> 42

## Management

The individual who desires to enter the aviation field prepared to move into a position of responsibility in management or operations should consider this area of concentration.

COURSE NUMBER/TITLE	CREDITS
EC 310 Labor Economics	3
EC/MS Electives (300-400 Level)	12
MA 211 Statistics w/Aviation Applications OR	
MA 222 Business Statistics	3
MS 210 Financial Accounting I	3
MS 212 Financial Accounting II	3
MS 312 Managerial Accounting	3
MS 314 Human Resource Management	3
MS 331 Transportation Principles	3
MS 332 Corporate Finance I	3
	<hr/> 36

MS 201, EC 210, and EC 211 must be taken in the Core Program.

## Radiotelephone Maintenance Technology

The Radiotelephone Maintenance Technology program offered at European (USAF) locations consists of a series of theory and laboratory courses in the fundamental principles of electricity, electronics and electronic circuits and systems. The curriculum is designed, in part, to assist experienced electrical/electronics personnel prepare for the Federal Communications Commission General Class Radiotelephone Operator's License.

COURSE NUMBER/TITLE	CREDITS
EL 101 Basic Electronic Concepts & D-C Circuits	4
EL 102 Fundamentals of A-C and A-C Analysis	4
EL 103 Semiconductor Fundamentals	4
EL 207 Basic Radiotelephone Equipment	
Theory and Operation	3
EL 221 Introduction to Pulse and Digital Circuits	4
EL 222 Basic Electronic Circuits & Systems	4
EL 321 Advanced Digital Circuits & Systems	4
EL 322 Advanced Electronic Circuits & Systems	4
Open Electives (300-400 Level)	12
	<hr/> 43

AS 100 replaces AS 150 in the Core.

# Airway Science

## Bachelor of Science

### ADMISSION

Graduates of an FAA approved Airway Science degree program are eligible to fill positions with the FAA in a number of career specializations. In order to be employed by the FAA, graduates of this program must possess an FAA Class II Medical Certificate and meet FAA psychological standards.

### DEGREE REQUIREMENTS

The Bachelor of Science Degree in Airway Science requires the successful completion of 131 to 155 trimester credit hours depending upon the area of concentration chosen.

### COMMON CORE REQUIREMENTS

All students, regardless of area of concentration, must take the courses listed below.

COURSE NUMBER/TITLE		CREDITS
AS 150	Aeronautics I	5
AS 360	Introduction to Air Traffic Control	3
AS 361	Enroute/Terminal Non-Radar Air Traffic Control	3
EC 210	Microeconomics	3
EC 211	Macroeconomics	3
HU 122	English Composition and Literature I	3
HU 123	English Composition and Literature II	3
HU 219	Speech	3
HU 221	Technical Report Writing	3
MA 111	College Mathematics for Aviation I	3
MA 112	College Mathematics for Aviation II	3
MA 211	Statistics with Aviation Applications	3
MS 201	Principles of Management	3
MS 314	Human Resource Management	3
MS 317	Organizational Behavior	3
PS 101	Basic Chemistry	3
PS 103	Technical Physics I	3
PS 104	Technical Physics II	3
SS 220	Introduction to Psychology	3
		59

### Aircraft Systems Management

This area of specialization prepares students for the positions of Air Traffic Control Specialist and Aviation Safety Inspector (General Aviation Operations).

## ADDITIONAL CORE COURSES

COURSE NUMBER/TITLE	CREDITS
AS 309 Basic Aerodynamics	3
AS 310 Aircraft Performance	3
AS 357 Flight Physiology	3
AS 408 Flight Safety	3
AV 301 Avionics for Aviators	3
CS 109 Introduction to Computer Programming w/BASIC OR	
CS 210 Scientific Programming	3
CS 318 Advanced BASIC Programming OR	
CS 360 Advanced FORTRAN Programming	3
MS 210 Financial Accounting I	3
MS 320 Business Information Systems	3
SS 110 World History OR	
SS 120 American History OR	
AS 253 History and Regulation of Aviation	3

## AREA OF CONCENTRATION

COURSE NUMBER/TITLE	CREDITS
AS 201 Meteorology I	3
AS 250 Aeronautics II	3
AS 251 Aeronautics III	3
AS 305 Aircraft Engines - Reciprocating	3
AS 311 Aircraft Engines - Turbine	3
AS 352 Meteorology II	3
AS 356 Aircraft Systems and Components	3
AS 404 Principles of Instruction I	3
AS 406 Principles of Instruction II	3
AS 410 Air Carrier Operations	3
FA 104 Primary Flight	2
FA 105 Private Pilot Certification	2
FA 205 Basic Attitude Instrument and Advanced Flight Maneuvers	2
FA 206 Instrument Flight Transition - S.E. OR	
FA 207 Multi-Engine Transition	2
FA 302 Commercial Pilot Certification - S.E. OR	
FA 314 Instrument Flight Transition - M.E.	2
FA 340 Multi-Engine Class Rating OR	
FA 315 Commercial Pilot Certification - M.E.	1
FA 400 Certified Flight Instructor - S.E.	1
FA 409 Certified Flight Instructor - Instrument	1
FA 411 Certified Flight Instructor - M.E.	1
TOTAL	133

## Airway Computer Science

This area of specialization prepares students for the positions of Air Traffic Control Specialist and Computer Specialist.

## ADDITIONAL CORE COURSES

COURSE NUMBER/TITLE	CREDITS
AS 201 Meteorology I	3
AS 211 Aircraft Engines and Systems	3
AS 250 Aeronautics II	3
AS 251 Aeronautics III	3
AS 253 History and Regulation of Aviation	3
AS 409 Aviation Safety	3
CS 109 Introduction to Computer Programming w/BASIC	3
CS 210 Scientific Programming	3
CS 216 Structured Programming	3
SS 110 World History OR	
SS 120 American History	3
SS 320 American National Government	3

## AREA OF CONCENTRATION

COURSE NUMBER/TITLE	CREDITS
CS 220 Digital Logic and Computer Operation	3
CS 301 Introduction to Discrete Structures	3
CS 312 Assembly Language Programming	3
CS 330 Systems Design and Documentation	3
CS 340 Computer Processing of Statistical Data	3
CS 350 Computer MODELING of Aeronautical Systems	3
CS 360 Advanced FORTRAN Programming	3
CS 370 Computer Organization	3
CS 372 Introduction to Microprocessors	3
CS 410 Data Structures	3
CS 420 Operating Systems	3
MS 210 Financial Accounting I	3
MS 320 Business Information Systems	3
TOTAL	131

## Aviation Maintenance Management

This area of specialization prepares students for the position of Aviation Safety Inspector (General Aviation Airworthiness).

## ADDITIONAL CORE COURSES

COURSE NUMBER/TITLE	CREDITS
AS 201 Meteorology I	3
AS 250 Aeronautics II	3
AS 251 Aeronautics III	3
AS 253 History and Regulation of Aviation	3
AS 409 Aviation Safety	3
CS 109 Introduction to Computer Programming w/BASIC	3
CS 220 Digital Logic and Computer Operation	3
CS 372 Introduction to Microprocessors	3

HU/SS	Electives (300-400 Level)	6
SS 110	World History OR	
SS 120	American History	3

## AREA OF CONCENTRATION

COURSE NUMBER/TITLE	CREDITS
AMT 101 Physical Mathematics	2
AMT 102 Aviation Regulations, Records and Documents	2
AMT 103 Basic Electricity	3
AMT 104 Aircraft Servicing Procedures	2
AMT 105 Aviation Material	3
AMT 201 Aircraft Structures and Sheet Metal Fabrication	4
AMT 202 Aircraft Wood, Fabric and Finishes	2
AMT 203 Aircraft Instruments and Communication/Navigation Systems	2
AMT 204 Aircraft Welding, Assembly and Rigging	4
AMT 205 Aircraft Electrical Systems	4
AMT 206 Hydraulic and Pneumatic Systems	2
AMT 207 Aircraft Environmental and Fuel Systems	3
AMT 208 Aircraft Landing Gear Systems	3
AMT 209 Aircraft Reciprocating Engines	3
AMT 210 Aircraft Powerplant Systems	3
AMT 211 Engine Electrical and Ignition Systems	3
AMT 212 Propellers and Propeller Systems	3
AMT 213 Engine Installation and Operation	2
AMT 214 Reciprocating Engine Overhaul	4
AMT 215 Turbine Engines and Turbine Engine Systems	6
MS 419 Aviation Maintenance Management	3
<b>TOTAL</b>	<b>155</b>

## *Aviation Safety*

### Associate in Science

## ADMISSION REQUIREMENTS

Admission to the Aviation Safety degree program is limited to military aviators possessing FAA Commercial Pilot certification. The Safety of Flight (SF) courses in this program are available only at certain International Campus locations.

## DEGREE REQUIREMENTS

The Associate in Science in Aviation Safety may be completed in the equivalent of four trimesters of academic study. A minimum of 63 credit hours is required.

COURSE NUMBER/TITLE	CREDITS
AS 100 Foundations of Aeronautics	4
AS 201 Meteorology I	3
AS 250 Aeronautics II	3

AS 253	History and Regulation of Aviation	3
AS 357	Aviation Physiology	3
CS 105	Introduction to Computers in Aviation OR	
CS 109	Introduction to Computer Programming w/BASIC OR	
CS 210	Scientific Programming	3
EC 210	Microeconomics OR	
EC 211	Macroeconomics	3
HU 122	English Composition and Literature I	3
HU 123	English Composition and Literature II	3
HU 219	Speech	3
HU 221	Technical Report Writing	3
HU/SS	Elective	3
MA 111	College Math for Aviation I	3
MA 112	College Math for Aviation II OR	
MA 211	Statistics w/Aviation Applications	3
MS 105	American Business Enterprise OR	
MS 201	Principles of Management	3
PS 102	Explorations in Physics	3
SF 200	Safety Program Management	3
SF 219	Aviation Psychology	2
SF 303	Introduction to Aircraft Structures	3
SF 308	Subsonic Aerodynamics	3
SF 330	Aircraft Accident Investigation	3
TOTAL		<hr/> 63

## *Professional Aeronautics*

**Bachelor of Science  
Associate in Science**

### **INTRODUCTION**

The Professional Aeronautics degree program was conceived and developed for the individual who has already acquired a body of aviation knowledge and an identifiable set of aviation skills through experience or a combination of training and experience. The curricula of the associate and bachelor programs are designed to build on this specialized core of knowledge and experience. In addition to the general education requirements, the degrees provide required and elective courses to prepare the student for career growth and increased responsibility.

### **SPECIAL ADMISSION REQUIREMENTS**

Admission to Professional Aeronautics is restricted to individuals who possess an aviation skill or skills as identified under the areas of concentration listed on the following pages.

## ADVANCED STANDING

Aeronautical Technology credit will be granted enrolled students for completion of the training and experience specified by the University for the various approved areas of concentration. The number of credits granted depends upon the combination of professional credentials, qualifications, and the length and level of experience.

Subsequent enrollment in courses related to the aeronautical specialty for which aeronautical technology credit has been granted is inconsistent with the philosophy of the Professional Aeronautics degree. Credit for courses of this type will not be applied toward the requirements for the degree.

## AREAS OF CONCENTRATION

The approved areas of concentration, specific qualifications and the range of credit hours available are as follows:

### **Aircraft Dispatcher (45 Credit Hours):**

Individuals who have obtained an FAA Aircraft Dispatcher Certificate and have been employed as an Aircraft-Flight Dispatcher for three years.

### **Airline Command Pilot (60 Credit Hours):**

This Area of Concentration is open to individuals who possess the following qualifications and experience: (1) have a record of employment as a pilot by a major airline (an airline operating under FAR Part 121) and qualified to fly as captain; (2) an FAA Airline Transport Pilot Certificate with at least one type rating in a current air carrier aircraft; and (3) a minimum of 5,000 flight hours as pilot-in-command or second-in-command in aircraft with a maximum certified gross takeoff weight of more than 70,000 pounds.

### **Airways Facilities Technology (60 Credit Hours):**

Technicians who have attained journeyman level in computers, navigational aids, communications, radar or Navy airways maintenance career fields.

### **Air Carrier Pilot (45 Credit Hours):**

Individuals with a record of employment by a major airline (an airline required to operate under FAR Part 121) as pilot, first officer, or second officer, and have a minimum of 1,000 hours as pilot-in-command or second-in-command in current air carrier aircraft.

### **Air Traffic Control Technology (60 Credit Hours):**

Technicians who have attained journeyman level qualifications as flight service specialists, enroute air traffic controllers, or terminal air traffic controllers.

### **Aviation Maintenance Technology (Civilian Aviation Maintenance Personnel)(45 Credit Hours):**

Individuals who possess an FAA Airframe and Powerplant Certificate, a minimum of three years work experience in aviation maintenance subsequent to obtaining FAA certification, and which experience is on aircraft operated by a major airline in accordance with FAR Part 121 or

aircraft which are turbine powered, pressurized and operated by a corporation.

**Aviation Maintenance Technology (Military Aviation Maintenance Personnel)(45 Credit Hours):**

Individuals who possess an FAA Airframe and Powerplant Certificate and a minimum of five years work experience in military aviation maintenance.

**Aviation Safety Technology (60 Credit Hours):**

Military aviators/pilots who have additionally completed an approved Aviation Safety Officer Program (36 months OJT).

**Certified Flight Instructor (18 Credit Hours):**

Individuals who possess an FAA Flight Instructor Certificate with Instrument rating and a minimum of 500 hours experience as a flight instructor.

**Commuter Airline Pilot (30 Credit Hours):**

Individuals who (1) have a record of employment by air carriers holding FAA operating certificates under Part 135; (2) hold an FAA Airline Transport Pilot Certificate with a Multi-Engine rating; and (3) have a current Part 135 pilot-in-command flight check.

**Corporate Pilot (45 Credit Hours):**

Individuals with a record of employment as a pilot in corporate aviation, who possess a type rating, and have a minimum of 1,000 hours as pilot-in-command or second-in-command in turbine-powered aircraft.

**Electronic Operations/Maintenance Technology (30 Credit Hours):**

Individuals who have attained supervisory level in an approved aviation electronics specialty.

**Flight Technology (45 Credit Hours):**

Rated military aviators/pilots (36 months OJT).

**Navigation Systems Technology:**

Individuals with 48 months experience (including required schooling) in one of the following specializations will receive credit as indicated:

Navigator (30 credit hours)

Electronic Warfare Officer (45 credit hours)

Navigator Bombardier (45 credit hours)

Weapons Systems Officer (45 credit hours)

Specialists and technicians who have acquired requisite military training and experience in an aviation occupation listed below may be eligible for 18 to 30 semester hours of aeronautical technology credits.

Aircraft Maintenance

Aviation Weather

Electronic Operations/Maintenance

Flight Operations Administration

Flight Simulation Operations



## DEGREE REQUIREMENTS

### **Bachelor of Science in Professional Aeronautics**

Including the aeronautical technology credits granted on the basis of professional qualifications, the Bachelor of Science degree requires 126 credit hours. The curriculum provides study opportunities in the humanities, social sciences, mathematics, physical sciences, computer science, aeronautical science, economics and management. Specific course requirements are listed on the curriculum page that follows.

### **Associate in Science in Professional Aeronautics**

Qualification for one of the approved areas of concentration and the equivalent of three trimesters of study may be combined to complete the Associate degree. At least 63 credit hours including the aeronautical technology credit awarded for professional qualifications are required for the degree. Study embraces the humanities, social sciences, physical sciences, mathematics, computer science, economics and management.

For those who qualify for 30 or more aeronautical technology credits; 24 may be applied to the Associate degree, 18 credits in aeronautical technology and 6 credits as open electives.

Candidates who qualify for the Aircraft Maintenance area of concentration may elect to take the Type 65 series of AMT courses. (AMT 240, AMT 260, AMT 270, AMT 280, AMT 360, AMT 380) totaling 21 credit hours. Selection of this option necessitates the following modification to the standard curriculum listed in the first column on the Curriculum page.

1. AS 253 course requirement deleted.
2. AMT 360 and AMT 380 are utilized as specified electives.
3. AMT 240, AMT 260, AMT 270, and AMT 280 are utilized as open electives.

The resulting total requirement for the Associate in Science degree is 72 credit hours.

## ASSOCIATE AND BACHELOR CURRICULUM

The curriculum to be followed by each student depends upon the amount of aeronautical technology credit granted in the approved area of concentration. The curriculum listed below is organized according to the different amounts of aeronautical technology credit normally available.

The credit awarded in an approved area of concentration encompasses all related training and experience completed by the student. Training and experience in unrelated specialties will be evaluated in accordance with advanced-standing procedures described elsewhere in the catalog. For example, a candidate who qualifies for the air carrier pilot area of concentration will not be granted additional advanced

standing credit for related aeronautical science and flight technology courses. The policy of not granting duplicate credit applies in this and other similar instances.

Following is an outline of the several curricular requirement tracks based upon the amount of aeronautical technology credit granted. The column on the left identifies the Associate degree curriculum and the other four columns are applicable to the Bachelor degree.

CURRICULUM	Associate		Bachelor		
AERONAUTICAL TECHNOLOGY CREDIT (lower level)	18	18	20	30	40
(For Professional Qualifications) (upper level)			10	15	20
AERONAUTICAL SCIENCE					
AS 253 History and Regulation of Aviation	3	3	3	3	3
AS 405 Aviation Law	3	3	3	3	3
HUMANITIES AND SOCIAL SCIENCES					
English Composition and Literature	6	6	6	6	6
Speech		3	3	3	3
HU 221 Technical Report Writing	3	3	3	3	3
HU/SS Electives	3	6	3	3	3
HU/SS Electives (300-400 level)		3	3	3	3
COMPUTER SCIENCE/MATHEMATICS					
CS 109 Introduction to Computer Programming w/BASIC OR					
CS 105 Introduction to Computers in Aviation	3	3	3	3	3
MA 111 College Math for Aviation I	3	3	3	3	3
*MA 112 College Mathematics for Aviation II OR					
MA 320 Decision Mathematics	3	3	3	3	3
MA 211 Statistics with Aviation Applications		3	3	3	3
PHYSICAL SCIENCES					
Physical Science, chemistry, physics, earth science, astronomy, geology, biology, zoology and physiology courses.	3	6	6	6	6
ECONOMICS/MANAGEMENT					
EC 211 Macroeconomics		3	3	3	3
**EC 210 Microeconomics	3	3	3	3	3
MS 105 American Business Enterprise OR					
MS 201 Principles of Management	3	3	3	3	3
MS 110 Accounting I		3	3	3	3
SPECIFIED ELECTIVES: (select from list)	3	33	27	18	12
OPEN ELECTIVES (any discipline)	6	18	15	9	
TOTAL	63	126	126	126	126

**SPECIFIED ELECTIVES:**

- AS 309, AS 310, AS 352, AS 357, AS 360, AS 401, AS 409, AS 410, AS 412
- AMT 360, AMT 380
- CS 318
- EC 310, EC 420

MS 308, MS 311, MS 312, MS 314, MS 317, MS 320, MS 322, MS 331,  
MS 332, MS 335, MS 401, MS 405, MS 408, MS 410, MS 412, MS 415,  
MS 419, MS 420, MS 421, MS 425, MS 431, MS 433  
SF 303, SF 308, SF 330

\*Either MA 112 or MA 211 satisfies the requirements of the Associate degree curriculum.

\*\*Either EC 210 or EC 211 satisfy the requirements of the Associate degree curriculum.

# Course Descriptions

Courses numbered 100-199, 200-299, 300-399 and 400-499 are generally taken in the freshman, sophomore, junior and senior years, respectively. Because of the career orientation of Embry-Riddle's degree programs, this condition will not always apply. The student is cautioned to plan ahead so as to meet necessary prerequisites in a timely manner. Courses numbered 300 and above are upper division courses and reflect the advanced level in the technical skill and/or designated discipline. Course numbers ending in 95 identify special courses offered on a limited time basis such as courses taught by a visiting lecturer; numbers ending in 96 or 97 identify special courses which are sequential; numbers ending in 98 identify courses in which students are collectively given a unique program of learning activities by a supervising instructor, and numbers ending in 99 identify courses involving individual study with a one to one relationship between instructor and student.

The course offerings of the University are described below in alphabetical order by course designations:

AE	Aeronautical Engineering
AF	Air Force Aerospace Studies
AMT	Aviation Maintenance Technology
AS	Aeronautical Science
AV	Avionics Technology
CE	Cooperative Education
CIS	Computer Information Systems
CS	Computer Science
EC	Economics
EE	Electrical Engineering
EL	Electronics Technology
ES	Engineering Science
ET	Engineering Technology
FA	Flight Academic
HU	Humanities
MA	Mathematics
MS	Management Science
MY	Military Science
PS	Physical Science
SF	Safety of Flight
SS	Social Science

Corequisites and prerequisites may be waived by permission of the responsible department chair or resident center director.

Not all courses are taught every trimester or at all locations.

# AERONAUTICAL ENGINEERING

## **AE 101 — Introduction to Aeronautical Engineering** 2 Credits

An overview of aerospace engineering. History; basic physical laws; aerodynamics and flight; stability and control; high speed flight; structures; reciprocating engines; reaction engines. To be taken during the first year. Corequisite: MA 241. (Offered only at the Prescott campus.)

## **AE 301 — Aerodynamics I** 3 Credits

The atmosphere. Incompressible and compressible one-dimensional flow. Airspeed measurement. Two-dimensional potential flow. Circulation theory of lift. Thin airfoil theory. Viscous flow. Boundary layers. Finite wing theory. Drag in incompressible flow. Wing-body interactions. Prerequisites: CS 210, ES 304, MA243. Corequisite: ES 305.

## **AE 302 — Aerodynamics II** 3 Credits

Laminar and turbulent flows, transition point, determination of skin friction drag on an airfoil. Obtaining equations for streamline, for particle path, and for streakline in a flow field. Compressible flow, shock waves, thermodynamics of gas flow. Reversible and irreversible processes. Changes in pressure, density and temperature across shock waves. Isentropic duct flow and flow through a nozzle. Static performance and maneuvers in flight. Propeller theory. Prerequisite: AE 301.

## **AE 304 — Aircraft Structures I** 3 Credits

Space structures. Introduction to fuselage truss analysis and wing structural analysis. Inertia force and load factor computation for various flying and landing conditions. Elasticity and combined stress analysis. Beam bending. Area moment of inertia tensor. Shear flow in thin-walled sections. Materials considerations. Finite-element modeling and computer-aided analysis. Prerequisites: CS 210, ES 302, ES 303.

## **AE 309 — Experimental Aerodynamics** 2 Credits

This laboratory consists of a series of aerodynamic experiments using the wind tunnel, simple and multiple manometers, and a strain gauge force balance. Experiments concerning closed duct flow include diffuser efficiency tests, venturi performance and pitot-static speed calibration. Pressure measuring experiments include boundary layer velocity profiles, airfoil pressure coefficients, and momentum drag. Tests using the force balance include plain and flapped wing performance measurement and complete airplane model tests. Prerequisite: CS 210. Corequisite: AE 301.

## **AE 401 — Advanced Aerodynamics I** 3 Credits

An advanced-level presentation of the theory and applications of incompressible aerodynamics. Kinematics and dynamics of fluid

flow. Flow about a body. Shock tube flow. Thin airfoil and finite wing theory. Approximation techniques; numerical methods. Introduction to compressible flow. Prerequisites: AE 302, MA 441.

