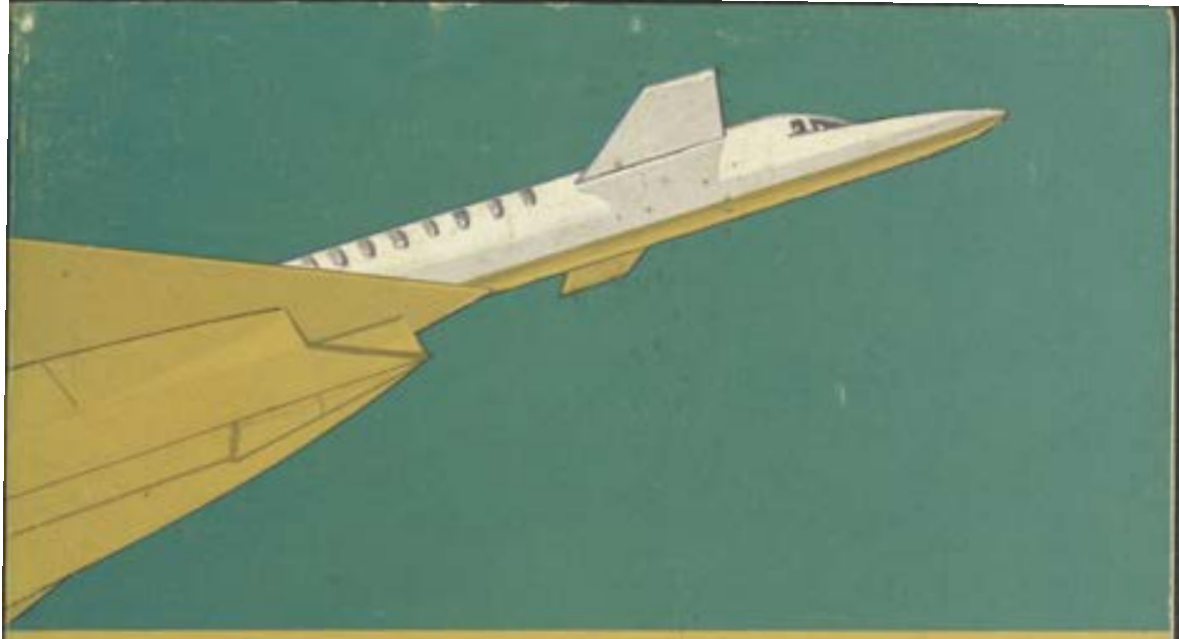

EMBRY-RIDDLE AERONAUTICAL INSTITUTE

BULLETIN
1967-68

DAYTONA BEACH, FLORIDA

ENGINEERING • FLIGHT • MANAGEMENT • MAINTENANCE

The World's Most Famous Aeronautical School
At The
World's Most Famous Beach

"THE UNIVERSITY OF THE AIR"

Embry-Riddle Aeronautical Institute is located at the Daytona Beach Municipal Airport — in the center of a complex metropolitan area. Daytona Beach is widely known as the nation's vacation capital. Twenty miles of hard-packed sand beach is publicly owned, offering unequalled opportunities for scenic drives, delightful swimming, challenging surfing or simply basking in the sun. Fresh and salt water fishing here is unequalled. Since the start of automobile racing on its wide beach, the area has become renowned as the "World's Most Famous Beach." The area has fine churches and schools, modern hospitals and splendid parks. It is within easy driving distance of Cape Kennedy, Silver Springs, Cypress Gardens, Marineland and many other celebrated attractions. The city is easily accessible from any point in the nation by bus, train or plane.

Jack R. Hunt, Harmon Trophy Award for Aeronaut, 1957; Board of Trustees, Aerospace Education Foundation.

A Message to Young Men and Women:

Education — especially aviation education — is a serious business. If you believe that you want to become a part of the rapidly growing and exciting field of aviation, you must be prepared to devote your time and your energy to acquiring the knowledge necessary for this exacting career.

Now, in the "air age" there is a growing list of demands for pilots, engineers, mechanics, administrators, and other related professional jobs. Young men and women with education and imagination will be needed to fill these responsible positions in a growing industry.

There is no short cut to success . . . an education is a good beginning. We at Embry-Riddle are dedicated to the concept that youth must be served . . . provided youth will serve itself.

There is a tremendous challenge in aviation . . . are you ready to accept that challenge?

Sincerely,

Jack R. Hunt.

Jack R. Hunt
President

CONTENTS

EMBRY-RIDDLE AERONAUTICAL INSTITUTE
CALENDAR
1967-1968

Fall Trimester-1967

September 5-7	Registration and Placement Examinations
September 8	Orientation
September 11	Classes begin
September 18	End of drop/add period
October 30-31	Mid-trimester registration
November 1	Mid-trimester classes begin
November 23	Thanksgiving Day. Institute closed
December 22	Commencement. End of trimester

Spring Trimester-1968

January 3-4	Registration and Placement Examinations
January 5	Orientation
January 8	Classes begin
January 15	End of drop/add period
February 26-27	Mid-trimester registration
February 28	Mid-trimester classes begin
April 19	Commencement. End of trimester

Summer Trimester-1968

May 1-2	Registration and Placement Examinations
May 3	Orientation
May 6	Classes begin
May 13	End of drop/add period
May 30	Memorial Day. Institute closed
June 24-25	Mid- trimester registration
June 26	Mid-trimester classes begin
July 4	Independence Day. Institute closed
August 14	Commencement
August 16	End of trimester

Embry-Riddle Aeronautical Institute operates on a plan whereby the school calendar is divided into three 15-week trimesters each year. Classes are in session five and one half days per week, Monday through Saturday noon.

INSTITUTE ADMINISTRATION

Eric Ainsworth	Director of Community Relations
Robert S. Cameron, Jr. B.S.C.E., University of South Carolina; M.E., University of Florida	Registrar and Director, Information Systems
Charles H. Caswell	Chairman, Division of Aircraft Maintenance Technology
James E. Kennedy B.S.C., Creighton University	Director, Administrative Services
Ernest M. Magee B.S., University of Rhode Island; Commercial Pilot with Instrument Rating	Chairman, Division of Flight Technology
Herbert V. Mansfield B.A., M.A., Stetson University	Dean of Students
Burt C. Mondshein B.Ae.E., Polytechnic Institute of Brooklyn, M.S., Hofstra University; M.B.A., University of California	Business Manager
Elizabeth Nelson B.A., University of Wisconsin; M.A., Mills College; M.A. and Ph.D., University of Maryland	Dean of Women
Harry D. Ness B.S., U.S. Navy Postgraduate School, Monterey, California; Commercial Pilot with Instrument Rating	Director of Admissions
Donald J. Ritchie B.S., M.A., Wayne State University; Dr. Psy., Brantridge Forest, Sussex, England	Director of Research
Heyward W. Sauls, Jr. B.A., Furman University; M.A.T., Duke University	Acting Director of Library Services
Joseph H. Smith A & P Mechanic, D.M.E., I.A., Private Pilot	Director, Aircraft Repair Station
John H. Spears B.S., New Mexico State University; M.A., George Washington University	Dean of Men
Edward P. Yackel B.A., Colgate University; M.A., Syracuse University	Associate Dean of Academics

BOARD OF TRUSTEES

The Board of Trustees is composed of national, state and local members of prominence devoted to the education of young people in aviation skills. These members serve without reimbursement and give freely of their time in establishing broad policy and providing guidance to the administration in the furtherance of the educational goals and objectives of the Institute.

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The Board of Visitors is composed of individuals who subscribe to the institutional goals, who desire to promote the institutional growth for the general prosperity of the community and the social and academic enlightenment of the student body.

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B.S., Carnegie Institute of Technology

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INSTITUTE ADMINISTRATION

Eric Ainsworth	Director of Community Relations
Robert S. Cameron, Jr. B.S.C.E., University of South Carolina; M.E., University of Florida	Registrar and Director, Information Systems
Charles H. Caswell	Chairman, Division of Aircraft Maintenance Technology
James E. Kennedy B.S.C., Creighton University	Director, Administrative Services
Ernest M. Magee B.S., University of Rhode Island; Commercial Pilot with Instrument Rating	Chairman, Division of Flight Technology
Herbert V. Mansfield B.A., M.A., Stetson University	Dean of Students
Burt C. Mondshein B.Ae.E., Polytechnic Institute of Brooklyn, M.S., Hofstra University; M.B.A., University of California	Business Manager
Elizabeth Nelson B.A., University of Wisconsin; M.A., Mills College; M.A. and Ph.D., University of Maryland	Dean of Women
Harry D. Ness B.S., U.S. Navy Postgraduate School, Monterey, California; Commercial Pilot with Instrument Rating	Director of Admissions
Donald J. Ritchie B.S., M.A., Wayne State University; Dr. Psy., Brantridge Forest, Sussex, England	Director of Research
Heyward W. Sauls, Jr. B.A., Furman University; M.A.T., Duke University	Acting Director of Library Services
Joseph H. Smith A & P Mechanic, D.M.E., I.A., Private Pilot	Director, Aircraft Repair Station
John H. Spears B.S., New Mexico State University; M.A., George Washington University	Dean of Men
Edward P. Yackel B.A., Colgate University; M.A., Syracuse University	Associate Dean of Academics

FACULTY

Allen, Floyd L.	Instructor, Flight Technology; ASEL: Instructor, airplane.
Alonzo, Don	Instructor, Flight Technology; ASMEL, S&S: Instructor, airplane and instrument.
Austin, Joan	Instructor, Chemistry; B.S., St. Lawrence University.
Ballina, H.	Associate Professor of Physical Science. Ph. D., University of Havana, Cuba (Chemistry); Ph.D. University of Havana, Cuba (Physics).
*Beall, Roland W.	Instructor, Flight Technology; ASEL: Instructor, airplane.
Beekman, James G.	Instructor, Flight Technology; ASMEL: Instructor, airplane and instrument.
Blaydes, Richard T.	Instructor, Flight Technology; ASEL: Instructor, airplane and instrument.
Bloodworth, William H.	Instructor, Flight Technology; ASMEL: Instructor, airplane and instrument.
Bolton, Willard J.	Instructor, Maintenance Technology. A & P Mechanic, DME.
Bowden, Milburn L.	Instructor, Flight Technology; ASMEL: Instructor, airplane.
Brown, Byron	Associate Professor of Management Science and Chairman, Division of Aviation Management. B.S., Parks College; M.B.A., University of Denver.
Brown, Carl A.	Assistant Professor, Aeronautical Science; ASMEL: Instrument.
*Bruce, Isaac	Instructor, Management. B.S. and M.S., Stetson University.
Cameron, Robert S.	Associate Professor, Management Science and Mathematics. B.S., University of South Carolina; M.E., University of Florida.

Campbell, Roger	Assistant Professor, Social Sciences. A.B. and B.S., Florida Southern; M.A., Stetson University.
Carter, William A.	Instructor, Maintenance Technology. A & P Mechanic.
Cherry, Ivan R.	Instructor, Maintenance Technology. A & P Mechanic.
Chrisman, Everett L.	Assistant Professor of Mathematics. B.S., Oklahoma State University; M.L., University of Pittsburgh; M.A., Duke University.
Cornwell, Odbert	Instructor, Aeronautical Engineering. B.A., West Virginia University; MM, Pittsburgh Institute of Aeronautics. Com. SMEL, A & P.
Cotner, Murrell A.	Instructor, Flight Technology; ASMEL: Instructor, airplane and instrument.
Cramton, Charles	Instructor, Maintenance Technology. A & P Mechanic.
Dale, George	Instructor, Flight Technology; ASMEL: Instructor, airplane and instrument.
Danforth, John	Assistant Professor, Engineering Technology. M. E., Rensselaer Polytechnic Institute; M.S., Florida State University.
Dean, Ben	Instructor, Maintenance Technology. A & P Mechanic.
deLagarde, Richard	Instructor, Flight Technology; Flight Plans & Projects; ASMEL: Instructor, airplane, instrument and Ground.
Dewey, David	Assistant Professor, Physical Education. B.S., Case Institute of Technology; M.S., Springfield College.
*Dudas, Thomas	Instructor, Flight Technology; ASEL: Instructor, instrument.

Duncan, Harold C.	Instructor, Maintenance Technology. A & P Mechanic.
Dunmire, Robert	Associate Professor and Head, Department of Physical Science. B.S., Thiel College; M.S., Florida State University.
* Dunn, Mary	Assistant Professor, Mathematics. B.A., Vanderbilt; M. S., Stetson University.
Fleener, Edsel S.	Instructor, Maintenance Technology. A & P Mechanic.
* Foreman, Stephen J.	Instructor, Flight Technology; ASEL: Instructor, airplane.
Green, Walter M.	Instructor, Flight Technology; ASMEL, SES: Instructor, airplane and instrument.
Grippo, James F.	Instructor, Flight Technology; ASEL: Instructor, airplane.
Gumienik, Edward	Instructor, Flight Technology; ASEL: Instructor, airplane.
Harton, Clyde	Instructor, Maintenance Technology. A & P Mechanic.
Harton, Merle C.	Instructor, Maintenance Technology. Administrative Assistant to Chairman, Division of Aircraft Maintenance Technology.
Hirmanpour, Iraj	Assistant Professor, Engineering Science and Mathematics. B. S. and M.S., Louisiana Polytechnic Institute.
Hoover, Elmer C.	Instructor, Maintenance Technology.
Hurst, John W.	Assistant Professor, Mathematics. B.S., University of Kansas; M.S., University of South Carolina.
Hurt, S. Harry	Instructor, Flight Technology; ASEL: Instructor, airplane.
Jencks, Lawrence C.	Instructor, Flight Technology; ASEL: Instructor, airplane.
Johnson, Vern K.	Instructor, Flight Technology; ASEL: Instructor, airplane and instrument.

