

Academic Programs at the Daytona Beach Campus

Aviation Maintenance Science

Bachelor of Science

At the heart of every flight of every commercial, private, or military aircraft is the work of the professional aviation maintenance expert. Without the devotion of these very special people, the air travel system would cease to function. The demand for degreed aircraft maintenance specialists in the aviation/aerospace world has never been greater than it is today. The Aviation Maintenance Science (AMS) program at Embry-Riddle produces these aviation professionals, the best in the world.

The Aviation Maintenance Science bachelor's degree is made up of general education courses, technical courses and labs that lead to FAA Airframe and Powerplant (A&P) mechanic's certification, and a group of courses known as an area of concentration (AOC). There are four areas of concentration, from which a student picks one, as follows:

- Aerospace Electronics
- Flight
- Information Technology
- Maintenance Management

The degree is composed of 132 credit hours for the AOCs in Flight, Information Technology, and Maintenance Management.

The AOC in Aerospace Electronics is 138 credit hours.

The Maintenance Management AOC is optimized for those who wish to use their maintenance skills as a platform for advancing into a management position in one of the many aviation maintenance environments. The Flight AOC is for those students who wish to combine a maintenance background with the qualifications of a commercial pilot. The Information Technology AOC is designed for the student who is interested in the application of computer technology to aviation technical support operations. The Aerospace Electronics AOC is for students who have an interest in combining their aerospace electronics skills with the A&P certificate or a minor course of study that supports their career objectives. The Maintenance Management area of concentration and the Aerospace Electronics area of concentration are accredited by Aviation Accreditation Board International (AABI, formerly Council on Aviation Accreditation), 3410 Skyway Drive, Auburn, AL 86830, telephone: (334) 844-2431.

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	Maintenance Management	Aerospace Electronics	Flight	Information Technology
General Education Core	36	36	36	36
Common Core	6	6	6	6
Area of Concentration	42	48	42	42
A&P Technical Courses ¹	48	*	48	48
Open Electives	0	**	0	0
Total	132	120-138***	132	132

1. If a student transfers to Embry-Riddle with the A&P mechanic's certification, 48 credit hours will be awarded and entered on the student's transcript, 36 as lower level credits and 12 as upper level credits.

*In the Aerospace Electronics AOC, a student has the option of taking the A&P technical courses, or in their place, completing a minor course of study. There are many minors available at the Daytona Beach Campus, a list of which can be found in this catalog.

**If a student chooses to complete a minor course of study instead of taking the A&P technical courses, some additional open elective credits may need to be taken to complete the

degree requirements. The number of credit hours of open electives needed will vary depending on the number of credit hours in the minor. Some of the open electives may need to be 300 to 400 level courses.

***The AMS degree with the Aerospace Electronics AOC and the A&P technical courses is 138 credit hours. If a student chooses to complete a minor course of study, instead of taking the A&P technical courses, it may be possible to finish the degree in 120 credits (dependent on which minor is chosen).

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The courses taken in the Aviation Maintenance Science Department lead to a student being approved for the A&P certification exams. Credit will be granted for any student who enters the University already in possession of the A&P certification. The Aerospace Electronics AOC allows the student to complete a minor course of study in place of the A&P certification.

International certification, which may be equivalent to the Airframe and Powerplant certification, will be evaluated on a case-by-case basis and, if approved, may be used for academic credit.

General Education Core

Course	Title	Credits
COM 122	English Composition & Literature	3
COM 219	Speech	3
COM 221	Technical Report Writing	3
IT 109	Introduction to Computers and Applications - OR -	
EGR 115	Introduction to Computing for Engineers** - OR -	
CS 223	Scientific Programming in C**	3
HU 140	Series (Lower-Level Humanities)	3
HU/SS	Upper-Level Humanities or Social Sciences	3
MA 111	College Mathematics for Aviation I	3
MA 112	College Mathematics for Aviation II	3
PS 103	Technical Physics I & Laboratory	3
PS 104	Technical Physics II & Laboratory	3
PSY 101	Introduction to Psychology	3
	Lower-Level Social Sciences Elective	3
Total Credits		36

** The Aerospace Electronics Area of Concentration requires EGR 115 or CS 223.

Common Core Curriculum

Course	Title	Credits
BA 201	Principles of Management	3
SF 201	Introduction to Health, Occupational, and Transportation Safety -OR-	
SF 210	Introduction to Aerospace Safety	3
Total Credits		6