**AE 402 — Advanced Aerodynamics II** **3 Credits**  
A continuation of AE 401. Wave phenomena; normal and oblique shocks. Prandtl-Meyer flow. Compressible flow about airfoils, wings and wing-fuselage combinations. Viscous flow; the Navier-Stokes equations. Similarity. Boundary layer flows and methods of analysis. Turbulent flows. Prerequisite: AE 401.

**AE 404 — Aircraft Structures II** **3 Credits**  
Shear flow and bending stress analysis of semi-monocoque structural members. Tapered beams; beams with unsymmetrical cross section. Cutouts in wing and fuselage members. Deflection analysis using energy methods; shearing deformations; wing warping and twisting. Structural stability. Connections. Computer-aided analysis. Prerequisite: AE 304.

**AE 407 — Matrix Structural Methods** **3 Credits**  
Linear algebra. Energy methods for elastic media. Rod, beam and shear panel elements. Matrix formulation and solution procedures for structural analysis. Substructures. Free vibration. Prerequisite: AE 404.

**AE 408 — Turbine and Rocket Engines** **3 Credits**  
A study of ramjets, pulsejets, turbojets and turboprops. Thrust efficiency, fuel consumption, nozzle flow and Rayleigh and Fanno line conditions. Subsonic and supersonic diffusers, mass flow, energy transfer, centrifugal and axial compressors, engine and aircraft flight performance, solid and liquid propellant rocket motors. Prerequisite: AE 302.

**AE 411 — Advanced Experimental Aerodynamics** **3 Credits**  
A technical elective course consisting of a series of advanced experiments using the wind tunnel. Topics include model design and construction, testing procedures, control surface testing, propeller testing, the use of wind tunnel data, scale effects, complete model testing. Introduction to supersonic testing is also included. Prerequisite: AE 309.

**AE 413 — Airplane Stability and Control** **3 Credits**  
Development of longitudinal, lateral and directional stability and control, control surface design, control effectiveness and size requirements. Dynamic control theory. Handling characteristics of aircraft. Prerequisites: MA 345, CS 210. Corequisite: AE 302.

**AE 415 — In-Flight Laboratory** **3 Credits**  
Development of longitudinal and lateral-directional, static and dynamic stability and excess power, rate of climb, turn rate, and load factor performance theory, with laboratory concept validations. Prerequisite: AE 413.

**AE 420 — Aircraft Preliminary Design** **3 Credits**  
Airplane conceptual design principles are developed to meet modern aerodynamic, propulsion, structural and performance specifications. A complete airplane is designed, resulting in a design package consisting of specifications, aerodynamic calculations, inboard profile drawing, weight and balance, general arrangement drawing, aerodynamic drag analysis and complete performance report. Prerequisites: AE 413, ET 110.

**AE 421 — Aircraft Detail Design** **3 Credits**  
Principles of aircraft detail and component part design, manufacture and production are covered along with projects to give actual experience in the design of aircraft components. Carries the design and analysis of an airplane from the general layout to the design of its detail parts and the design of necessary tools. Prerequisites: AE 404, AE 420.

**AE 425 — Aircraft Acoustics and Noise Control** **3 Credits**  
Sound wave characteristics, levels and directivity. Hearing and psychological effects of noise. Noise control criteria and regulations. Instrumentation. Noise sources. Acoustics of walls, barriers and enclosures. Acoustical materials and structures. Noise characteristics of jet and propeller aircraft, including helicopters. Prerequisite: AE 301.

**AE 430 — Control Systems Analysis and Design** **3 Credits**  
Modeling, analysis, and control of dynamical systems with aerospace applications. Transfer functions, block diagram algebra. Routh-Hurwitz stability criteria. Introduction to system design using root locus, Bode and Nyquist diagrams. Prerequisites: ES 402, MA 441.

**AE 433 — Aerodynamics of the Helicopter** **3 Credits**  
The development of rotating-wing aircraft and the helicopter. Hovering theory and vertical flight performance analysis. Auto-rotation, physical concepts of blade motion and control, aerodynamics and performance of forward flight. Blade stall, stability and vibration problems. Design problems. Prerequisites: AE 302, MA 441.

**AE 299, 399, 499 — Special Topics in Aeronautical Engineering** **1-5 Credits**  
Lectures, laboratories or seminars on selected topics in aeronautical engineering. Prerequisite: Consent of instructor and the department chair. May be repeated with a change of content.

## **AIR FORCE AEROSPACE STUDIES**

**AF 101 — U.S. Military Forces (General Military Course)** **1 Credit**  
Examines the role of the U.S. military in today's world, through a study of all Department of Defense forces and missions. Emphasizes

the purpose, organizations, equipment and capabilities of the U.S. Air Force as they relate to the total force structure. The Leadership Laboratory exposes students to the organization and function of a military unit.

**AF 102 — U.S. Military Forces (General Military Course) 1 Credit**

Continuation of AF 101.

**AF 201 — The Development of Air Power (General Military Course) 1 Credit**

Includes the development of flight from balloons through the current employment of U.S. air power including peaceful employment such as relief missions and civic action programs through 1984. The Leadership Laboratory exposes students to the function and organization of a military unit.

**AF 202 — The Development of Air Power (General Military Course) 1 Credit**

Continuation of AF 201.

**AF 301 — Air Force Management and Leadership (Professional Officers Course) 3 Credits**

A study of the managerial and leadership responsibilities of an Air Force officer. An in-depth study of those areas providing leaders with the expertise to develop and manage the human resources needed to achieve organizational goals. The course includes effective use of the communicative skills — listening, speaking and writing to effectively manage an organization. Other topics include an understanding of how behaviors, habits and attitudes, time management, and human motivation increases performance. A leadership laboratory also provides responsibility, authority and leadership experiences in line and staff positions of an organization.

**AF 302 — Air Force Management and Leadership (Professional Officers Course) 3 Credits**

Continuation of AF 301.

**AF 401 — National Security Forces in Contemporary American Society (Professional Officers Course) 3 Credits**

An examination of the professional military officer and conditions that affect civil-military relations. This includes an in-depth analysis of the international and domestic environment as it affects formulation and implementation of the U.S. defense policy. Additional study involves the framework of defense policy, evolution of U.S. strategy, and the management of conflict. The course concludes with an examination of the military justice system and its implications for the professional officer. The Leadership Laboratory provides advanced leadership experiences in military officer activities.

**AF 402 — National Security Forces in Contemporary American Society (Professional Officers Course) 3 Credits**

Continuation of AF 401. The Leadership Laboratory prepares students to deal with entry into active duty with the USAF.



# AVIATION MAINTENANCE TECHNOLOGY

AMT courses designated as Type 65 are available at International Campus locations only.

**AMT 101 — Physical Mathematics** **2 Credits**  
The fundamentals of mathematics and physical science appropriate to and combined with mechanical drawing necessary for the training of the aviation maintenance technician.

**AMT 102 — Aviation Regulations, Records and Documents** **2 Credits**  
A presentation of Federal Aviation Regulations pertinent to aircraft maintenance and the associated documents, publications records and weight and balance computations.

**AMT 103 — Basic Electricity** **3 Credits**  
A study of basic electrical theory and its application to aircraft systems to include inspection and repair of aircraft circuits, and electrical components.

**AMT 104 — Aircraft Servicing Procedures** **2 Credits**  
A familiarization course in aircraft servicing. Standard procedures of ground operation, movement, and the safety precautions necessary to aircraft line operations.

**AMT 105 — Aviation Material** **3 Credits**  
An introduction to the tools, hardware and materials used in aircraft maintenance and repair. This course includes the processes of inspection and testing used in aviation.

**AMT 201 — Aircraft Structures and Sheet Metal Fabrication** **4 Credits**  
A study of aircraft structural characteristics and methods of fabrication with an emphasis on aluminum sheet metal applications. Explains metal-working processes and develops the techniques necessary for airworthy manufacture. Prerequisite: AMT 105.

**AMT 202 — Aircraft Wood, Fabric and Finishes** **2 Credits**  
A course of study encompassing the use of wood and various fabrics in structural design of aircraft, and the methods of working and finishing these materials. Includes the application of paint, dope and resins.

**AMT 203 — Aircraft Instruments and Communication/Navigation System** **2 Credits**  
This course familiarizes the student with the aircraft instruments and their functions: communication and navigation equipment, including removal and installation procedures.

**AMT 204 — Aircraft Welding, Assembly and Rigging 4 Credits**  
The theory and practice of welding methods used in aircraft construction is thoroughly covered with emphasis on gas welding and advanced work in heli-arc welding. Airframe assembling operation is explained and demonstrated as well as control and rigging adjustments.

**AMT 205 — Aircraft Electrical Systems 4 Credits**  
The types and characteristics of aircraft electrical circuits and components are compared and evaluated. Advanced electrical systems as used in corporate and airline aircraft are studied. The course includes troubleshooting and repairs of A-C and D-C electrical systems and equipment. Prerequisite: AMT 103.

**AMT 206 — Hydraulic and Pneumatic Systems 2 Credits**  
The operation and maintenance of aircraft hydraulic and pneumatic systems are analyzed together with the study of these systems as they are used in corporate and airline type aircraft. The methods of repair and replacement of components are examined as well as ground test and servicing equipment.

**AMT 207 — Aircraft Environmental and Fuel Systems 3 Credits**  
A study of the various types of systems used for cabin atmospheric control in advanced aircraft systems including those found on corporate and airline type aircraft. Heating, cooling, pressurization as well as oxygen supply are included in the study. Additional study is directed towards the various fuel storage and distribution systems used in small and large aircraft. Prerequisite: AMT 104.

**AMT 208 — Aircraft Landing Gear Systems 3 Credits**  
A study of aircraft landing gear structures and operating systems to include the maintenance and repair procedures for retraction systems, shock strut, brakes, wheels, tires and ground steering equipment. Included in the course are the advanced landing gear systems used in narrow and wide body jet airliners. Prerequisite: AMT 104.

**AMT 209 — Aircraft Reciprocating Engines 3 Credits**  
A basic study of the theory of operation of reciprocating engines and determination of efficiency. The effectiveness of lubrication systems and lubrication component repair methods.

**AMT 210 — Aircraft Powerplant Systems 3 Credits**  
A study of the operation of powerplant component systems; fuel metering and distribution, superchargers, heat exchangers, and exhaust manifolds. Inspection and repair processes are applied to operating engine systems.

**AMT 211 — Engine Electrical and Ignition Systems 3 Credits**  
This course consists of the study of various electrical systems used in support of the reciprocating engine to include methods of generating, timing and distributing ignition energy. Included in the course are the testing and overhaul procedures for engine electrical components to include the latest advanced magneto systems. Prerequisite: AMT 103.

- AMT 212 — Propellers and Propeller Systems** **3 Credits**  
 A study of the theory, operation and control of aircraft propellers and related systems. Includes methods of installation, maintenance and repair of propeller systems.
- AMT 213 — Engine Installation and Operation** **2 Credits**  
 A course of study which details the correct methods of installation, inspection and run-up check of powerplants. Includes fuel, oil and electrical adjustments on operational aircraft engines. Prerequisites: AMT 210 and 211.
- AMT 214 — Reciprocating Engine Overhaul** **4 Credits**  
 This course contains a detailed study supported by the actual overhaul of operational reciprocating engines. Included is a study of the procedures and acceptable techniques used in engine disassembly, inspection, repair and reassembly. Advanced techniques of non-destructive testing are included in this course. Prerequisite: AMT 209.
- AMT 215 — Turbine Engines and Turbine Engine Systems** **6 Credits**  
 A study of the theory of operation of the turbine engine and the function of the engine components. Overhaul and testing procedures are covered including disassembly, inspection, repair, reassembly and operational tests of engines and accessories.
- AMT 216 — Aircraft Maintenance for Pilots** **3 Credits**  
 A course designed to broaden the knowledge of the professional pilot and give an intimate knowledge of the airframes and powerplants of aircraft. Subject areas include the 25 items of preventive maintenance that a pilot is authorized to perform by FAR Part 43.3(h).
- AMT 240 — General Aeronautics and Applications** **3 Credits**  
 An introduction to general aeronautics. Includes a study of physical mathematics, weight and balance, FAA Regulations, AN hardware and aircraft servicing. (Type 65.)
- AMT 260 — Aircraft Electrical Systems Theory** **3 Credits**  
 An introduction to aircraft electrical systems. Includes a study of the principles, theories and concepts of basic DC and AC electrical theory, magnetism, batteries, generators, motors, voltage regulators, wiring, circuit protection, and electrical component installations. (Type 65.)
- AMT 270 — Airframe Structures and Applications** **4 Credits**  
 A study of aircraft wood, dope, fabric, sheet metal, welding theory and methods of fabrication. (Type 65.)
- AMT 280 — Powerplant Theory and Applications** **4 Credits**  
 An indepth study of the reciprocating engine to include theory, construction, fuel metering, lubrication, exhaust, engine installation and overhaul, and operational maintenance procedures. (Type 65.)
- AMT 355 — Aircraft Maintenance Practicum** **8 Credits**  
 Enrolled students who have a minimum of 18 months on-the-job experience subsequent to technical training in an approved aircraft maintenance specialty may receive credit for this course after comple-

tion of all required Type 65 AMT course work. (This course applies only to the Type 65 AMT Program.)

**AMT 360 — Airframe Systems and Applications** **3 Credits**  
A study of airframe hydraulic, pneumatic, environmental, fuel, landing gear and auxiliary systems. (Type 65.)

**AMT 380 — Aircraft Propulsion Systems and Applications** **4 Credits**  
A comprehensive study of theory, principles of operation, controls and systems for propellers and turbine engines. (Type 65.)

**AMT 455 — Advanced Aircraft Maintenance Practicum** **8 Credits**  
Enrolled students who are qualified for the award of AMT 355 credit and have a minimum of 30 months on-the-job experience subsequent to technical training in an approved aircraft maintenance specialty may receive credit for this course after completion of all required Type 65 AMT course work. (This course applies only to the Type 65 AMT Program.)

## AERONAUTICAL SCIENCE

**AS 100 — Foundations of Aeronautics** **4 Credits**  
Aerodynamics, engines, systems, Federal Aviation Regulations, navigation, meteorology, communication, Airman Information Manual, and flight physiology. The student is eligible to take the FAA Private Pilot written examination upon satisfactory completion. (This course offered only by the International Campus.)

**AS 150 — Aeronautics I** **5 Credits**  
A study of the basic aeronautical subject areas necessary for the student to satisfactorily operate an aircraft as a Private Pilot. Subjects include: basic aerodynamics, aircraft performance, weights and balance, Federal Aviation Regulations, aircraft systems and operating procedures, VFR flight planning and the physiological aspects of flight. At the completion of this course, the student will be prepared to take the FAA Private Pilot Written Examination.

**AS 201 — Meteorology I** **3 Credits**  
A survey of the basic concepts and processes of atmospheric phenomena and their relation to aeronautical conditions. Included is a systematic development of the following: thermal patterns, atmospheric moisture, horizontal and vertical pressure patterns, clouds, atmospheric circulation, local winds, tropical weather, stability, air masses, fronts, fog, icing, thunderstorms, jet streams and turbulence. Weather data studied includes: surface weather observations, surface maps, and constant pressure maps.

**AS 211 — Aircraft Engines and Systems** **3 Credits**

Reciprocating and gas turbine engines, power and thrust measurement, and operating principles. Oil, fuel, hydraulic, electrical and pneumatic systems. Not available to Aeronautical Science students or Airway Science students with an area of concentration in Flight.

**AS 250 — Aeronautics II** **3 Credits**

A study of the techniques, procedures, and regulations pertaining to instrument flight in the National Airspace System. Topics include: attitude instrument flying, navigational equipment and facilities, the airway system, and air traffic control procedures. At the completion of this course, the student will be prepared to take the FAA Instrument Airplane Written Examination. Prerequisite: AS 150.

**AS 251 — Aeronautics III** **3 Credits**

A study and review of the operations, regulations, and procedures necessary to perform competently as a Commercial Pilot. Subjects include: complex and multiengine aircraft operations, advanced weight and balance computations and cross-country planning, meteorology, FAR, AIM and other flight publications. Study includes a discussion of precision flight maneuvers required for Commercial Pilot Certification. At the completion of this course, the student will be prepared to take the FAA Commercial Pilot Written Examination. Prerequisite: AS 250.

**AS 253 — History and Regulation of Aviation** **3 Credits**

A survey of aviation from its early development to the present. Emphasis is on the historical and legislative aspects as they related to the development and control of aviation by the government. Past and present historical and legislative events and acts will be examined to demonstrate this correlation in the development of aviation as it is today.

**AS 305 — Aircraft Engines — Reciprocating** **3 Credits**

Mechanical relationships, components, construction, power calculations, carburetion, induction, fuel-air requirements, and federal regulations.

**AS 309 — Basic Aerodynamics** **3 Credits**

Incompressible flow Airfoil theory, wing theory. Calculation of stall speed, drag and basic performance criteria. Configuration changes, high and low speed conditions. Special flight conditions. Introduction to compressible flow. Prerequisite: PS 104.

**AS 310 — Aircraft Performance** **3 Credits**

Aerodynamic performance of aircraft powered by reciprocating, turboprop or jet turbine engines. Stability and control, weight and balance and operating data. Prerequisite: AS 309. Corerequisite: AS 311.

**AS 311 — Aircraft Engines — Turbine** **3 Credits**

Thrust factors, gas generators, Mach effects, diffusion, turbofans and turboprops. Prerequisite: PS 104.

**AS 352 — Meteorology II** **3 Credits**  
An expansion of Meteorology I including the following theoretical concepts: hydrostatic instability, baroclinic instability, thermal wind, and kinematic fields. These will be integrated into real time weather analysis of synoptic patterns involving mid-latitude cyclones, frontal systems, and jet streams. The anatomy of severe thunderstorms, particularly as applied to aviation hazards, will be treated in detail through analyses of recent major aircraft accidents. Practical application will be achieved in current weather discussions, which will be given by teams of students. In addition, study of weather radar, solar aspects, and satellite meteorology will be accomplished. Prerequisites: AS 201, PS 104.

**AS 355 — Global Navigation** **3 Credits**  
Worldwide navigation of high performance transport aircraft, to include: aeronautical chart construction, time zones, coordinates, calculation of spherical distance and course; climb, enroute and descent performance of typical transport aircraft, electronic calculator solution of decision point problems, long range flight planning of transport aircraft including electronic computer solutions of most economical altitudes and flight paths, and basic principles of worldwide navigational systems. Prerequisites: AS 251, AS 310.

**AS 356 — Aircraft Systems and Components** **3 Credits**  
Electrical, environmental, hydraulic, fuel, ignition and lubrication systems including theory of operation and calculations. Prerequisites: PS 104.

**AS 357 — Flight Physiology** **3 Credits**  
Aeromedical information. Causes, symptoms, prevention and treatment of flight environment disorders. Altitude effects, spatial disorientation, body heat imbalance, visual anomalies and psychological factors are included as they relate to pilot performance and survival effectiveness.

**AS 360 — Introduction to Air Traffic Control** **3 Credits**  
This course provides the student with an introduction to the air traffic control system at the operational level. It describes the components of the National Airspace System with emphasis on interrelationships between enroute, terminal, tower, flight service functions and the pilot.

**AS 361 — Enroute/Terminal Non-Radar Air Traffic Control** **3 Credits**  
This course covers the basic Air Traffic Control procedures for Instrument Flight Rules (IFR) operations, separation standards, holding aircraft, departures/arrivals, and general and special controls. Students will have the opportunity to practice air traffic control skills. Prerequisite: AS 360.

**AS 396 — Air Traffic Control Practicum I** **9 Credits**  
This course consists of instruction/training conducted for a period of six months at a Federal Aviation Administration (FAA) enroute or ter-

minal facility. It includes facility training in a non-radar environment to prepare the student for Assistant Controller Certification while being operationally productive. Prerequisites: AS 360, a satisfactory score on the FAA written examination for air traffic control program applicants and selection for an internship in accordance with criteria specified in FAA Region/Embry-Riddle Aeronautical University written agreements.

**AS 401 — Airport Development and Operations** **3 Credits**  
Managerial problems of small and medium size airports and fixed base operations. Federal, state and local obligations. Leases, internal guidelines, community relations. Prerequisite: AS 253.

**AS 404 — Principles of Instruction I** **3 Credits**  
Development of a flight training syllabus, lesson plan construction, teaching methods. Application of teaching and learning fundamentals to flight maneuvers and performance evaluation. Prerequisites: Commercial Pilot Certificate or FA 302 or FA 315.

**AS 405 — Aviation Law** **3 Credits**  
Chronological development, federal and state regulatory functions, rights and liabilities of pilots and operators. Case histories, liens and security interest in aircraft. International conferences, bilateral and multilateral agreements, criminal statutes. Prerequisite: AS 253.

**AS 406 — Principles of Instruction II** **3 Credits**  
Educational theories and techniques. Applied educational psychology. Development of methods for instrument flying instruction. Cognitive and motivational theories. Prerequisites: AS 404 or a CFI-Airplane Certificate.

**AS 408 — Flight Safety** **3 Credits**  
Pilot performance as influenced by attitude, motivation and perception. Ideal and practical, personal and organizational safety goals and procedures. Human factors, principles of investigation, surveys of accidents. Prerequisites: AS 309, AS 357, Commercial Pilot Certificate.

**AS 409 — Aviation Safety** **3 Credits**  
Aviation safety for non-flying students. Major problem areas, program evaluation, impact of accidents on industry. Human factors, accident prevention, basic principles of investigation, case surveys of accidents. Not available to Aeronautical Science or Airway Science-Flight students.

**AS 410 — Air Carrier Operations** **3 Credits**  
Air carrier operations as related to the flight crew and dispatcher. FAR Part 121, weight and balance, manifests, planning forms, charts and graphs, performance considerations. Prerequisites: AS 201, AS 251, AS 310.

**AS 412 — Corporate and Business Aviation** **3 Credits**  
Operation of a corporate flight department. Value of management mobility. Aircraft and equipment evaluation, maintenance, flight operations, administration, fiscal considerations.

**AS 452 — Electronic Navigation and Flight Control Systems** **3 Credits**  
Principles, systems analysis, operation and limitations of advanced electronic navigation, flight director and automatic flight control systems, including Inertial Navigation Systems, Inertial Reference Systems, VLF/OMEGA and NAVSTAR; Automatic Flight Control Systems with auto throttle, autoland, go-around computer, and stability augmentation; and flight directors with mechanical, CRT and head up displays. Prerequisites: AS 310, AS355, and AV 301.

**AS 497 — Air Traffic Control Practicum II** **9 Credits**  
This course is a continuation of training received in AS 396 and is preceded by an intervening period of full-time campus study. The course is conducted for a period of six months at an FAA enroute or terminal facility. The student will demonstrate the ability to actually control aircraft in a live environment. Upon satisfactory completion of the course, the student will have attained qualification and certification on a non-radar control position of operation and may be eligible for Civil Service appointment to the FAA when baccalaureate degree requirements are completed. Prerequisites: AS 361, AS 396 and selection in accordance with criteria specified in FAA Region/Embry Riddle Aeronautical University written agreements.

**AS 299, 399, 499 — Special Topics in Aeronautical Science** **1-3 Credits**  
Lectures, seminars, laboratories, independent studies, or combinations of these on selected topics in general aviation. Prerequisites: Consent of instructor and approval of department and program chairs. May be repeated with a change of subject.

