## AEROSPACE ENGINEERING -B.S.

College of Aeronautics and Engineering www.kent.edu/cae

### **About This Program**

Aerospace engineers are at the forefront of exciting advances in rockets, advanced air-mobility, drone development and logistics and advanced aircraft. Our program prepares students to contribute to these exciting developments through theoretical and practical courses; internships; group projects; and a multiple major, two-semester capstone experience. Read more...

#### **Contact Information**

- cae@kent.edu | 330-672-2892
- Speak with an Advisor
- · Chat with an Admissions Counselor

#### **Program Delivery**

- Delivery:
  - In person
- Location:
- Kent Campus

# Examples of Possible Careers and Salaries\*

#### Aerospace engineers

- 2.8% slower than the average
- 66,400 number of jobs
- \$118,610 potential earnings

#### **Mechanical engineers**

- · 3.9% about as fast as the average
- 316,300 number of jobs
- \$90,160 potential earnings

#### Architectural and engineering managers

- 2.6% slower than the average
- 198,100 number of jobs
- \$149,530 potential earnings

## Accreditation

The Bachelor of Science degree in Aerospace Engineering is accredited by the Engineering Accreditation Commission of ABET, www.abet.org, under the General Criteria and the Program Criteria for Aerospace Engineering and Similarly Named Programs.

\* Source of occupation titles and labor data comes from the U.S. Bureau of Labor Statistics'

Occupational Outlook Handbook. Data comprises projected percent change in employment over the next 10 years; nation-wide employment numbers; and the yearly median wage at

which half of the workers in the occupation earned more than that amount and half earned less.

## **Admission Requirements**

The university affirmatively strives to provide educational opportunities and access to students with varied backgrounds, those with special talents and adult students who graduated from high school three or more years ago.

Admission to the Aerospace Engineering major is selective.

New Students: Admission into this major requires:

- · Minimum 3.0 high school GPA
- Clear demonstration of an ability to be placed directly into MATH 12002 (or its equivalent); this will occur if the student is currently taking or has taken a calculus, pre-calculus or trigonometry course with a minimum C grade

Students who do not meet the above requirements will be admitted to the Aeronautical Systems Engineering Technology major, provided they meet the minimum program requirements.

**Note:** Applicants should understand that this is a math-intensive program. Students admitted to the program are expected to demonstrate prerequisite knowledge on a math placement exam (the ALEKS exam) prior to starting their first semester. Students who do not obtain the minimum score required to place into MATH 12002 will have their major changed to Aeronautical Systems Engineering Technology prior to their freshman year.

**Current Students:** Students accepted into the Aeronautical Systems Engineering Technology major may request a change in major to Aerospace Engineering as soon as placement into MATH 12002 has been demonstrated (prior to the beginning of freshman year). Otherwise, students may request to change their major to Aerospace Engineering after their freshman year if they meet the following criteria:

- · Minimum 3.000 overall Kent State GPA
- Minimum C grade in both MATH 12002 and PHY 23101

Transfer Students: Admission into this major requires:

- · Minimum 12 credit hours of college-level coursework
- Minimum 3.000 overall GPA
- Minimum C grade in both MATH 12002 and PHY 23101 (or their equivalents)

Transfer students who have completed fewer than 12 credit hours of college-level coursework will be evaluated on both collegiate and high school records and must submit a final high school transcript.

**International Students:** All international students must provide proof of English language proficiency (unless they meet specific exceptions to waive) by earning a minimum 71 TOEFL iBT score, minimum 6.0 IELTS score, minimum 47 PTE score or minimum 100 DET score, or by completing the ELS level 112 Intensive English Program. For more information on international admission visit the admissions website for international students.