Aviation Maintenance Science Courses (leading to A&P certification)

Course	Title	Credits
AMS 101	Maintenance Mathematics & Physics	2
AMS 102	Aircraft Familiarization	2
AMS 103	Tools, Materials, and Processes	2
AMS 111	Regulations, Documentation, & Drawing	3
AMS 112	Fundamentals of Electricity	3
AMS 121	Electrical Power Systems I	2
AMS 122	Metallic Structures	2
AMS 123	Instruments and Avionics	2
AMS 131	Composite Materials and Processes	2
AMS 132	Aircraft Systems I	2
AMS 133	Aircraft Systems II	2
AMS 242	Airframe Maintenance Practices	3
AMS 243	Electrical Power Systems II	3
AMS 251	Introduction to Powerplants	2
AMS 252	Fuel, Air, and Exhaust Systems	2
AMS 253	Powerplant Electrical Systems	2
AMS 361	Turbine Engines	3
AMS 362	Propeller Systems	3
AMS 371	Powerplant Inspection and Line Maintenance	3
AMS 372	Engine Maintenance, Repair, & Overhaul	3
Total Credits		48

Tuition for the AMS courses is less than for the other courses in the degree, and is billed separately from the University block tuition. Contact the AMS program coordinator for additional information.

Aerospace Electronics Area of Concentration

Course	Title	Credits
AEL 311	Airborne Pulse Systems	3
AEL 312	Airborne Communications and Navigation Systems	3
AEL 313	Airborne Electronics Maintenance Operations	2
AEL 401	Airborne Surveillance Systems	3
AEL 402	Airborne Electronics Systems Integration	3
AEL 403	Advanced Space and Airborne Electronics Systems	3
AEL 404	Airborne Electronics Maintenance Operations II	2
EGR 120	Graphical Communications	3
EL 107	Direct and Alternating Current Fundamentals and Circuit Analysis	4

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EL 108	Direct and Alternating Current Laboratory	1
EL 203	Microelectronics Fundamentals and Circuit Analysis.	4
EL 204	Microelectronics Laboratory	1
EL 212	Digital Circuit and Systems Analysis	4
EL 213	Digital Circuits Laboratory	1
EL 301	Electronic Communication Systems	3
EL 302	Electronic Communications Laboratory . . .	1
EL 303	Pulse Components and Circuit Applications.	2
EL 304	Pulse Circuits Laboratory	1
EL 307	Microprocessor Systems	3
EL 308	Microprocessor Systems Laboratory	1
	Open Electives.	0 to 15*

*Depending on whether A&P certification track is chosen or another minor course of study. Open electives may need to be upper level in some cases.

Total Credits 48-63

Suggested Course of Study

SEMESTER 1

Course Title	Credits
AMS 101 Maintenance Mathematics & Physics	2
AMS 102 Aircraft Familiarization	2
AMS 103 Tools, Materials, and Processes.	2
AMS 111 Regulations, Documentation, & Drawing . . .	3
AMS 112 Fundamentals of Electricity	3
Total Credits	<u>12</u>

SEMESTER 2

Course Title	Credits
AMS 121 Electrical Power Systems I	2
AMS 122 Metallic Structures	2
AMS 123 Instruments and Avionics	2
AMS 131 Composite Materials and Processes.	2
AMS 132 Aircraft Systems I	2
AMS 133 Aircraft Systems II	2
COM122 English Composition & Literature	3
Total Credits	<u>15</u>

SEMESTER 3

Course Title	Credits
AMS 242 Airframe Maintenance Practices	3
AMS 243 Electrical Power Systems II.	3
AMS 251 Introduction to Powerplants.	2
AMS 252 Fuel, Air, and Exhaust Systems	2
AMS 253 Powerplant Electrical Systems	2
Lower-Level Social Sciences (SS 110, 120, 130)	3
Total Credits	<u>15</u>

SEMESTER 4

Course Title	Credits
AMS 361 Turbine Engines	3
AMS 362 Propeller Systems	3
AMS 371 Powerplant Inspection and Line Maintenance	3
AMS 372 Engine Maintenance, Repair & Overhaul	3
MA 111 College Math for Aviation I.	3
Total Credits	<u>15</u>

SEMESTER 5

Course Title	Credits
BA 201 Principles of Management.	3
EL 107 Direct and Alternating Current Fundamentals and Circuit Analysis.	4
EL 108 Direct and Alternating Current Laboratory	1
Lower-Level Humanities(140 Series).	3
PSY 101 Introduction to Psychology	3
EGR 120 Graphical Communications	3
Total Credits	<u>17</u>