## AVIONICS TECHNOLOGY

**AV 301 — Avionics for Aviators** **3 Credits**  
A survey course designed to present to the student the theory of operation, evaluation, purchase, installation and utilization of various types of avionic equipment. Subject areas include radio wave propagation, VHF communication and VOR navigation systems, instrument landing system, automatic direction finder, distance measuring equipment, transponder, weather radar and area navigation systems. (Not available to Avionics Technology students.)

**AV 310 — Aircraft Communications, Navigation, and Landing Systems** **3 Credits**  
An advanced study of electronic communication, navigation and landing equipment used in aircraft. Subject areas include VHF naviga-



tion, communication transceivers, instrument landing systems, microwave landing systems and audio systems. Prerequisites: EL320, EL 323.

**AV 319 — Aircraft Pulse Systems** **3 Credits**

An advanced study of electronic pulse type equipment used in aircraft. Subject areas include distance measuring equipment, secondary radar (transponder), and future discrete address beacon systems. Prerequisites: EL 320, EL 323.

**AV 320 — Aircraft Surveillance Systems** **3 Credits**

An advanced course in surveillance systems used on aircraft. Subject areas include weather radar, low frequency weather mapping systems and radar altimeter systems. Prerequisites: AV 310, AV 319, EL 372.

**AV 323 — Low Frequency and Area Navigation Systems** **3 Credits**

An advanced course in low frequency and area navigation systems on aircraft. Subject areas include Loran C, Automatic Direction Finders, and Area Navigation Systems. Prerequisites: AV 310, AV 319, EL 372.

**AV 324 — Avionics System Integration and Flight Control** **3 Credits**

An advanced course in system integration and flight control used on aircraft. Subject areas include instrumentation, electronic flight instrument systems, data bases, and integrated flight control systems. Prerequisites: AV 310, AV 319, EL 372.

**AV 325 — Long Range Navigation Systems** **3 Credits**

An advanced course in long range navigation systems used on aircraft. Subject areas include long range low frequency navigation systems, inertial navigation, navigation and flight management systems. Prerequisites: AV 310, AV 319, EL 372.

**AV 340 — Avionics Equipment Troubleshooting and Repair Laboratory** **2 Credits**

A laboratory type course designed to apply both electronic and avionics theory to actual hands-on troubleshooting, alignment and repair of avionics equipment. Corequisites: AV 310, AV 319.

**AV 341 — Advanced Avionics Equipment Troubleshooting and Repair Laboratory** **2 Credits**

A continuation of AV 340. The student will gain additional experience in troubleshooting and repair of avionics equipment in ERAU's FAA certified Avionics Repair Station. The student will also be exposed to aircraft system trouble analysis and installation techniques. Prerequisite: AV 340.

**AV 401 — Avionics Communication System Design Considerations** **3 Credits**

An intensive study and investigation of communications systems using a theoretical and mathematical approach. Subjects include: discrete and linear integrated circuits, receivers, transmitters, antennas, propagation, fiber optics, lasers, power systems, system trade-off,

noise and interference consideration. Prerequisites: AV 310, EL 372, PS 110, PS 202, MA 245.

**AV 402 — Avionics Pulse System Design Considerations**

**3 Credits**

An intensive study and investigation of current and proposed microwave pulse systems. Subjects include: digital circuits, pulse equipment design, microwave theory, servo systems, information theory concepts of digital communications, differential phase shift keying and discussions on data link, microwave landing systems and beacon mode S codes with respect to digital data. Prerequisites: AV 319, EL 372, PS 110, PS 202, MA 245.

**AV 411 — Integrated Aviation Logistics Support**

**3 Credits**

An introduction to logistics engineering in aviation support systems. Subjects include: field service, customer service, publications, product support, training, packaging, computer resources, reliability, maintainability, and logistics engineering. Prerequisites: AV 401, AV 402.

**AV 421 — Avionics System Integration and Design**

**3 Credits**

Design applications in avionic system integration and mainframe considerations. Subjects include: avionics package design, aircraft factors that affect avionics package design, FAA regulations and certification, agencies involved in the design, licensing and standardization of avionics systems, and manufacturers specifications. Prerequisites: AV 401, AV 402.

## COOPERATIVE EDUCATION

**CE — 296, 297**

**3 to 6 Credits**

Aeronautical Engineering (AE), Aircraft Engineering Technology (ET), Aviation Management (AM), Avionics (AV), Computer Science (CS), Flight (FL), Maintenance Technology, (MT). Practical learning experience in full-time employment that is related to the student's degree program and career goals. Course title and level are determined by the faculty co-op advisor, based on the work assignment. Prerequisite: Approval by faculty cooperative education advisor and director of cooperative education.

**CE — 396, 397**

**3 to 6 Credits**

Continuation of CE — 296, 297

**CE — 496, 497**

**3 to 6 Credits**

Continuation of CE — 396, 397

# COMPUTER INFORMATION SYSTEMS

## **CIS 110 — Introduction to Computer-Based Systems 3 Credits**

An overview of computer information systems. This survey course introduces computer hardware, software, procedures, systems, and human resources and explores their integration and application in business and in other segments of society. The fundamentals of computer problem solving and programming in a higher-level programming language are discussed and applied.

## **CIS 220 — Applications Program Development I 3 Credits**

An introduction to computer programming in a business environment. Emphasis on structured program design, development, testing, implementation, and documentation of common business-oriented applications using a higher level language. Application of top-down design strategies and structured programming techniques for designing and developing problem solutions. Prerequisite: CIS 110.

## **CIS 230 — Applications Program Development II 3 Credits**

A continuation of CIS 220. Emphasis on structured methodology of program design, development, testing, implementation, and documentation of common business-oriented applications. Coverage of sequential and random access files and processing techniques and development of programs and systems of programs for batch and interactive environments. Prerequisite: CIS 220.

## **CIS 300 — Systems Analysis Methods 3 Credits**

Overview of the system development life cycle. Emphasis on current system documentation through the use of both classical and structured tools/techniques for describing process flows, data flows, data structures, file designs, input and output designs and program specifications. Prerequisite: CIS 220.

## **CIS 305 — Structured Systems Analysis and Design 3 Credits**

Advanced study of structured systems development. Emphasis on strategies and techniques of structured analysis and structured design for producing logical methodologies for dealing with complexity in the development of information systems. Prerequisites: CIS 230, CIS 300.

## **CIS 310 — Data Structures 3 Credits**

Algorithms for basic data structures such as stacks, queues, lists, and trees; algorithms for implementation and use of graphs; design and analysis for internal and external sorting/searching/merging; algorithms for dynamic storage allocation, garbage collection, and compaction. Prerequisites: CIS 230 or CS 216.

## **CIS 400 — Database Program Development 3 Credits**

Introduction to application program development in a database environment with an emphasis on loading, modifying and querying the

database using a host language. Discussion and application of data structures, indexed and direct file organizations, models of data including hierarchical, network and relational. Discussion of storage devices, data administration and data analysis, design and implementation. Prerequisites: CIS 305, CIS 310.

**CIS 405 — Applied Software Development Project 3 Credits**

Application of computer programming and system development concepts, principles and practices to a comprehensive system development project. A team approach is used to analyze, design and document realistic systems of moderate complexity. Use of project management methods, project scheduling and control techniques, formal presentations and group dynamics in the solution of information systems problems. Development of a database to support the system. Prerequisite: CIS 400.

**CIS 410 — Software and Hardware Concepts 3 Credits**

A survey of technical topics related to computer systems with emphasis on the relationships between hardware architecture, system software, and applications software. The architecture of processors and storage systems are explored and the implications for systems software design are covered along with the impact of hardware and system software design on the development of application programs in a business environment. Prerequisite: CIS 230.

**CIS 415 — Office Automation 3 Credits**

Office information and decision support systems are examined. Emphasis is given to information processing considerations at the systems level, including analysis and management of support activities such as records management, electronic filing and retrieving systems, word processing, micro and reprographics, and telecommunications. Prerequisite: CIS 300.

**CIS 420 — Decision Support Systems 3 Credits**

An analysis of the highest level of information support systems which serve the manager user. This system provides quantitative-based information derived from one or more data bases within and/or external to an organization and used to aid managers in the decision-making process. Theoretical concepts will be applied to real-world applications with an analysis of examples from specific organizations. Prerequisite: CIS 110.

**CIS 425 — Advanced Database Concepts 3 Credits**

Investigation and application of advanced database concepts including database administration, database technology and selection and acquisition of database management systems. In-depth practicum in data modeling and system development in a database environment. Overview of future trends in data management. Prerequisite: CIS 400.

**CIS 430 — Distributed Data Processing 3 Credits**

The features of centralized, decentralized and distributed systems will be examined. Technology implications of computer hardware, software and communications are discussed as they relate to the design,

development and implementation of distributed data processing systems. Prerequisite: CIS 400.

**CIS 435 — EDP Audit and Controls** **3 Credits**  
An introduction to the fundamentals of EDP auditing. Emphasis on EDP controls, types of EDP audits, and concepts and techniques use in EDP audits. Exposure to risk assessment and professional standards in the field of EDP auditing. Prerequisite: CIS 400.

**CIS 440 — Information Systems Planning** **3 Credits**  
An introduction to the financial, technical and strategic information systems planning processes. Emphasis on the relationship of the informations systems planning process to the overall business goals, policies, plans, management style and industry condition. Emphasis on the means of selecting large systems projects; assessing the installation's current state; determining processing, staffing, software, hardware and financing approaches. Prerequisite: CIS 405.

**CIS 445 — Information Resource Management** **3 Credits**  
A seminar course providing a broad overview of the information systems management function. The course emphasizes information systems management, with particular attention on planning, organizing and controlling user services and managing the computer information systems development process. Coverage of the subject matter through lectures, readings, discussions and case study analysis. Prerequisite: CIS 405.

## COMPUTER SCIENCE

**CS 101 — Introduction to Keyboard Operations** **1 Credit**  
Fundamental skills and techniques in the operation of the keyboard and use of computers in word processing. Emphasis is placed on the fundamentals of word processing and the development of touch typing with speed and accuracy.

**CS 102 — Word Processing Concepts and Techniques** **1 Credit**  
Introduces students to the fundamentals of keyboard operations and word processing and provides familiarity with various word processing equipment and software. (General elective credit only; not creditable as a computer science elective.)

**CS 103 — Word Processing File Organizations/  
Revisions** **1 Credit**  
Introduces students to the fundamentals of file organizations utilized in word processing systems and develops skills in word processing operations and concepts including data manipulations, storage and sorting. (General elective credit only; not creditable as a computer science elective.)

**CS 104 — Word Processing Advanced Techniques** 1 Credit  
Advanced techniques in word processing operations including data base creation and maintenance, mathematical applications and production of documents and manuscripts. (General elective credit only; not creditable as a computer science elective.)

**CS 105 — Introduction to Computers in Aviation** 3 Credits  
Diverse exposure to the digital computer and its uses and capabilities as a management tool in the aviation field. Topics include basic introduction to systems analysis and management information systems. Contrasts hardware capabilities, programming requirements, and systems analysis and planning.

**CS 109 — Introduction to Computer Programming with BASIC** 3 Credits  
Concepts of algorithms, computers, and programming. Experience with software packages and programming in BASIC. Student develops an appreciation for the kinds of tasks that can (or cannot) be performed by the computer, and the types of analysis and programming necessary to achieve desired results. Corequisite: MA 111 or MA 120 or MA 140.

**CS 115 — Computer Programming I** 3 Credits  
Introduction to problem solving methods and algorithm development; program design, coding, debugging, testing and documentation; programming in a block-structured high-level language. Corequisite: MA 140, MA 141.

**CS 210 — Scientific Programming** 3 Credits  
Introduction to FORTRAN. Flowcharts, psuedocode, input/output, flow of control, looping, arrays, and subprograms are covered. Emphasis is on scientific/engineering programming techniques and applications. Prerequisite: MA 112 or MA 220 or MA 241.

**CS 215 — Computer Programming II** 3 Credits  
Continuation of CS 115 with emphasis on program design, style, debugging, and testing, especially for larger programs; introduction to algorithm analysis; introduction to basic aspects of string processing, recursion, and simple data structures. Prerequisite: CS 115. Corequisite: CS 222.

**CS 216 — Structured Programming** 3 Credits  
Introduction to structured programming using a structured language and emphasis on the fundamental control structures of sequence, selection and iteration, functions and procedures. Data structures include standard data types, user defined data types, and structured data types including arrays, records, sets and files. The philosophy of top-down programming is emphasized throughout the course. Prerequisites: CS 109 or CS 210.

**CS 218 — COBOL Programming** 3 Credits  
A first course in the use of the COBOL language giving a firm foundation in the concepts of structured programming design and structured COBOL programming. It will provide the capability of solving a wide

range of business-type problems using the language. The structured design methodologies used in this course are based on top-down design, functional decomposition, pseudocode, and structured walk-through. Topics include introduction to structured programming and design, input/output operations, arithmetic functions, report editing, comparing nested IF statements, control breaks-single and multiple level, and table processing. Commercial aviation examples are used. Prerequisites: CS 109 or CS 210.

**CS 220 — Digital Logic and Computer Operation**      **3 Credits**  
Number systems, Boolean Algebra, logic gates, design and analysis of digital circuits, digital computer components and digital computer operation. Corequisite: CS 115.

**CS 222 — Introduction to Discrete Structures**      **3 Credits**  
An introduction to the fundamental algebraic, logical, and combinatorial concepts of mathematics and logic needed in subsequent computer science courses. Prerequisites: MA 140 or MA 120, CS 115 or permission of the instructor.

**CS 230 — Organization of Programming Languages**      **3 Credits**  
Specification and analysis of various programming languages; problem solution and programming in each language studied; compilation and interpretation; introduction to formal language concepts. Prerequisite: CS 215.

**CS 235 — Assembly Language Programming**      **3 Credits**  
Introduction to computer architecture; assembler concepts and instruction format; addressing techniques; interrupt processing, especially input/output; segmentation, linkage, and external procedures; programming projects to develop understanding of assembly language concepts. Prerequisites: CS 215, CS 220.

**CS 240 — Introduction to File Processing**      **3 Credits**  
Characteristics and utilization of bulk storage devices; data structures and algorithms used in file processing; sequential and random access files; applications involving file processing packages. Prerequisite: CS 215.

**CS 301 — Introduction to Discrete Structures**      **3 Credits**  
An introduction to the fundamental algebraic, logical, and combinatoric concepts of mathematics and logic needed in subsequent computer science courses. Attention will be focused on learning to formulate an algorithm in some mathematical form and the concise description of computable sets. Application of graph theory in airline scheduling systems. Prerequisite: CS 210.

**CS 312 — Assembly Language Programming**      **3 Credits**  
Symbolic coding techniques at the machine language level. Computer architecture, addressing techniques, interrupt processing. Students develop an understanding of actual operation of a computer code, through hands-on testing. Prerequisites: CS 216 and CS 220 or permission of the instructor.

- CS 315 — Data Structures** **3 Credits**  
 Algorithms for basic data structures such as stacks, queues, lists, and trees; algorithms for implementation and use of graphs; design and analysis of algorithms for internal and external sorting/searching/merging; algorithms for dynamic storage allocation, garbage collection, and compaction. Prerequisite: CS 240.
- CS 318 — Advanced BASIC Programming with Aviation Applications** **3 Credits**  
 Heavy emphasis on file processing techniques, array manipulations and string manipulation. The student will apply structured programming techniques using the extended BASIC language. Prerequisite: CS 109.
- CS 320 — Advanced COBOL with Aviation Applications** **3 Credits**  
 Emphasis is placed on designing and writing programs using structured programming concepts. Topics include sorting multiple input files, sequential file processing — data editing and updating, indexed sequential access method and random updating. Programs are implemented using an indexed sequence access method. Prerequisite: CS 218.
- CS 330 — Systems Design and Documentation** **3 Credits**  
 Introduction to system development cycle and the techniques and problems of planning, analysis, design, implementation, documentation, and evaluation of an information system. Prerequisites: CS 215, HU 221, or permission of the instructor.
- CS 335 — Introduction to Computer Graphics** **3 Credits**  
 Introduction to computer graphics, algorithms, graphics programming, graphics design, use of graphics packages, and applications of computer graphics to aviation, business and scientific problems. Prerequisites: CS 235 and MA 241 or permission of the instructor.
- CS 338 — Numerical Methods** **3 Credits**  
 Floating point arithmetic; error analysis; numerical algorithms in interpolation, integration, differentiation, matrix algebra, approximations, and solutions of equations; use of numerical software packages. Prerequisites: CS 230, MA 242 or permission of the instructor.
- CS 340 — Computer Processing of Statistical Data** **3 Credits**  
 Least square analysis, curve fitting, analysis of variance and covariance in computations. Estimating and trend projections using computer-produced plots along with statistics. Prerequisites: CS 109 or CS 210 and MA 222 or MA 412.
- CS 341 — Database Management Systems** **3 Credits**  
 Introduction to database concepts; examination of the characteristics and use of specific database management systems; practical considerations and applications of database management systems in operational environments. Prerequisite: CS 215.



- CS 350 — Computer Modeling and Simulation** **3 Credits**  
 Introduction to system simulation and modeling; types of models basic to any simulation; techniques of simulation; continuous and discrete simulation, queuing; linear programming; Monte Carlo simulation. Prerequisites: CS 215, MA 412 or MA 222.
- CS 360 — Advanced FORTRAN Programming** **3 Credits**  
 Techniques in data reduction, modular programming at the systems level, array manipulation. Practical applications in applied programming. Prerequisites: CS 210 and permission of the instructor.
- CS 370 — Computer Organization** **3 Credits**  
 Computer system organization to include processors, memory, input/output and transfer of information; examples of conventional machine language architecture to include instruction format and types, addressing, representation and flow of data; microprogramming level, operating system level, and assembly language level. Prerequisites: CS 235, CS 315.
- CS 372 — Introduction to Microprocessors** **3 Credits**  
 Basic concepts of CPU architecture and operation; CPU interface and memory system design; microcomputer system hardware input/output techniques; applications of microprocessors; laboratory experiments involve microprocessor hardware and software. Prerequisite: CS 235.
- CS 410 — Data Structures** **3 Credits**  
 Basic concepts of data: linear lists, strings, arrays, orthogonal lists. Ordering or sorting techniques. Recursion, string and list processing languages. Airline reservation systems used as a course project. Prerequisites: CS 216 and CS 301.
- CS 420 — Operating Systems** **3 Credits**  
 Development, structure, and functions of operating systems; demand service models; development of concurrent models. Prerequisite: CS 370.
- CS 430 — Numerical Analysis** **3 Credits**  
 Systems of equations; approximation by spline functions; numerical methods of solving ordinary differential equations, systems of differential equations, and partial differential equations; finite element method. Prerequisites: CS 338, MA 345.
- CS 436 — Computer Graphics II with Aviation Applications** **3 Credits**  
 Interactive graphics programming stressing program design, picture plotting, input handling, and concepts necessary to implement a graphics subroutine package. Basic mathematics of two-dimensional and three-dimensional geometric and viewing transformations. Prerequisites: CS 335 and MA 242.
- CS 440 — Database Management Systems** **3 Credits**  
 Practical considerations and applications of Database Management Systems (DBMS) in operational environments. Emphasis is on the

activities necessary to analyze, design and implement a database. This is a project oriented course where the student will implement a database to satisfy user needs. A DBMS is used for this project and allow the student the opportunity to develop DBMS applications in assembly, COBOL, FORTRAN, or BASIC languages. Prerequisite: CS 410

**CS 441 — Database Management Systems Design** **3 Credits**  
Introduction to database concepts, data models, data normalization and data description languages. Regional database design using entity-relationship model or other appropriate tools. Conversion of the design to a particular DBMS. Prerequisites: CS 315, CS 341.

**CS 445 — Interfacing** **3 Credits**  
Introduction to microcomputers and microcontrollers, effect of the microprocessor on the system, memory, and microcomputer input/output methods. The subjects of interface components and their characteristics, designing interface circuits, interfacing to standard buses and peripherals. Interface layout and construction. Interface software design and implementation. Prerequisite: CS 372.

**CS 450 — Real-time Systems** **3 Credits**  
Interfacing real-time devices with computers, computer-to-computer communications, timing interrupt processing and queuing. Hands-on implementation of an application to an aviation project. Prerequisite: CS 420.

**CS 455 — Artificial Intelligence** **3 Credits**  
An introduction to how computers can be applied to solve problems, and the principles of human intelligence. Topics include representation mechanics such as procedural and nonprocedural, control strategies, searching strategies, predicate calculus and rule based deductions, goal directed planning, applications of understanding, representation of knowledge frames and scripts, programming languages and databases for artificial intelligence, knowledge based systems, and robotic systems. Prerequisite: CS 315.

**CS 460 — Telecommunications Systems** **3 Credits**  
Techniques and applications in telecommunications. Types of data communication versus line discipline methodology. Hardware requirements and constraints. Speed versus quality. Security and encoding algorithms. Prerequisite: Permission of the instructor.

**CS 465 — Senior Project in Applications of Computers to Aviation** **3 Credits**  
A computer science project involving a practical application to aviation will be carried out. Each student will be under the direction of an individual computer science faculty member. Prerequisite: Senior standing in the computer science program and the consent of the instructor.

## **CS 299, 399, 499 — Special Topics in Computer Science**

**1-6 Credits**

Lectures, laboratories or seminars on selected topics in computer science. Prerequisite: Consent of the instructor and the department chair.

## **ECONOMICS**

### **EC 210 — Microeconomics**

**3 Credits**

An introduction to economic principles, problems and policies with emphasis on microeconomic theory and current domestic problems. Prerequisites: MA 105 or Placement Test.

### **EC 211 — Macroeconomics**

**3 Credits**

An introduction to economic principles, problems and policies with emphasis on macroeconomic theory, business fluctuation, fiscal and monetary policy, and economic growth. Prerequisites: MA 105 or Placement Test.

### **EC 310 — Labor Economics**

**3 Credits**

A survey of the economics of the labor market to include wage determination and employment theory. Labor organization, labor legislation and current developments in labor relations. Prerequisite: EC 210.

### **EC 312 — Money and Banking**

**3 Credits**

A preliminary investigation of the financial institutions of the United States and the relationship of monetary policy to income and price stabilization. Some analysis of international capital flows will also be undertaken. Prerequisites: EC 211, MA 222.

### **EC 420 — Economics of Air Transportation**

**3 Credits**

A study of the economic aspects of airline service with consideration given to the impact of federal aid and regulation, types of aircraft, airport problems, consumer interests and competitive practices. Prerequisites: MS 105 or MS 201, EC210, EC 211.

### **EC 299, 399, 499 — Special Topics in Economics**

**1-4 Credits**

Lectures, seminars, laboratories, independent studies or combinations of selected topics in economics. Prerequisites: Consent of the instructor and approval of the department chair. May be repeated with a change of content.

## **ELECTRICAL ENGINEERING**

### **EE 201 — Linear Circuits Analysis I**

**3 Credits**

Volt-ampere characteristics for passive circuit elements. Resistive network circuit theory and simplification. Kirchoff's current and voltage laws. Introduction to linear network theorems and transformations.

Transient response of RC, RL and RLC circuits. Steady state and impedance circuit analysis for sinusoidal sources. Prerequisites: MA 242, PS 201.

**EE 202 — Linear Circuits Analysis II** **3 Credits**  
Continuation of EE 201. Complex plane, resonance and coupled circuits, Bode diagrams. Introduction to magnetic circuits and transformers. Prerequisite: EE 201.