Leavitt, Cyril E.	Instructor, Flight Technology; ASMEL, SES: Instructor, airplane.
Lehmann, Karl E.	Instructor, Maintenance Technology. A & P Mechanic, G.I., D.M.E.
Lerche, Andrew O.	Assistant Professor of Mathematics. B.M.E., Rensselaer Polytechnic Institute; M. S., Purdue University.
Lewizki, Yuri	Associate Professor of Aeronautical Engineering and Chairman, Division of Aeronautical Engineering. B.S., Wayne State University; M.S., Wayne State University.
Lopez, Jose A.	Instructor, Economics. B.A., Belen School, Havana, Cuba; M.A., University of Miami; LLD, University of Havana.
Lusardi, Robert	Instructor, Maintenance Technology. A & P Mechanic.
Mabry, William L.	Instructor, Flight Technology; ASEL: Instrument; Instructor, airplane.
Madison, Charles	Instructor, Aeronautical Science. Advanced and Instrument Ground Instructor.
Manelski, Leigh F.	Instructor, Flight Technology; ASEL: Instructor, instrument.
Mitchell, James	Instructor, Maintenance Technology. A & P Mechanic.
Mondshein, Burt	Associate Professor, Management Science and Director of Aviation Management. B.Ae.E., Polytechnic Institute of Brooklyn; M.S., Hofstra University; M.B.A., University of California.
Moore, Charles	Instructor, Flight Technology; ASEL: Instructor, airplane and instrument.

Nelson, Elizabeth	Associate Professor and Head, Department of Humanities. B.A., University of Wisconsin; M.A., Mills College; M.A., University of Maryland; Ph.D., University of Maryland.
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Pate, Carolyn	Instructor, English. B.A., University of Texas.
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Powers, Marshall K.	Professor of Social Sciences and Dean of Academics. A.B., Marietta College; M.A., University of Colorado; Ph.D., University of Florida.
Prosser, John N.	Instructor, Flight Technology; ASMEL: Instructor, airplane and instrument.
Ritchie, Donald J.	Instructor, Aeronautical Engineering. B.S. and M.A., Wayne State University; Dr. Psy., Brantridge Forest, Sussex, England.
Roman, Theodore E.	Instructor, Flight Technology; ASEL, SES: Instructor, airplane.
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Sain, Daniel	Professor of Humanities and Chairman, Division of Arts and Sciences. A.B., Lenoir Rhyne; B. D., Duke University; M.A., Emory University; Ph. D., Emory University.
Sauls, Heyward	Acting Director of Library Services and Assistant Professor of Humanities. B.A., Furman University; MAT, Duke University.

Saunders, Thomas M., Jr.	Instructor, Social Sciences. B.S., Bowling Green State University; M.S., Stetson University.
Sawyer, Lynn	Instructor, Humanities. B.A. and M.A., Stetson University.
Schanz, Waldron	Instructor, Maintenance Technology. A & P Mechanic.
Schultz, Richard	Instructor, Flight Technology; ASMEL: Instructor, airplane and instrument.
Scott, Gordon B.	Instructor, Maintenance Technology. A & P Mechanic.
Selim, Ramzy H.	Instructor, Flight Technology; Instructor, Ground School.
Sharif, Anwar	Instructor, Engineering Technology. B.S. (AMET), Embry-Riddle Aeronautical Institute.
Shelton, Aaron	Instructor, Flight Technology; ASEL: Instructor, airplane and instrument.
Sinnott, Francis J.	Instructor, Aeronautical Science; ASMEL, ASEL: Head, Air Science Department; Advanced and Instrument Ground Instructor.
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*Smith, Calvin	Instructor, Flight Technology; ASEL: Instructor: airplane.
Smith, J. L	Instructor, Maintenance Technology. A & P Mechanic.
Steele, John C.	Instructor, Maintenance Technology. A & P Mechanic.
Stewart, Bingham	Associate Professor, Humanities. A.B., University of North Carolina; M.S., Radford (Virginia Polytechnic Institute).
*Stone, John	Instructor, Flight Technology; Instructor, Ground School.

*Story, John, Jr.	Instructor, Maintenance Technology and Flight Technology; ASEL: Instructor, airplane. A & P Mechanic.
Streetman, Eugene	Instructor, Maintenance Technology.
Sullenberger, Louis E.	Instructor, Aeronautical Science. B.S., Embry-Riddle Aeronautical Institute.
Summer, Stanley	Instructor, Flight Technology; ASEL: Instructor, airplane and instrument.
Tacker, Agee C.	Instructor, Flight Technology; Chief Pilot; ASMEL: Instructor, airplane and instrument. FAA Examiner.
Thiele, Joachim M.	Instructor, Flight Technology; ASMEL: Instructor, airplane.
Tisdel, Victor W.	Instructor, Mathematics. B.S., Embry-Riddle Aeronautical Institute.
Titus, Chandler P.	Instructor, Maintenance Technology. A & P Mechanic - G.I., D.M.E.
Traut, William	Instructor, Physical Science. B.S.M.E., Ilmenau Technical College.
Trout, Robert	Instructor, Flight Technology; ASEL: Instructor, airplane and instrument.
Walker, Joe A.	Instructor, Flight Technology; ASMEL: Instructor, airplane and instrument.
Walker, Margaret	Instructor, Flight Technology; ASMEL: Instructor, airplane and instrument.
Wang, Ming Hsien	Associate Professor, Aeronautical Engineering. B.S., Chinese National North Western College of Engineering; M.S., West Virginia University.

** Wang, Ming Kang	Assistant Professor, Engineering Sciences. B.S., ORD. Engineering College; M.S., Virginia Polytechnic Institute.
Wang, Yang-Tsung	Assistant Professor of Engineering Science. B. S., National Taiwan University; M.E., University of Oklahoma.
West, Samuel	Instructor, Flight Technology; ASEL: Instructor, airplane and instrument.
Williams, Luther W.	Instructor, Flight Technology; ASMEL: Instructor, airplane and instrument.
Wilson, Thomas Lee	Instructor, General Aviation. B.S., University of Maryland. ASMEL, instrument.
Yackel, Edward P.	Associate Dean of Academics and Assistant Professor of Physical Science. B.A., Colgate University; M.A., Syracuse University.

* Part Time
** On Leave 1967 - 68

GENERAL INFORMATION

History

Embry-Riddle originated as a flying school at Lunken Airport, Cincinnati, Ohio, in 1926. Since then it participated in the field of aeronautical education both nationally and internationally, and became known as the Embry-Riddle International School of Aviation.

During World War II when the United States Army was in critical need of pilots and mechanics, Embry-Riddle assisted in developing a program to successfully fulfill this need. The school established and operated four, large Army flight schools, and also trained thousands of Army mechanics at its Florida installation.

In September, 1961, Embry-Riddle Aeronautical Institute, a nonprofit coeducational institution, replaced the International School of Aviation. Embry-Riddle offers curricula in aeronautical engineering, aeronautical engineering technology, aviation management, aircraft maintenance engineering technology, airframe and powerplant mechanic training to include jet engines, and professional pilot training complete with ground school and synthetic trainers.

Philosophy

Embry-Riddle Aeronautical Institute accepts as a responsibility:

The *personal* task of preparing students for responsible citizenship in every sense of that term.

The *educational* task of adequately preparing students for productive occupational and professional careers in aviation.

The *industrial* task of maintaining the closest liaison with the aviation community and to maintain a continuing dialog with all elements of aviation.

Institutional Objectives

Embry-Riddle Aeronautical Institute has established the following educational objectives:

To provide the training facilities, faculty, staff and equipment necessary to afford qualified students the opportunity to acquire a high degree of skill and professionalism in various aviation disciplines.

To develop professional programs in specialized aviation fields consistent with high academic and training standards, and to continue to maintain these standards in all programs.

To provide an opportunity for all competent, serious-minded students to acquire a technical, vocational or higher education without regard to race, sex, creed or national origin.

To consult with the aviation industry in order to determine manpower needs for the purpose of maintaining a constant and dynamic reevaluation of the programs offered within a framework of liberally oriented educational objectives.

To sponsor and promote research activities appropriate to these objectives.

Accreditation and Affiliation

Embry-Riddle Aeronautical Institute has established contact with the Southern Association of Colleges and Schools and has declared its intention to work closely with the Association in pursuit of accreditation and membership at the earliest possible date. The Institute holds associate membership in The Florida Association of Colleges and Universities.

The associate program in engineering technology is accredited by the Engineers Council for Professional Development, and the maintenance and flight programs are approved by the Federal Aviation Agency. The engineering, engineering technology and maintenance programs are approved by the Veterans Administration for educational purposes. The Institute is also considered eligible for Federal Grants under the Higher Education Act of 1965.

Requirements for Admission

A. *General.* All applicants must be at least 17 years of age and must present evidence of satisfactory physical and mental health in the form of a letter from a family doctor or similar evidence presented by any competent authority determined by Embry-Riddle Aeronautical Institute. Statements concerning an individual's current health should be based on the result of a medical examination within the 6-month period preceding the date of entry. The examination should include the tuberculin tests. All entering flight students must show evidence of possession of an Airman Class II medical certificate before flight training will commence.

B. *Scholastic.* All applicants must submit evidence of completion of the program of an accredited secondary school. Graduates of non-accredited secondary schools, and those not completing a secondary program who submit evidence of knowledge at the secondary level may be admitted based on the results of their high school record and General Education Development Tests as determined by the Institute and the recommendation of the Committee on Admissions. Students

not qualifying to the standards noted above may be admitted on a provisional basis the first trimester as determined by the Committee on Admissions. Students proceeding into the higher education programs, and not formally graduated from a secondary school, must take the high school equivalency examination and attain a satisfactory score before proceeding with college level work.

C. *Admission Fees.* A registration fee of $10.00 must accompany all applications for admission. Within thirty (30) days of notification of acceptance, a $100.00 tuition deposit is required. The tuition deposit is 100% refundable, provided the Institute is notified by letter postmarked sixty (60) days prior to the date of registration, of the intent of the student not to register.

Transfer Students

A. *General.* Students who have completed college level work at an approved institution of higher education, with a grade of "C" or better, and who are in good standing at the school last attended, may be admitted with advanced standing at Embry-Riddle Aeronautical Institute.

Individual course requirements for any curriculum may be waived by advanced placement examination. Permission to take an advanced placement examination is granted by the office of the Dean of the appropriate College or School.

The academic year preceding a student's graduation from Embry-Riddle Aeronautical Institute must be spent in residence. At least 30 hours of any degree program must be completed at Embry-Riddle Aeronautical Institute.

B. *Transfer of Previous Flight Experience.* Entering students with previous flight experience may be admitted with advanced standing subject to a review of their previous training by the Committee for Admissions. Acceptance of flight time not obtained at an FAA approved flight school must be limited to a maximum of eighty (80) hours. A student desiring credit in degree granting programs must produce a transcript from the institution previously attended indicating the number of flight hours and type of training received. The transcript must be submitted for evaluation prior to an approval for admission.

Registration and Placement Tests

Applicants who have been accepted will be notified promptly and will receive registration instructions prior to the date established for registration.

All entering freshmen who are candidates for any degree, Baccalaureate or Associate, will be required to take Freshman Placement

Examinations in Mathematics and English. Examinations will be administered during registration week. The tests will not be used as a basis for granting or denying admission, but are for the purpose of establishing proper placement of the student.

When the results of the Freshman Placement Examinations indicate serious weakness in Mathematics (Algebra-Trigonometry), and/or English, the student will be placed in certain preparatory sections of Mathematics requiring ten hours per week of class work, or English sections involving five hours per week.

The preparatory courses (Mathematics MA-001 and Humanities HU-001 must be passed with a grade of "C" or better. A student may repeat a remedial course only once.

Students changing class schedules after the close of the registration period will be charged $10.00 for each add and/or drop. When the change is made necessary as a convenience to the school, the charge will not apply.

Foreign Students

The credentials of applicants from foreign countries are evaluated in accordance with the general regulations governing admission. An application, photograph, and detailed transcripts of records must be submitted to the Director of Admissions at least six months in advance of the opening of the class in which the applicant seeks to gain admission. This will allow time for the exchange of necessary correspondence and documents relative to the securing of passports and visas for study in the United States.

Candidates for admission are required to consult the American Consulate or the American Embassy in their country of residence and make arrangements to take an English language examination. The results of this examination are an important factor in determining the acceptability of an applicant. Embry-Riddle must receive this information directly from the Consular Office before a decision concerning admission will be reached.

In addition, candidates for admission must complete all arrangements for the necessary American dollars to cover tuition and living expenses and must furnish advance proof of this according to the amount shown on the Certificate of Eligibility of the U.S. Immgiration Service, Form 1-20A. This also is an important factor in determining the acceptability of an applicant.

Acceptance for admission of foreign students will be based on recommendations of the Committee on Admissions and other requirements detailed in this Bulletin and determined on an individual basis. Foreign students approved to enter will be required to present evi-

dence of satisfactory mental and physical health at the time of admission and may be required to submit to a physical examination at the time of admittance at their own expense.

Attendance

Attendance is required of all students in all classes, at all times. In those cases involving illness, grave personal problems, or other circumstances which make attendance impossible, the student is obligated to so inform his instructors and request permission to be absent. Appropriate arrangements will be made between the instructor and the student. Students are not permitted to interrupt training at midtrimester.

If there is a positive correlation between poor academic performance and irregular class attendance, disciplinary action may be taken including dismissal. Required examinations, make-up reports or compensatory time could be required by the instructor.

Students desiring to take academic courses or flight training at other institutions in the area must obtain permission of the Registrar of Embry-Riddle Aeronautical Institute prior to enrollment. Students are cautioned that tampering with the full-time student status at the Insitute may have serious consequences with respect to draft status or veteran's benefits.

All students registered for 14 credit hours or 30 clock hours per week at Embry-Riddle Aeronautical Institute will be considered full-time students by Embry-Riddle Aeronautical Institute.

Emergency Medical Treatment

Upon submission and acceptance of an application, parents, sponsors or the student hereby authorizes the school administration to authorize emergency medical treatment when called upon to do so by competent medical authority. It is agreed that no legal action will be brought against the school or its officers when such authorization by the administration is granted.

FEES AND CHARGES

Tuition

Academic Courses (14-18 credit hours) ..... $400.00 per Trimester*
If credit hours are less than 14 or greater than 18, fees will be charged at the rate of $29.00 per credit hour.

Vocational Courses (Airframe & Powerplant Mechanic Training) ..... $400.00 per Trimester

Flight Courses (Professional Pilot Program)**

Phase I	$1,164.00
Phase II	2,341.00
Phase III	1,435.00

Combined Courses (Any programs offered by the Institute combined with Professional Pilot Training).