#### **Program Requirements** Major Requirements

| Major Requirements                          |   |                 |  |
|---|---|-----------------|--|
| Code  | Title   | Credit<br>Hours |  |
| Major Requirements                          | (courses count in major GPA)  |                 |  |
| AERN 35150                                  | AIRCRAFT STRUCTURES   | 3               |  |
| ENGR 11001                                  | INTRODUCTION TO ENGINEERING   | 2               |  |
| ENGR 11002                                  | INTRODUCTION TO ENGINEERING<br>LABORATORY   | 1               |  |
| ENGR 13586<br>& ENGR 13587<br>or MERT 12001 | COMPUTER AIDED DESIGN I<br>and COMPUTER AIDED DESIGN I LABORATORY<br>COMPUTER-AIDED DESIGN  | 3               |  |
| ENGR 15300                                  | INTRODUCTION TO ENGINEERING ANALYSIS<br>USING MATLAB®                                       | 2               |  |
| ENGR 15301                                  | INTRODUCTION TO ENGINEERING ANALYSIS<br>USING MATLAB® LAB                                   | 1               |  |
| ENGR 20000                                  | PROFESSIONAL DEVELOPMENT IN<br>ENGINEERING  | 1               |  |
| ENGR 20002                                  | MATERIALS AND PROCESSES   | 3               |  |
| ENGR 25200                                  | STATICS (min C grade)   | 3               |  |
| ENGR 25400                                  | DYNAMICS (min C grade)  | 3               |  |
| ENGR 25500                                  | AERODYNAMICS FOR ENGINEERS I (min C<br>grade)   | 3               |  |
| ENGR 33041                                  | CONTROL SYSTEMS   | 3               |  |
| ENGR 35200                                  | THERMAL FLUID ENGINEERING   | 3               |  |
| ENGR 35201                                  | THERMAL FLUID ENGINEERING LABORATORY  | 1               |  |
| ENGR 35300                                  | AIRCRAFT PERFORMANCE AND STABILITY I  | 3               |  |
| ENGR 35500                                  | SIGNALS AND CIRCUITS  | 3               |  |
| ENGR 35501                                  | SIGNALS AND CIRCUITS LABORATORY   | 1               |  |
| ENGR 35600                                  | AERODYNAMICS FOR ENGINEERS II   | 3               |  |
| ENGR 42111                                  | STRENGTH OF MATERIALS FOR ENGINEERS   | 3               |  |
| ENGR 42363                                  | MATERIALS SELECTION IN DESIGN AND<br>APPLICATIONS   | 3               |  |
| ENGR 45121                                  | AEROSPACE PROPULSION FOR ENGINEERING  | 3               |  |
| ENGR 45600                                  | AIRCRAFT PERFORMANCE AND STABILITY II   | 3               |  |
| ENGR 45901                                  | INTRODUCTION TO FINITE ELEMENT METHOD<br>AND APPLICATIONS                                   | 3               |  |
| ENGR 48001                                  | ORBITAL MECHANICS   | 3               |  |
| ENGR 48099                                  | ENGINEERING CAPSTONE I (ELR) <sup>1</sup>   | 3               |  |
| ENGR 48199                                  | ENGINEERING CAPSTONE II (ELR) (WIC) <sup>1, 2</sup>   | 3               |  |
| Specialization, choo                        | se from the following:  | 3               |  |
| Engineering Inter                           | nship   |                 |  |
| CAE 45092                                   | AERONAUTICS AND ENGINEERING<br>INTERNSHIP/COOPERATIVE EDUCATION (ELR)<br>(WIC) <sup>2</sup> |                 |  |
|   |   |                 |  |

|                            | (WIC)   |
|----------------------------|---|
| Machine Design             |   |
| ENGR 43580                 | COMPUTER-AIDED MACHINE DESIGN                                   |
| Materials                  |   |
| ENGR 42710<br>& ENGR 42711 | ADDITIVE MANUFACTURING<br>and ADDITIVE MANUFACTURING LABORATORY |
| Patent and Engine          | ering Law   |
| ENGR 35550                 | LAW AND ETHICS FOR ENGINEERS                                    |
| Space Applications         | 3   |
| ENGR 48002                 | SPACECRAFT ATTITUDE DYNAMICS,<br>DETERMINATION AND CONTROL      |
| ENGR 48003                 | SPACECRAFT DESIGN   |
| Systems Engineeri          | ng and Optimization   |
| ENCD 42410                 |   |

