PhD in Aerospace Engineering

Students Admitted with a Master of Science

Courses of study leading to the Doctor of Philosophy (PhD) degree are available with specializations in

- Aerodynamics and fluid mechanics;
- Structures and solid mechanics;
- Flight dynamics and control; and
- Multidisciplinary analysis and design.

Program Requirements

The total number of credit hours for a PhD in aerospace engineering is 72. The plan of study must include a minimum of 24 credit hours of dissertation, 36 credit hours of coursework, including up to 24 credit hours of relevant coursework from the MS degree. In addition, 12 credit hours must be taken as coursework, dissertation or a combination of both.

The plan of study will include:

Course	Title	Hours
Major Area Requirements		
Select one of the following major areas		15
Aerodynamics and Fluid Mechanics		
AE 711	Intermediate Aerodynamics	
AE 716	Compressible Fluid Flow	
AE 812	Aerodynamics of Viscous Fluids	
Structures and Solid Mechanics		
AE 722	Finite Element Analysis of Structures I	
AE 731	Theory of Elasticity	
AE 777	Vibration Analysis	
Flight Dynamics and Controls		
AE 707	Modern Flight Control System Design I	
AE 714	Advanced Flight Dynamics I	
AE 773	Intermediate Dynamics	
Multidisciplinary Analysis and Design		
See advisor for details		
Additional Requirements		
Select 15 credit hours outside the major area		15
The student must declare a minor area defined by the advisory committee and select 6 credit hours in the minor (included in the 15 credit hours outside the major)		
Select a minimum of 6 credit hours of mathematics/statistics		6
Select 12 credit hours of coursework, dissertation or a combination of both		12
Select 24 credit hours of Dissertation		24
AE 976	PhD Dissertation	
Total Credit Hours		**72**

See College of Engineering (http://catalog.wichita.edu/graduate/engineering/) for requirement details.

Graduate Courses

All graduate courses must be approved in advance of enrollment by a student's graduate advisor.

Continuation

For the student to remain in the program, they must:

1. Maintain a minimum graduate GPA of 3.250/4.000 for every semester over the first 30 credit hours. Failing to do so will lead to dismissal from graduate standing.
2. Demonstrate active involvement in research by producing publications in national/international conferences or journals by the completion of the first 30 graduate credit hours.

Qualifying Examination

1. The qualifying exam is intended to reinforce and link pertinent high-level fundamentals. Upon passing the qualifying examination, a student is known as an aspirant for the PhD.
2. The exam, which covers major field core courses, is offered two times annually and may not be attempted more than twice.
3. The current guidelines require passing the qualifying exam with an 80 percent average with no single portion below 70 percent.
4. Students who fail to take the exam within three semesters (excluding summer) from first enrollment, lose an attempt. Students failing to pass the exam within four semesters from first enrollment, are dismissed from the program.

Time Limits and Residency Requirement

From the time the student starts to enroll in the program, no more than 10 years may elapse until all requirements for the degree have been completed.

Applied Learning

Students in the PhD in aerospace engineering - post-master's degree program are required to complete an applied learning or research experience to graduate from this program. The requirement can be met by successful completion and presentation of a dissertation.

Students Admitted with a Bachelor of Science

Admission

Applicants with a Bachelor of Science degree in aerospace engineering or a closely-related field must have:

1. A minimum grade point average of 3.250/4.000 over the last two years or approximately 60 credit hours, and
2. A letter of recommendation from a faculty member in the department of aerospace engineering at Wichita State University stating that they would be the student's academic and research advisor.

Courses of study leading to the Doctor of Philosophy (PhD) degree are available with specializations in

- Aerodynamics and fluid mechanics;
- Structures and solid mechanics;
- Flight dynamics and control; and
- Multidisciplinary analysis and design.

Program Requirements

The total number of credit hours for a PhD in aerospace engineering is 72. The plan of study must include a minimum of 24 credit hours of dissertation, 36 credit hours of coursework. In addition, 12 credit hours must be taken as coursework, dissertation or a combination of both.

The plan of study will include:

Course	Title	Hours
Major Area Requirements		
Select one of the following major areas		15
Aerodynamics and Fluid Mechanics		
AE 711	Intermediate Aerodynamics	
AE 716	Compressible Fluid Flow	

AE 812	Aerodynamics of Viscous Fluids	
Structures and Solid Mechanics		
AE 722	Finite Element Analysis of Structures I	
AE 731	Theory of Elasticity	
AE 777	Vibration Analysis	
Flight Dynamics and Controls		
AE 707	Modern Flight Control System Design I	
AE 714	Advanced Flight Dynamics I	
AE 773	Intermediate Dynamics	
Multidisciplinary Analysis and Design		
See advisor for details		
Additional Requirements		
Select 15 credit hours outside the major area		15
The student must declare a minor area defined by the advisory committee and select 6 credit hours in the minor (included in the 15 credit hours outside the major)		
Select a minimum of 6 credit hours of mathematics/statistics		6
Select 12 credit hours of coursework, dissertation or a combination of both		12
Select 24 credit hours of Dissertation		24
AE 976	PhD Dissertation	
Total Credit Hours		**72**

See College of Engineering (http://catalog.wichita.edu/graduate/engineering/) for requirement details.

Graduate Courses

All graduate courses must be approved in advance of enrollment by a student's graduate advisor.

Continuation

For the student to remain in the program, they must:

1. Maintain a minimum graduate GPA of 3.250/4.000 for every semester over the first 30 credit hours. Failing to do so, the student will be transferred to the Master of Science program in the appropriate category (full standing or on probation), or dismissed from graduate standing.
2. Demonstrate active involvement in research by producing publications in national/international conferences or journals by the completion of the first 30 graduate credit hours.

Qualifying Examination

1. The qualifying exam is intended to reinforce and link pertinent high-level fundamentals. Upon passing the qualifying examination, a student is known as an aspirant for the PhD.
2. The exam, which covers major field core courses, is offered two times annually and may not be attempted more than twice.
3. The current guidelines require passing the qualifying exam with an 80 percent average with no single portion below 70 percent.
4. Students who fail to take the exam within three semesters (excluding summer) from first enrollment, lose an attempt. Students failing to pass the exam within four semesters from first enrollment, are dismissed from the program.
5. Students who are dismissed from the doctoral program will be allowed to use the course credit hours completed toward a master's degree in aerospace engineering. However, the student must fulfill the master's thesis or project or coursework option requirement.
6. A student who was dismissed from the AE doctoral program, *but went on to successfully complete a master's degree* in aerospace engineering, will not be allowed to enroll in the AE doctoral program again in the future.

Time Limits and Residency Requirement

From the time the student starts to enroll in the program, no more than 10 years may elapse until all requirements for the degree have been completed.

Other Program Requirements

All other program requirements are the same as those for the existing doctoral program (admission following the completion of a master's degree).

Applied Learning

Students in the PhD in aerospace engineering - postbaccalaureate degree program are required to complete an applied learning or research experience to graduate from this program. The requirement can be met by successful completion of a dissertation.