Trimester	1	2	3	4	5	6	7	8
Tuition	$400	400	400	400	400	400	400	400
Flight Lab. Fee	$585	845	845	780	585	700	—	585

Non-Refundable Fees and Charges

Student Activities (Per Trimester)	$ 3.00
Application (One time only)	10.00
Matriculation (One time only)	10.00
Graduation (Payable at the beginning of a students final trimester. Includes cap and gown and engraved diploma)***	10.00
Tools (Mechanics)	61.00
Books and Supplies (Mechanics)	35.00

Supplemental and Rental Scheduling and Rates

Full-time students enrolled in flight programs at Embry-Riddle who require additional flight training beyond the scope of their programs may engage in such training at special hourly rates. A current schedule of such rates is maintained in the Flight dispatch section. These rates also apply to the utilization of single-engine aircraft by full-time students who have successfully completed a

*$50.00 increase in tuition beginning September 1968.

** Fees include all equipment, tuition, regular flight lab fee, orals and simulator training.

*** Students qualified for the Associate of Science Degree and proceeding for further study may participate and receive the diploma for an additional $10.00 fee to cover the double costs of graduation.

course of flight instruction and have an FAA Private license (or better), and to similarly qualified staff and faculty members. All such flights will be scheduled on an "as available" basis and must be approved by the office of Chief Pilot.

Payment Procedure

Payment in full of tuition, fees, charges and room and board must be made on or before the day of registration. Students pre-registering must prepay.

Students must complete flight courses prior to the end of the add/drop period of the succeeding trimester of enrollment. Additional hourly fees will be charged after this date. Embry-Riddle reserves the right to determine whether the incomplete flight course was due to factors beyond the control of the student involved or whether additional hourly fees should be charged.

Refunds

In order that the proper services may be provided to students, obligations are entered into by the Institute which continue even if students subsequently withdraw. As a result, full recovery of fees by the student at the time of withdrawal is not possible and an equitable charge must be made to recover loss of income to the Institute as a result of withdrawal.

Students who withdraw from school in good standing within the first twenty-one days commencing on the first day of registration as published, will be charged fifty per cent of tuition, flight and dormitory fees for that trimester and dining room fees in accordance with usage of the Institute's dining facilities. Students withdrawing after that date will receive no refunds except as described in the following paragraph. A student dismissed as per the conditions noted under "Dismissal from the Institute", Page 27, is not entitled to a refund, regardless of the time of dismissal.

The refund of tuition, fees and other charges to war orphans and children of permanently or totally disabled veterans who fail to enter the course, or withdraw or discontinued therefrom at any time prior to completion will be in accordance with section 1776, chapter 35, title 38, United States Code.

Placement

The Placement Office conducts an active service which has had excellent success in placing graduates. Employment cannot be guaranteed, but personal assistance is given so that as each student enters his last trimester, suitable position contacts are arranged for him. Graduates are invited to avail themselves of this service at any time.

Library Facilities

The library subscribes to approximately 150 periodicals and has at its disposal indexes to permit research. It also receives trade journals, house organs and general publications of the major airlines. Photocopying services are available.

An up-to-date reference collection is maintained and kept current for the needs of the aeronautical engineering and related programs, including FAA publications, CAB regulations and NASA documents and reports.

Other services offered include individual reference service, interlibrary loan service, and instruction in the use of the library, which is classified according to the Library of Congress system.

Mail

All personal mail and baggage should be addressed as follows:

Name
c/o Embry-Riddle Aeronautical Institute
P. O. Box 2411
Daytona Beach, Florida 32015

All baggage and express packages must be sent prepaid. Baggage is stored at the risk of the student and the Institute accepts no responsibility for theft or missing baggage. Baggage will be stored in a locked room.

Student Government Association

The Student Government Association elects members to its governing body, The Student Council. The Council maintains liaison with the school administration and has been delegated control of traffic; publishes a student newspaper; governs intra-mural athletics; and initiates and conducts various social activities for the entire student body. All full-time students automatically are members of the Student Government Association.

Living Accommodations

Students, if unmarried or unaccompanied by wives, are required to reside in college designated dormitories. With the consent of the Dean of Students, special exemptions may be allowed. Room fees range from $140 - $225 per trimester. College or commercial

facilities approved by the college are available for dining at a cost of $180 - $225 per trimester depending on the student option of choosing a 5-day or a 7-day dining schedule. The fee is due at registration. Students may elect to dine at other than college provided facilities or they may prepare their own meals if they occupy apartment-type dormitories.

Embry-Riddle does not ordinarily maintain apartments or quarters for married students. However, there are many furnished apartments and homes for rent in the area. Several trailer parks are located within a few miles of the school for the convenience of those students owning or desiring to rent a trailer. For information on living accomodations, please contact the Director of Student Housing.

Delinquent Accounts

All accounts are due the first of each month and delinquent on the fifth. Students whose accounts are in arrears may be denied registration for a new trimester, graduation, or the release of transcripts of their records.

Financial Aid Program

Embry-Riddle participates in all of the financial aid programs of the Federal Government and those guaranteed loan programs set up by the various states. These include grants, loans and work-study programs:

COLLEGE WORK-STUDY PROGRAM — A program of employment in which the student, particularly one from a low-income family, is compensated for the number of hours he works for the institution or for an eligible off-campus agency.

NATIONAL DEFENSE STUDENT LOANS — A program

of borrowing primarily for needy students, in which the student has an obligation to repay his loan, with 3-percent interest within a 10-year period following college attendance.

EDUCATIONAL OPPORTUNITY GRANTS — A program of direct grants in which the student receives a non-obligating award of funds, based on exceptional financial need and evidence of academic or creative promise.

GUARANTEED LOANS — A program of borrowing, primarily for students from middle or upper income families. The student has an obligation to repay his loan with 3-percent interest (middle income) or 6-percent (upper income).

High school counselors and our college financial aid officers frequently will be able to help the student work out package financial plans that may include the College Work-Study Program, the National Defense Student Loan Program, and the Educational Opprotunity Grants Program, together with other sources of help that may be available through the college. These plans are designed to make it possible for qualified young people to obtain a college education no matter how low the student's financial status or the income level of his family.

The purpose of the financial aid program at Embry-Riddle is to make available assistance to students who qualify for both admission and financial aid. Students should process their applications for financial assistance along with their applications for admission. No decision on financial aid can be made until formal acceptance of admission has been received.

Need is determined by analyzing the Parents' Confidential Statement, a form devised by the College Scholarship Service. The College Scholarship Service does not itself award scholarships or other types of financial aid. It simply provides a uniform method of analyzing a family's ability to pay. The College Scholarship Service analysis does not consider academic achievement, test scores, character or other similar data. The Parents' Confidential Statement may be obtained from your high school counselor or our financial aid office. The following private aid plans may also be utilized:

a. The Investment-in Education Plan; Funds for Education, Inc.; 319 Lincoln Street, Manchester, New Hampshire

b. The Tuition Plan, Inc.; 575 Madison Avenue, New York, N.Y. 10022

c. United Student Aid Funds, Inc.; College Station, Indianapolis 5, Indiana

In addition to the Federal programs of financial assistance, two privately endowed programs are available. Specific information may be obtained by directing inquiries to the Financial Aids Office of the Dean of Students. The Scholarship Programs are:

The Zontian Scholarship Fund In honor of Amelia Earhart the Daytona Beach Zonta Club, an organization of business and professional women, sponsors qualified young women to prepare for careers in aviation. Recipients are chosen yearly between June and September by the Committee on Academic Affairs and the extent of financial aid determined will be applied against tuition expense. Financial assistance will be awarded on a yearly basis and will continue until culmination of the student's educational objectives at ERAI, provided high standards of academic and moral conduct are maintained, as determined exclusively by the Institute. Scholarships will be awarded without prejudice to race, religion or color.

The Embry-Riddle Scholarship Award This award is sponsored by the Institute and honors outstanding students who desire to study in the general field of aviation at ERAI. Selections are made yearly and are full tuition-free scholarships. The scholarship will continue in existence until culmination of the educational objectives of the recipient, provided the student maintains the highest standards of academic excellence and moral conduct as determined exclusively by the Institute.

Organizations

Student organizations at Embry-Riddle include the Parachute Club, Rocket Society, Experimental Aircraft Association and Veterans Association. Students from different sections of the world have organized social groups. Sigma Phi Delta Professional Engineering Fraternity and Alpha Eta Rho International Aviation Fraternity are approved campus fraternities.

Sports

Embry-Riddle, a member of the National Association for Intercollegiate Athletics, participates in intercollegiate competition in soccer, tennis, wrestling, basketball and golf. Students who are on academic probation may not compete in intercollegiate athletics. The Institute also sponsors a professional bowling team.

Intramural and/or league competition is provided in baseball, basketball, bowling, flag football, golf, softball and volleyball. Bicycling, shooting and weight lifting equipment and/or facilities are available.

Trimester Hour Credits

All credits are recorded in terms of trimester hours. A trimester hour of credit is given for one 55-minute lecture per week throughout the 15-week trimester. In counting credits earned in the laboratory, a trimester hour is considered to be two laboratory hours requiring outside preparation or three laboratory hours requiring little or no outside preparation. Students auditing a course receive neither a grade nor credits.

Grading Procedure

Grade	Relative Standing	Honor Points per Trimester Hour
A	Superior	4
B	Above Average	3
C	Average	2
D	Below Average	1
F	Failure	0
WF	Withdrawal while failing during the last three-fourths of the trimester	0
WP	Withdrawal while passing during the last three-fourths of the trimester	0
W	Withdrawal during the first fourth of the trimester	0
S	Surveying the course with credit	0
P	Satisfactory	0
U	Unsatisfactory	0
AU	Auditing the course without credit	0
I	Passing but incomplete work	0

An incomplete grade is given when a student is unable to complete required work for reasons beyond his control. An incomplete grade must be removed within the first six weeks of the next trimester he is in attendance or the I will revert to an F.

An F on a student's record is permanent. Although the course is repeated and a new grade is obtained, the F will remain on the transcript permanently.

A student may withdraw from a course during the first fourth of a trimester and receive a grade of W. If he withdraws after this period of time, he will receive a WF (Withdrawal while failing) or a WP (Withdrawal while passing). A WF on an academic record is equivalent to an F.

Honor Point Average

The honor point average is designed to give a cumulative numerical equivalent of grades earned. It is computed by dividing the total number of honor points earned by the total number of credits attempted. Honor points are accumulated for grades received as indi-

cated in the preceding paragraph "Grading Procedure." When a WP, W or the AU appears with a subject, the credit value of the subject does not count as credits attempted. When an S appears with a subject, credits for the subject are counted for graduation requirements but do not affect the honor point average. P and U apply to Physical Education.

Honor Student

An honor student is one who has attained an honor point average of 3.5 or better for the previous trimester provided he was enrolled in three or more subjects.

Academic Board

An academic board, composed of faculty members, reviews the progress of each student, determines eligibility of students for graduation and recommends action to the Dean of Academics as appropriate. A student's progress is reviewed with respect to:

1. Completion of required subjects in proper sequence.
2. Grades and honor points average obtained.

Graduation Requirements

In order to graduate from any curriculum all students must:

1. Successfully complete all required subjects.*
2. Have obtained a final honor point average of 2.0 or better.
3. Satisfy all financial obligations.
4. Be recommended by the Dean of Academics.
5. Participate in graduation ceremonies unless excused by special permission.

Academic Probation

Academic probation is imposed when the cumulative honor point average of any student falls below the following levels:

Trimester	1	2	3	4	5	6
Honor Point Average ..	1.5	1.6	1.7	1.8	1.9	2.0

Probation status will be removed whenever the honor point average of the student concerned is equal to or greater than the levels shown above. The award of a degree or certificate will not be made to anyone on academic probation.

Dismissal from the Institute:

When a student makes application for entrance to Embry-Riddle Aeronautical Institute he thereby understands and agrees that the Institute reserves the right to dismiss him at any time if his conduct or academic standing is regarded by the Institute as undesirable, without assigning any further reason therefor. It is understood and agreed that the Institute or any of its officers or faculty, shall not be liable in any way for such exclusion.

*Physical Education (4 trimesters) is required of all students enrolled in degree programs. Two years of active military service may be substituted for the Physical Education requirement.

CURRICULA

BACHELOR OF SCIENCE DEGREE CURRICULUM in AERONAUTICAL ENGINEERING

This program is designed to provide the graduate with a background that will enable him to pursue a career as an aeronautical engineer in industry or government. It will also prepare the student for additional studies at the graduate level. Extensive coverage is given to the broad areas of mathematics, the physical sciences, and the engineering sciences. Aerodynamics, aircraft structures, propulsion, and aeronautical design are covered in depth. The theoretical studies are supplemented with laboratory work which provides the student with a knowledge of experimental methods.