**EE 203 — Electrical Engineering Laboratory I** **1 Credit**  
Problem sessions, electrical instrumentation and measurement, verification of theory presented in EE 201, working knowledge of electronic test equipment. Corequisite: EE 201.

**EE 204 — Electrical Engineering Laboratory II** **1 Credit**  
Problem sessions, verification of theory presented in EE 202. Elements of circuit modeling and design. Corerequisite: EE 202.

**EE 210 — Electronic Devices and Circuits** **3 Credits**  
Diode, bipolar transistor, and FET circuit models for the design and analysis of electronic circuits. Single and multi-stage analysis and design. Amplifier operating point design, frequency response and Bode plots. Switching of transistors as applied to digital characteristics. Corequisite: EE 202.

**EE 212 — Electronic Circuits Laboratory** **1 Credit**  
Laboratory experiments in the measurement of electronic device characteristics. Design of biasing networks, small signal amplifiers and switching circuits. Corequisite: EE 210.

**EE 220 — Digital Circuit Design** **3 Credits**  
Introduction to logic design and interfacing digital circuits. Boolean algebra, combinational logic circuits, digital multiplexers, circuit minimization techniques, flip-flop storage elements, shift registers, counting devices, sequential logic circuits, R-S 232 interfacing, tri-state and other interfacing techniques. Prerequisite: EE 210.

**EE 222 — Digital Circuits Laboratory** **1 Credit**  
Laboratory experiments in the measurement and verification of digital circuits. Discrete and integrated logic circuits design analysis and measurements. Corequisite: EE 220.

**EE 230 — Operational Amplifiers and A/D —  
D/A Circuits** **3 Credits**  
Design and analysis of operational amplifiers and their use as a building block in many different applications. Terminal characteristics of operational amplifier devices used to perform a variety of signal functions. Introduction to basic components found in analog instrumentation systems. Components considered include transducers, thermocouples, various sensors and other signal processing devices. Analysis and design of various analog-to-digital and digital-to-analog circuits. Study of analog-to-digital and digital-to-analog circuit requirements.

Laboratory experiments involving operational amplifiers and A/D — D/A circuits. Measurement and analysis of these circuits. Prerequisites: EE 202, EE 210.

**EE 303 — Signals and Filters** **3 Credits**

Mathematics for filtering and spectral analysis of continuous and discrete systems. Solutions to filtering approximations via Butterworth, Chebyshev, elliptic and others. Digital filter design methods. Description of deterministic signals through the use of Fourier Series. Prerequisites: EE 210, MA 441, PS 202.

**EE 320 — Introduction to Computer Engineering** **3 Credits**

Study of digital computer organizations. Introduction to microcomputer systems using a current microprocessor. Assembly language programming techniques for microcomputers will be used to study digital computer operation. Input and output techniques, memory devices, and interfacing devices will be studied. Hardware and software relationships will also be discussed. Prerequisites: EE 220, EE 230.

**EE 322 — Computer Engineering Laboratory** **1 Credit**

“Hands-on” experience with a microcomputer is provided through weekly experiments involving hardware and software techniques. Corequisite: EE 320.

**EE 340 — Electric and Magnetic Fields** **3 Credits**

Electrostatics and magnetostatics. Magnetic and dielectric material properties. Maxwell’s equations. Energy and radiation of plane waves. Introduction of electromagnetic waves, transmission lines, and radiation from antennas. Prerequisites: MA 441, PS 202, EE 202.

**EE 350 — Control Systems Analysis and Design** **3 Credits**

Analysis and design of linear feedback systems. Frequency response and root locus techniques and state variable feedback. Analysis and design of digital and sampled control systems including z-transforms, stability, design and synthesis. Prerequisites: EE 220, EE 230, EE 320.

**EE 360 — Control Systems Laboratory** **1 Credit**

Laboratory experiments involving the principles of operation and design of linear control systems. Experiments to support theory introduced in EE 350. Corequisite: EE 350.

**EE 410 — Communication Systems** **3 Credits**

Theory and application of electronic communications systems; spectral analysis; modulation and demodulation techniques; transmitting and receiving systems. Behavior of receivers and transmitters in the presence of noise. Study of avionic radio systems presently in use such as VLF, OMEGA, ACARS, voice and others. Prerequisites: EE 303, EE 340, MA 441.

**EE 412 — Communication Systems Laboratory** **1 Credit**

Laboratory experiments involving design and analysis of electronic

communication circuitry and measuring performance characteristics and limitations of various communication systems. Corequisite: EE 410.

**EE 420 — Avionics Preliminary Design** **3 Credits**  
Senior level project. Students will work as members of a team. The electrical engineering students will be involved with the design, development, documentation, procurement, testing, and end construction of an electrical/electronic subsystem required for an aircraft. Electrical Engineering students will work with other engineers in the overall aircraft design. Prerequisites: Senior level standing and completion of all EE courses through EE 412.

**EE 421 — Avionics Detail Design** **3 Credits**  
Continuation of EE 420. Completion of project initiated in EE 420. Prerequisite: EE 420.

**EE 450 — Elements of Power Systems** **3 Credits**  
Fundamental concepts and operation considerations of avionic power systems. Basic component model representations, steady state performance, operating strategies, and control of avionic power systems. Prerequisites: EE 350, EE 410.

**EE 452 — Power Systems Laboratory** **1 Credit**  
Laboratory experiments involving avionic power systems. Analysis and measuring characteristics of avionic power systems. Corequisite: EE 450.

## ELECTRONICS TECHNOLOGY

**EL 101 — Basic Electronic Concepts and D-C Circuits** **4 Credits**  
A detailed study of basic electronic theory and D-C circuit concepts. Subject areas include the physical nature of matter, electrical terms, units and components, sources of D-C, resistance, inductance and capacitance, Ohm's Law and D-C circuit analysis. Corequisites: EL 102, MA 111.

**EL 102 — Fundamentals of A-C and A-C Circuit Analysis** **4 Credits**  
A detailed study of A-C theory and A-C circuit characteristics. Subject areas include vectors and phase relationships, inductive and capacitive reactance, impedance, series and parallel resonant circuits, transformer theory and A-C circuit analysis. Corequisites: MA 111 or its equivalent, EL 101.

**EL 103 — Semiconductor Fundamentals** **4 Credits**  
A detailed study of semiconductors and their use as active devices. Subject areas include semiconductor doping, the PN junction diode, bipolar junction transistor operation and characteristic curves, load

line analysis, active device parameters, active device equivalent circuits, amplifier coupling techniques, amplifier frequency response, power supply considerations. Prerequisites: EL 101 and 102.

**EL 106 — Direct and Alternating Current Fundamentals and Circuit Analysis with Laboratory 6 Credits**

A detailed study of basic D.C. and A.C. theory and circuit concepts. Subject areas include the physical nature of matter, Ohm's Law, D.C. and A.C. components, series and parallel circuits, reactance, resonance, and transformer theory. Prerequisites: MA 105, HU 106, and HU 117.

**EL 207 — Basic Radiotelephone Equipment Theory and Operation 3 Credits**

A preparatory course for the FCC General Radiotelephone Operator's Licensing. Classroom presentations include a review of basic electronic theory which is applicable to FCC General Class Radiotelephone licensing, basic FCC law (Element I), basic operating practices (Element II), and basic radiotelephone (Element III). Prerequisite: EL 222. Corequisite: EL 321.

**EL 208 — Basic Radiotelephone Equipment Theory and Operation 3 Credits**

A preparatory course for the FCC General Radiotelephone Operator's Licensing. Classroom presentations include a review of basic electronic theory which is applicable to FCC General Class Radiotelephone licensing, basic FCC law (Element I), basic operating practices (Element II), and basic radiotelephone (Element III). Prerequisite: EL 323.

**EL 220 — Introduction to Pulse and Digital Circuits 4 Credits**

An introductory course in electronic pulse and digital circuit fundamentals. Subject areas include waveform analysis, RC, RL and RLC circuit analysis and their use in pulse circuits, integrating and differentiating circuits, pulse transformers, delay lines, diode and transistor switching circuits, logic gates, families of integrated circuits (including TTL, ECL, MOS and CMOS), bistable, monostable and free running multivators. Prerequisite: EL 106. Corequisite: EL 223.

**EL 221 — Introduction to Pulse and Digital Circuits 4 Credits**

An introductory course in electronic pulse and digital circuit fundamentals. Subject areas include waveform analysis, RC, RL and RLC circuit analysis and their use in pulse circuits, integrating and differentiating circuits, pulse transformers, delay lines, diode and transistor switching circuits, logic gates, families of integrated circuits (including TTL, ECL, MOS and CMOS), bistable, monostable and free running multivators. Prerequisites: EL 101 and 102. Corequisite: EL 103.

**EL 222 — Basic Electronic Circuits and Systems 4 Credits**

An introductory course in electronic circuits and their use in electronic communication systems. Subject areas include RF amplifier circuits,

oscillator circuits, operational amplifiers, frequency multipliers, noise consideration, amplitude and SSB modulation, AM and SSB transmitters and receivers. Prerequisites: EL 103.

**EL 223 — Solid State Fundamentals and Circuit Analysis with Laboratory** **6 Credits**

An introductory course in solid state fundamentals and circuit analysis. Subject areas include semiconductor construction, biasing, small and large signal amplifier analysis, active devices, op amps, oscillators, and frequency considerations. Prerequisite: EL 106.

**EL 310 — Advanced Electronic Troubleshooting Analysis, Instruments and Techniques** **2 Credits**

A survey of basic and advanced test instruments and related measuring techniques. Subject areas include the theory of measurement, nature and sources of error, test instrument operating theory, calibration and use. Corequisite: EL 221. (Offered on International Campus only.)

**EL 320 — Advanced Digital Circuits and Systems** **4 Credits**

A continuation of EL 220. Subject areas include shift registers, counting circuits, comparator circuits, memories, arithmetic logic, and an introduction to computer organization. Prerequisite: EL 220.

**EL 321 — Advanced Digital Circuits and Systems** **4 Credits**

A continuation of EL 221. Subject areas include shift registers, counting circuits, comparator circuits, memories, arithmetic logic, and an introduction to microprocessors and computer organization. Prerequisite: EL 221.

**EL 322 — Advanced Electronic Circuits and Systems** **4 Credits**

Continuation of EL 222. This course presents some of the more advanced circuits and their use in electronic communication systems. Subject areas include frequency synthesizers, antenna theory, transmission lines, radio-wave propagation, FM modulation, FM receivers and transmitters, microwave hardware, microwave active devices and circuits, broadband communication techniques, pulse and data communication systems, and radar fundamentals. Prerequisites: EL 222 and EL 321.

**EL 323 — Electronic Systems Analysis with Laboratory** **5 Credits**

Introduction to communications and microwave devices, circuits, and systems. Subject areas include AM, FM, and SSB modulation and receivers, transmission lines, wave propagation, antennas, wave guides, microwave devices, data communications and radar fundamentals. Prerequisite: EL 223.

**EL 372 — Microprocessor Systems with Laboratory** **3 Credits**

An advanced digital course designed to acquaint the student with microprocessor architecture, software, and hardware. Subject areas include: microprocessor organization, instructions, selection, software and hardware. Microprocessor system design and interfacing to buses, I/O devices, memories, registers, and other digital devices. Prerequisite: EL 320.



**EL 299 — Special Topics in Electronics****1 Credit**

Lectures, laboratories or seminars on selected topics in electronics technology. Prerequisite: Consent of instructor and department chair.

## ENGINEERING SCIENCE

**ES 201 — Statics****3 Credits**

A vector treatment of the concepts and characteristics of forces and couples. Distributed forces. Center of mass; centroid. Equilibrium of particles and rigid bodies. Trusses and frames. Internal forces. Shear and moment distribution in beams. Friction. Area moments of inertia; tensor properties. Prerequisite: PS 201. Corequisite: MA 243.

**ES 302 — Solid Mechanics****3 Credits**

The concepts of stress and strain and their tensor properties. Elastic stress-strain relations. Analysis of stress and deformation in members subject to axial, torsional, bending and combined loading. Energy methods. Prerequisites: ES 201, CS 210.

**ES 303 — Dynamics****3 Credits**

A vector treatment of the kinematics and laws of motion of particles and rigid bodies. Acceleration, momentum, work, energy and power. Prerequisites: ES 201, CS 210. Corequisite: MA 345.

**ES 304 — Fluid Mechanics****3 Credits**

Physical characteristics of the fluid state. Fluid statics. Kinematics of fluid motion. Flow of an incompressible ideal fluid. The impulse-momentum principles. Similitude and dimensional analysis; fluid measurements. Prerequisite: CS 210. Corequisite: ES 303.

**ES 305 — Thermodynamics****3 Credits**

A study of the concepts of heat and work and their transformation as governed by the first and second laws of thermodynamics. Properties of pure substances. Reversible processes and conventional power and refrigeration cycles. One dimensional compressible flow. Prerequisite: PS 202.

**ES 307 — Engineering Materials Science with  
Laboratory****3 Credits**

Materials used in aeronautical engineering applications. Properties of materials and their measurement. Metals and their structures. Characteristics of metallic phases. Equilibrium diagrams. Processing of metals and alloys. Plastics, their structures and characteristics. Ceramics and their characteristics. Composite materials. Corrosion. Prerequisites: PS 110, PS 202.

**ES 402 — Electrical Engineering I With Laboratory****3 Credits**

Introduction to the fundamentals of electrical engineering. Circuit theory and variables. Voltage-current relationship for passive elements — resistance, capacitance and inductance. Circuit analysis and network solutions for resistance-capacitance networks. Phasors and

frequency-domain analysis. Time-domain analysis via differential equations and using the Laplace transform. Equivalent circuits. Graded sequence of applicable laboratory experiments. Prerequisites: PS 202, MA 345, CS 210.

### **ES 403 — Heat Transfer**

**3 Credits**

One and two-dimensional steady and unsteady-state conduction heat transfer including an introduction to finite-difference and finite-element methods of analysis. Free and forced convection heat transfer. Radiation heat transfer. Prerequisites: ES 304 or permission of instructor, ES 305, MA 345.

### **ES 405 — Electrical Engineering II**

**3 Credits**

Continuation of the principles of electrical engineering. Systems block diagrams, feedback and transfer functions. Computer principles-analog computer programming, Boolean algebra and logic gates. Rotating electrical machines, transformers and other electro-magnetic energy conversion devices. Automatic control systems-dynamic response, feedback control and transducers. Prerequisite: ES 402.

### **ES 406 — Finite Element Fundamentals**

**3 Credits**

The basic equations of the theory of elasticity. Energy principles. Formulation and assembly of stiffness matrices and load vectors for elastic solids. Modeling considerations. Solution methods. Computer implementation of finite element and stress analysis procedures. Interpretation of computer solutions. Design applications. Prerequisites: AE 407, CS 210.

### **ES 408 — Continuum Mechanics**

**3 Credits**

Kinematics and deformation of a continuum. Stress. Balance principles for mass, momentum and energy. Constitutive equations. Application of the theory to solid and fluid media. Prerequisites: ES 302, ES 303, ES 304, MA 441.

### **ES 409 — Space Mechanics**

**3 Credits**

The mathematics and physics of the two-body problem. Orbits, satellite launch, orbit transfer, interception and rendezvous, and celestial astronomy. Gyrodynamics; gyroscopic instruments; precession and nutation; inertial navigation. This course is based heavily on vector dynamics, differential equations and spatial geometry, as well as computer programming skills, which are used in writing computer program solutions of selected two-body problems. Prerequisites: CS 210, ES 303, MA 441.

### **ES 410 — Structures and Instrumentation Laboratory**

**2 Credits**

Principles of modern laboratory test instrumentation. Basic electrical measurements and devices such as strain gages, piezoelectric sensors and thermocouples. Measurement of fluid pressure and flow; temperature; thermal and transport properties; strain; motion; vibration; force and torque. Experimental static and dynamic analysis of structures. Processing and analyzing experimental data; report writing and data presentation. Prerequisites: AE 404, ES 305, ES 402.

**ES 412 — Structural Dynamics** **3 Credits**  
Simple harmonic motion. Undamped and damped free vibration; forced vibration. Multiple degrees of freedom. Multi-mass torsional and transverse systems. Equivalent torsional systems; balancing, dynamic damping. Computer and laboratory demonstrations of system dynamic performance. Prerequisites: ES 302, ES 303, MA 345.

**ES 299, 399, 499 — Special Topics in Engineering Science** **1-6 Credits**  
Lectures, laboratories or seminars on selected topics in engineering science. Prerequisite: Consent of instructor and department chair. May be repeated with change of content.

## ENGINEERING TECHNOLOGY

**ET 101 — Engineering Graphics** **2 Credits**  
Principles of lettering. Drawing instruments and their use. Linework code and drafting techniques. Geometrical construction. Multiview projection. Sectional and auxiliary revolutions. Dimensioning, shop processes and tolerances. Threads and fasteners.

**ET 110 — Drafting and Descriptive Geometry** **2 Credits**  
Dimensioning, tolerancing, threads, fasteners. Introduction to descriptive geometry. Airplane general arrangement and airfoil layout drawings. Prerequisite: A completed high school course in mechanical drawing with a grade of B or better or ET 101 Engineering Graphics.

**ET 201 — Technical Mechanics** **4 Credits**  
Statics and dynamics. Systems of forces and moments, free body diagrams, equilibrium, truss structures, friction, distributed forces, centroids, and moments of inertia. Kinematics and kinetics of particles and rigid bodies. Prerequisites: PS 201, MA 242.

**ET 301 — Applied Aerodynamics I With Laboratory** **3 Credits**  
Basic fluid mechanics; airflow measurement; airfoil theory; airplane performance. Wind tunnel projects include pressure and velocity measurement and measurement of aerodynamic forces on airfoil and airplane models; smoke tunnel flow visualization. Prerequisites: ET 201, MA 242.

**ET 302 — Applied Strength of Materials With Laboratory** **3 Credits**  
Concepts of stress and strain. Stress and deflections of members subject to axial, torsional and bending loads. Laboratory experiments augment coursework. Prerequisite: ET 201.

**ET 303 — Aircraft Drafting** **3 Credits**  
General arrangement of layout, detail and assembly drawings. Dimensioning, local and general notes, and specification of shop processes. Drafting of formed sheet metal parts; riveted, bolted, bonded

and welded assemblies; control cable, push-pull rod, and torque tube assemblies. Hydraulic and electrical schematic and drafting. Prerequisites: ET 110, ET 302.

**ET 304 — Aircraft Structural Analysis with Laboratory 4 Credits**  
Analytical techniques for determining loads and stresses in trusses, beams and thin sheet structures. Laboratory measurements include loads trusses, shear flow in beams and thin-wall box structures, deflections of structures. Computer stress analysis procedures. Prerequisites: ET 302, MA 245.

**ET 305 — Applied Thermodynamics with Laboratory 4 Credits**  
Definitions of heat and work, first and second laws of thermodynamics. Thermodynamic cycles used in engines and engine components. Introduction to compressible flow. Laboratory demonstrations of engines and performance measurements. Prerequisites: MA 242, PS 202.

**ET 307 — Manufacturing Processes and Materials with Laboratory 4 Credits**  
The nature of production processes and how they influence detail design decisions. Topics include process selection, milling, turning, numerical control processes, forging, bending and forming, heat treatment, surface finishing, finishes and coatings, plastic and composite materials. Laboratory work includes sheet metal forming, machining, riveting, composite fabrication, welding. Prerequisite: ES 302 or ET 302.

**ET 308 — Applied Aerodynamics II 3 Credits**  
Compressible flow, shock waves, supersonic flow, airfoil characteristics, nozzle flow. Prerequisites: ET 301, MA 245.

**ET 312 — Applied Electrical Science with Laboratory 4 Credits**  
Basic D.C. and A.C. circuit theory with applications to instrumentation. Familiarity with instrumentation techniques will be gained in the laboratory. Prerequisite: PS 202.

**ET 401 — Mechanical Design 3 Credits**  
Study of machine motion, velocity, acceleration and cycling. Sizing of machine elements under operational conditions. Application and design of mechanical linkages, springs, clutches, brakes, cams, sprockets, gears and gear trains, bearings and lubrication. Other selected topics. Prerequisite: ES 302 or ET 302.

**ET 402 — Applied Instrumentation Laboratory 3 Credits**  
Selection and operation of standard instrumentation components to measure and record force, strain, temperature, and pressure. Analysis of test data. Prerequisites: PS 202, MA 242, ET 302.

**ET 403 — Aircraft Detail Design 3 Credits**  
Design of load bearing structures representative of those employed in aircraft, along with supporting stress analysis and production, drawings. Projects include use of composite materials and cost analysis. Prerequisites: ET 201, ET 303, ET 304.

**ET 404 — Aircraft Performance and Design** **3 Credits**  
Aircraft static performance, introduction to stability and control. Application of aerodynamics through aircraft preliminary design project, including performance specification, general arrangement, weight and balance, and drag estimation. Prerequisite: ET 301.

**ET 405 — Non-Destructive Testing and Quality Assurance with Laboratory** **3 Credits**  
Inspection procedures, proof-of-design requirements per FAR Part 23, material inspection techniques (magnetic particle, X-ray, visual), dimensional checking and use of inspection instruments. Statistical analysis of test data. Prerequisite: ET 307.

**ET 406 — Aircraft Systems Analysis and Design** **3 Credits**  
Definition and functional description of aircraft systems. Analysis and design of dynamic systems to meet performance requirements. Prerequisites: ET 201, ET 303, ET 305, ET 312.

**ET 299, 399, 499 — Special Topics in Engineering Technology** **1-3 Credits**  
Seminar courses on specialized topics or independent design and/or laboratory projects. Prerequisite: Permission of program chair.

## FLIGHT-ACADEMIC

**FA 104 — Primary Flight** **2 Credits**  
An introduction to the fundamentals of flight. During this flight course the student will accomplish his/her first solo flights in an airplane. Corequisite: AS 150.

**FA 105 — Private Pilot Certification** **2 Credits**  
Continued flight training in those pilot operations required of a private pilot. At the successful completion of this course the student will have gained the aeronautical experience necessary to apply for an FAA Private Pilot Certificate. Prerequisites: FA 104, AS 150, and successful completion of the FAA Private Pilot written examination.

**FA 205 — Basic Attitude Instrument and Advanced Flight Maneuvers** **2 Credits**  
Flight and simulator training in basic attitude instrument flight techniques, maximum performance and precision commercial flight maneuvers, and advanced cross-country operations. Prerequisites: FA 105 and an FAA Private Pilot Certificate. Corequisite: AS 250.

**FA 206 — Instrument Flight Transition — Single-Engine** **2 Credits**  
Flight and simulator training in those instrument pilot operations necessary to safely and accurately operate an airplane under instrument flight rules within the National Airspace System. Prerequisites: FA 205, AS 250, and successful completion of the FAA Instrument Pilot written examination.

**FA 207 — Multi-Engine Transition** **2 Credits**  
Flight training in multi-engine pilot operations as they pertain to a private pilot. At the successful completion of this course the student will have gained the aeronautical experience necessary to apply for the addition of a multi-engine class rating to his/her existing FAA Private Pilot Certificate. Prerequisite: FA 205.

**FA 302 — Commercial Pilot Certification — Single Engine** **2 Credits**  
An introduction to complex airplane operations and a review of selected pilot operations required of a commercial pilot. At the successful completion of this course the student will have gained the aeronautical experience necessary to apply for an FAA Commercial Pilot Certificate with Instrument Airplane and Single-Engine Land ratings. Prerequisites: FA 206, AS 251, and successful completion of the FAA Commercial Pilot written examination.