SEMESTER 6

Course Title	Credits
COM219 Speech.	3
MA 112 College Math for Aviation II.	3
EL 203 Microelectronics Fundamentals and Circuit Analysis.	4
EL 204 Microelectronics Laboratory	1
EL 212 Digital Circuit and Systems Analysis	4
EL 213 Digital Circuits Laboratory	1
Total Credits	<u>16</u>

SEMESTER 7

Course Title	Credits
PS 103 Technical Physics I and Laboratory	3
EGR 115 Introduction To Computing For Engineers.	3
EL 301 Electronic Communication Systems	3
EL 302 Electronic Communications Laboratory . . .	1
EL 303 Pulse Components and Circuit Applications.	2
EL 304 Pulse Circuits Laboratory	1
EL 307 Microprocessor Systems	3
EL 308 Microprocessor Systems Laboratory	1
Total Credits	<u>17</u>

SEMESTER 8

Course Title	Credits
COM221 Technical Report Writing.	3
SF 201 Introduction to Health, Occupational & Transportation Safety	3
AEL 311 Airborne Pulse Systems.	3

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AEL 312	Airborne Communications and Navigation Systems	3
AEL 313	Airborne Electronics Maintenance Operations	2
Total Credits		14
SEMESTER 9		
Course Title		Credits
	HU or SS Upper Level	3
PS 104	Technical Physics II and Laboratory	3
AEL 401	Airborne Surveillance Systems	3
AEL 402	Airborne Electronics Systems Integration	3
AEL 403	Advanced Space and Airborne Electronics Systems	3
AEL 404	Airborne Electronics Maintenance Operations II	2
Total Credits		17
TOTAL DEGREE CREDITS		138

Flight Area of Concentration

Course Title	Credits
Single Track:	
FA 121 Private Single Flight	1
FA 221 Instrument Single Flight	1
FA 321 Commercial Single Flight	1
FA 323 Commercial Multi Add On	1
-OR-	
Multi-Track:	
FA 121 Private Single Flight	1
FA 122 Private Multi Flight With Lab	1
FA 222 Instrument Multi Flight	1
FA 322 Commercial Multi Flight	1
-AND-	
AS 121 Private Pilot Operations	5
AS 221 Instrument Pilot Operations	3
AS 321 Commercial Pilot Operations	3
WX 201 Survey of Meteorology	3
AS 309 Aerodynamics	3
AS 310 Aircraft Performance	3
AS 357 Flight Physiology	3
AS 387 Crew Resource Management	3
AS 402 Airline Operations	3
AS 408 Flight Safety	3
-AND- any two of the following:	
AS 358 Advanced Avionics	3
AS 350 Domestic and International Navigation	3
AS 420 Flight Technique Analysis	3
AS 435 Electronic Flight Management Systems	3
Total Credits	42

Suggested Course of Study

(Assumes Single Engine Flight Track)

SEMESTER 1

Course Title	Credits
AMS 101 Maintenance Mathematics & Physics	2
AMS 102 Aircraft Familiarization	2
AMS 103 Tools, Materials, and Processes	2
AMS 111 Regulations, Documentation, & Drawing	3
AMS 112 Fundamentals of Electricity	3
Total Credits	12

SEMESTER 2

AMS 121 Electrical Power Systems I	2
AMS 122 Metallic Structures	2
AMS 123 Instruments and Avionics	2
AMS 131 Composite Materials and Processes	2
AMS 132 Aircraft Systems I	2
AMS 133 Aircraft Systems II	2
Total Credits	12

SEMESTER 3

Course Title	Credits
AMS 242 Airframe Maintenance Practices	3
AMS 243 Electrical Power Systems II	3
AMS 251 Introduction to Powerplants	2
AMS 252 Fuel, Air, and Exhaust Systems	2
AMS 253 Powerplant Electrical Systems	2
COM122 English Composition & Literature	3
Total Credits	15

SEMESTER 4

Course Title	Credits
AMS 361 Turbine Engines	3
AMS 362 Propeller Systems	3
AMS 371 Powerplant Inspection & Line Maintenance	3
AMS 372 Engine Maintenance, Repair & Overhaul	3
Humanities Lower Level (140 Series)	3
Total Credits	15