Subject No.	Subject	Lecture	Lab.	Credits
FIRST TRIMESTER				
HU-100	English Composition I	3	0	3
MA-101	Algebra & Trigonometry	5	0	5
PS-105	Chemistry I	3	3	4
ET-101	Engineering Graphics I	0	6	2
SS-101	World History	3	0	3
				17
SECOND TRIMESTER:				
HU-102	Technical Report Writing	2	0	2
MA-201	Calculus & Analytic Geometry I	5	0	5
PS-106	Chemistry II	2	3	3
ET-102	Engineering Graphics II	0	6	2
SS-201	American History	3	0	3
HU-101	English Composition II	3	0	3
				18
THIRD TRIMESTER				
MA-202	Calculus & Analytic Geometry II	5	0	5
PS-201	Physics I	4	3	5
EC-220	Economics of Industrial Organization	3	0	3
HU-202	Public Speaking	2	0	2
SS-205	Psychology	2	0	2
				17
FOURTH TRIMESTER:				
MA-205	Differential Equations	3	0	3
PS-202	Physics II	4	3	5

ES-201	Statics	3	0	3
ES-203	Fluid Mechanics	3	0	3
	Humanities Elective	3	0	3
				17

FIFTH TRIMESTER:

MA-301	Advanced Engineering Mathematics I	3	0	3
ES-301	Strength of Materials	3	0	3
ES-305	Thermodynamics	3	0	3
AE-301	Aerodynamics I	4	0	4
ES-307	Metallurgy & Materials Science	3	0	3
ES-311	Materials & Processes Laboratory	0	3	1
AE-311	Aircraft Systems Laboratory	0	3	1
				18

SIXTH TRIMESTER:

MA-302	Advanced Engineering Mathematics II	3	0	3
AE-302	Aerodynamics II	3	0	3
AE-304	Aircraft Structures I	3	0	3
ES-303	Dynamics	3	0	3
AE-310	Wind Tunnel Laboratory	1	3	2
AE-312	Airframe Laboratory	0	3	1
	Technical Elective	3	0	3
				18

SEVENTH TRIMESTER:

AE-401	Advanced Aerodynamics I	3	0	3
AE-404	Aircraft Structures II	3	0	3
AE-420	Aircraft Design I	2	3	3
ES-404	Electrical Theory	3	0	3
ES-401	Mechanical Vibrations	3	0	3
	Technical Elective	3	0	3
				18

EIGHTH TRIMESTER:

AE-421	Aircraft Design II	0	6	3
AE-406	Jet & Rocket Propulsion	3	0	3
ES-405	Electronics	2	3	3
ES-403	Heat Transfer	3	0	3
AE-411	Aircraft Propulsion Laboratory	0	3	1
AE-405	Aircraft Structures III	2	0	2
	Technical Elective	3	0	3
				18
	Physical Education (4 trimesters)			
	Required courses			141

ASSOCIATE OF SCIENCE DEGREE CURRICULUM in AERONAUTICAL ENGINEERING TECHNOLOGY

A graduate of this program will be prepared for employment as an engineering technician in the areospace field. The program covers the basic sciences and engineering sciences and provide technical skills which are combined by the engineering technician to support engineering activities. The program is designed so that the graduate will have the background required to continue his formal education.

Subject No.	Subject	Lecture	Lab.	Credits
FIRST TRIMESTER				
HU-100	English Composition I	3	0	3
MA-101	Algebra & Trigonometry	5	0	5
PS-105	Chemistry I	3	3	4
ET-101	Engineering Graphics I	0	6	2
SS-101	World History	3	0	3
				17
SECOND TRIMESTER:				
HU-102	Technical Report Writing	2	0	2
MA-201	Calculus & Analytic Geometry I	5	0	5
PS-106	Chemistry II	2	3	3
ET-102	Engineering Graphics II	0	6	2
SS-201	American History	3	0	3
HU-101	English Composition II	3	0	3
				18

Subject No.	Subject	Lecture	Lab.	Credits
THIRD TRIMESTER:				
HU-202	Public Speaking	2	0	2
MA-202	Calculus & Analytic Geometry II	5	0	5
PS-201	Physics I	4	3	5
EC-220	Economics of Industrial Organization	3	0	3
SS-205	Psychology	2	0	2
				17
FOURTH TRIMESTER:				
ET-301	Aircraft Drafting	0	6	2
MA-205	Differential Equations	3	0	3
PS-202	Physics II	4	3	5
ES-201	Statics	3	0	3
ES-203	Fluid Mechanics	3	0	3
				16
FIFTH TRIMESTER:				
AE-311	Aircraft Systems Laboratory	0	3	1
ES-301	Strength of Materials	3	0	3
ES-305	Thermodynamics	3	0	3
ES-303	Dynamics	3	0	3
AE-301	Aerodynamics I	4	0	4
ES-307	Metallurgy and Materials Science	3	0	3
ES-311	Materials and Processes Laboratory	0	3	1
				18
SIXTH TRIMESTER:				
ES-404	Electrical Theory	3	0	3
AE-302	Aerodynamics II	3	0	3
AE-304	Aircraft Structures I	3	0	3
AE-310	Wind Tunnel Laboratory	1	3	2
AE-312	Airframe Laboratory	0	3	1
ET-302	Aircraft Detail Design	0	6	2
AS-117	Aircraft Engines and Systems	4	0	4
				18

Physical Education (4 trimesters)

TOTAL CREDITS 104

BACHELOR OF SCIENCE DEGREE CURRICULUM in AIRCRAFT MAINTENANCE ENGINEERING TECHNOLOGY

This program is designed to produce qualified maintenance engineering technicians. It is similar to the aeronautical engineering technology programs and also includes airframe and powerplant mechanic training. A graduate maintenance engineering technician would provide support for engineering activities associated with the overhaul, repair, and modification of aircraft. All candidates for graduation must fulfill the requirements of the Airframe and Powerplant Mechanic Curriculum, page 40.

Subject No.	Subject	Lecture	Lab.	Credits
FIRST TRIMESTER:				
HU-100	English Composition I	3	0	3
MA-101	Algebra & Trigonometry	5	0	5
PS-105	Chemistry I	3	3	4
ET-101	Engineering Graphics I	0	6	2
SS-101	World History	3	0	3
				17
SECOND TRIMESTER:				
HU-102	Technical Report Writing	2	0	2
MA-201	Calculus & Analytic Geometry I	5	0	5
PS-106	Chemistry II	2	3	3
ET-102	Engineering Graphics II	0	6	2
SS-201	American History	3	0	3
HU-101	English Composition II	3	0	3
				18
THIRD TRIMESTER:				
HU-202	Public Speaking	2	0	2
MA-202	Calculus & Analytic Geometry II	5	0	5
PS-201	Physics I	4	3	5
EC-220	Economics of Industrial Organization	3	0	3
	Humanities Elective	3	0	3
				18
FOURTH TRIMESTER:				
ET-301	Aircraft Drafting	0	6	2
MA-205	Differential Equations	3	0	3
PS-202	Physics II	4	3	5
ES-201	Statics	3	0	3

Subject No.	Subject	Lecture	Lab.	Credits
ES-203	Fluid Mechanics	3	0	3
				16
FIFTH TRIMESTER:				
ES-303	Dynamics	3	0	3
ES-301	Strength of Materials	3	0	3
ES-305	Thermodynamics	3	0	3
AE-301	Aerodynamics I	4	0	4
ES-307	Metallurgy and Materials Science	3	0	3
ES-311	Materials and Processes Laboratory	3	0	1
				17
SIXTH TRIMESTER:				
MA-301	Advanced Engineering Mathematics I	3	0	3
AE-302	Aerodynamics II	3	0	3
AE-304	Aircraft Structures I	3	0	3
AE-310	Wind Tunnel Laboratory	1	3	2
	Technical Electives	6	0	6
				17
SEVENTH TRIMESTER:				
ET-215	Electrical Technology	3	3	4
AE-404	Aircraft Structures II	3	0	3
AE-420	Aircraft Design I	2	3	3
ET-302	Aircraft Detail Design I	0	6	2
	Technical Electives	3	0	3
				15
	Physical Education (4 trimesters)			
			TOTAL CREDITS	118

ASSOCIATE OF SCIENCE DEGREE CURRICULUM in AIRCRAFT MAINTENANCE ENGINEERING TECHNOLOGY

This program is designed to produce qualified maintenance engineering technicians. It is similar to the aeronautical engineering technology programs and also includes airframe and powerplant mechanic training. A graduate maintenance engineering technician would provide support for engineering activities associated with the overhaul,

repair, and modification of aircraft. All candidates for graduation must fulfill the requirements of the Airframe and Powerplant Mechanic Curriculum, page 40.

Subject No.	Subject	Lecture	Lab.	Credits
FIRST TRIMESTER:				
HU-100	English Composition I	3	0	3
MA-101	Algebra & Trigonometry	5	0	5
PS-105	Chemistry I	3	3	4
ET-101	Engineering Graphics I	0	6	2
SS-101	World History	3	0	3
				17
SECOND TRIMESTER:				
HU-102	Technical Report Writing	2	0	2
HU-101	English Composition II	3	0	3
MA-201	Calculus & Analytic Geometry I	5	0	5
PS-106	Chemistry II	2	3	3
ET-102	Engineering Graphics II	0	6	2
SS-205	Psychology	2	0	2
				17
THIRD TRIMESTER:				
HU-202	Public Speaking	2	0	2
MA-202	Calculus & Analytic Geometry II	5	0	5
PS-201	Physics I	4	3	5
EC-220	Economics of Industrial Organization	3	0	3
ET-301	Aircraft Drafting	0	6	2
				17
FOURTH TRIMESTER:				
MA-205	Differential Equations	3	0	3
PS-202	Physics II	4	3	5
ES-201	Statics	3	0	3
ES-203	Fluid Mechanics	3	0	3
HU-301	Business English	2	0	2
				16
FIFTH TRIMESTER:				
ES-303	Dynamics	3	0	3
ES-301	Strength of Materials	3	0	3
ES-305	Thermodynamics	3	0	3
AE-301	Aerodynamics I	4	0	4
ES-307	Metallurgy and Materials Science	3	0	3

Subject No.	Subject	Lecture	Lab.	Credits
ES-311	Materials and Processes Lab	3	0	1
				17
	Physical Education (4 trimesters)			
	TOTAL CREDITS			84

BACHELOR OF SCIENCE DEGREE CURRICULUM in AVIATION MANAGEMENT

The objective of this program is to provide the student with an understanding of and competence in the management aspects of the Aviation industry. Graduates of this curriculum may consider employment in Airport Management, with Airframe and Powerplant industries, with Air Carriers, in Flight Services Operations, or in a government agency serving the Aviation Community. This program is an extension of the Associate Program in Aviation Management.

Subject No.	Subject	Lecture	Lab.	Credits
FIRST TRIMESTER:				
HU-100	English Composition I	3	0	3
MA-100	Basic College Math	4	0	4
PS-101	Physical Science I	3	0	3
SS-101	World History	3	0	3
GA-101	History of Aviation	3	0	3
				16

SECOND TRIMESTER:

HU-102	Technical Report Writing	2	0	2
HU-101	English Composition II	3	0	3
HU-202	Public Speaking	2	0	2
PS-102	Physical Science II	3	0	3
SS-201	American History	3	0	3
MS-210	Accounting I	3	0	3
				16

THIRD TRIMESTER:

MS-211	Business Law	3	0	3
MS-310	Management Accounting	3	0	3
EC-101	Economics I	3	0	3
SS-205	Psychology	2	0	2
SS-301	American National Government	3	0	3
	Humanities Elective	3	0	3
				17

FOURTH TRIMESTER:

EC-201	Economics II	3	0	3
EC-220	Economics of Industrial Organization	3	0	3
MS-312	Business Statistics	3	0	3
SS-203	Sociology	3	0	3
MS-313	Personnel Management	3	0	3
				15

FIFTH TRIMESTER:

HU-307	Contemporary Literature	3	0	3
GA-205	Government and Aviation	3	0	3
MS-301	Principles of Management	3	0	3
MS-410	Finance	3	0	3
GA-401	Airport Development	2	0	2
	Elective	3	0	3
				17

SIXTH TRIMESTER:

MS-413	Psychology of Management	3	0	3
EC-301	Economic Geography	3	0	3
EC-310	Labor Economics	3	0	3
HU-408	Fine Arts I	2	0	2
MS-320	Small Business Management	3	0	3
	Elective	3	0	3
				17

SEVENTH TRIMESTER:

MS-401	Mgt. Planning and Control	3	0	3
MS-311	Marketing	3	0	3
MS-420	Industrial Management	3	0	3
MS-430	Applications of Management Science	3	0	3
HU-409	Fine Arts II	2	0	2
	Elective	3	0	3
				17

EIGHTH TRIMESTER:

MS-412	Management Information Systems	3	0	3
MS-309	Data Processing Systems	3	0	3
	Electives	11	0	11
				17
	Physical Education (4 trimesters)			
			TOTAL CREDITS	132

ASSOCIATE OF SCIENCE DEGREE CURRICULUM in AVIATION MANAGEMENT

The objective of this program is to provide the student with an understanding of and competence in the management aspects of the Aviation industry. Graduates of this curriculum may consider employment in Airport Management, with Airframe and Powerplant industries, with Air Carriers, in Flight Services Operations, or in a government agency serving the Aviation Community.

Subject No.	Subject	Lecture	Lab.	Credits
FIRST TRIMESTER:				
HU-100	English Composition I	3	0	3
MA-100	Basic College Mathematics	4	0	4
PS-101	Physical Science I	3	0	3
SS-101	World History	3	0	3
GA-101	History of Aviation	3	0	3
				16
SECOND TRIMESTER:				
HU-101	English Composition II	3	0	3
HU-202	Public Speaking	2	0	2
HU-102	Technical Report Writing	2	0	2
PS-102	Physical Science II	3	0	3

SS-201	American History	3	0	3
MS-210	Accounting I	3	0	3
				16

THIRD TRIMESTER:

MS-211	Business Law	3	0	3
MS-310	Management Accounting	3	0	3
EC-101	Economics I	3	0	3
SS-205	Psychology	2	0	2
SS-301	American National Government	3	0	3
HU-301	Business English	2	0	2
				16

FOURTH TRIMESTER:

EC-201	Economics II	3	0	3
EC-220	Economics of Industrial Organization	3	0	3
MS-312	Business Statistics	3	0	3
SS-203	Sociology	3	0	3
MS-313	Personnel Management	3	0	3
	Elective	3	0	3
				18

FIFTH TRIMESTER:

HU-307	Contemporary Literature	3	0	3
GA-205	Government & Aviation	3	0	3
MS-301	Principles of Management	3	0	3
	Electives	6	0	6
				15

Physical Education (4 trimesters)

TOTAL CREDITS 81

ASSOCIATE OF SCIENCE DEGREE CURRICULUM AIRLINE STEWARDESS

Subject	No. Subject	Lecture	Lab.	Credits
FIRST TRIMESTER:				
HU-100	English Composition I	3	0	3
MA-100	Basic College Mathematics	4	0	4
SS-101	World History	3	0	3
HU-205	Elementary Spanish	2	3	3

GA-101	History of Aviation	3	0	3
PE-101	Physical Education	0	0	0
				16

SECOND TRIMESTER:

HU-101	English Composition II	3	0	3
SS-205	Psychology	2	0	2
SS-201	American History	3	0	3
HU-305	Intermediate Spanish	2	3	3
HU-202	Public Speaking	2	0	2
	General Aviation Elective			3
PE-102	Physical Education	0	0	0
				16

THIRD TRIMESTER:

SS-203	Introduction to Sociology	3	0	3
HU-405	Advanced Spanish	1	4	3
EC-301	Economic Geography	3	0	3
PS-101	Physical Science I	3	0	3
	General Aviation Elective			3
PE-201	Physical Education	0	0	0
				15