**FA 306 — Instrument Rating** **2 Credits**  
Instruction and flight training necessary to maneuver the aircraft safely and accurately in actual or simulated instrument conditions within the National Airspace System while complying with ATC procedures and instructions. The course is designed for a student who has the FAA Commercial Certificate. Prerequisite: AS 250.

**FA 314 — Instrument Flight Transition — Multi-Engine** **2 Credits**  
Flight and simulator training in those instrument pilot operations necessary to safely and accurately operate an airplane under instrument flight rules within the National Airspace System. Prerequisites: FA 207, AS 250, successful completion of the FAA Instrument Pilot written examination, and a multi-engine class rating.

**FA 315 — Commercial Pilot Certification — Multi-Engine** **1 Credit**  
A review of selected pilot operations required of a commercial pilot. At the successful completion of this course the student will have gained the aeronautical experience necessary to apply for an FAA Commercial Pilot Certificate with Instrument Airplane, Single-Engine Land, and Multi-Engine Land ratings. Prerequisites: FA 314, AS 251, and successful completion of the FAA Commercial Pilot written examination.

**FA 340 — Multi-Engine Class Rating** **1 Credit**  
Instruction and flight training to provide the aeronautical skill and knowledge to meet the requirements for the addition of a multi-engine land class rating with instrument privileges to the student's existing pilot certificate. Prerequisite: FAA Commercial Pilot Certificate with an instrument rating.

**FA 400 — Certified Flight Instructor-Single Engine** **1 Credit**  
Instruction, flight training and practice teaching that will allow the

student to obtain the aeronautical skill and knowledge necessary to apply for a Certified Flight Instructor Certificate with an Airplane Single-Engine Land Rating. Prerequisite: AS 404.

**FA 409 — Certified Flight Instructor — Instrument 1 Credit**  
Instruction, flight training and practice teaching that will allow the student to obtain the aeronautical skill and knowledge necessary to apply for a Certified Flight Instructor Certificate with an Instrument Airplane rating. Prerequisites: AS 404, AS 406 and FA 400.

**FA 411 — Certified Flight Instructor — Multi-Engine 1 Credit**  
Instruction to qualify the student for the FAA Multi-Engine Instructor's Certificate. All of the prescribed subjects listed for the FA 340 Multi-Engine course will be practiced to include teaching methodology and techniques. Prerequisites: AS 404 and FA 400.

**FA 199, 299, 399, 499 — Special Topics in Flight 0-2 Credits**  
Flight training in selected areas for the purpose of gaining proficiency in required pilot operations for various certificates and ratings. Prerequisite: Approval of chief flight instructor and department chair.

## HUMANITIES

**HU 103 — Writing English as a Second Language 3 Credits**  
This course is designed for those non-native speakers of English who are found to need special practice in written English. Emphasis is on fundamental writing skills (organization, development, and mechanics), with added practice in spoken English. Cultural topics of particular interest to the class are included when necessary. (Credit not applicable to any degree.)

**HU 106 — Developmental English 3 Credits**  
Designed to improve competence in writing and speaking the English language, through the study of grammar and mechanics, sentence and paragraph construction, and vocabulary building. (Credit not applicable to any degree.)

**HU 113 — Reading English as a Second Language 3 Credits**  
This course is designed for those non-native speakers of English who are found to need special practice in reading English. Emphasis is on vocabulary enrichment and improvement of comprehension and reading skills. Cultural topics of particular interest to the class are included when necessary. (Credit not applicable to any degree.)

**HU 117 — Reading and Study Skills 3 Credits**  
Individual and group instruction in the development of a variety of reading and study techniques. Emphasis is placed on the development of reading-study skills, comprehension, word attack, vocabulary improvement, and efficient, flexible reading habits. (Credit not applicable to any degree.)

- HU 122 — English Composition and Literature I** **3 Credits**  
 Expository writing, interpretation, analysis and research methods of fiction and nonfiction reading assignments. Textbook sources aid the student in developing communicative and evaluation skills. Prerequisite: HU 106 or passing grade on Placement Test.
- HU 123 — English Composition and Literature II** **3 Credits**  
 A continuation of HU 122 with emphasis on a survey of literature. Reading materials include selected novels, poems and plays. Prerequisite: HU 122.
- HU 219 — Speech** **3 Credits**  
 A continuation of the study of communication with emphasis on speaking effectively. Modern and traditional theory and methods, study and practice of informative, persuasive and symposium rhetorical forms are included. Prerequisite: HU 122.
- HU 221 — Technical Report Writing** **3 Credits**  
 Preparation of formal and informal technical reports, abstracts, resumes and business correspondence. Major emphasis placed on the long technical paper and the acquisition of advanced writing skills. Prerequisites: HU 122, HU 123.
- HU 250 — Introduction to Logic** **3 Credits**  
 Principles of valid thinking; the nature of inductive and deductive inferences and their applications. Prerequisite: HU 123.
- HU 300 — World Literature** **3 Credits**  
 Major works and literary trends in world literature. Prerequisites: HU 122 and HU 123.
- HU 305 — Modern Literature** **3 Credits**  
 The mainstreams of literature of this century. The specific content — genre and major writers — to be studied will vary from trimester to trimester. Prerequisites: HU 122 and HU 123.
- HU 310 — American Literature** **3 Credits**  
 A survey of intellectual backgrounds, major works and literary trends in American literature. Prerequisite: HU 123.
- HU 320 — Aesthetics of Visual and Musical Arts** **3 Credits**  
 Provides a survey of the major artistic monuments of Western culture and discusses the methods by which artistic productions are analyzed. Prerequisites: HU 122 and HU 123.
- HU 325 — Exploring Film** **3 Credits**  
 A survey of the art of the film. History of the cinema. Basic elements, photography, continuity and rhythm, movement, imaging, music and sound, script writing, directing, editing, acting, great film artists — directors, cinematographers, actors, etc. Prerequisite: HU 123.
- HU 330 — Values and Ethics** **3 Credits**  
 Designed to help one identify and resolve ethical problems. Status and scope of ethics, the understanding and solving of moral problems are included. This study is based on the assumption that no person can live a fulfilling life if he has not set up for himself some scale of values.



Ethics, as a study of human values, attempts to stimulate the moral sense, discover the best values of life, and motivate a quest for these values.

**HU 340 — Introduction to Philosophy** **3 Credits**

An integrated study of man and the concepts of his culture, including views about himself, society, religion, science, the nature of knowledge, and some of the major philosophical systems such as dialectical materialism, pragmatism and existentialism.

**HU 345 — Religions of Mankind** **3 Credits**

A survey of the major religions of the world, including Judaism, Christianity, Islam, Hinduism, Buddhism and Confucianism as well as a brief examination of the development of religion as a vital aspect of man's experience in history.

**HU 350 — Journalism** **2 Credits**

Theory and practice of the techniques of journalism, familiarizing the student with the functions, skills and responsibilities required in writing, editing and producing news and technical publications.

**HU 355 — Creative Writing** **3 Credits**

The course culminates the interpretive and expressive elements of communications classes. The study, practice and utilization of a personal style of creative composition, examples of contemporary literature and submittal of publications are included in this course. Prerequisites: HU 122 and HU 123.

**HU 299, 399, 499 — Special Topics in Humanities** **1-6 Credits**

Independent study, seminars and other specially arranged courses not regularly scheduled. Prerequisites: Consent of instructor and approval of the department chair.

## MATHEMATICS

**MA 105 — Quantitative Skills** **3 Credits**

Fundamentals and theory of algebra including exponents, radicals, factoring, linear equations, rational expressions, quadratic equations, polynomial arithmetic, and solutions to applied problems. (Credit not applicable to any degree.) Required of all students who are placed in this course.

**MA 106 — Basic Algebra and Trigonometry** **3 Credits**

A study of the basic laws of fractions, exponents, radicals, inequalities, quadratic equations, complex numbers and the elements of trigonometry.

**MA 111 — College Mathematics for Aviation I** **3 Credits**

A pre-calculus course designed for the student of aviation. Linear equations, systems of equations, functions and graphing, exponents

and roots, quadratic equation, ratio and proportion, trigonometric ratios, right triangle solutions and vectors. Prerequisites: MA 105 or placement.

**MA 112 — College Mathematics for Aviation II** **3 Credits**

Basic calculus designed for the student of aviation. Differentiation and integration of algebraic functions; applications to velocity, accelerations, area, curve sketching and computation of extreme values. Prerequisite: MA 111.

**MA 120 — Quantitative Methods I** **3 Credits**

A pre-calculus course with applications to business and economics. Fundamental algebraic operations, functions, graphs, logarithmic and exponential functions, systems of linear equations and inequalities, linear programming and matrix algebra. Prerequisite: MA 105 or placement.

**MA 140 — College Algebra** **3 Credits**

Fundamentals of exponents, radicals, linear and quadratic equations, inequalities, and complex numbers. Introduction to functions, conics, elementary theory of equations, sequence and series, exponential and logarithmic functions, matrix algebra, and systems of equations. Prerequisite: MA 105 or equivalent.

**MA 141 — Trigonometry** **2 Credits**

Trigonometric functions and their graphs; identities; radian measure with applications; compound, half and double angle identities; solving elementary trigonometric equations, right and oblique triangles; laws of sines and cosines; inverse trigonometric functions; trigonometric form of a complex number. Prerequisite: MA 105 or equivalent. Corequisite: MA 140.

**MA 211 — Statistics with Aviation Applications** **3 Credits**

Descriptive statistics; populations and samples; measures of central tendency and dispersion; elementary probability; binomial and normal distributions and their interrelationship; random variables; one and two sample hypothesis testing involving proportions and means for large and small samples; estimation and confidence intervals; Chi-square distribution; correlation coefficient; least squares line. Prerequisite: MA 111.

**MA 220 — Quantitative Methods II** **3 Credits**

An introductory calculus course with applications to business and economics; limits; differentiation and integration of algebraic, exponential and logarithmic functions; applications of differentiation to maximizing and minimizing; curve sketching; marginal values. Prerequisite: MA 120.

**MA 222 — Business Statistics** **3 Credits**

Measures of central tendency and dispersion; histograms; algebra of probability; sample spaces; dependent events; Bayes' Theorem with applications; binomial, Poisson, normal distributions and their interrelationships; sampling distributions; hypothesis testing; confidence intervals. Prerequisite: MA 220 or MA 112 or MA 140.

- MA 241 — Calculus and Analytical Geometry I** 4 Credits  
 Graphs and functions; limits and continuity; differentiation and integration of algebraic and elementary trigonometric functions; applications of first and second derivatives. Prerequisite: MA 140 or equivalent. Corequisite: MA 141.
- MA 242 — Calculus and Analytical Geometry II** 4 Credits  
 Differentiation and integration of transcendental functions; special integration techniques; polar coordinates; applications of the definite integral; numerical methods. Prerequisite: MA 241.
- MA 243 — Calculus and Analytical Geometry III** 4 Credits  
 Solid analytical geometry; vector functions in three dimensions; elements of infinite series; partial differentiation; directional derivative and gradient; multiple integrals. Prerequisite: MA 242.
- MA 245 — Applied Technical Mathematics** 3 Credits  
 Applied treatment of ordinary differential equations; Laplace transforms; matrix algebra and applications; computer techniques; numerical methods; least squares fit; normal distribution and applications. Prerequisites: MA 242, CS 210. (Not for Bachelor of Science degree in Aeronautical Engineering credit.)
- MA 300 — Applied Logic** 3 Credits  
 Algebra of logic; truth tables; axiomatic system; set theory; Boolean algebra; design and simplification of digital circuits. Prerequisite: MA 111 or MA 120 or MA 140. (Not open to engineering students.)
- MA 320 — Decision Mathematics** 3 Credits  
 The mathematical concepts and applications in mathematical model building and problem solving. Included are mathematical areas which are basic to decision theory. Prerequisite: MA 211 or MA 222. (Not open to engineering students.)
- MA 345 — Differential Equations and Matrix Methods** 4 Credits  
 Treatment of ordinary differential equations to include principal types of first and second order equations; methods of substitution on simple higher order equations; linear equations and systems of linear equations with constant coefficients; methods of undetermined coefficients and variation of parameters; Laplace transforms; series solutions; linear algebra and matrix methods of solutions; applications to physics and engineering. Prerequisite: MA 243.
- MA 412 — Probability and Statistics** 3 Credits  
 Finite sample spaces; conditional probability; and Bayes' Theorem; discrete and continuous random variables and their functions; expected value, variance and standard deviation; systematic study of the major discrete and continuous distributions; moment generating functions; hypothesis testing and estimation. Prerequisite: MA 242.
- MA 430 — Linear Algebra** 3 Credits  
 Matrix algebra; vector spaces and subspaces, inner products; systems of linear equations, eigenvalues and eigenvectors. Prerequisite: MA 243 or the consent of the department chair.

**MA 441 — Advanced Engineering Mathematics I** 3 Credits  
Line and surface integrals; vector fields with the study of Green, Gauss and Stokes Theorems; applications of vector field theory; Fourier series. Prerequisite: MA 345.

**MA 442 — Advanced Engineering Mathematics II** 3 Credits  
The solution of linear differential equations with variable coefficients; study of the derivation, characteristics and solutions of partial differential equations; Fourier series, Fourier transform, Laplace transform and Green's function; applications in science and engineering. Prerequisite: MA 441.

**MA 443 — Complex Variables** 3 Credits  
Algebra of complex numbers; complex functions, analytic functions; mapping by elementary functions; conformal mappings and their applications; additional topics may include complex integration, power series expansion. Prerequisite: MA 441.

**MA 299, 399, 499 — Special Topics in Mathematics** 1-6 Credits  
Lectures, seminars, independent studies or combinations of selected topics in mathematics. Prerequisites: Consent of instructor and approval of the department chair.

## MANAGEMENT SCIENCE

**MS 105 — American Business Enterprise** 3 Credits  
The role of business in American society. Examines the issues, foundations and environment of the business enterprise system. Business financing, production, marketing and employee relations are stressed.

**MS 110 — Accounting I** 3 Credits  
An introduction to accounting; double entry, income statement, balance sheet, interpretation of accounts; partnerships and corporations. Prerequisite: MA 105 or Placement Test. (This course offered only by the International Campus.)

**MS 201 — Principles of Management** 3 Credits  
Provides an overview of relevant management principles and practices as applied in contemporary organizations. Focuses on management theories, philosophies and functions.

**MS 210 — Financial Accounting I** 3 Credits  
Fundamental principles applicable to the accounting cycle, asset valuation, income determination, financial reporting, and owners equity. Prerequisites: MA 105 or Placement Test, CS 109 or permission of the instructor.

**MS 212 — Financial Accounting II** 3 Credits  
Fundamental principles applicable to financial statement analyses, funds and cash flow reporting, price level changes and income tax interperiod allocation. Prerequisite: MS 210.

- MS 308 — Public Administration** **3 Credits**  
Characteristics of organization and management in government; impact of political processes and public pressures on administrative action; role of regulatory agencies; governmental personnel and budgetary procedures; unique qualifications of the public administrator. Prerequisite: MS 105 or MS 201.
- MS 311 — Marketing** **3 Credits**  
Marketing theory; marketing management, sales management; market research. Public and customer relations, advertising, distribution. Prerequisite: MS 105 or MS 201.
- MS 312 — Managerial Accounting** **3 Credits**  
Emphasizes the conceptual, measurement, and communication aspects essential for the interpretation and use of accounting information for management purposes. These aspects will be stressed by treating three areas of cost within the field of management accounting: full cost accounting; differential accounting; and responsibility accounting. Prerequisite: MS 110 or MS 210.
- MS 314 — Human Resource Management** **3 Credits**  
This course will examine the functions to be accomplished in effectively managing human resources. An indepth study of the interrelationship of managers, organizational staff and/or specialists, will assist the student in understanding and applying management theories to real world human resource planning. Areas of concentration include human resource planning; recruitment and selection; training and development; compensation and benefits; safety and health; and employee and labor relations. Prerequisites: SS 210 or SS 220, MS 201.
- MS 317 — Organizational Behavior** **3 Credits**  
A basic course in the analysis of various behavioral concepts affecting human behavior in business organizations, with emphasis on research, theory and practice. Prerequisites: SS 210 or SS 220 and MS 201.
- MS 320 — Business Information Systems** **3 Credits**  
A management approach to understanding business information systems. The general characteristics, potential and limitations of business systems are covered. The major emphasis is on understanding the inputs, processing and outputs of a variety of business systems; the ways in which business systems are interrelated and the inherent management problems involved in the implementation and control of such systems. Prerequisites: CS 105 or CS 109 or CS 210, MS210.
- MS 322 — Aviation Insurance** **3 Credits**  
An introduction to the basic principles of insurance and risk with its special application to the aviation industry. An in-depth review of the aviation insurance industry in the United States including the market and types of aviation insurers. Prerequisite: MS 105 or MS 201.

- MS 331 — Transportation Principles** **3 Credits**  
 Basic principles of the several modes of transportation — air, sea, rail, highway, and pipeline — including problems of competition, the importance of each in the economy, and future developmental prospects. Prerequisites: EC 210, EC 211 and MS 105 or MS 201.
- MS 332 — Corporate Finance I** **3 Credits**  
 The finance function, financial analysis and control, financial planning, short term and intermediate term financing, long term financing and financial strategies. Prerequisites: MS 105 or MS 201.
- MS 335 — International Business** **3 Credits**  
 An analysis of economic development and international trade in modern times, with an examination of current US relations with other nations. Attention will be focused on the impact of foreign trade on the aviation industry and the industry's contribution to economic development. Prerequisites: CS 109, EC 210 or EC 211, MA 222.
- MS 350 — Analysis Methods for Management** **3 Credits**  
 The application of mathematical methods to the solution of management problems. Probabilities; decision making using marginal, cost, profit and volume analysis; linear programming; forecasting; introduction to simulation. Prerequisite: MA 211 or MA 222. (Offered on International Campus only.)
- MS 390 — Business Law** **3 Credits**  
 A survey of the legal aspects of business transactions. Areas covered include contracts, agency, bailments, negotiable instruments, partnerships, corporations, consumer credit, and the government's influence on business law. Prerequisite: MS 105 or MS 201.
- MS 401 — Management Planning and Control** **3 Credits**  
 The requirements for short term and long range planning are investigated. New product planning is discussed. The importance of the control functions will be emphasized with particular attention to applications of these functions to aviation-oriented activities. Prerequisites: CS 109, EC 210, MS 201, MS 314.
- MS 405 — General Aviation Marketing** **3 Credits**  
 Basic marketing concepts and procedures involved in the sale of general aviation aircraft and components to private industry and government. Particular emphasis on corporate aviation and commuter airlines. Prerequisites: EC 210, MS 311.
- MS 408 — Airport Management** **3 Credits**  
 Comprehensive examination of the major functions of airport management including master planning. Study of the socioeconomic effects of airports on the communities they serve. Prerequisites: MS 201, EC 210, EC 211.
- MS 410 — Management of Air Cargo** **3 Credits**  
 Intensive study of the practices and problems of management with

respect to air cargo. Importance of air cargo service to the economy, rate and tariff problems, terminal facilities, competition, and future prospects. Prerequisites: EC 210, EC 211, MS 201, MS 210, MS 331.

**MS 412 — Airport Planning and Design** **3 Credits**

The principles of airport master planning and system planning will be studied. Fundamental principles of airport layout and design are covered, including geometric design, airport drainage, pavement design, passenger and cargo terminal layout, and capacity and delay effects. Prerequisites: MA 211 or MA 222, CS 109, MS 408.

**MS 415 — Airline Management** **3 Credits**

An introduction to the administrative aspects of airline operation and management. Topics include the annual profit plan, uniform system of accounts and reports, demand analysis, scheduling, the theory of pricing, fleet planning, facilities planning and airline financing. Prerequisites: MS 201, MS 210, EC 210.

**MS 419 — Aviation Maintenance Management** **3 Credits**

Comprehensive examination of organizational maintenance policies, programs and procedures. Emphasis on maintenance planning, forecasting and cost control; reliability; safety and flight schedule performance. Prerequisites: MS 201, MA 211 or MA 222.

**MS 420 — Industrial Management** **3 Credits**

An intensive study of management in all organizations — service oriented and product oriented. Scheduling, inventory control procurement, quality control and safety are investigated. Particular attention to applications of these to aviation oriented activities. Prerequisites: EC 210, MS 201, MS 314.

**MS 421 — Small Business Management** **3 Credits**

An analysis of the theoretical and practical knowledge necessary to be successful in conceiving, initiating, organizing and operating a small business. Special focus will be placed on small businesses in the aviation field. Prerequisites: EC 210, MS 201, and MA 112 or MA 120.

**MS 425 — Trends and Current Problems in Air  
Transportation** **3 Credits**

Analysis of selected contemporary issues, problems and trends facing management in various segments of the aviation industry including general aviation and the airlines. Students apply previously learned concepts to practical problems to develop increased understanding and demonstrate knowledge of the subject. Prerequisites: EC 210, EC 211, MS 201.

**MS 431 — Business Policy** **3 Credits**

Case problems in determining business policy, instituting policy and appraising the results. The viewpoint is that of top and middle management. Prerequisites: MA 320, MS 212, MS 314, MS 317, MS 332 and MS 401.

**MS 433 — Management of the Sales Force** **3 Credits**  
Organization of the sales department within aviation organizations and its relation to other departments. Topics to be covered include: planning, forecasting, quota setting, selection and training of sales persons, sales policies, sales analysis and evaluation. Prerequisites: MS 311, MS 314.

**MS 434 — Corporate Finance II** **3 Credits**  
A study of modern portfolio investment theory including traditional financial analysis, technical analysis, efficient market theory and the capital asset pricing model. Theories will be explored in the context of practical application to investment and financial decision-making in aviation industry corporations; analysis of specific companies involved in leasing, mergers, bankruptcies and other reorganizations. Student projects include the selection of an investment portfolio of \$100,000 and analysis of the investment over time. Prerequisites: MS 332 or permission of the instructor.

**MS 435 — Taxation** **3 Credits**  
An introduction into the areas of Federal Taxation and its relationship with business management decisions. Areas of emphasis will be placed on identifying tax aspects concerning: 1) Selection of business entity, 2) Rules of capital gains and losses, 3) Acquisition, use, and disposition of fixed assets and 4) others. Prerequisite: MS 312 or permission of the instructor.

**MS 449 — Strategic Marketing Management** **3 Credits**  
A capstone marketing course which focuses on strategic analysis and planning by aviation marketing managers. Emphasis will be given to corporate and marketing strategy; market analysis and targeting; strategic marketing programming; and marketing control. Prerequisite: MS 311.

**MS 299, 399, 499 — Special Topics in Management** **1-4 Credits**  
Lectures, seminars, laboratories, independent studies or combination of selected topics in management. Prerequisites: Consent of the instructor and approval of the department chair. May be repeated with change of content.

## **MILITARY SCIENCE ARMY ROTC**

**MY 103 — Basic Military Science** **1 Credit**  
A study of the defensive establishment and the organization and development of the United States Army. A study of the military courtesy, discipline, customs and traditions of the service. An historical perspective of the role of the different branches of the United States



Army and the role they have played in the freedom of our nation. An introduction to physical readiness training. Course includes lectures and laboratory.