SEMESTER 5

Course Title	Credits
AS 121 Private Pilot Operations	5
COM219 Speech	3
FA 121 Private Single Flight	1
MA 111 College Math for Aviation I	3
PSY 101 Introduction to Psychology	3
Total Credits	15

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SEMESTER 6

Course Title	Credits
COM221 Technical Report Writing	3
MA 112 College Math for Aviation II	3
IT 109 Introduction to Computers & Applications	3
PS 103 Technical Physics I and Laboratory	3
WX 201 Survey of Meteorology	3
Total Credits	15

SEMESTER 7

Course Title	Credits
AS 221 Instrument Pilot Operations	3
BA 201 Principles of Management	3
FA 221 Instrument Single Flight	1
AS 309 Aerodynamics	3
PS 104 Technical Physics II and Laboratory	3
AS 357 Flight Physiology	3
Total Credits	16

SEMESTER 8

Course Title	Credits
SF 201 Introduction to Health, Occupational & Transportation Safety	3
SS Lower-Level Social Sciences (SS 110, 120, 130)	3
AS 321 Commercial Pilot Operations	3
FA 321 Commercial Single Flight	1
AS 402 Airline Operations	3
AS 310 Performance	3
Total Credits	16

SEMESTER 9

Course Title	Credits
HU or SS Upper Level	3
AS 387 Crew Resource Management	3
AS 408 Flight Safety	3
AS 350 Domestic and International Navigation	3
AS 420 Flight Technique Analysis	3
FA 323 Commercial Multi Add On	1
Total Credits	16

TOTAL DEGREE CREDITS **132**

Information Technology Area of Concentration

Course Title	Credits
BA 221 Advanced Computer Based Systems	3
BA 317 Organizational Behavior	3
BA 320 Business Information Systems	3
COM411 Publishing on the Internet	3
CS 118 Fundamentals of Computer	

	Programming	3
CS 223 Scientific Programming in C -OR-		
EGR 115 Introduction to Computing for Engineers		3
HF 201 Introduction to Human Factors		3
HF 310 Human-Computer Interaction		3
IT 210 Web Page Authoring and Design		3
IT 220 Introduction to Networking		3
IT 310 Web Site Management		3
IT 320 Network Configurations		3
IT 330 Programming for the Web		3
IT 340 WAN Theory and Design		3
Total Credits		42

Suggested Course of Study

SEMESTER 1

Course Title	Credits
AMS 101 Maintenance Mathematics & Physics	2
AMS 102 Aircraft Familiarization	2
AMS 103 Tools, Materials, and Processes	2
AMS 111 Regulations, Documentation, & Drawing	3
AMS 112 Fundamentals of Electricity	3
Total Credits	12

SEMESTER 2

Course Title	Credits
AMS 121 Electrical Power Systems I	2
AMS 122 Metallic Structures	2
AMS 123 Instruments and Avionics	2
AMS 131 Composite Materials and Processes	2
AMS 132 Aircraft Systems I	2
AMS 133 Aircraft Systems II	2
Total Credits	12

SEMESTER 3

Course Title	Credits
AMS 242 Airframe Maintenance Practices	3
AMS 243 Electrical Power Systems II	3
AMS 251 Introduction to Powerplants	2
AMS 252 Fuel, Air, and Exhaust Systems	2
AMS 253 Powerplant Electrical Systems	2
COM122 English Composition & Literature	3
Total Credits	15

SEMESTER 4

Course Title	Credits
AMS 361 Turbine Engines	3
AMS 362 Propeller Systems	3
AMS 371 Powerplant Inspection & Line Maintenance	3

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AMS 372 Engine Maintenance, Repair & Overhaul	3
Humanities Lower Level (140 Series)	3

Total Credits 15

SEMESTER 5

Course Title	Credits
HF 201 Introduction to Human Factors	3
MA 111 College Math for Aviation I	3
PSY 101 Introduction to Psychology	3
IT 109 Introduction to Computers & Applications	3
BA 201 Principles of Management	3

Total Credits 15

SEMESTER 6

Course Title	Credits
COM219 Speech	3
MA 112 College Math for Aviation II	3
SS Lower-Level Social Sciences (SS 110, 120, 130)	3
CS 118 Fundamentals of Computer Programming	3
IT 210 Web Page Authoring and Design	3

Total Credits 15

SEMESTER 7

Course Title	Credits
PS 103 Technical Physics I and Lab	3
BA 221 Advanced Computer Based Systems	3
EGR 115 Introduction to Computing for Engineers	3
IT 220 Introduction to Networking	3
IT 310 Web Site Management	3