| ENGR 42410 | ENGINEERING OPTIMIZATION |
|------------|--------------------------|

| ENGR 47200  | SYSTEMS ENGINEERING   |      |
|---|---|------|
| Undergraduate R   | esearch   |      |
| CAE 45096   | INDIVIDUAL INVESTIGATION IN AERONAUTICS<br>AND ENGINEERING  |      |
| Additional Requirem   | ents (courses do not count in major GPA)  |      |
| CHEM 10060  | GENERAL CHEMISTRY I (KBS)   | 4    |
| ECON 22060  | PRINCIPLES OF MICROECONOMICS (KSS)  | 3    |
| MATH 12002  | ANALYTIC GEOMETRY AND CALCULUS I<br>(KMCR)  | 5    |
| MATH 12003  | ANALYTIC GEOMETRY AND CALCULUS II   | 5    |
| PHY 23101   | GENERAL UNIVERSITY PHYSICS I (KBS) (KLAB)   | 5    |
| PHY 23102   | GENERAL UNIVERSITY PHYSICS II (KBS)<br>(KLAB)   | 5    |
| UC 10001  | FLASHES 101   | 1    |
| Additional Mathema  | tics Electives, choose from the following: <sup>3</sup>   | 8-10 |
| MATH 21001<br>& MATH 22005<br>& MATH 32044                    | LINEAR ALGEBRA<br>and ANALYTIC GEOMETRY AND CALCULUS III<br>and ORDINARY DIFFERENTIAL EQUATIONS               |      |
| MATH 32051<br>& MATH 32052                                    | MATHEMATICAL METHODS IN THE PHYSICAL<br>SCIENCES I<br>and MATHEMATICAL METHODS IN THE<br>PHYSICAL SCIENCES II |      |
| Kent Core Compositi   | on  | 6    |
| Kent Core Humanitie   | es and Fine Arts (minimum one course from each)   | 9    |
| Kent Core Social Sci  | ences (must be from two disciplines)  | 3    |
| Kent Core Additional  |   | 1    |
| Minimum Total Cred  | it Hours:   | 124  |
| academic year.<br><sup>2</sup> A minimum C gr<br>requirement. | d ENGR 48199 must be taken during the same<br>rade must be earned to fulfill the writing-intensive            |      |
| <sup>3</sup> To reduce the to                                 | tal number of required credit hours, students are   |      |

<sup>3</sup> To reduce the total number of required credit hours, students are advised to take MATH 32051 and MATH 32052. The other alternative courses are listed for students who have already taken college coursework elsewhere or are off track with respect to the roadmap.

## **Graduation Requirements**

| Minimum Major GPA | Minimum Overall GPA |
|-------------------|---------------------|
| 2.750             | 2.500               |

#### Roadmap

This roadmap is a recommended semester-by-semester plan of study for this major. However, courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

|   | Semester One          |   | Credits |
|---|-----------------------|---|---------|
|   | ENGR 11001            | INTRODUCTION TO ENGINEERING                               | 2       |
|   | ENGR 11002            | INTRODUCTION TO ENGINEERING LABORATORY                    | 1       |
|   | ENGR 15300            | INTRODUCTION TO ENGINEERING ANALYSIS<br>USING MATLAB®     | 2       |
|   | ENGR 15301            | INTRODUCTION TO ENGINEERING ANALYSIS<br>USING MATLAB® LAB | 1       |
| ! | MATH 12002            | ANALYTIC GEOMETRY AND CALCULUS I (KMCR)                   | 5       |
|   | UC 10001              | FLASHES 101   | 1       |
|   | Kent Core Requirement |   | 3       |
|   |                       | Credit Hours  | 15      |