FOURTH TRIMESTER:

PS-102	Physical Science II	3	0	3
EC-420	Economics of Air Transportation	3	0	3
SS-406	Contemporary Latin America	3	0	3
GA-310	Air Carrier Operations	3	0	3
	General Aviation Elective			3
PE-202	Physical Education	0	0	0
				15

TOTAL REQUIRED COURSES	53
ELECTIVES	9
TOTAL HOURS	62

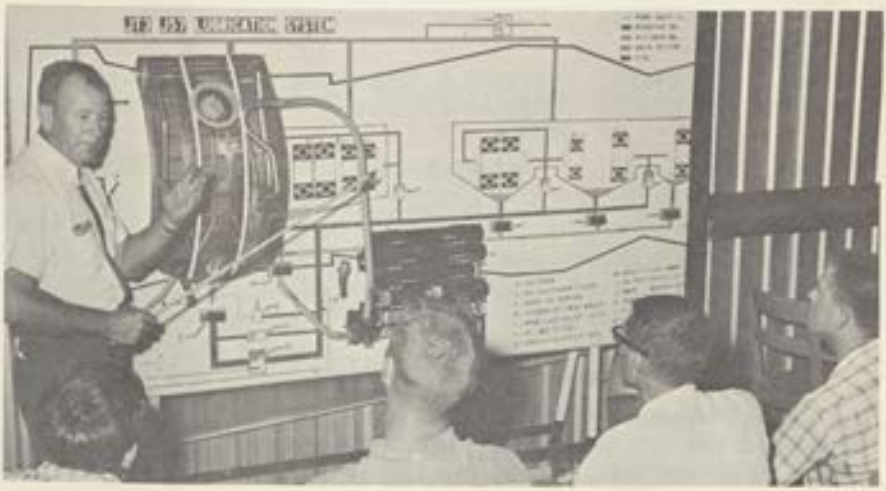
AIRFRAME AND POWERPLANT MECHANIC CURRICULUM

This course is a combination of the Airframe and Powerplant curriculums and provides a total of 1800 classroom and shop hours for the teaching of all the skills necessary to provide the graduate with a theoretical and practical knowledge, as well as a manipulative abil-

ity to repair aircraft, engines and systems. In addition, the graduate is repeatedly tested to ensure that he possesses adequate knowledge to successfully pass the FAA examination for the Airframe and Powerplant Certificate which will permit him to sell his services to the public as a government-certified aviation mechanic.

Trimester	Subject No.	Subject
First	SL-11	Basic Aircraft Science & Welding
	SL-12	Powerplant Science & Systems
Second	SL-13	Aircraft Systems
	SL-14	Electrical Laboratory
Third	SL-15	Thrust & Propulsion Lab.
	SL-16	Engine & Accessory Overhaul & Maintenance
Fourth	SL-17	Aircraft Structures & Repair
	SL-18	Aircraft Assembly, Weight and Balance

Total hours 1800



AIRFRAME MECHANIC CURRICULUM

The course limits its study to the airframe subjects and licensing requirements of the Airframe and Powerplant Mechanic Curriculum described above.

Trimester	Subject No.	Subject
First	SL-11	Basic Aircraft Science & Welding
	SL-13	Aircraft Systems
Second	SL-14	Electrical Laboratory
	SL-17	Aircraft Structures & Repair
Third	SL-18	Aircraft Assembly, Weight and Balance

Total hours 1125

POWERPLANT & TURBINE ENGINE MECHANIC CURRICULUM
2½ Trimesters (15 weeks each)

This course limits its study to the powerplant subjects and licensing requirements of the Airframe and Powerplant Mechanic Curriculum described above.

Trimester	Subject No.	Subject
First	SL-12	Powerplant Science & Systems
	SL-14	Electrical Laboratory
Second	SL-15	Thrust & Propulsion Laboratory
	SL-16	Engine & Accessory Overhaul & Maintenance
Third	SL-18	Aircraft Assembly, Weight and Balance

Total hours 1125

ASSOCIATE OF TECHNOLOGY CURRICULUM in AIRCRAFT MAINTENANCE MANAGEMENT

This curriculum is designed to prepare the Airframe and Powerplant Mechanic for managerial positions by enabling him to develop writing skills and advance his general, overall knowledge at the college level.*

Subject No.	Subject	Lecture	Lab.	Credits
MA-100	Basic College Mathematics	4	0	4
HU-100	English Composition I	3	0	3

* SL Subjects of this course include and require additional hours above Airframe and Powerplant course requirements.

SS-205	Psychology	2	0	2
PS-101	Physical Science I	3	0	3
ET-101	Engineering Graphics I	0	6	2
SS-201	American History	3	0	3
SL-11	Basic Aircraft Science & Welding	0	5	5
SL-12	Powerplant Science & Systems	0	5	5
ET-102	Engineering Graphics II	0	6	2
SL-13	Aircraft Systems	0	5	5
SL-14	Electrical Laboratory	0	5	5
PS-102	Physical Science II	3	0	3
SL-15	Thrust & Propulsion Lab.	0	5	5
SL-16	Engine Overhaul & Maintenance	0	5	5
HU-102	Technical Report Writing	2	0	2
HU-202	Public Speaking	2	0	2
SL-17	Aircraft Structures & Repair	0	5	5
SL-18	Aircraft Assembly, Weight and Balance	0	5	5
	Physical Education (4 trimesters)			
	Required courses			66
	Elective courses			
	Technical			3
	Total			69

BACHELOR OF SCIENCE DEGREE CURRICULUM in AERONAUTICAL SCIENCE

This curriculum is tailored to provide students with a college-level academic program while they receive flight training. Successful completion of the scheduled flight courses makes students eligible for Federal Aviation Agency commercial pilot certificates, including the instrument and multi-engine ratings.

Subject No.	Subject	Lecture	Lab.	Credits
FIRST TRIMESTER:				
FC-101	Primary Flight	0	3	1
HU-100	English Composition I	3	0	3
GA-101	History of Aviation	3	0	3
MA-101	Algebra & Trigonometry	5	0	5
GA-100	Introduction to Flight	4	0	4
				16

SECOND TRIMESTER:

FC-112	Basic Flight	0	4	1
GA-102	Navigation	4	0	4
GA-103	Flight Rules & Regulations	3	0	3
HU-101	English Composition II	3	0	3
PS-101	Physical Science I	3	0	3
GA-308	Aircraft Performance	3	0	3
				17

THIRD TRIMESTER:

FC-201	Advanced Flight I	0	4	1
ET-110	A/C Engines-Reciprocating	3	2	4
GA-309	Aerodynamics for Aviators	3	0	3
GA-201	Meteorology for Aviators	3	0	3
PS-102	Physical Science II	3	0	3
SS-205	Psychology	2	0	2
				16

FOURTH TRIMESTER:

FC-202	Advanced Flight II	0	3	1
HU-102	Technical Report Writing	2	0	2
ET-111	A/C Engines - Turbine	3	2	4
GA-307	Flight Physiology	2	0	2
GA-205	Government and Aviation	3	0	3
SS-201	American History	3	0	3
				15

FIFTH TRIMESTER:

FC-301	Instrument Flight	0	3	1
ET-210	Aircraft Systems and Components	3	2	4
HU-202	Public Speaking	2	0	2
EC-101	Economics I	3	0	3
GA-408	Flight Safety	3	0	3
	Elective	3	0	3
				16

SIXTH TRIMESTER:

FC-306	Multi Engine Laboratory	0	2	1
EC-201	Economics II	3	0	3
MS-211	Business Law	3	0	3
GA-305	Aviation Law	3	0	3
MS-313	Personnel Management	3	0	3
	Elective	3	0	3
				16

SEVENTH TRIMESTER:

GA-310	Air Carrier Operations	3	0	3
GA-407	Cert. of Transport & Turbine A/C	2	0	3
MS-320	Small Business Management	3	0	3
MS-210	Accounting I	3	0	3
MS-413	Psychology of Management	3	0	3
	Elective	3	0	3
				18

EIGHTH TRIMESTER:

FC-401	Advanced Flight Refresher	0	3	1
GA-401	Airport Development	2	0	2
SS-301	American National Government	3	0	3
MS-310	Management Accounting	3	0	3
	Electives	6	0	6
				15

Physical Education (4 trimesters)

TOTAL CREDITS 129

ASSOCIATE OF SCIENCE DEGREE CURRICULUM in AERONAUTICAL SCIENCE

This program is designed for the student who is interested in a career as a general aviation or airline pilot. In addition to intensive flight training to make them eligible for Federal Aviation Agency certificates, students pursue college-level subjects in both aviation-related and other academic fields.

Subject No.	Subject	Lecture	Lab.	Credits
FIRST TRIMESTER:				
FC-101	Primary Flight	0	3	1
HU-100	English Composition I	3	0	3
GA-101	History of Aviation	3	0	3
MA-101	Algebra & Trigonometry	5	0	5
GA-100	Introduction to Flight	4	0	4
				16
SECOND TRIMESTER				
FC-112	Basic Flight	0	4	1
GA-102	Navigation	4	0	4
GA-103	Flight Rules and Regulations	3	0	3

HU-101	English Composition II	3	0	3
PS-101	Physical Science I	3	0	3
GA-308	Aircraft Performance	3	0	3
				17

THIRD TRIMESTER:

FC-201	Advanced Flight I	0	4	1
ET-110	A/C Engines-Reciprocating	3	2	4
GA-309	Aerodynamics for Aviators	3	0	3
GA-201	Meteorology for Aviators	3	0	3
PS-102	Physical Science II	3	0	3
SS-205	Psychology	2	0	2
				16

FOURTH TRIMESTER:

FC-202	Advanced Flight II	0	3	1
HU-102	Technical Report Writing	2	0	2
ET-111	A/C Engines - Turbine	3	2	4
GA-307	Flight Physiology	2	0	2
GA-205	Government and Aviation	3	0	3
SS-201	American History	3	0	3
				15

FIFTH TRIMESTER:

FC-301	Instrument Flight	0	3	1
ET-210	Aircraft Systems and Components	3	2	4
HU-202	Public Speaking	2	0	2
EC-101	Economics I	3	0	3
GA-408	Flight Safety	3	0	3
				16

Physical Education (4 trimesters)

TOTAL CREDITS 80

PROFESSIONAL PILOT COURSE CURRICULUM
(3 trimesters of 15 weeks each)

This program is concerned exclusively with teaching students how to fly. Students receive concentrated training in various types of flying, including instrument and multi-engine flight. Ground school subjects, closely correlated with flying, round out the students' professional training. Successful completion of the course makes students eligible for Federal Aviation Agency commercial pilot certificates with the instrument and multi-engine ratings.

PHASE I Subject No.	Subject	Lecture	Lab.
AS-002	Primary Air Science	5	0
FC-102	Primary & Basic Flight	0	5
PHASE II			
AS-017	Aircraft Engines & Systems	3	2
AS-014	Basic Air Science I & II	5	0
FC-204	Advanced Flight I & II	0	10
PHASE III			
AS-021	Advanced Air Science I	3	2
FC-302	Instrument Flight	0	3
FC-306	Multi-Engine Lab.	0	2
	Total flight hours — 200		
ELECTIVES			
AS-042	Fundamentals of Flight Instructing	3	0
FC-404	Flight Instruction Lab.	0	3
FC-409	Instrument Flight Instructor Lab. Laboratory	0	3
FC-401	Advanced Flight Refresher	0	3
FC-407	Multi-Engine Flight II	0	0

COMBINED AERONAUTICAL PROGRAMS

Students who are enrolled at Embry-Riddle in programs other than Professional Pilot, Associate in Aeronautical Science, or Bachelor in Aeronautical Science, may elect to receive flight training while pursuing their other studies. Successful completion of the phases of the curriculum outlined below makes the student eligible for Federal Aviation Agency certificates and ratings at the level indicated.

PRIVATE PILOT

Subject No.	Subject	Lecture	Lab.
AS-001	Primary Air Science	3	0
AS-012	Basic Air Science I	4	0
FC-101	Primary Flight	0	3
FC-111	Special Flight*	0	3

* Consists of 26 flight hours and 7 oral hours; Cost - $429.00

COMMERCIAL PILOT

AS-001	Primary Air Science	3	0
FC-101	Primary Flight	0	3
AS-012	Basic Air Science I	4	0
FC-112	Basic Flight	0	4
AS-013	Basic Air Science II	3	0
FC-201	Advanced Flight I	0	4
AS-017	Aircraft Engines and Systems	3	2
FC-202	Advanced Flight II	0	3

Flight hours — 160

INSTRUMENT RATING

AS-021	Advanced Air Science I	3	2
FC-301	Instrument Flight	0	3

Flight hours — 20

MULTI-ENGINE RATING

FC-306	Multi-Engine Laboratory	0	2

Flight hours — 20

FC-316	Multi-Engine Rating	0	1

Flight hours — 10

COURSE DESCRIPTIONS

COURSE DESCRIPTIONS
DEPARTMENT OF AERONAUTICAL ENGINEERING

AE-301 AERODYNAMICS I 4 Credits

A study of the atmosphere and the fundamental dynamics and thermodynamics of air. Laminar and turbulent boundary layers and vortex motion. Development of lift drag and moment equations and their variation with Mach number and Reynolds number. Supersonic airfoil theory. Correlating factors influencing wing design. Theories of drag and their application. Momentum, blade element, and vortex theories of propellers. Prerequisites: MA-202, ES-203.

AE-302 AERODYNAMICS II 3 Credits

Static performance, including power required and power available for level flight. Effect of weight and altitude on power climb performance, ceiling determination, and time to climb. Special performance problems including take-offs and landings, range, and endurance. Maneuvers such as spins, stalls, turning, gliding and diving.
Theory of control surfaces and their design. Longitudinal, lateral and directional stability and control. Prerequisite: AE-301.

AE-304 AIRCRAFT STRUCTURES I 3 Credits

Structural analysis as applied to unsymmetrical cross sections, and introduction to shear flow. Prerequisite: ES-301.