Total Credits 15

SEMESTER 8

Course Title	Credits
BA 317 Organizational Behavior	3
BA 320 Business Information Systems	3
PS 104 Technical Physics II and Laboratory	3
COM221 Technical Report Writing	3
IT 320 Network Configurations	3
IT 330 Web Programming	3

Total Credits 18

SEMESTER 9

Course Title	Credits
IT 340 WAN Theory & Design	3
SF 201 Introduction to Health, Occupational & Transportation Safety	3
HU/SS Upper-Level Humanities/Social Sciences	3
HF 310 Human-Computer Interaction	3

COM411 Publishing on the Internet	3
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Total Credits 15

TOTAL DEGREE CREDITS 132

Maintenance Management Area of Concentration

Course Title	Credits
BA 210 Financial Accounting	3
BA 221 Advanced Computer Based Systems	3
BA 220 Marketing	3
BA 225 Business Law	3
BA 312 Managerial Accounting	3
BA 317 Organizational Behavior	3
BA 320 Business Information Systems	3
BA 324 Aviation Labor Relations	3
BA 325 Social Responsibility and Ethics in Management	3
BA 419 Aviation Maintenance Management	3
BA 420 Management of Production and Operations	3
BA 422 Life Cycle Analysis for Systems and Programs in Aviation/Aerospace	3
BA 424 Project Management in Aviation Operations	3
MA 222 Business Statistics	3

Total Credits 42

Suggested Course of Study

SEMESTER 1

Course Title	Credits
AMS 101 Maintenance Mathematics & Physics	2
AMS 102 Aircraft Familiarization	2
AMS 103 Tools, Materials, and Processes	2
AMS 111 Regulations, Documentation, & Drawing	3
AMS 112 Fundamentals of Electricity	3

Total Credits 12

SEMESTER 2

Course Title	Credits
AMS 121 Electrical Power Systems I	2
AMS 122 Metallic Structures	2
AMS 123 Instruments and Avionics	2
AMS 131 Composite Materials and Processes	2
AMS 132 Aircraft Systems I	2
AMS 133 Aircraft Systems II	2

Total Credits 12

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SEMESTER 3

Course Title	Credits
AMS 242 Airframe Maintenance Practices	3
AMS 243 Electrical Power Systems II	3
AMS 251 Introduction to Powerplants	2
AMS 252 Fuel, Air, and Exhaust Systems	2
AMS 253 Powerplant Electrical Systems	2
COM122 English Composition & Literature	3
Total Credits	15

SEMESTER 4

Course Title	Credits
AMS 361 Turbine Engines	3
AMS 362 Propeller Systems	3
AMS 371 Powerplant Inspection & Line Maintenance	3
AMS 372 Engine Maintenance, Repair & Overhaul	3
Humanities Lower Level (140 Series)	3
Total Credit	15

SEMESTER 5

Course Title	Credits
COM219 Speech	3
MA 111 College Math for Aviation I	3
Lower-Level Social Science (SS 110, 120, 130)	3
IT 109 Introduction to Computers & Applications	3
BA 201 Principles of Management	3
Total Credits	15

SEMESTER 6

Course Title	Credits
COM221 Technical Report Writing	3
PSY 101 Introduction to Psychology	3
MA 112 College Math for Aviation II	3
BA 210 Financial Accounting	3
Humanities/Social Sciences Upper Level 3	3
Total Credits	15

SEMESTER 7

Course Title	Credits
BA 220 Marketing	3
BA 221 Advanced Computer Based Systems	3
BA 312 Managerial Accounting	3
PS 103 Technical Physics I and Laboratory	3
MA 222 Business Statistics	3
Total Credits	15

SEMESTER 8

Course Title	Credits
BA 320 Business Information Systems	3
BA 419 Aviation Maintenance Management	3
BA 424 Project Management in Aviation Operations	3
PS 104 Technical Physics II and Lab	3
SF 201 Introduction to Health, Occupational and Transportation Safety	3
Total Credits	15

SEMESTER 9

Course Title	Credits
BA 225 Business Law	3
BA 317 Organizational Behavior	3
BA 324 Aviation Labor Relations	3
BA 325 Social Responsibility & Ethics in Management	3
BA 420 Management of Production and Operations	3
BA 422 Life Cycle Analysis for Systems and Programs in Aviation/Aerospace	3
Total Credits	18

TOTAL DEGREE CREDITS

132