**MY 104 — Basic Military Science** **1 Credit**

Fundamentals of land navigation that include map reading, terrain identification, intersection, resection and polar coordinates. A study of the roles the active Army Forces, the Army Reserve Forces and the Army National Guard play in our national defense. Continued emphasis on physical readiness training. Course includes lecture and laboratory.

**MY 203 — Basic Military Science** **1 Credit**

A review of the customs and traditions of the Service. The fundamentals of leadership development and the importance of understanding the principles that are important to effective leadership. The course requires mandatory physical training and includes lecture and laboratory.

**MY 204 — Basic Military Science** **1 Credit**

A study of Von Clausewitz's theory of the principles of war and its application in the 21st century. The fundamentals of Military Geography and its application in the use of navigational aids for the military forces. A study of preventative medicine countermeasures and first aid techniques that every leader must know. The course requires mandatory physical training and includes both lecture and laboratory.

**MY 303 — Advanced Military Science** **3 Credits**

An introduction to the fundamentals of management such as motivation, individual behavior, human groups and organizational structure. In addition, the study of power and politics, strategy and tactics, personal values versus organizational values, the approaches to leadership that provide a basis for development of the Army junior officers' managerial skills. Extensive classroom teaching and practical exercises involving effectively communicating orally and in writing to direct and control groups and organizations. This course includes lecture, an advanced laboratory, and physical readiness training.

**MY 304 — Advanced Military Science** **3 Credits**

A continuing development of the managerial processes such as individual and group decision making, analytic aids to decision making, setting objectives, formulating plans and policies, staffing, coordinating, directing, and controlling groups and organizations. This course includes lecture, an advanced laboratory, and physical readiness training.

**MY 403 — Advanced Military Science** **3 Credits**

A study of military professionalism with emphasis on command and staff relationships, organizational functions and duties of various staff officers that assist in the management of the organization. A study of personnel and logistical systems and the role they play in helping the organization attain its goals. An introduction to the organizational effectiveness process and the role it plays in improving the quality of

life in the Army community. This course includes lecture, laboratory, and physical readiness training.

**MY 404 — Advanced Military Science**

**3 Credits**

A study of ethics and professionalism in the military and the role they play in carrying out the defense policy of the United States. The fundamentals of Military Law, its impact on the American military society and its place in the jurisdictional system. A history of the military courts martial as it relates to the jurisdictional process of American society. A study of the law of land warfare and its relationship to the governing the conduct of soldiers in combat. This course includes lecture, a laboratory, and physical readiness training.

## PHYSICAL SCIENCE

**PS 101 — Basic Chemistry**

**3 Credits**

Elementary chemical theory with application for the Aeronautical Science and Aviation Business Administration student. Covers basic atomic theory, elements, compounds and mixtures, calculation of weight and weight volume relationships, basic descriptive chemistry. (Cannot be used for credit in chemistry toward degrees in Aeronautical or Electrical Engineering.) Prerequisite: MA 111 or MA 120.

**PS 102 — Explorations in Physics**

**3 Credits**

Survey course in elementary physics. Stress will be placed on basic concepts, principles and history of the development of physics. Presentations will include selected topics in mechanics, heat, light, sound, electricity and magnetism, and modern physics. (Cannot be used for credit in physics toward degrees in Aeronautical or Electrical Engineering, Aircraft Engineering Technology, Aeronautical Science, or Avionics Technology.) Prerequisite: MA 111 or MA 120.

**PS 103 — Technical Physics I**

**3 Credits**

Survey course in elementary physics. Stress will be placed on basic physics principles. Problem solving and problem solving logic will be an important, integral part of this course. Topics will include Newton's Laws, projectile motion, circular motion, work, energy, conservation laws, momentum. (Cannot be used for credit in physics toward degrees in Aeronautical Engineering, Electrical Engineering or Aircraft Engineering Technology.) Prerequisite: MA 111 or MA 120. Corequisite: MA 112.

**PS 104 — Technical Physics II**

**3 Credits**

Application of basic physics principles discussed in PS 103. Other areas will include fluids, properties of matter, thermodynamics, wave motion, sound, simple harmonic motion, kinetic theory, basic electromagnetic theory and elementary circuits. (Cannot be used for credit in physics toward degrees in Aeronautical Engineering, Electrical Engineering or Aircraft Engineering Technology.) Prerequisites: PS 103, MA 112.

**PS 107 — Elements of Biological Science** **3 Credits**

A physical science course with emphasis on anatomy and physiology of man including chemical and cellular basis of life, biology of organisms, and ecology.

**PS 110 — Chemistry for Engineers** **5 Credits**

Chemical stoichiometry; chemical applications of the Ideal Gas Law; solutions; thermochemistry; rate of reaction; equilibrium; oxidation-reduction; corrosion; organic compounds; and polymers. Prerequisite: High school chemistry and placement.

**PS 201 — Engineering Physics I** **5 Credits**

Vector and scalar quantities. Newton's Laws of motion and gravitation. Friction. Work, energy and power. Torque and rotational motion. Linear and angular momentum. Harmonic motion. Fluid statics and dynamics. Wave motion and sound. Four lectures per week and one three-hour laboratory per week. Corequisite: MA 242.

**PS 202 — Engineering Physics II** **5 Credits**

Basic thermodynamics and kinetic theory of gases. Electric forces, electric field and Gauss's Law. Electric potential and electrostatic potential energy. Capacitance. Simple D-C circuit theory. Magnetic forces, magnetic field and Ampere's Law. Faraday's Law. Inductance. Electromagnetic oscillations and wave propagation. Geometrical optics. Four lectures per week and one three-hour laboratory per week. Prerequisite: PS 201.

**PS 301 — Astronomy** **3 Credits**

A descriptive course dealing with the structure and evolution of the physical universe. Topics include the solar system (Earth, Moon, Sun, and planets), stars, black holes, galaxies, quasars, cosmology and exobiology. Planetarium trips and night observing sessions optional. Prerequisite: PS 102 or PS 103 or PS 201 or consent of the instructor.

**PS 303 — Modern Physics** **3 Credits**

Modern concepts in physics including optics. Topics include refraction, diffraction, and scattering of electromagnetic radiation, special relativity, wave-particle duality, the uncertainty principle, quantum theory of atomic structure, X-rays, lasers and nuclear reactions. Prerequisite: PS 202.

**PS 304 — Man and His Environment** **3 Credits**

A survey course in the environmental problems arising from man's use and abuse of his environment. Ecological, economic, sociologic and technologic principles will be applied to the management/control of pollution of the atmosphere, land and water resources of the earth. Prerequisite: PS 101 or PS 110.

**PS 299, 399, 499 — Special Topics in Physical Science** **1-4 Credits**

Topics within the fields of the physical sciences impinging on aeronautical engineering development or practices and which are of current or anticipated interest will be discussed on a seminar basis. Prerequisites: Consent of instructor and approval of the department chair.

# SAFETY OF FLIGHT

SF courses are available only at certain International Campus locations.

## **SF 200 — Safety Program Management** **3 Credits**

A study of the principles of the development and management of an effective safety program. The philosophy and historical development of major concepts are examined with particular emphasis on areas of special concern in organizational accident prevention. Students analyze the influence of morale, education and training, the role of the supervisor, and other substantial program elements of value to the safety manager.

## **SF 219 — Aviation Psychology** **2 Credits**

An analysis of the factors influencing human behavior and social interactions as they pertain to aviation safety. Emphasis is placed on recognition and modification of psychological stress situations and behavioral problems that are potentially hazardous to aviation operations.

## **SF 303 — Introduction to Aircraft Structures** **3 Credits**

An analysis of aircraft structural factors related to the prevention and investigation of aircraft accidents. These factors include interpreting the principles of statics, tensile, compressive and shear stresses, deformation analysis, service life considerations, and classification and recognition of structural failures.

## **SF 308 — Subsonic Aerodynamics** **3 Credits**

A study of subsonic aerodynamics, stressing application to rotary wing aircraft. Included are application of subsonic flow phenomena, description of aerodynamic force development, interpretation of performance relationships, and analyzing stability, control and structural considerations as they pertain to rotary wing and subsonic fixed wing aircraft.

## **SF 330 — Aircraft Accident Investigation** **3 Credits**

A detailed evaluation of methods and procedures involved in aircraft accident investigation. The organization, duties and procedures of the Aircraft Accident Board are analyzed. The student explores procedures for determining accident causes through analysis of such elements as the function and techniques employed by the trained accident investigator and the role of the specialized laboratory. Analyses are also made of reporting procedures and the all-important follow-up work designed to avoid like or related aircraft accidents.

# SOCIAL SCIENCE

- SS 110 — World History** **3 Credits**  
Designed primarily as a survey of the development and evolution of Western Civilization from 1500 to the present. Emphasis is placed on the effect of Western influence on the world.
- SS 120 — American History** **3 Credits**  
From 1865 to the present. Reconstruction, the age of big business, the United States as a world power. World War I, World War II, the Great Depression and its aftermath.
- SS 205 — Applied Individual-Group Psychology** **1 Credit**  
A course in which students will be enabled to assess and develop those personal and interpersonal dynamics necessarily related to pursuing their academic, career and life goals.
- SS 210 — Introduction to Sociology** **3 Credits**  
Integrated survey of the fundamental concepts of culture, forms of collective behavior, community and social organization, social interaction and social change. The social effects of aviation and the impact of science on the social order living in an air-age will also be investigated.
- SS 220 — Introduction to Psychology** **3 Credits**  
Designed to help the student become aware of the many factors influencing human behavior and social interaction, and to understand the context of emotional disturbances.
- SS 300 — Psychology of Career Planning** **1 Credit**  
A course designed to make the student more aware of the important considerations in the area of career development and decision making. Areas to be covered will include occupational orientation testing, job search planning and strategy, interview techniques, and paths to career goals. Lectures will include current opportunities and trends reinforced by visits of aviation industry representatives.
- SS 305 — American Military Experience** **3 Credits**  
Military history with emphasis on military policy, organization and technology as they relate to political, economic, and social developments from 1775 to the present. Prerequisite: AS 253 or SS 110 or SS 120.
- SS 310 — Personality Development** **3 Credits**  
A course to acquaint the individual with the environmental factors that affect personality development, emotional stability, and interpersonal relationships in our society. Through an understanding of these factors, the individual will have discovered new modes of adjustment, both in his own life and in his family and occupational setting. Prerequisite: SS 220.

**SS 320 — American National Government** **3 Credits**  
Basic issues of American democracy, constitutional principles and the executive, legislative and judicial branches of government.

**SS 331 — Current Issues in America** **3 Credits**  
A course in selected political-social-economic issues of national and international importance. Extensive use of journals, magazines and newspapers to supplement lectures and discussions.

**SS 340 — American Foreign Policy** **3 Credits**  
A survey of the evolution of present American foreign policy, stressing the factors which affect and shape this policy. Attention is given to present governmental offices, agencies and departments and the role each plays in policy formulation. Emphasis is on the period since World War II.

**SS 398 — Applied Social Psychology** **3 Credits**  
A course to provide practical applications of basic sociological and psychological principles to problems of youth and to familiarize the student with community services available to problem youths. Supervised by the Office of Youth Services, the student will gain insight and experience in the operation of the Office of Youth Services, rehabilitation techniques and interpersonal relations with problem youth. Prerequisite: SS 210 or SS 220.

**SS 299, 399, 499 — Special Topics in the Social Sciences** **1-6 Credits**  
Independent study, seminars, travel seminars and other specially arranged courses not regularly scheduled in the areas of history, sociology, psychology and human culture in general. Prerequisites: Consent of instructor and approval of the department chair.

# Academic Regulations And Procedures

## STUDENT RESPONSIBILITY

The student is responsible for being informed of all regulations and procedures required for continued attendance at the University. These are generally embodied in this Catalog, the Student Handbook, the Residence Hall Regulations Pamphlet, Academic Standards, Curriculum Standards and academic procedures that are published by the University. These documents are available for reference at Resident Centers, campus Records Offices, Student Government Offices, and Academic Departments throughout the University. University regulations will not be waived because a student pleads ignorance of established standards and procedures. A student who is unsure of any regulation should seek help or clarification from his/her academic advisor, program chair, or the Office of Registration and Records.

Academic regulations, curricula and procedures are subject to change without notice or obligation. If such changes occur, they will be published either in an addendum, or in the next catalog to be issued.

For academic regulations pertaining to graduate students, see the Graduate Catalog.

## REGISTRATION

Students are required to register for each trimester in which they plan to enroll. Tuition deposits, registration and payment of fees must be made in accordance with the instructions published by the Campus Records Office. Students are not officially enrolled until they complete all the requirements of registration, including financial requirements.

Penalties will be charged for late registration and late payment of fees. Late registration will be allowed during the first three days of classes (See the University Calendar) if unusual circumstances prohibited the student from registering during the scheduled period. (The late registration fee of \$50 applies in such cases.) Except for flight courses, registration will not be allowed under any circumstances after the last day for registration, as designated in the Academic Calendar of this catalog or the Resident Center schedule, whichever applies.

Because of the unique scheduling requirements associated with flight training, flight course registration continues throughout the trimester. No late registration fee is applied to flight course registration.

For registration procedure information at International Campus locations, contact the appropriate Resident Center.

## CONTINUED ENROLLMENT

Students are considered to be continuing students, regardless of the number of hours for which they register, unless they:

1. Enroll at another institution without prior written approval. If prior approval is obtained, students may not earn more than 11 trimester credit hours at another institution and remain in continuing student status. For clarification, please see "Attendance at Other Institutions."
2. Leave the University for two consecutive calendar years;
3. Have been suspended or dismissed from the University.

Students failing to maintain continuous enrollment for any reason are required to reapply for admission. Continuously enrolled students, who have left the University for one or more trimesters, are required to inform the Office of Records and Registration at the campus they wish to attend of the degree program desired at least 60 calendar days prior to the beginning of the trimester for which they wish to re-enter.

## SCHEDULE OF CLASSES

A schedule of classes is prepared for each trimester/term at all locations served by the University. The University reserves the right to make adjustments to the published schedule to include cancellation or rescheduling of any class, when deemed necessary and appropriate.

## ACADEMIC ADVISING

At the Daytona Beach and Prescott Campuses, each new student is assigned an academic advisor. At International Campus locations, the Resident Center representative is responsible for academic advisement. The academic advisor assists the student in determining and scheduling an academic program to meet the student's educational aims and goals. The advisor's written approval of a student's course selection is required before a student will be allowed to register.

Academic advisors post a schedule of office hours, and all students should feel free to call on their advisors at any time assistance or discussion is appropriate.

## CLASS ATTENDANCE

Regular attendance and punctuality, in accordance with the published schedule, are expected at all times in all courses. Accordingly, attendance may be included in the grading criteria of an individual class. There are minimum "contact hour requirements" imposed by the FAA for certain classes leading to FAA certificates; these requirements are rigorously enforced. An explanation of the cause of all absences should be given the instructor in advance when possible. Absences are counted from the first scheduled meeting of the class.



An examination normally is given in each course at the end of the trimester/term. A student who misses a final examination without advance permission of the instructor may be assigned a grade of F for the course. A grade of incomplete (I) may be given if the student can show satisfactory evidence that the absence could not be prevented or has obtained advance permission from the instructor.

## UNIT OF CREDIT

The trimester credit hour is the unit of credit used throughout the University system. The trimester credit hour is equivalent to a semester hour. Quarter hour transfer credit will be converted to trimester credit hours on the basis of a quarter hour equal to two thirds of a trimester hour.

## CLASSIFICATION OF STUDENTS

All audited courses and courses taken for credit are counted in determining trimester/term student load.

Twelve trimester hours constitute the minimum load for full-time student status during the Fall and Spring trimesters at the Daytona Beach and Prescott Campuses. The minimum load for full-time student status during each Summer term is six trimester hours. Students carrying less than the minimum full-time load are classified as part-time students. The normal maximum load for students is 18 hours per trimester, or nine hours per Summer term.

Since lengths of academic terms at International Campus locations vary, student classification guidelines may vary. However, the following guidelines generally apply:

### 6-10-week terms

Full-time student — minimum of six hours;

Maximum hour load — twelve hours.

### 12-week term

Full-time student — minimum of eight hours;

Maximum load — 15 hours.

At all locations, a student whose cumulative GPA is 3.00 or higher may enroll for an overload with prior approval of the Dean of Academics or his/her designee.

Students are classified at the end of each trimester/term based on the total number of credit hours earned in accordance with the following schedule:

Freshmen:	27 hours or less
Sophomores:	28-57 hours
Juniors:	58-87 hours
Seniors:	88 hours or more

## GRADING SYSTEM

The following grades are used by the faculty to indicate the quality of work performed by students. Grade designations and grade points for each hour of academic credit are listed below:

A	Superior	4
B	Above Average	3
C	Average	2
D	Below Average	1
F	Failure	0
AU	Audit	0
I	Passing, but incomplete	0
P	Passing (credit)	0
S	Satisfactory (non-credit)	0
X	Credit by examination or advanced standing	0
T	Accepted by transfer	0
N	No grade submitted by instructor	0
W	Withdrawal from course	0
WP	Withdrawal from the University-Passing	0
WF	Withdrawal from the University-Failing	0

The "I" grade is temporary and may be given only at the end of a course when students cannot complete the required work because of severe hardship beyond their control, as determined by the instructor. At the Daytona Beach and Prescott campuses, a grade of "I" must be made up no later than forty-two calendar days (twenty-one calendar days for Summer terms) after the last scheduled class day of the trimester in which the "I" was assigned. At International Campus locations, a grade of "I" must be made up no later than the end of the second term following the term in which the "I" grade was assigned. When an "I" grade is not made up within the prescribed time period, it will be changed to an "F".

If students stop attending class and fail to complete the official withdrawal procedure, a grade of F will be assigned for each course in which they were enrolled. When students process an official withdrawal from the University prior to the final examination period, they will be assigned a grade of W for all courses in which they were enrolled and the date of withdrawal entered on the student's transcript.

A Grade Point Average (GPA) is computed for each student at the end of each trimester/term. The trimester/term GPA is determined by dividing the total number of grade points earned during the trimester/term by the number of trimester credit hours attempted. When a W, X, I, N, AU, S, T or P grade is recorded for a course, the hour value does not count as hours attempted. In addition to the trimester/term GPA, a cumulative GPA is computed for each student for all credit work completed at the University.

Except for flight courses, a course may be repeated as often as necessary or as desired with the second grade replacing the first, and the third replacing the second. The third and all subsequent grades will be used in computing GPA. All attempts will remain on the student's

permanent record. Flight courses may be repeated only once. Students are responsible for indicating courses being repeated at the time of registration.

## **AUDITING AND WITHDRAWING FROM A COURSE**

A student may change registration from audit to credit only during the "Add" period at the beginning of the trimester/term. A change from credit to audit may be made only during the authorized withdrawal period (see below). When a student auditing a course fails to maintain satisfactory attendance, as determined by the instructor, a grade of W will be assigned.

A Daytona Beach or Prescott Campus student may withdraw from a course at any time during the first nine weeks of a trimester and during the first 4½ weeks of a summer term. Developmental courses cannot be dropped without approval of the appropriate Chair. At these campuses, the student must file a change of registration with the Campus Records Office.

Flight courses may be dropped at any time prior to the first attempt of the final course phase check. A grade of "W" will be awarded if withdrawal is accomplished prior to the first attempt of the final course phase check.

Because the length of the academic term differs at the various International Campus locations, the authorized withdrawal period also varies. As a general rule, however, withdrawal is authorized up to the midpoint of a term. International Campus students process changes in registration through their Resident Center representative.

## **GRADE REPORTS**

Grade reports are issued at the end of each trimester/term. All reports of grades are mailed directly to the student at the most current address on file in the Office of the Registrar. Students are solely responsible for informing the Office of address changes.

The University is prohibited from releasing grade information without the express written authorization of the student. Such authorization must be granted each trimester/term as blanket authorizations are prohibited by law.

## **WARNING, PROBATION, SUSPENSION AND DISMISSAL**

A student at the Daytona Beach or Prescott campuses whose cumulative GPA is less than 2.0 for one trimester will be placed on academic warning. A student whose cumulative GPA is less than 2.0 for two consecutive trimesters will be placed on academic probation. Students on probation are classified as students not in good standing and may not serve as an elected member of the Student Government Association, may not serve on the editorial staff of a campus publication or work on campus and shall lose eligibility for financial aid programs.

The academic program of a student on warning or probation may be restricted by the campus Dean of Academics. When academic probation is removed by converting a grade of I to a grade of A, B, C, or D, the academic probation will not become part of the student's permanent academic record.

A student whose cumulative GPA is less than 2.0 for three consecutive trimesters, or a student on academic probation whose cumulative GPA at the end of the subsequent trimester is below 2.0, will be suspended from the University.

Any student who has a trimester/term GPA of less than 1.0 may be suspended or placed on academic probation at the discretion of the appropriate Dean of Academics.

An International Campus student whose cumulative GPA falls below 2.0 for 12 consecutive credit hours of course work will be placed on academic warning. If the cumulative GPA remains below 2.0 after an additional 12 credit hours of academic work, the student will be placed on probation. A student whose cumulative GPA remains below 2.0 for a third consecutive period of 12 credit hours, or whose cumulative GPA falls below 1.0 for any consecutive 12 credit hours of course work, will be subject to suspension from the University.

The University reserves the right to suspend or dismiss a student at any time and without further reason, if the student's conduct, academic standing or other performance is regarded as undesirable. "Undesirable conduct" is defined as any conduct, deemed by the University, which poses a risk of danger to the health, safety, or property of members of the University community, including but not limited to, other students, faculty, staff, administrative officers or the student him/herself or conduct which is disruptive of the educational process of the University or any other just cause.

Success in aviation training requires a commitment to excel and the discipline to avoid unsafe practices or habits. The use of drugs constitutes an unsafe practice and is totally incompatible with the aviation environment. In recognition of this, it is the policy of ERAU that using or possessing marijuana, or any narcotic, stimulant or hallucinogenic drug will be cause for immediate suspension or dismissal.

Any student who has been suspended or dismissed from the University for any reason must file for readmission with the appropriate Campus Records Office. (A student suspended for poor scholarship may apply for readmission subsequent to completing a minimum of 15 hours of academic credit with a GPA of 2.5 or more from an institution with accreditation acceptable to ERAU, or 12 calendar months after the date of suspension.)

The University reserves the right to refuse admission to students from other colleges or universities where they were on probationary status or were academically dismissed. If the University admits such students they will be admitted on probationary status.

## CATALOG APPLICABILITY

For a student enrolled at either the Daytona Beach or Prescott Campus, the catalog in effect at the initial matriculation is applicable. If the student leaves the University and must reapply for admission, the catalog in effect at the time of readmission will apply. (Circumstances requiring readmission to the University are listed under the Readmission to the University heading of General Information chapter.)

For students enrolled at International Campus locations, the catalog in effect at the time of submission of a formal application for admission is applicable. If an International Campus student's enrollment is interrupted for a period in excess of two years, the student must reapply for admission and will be under the catalog in effect at the time of readmission.

Curricular requirements stated in the applicable catalog will not be affected by any subsequently published addendum to that catalog or by later catalogs unless the student elects to graduate under the provisions of a later catalog or addendum. Students electing to graduate under the provisions of a later catalog or addendum, must meet all requirements (admission, transfer, graduation, etc.) contained in that catalog or addendum.

Students who fail to complete the curriculum requirements of the degree program in which they enroll within a period of ten calendar years from the date of original enrollment will become subject to the curriculum requirements of the catalog in effect on the last day of the ten year period.