AE-310 WIND TUNNEL LABORATORY 2 Credits

Speed setting calibration. Pressure distribution with multi-manometer of NACA airfoil on two dimensional wing and the calculation, tabulation, and plotting of the lift coefficient, center of pressure, pitching moment coefficient, and the profile and total drag coefficient at all flight angles of attack for both the plain wing and the wing with deflected flaps. Airfoil characteristics from data. Laminar, transition, and turbulent flow boundary layer. Three dimensional wing tip vortex flow direction and magnitude variation. Prerequisite: AE-301.

AE-311 AIRCRAFT SYSTEMS LABORATORY 1 Credit

Laboratory work with hydraulic, electric, propeller and fuel system mock-ups and cutaways.

AE-312 AIRFRAME LABORATORY 1 Credit

Airframe configurations and various aerodynamic and structural design features.

AE-401 ADVANCED AERODYNAMICS I 3 Credits

Kinematics and dynamics of a fluid field, stream function in two dimensional incompressible flow; theorem of stokes, Kuttajoukowski

Theorem. Introduction to compressible fluid, and some applications of one-dimensional compressible flow. Wave phenomena, Normal shock, oblique shock, Prandtl-Meyer expansion waves and reflection of waves. Prerequisites: AE-301, AE-302, MA-302.

AE-402 ADVANCED AERODYNAMICS II 3 Credits

The dynamics of viscous fluid, boundary layers, Principle of Similarity; Transition and turbulent flow, Navier-Stokes Equations, Aerodynamic characteristic of wing, and real fluid effects in high speed flight. Prerequisite: AE-401.

AE-404 AIRCRAFT STRUCTURES II 3 Credits

Analysis of members of semi-monocoque structures, external loads on the airplane and air load distribution. Analysis of aircraft materials, members in combined stress joints and fittings. Prerequisite: AE-304.

AE-405 AIRCRAFT STRUCTURES III 2 Credits

Deflection of airplane structures, and statically indeterminate structures. Design of web in shear. Strain energy principle, method of least work and special method analysis. Prerequisite: AE-404.

AE-406 JET AND ROCKET PROPULSION 3 Credits

A study of ramjets, pulsejets, turbojets, and turboprops. Thrust and propulsion, engine efficiencies, fuel consumptions, nozzle flows 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-401.

AE-411 AIRCRAFT PROPULSION SYSTEMS LABORATORY 1 Credit

A study of piston, jet, and rocket powerplants used in aircraft.

AE-420 AIRCRAFT DESIGN I 3 Credits

Principles of the design of modern aircraft to meet prescribed aerodynamic, structural, and performance specifications. Prerequisites: AE-302, and AE-304. Corequisite: AE-404.

AE-421 AIRCRAFT DESIGN II 3 Credits

Design of aircraft and aircraft components; projects encompassing the principles of the engineering and aeronautical sciences. Prerequisites: AE-420 and AE-404.

AE-450 SPECIAL TOPICS IN AERONAUTICAL ENGINEERING — 3 Credits

Lectures, laboratories, or seminars on selected topics in aeronautical engineering. Prerequisites: consent of instructor. May be repeated with a change of content.

DEPARTMENT OF AIR SCIENCE

AS-001 PRIMARY AIR SCIENCE — 0 Credit

Pre-flight facts including aircraft components, the four forces, axes of the aircraft, elementary aerodynamics, basic instrumentation and systems, FAA regulations for the student pilot, general service and flight safety, basic weight and balance for light aircraft and elementary radio communications procedures.

AS-002 PRIMARY AIR SCIENCE — 0 Credit

Pre-flight facts, elementary aerodynamics, basic instrumentation and systems; basic aircraft performance; airplane stability and control; general service and flight safety; weight and balances; basic flight computer; basic aerial navigation; meteorology; FAA regulations for the student pilot.

AS-012 BASIC AIR SCIENCE I — 0 Credit

Basic aerodynamics for pilots, continued study of instruments and systems; basic aircraft performance; airplane stability and control. Basic flight computer. Basic aerial navigation including, dead reckoning, pilotage and elementary radio aids. Meteorology; A study of weather affecting the safe operation of aircraft including interpretations of weather data. Prerequisite: AS-001.

AS-013 BASIC AIR SCIENCE II — 0 Credit

Continuation and advanced study of the subjects in AS-012 with emphasis on interpretation of weather phenomena and data including weather maps, sequence reports, winds aloft and area forecasts. Continued study of FAA regulations and the Airman's Information Manual.

AS-014 BASIC AIR SCIENCE I & II — 0 Credit

A continuation and advanced study of the subjects offered in AS-002 with emphasis on navigation and the interpretation of weather phenomena and data. Continued study of FAA regulations for the Commercial Pilot and the Airman's Information Manual.

AS-017 AIRCRAFT ENGINES AND SYSTEMS 0 Credit

A comprehensive study of technical terminology including the "language" of maintenance; aircraft engines and accessories; aircraft systems; aircraft structure, stress and certification; maintenance procedures, methods, practices and the servicing of aircraft.

AS-021 ADVANCED AIR SCIENCE I 0 Credit

FAA regulations governing instrument flight; domestic air route traffic control system; radio navigation procedures; enroute and terminal area radio charts; approach and landing aids and charts; advanced meteorology and surface radar. Distance measuring and transponder equipment. Prerequisites: AS-013 or AS-014.

AS-022 ADVANCED AIR SCIENCE II 0 Credit

Continued study of FAA regulations including those pertinent to charter and air taxi operations; advanced navigation including pressure pattern techniques, Doppler, Decca and the fundamentals of inertial guidance systems airborne radar and automatic flight control and approach systems including Cat. II. Prerequisite: AS-021.

AS-041 ADVANCED AIR SCIENCE III 0 Credit

A study of the regulations relating to airline transport pilots and operations of large air carrier aircraft; review of advanced air naviga-

tion techniques for instrument flight; international air traffic control procedures and route structure.

AS-042 FUNDAMENTALS OF FLIGHT INSTRUCTING 0 Credit

A comprehensive study of the fundamentals of teaching and learning; effective teaching methods; instructional management; aeromedical information for instructors; instructor responsibilities; aerodynamics; airplane performance; flight training syllabus; federal regulations for instructors and maneuver analysis.

DEPARTMENT OF ECONOMICS

EC-101 ECONOMICS I 3 Credits

Application of micro-economic theory to national and international macro-economic situations and problems, such as: The Public Economy; International Trade, Monetary and Financial Policy.

EC-201 ECONOMICS II 3 Credits

A study of the economic interrelationships between supply, demand, cost and price. Micro-economic theory will be emphasized. Prerequisite: EC-101.

EC-220 ECONOMICS OF INDUSTRIAL ORGANIZATION 3 Credits

An introduction to and an overview of the economic factors effecting Industrial Organization. Organization forms; private enterprise; the price system; cost and financing; new product decisions; optimization.

EC-301 ECONOMIC GEOGRAPHY 3 Credits

Understanding of the physical factors in environment. Production in agriculture, forestry, mining and manufacture studied.

EC-310 LABOR ECONOMICS 3 Credits

The economic characteristics of the labor market; the determination of wages, hours of work, and working conditions; the control of the labor market by unions, employers and the states; history of organized labor.

EC-420 ECONOMICS OF AIR TRANSPORTATION 3 Credits

A study of the Economic aspects of Airways, Airports, Federal aid Air Carriers and Federal Regulation.

DEPARTMENT OF ENGINEERING SCIENCE

ES-201 STATICS 3 Credits

Fundamental concepts and definitions of forces, moments, and couples. Components and resultants of force systems. Equilibrium of force systems. Analysis of trusses, frames and cables. Friction, centroids and moments of inertia. Prerequisites: MA-201, MA-202.

ES-203 FLUID MECHANICS 3 Credits

Fluid properties and definitions. Fluid statics. Basic concepts and equations of fluid-flow. Viscous effects. Reynolds number. Dimensional analysis and dynamics similitude. Flow through pipe and two-dimensional ideal fluid flows. Prerequisite: MA-202.

ES-301 STRENGTH OF MATERIALS 3 Credits

Stresses and strains in tension, compression and shear. Torsion. Shear and bending moment in beams. Fixed and continuous beams. Deflections of beams. Analysis of plane stress and strain. Columns. Riveted and welded connections. Energy methods. Theories of failure. Prerequisite: ES-201.

ES-303 DYNAMICS 3 Credits

Kinematics and kinetics of translation, rotation and general plane motion; work, energy, and power; inpulse, momentum, and impact. Prerequisite: ES-201.

ES-305 THERMODYNAMICS 3 Credits

The various processes of energy exchanges between heat and mechanical power with certain gases and vapors for the design of all types heat engines, turbines, missiles, compressors, and refrigerators. A study of all basic laws and principles governing both the non-flow and steady-flow processes fundamental in performance cycles of equipment mentioned, whether by use of different ideal gases, vapors, or mixtures. Prerequisites: MA-202, PS-202.

ES-307 METALLURGY AND MATERIALS SCIENCE 3 Credits

A study of the fundamental nature of metals, alloys, and plastics with emphasis on those used in the aircraft industry. Crystal structure, crystallization, and elements of the solid state semiconductors. Phase and equilibrium diagrams. Heat treatment of steel and other alloys. Surface hardening methods and methods of shaping materials. Various physical tests of materials. Materials-joining processes. Corrosion and its prevention. High temperature problems. Prerequisites: PS-202, PS-105, and PS-106.

ES-311 MATERIALS AND PROCESSES LABORATORY 1 Credit

Sheet metal. Welding. Riveting, power grinding, power saw, nibbler, drill press, lathe, rolls, crimping machine. Basic shop procedures. Corequisite: ES-307.

ES-401 MECHANICAL VIBRATIONS 3 Credits

Fundamental principles. Rotation. Simple harmonic motion. Complex numbers. Undamped and damped free vibration. Forced vibration. Two-degrees of freedom. Multi-mass torsional and transverse systems. Equivalent torsional systems. Balancing. Dynamic Dampers, Prerequisites: ES-303 and MA-205.

ES-403 HEAT TRANSFER 3 Credits

Thermal condition. Dimensional analysis. Free and forced convection. Conduction and convection and radiation combined. Experimental establishment of conductivities and emissivities. Prerequisite: ES-305.

ES-404 ELECTRICAL THEORY 3 Credits

Fundamental principles of electric and magnetic circuits and the application of these principles to the theory and performance of direct and alternating-current machines. A study of DC and AC circuits, vacuum-tube characteristics, and electronic devices. Prerequisites: PS-202, MA-205.

ES-405 ELECTRONICS FOR ENGINEERS 3 Credits

Fundamentals of electronics; electronic devices; electronic design, circuits and systems; communications and radar. Prerequisite: ES-404.

ES-407 ADVANCED STRENGTH OF MATERIALS 3 Credits

Unsymmetrical bending, curved beams, torsion, thick-walled cylinders, stress concentrations, thin plates and shells, and energy methods. Prerequisite: ES-301.

ES-409 SPACE MECHANICS 3 Credits

Review of mathematical and mechanical fundamentals including vectors. The two-body problem; orbits, satellite launch; cotangential transfer between circular orbits; interception and rendezvous; long range ballistic trajectories. Gyrodynamics and Gyroscopic instruments, precession and nutation, gyrocompass, stable and three-axes platform, inertial navigation. Vehicle motion. Performance and Optimization single and multi-stage rocket, flight trajectories, utilization of propellant, gravity turn. Generalized theories of Mechanics: system with constraints, generalized coordinates, D'Alembert and Hamilton's principles, LaGrange equations, Missile Dynamics Analysis. Prerequisites: ES-303 and MA-301.

ES-411 MECHANICAL BEHAVIOR OF MATERIALS 3 Credits

Engineering materials under tension, compression and shear. Impact, fatigue, creep, theories of failure, and environmental effects. Prerequisite: ES-301.

ES-450 SPECIAL TOPICS IN ENGINEERING SCIENCE 3 Credits

Lectures, laboratories, or seminars on selected topics in engineering science. Prerequisite: Consent of instructor. May be repeated with a change of content.

DEPARTMENT OF ENGINEERING TECHNOLOGY

ET-101 ENGINEERING GRAPHICS I 2 Credits

Principles of lettering. Drawing instruments and their use. Linework code and drafting techniques. Geometrical constructions. Multiview projection. Sectional and auxiliary views and revolutions. Dimensioning, shop processes and tolerances. Threads and fasteners.

ET-102 ENGINEERING GRAPHICS II 2 Credits

Continuation of Engineering Drawing I. Detail and assembly drawings. Comparison of the following methods of graphic representation: orthographic, axonometric, oblique and perspective projections. Introduction of descriptive geometry; the principles of orthographic projection applied to the solution of three dimensional prob-

lems. Space relationship of points, lines and planes. Curved and wrapped surfaces. Intersections and developments. Vector applications. Prerequisite: ET-101.

ET-110 AIRCRAFT ENGINES — RECIPROCATING 4 Credits

Types of reciprocating engines; theory of engines and principles of operation; power and its measurement; BMEP; ratings; general operating instructions including starting, ground operation, cold weather operation and flight operation; turbo-charging; types, purpose and results of supercharging.

ET-111 AIRCRAFT ENGINES — TURBINE 4 Credits

Study of gas turbine fundamentals including thrust, factors affecting thrust, gas generator, mach number, thrust specific fuel consumption, engine station designations, diffusers and diffusion, types of gas turbine engines. Turbine engine components including turbofan engine fan sections, compressors, fuel manifolds and nozzles, thrust reversers, noise supressors, fuel systems and fuel controls, turboprop fuel controls and propellor governors; gas turbine engine operation; engine operational characteristics.

ET-210 AIRCRAFT SYSTEMS AND COMPONENTS 4 Credits

A comprehensive study of aircraft systems including: fuel systems, oil systems, hydraulic systems, electrical systems; pressurization systems and de-ice and anti-ice systems. Conventional and unconventional flight control system. Types of aircraft structure and stresses on the aircraft.

ET-215 ELECTRICAL TECHNOLOGY 4 Credits

D-C and A-C circuit analysis. Magnetism. Electron tubes and semiconductor devices. Applications of electronics. Instrumentation and measurements. Prerequisite: PS-202, 3 hours of lecture, 3 hours of lab.

ET-301 AIRCRAFT DRAFTING 2 Credits

General conventions. Layout drawings, detail drawings and assembly drawings. Local and general notes. Linework and lettering quality. Dimensioning conventions. Drafting of formed sheet metal parts, welded tube structures, mechanical parts, extrusions and standard aircraft parts. 6 hours drafting. Prerequisite: ET-102.

