

# RADIO FREQUENCY ENGINEERING FOR AEROSPACE - GRADUATE CERTIFICATE

A joint certificate program between Smead Aerospace and the Department of Electrical, Computer & Energy Engineering. This certificate fills an industry need in Colorado and beyond for cross disciplinary graduate level education in aerospace and electrical engineering.

The program is open to new and current degree-seeking Aerospace Engineering Sciences (AES) and Electrical, Computer and Energy Engineering (ECEE) students. This certificate is not available to non-matriculated students.

Additional certificate information can be found on the department's Radio Frequency Engineering for Aerospace Certificate (<https://www.colorado.edu/aerospace/current-students/graduates/curriculum/certificate-programs/radio-frequency-engineering-aerospace/>) webpage.

## Distance Education Option

Students can take individual courses toward a master's degree or graduate certificate through distance education (online). For more information, connect with the individual graduate program directly.

## Requirements

### Admissions Requirements

Candidates for admission must be a matriculated graduate student in the AES or ECEE departments. For certificate application and more details, visit the AES Certificates webpage (<https://www.colorado.edu/aerospace/current-students/graduates/curriculum/certificates/>).

This certificate is co-managed by AES and ECEE. Students must follow the rules and policies of each department. Courses from already awarded degrees cannot be used to fulfill certificate requirements.

### Certificate Requirements

Code	Title	Credit Hours
<b>Required Courses</b>		
ECEN 5134	Electromagnetic Radiation and Antennas <sup>1</sup>	3
or ECEN 5104	Passive Microwave Circuits	
ECEN 5634	Microwave and RF Laboratory	3
ASEN 5090	Introduction to Global Navigation Satellite Systems	3
Choose one of the courses below, depending on major:		3
ASEN 5148	Spacecraft Design (required for ECEE majors)	
ECEN 3410	Electromagnetic Waves and Transmission (required for AES majors)	
<b>Elective Courses</b>		
Choose two:		6
ECEN 5134	Electromagnetic Radiation and Antennas <sup>2</sup>	

or ECEN 5104	Passive Microwave Circuits
ECEN 5114	Electromagnetic Theory
ECEN 5154	Computational Electromagnetics
ASEN 5245	Radar and Remote Sensing
AES Grad Projects <sup>3</sup>	

**Total Credit Hours** 18

<sup>1</sup> For students interested in taking both courses, one course can count as a requirement and one course can count as an elective. A single course cannot count as both a required course and an elective course, simultaneously.

<sup>2</sup> As an elective, choose whichever course *not* taken as a requirement.

<sup>3</sup> Approved radio frequency project; can only count for one elective.