## GRADUATION HONORS

Graduation honors are awarded only to students completing a baccalaureate program and recognize excellence of performance throughout the student's academic career. In order to be eligible, the student must have completed at least 45 credit hours in residence at ERAU. The level of graduation honors will be based on the cumulative grade point average for all courses taken at ERAU and those courses transferred from other institutions which are directly applicable to the student's degree program.

Graduation honors (undergraduate) will be awarded in accordance with the following criteria:

Honors Level	Cumulative GPA
Summa Cum Laude	3.90-4.00
Magna Cum Laude	3.70-3.89
Cum Laude	3.50-3.69

## DEAN'S LIST AND HONOR ROLL

Recognition of academic excellence is provided on a trimester basis for full-time students at the Daytona Beach and Prescott campuses. A Dean's List and Honor Roll are published at the end of each trimester.

In order to be eligible for trimester honors, the student must have earned an overall cumulative GPA of at least 2.00 and a Trimester GPA of 3.50-4.00 for the Dean's List or 3.20-3.49 for the Honor Roll.

Academic recognition is also granted on a periodic basis to students enrolled at International Campus locations. Students who attain an overall cumulative GPA of 3.50-4.00 after a minimum of 12 consecutive credit hours of course work will be named to the Dean's List; similarly, students who attain a cumulative GPA of 3.20-3.49 after a minimum of 12 consecutive credit hours of course work will be named to the Honor Roll. Once granted these honors, the International Campus student must complete an additional sequence of 12 or more credit hours of work with Embry-Riddle before again becoming eligible.

## GRADUATION REQUIREMENTS

All students must complete the general requirements as prescribed by the University and the specific requirements for the degree sought. The following summary of graduation requirements is provided for all students:

1. All required courses for a particular degree listed in the applicable Catalog must be successfully completed.
2. The minimum number of credit hours required for the degree as listed in the applicable Catalog must be successfully completed.
3. For students pursuing their degrees at the Prescott or Daytona Beach Campuses, the last 30 academic credit hours must be completed with Embry-Riddle for a Bachelor's degree; the last 12 academic credits must be completed with Embry-Riddle for an Associate degree. International Campus students may be exempted from the requirement that the *last* 30 or 12 hours be completed with the University. However, they must complete a minimum of 30 or 12 credit hours with Embry-Riddle for the Bachelor's or Associate degree, respectively and must be enrolled with the University the last term prior to graduation.
4. For a baccalaureate, a minimum of 40 credit hours in upper division (300 and 400 level) courses must be successfully completed. For transfer courses, the course level is determined by the educational institution which initially granted the credit. Exceptions to the 40-hour upper division requirement are authorized only when the specified required courses preclude achievement within the minimum credit hour requirements in the catalog listing for the degree.
5. A minimum cumulative GPA of 2.00 for all work completed with the University is required for any undergraduate degree. Candidates for the award of the B.S. in Aeronautical Engineering, the B.S. in Electrical Engineering, and the B.S. in Aircraft Engineering Technology degrees must also earn a minimum cumulative GPA of 2.00 in all required AE, EE, ES or ET courses.

6. Students will not be issued a diploma or transcript of their records until all debts or obligations owed to the University have been satisfied.
7. Students will not be issued a diploma unless their behavior is in good standing, according to University policies and regulations. This includes, but is not limited to, being off disciplinary probation.
8. An Application for Graduation must be initiated by the student and received within the time limit specified by the appropriate Campus Records Office. In the event the graduating student will not attend a scheduled graduation exercise, the diploma will be mailed to the address requested by the student.

## **TWO DEGREES OF THE SAME RANK**

In order for a student to earn a second baccalaureate, a minimum of 30 credit hours of ERAU course work over and above that which is required for the declared primary degree must be completed. At least 60 credit hours must be ERAU courses and at least 20 of the 30 additional credit hours must be in upper-division courses.

To earn a second Associate degree, the student must complete at least 12 credit hours of ERAU course work over and above that which is required for the primary degree; at least 24 credit hours must be ERAU courses.

## **AREA OF CONCENTRATION**

Several degree programs require the student to select an area of concentration. Areas of Concentration are designed to provide the student with preparation in his specialized field. Students should select an area of concentration at the time of application for admission to a degree program. The Area of Concentration which the student indicates on his application for graduation will be entered on the student's permanent academic record (the transcript).

## **CHANGE OF DEGREE PROGRAM**

At the Daytona Beach and Prescott Campuses, students may change their degree programs during any registration period if they meet academic qualifications and the degree program capacity is not full. Students should contact their current Program Chair to initiate a change of degree program.

A change of program does not affect the catalog applicability unless the degree program was added to University offerings subsequent to the catalog in effect at the time of the student's original matriculation. In such cases, the student may pursue the degree program under any subsequent catalog in which the program is listed.

Students at International Campus locations should contact their Resident Center representative in order to change their degree programs.

## ATTENDANCE AT OTHER INSTITUTIONS

Once admitted to the University, students are required to complete all work to be applied toward their degrees with the University unless prior written authorization is granted to take courses and/or training at other institutions. Students desiring to take academic courses (including all flight courses) at other institutions while enrolled at Embry-Riddle must process a "Petition to take Courses at Another Institution" form obtained from the Student Records Office.

In considering a petition to take courses at another institution, the student's GPA, the availability of the course or courses in the ERAU curriculum, and the availability of substitutable courses will be taken into account. Students may be authorized to enroll in a course or courses at another *local* institution only when it is essential that a course or courses be taken at a specific time and schedule conflicts preclude completion of the work within the University.

Students who attend other schools without proper authorization will not receive transfer credit for the courses taken and are subject to dismissal from the University. As an exception, International Campus students may complete courses with other institutions if these courses are required in their programs and are not offered by the University at the ERAU location they attend. Acceptable standards for transfer of courses are listed in the Admission to the University chapter of this catalog.

## FLIGHT TRAINING AT OTHER INSTITUTIONS

Once a student has enrolled at Embry-Riddle, all subsequent flight training must be completed in residence at the University. Flight training at other schools while enrolled at Embry-Riddle is not permitted without *advanced written authorization* from the appropriate authority. When permission to fly outside of Embry-Riddle is granted, no academic credit will be accepted or awarded by Embry-Riddle except that academic credit may be granted for helicopter training completed at an approved Part 141 school. Credit will be awarded for successful completion of this program on a PASS/FAIL basis if prior written permission is obtained from the appropriate authority. Credit will not exceed one credit hour for the flight portion nor three credits for the academic portion. Enrolled students who receive flight training outside Embry-Riddle without proper prior approval are subject to dismissal from the University. This applies to currently enrolled students and to students not currently enrolled but maintaining "continous enrollment". (For a definition of continous enrollment, see the Continued Enrollment heading of this chapter.)

In degree programs requiring flight training, at least one flight course must normally be completed in residence at Embry-Riddle,



regardless of any advanced standing or transfer credits which may be granted. Exceptions may be made for currently qualified military trained pilots possessing FAA certification or for currently qualified, fixed-wing airline pilots.

## **SUMMER FLIGHT**

All Aeronautical Science and Airway Science students majoring in flight may be required to attend one full Summer trimester, A and B terms, or divide this into two summers — taking A term one year and B term another year.

## **NON-DEGREE STUDENT STATUS**

Embry-Riddle recognizes the needs of working adult learners for retraining or enhancement of professional skills, and facilitates the entrance of this type of student to the University. Students who meet University admissions requirements are permitted to enroll in courses as special students in non-degree seeking status without making formal application for admission to the University. These students are permitted to continue their enrollments as non-degree students as long as they maintain satisfactory academic status or until they file a formal application for admission as a degree candidate. Only degree seeking students who have formally been admitted to ERAU are eligible for financial aid programs. An adult learner desiring non-degree student status can receive information and register for courses in the campus Records and Registration office.

## **WITHDRAWAL**

A Daytona Beach or Prescott Campus student who leaves the University for any reason must officially process a withdrawal clearance. Students withdrawing must do so through the Office of Registration and Records. When a student files an official withdrawal from the University after the end of the scheduled withdrawal period, a WP or WF grade, based on the student's performance will be assigned in all courses, and the date of withdrawal will be entered on the student's permanent record. Withdrawal is defined as withdrawing from a particular term or trimester and allows the student to maintain his status as a continuing student.

International Campus students should contact their Resident Center representative for information on withdrawal.

## **PRIVACY OF STUDENT RECORDS**

The rights and privacy of students are the subject of Public Law 93-380 which became effective in 1974. The law requires that a student sign individual release forms for each company, school, or individual to whom he desires that information be released. Additionally, the law authorizes students to review their files. Any student desiring additional information concerning the law should contact the Dean of Students office.

# Student Services And Activities

Embry-Riddle takes the position that a university education is more than just classes and continuous study. There are many opportunities for involvement outside of the classroom setting which can enhance student success. Students are encouraged to take advantage of the services described in this section ~~but need to be aware that not all of the services listed are available on every ERAU campus. Students should contact the individual campus in which they are interested for specific information on the services offered.~~

## STUDENT ACTIVITIES

*Review*  
The Student Activities office acts as a lively nerve center for campus activities which supplement the students' academic experience and provide a well-rounded education. Professional staff provide workshops and act as resources on topics such as leadership, communication skills and group dynamics. Seminars concerning time management, and money management help students develop their abilities in many diversified areas.

In addition, valuable educational experiences may be gained through active participation in campus activities and organizations, which contribute to the overall development of the student.

All activities, including recreational and cultural events which take place on campus, are available and accessible to handicapped students.

Fraternities on the Daytona Beach Campus include: Alpha Eta Rho International Aviation Fraternity, Arnold Air Society Honorary Service Fraternity of Air Force ROTC Cadets, Delta Chi International Social Fraternity, Lambda Chi Alpha International Social Fraternity, Omicron Delta Kappa National Leadership Honor Society, Sigma Chi International Social Fraternity, Sigma Gamma Tau National Honor Society in Aerospace Engineering, Sigma Phi Delta Professional Engineering Fraternity, Sigma Pi International Social Fraternity, Sigma Tau Delta National Honorary English Society, and the Interfraternity Council (a representative governing body of all fraternities on campus).

Student organizations at Daytona Beach include the American Institute of Aeronautics and Astronautics, Angel Flight, AVION newspaper, Baha'i Club, Bowling League, Brothers of the Wind, Chess Club, Christian Fellowship, Entertainment Committee, Hellenic Society, International Student Association, Karate Club, L-5 Aerospace Society, Management Club, Muslim Student Association,

PHOENIX yearbook, Platoon Leaders Class, Screaming Eagles, Scuba Club, Skydiving Club, Society for Collegiate Journalists, Student Government Association, Veterans Association, and many other social, recreational, and service clubs and organizations.

The center for students' extracurricular activities is the University Center. It is available for meetings, movies, dances, concerts, lectures, cultural events, tournaments and many other out-of-class functions. The Center also houses the Student Activities Office, Student Government Association, AVION newspaper, PHOENIX yearbook, mail room, bookstore, barbershop, Health Services, Counseling Center, Cashier's Office, Career Center, the Office of the Dean of Student Affairs and a cafeteria.

The Prescott Campus has a variety of social, recreational, sport and service clubs which meet the needs of the student body. The clubs include the National Intercollegiate Flight Association, Arnold Air Society, Radio Control Club, PIONEER (student newspaper), ECHO (yearbook), Management Club, Parachute Club, Resident Hall Association, College Republicans and Student Entertainment Committee. The Rugby Club and the Soccer Club are sports clubs that compete against other colleges and universities in the Southwest.

The Prescott Campus Student Affairs Complex provides a focus for campus activity with its gymnasium, weightlifting room, and recreational facilities. Athletic and camping gear may be checked out in the equipment room located in the game room. The complex also houses the Snack Bar and Pizza Parlor that provides a place for student, faculty and staff interaction as well as a location for club meetings, and social events. The offices of the Dean of Students, Student Activities and Health Services are also housed in the complex.

## STUDENT GOVERNMENT

The student government is composed of undergraduate students who have been selected by their peers to represent the student body. The purpose of student government is to ~~promote the welfare and to~~ represent the interests of the student populace in relations with the University and other organizations. Student government maintains liaison with the administrative staff and cultivates relations with other universities.

The organization is responsible for conducting a variety of activities including dances, barbecues, concerts and movies. A judicial body of the organization assists the Dean of Students Office in governing student conduct. Students serve as voting members on academic and administrative committees.

Student government at Embry-Riddle enjoys a unique position among student organizations in the degree of responsibility and authority delegated to and administered by its membership. Student representatives are voting members on the University Board of Trustees and the Executive Committee of the Board of Trustees.

## RECREATION/ATHLETICS

The Department of Recreation at the Daytona Beach Campus provides a wide variety of intramural sports and contests throughout the year. Leagues and tournaments emphasize team and individual competition and various educational programs emphasize mental, social and physical well being. Activities range from tennis, volleyball, softball, floor hockey, flag football, and other sports upon request.

The campus has a beautiful swimming pool with diving and swim competition facilities, and a universal gym for weight lifting and body building. A recently added Nautilus Fitness Center complements this facility. The jogging and exercise trail meanders for 1.3 miles through the campus with 20 exercise stations along its route. An outdoor basketball court, tennis courts, a softball field, and an indoor racquetball complex round out the recreational facilities.

The Director of Recreation works closely with clubs and organizations to assist with planning and implementing sports programs and activities. Currently, the Golf and Baseball sport clubs participate on the intercollegiate level with other clubs, colleges and universities. The Recreation Office provides most of the equipment needed for sports activities; however, students are encouraged to bring basic sporting equipment with them.

Embry-Riddle at Prescott has a full intramural sports schedule that emphasizes student participation. A wide range of sporting activities in team, dual and individual sports is available to all students. Currently, the soccer club and rugby club play at the intercollegiate level with other clubs and universities throughout Arizona. Embry-Riddle sponsors a variety of recreational activities throughout Arizona for students to participate in. These activities include white water rafting on the Colorado River, snow skiing in Flagstaff, fishing and hunting in the national forests, canoeing on local lakes, and backpacking and camping throughout the state. Athletic facilities at Prescott include a weight room, gymnasium, outdoor swimming pool, athletic field, indoor racquetball court, tennis courts and jogging trails.

## CAMPUS MINISTRY

The Office of Campus Ministry on the Daytona Beach Campus is staffed through a freewill association of on-campus clergymen. Their ministry is expanded through the concern of local clergy ministering to many students living off-campus. While deeply concerned with students, the Office of Campus Ministry also reaches out to the whole academic environment of faculty, administrators and staff. Ecumenical cooperation, team ministry and a high concern for social justice questions and issues characterize the Office. Counseling, prayer, Bible study and discussion groups are among the ministries operative now.

Other ERAU campuses offer religious services depending upon the needs and requests of the student body.

At Prescott, arrangements are made as needed for representatives of local churches to meet with students, and for students to get together for group study, worship and fellowship.

## ALUMNI NETWORK

The Alumni Relations Office serves as the liaison between the alumni network and the University. An alumni newsletter is published and distributed quarterly to herald the latest developments at the University, provide a forum for alumni opinion of University and industry matters, and facilitate contact among graduates.

Alumni chapters have been formed in many areas of the country and within individual organizations employing University graduates. Through the chapters, alumni can share experiences, discuss career strategies, and enjoy social activities.

Other alumni benefits include career assistance available through the Career Centers at the Daytona Beach and Prescott Campuses and International Campus resident centers.

The alumni of the University are an integral factor in the continued growth of Embry-Riddle. Many alumni contribute regularly to the various student assistance funds, such as the REAL (Repayable Educational Assistance Loan) program. Others donate equipment or their time by serving as counselors at college fairs and other special education events in their local areas.

Over 80,000 graduates have the distinction of calling Embry-Riddle Aeronautical University their alma mater. They can be found in every facet of aviation. Information about alumni activities may be obtained by contacting the Alumni Relations Office at the Executive Offices located at Bunnell, Florida.

## SERVICES

### SERVICES, FACILITIES FOR PHYSICALLY HANDICAPPED STUDENTS

Any student entering a University for the first time must learn to adjust to the new environment. For physically handicapped students, the adjustment is not always an easy one. They must learn to cope on a daily basis with inclement weather and many other obstacles which they may never have had to face alone. This section describes several services the University offers to the handicapped student.

Recognizing the need for services for the handicapped student, Coordinators for Handicapped Students have been appointed for each campus. They are:

- Daytona Beach Campus — Director of Health Services
- International Campus — Dean of Academics
- Prescott Campus — Dean of Students

The new student is acquainted with facilities and services for the handicapped student through one-to-one contact with the staff of the Department of Admissions.

Early registration is arranged through the Department of Admissions. Eligibility to take advantage of this is contingent on proper forms being filed with this Office. Staff members will be present at early registration to assist students through this process.

If physical limitations prevent a student from being tested in a group situation, individual arrangements will be made. These arrangements are available for all testing, including proficiency, in-class and take-home tests.

## HEALTH SERVICES

The Health Services staffs are committed to providing students the education and guidance necessary to achieve and maintain good health by preventive care. Available services include assessment and treatment of minor illnesses and injuries, individual health counseling, medical grounding of flight students, and small group educational programming. Reference materials and audiovisual learning aids complement the personal aspects of the preventive approach to student health. Good health is the responsibility of the individual student and insures a productive college career.

Another responsibility of the student is The Medical Report form provided by the Admissions Office. This form must be completed and returned to the Central Admissions Office. (An FAA Medical WILL NOT meet this requirement.) This Medical Report form provides authority from either the parents, sponsors, or the student, if a legal entity, to the University administration for emergency medical treatment as directed by competent medical authority. It is agreed that no legal action will be brought against the University or its officers when such authorization is granted. Those who plan to enroll in a flight course are advised to obtain, prior to arrival, at least a Class II Medical Certificate from a physician certified as an Aviation Medical Examiner. Students must possess this certificate at the time they take any flight course.

Health insurance is not mandatory for ERAU students but is strongly recommended. At the Daytona Beach and Prescott Campuses, a student group insurance program is available. Rates are determined annually and premiums are non-refundable. Information is available in the Health Services Office.

Local hospitals are close to both residential campuses, and referral services are provided by qualified University Health Service staff.

## THE COUNSELING CENTER

The Counseling Center staff, at the Daytona Beach and Prescott Campuses, assists students in pursuing successful college careers through individual counseling and educational programming. Professionals trained in counseling and guidance help students with person-

al, social and educational concerns or problems. Areas of concern may include homesickness, social relationships, illness or death in the family, poor academic performance, study skills, stress reduction, time management and basic adjustment to University life.

Additionally, the Center maintains a variety of self-help materials, i.e., books, pamphlets and audio-cassette tapes, which are available to students on a loan basis.

For those students whose concerns are outside the scope of the Center staff's expertise, referral services are available. Staff will assist students in identifying University and/or community resources to meet their individual needs.

An additional function of the Counseling Center is the coordination of the Student and Family Orientation programs. The goal of Student Orientation is to assist students in making smooth transitions into the ERAU community. Through interactions among new students, upperclassmen, faculty, and staff, information and guidance are combined with friendship and entertainment.

Family Orientation provides parents and spouses of new students with an introduction to the campus. Presentations by faculty and staff address concerns which are common to families of new students. An informal reception and tour of the campus are included in the program.

## MAIL SERVICE

Prior to a student's arrival, all personal mail and baggage should be appropriately addressed as follows:

NAME  
Embry-Riddle Aeronautical  
University  
Regional Airport  
Daytona Beach, FL 32014

NAME  
Embry-Riddle Aeronautical  
University  
3200 N. Willow Creek Rd.  
Prescott, AZ 86301

All baggage and express packages must be sent prepaid. Baggage is stored at the risk of the student, and the University accepts no responsibility for theft or missing luggage.

During registration, students are assigned a mail room box which they are required to check on a daily basis, not only for personal mail but for official University notices. The correct address should then be as follows:

NAME  
ERAU Box #——  
Regional Airport  
Daytona Beach, FL 32014

NAME  
ERAU Box #——  
3200 N. Willow Creek Rd.  
Prescott, AZ 86301

## DINING SERVICE

The Food Service Divisions operate with the philosophy of caring about students. They provide students with tasteful, well-balanced, nutritious meals at reasonable prices. Students can select from a num-

ber of meal plans, pay cash, or use discount cards for their meals from the dining service.

Specific information is available from the campus Food Service Manager.

At the Prescott Campus, all on-campus residents subscribe to a meal plan. Off-campus students wishing to obtain a meal plan may contact the Housing Office.

## OFF-CAMPUS HOUSING

The Off-Campus Housing Offices strive to meet the needs of the commuter student population, which comprises 75% of the student body at the Daytona Beach Campus and 60% on the Prescott Campus. In an effort to serve the needs of students residing in off-campus housing, the following services are available.

The offices operate a rental listing service which maintains an up-to-date list of properties available for students to rent and a list of students seeking roommates. To take advantage of this service you must visit the offices. NOTE: The offices cannot reserve housing for you nor give out listings over the phone.

At the Daytona Beach Campus, a Discount Motel Program is designed to offer students a comfortable and economical place to stay while seeking permanent accommodations. The program is available at the beginning of the Spring and Fall trimesters. The beginning and ending dates for this program and the rates vary by season.

The Off-Campus Housing Offices are available to provide: information concerning tenant/landlord rights, advice on general housing problems, information on small claims court, and referrals to local agencies when appropriate.

In addition to those services, the office also provides the "Commuter Student Information Manual", Apartment Complex Guide, sample leases, guide to area realtors, city maps, bus schedules, and consumer and legal information.

At Prescott, the Off-Campus Housing Office assists students who are looking for off-campus accommodations in Prescott or the nearby community. The University Housing staff maintains listings of current rentals and students seeking roommates. Maps, brochures and other information about living in Prescott are available at the Off-Campus Housing Office.

## UNIVERSITY-MANAGED HOUSING

University Housing provides and operates both on-campus and off-campus residential facilities for full-time, unmarried students. However, since applications typically exceed available accommodations (except during the Summer trimester), students are urged to apply as early as possible. Priority for room reservations, in the case of new students, is based on the date of receipt of the housing contract and the partial trimester prepayment, provided that the students have been confirmed for admission to that particular campus of the University



and the tuition deposits have been paid. ERAU reserves the right to allocate housing in its discretion.

The Prescott Campus provides on-campus accommodations for 460 single students utilizing five completely furnished residence halls. Features of the residence halls include air conditioning, hookups for private telephones and cable television, coin operated laundry and vending facilities, and a barbecue and picnic area. The residence halls are coeducational and are supervised by trained University personnel.

On-campus facilities at Daytona Beach include a three-story residence hall and a two-story external entrance/exit housing complex, which, when combined with the University's two off-campus apartment complexes, house over 1,100 students. All facilities are coeducational and are supervised by students and professional staff.

Accommodations also include a limited number of specially equipped units available for handicapped students. The University can only facilitate those handicapped students who are self-sufficient or require minimal assistance, as determined by the Director of Housing.

For further information regarding University Housing, please consult the Housing Services brochure for your selected campus, which is available from the Admissions Office.

## FOREIGN STUDENT SERVICES

The Office of Foreign Student Services at the Daytona Beach and Prescott campuses help to meet the special needs of foreign students. Programs are designed to help students achieve educational goals and to experience the many facets of life in the United States. The staff acts as counselors, friends, and advocates of foreign students, in addition to providing a source of information and liaison for immigration matters.