ET-302 AIRCRAFT DETAIL DESIGN I 2 Credits

Projects include structural and mechanical design and specification

of shop processes. Selection of various AN and NAS standard parts. Design of riveted, bolted and welded aircraft parts. Design of control cable and swedged end-fitting, control push-pull rod with turnbuckle, and end-fittings and torque tube with hinge bearing. Selection of optimum skin thickness and stiffener spacing in wing two-cell box beam. Prerequisite: ET-301. Corequisite: AE-304.

DEPARTMENT OF FLIGHT

FC-101 PRIMARY FLIGHT 102 — 1 or 2 Credits

Preflight operations; starting; taxiing; takeoffs and landings; airport traffic patterns; simulated emergencies; use of radio for communications; maneuvering at minimum controllable airspeed; stalls from all normally anticipated flight attitudes; primary instruments.

FC-112 BASIC FLIGHT — 1 Credit

Airplane documents; airworthiness records; airplane performance; airplane loading; including fuel oil and baggage capacities; precision maneuvers; basic instruments; use of radio aids to VFR navigation;

cross-country flying; short and soft field landings and takeoffs. Prerequisite: FC-101.

FC-201 ADVANCED FLIGHT I — 1 Credit

Review and continued study of the subjects in FC-112; advanced precision maneuvers including chandelles, lazy eights and eights-on-pylons and 720 degree power turns; gliding spirals; 180 degree side approaches and 360 degree overhead approaches; accuracy landings.

FC-202 ADVANCED FLIGHT II — 1 Credit

Review and continued study of the subjects in FC-201; extensive navigation training including radio navigation utilizing VHF and LF radio navigation aids; air surveillance radar approaches; night operations including night navigation; extensive basic instrument training including radar approach procedures. Prerequisite: FC-201.

FC-204 ADVANCED FLIGHT I & II — 2 Credits

A combination of the subjects in FC-201 and 202. Prerequisite: FC-102.

FC-301 INSTRUMENT FLIGHT & 302 — 1 Credit

Pre-requisite FC-202 or 204. Instrument flight planning; filing an instrument flight plan; aircraft performance, range and fuel requirements; required instrumentation and equipment and their proper use; advanced instrument flight techniques; recovery from unusual attitudes; emergency procedures; IFR navigation and instrument approach procedures including VOR, ILS, DME and ADF and radar approach procedures, holding procedures; missed approach procedures; compliance with ATC procedures including actual IFR cross-country flying.

*FC-306 MULTI-ENGINE LABORATORY — 1 Credit

Pre-requisite FC-301 or 302. Multi-engine aircraft systems, loading and performance; VMC V_1 and V_2 speeds; theories of multi-engine flight; pre-flight procedures; basic airwork; landings and take-offs; cruise control and fuel management; emergency procedures-general, engine-out emergencies; night landings and take-offs; multi-engine instrument flight including all types of approaches; emergency procedures in instrument flight including engine-out instrument approaches and missed approaches; a typical IFR cross-country flight of 5 hours duration. This training given in Twin-Beech D-18 type aircraft.

* Available only to full-time students who have completed pre-requisite training at ERAI in resident programs.

FC-316 MULTI-ENGINE RATING — No Credit

Multi-engine aircraft systems, loading and performances; pre-flight, take-offs and landings, basic maneuvers; single engine operation; emergency procedures; flight and fuel consumption planning. Ten (10) flight hours & eight (8) hours of oral instruction.

FC-401 ADVANCED FLIGHT REFRESHER — 1 Credit
(Commercial & Instrument Rating)

Advanced recurrency training for the Instrument rated Commercial Pilot including re-review of all air maneuvers, short and soft field landings; cross-wind landings; instrument flight planning; instrument cross-country flying; instrument enroute procedures and navigation; instrument approach procedures of all types; emergency procedures.

FC-404 FLIGHT INSTRUCTION LABORATORY — 1 Credit

Pre-requisite AS 404 and Commercial License. Practice in the explanation and demonstration of all prescribed flight maneuvers and the practical in-flight application of teaching techniques and methods. Demonstration and practice of basic acrobatic maneuvers including the vertical recovery, split "S", loops, spins, clover leaf, barrel roll, aileron roll, immelman and cuban eight.

FC-407 MULTI-ENGINE FLIGHT II — No Credits

Pre-requisite FC-306. A review of the procedures in FC-306 in aircraft with gross weight in excess of 12,500 pounds leading to a type-rating with instrument qualifications. Aircraft used for this training is the Douglas DC-3.

FC-409 INSTRUMENT FLIGHT INSTRUCTOR LABORATORY — 1 Credit

Pre-requisite AS-404 and Commercial License. Training in the practical application of instruction techniques as applied to instrument flying.

DEPARTMENT OF GENERAL AVIATION

GA-100 INTRODUCTION TO FLIGHT — 4 credits

A study of pre-flight knowledge of aircraft, elementary aerodynamics, basic instruments and instrumentation, basic aircraft systems, FAA regulations for student pilots, general service and flight safety, basic weight and balance for light aircraft, elementary radio communications, basic medical facts for pilots.

GA-101 HISTORY OF AVIATION 3 Credits

An interpretative survey of the evolution of flight from the earliest recordings to the present. Emphasis is placed on the effect of aviation on civilization and culture.

GA-102 NAVIGATION 4 credits

Aerial navigation including charts and chart reading, pilotage, dead reckoning, electronic navigation aids including distance measuring and transponder equipment, instrument flight procedures, review of advanced navigation equipment.

GA-103 FLIGHT RULES AND REGULATIONS 3 credits

A study of governmental rules and regulations concerning flight as they pertain to the pilot and his aircraft.

GA-201 METEOROLOGY FOR AVIATORS 3 credits

A study of weather, how and why it forms, the problems it presents and solutions to those problems; interpretation of weather maps, sequence reports; aviator's estimation of weather development; includes study of weather from sea level to 60,000 feet, the jet stream and clear air turbulence.

GA-205 GOVERNMENT AND AVIATION 3 credits

A study of the structure and functions of government organizations which regulate the aviation industry: Department of Transportation, National Transportation Safety Board, CAB, FAA, and ICAO.

GA-305 AVIATION LAW 3 credits

A study of the chronological development of air law; federal and state regulatory functions; rights and liabilities of aviators and operators, rights of third parties on the ground; case history study; liens and security interest in aircraft; international conference, bi-lateral and multi-lateral agreements and treaties; national and international criminal statutes pertaining to aviation. Prerequisite: Government and Aviation, GA-205.

GA-307 FLIGHT PHYSIOLOGY 2 Credits

Aeromedical information of significance to pilots. Hypoxia, Anoxia, Vertigo, vision, hearing, spatial disorientation, general health, drugs and other factors including the psychological aspects of flight.

GA-308 AIRCRAFT PERFORMANCE 3 credits

A comprehensive study of the performance characteristics of modern reciprocating, turbo-prop, and jet aircraft; application of weight and balance, cruise control, performance curves, charts and operating data for obtaining highest degree of flight efficiency.

GA-309 AERODYNAMICS FOR AVIATORS 3 credits

A study of the basic principles of aerodynamics, including airfoil shapes and characteristics, aerodynamic forces, pitching moments and stall patterns, thrust and power curves, aircraft performance, high speed characteristics, stability and control, and aircraft strength. Prerequisites: MA-101 or MA-100.

GA-310 AIR CARRIER OPERATIONS 3 credits

A study of organization, management, and over-all operating procedures of U. S. Air Carriers in intra-state, inter-state, overseas, and foreign operations; the influence of economic and technical regulation of air carriers; a study of IATA including its relationship with ICAO, ATA, and ALPA; national policy and the airline industry.

GA-312 COMMUTER AIRLINES 2 Credits

A study of the establishment, operation and control of "third-level" airlines and their role in the air transportation industry including the National Third-Level Airline Association; pertinent CAB regulations; equipment types; availability and operational suitability.

GA-401 AIRPORT DEVELOPMENT 2 Credits

An exploration into the techniques of developing an airport in conjunction with the Federal Aviation Regulations, local and state government agencies, and projected aviation needs. An overview of the problem of developing airports, including research and awareness with emphasis on the proper preparation of an Airport Master Plan.

GA-403 NON-GOVERNMENTAL ORGANIZATIONS 2 credits

A review of major organizations in the American Aviation field that are not government supported.

GA-407 CERTIFICATION OF TRANSPORT AND TURBINE AIRCRAFT 3 Credits

A study of the regulations, procedures and other requirements governing the certification of transport category aircraft including special safety features and operating limitations.

GA-408 FLIGHT SAFETY 3 Credits

A study of accident prevention and flight safety programs. Accident prevention: including various preventative measures centered upon definitive areas in which accidents occur.

DEPARTMENT OF HUMANITIES

HU-001 PREPARATORY ENGLISH 0 credits

Designed to improve competence in reading, writing, and speaking the English language. Guided studies in grammar and mechanics, in sentence and paragraph construction, in reading and vocabulary building, in pronunciation and articulation.

HU-100 & 101 ENGLISH COMPOSITION 3 Credits

This course is designed to build individual proficiency in the expression of thoughts into writing. It consists of instruction in sentence construction, parts of speech, vocabulary and rules of writing. Instruction stresses the importance to an engineer of being able to write well. During the course students prepare compositions, business correspondence and long form reports.

HU-102 TECHNICAL REPORT WRITING 2 Credits

The student becomes familiar with and adept at handling all phases of industrial publications. Includes memorandum writing; staff studies; long form technical reports; advertising and illustrations; graphs, tables and charts, and beginning library research. Prerequisite: HU-100.

HU-202 PUBLIC SPEAKING 2 Credits

Fundamentals of voice production, improvement of vocal quality, pitch and intensity. Group and individual exercises for improving articulation and enunciation on speech sounds. Practice in analysis and delivery of various types of public speeches. Introduction to organization, phrasing and diction. Prerequisite: HU-101.

HU-205 ELEMENTARY SPANISH CONVERSATION AND READING 3 credits

Basic grammar and reading. Introduction to conversation. Not open to students with two or more units of high school Spanish. Two hours lecture; three hours lab.

HU-305 INTERMEDIATE SPANISH CONVERSATION AND READING 3 credits

Continuation of HU-205. Two hours lecture; three hours lab.

HU-307 CONTEMPORARY LITERATURE 3 Credits

The mainstreams of literature of this century are discussed in a critical way. Each author is analyzed as to his technique, philosophy, and biographical influences. Representative writings from France, England, America, Italy, Russia, Ireland, Germany, Spain and Scandinavia are studied for their impact on English-speaking readers.

HU-405 ADVANCED SPANISH CONVERSATION AND READING — 3 credits

Continuation of HU-205 and 305 with emphasis on development of high fluency in conversation and reading. Four hours lab; one hour lecture.

HU-408 FINE ARTS I (art) — 2 Credits

This course serves as an introduction to the fine and functional arts. The student is led through a graded series of problems in design to develop an appreciation of good and functional dimension. The course strives to develop the student's critical judgment in evaluating art.

HU-409 FINE ARTS II (music) — 2 Credits

This course serves as an introduction to the history and appreciation of music that lives. Recordings, readings, and lectures with some report work on the part of the student make up the basis of the course.

DEPARTMENT OF MATHEMATICS

MA-001 PREPARATORY MATHEMATICS — 0 credits

Review of Algebra and Trigonometry to prepare mathematically deficient students for college mathematics.

MA-100 BASIC COLLEGE MATHEMATICS — 4 Credits

Fundamental arithmetic and algebraic operations. Equations. Functions and Graphs. Exponents. Geometry. Statistics. Introduction to Trigonometry.

MA-101 ALGEBRA AND TRIGONOMETRY — 5 Credits

Fundamental algebraic operations. Real and complex numbers. Polynomials. Equations. Inequalities. Exponents. Probability. Series. Determinants. Logarithms. Trigonometric functions, identities and equations. Radian measure.

MA-201 CALCULUS AND ANALYTIC GEOMETRY I — 5 Credits

Graphs and equations of loci, lines, and conics. Limits. Differentiation of algebraic, trigonometric and exponential functions. Applications of first and second derivatives. Prerequisite: MA-101.

MA-202 CALCULUS AND ANALYTIC GEOMETRY II 5 Credits

Meaning and use of integration in problems of areas, volumes, centroids, moments. Polar coordinates. Solid analytic geometry. Partial derivatives. Multiple integrals. Series. Prerequisite: MA-201.

MA-205 DIFFERENTIAL EQUATIONS 3 Credits

Treatment of ordinary differential equations including principal types of first and second order equations, simultaneous equations, and linear equations, with constant coefficients. Applications to physics and mechanics. The Loplace Transform. Perequisite: MA-202.

MA-301 ADVANCED ENGINEERING MATHEMATICS I 3 Credits

Vector algebra, differential and integral vector calculus, partial derivatives, line and surface integrals, matrices and cartesian tensors. Prerequisite: MA-205.

MA-302 ADVANCED ENGINEERING MATHEMATICS II 3 Credits

Infinite series, Fourier series and orthogonal functions, functions of complex variables, partial differential equations. Prerequisite: MA-301.

MA-309 COMPUTER PROGRAMMING 3 Credits

Fundamentals of computers; use of computers for engineering problems; programming; FORTRAN; preparation of programs for engineering Problems. Prerequisite: MA-201.

MA-403 COMPLEX VARIABLES 3 Credits

Complex numbers. Analytic functions. Integrals. Derivatives. Powers series. Conformal mapping. Special functions. Applications. Prerequisite: MA-202.

MA-450 SPECIAL TOPICS IN MATHEMATICS 3 Credits

Lectures or seminars covering specially selected topics in mathematics. Prerequisite: Consent of instructor.

DEPARTMENT OF MANAGEMENT SCIENCE

MS-210 ACCOUNTING I 3 Credits

An introduction to accounting: double entry, income statement, balance sheet, interpretation of accounts; partnerships and corporations. 2 lectures and 2 hours of laboratory per week.

MS-211 BUSINESS LAW 3 Credits

A survey of the legal aspects of business transactions. Contracts, agency, bailments, negotiable instruments.

