

Standing Requirements

## **Program Mission Statement**

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The mission of the Civil Engineering Program is to graduate civil engineers with the educational foundation, intellectual skills and practical experience to enable their success as practitioners, researchers, and leaders in the general field of civil engineering with special consideration to aerospace and aviation applications. The Civil Engineering Program shall also engage in professional service, research, and other scholarly activities to support the advancement of the civil engineering discipline.

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# ERAU University Mission Statement

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Our mission is to teach the science, practice and business of aviation and aerospace, preparing students for productive careers<sup>1</sup> and leadership roles in service around the world.<sup>2</sup>

Our technologically enriched, student-centered environment<sup>3</sup> emphasizes learning through collaboration and teamwork,<sup>4</sup> concern for ethical and responsible behavior,<sup>5</sup> cultivation of analytical<sup>6</sup> and management abilities,<sup>7</sup> and a focus on the development of the professional skills needed for participation in a global community.<sup>8</sup> We believe a vibrant future for aviation and aerospace rests in the success of our students. Toward this end, Embry-Riddle is committed to providing a climate that facilitates the highest standards of academic achievement<sup>9</sup> and knowledge discovery,<sup>10</sup> in an interpersonal environment that supports the unique needs of each individual.<sup>11</sup> Embry-Riddle Aeronautical University is the world's leader in aviation and aerospace education. The University is an independent, non-profit, culturally diverse institution providing quality education and research in aviation, aerospace, engineering and related fields leading to associate's, baccalaureate's, master's and doctoral degrees.

## Program Alignment to University Mission

Select all that apply.

- <sup>1</sup>Preparing students for productive careers
- <sup>2</sup>Preparing students for leadership roles in service around the world
- <sup>3</sup>Technologically enriched environment
- <sup>4</sup>Emphasize learning through collaboration and teamwork
- <sup>5</sup>Concern for ethical and responsible behavior
- <sup>6</sup>Cultivate analytical abilities
- <sup>7</sup>Cultivate management abilities
- <sup>8</sup>Develop the professional skills needed for participation in a global community
- <sup>9</sup>Facilitating the highest standards of academic achievement
- <sup>10</sup>Facilitating knowledge discovery
- <sup>11</sup>Providing an interpersonal environment that supports the unique needs of each individual

Standing Requirements

## Program Outcomes

### BS Civil Engineering ABET (1-8) Outcomes Set

#### Outcome

Outcome	Mapping
DB_BSCIV_PO_1 An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	No Mapping
DB_BSCIV_PO_2 An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	No Mapping
DB_BSCIV_PO_3 An ability to communicate effectively with a range of audiences	No Mapping
DB_BSCIV_PO_4 An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	No Mapping
DB_BSCIV_PO_5 An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	No Mapping
DB_BSCIV_PO_6	No Mapping

An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

DB\_BSCIV\_PO\_7

An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

No Mapping

DB\_BSCIV\_PO\_8

An Ability to Generate Engineering Drawings using Modern Graphical Tools common to Civil Engineering

No Mapping

## BS Civil Engineering Outcome Set - OBSOLETE

### Outcome

Outcome

Mapping

## FL - Embry-Riddle General Education Competency Set (Copy 1)

### General Education Competencies

Competency

Mapping

Critical Thinking (DB, PC, WW)  
The student will apply knowledge at the synthesis level to define and solve problems within professional and personal environments.

Embry-Riddle General Education Competency Set:  
Critical Thinking (DB, PC, WW)

Quantitative Reasoning (DB, PC, WW)  
The student will demonstrate the use of digitally-enabled technology (including concepts, techniques and tools of computing), mathematics proficiency & analysis techniques to interpret data for the

Embry-Riddle General Education Competency Set:  
Quantitative Reasoning (DB, PC, WW)

purpose of drawing valid conclusions and solving associated problems.

**Information Literacy (DB, PC, WW)**  
The student will conduct meaningful research, including gathering information from primary and secondary sources and incorporating and documenting source material in his or her writing.

**Embry-Riddle General Education Competency Set:**  
Information Literacy (DB, PC, WW)

**Communication (DB, PC, WW)**  
The student will communicate concepts in written, digital and oral forms to present technical and non-technical information.

**Embry-Riddle General Education Competency Set:**  
Communication (DB, PC, WW)

**Scientific Literacy (DB, PC, WW)**  
The student will be able to analyze scientific evidence as it relates to the physical world and its interrelationship with human values and interests.

**Embry-Riddle General Education Competency Set:**  
Scientific Literacy (DB, PC, WW)

**Cultural Literacy (DB, PC, WW)**  
The student will be able to analyze historical events, cultural artifacts, and philosophical concepts.

**Embry-Riddle General Education Competency Set:**  
Cultural Literacy (DB, PC, WW)

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**DB\_BS Civil Engineering**

**CIV Map 2018-19**

Courses and Activities Mapped to BS Civil Engineering ABET (1-8) Outcomes Set

	Outcome							
	DB_BSCIV_PO_1 An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	DB_BSCIV_PO_2 An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	DB_BSCIV_PO_3 An ability to communicate effectively with a range of audiences	DB_BSCIV_PO_4 An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	DB_BSCIV_PO_5 An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	DB_BSCIV_PO_6 An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	DB_BSCIV_PO_7 An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	DB_BSCIV_PO_8 An Ability to Generate Engineering Drawings using Modern Graphical Tools common to Civil Engineering
<b>Courses and Learning Activities</b>								
EGR 101C Intro to Engineering	I	I	I	I	I	I	I	I
CIV 140 Eng Measurements	I							
CIV 140L Eng Measurements Lab		I	I					I
CIV 222 Introduction to Environmental Eng	I			I		I		
CIV 304 Structural Analysis	P					P		
CIV 307 Civil Eng Materials	P			P			P	
CIV 307L Civil Eng Materials Lab	P	P	P			P		
CIV 311 Intro to Transportation Eng	P						P	
CVI 316 Hydraulics	P					P		
CIV 320 Soil Mechanics	P			P				
CIV 320L Soil Mechanics Lab	P	P	P			P		
CIV 340 Construction Engineering				P			P	
CIV 421 Geotechnical and Foundation Design	M	M				M		
CIV 422 Design of Pavement Structure	M	M				M		
CIV 431 Reinforced Concrete Design	M	M				M	P	
CVI 432 Structural Steel Design	M	M				M	P	
CIV 395O Traffic Data Collection Method and Comp App in Traffic Eng	M	M				M		
CIV 395P Aquaponics and Sustainable Food Production	M	M		P		M		
CIV 470 Senior Design project I			M	M	P		P	P
CIV 480 Senior Design Project II			M	M	M		M	M
CIV 490 Civil Eng Profession			M	M			M	
<b>Legend :</b>	<b>I</b> Introduced	<b>P</b> Practiced	<b>M</b> Mastered	<b>X</b> Aligned				

**DB\_BS Civil Engineering**

**CIV 2018-19**

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	Outcome							
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<b>Courses and Learning Activities</b>								
2018-2019 Assessment Cycle	✓	✓	✓	✓	✓	✓	✓	
2019-2020 Assessment Cycle	✓	✓	✓	✓	✓	✓	✓	
2020-2021 Assessment Cycle	✓	✓	✓	✓	✓	✓	✓	
2021-2022 Assessment Cycle	✓	✓	✓	✓	✓	✓	✓	
2022-2023 Assessment Cycle	✓	✓	✓	✓	✓	✓	✓	
<b>Legend :</b>	✓ = Aligned							

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