## COLLECTIONS OFFICE

The University Collections Office serves to provide multiple types of Pre-Loan/Debt Management counseling to ERAU students receiving loan awards from the National Direct Student Loan (NDSL) and Repayable Educational Assistance Loan (REAL) programs offered through the Financial Aid Office.

Pre-Loan counseling is a required procedure for *ALL* new loan program recipients. Its intent mainly involves educating the prospective student loan borrowers on their loan programs *BEFORE* they actually decide to accept or reject the loan. Also, continuing students receiving renewal awards from Financial Aid are required to sign a Promissory Note and periodically submit updated information for their loan files to University Collections. Students are notified in advance of dates, times, and locations for completion of this requirement.

Students are encouraged to take advantage of the services available to them such as financial debt management and credit counseling.

## CAREER CENTER

The Career Center encompasses cooperative education and student career placement. This office is cognizant of the needs of the student body and the aviation industry, and it strives to fulfill both needs.

The basic goal of the staff is to assist students in obtaining career-related employment in the aviation industry through cooperative education work assignments and career job placement. To accomplish this, the staff performs these functions: (1) serves as a link between the academic world and the work world; (2) acts as a referring agency between students and prospective employers by registering co-op applicants and graduating seniors; (3) establishes recruiting dates, interview schedules, and career seminars with representatives from industry and governmental agencies; (4) searches for qualified applicants to fill these jobs; (5) maintains reference literature on employers, salaries, interviewing techniques, resumes and cover letters; and (6) assists students in securing summer employment.

The Career Center is dedicated to helping students effectively utilize their talents, education and training by assisting in the employer/employee selection process. Every student is encouraged to become knowledgeable of, and utilize, all the services available through the Career Center.

## LEARNING RESOURCES CENTERS

The Learning Resources Centers offer information resources in support of the educational programs of the University. Books, documents, films, magazines and computer data bases are selected and made available to students, faculty, and staff for use in their work.

A new library facility, the Jack R. Hunt Memorial Library, was completed at the Daytona Beach Campus in May of 1985. The 20,000 square foot building completes Phase I of a multi-phased building program. The library houses a comprehensive collection of books, periodicals, documents, microforms and databases as well as an extensive media collection. The library's primary mission is to provide service to the academic community: students, faculty, and staff.

The University is proud of its comprehensive aviation collection. Current documents and journals are complemented by an outstanding historical collection.

# Financial Assistance

## FINANCIAL AID INFORMATION

Embry-Riddle participates in six federal financial aid programs, several state programs, and several University administered scholarship and employment programs. The University makes an effort, within the limitations of its available financial resources, to ensure that no qualified student is denied the opportunity to obtain an education because of inadequate funds.

Embry-Riddle believes the primary responsibility for financing an education lies first with the student and the student's family. Therefore, the student should begin preparing for educational costs by applying for financial aid early, saving money, looking for ways to cut costs, and becoming aware of specific program requirements by reading all publications distributed by the Financial Aid Office. Financial aid awards rarely cover all expenses of the students who attend Embry-Riddle.

All financial aid programs sponsored by external agencies are subject to the rules and regulations of that agency and are beyond the control of Embry-Riddle. Students are advised to be aware of such rules and regulations and should check with the external agency from time to time to ensure that they remain in compliance.

To be considered eligible to apply for any of the financial aid programs at Embry-Riddle, students must be U.S. citizens or permanent residents of the U.S., enrolled or accepted for enrollment as at least a half-time student in a degree program and, for the most part, have financial need. Also, students must maintain academic standards of progress as defined by the University to maintain eligibility for financial aid.

Academic Standards of Progress at Embry-Riddle require a student to maintain a cumulative grade point average (CGPA) of at least 2.0 and make reasonable progress toward completing a degree based on credit hour completion each trimester. Refer to the Standards of Satisfactory Progress Brochure for a complete description of the Academic Standards of Progress and other important information.

All students receiving financial aid from the State of Florida are required to pass the COLLEGE LEVEL ACADEMIC SKILLS TEST (CLAST) before the trimester/term in which they will complete their 60th credit hour toward degree completion. It is very important that Florida students prepare to register by posted deadline dates and receive course counseling from their program chairperson in order to select courses that will provide adequate background preparation. Failure to pass this examination will cause the temporary suspension of state aid. Students who fail may retake the examination.

Most financial aid awards are made on a first-come/ first-served basis because of limited funds. Therefore, students should apply for financial aid *early*, beginning in January for the following academic year. Students applying for financial aid after January for enrollment the following academic year should not expect to be awarded a National Direct Student Loan or a Supplemental Educational Opportunity Grant. Funds in these programs are extremely limited. Students must reapply again each year in order to reestablish their eligibility. Applications are mailed to incoming students who indicate on their admissions forms that they are interested in financial aid. Returning students may pick up their application materials at the financial aid office by the first of January. Notices will be posted on campus to remind students of the availability of the forms. Students attending International Campus locations may pick up their Financial Aid materials at the Resident Center or contact the International Campus Financial Aid Office directly.

A detailed explanation of how to apply for financial aid, specific program requirements, forms needed, application deadline dates and other important information can be found in the Financial Aid Brochure. Also, students may consult the Financial Aid Office at the campus they plan to attend to answer any questions concerning financial aid. International Campus students should contact their Resident Center Director for financial aid information.

Financial aid at Embry-Riddle is in the form of grants, loans, employment and scholarships.

## GRANTS

Grants are a form of financial aid which *do not* need to be repaid. Most grants are based on financial need.

- Pell Grant
- Supplemental Educational Opportunity Grant
- State Grants (Florida residents see CLAST information)
- Florida Tuition Voucher (see CLAST information)
- Florida Academic Scholars Fund (see CLAST information)

## LOANS

Loans are a form of financial aid which *must* be repaid at low interest. Long-term loans are usually paid back after the student graduates. Short-term loans are normally for emergencies only and usually paid back within 30-60 calendar days.

## LONG-TERM LOANS

- National Direct Student Loan

- Guaranteed Student Loans
- PLUS Loan (Parents Loan for Undergraduate Students)
- ERAU Repayable Educational Assistance Loan (REAL)

#### SHORT-TERM LOANS

Students apply at the Cashier's Office.

- Emergency Loan Fund — established by the Ila Brignall Memorial, Commanche Flyer Foundation and Strickler Loan Fund.
- Walter Lux Memorial Loan

#### EMPLOYMENT

Employment opportunities exist for students meeting certain eligibility requirements to work part time either on or off campus to help pay for their educational costs. Students interested in employment are requested to contact the Student Employment Office after registration and class scheduling are completed.

- College Work-Study Program
- Embry-Riddle Student Employment Program

#### SCHOLARSHIPS

Scholarships are awarded to students according to their academic achievement and high probability of success in an aviation career. Students applying for a scholarship must complete a Scholarship Application available, upon request, from the Financial Aid Office during the month of January. Scholarships are extremely limited. Some scholarships are available only at certain campuses. For further information about scholarships, contact the Financial Aid Office of the campus you plan to attend.

#### TUITION PAYMENT PLANS

Several companies offer monthly installment tuition payment plans to assist parents and students in paying their educational expenses. The Admissions Office will mail information about these plans to prospective students and returning students will get further information from the Financial Aid Office upon request.

#### OTHER FINANCIAL ASSISTANCE PROGRAMS

- AIR FORCE ROTC SCHOLARSHIPS  
Air Force ROTC (AFROTC) offers yearly scholarships covering a student's college education for two, two and one-half, three, three and one-half, and four years. Each scholarship

pays for tuition, laboratory and incidental fees, textbooks and also includes a \$100 per month (tax free) allowance (up to a total of \$2000).

Students never enrolled in a college or university as a full-time student are eligible for the four year scholarship, provided they can complete their four year degree before their 25th birthday. High school students interested in a four year scholarship must apply to Air Force ROTC Headquarters, Maxwell Air Force Base AL, 36112, before *December 1st of their senior year*. Application forms for the scholarship are available at any university AFROTC Department.

Freshmen and Sophomores enrolled in the Air Force ROTC program at Embry-Riddle are also eligible for other Air Force ROTC scholarships. Freshmen can compete for three and one-half and three year scholarships, while sophomores compete for two and one-half and two year scholarships. Students apply for these scholarships through the AFROTC Department at Embry-Riddle.

Junior College transferees can also compete for a two year scholarship. These scholarships are on a competitive basis; however, application must be made through the AFROTC Department *before January* of their entering junior year.

- **ARMY ROTC SCHOLARSHIPS**

The Army Reserve Officer Training Corps offers scholarships that provide full tuition, flight fees (if required for the degree), lab fees and an allowance for textbooks and supplies to qualified ROTC students. Scholarship students also receive \$100 (tax free) per month while in school.

The Army ROTC program is offered in both a four year and two year option.

Applications for two year, three year and four year scholarships are available at the Army ROTC Department.

General requirements to apply for an Army ROTC scholarship include:

- Be enrolled full time in any bachelors degree program.
- Be a United States citizen.
- Have a SAT score of 850 or higher (ACT 17 or higher).
- Have a minimum college GPA of 2.0.

Applications for one, two, three, and four year scholarships are available in the Spring Trimester at the Army ROTC Department. For information concerning eligibility and application, see the Reserve Officer Training Programs section in the Guide to the Curriculum chapter of this catalog.

- **MARINE CORPS COMMISSIONING**

The Marine Corps offers three training programs: Platoon Leaders Class Program (PLC), either a six or ten week session; Aviation Officer Candidate Program, 10 weeks; and Unrestricted Officer Candidate Program, 10 week session. Appli-

cants for either the PLC, AOC or OC Program are paid during the training. The six week training sessions pay approximately \$1,200 each and do not incur any active duty obligation. Pay during the ten week sessions is approximately \$2,000 and does not incur any active duty obligation.

Please note additional information concerning Reserve Officer Training Programs and Military Training Programs is in the Reserve Officer Training Programs section in the Guide to the Curriculum chapter.

- **FLIGHT LEADERSHIP/FELLOWSHIP PROGRAM**

The Flight Leadership/Fellowship Program is available to students at the Prescott Campus who enroll in the Aeronautical Science degree program. Students are selected for the Flight Leadership portion of the program based upon academic excellence and leadership potential. Selections for the Flight Fellowship portion of the program are made from those Flight Leadership students who continue to demonstrate the ability and desire to become outstanding flight instructors.

While not every Flight Leadership student is selected for a fellowship, those who are serve as Assistant Flight Instructors, and while completing their advanced studies, can accumulate a significant number of flight hours before completing their academic training.

The Flight Leadership/Fellowship Program is highly competitive, yet rewarding. Interested students should contact the Chairman of the Aeronautics Department at the Prescott campus for additional information.

- **AVIATION MAINTENANCE FELLOWSHIP PROGRAM**

The Maintenance Fellowship Program provides a 75 to 100 percent tuition waiver per trimester to selected students, with Airframe and Powerplant licenses, who are selected to serve as Assistant Maintenance Instructors. The fellowship students must agree to a maintenance instructional load of 300 hours per trimester (20 hours per week for 15 or 16 weeks). Maintenance Fellows who exceed the normal load during the trimester will be paid for the extra hours in accordance with the currently established hourly rate. Selection of students for the Maintenance Fellowship Program will be from those who have participated in the Leadership Program. Maintenance Fellows must maintain continuous enrollment. Successful completion of the Leadership Program is not an automatic guarantee of selection for the Maintenance Fellowship Program. For additional information, contact the Dean of the College of Aviation Technology.

# Faculty And Administration

The Administration and Faculty of Embry-Riddle are listed below. An asterisk (\*) denotes the International Campus; a plus (+) denotes the Prescott Campus; a cross (†) denotes the Executive Offices and all others are assigned to the Daytona Beach Campus.

## OFFICERS OF THE UNIVERSITY

**Tallman, Kenneth L. †**

*President.* B.S., U.S. Military Academy; M.S., George Washington University; C-ASMEL-I.

**Ledewitz, Jeffery H. †**

*Executive Vice President, Administration.* B.A., Stetson University; M.A., George Washington University; Ed.D., Oklahoma State University.

**Williams, John W., Jr. †**

*Executive Vice President, Academics.* B.S. and M.A., Appalachian State University; Ph.D., Mississippi State University; C-ASMEL-I.

**Fidel, John A. †**

*Vice President and Director of Development.* B.S., U.S. Naval Academy; C-H&I.

**Motzel, L. William †**

*Vice President, Plans and Development and Assistant Secretary.* B.A., University of Notre Dame; M.S.E.E., Saint Louis University; Ph.D., Catholic University of America; P-ASEL.

**Daly, Paul S. +**

*Vice President and Chancellor.* B.S., Engineering Science, Naval Postgraduate School; M.B.A., University of West Florida; C-ASMEL-I.

**Doten, Eric S.**

*Vice President and Chancellor.* B.S., Princeton University; M.S., Troy State University; C-ASMEL-I; CFI-ASEL.

**Williams, Charles S. \***

*Vice President and Chancellor.* B.S., U.S. Naval Academy; M.A., Stanford University; C.

**Thompson, Dianne R. †**

*Corporate Secretary/Treasurer.* A.A., Daytona Beach Community College; B.S., Embry-Riddle Aeronautical University.



# ACADEMIC AFFAIRS

## ACADEMIC ADMINISTRATION

**Fogle, Sarah D.** †

*Assistant to the Executive Vice President, Academics. B.A., and M.A., University of Florida.*

**Clark, Norman J.** †

*Academic Coordinator. B.A., University of Maryland; M.S., Texas A & M University; P-ASEL; AGI; IGI.*

## DEANS

**Brady, Terrence V.** \*

*European Division. B.G.S., University of Nebraska; M.S., University of Arkansas.*

**Flancher, Leon E.** \*

*Academics. B.A., Concordia College; M.Ed., University of North Dakota; Ph.D., Colorado State University.*

**Martin, William A.**

*Aviation Technology. B.S. and M.A.S., Embry-Riddle Aeronautical University; ATP-MEL; CE-500; C-SEL; H-I; CFI-ASMEL&IA; AGI; IGI.*

**Reisbig, R. Luther**

*Academics. B.S., Michigan State University; M.S., University of Washington; Ph.D., Michigan State University.*

**Russo, Joseph F.** +

*Academics. B.A., University of Arizona; M.A. and E.Ed., Arizona State University.*

## ASSOCIATE DEANS

**Edwards, Thomas M.** \*

*Academics. A.S. and B.S., Southeastern University; M.B.A.A., Embry-Riddle Aeronautical University.*

**Brunson, James E.** \*

*European Division. B.A., University of Maryland.*

**Burhoe, John M.** \*

*Administration, U.S. Division. B.A., Norwich University; C-ASEL-I, H-I.*

**Kuropkat, Robert A.** +

*Academics. B.S., University of Nebraska; M.B.A., Monmouth College; C-ASEL-I.*

## INTERNATIONAL CAMPUS RESIDENT CENTERS

**Zimmerman, Bettye J.** \*

*Director, Pacific Region. A.A., Leeward Community College; Ed.B., University of Hawaii; M.A.E., Pepperdine University.*

**Hansen, Janet M.** \*

*Director, San Francisco Bay Region. A.A., Merced Community College; B.A. and M.A., California State College.*

**Hopper, Richard S.\***

*Director, Northwestern Region. B.S., University of Oregon.*

**Brubaker, Donna G.\***

*Director, Southern California Region. B.S., Indiana University of Pennsylvania.*

**Stockton, Wendell R.\***

*Director, Southwestern Region. B.A., Park College.*

**Hennings, Paul E.\***

*Director, North Central Region. B.G.E., University of Nebraska at Omaha; M.S., Troy State University; Command Pilot (USAF).*

**Vanderland, Peter A.\***

*Director, Central Region. B.A., Widener University; M.A., University of Philadelphia.*

**Lepore, Charles J.\***

*Director, Gulf Region. B.G.S., University of Nebraska; M.B.A., Troy State University.*

**Elksnitis, Edgar \***

*Director, Northeastern Region. B.G.S., Mohawk Valley Community College; M.S., State University of New York at Binghamton.*

**McEntee, Joseph J.\***

*Director, Washington Metropolitan Region. B.S., New York University; M.A., The American University.*

**Prince, Linda P.\***

*Director, Southeastern Region. B.A. and B.S.W., Concord College; M.A., Ball State University.*

**Hagelberger, Robert L.\***

*Director, Northern Bavaria Region. B.A., Auburn University; M.Ed. and M.S.B.A., Boston University.*

**Bernhard, Diane M.\***

*Director, Central Germany Region. B.A., University of Delaware; M.S.B.A., Boston University.*

**L'Hommedieu, Edward F.\***

*Director, United Kingdom Region. B.S.B.A., University of Arkansas; M.A., State University of New York; C-ASEL.*

**Pamplona, Karen L.\***

*Director, Mediterranean Region. B.A., University of Minnesota; M.S., Troy State University.*

**Sellinger, Howard S.\***

*Director of ERAU Programs, South Florida. B.S., LeMoyne College; M.S., Niagara University.*

**Pettit, Thomas W.\***

*Director, Center for Independent Studies. B.S., Embry-Riddle Aeronautical University; M.S. and Ed.S., Troy State University; C-ASMEL-H-I.*

## DEPARTMENT CHAIRMEN

**Brittain, John R. +**

*Instructor, Aeronautics. A.S., Cypress College; B.A., California State University; C; CFI-ASMEL-I; AGI; IGI; G.*

**Butler, Blaine R. +**

*Professor, Aeronautical Engineering.* B.S., U.S. Military Academy; M.S.A.E. and Ph.D., Purdue University; C-ASMEL-I.

**Coleman, E. Nolan**

*Associate Professor, Avionics.* A.A., Jacksonville Junior College; B.S., Southern Illinois University; M.A., Central Michigan University; FCC General Radiotelephone Operators License with Radar Endorsement; FAA Repairman Certificate.

**Connolly, Thomas J.**

*Professor, Aeronautical Science.* B.A. and M.A., Loras College; Ed.D., Nova University; C-ASMEL-I; CFI-ASMEL-I; AGI; IGI.

**Cunningham, James M.**

*Professor, Humanities/Social Sciences.* B.A., University of Vermont; M.A.T., Stetson University; M.A., University of Central Florida; Ed.D., Florida Atlantic University.

**Dodds, Charles L. Jr., Colonel USAF**

*Professor, Aerospace Studies.* B.I.E., Georgia Institute of Technology; M.A., Webster College; USAF Command Pilot.

**Grams, William F.**

*Professor, Mathematics and Physical Science.* B.A. and M.S., University of North Dakota; M.S. and Ph.D., Florida State University.

**Kempf, Nicholas J., III, Lt.Col., USAF +**

*Professor, Aerospace Studies.* B.S., Dickson College; M.S., Southern Illinois University.

**McDuffee, Paul**

*Chairman, Flight Technology/Chief Flight Instructor.* B.S., Embry-Riddle Aeronautical University; C-A; SMEL; I-A; CFI-ASMEL-I; AGI; IGI.

**Mirgle, Frederick G.**

*Assistant Professor, Aviation Maintenance Technology.* A.S., Embry-Riddle Aeronautical University; Missile Maintenance School, U.S.A.F.; Vocational/Technical Teaching Course, Florida Technological University; A&P; DME; P-ASEL; G.

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*Associate Professor, Applied Sciences.* B.A. and M.S., University of California.

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**Setoodeh, Hassan +**

*Associate Professor, Aviation Business Administration.* B.A., College of Tehran; M.B.A. and Ph.D., North Texas State University.

**Spradlin, Evender G., Jr., Lt.Col., US Army**

*Professor, Army ROTC.* B.S. and M.S., Troy State University; US Army Senior Pilot.

**Thomas, Terry R. +**

*Associate Professor, Humanities and Social Sciences.* B.A. and M.A., California State University at Fullerton.

# FACULTY

## AERONAUTICAL ENGINEERING

### **Broadhurst, Donald G.**

*Associate Professor.* B.S., Clarkson College of Technology; M.S., Arizona State University; U.S. Naval Test Pilot School; C-ASEL-I; AGI; IGI.

### **Convey, John P.<sup>+</sup>**

*Associate Professor.* B.S., St. Bonaventure University; M.S., Air Force Institute of Technology.

### **Curtis, Howard D.**

*Professor.* B.S., M.S. and Ph.D., Purdue University; Registered Professional Engineer; P-ASEL.

### **Doryland, Tracy A.<sup>+</sup>**

*Associate Professor.* B.S., University of Texas; M.S.A.S.E., Naval Postgraduate School; CFI.

### **Eastlake, Charles**

*Associate Professor.* B.A.E. and M.S., The Ohio State University; P-ASEL; Registered Professional Engineer.

### **Giare, Govinder S.<sup>+</sup>**

*Professor.* O.M.C. and H.N.C. Mechanical Engineering, Wolverhampton College of Technology, U.K.; Grad AE, S.I., Aeronautical Society of India; M.Tech. and Ph.D., Indian Institute of Technology.

### **Gonzalez, Xavier J.<sup>+</sup>**

*Assistant Professor.* B.S.A.E. and M.S.A.E., University of Texas; G.

### **Greiner, Glenn P.**

*Associate Instructor/Systems Manager.* B.S., Embry-Riddle Aeronautical University.

### **Gupta, Tej R.**

*Professor.* M.S. and Ph.D., University of Roorkee, India; Ph.D., Virginia Polytechnic Institute and State University.

### **Harrison, Garry L.<sup>+</sup>**

*Assistant Professor.* B.S.A.A., M.S.A.A., and Ph.D., Purdue University.

### **Hilten, John S.**

*Assistant Professor.* B.S., Emory & Henry College.

### **Houghton, L. Wayne<sup>+</sup>**

*Adjunct Faculty.* A.A., Long Beach City College; A.E. Diploma, International Correspondence School.

### **Jeyaseelan, John A.**

*Assistant Professor.* B.S., A.J. College, India; B.E., Madras Institute of Technology; M.S., Indian Institute of Science.

### **Kauser, Fazal**

*Assistant Professor.* B.S., Panjab University, Pakistan; B.Tech., Loughborough University, United Kingdom; M.S., Air Force Institute of Technology.

### **Ladesic, James G.**

*Professor.* B.S., Embry-Riddle Aeronautical University; M.S., University of Central Florida; Ph.D., University of Florida; Registered Professional Engineer.

- Neate, Richard E.**  
*Associate Professor.* B.S., U.S. Air Force Academy; M.S., Stanford University; Registered Professional Engineer; C-ASMEL-I.
- Newcomb, Richard R.** +  
*Instructor.* B.S., California State University at San Luis Obispo.
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- I — Instrument
- L — Land
- P — Private Pilot
- S — Seaplane
- AD — Aircraft Dispatcher
- IA — Inspection Authorization
- ME — Multi-Engine
- SE — Single-Engine
- A&P — Airframe and Powerplant Maintenance Technician
- AGI — Advanced Ground Instructor
- ATP — Airline Transport Pilot
- BGI — Basic Ground Instructor
- CFI — Certified Flight Instructor
- CTO — Control Tower Operations
- DME — Designated Mechanic Examiner
- DWE — Designated Written Examiner
- HTA — Heavier Than Air
- IGI — Instrument Ground Instructor
- LTA — Lighter Than Air
- SME — Single and Multi-Engine
- FCC — Federal Communications Commission
- FE — Flight Engineer

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# NOTES

Prescott Arizona Residential Campus  
International Campus

Aviation Education in:

- Engineering
- Business Administration
- Flight
- Maintenance
- Avionics
- Computer Science