MS-301 PRINCIPLES OF MANAGEMENT 3 Credits

The fundamental functions of management: Planning, Organization, Staffing, Directing and Controlling are studied. Principles governing the proper discharge of these functions are developed. Case studies will be used.

MS-309 DATA PROCESSING SYSTEMS 3 Credits

Fundamentals of data processing systems; application of data processing systems to business management; programming and coding digital computers; preparation of programs for business systems. Prerequisite: MS-210.

MS-310 MANAGEMENT ACCOUNTING 3 Credits

Discussion of budgetary control, non-manufacturing costs, uniform cost accounting systems; analysis and control through cost accounting; other managerial reports. 2 lectures and 2 hours of laboratory per week. Prerequisite: MS-210.

MS-311 MARKETING 3 Credits

Marketing theory; marketing management; Sales management; market research. Public and customer relations; advertising; distribution. Government agencies as customers.

MS-312 BUSINESS STATISTICS 3 Credits

Tabulation and presentation of business data; measures of central tendency and dispersion; elementary probability and the normal curve of error; reliability of the arithmetic mean. Index numbers. 2 lectures and 2 hours of laboratory per week. Prerequisite: MA-100.

MS-313 PERSONNEL MANAGEMENT 3 Credits

An introduction to the methods and viewpoints of modern personnel administration. Case studies are selected to develop logical thinking in actual situations.

MS-320 SMALL BUSINESS MANAGEMENT 3 credits

An introduction to the management of a small business: financing, site location, marketing, records, advertising, personnel, government agencies, etc.

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 function will be emphasized. Prerequisite: MS-301.

MS-410 FINANCE 3 Credits

The finance function, financial analysis and control, financial planning, short-term and intermediate term financing, long-term financing and financial strategies.

MS-412 MANAGEMENT INFORMATION SYSTEMS 3 Credits

Current techniques for Management Data Acquisition and Presentation are investigated. Included are other operations analysis tools. Electronic Data processing Systems and Programs will be reviewed. Prerequisites: MS-312 and MS-309.

MS-413 PSYCHOLOGY OF MANAGEMENT 3 Credits

A basic course about human problems within the supervisory and management ranks. An introduction to individuals, pairs, and different sized groups in organizations. Prerequisites: SS-205 and MS-313.

MS-420 INDUSTRIAL MANAGEMENT 3 Credits

An intensive study of management functions and organizations peculiar to industrial organizations. The interfaces and responsibilities of Project, Functional, and Administrative functions will be investigated. Particular attention will be paid to Industrial Engineering, Quality Assurance, and Manufacturing Management functions. Prerequisite: EC-220.

MS-430 APPLICATIONS OF MANAGEMENT SCIENCE 3 Credits

Case problems in determining business policy, instituting policy and appraising the results. The viewpoint is that of top and middle management. Prerequisites: MS-301 and MS-401.

DEPARTMENT OF PHYSICAL EDUCATION

PE-101, 102, 201, and 202 0 Credit

Orientation in health and physical education activities. An attempt to foster physical fitness and an appreciation for physical activity. Required of all candidates for academic degrees. Meets two hours per week.

DEPARTMENT OF PHYSICAL SCIENCES

PS-101 PHYSICAL SCIENCE I — 3 Credits

A study of the scientific method and its discoveries. Applications of science to problems of astronomy, chemistry and physics.

PS-102 PHYSICAL SCIENCE II — 3 Credits

Application of the scientific method to problems in physics, geology, meteorology and cosmology.

PS-105 CHEMISTRY I WITH LABORATORY — 4 Credits

Fundamental principles of chemistry, basic atomic theory, valence, the chemical bond, oxidation number, symbols, formulas, equations and nomenclature. Chemical calculations, rates of reaction. Acids, bases and salts. Oxygen and hydrogen. The periodic system. Conservation of mass and energy.

PS-106 CHEMISTRY II WITH LABORATORY — 3 Credits

Equilibrium and kinetics. Metals and non-metals. The halogens, sulfur, nitrogen, and their compounds. Iron, copper and aluminum, nuclear chemistry. Prerequisite: PS-105.

PS-201 PHYSICS I, MECHANICS AND HEAT WITH LABORATORY — 5 Credits

Vector and scalar quantities. Newton's laws of motion and gravitation. Friction. Work. Energy. Power. Torque and rotational motion. Momentum. Curvilinear Motion. Elastic properties of matter. Fluids at rest and in motion. Properties of gases. Heat. 4 lectures per week and one 3-hour laboratory per week. Corequisite: PS-105.

PS-202 PHYSICS II, SOUND, ELECTRICITY AND LIGHT WITH LABORATORY — 5 Credits

Wave motion, sound waves, acoustics. Fundamental laws of electricity and magnetism. Electrostatic and electromagnetic field theory. Induced electromagnetic forces. Power. Capacitance. Electrical instruments. Nature of light, index of refraction, refraction by lenses, reflection from mirrors, diffraction, and interference. 3 lectures per week and one 3-hour laboratory per week. Prerequisite: PS-201.

PS-303 MODERN PHYSICS — 3 Credits

A survey course in modern concepts in physics. The nucleus and atomic structure. Fundamentals of wave mechanics. Basic relativity. Mossbauer effect. Parity and fundamental particles. High energy

physics, cryogenics and superconductivity. Fundamentals of electronics. Microwave Optics. Stimulated emmission, lasers.

PS-307 APPLIED PHYSICAL CHEMISTRY 3 Credits

Chemical equilibria, kinetics, phase rule, chemical thermodynamics, kinetic theory of gases, thermochemistry, high temperature gas reactions, photochemistry, basic statistical mechanics.

PS-450 SPECIAL TOPICS 3 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.

DEPARTMENTS OF SHOP SCIENCE AND AIRCRAFT SYSTEMS, AIRFRAME ASSEMBLY & REPAIR, AND ELECTRICITY AND ELECTRONICS

SL-11 BASIC AIRCRAFT SCIENCE AND WELDING

Basic training in the responsibility of a mechanic. Reading and understanding Federal Air Regulation. Review of high school mathematics, physics and drafting for the aviation mechanic. Introduction to aircraft, its major components, aircraft terms and Theory of Flight; woodwork, dope and fabric, requirements relative to quality of material and method of repairs; gas welding, brazing, silver soldering; use of electric and inert gas welding equipment.

SL-12 POWERPLANT SCIENCE AND SYSTEMS

Theory of engines and principles of operation; four-stroke cycle principle, cam rings, pistons, piston rings, cylinders, lubrication of Radial and opposed engines, float carburetors, pressure carburetors, direct injection fuel systems and jet propulsion theory.

SL-13 AIRCRAFT SYSTEMS

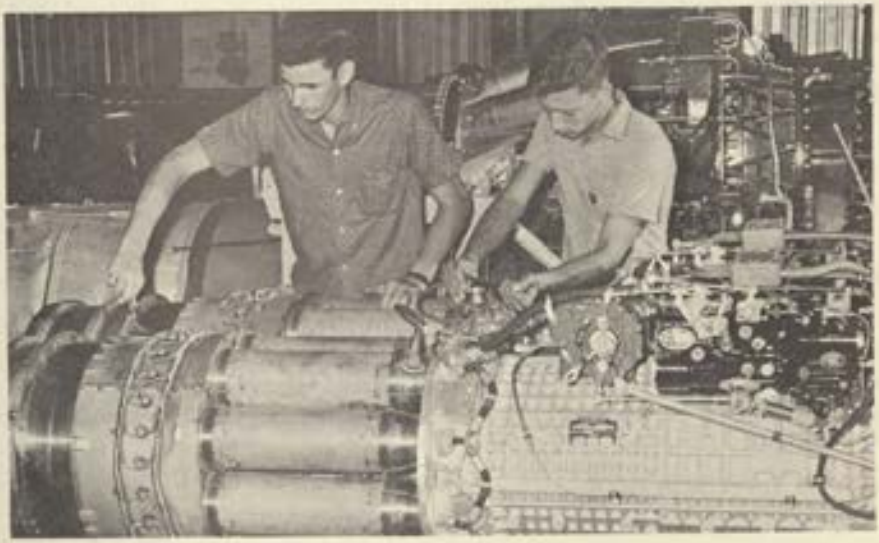
Methods of repair or replacement of aircraft components; functions of pumps, pressure regulators, selector valves, actuators, relief valves, bypass valves, power brakes, steering devices and anti-skid controls, fuel systems and fuel management, cabin pressurization, heating, air conditioning, wing deicing, oxygen, anti-icing, fire detection, and flight instrument systems.

SL-14 ELECTRICAL LABORATORY

Fundamentals of Aircraft Electricity, both Direct and Alternating Current. Use of Ohm's Law and Impedance formulas. Theory of Capacitance and Induction as applied to Aircraft. Theory and maintenance of AC and DC motors, generators, alternators, and motor controls, Installation of Batteries, Airframe wiring, conduit, junction boxes, relays, circuit protectors, switches, radios and associated components in accordance with current FAA regulations, trouble shooting aircraft electrical components and associated systems.

SL-15 THRUST AND PROPULSION LABORATORY

Theory of propeller operation; design and functions of propeller systems; propeller maintenance procedures. Turbine engines, principles of operation, ram-jets, pulse-jets, rockets, turbo-jet, turbofan and turbo-prop. Maintenance, overhaul, inspection and test.



SL-16 ENGINE AND ACCESSORY, OVERHAUL AND MAINTENANCE

The complete disassembly and overhaul of engines and accessories, including applicable repair and inspection procedure. Powerplant operation, trouble shooting and test-run-in procedures. The use of technical publications and details of record processes.

SL-17 AIRCRAFT STRUCTURES AND REPAIR

Training and knowledge needed to overhaul and maintain modern

aircraft; basic skills in the use of hand and power operated metal cutting tools; aluminum and aluminum alloys and their fabrication; heat treating, cold work and riveting; repair and overhaul of live aircraft; new aircraft structures and manufacturing techniques.

SL-18 AIRCRAFT ASSEMBLY, WEIGHT AND BALANCE

Final assembly of aircraft; rigging and adjustment; weight and balance; weighing aircraft; inspection and inspection procedures; servicing, ground handling, pre-flight checks, and final written test covering all subjects.

DEPARTMENT OF SOCIAL SCIENCES

SS-101 WORLD HISTORY 3 Credits

Designed primarily as a survey of the development and evolution of Western civilization from 1660 to the present. Emphasis is placed on contemporary civilization and culture.

SS-201 AMERICAN HISTORY 3 Credits

(1865 to the present). Reconstruction; the age of big business; the U. S. as a world power; World Wars I and II. The great depression and its aftermath. Studied in an interpretative survey.

SS-203 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-205 PSYCHOLOGY 2 Credits

A thorough discussion of adjustment and understanding, emphasizing their importance to the engineer. The study probes the fields of frustration responses, defense mechanisms, psychoses, and neuroses, etc., relating them to personnel problems in industry.

SS-301 AMERICAN NATIONAL GOVERNMENT 3 Credits

Basic issues of American democracy, constitutional principles and the executive, legislative, and judicial branches of government.

SS-303 INTRODUCTION TO LOGIC 3 credits

Principles of valid thinking; the nature of inductive and deductive inference and its applications.

SS-404 PHILOSOPHY 3 Credits

An integrated study of man and the concepts of this culture, including views about himself, society, philosophy and the arts.

SS-406 CONTEMPORARY LATIN AMERICA 3 Credits

A survey of the common denominators of Latin American History with detailed application of these elements to the evolution of contemporary Latin America.

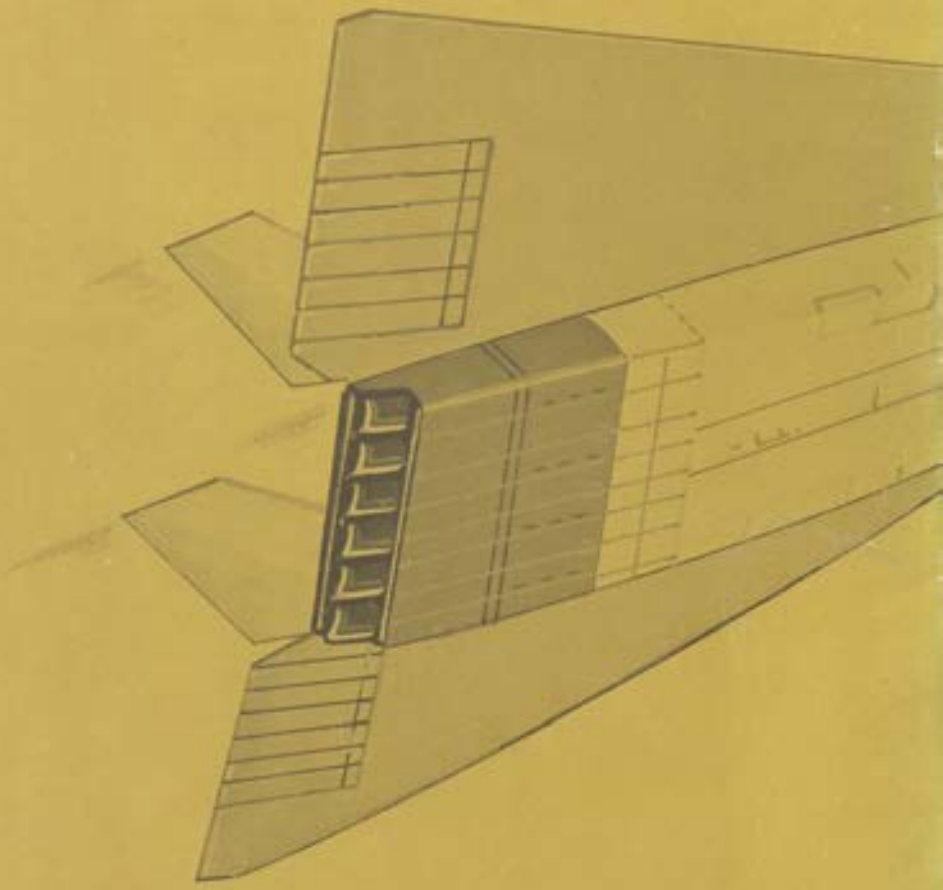
SS-407 CURRENT HISTORY 3 Credits

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-408 AMERICAN FOREIGN POLICY 3 Credits

A survey of the origins of the basic elements of American Foreign Policy. A summary review of the major issues in American Diplomatic History since 1860.

NOTES



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