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| CHEM 10060       GENERAL CHEMISTRY I (KBS)         ENGR 13586       COMPUTER AIDED DESIGN I LABORATORY<br>or COMPUTER-AIDED DESIGN         MATH 12003       ANALYTIC GEOMETRY AND CALCULUS II         I       MATH 12003       COMPUTER-AIDED DESIGN I LABORATORY<br>or COMPUTER-AIDED DESIGN         MATH 12003       ANALYTIC GEOMETRY AND CALCULUS II         I       PHY 23101       GENERAL UNIVERSITY PHYSICS I (KBS) (KLAB)         ESEMEST THFF       FORESSIONAL DEVELOPMENT IN<br>ENGINEERING         I       ENGR 25000       STATICS         I       Additional Mattmatics Elective       IMATH 12003         I       Additional Mattmatics Elective or Kent Core Requirement       EGOR 2000         I       ENGR 2000       PRINCIPLES OF MICROECONOMICS (KSS)         I       ENGR 2000       PAINCIPLES OF MICROECONOMICS (KSS)         I       ENGR 2000       PAINCIPLES OF MICROECONOMICS (KSS)         I       ENGR 2500       AERODYNAMICS FOR ENGINEERS I         I       ENGR 3500       IERMAL FLUID ENGINEERING         I       ENGR 3500       IERMAL FLUID ENGINEERING LABORATORY         I       ENGR 3550       SIGNALS AND CIRCUITS         I       ENGR 3550       SIGNALS AND CIRCUITS LABORATORY         I       ENGR 3550       SIGNALS AND CIRCUITS LABORATORY  |     |
|--|-----|
| <ul> <li>&amp; ENGR 13587 and COMPUTER AIDED DESIGN I LABORATORY<br/>OF COMPUTER-AIDED DESIGN<br/>MERT 12001</li> <li>MATH 12003 ANALYTIC GEOMETRY AND CALCULUS II</li> <li>PHY 23101 GENERAL UNIVERSITY PHYSICS I (KBS) (KLAB)</li> <li><b>Semester Three</b></li> <li><b>Semester Three</b></li> <li>ENGR 20000 PROFESSIONAL DEVELOPMENT IN<br/>ENGINEERING</li> <li>PHY 23102 GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)</li> <li>Additional MAtt-matics Elective</li> <li>Additional Matt-matics Elective</li> <li>Additional Matt-matics Elective or Kent Core Requirement</li> <li><b>Semester Four</b></li> <li><b>Semester Four</b></li> <li>ENGR 20000 PRINCIPLES OF MICROECONOMICS (KSS)</li> <li>ENGR 20001 MATERIALS AND PROCESSES</li> <li>ENGR 20002 MATERIALS AND PROCESSES</li> <li>ENGR 25000 AERODYNAMICS FOR ENGINEERS I</li> <li>ENGR 25000 THERMAL FLUID ENGINEERING</li> <li>ENGR 3500 THERMAL FLUID ENGINEERING</li> <li>ENGR 3500 SIGNALS AND CIRCUITS</li> <li>ENGR 3500 SIGNALS AND CIRCUITS</li> <li>ENGR 3500 SIGNALS AND CIRCUITS LABORATORY</li> <li>ENGR 3500 SIGNALS AND CIRCUITS LABORATORY</li> <li>ENGR 3500 SIGNALS AND CIRCUITS LABORATORY</li> <li>ENGR 3500 AIRCRAFT PERFORMANCE AND STABILITY I</li> <li>ENGR 3500 AIRCRAFT PERFORMANCE AND STABILITY I</li> <li>ENGR 3500 AIRCRAFT PERFORMANCE AND STABILITY I</li> <li>ENGR 3510 AIRCRAFT PERFORMANCE AND STABILITY I</li> <li>ENGR 4511 AEROSPACE PROPULSION FOR ENGINEERING</li> <li>ENGR 45120 AIRCRAFT PERFORMANCE AND STABILITY II</li> <li>ENGR 45150 AIRCRAFT PERFORMANCE AND STABILITY II</li> <li>ENGR 45150 AIRCRAFT PERFORMANCE AND STABILITY II</li> <li>ENGR 4500 AIRCRAFT PERFORMANCE AND STABILITY II<td>4</td></li></ul>  | 4   |
| oror COMPUTER-AIDED DESIGN<br>MERT 12001!MATH 12003ANALYTIC GEOMETRY AND CALCULUS II!PHY 23101GENERAL UNIVERSITY PHYSICS I (KBS) (KLAB)!Esmester Three<br>Esmester ThreeEngR 20000PROFESSIONAL DEVELOPMENT IN<br>ENGINEERING!ENGR 20000STATICS!PHY 23102GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)!Additional Mat+tratics Elective or Kent Core Requirement!Additional Mat+tratics Elective or Kent Core Requirement!Semester Four!ECON 22060PRINCIPLES OF MICROECONOMICS (KSS)!ENGR 20002MATERIALS AND PROCESSES!ENGR 25000AERODYNAMICS FOR ENGINEERS I!ENGR 25000THERMAL FLUID ENGINEERING!ENGR 35001THERMAL FLUID ENGINEERING!ENGR 3500SIGNALS AND CIRCUITS!ENGR 3500AERODYNAMICS FOR ENGINEERS II!ENGR 3500AERODYNAMICS FOR ENGINEERS II!ENGR 3500SIGNALS AND CIRCUITS!ENGR 3500AIRCRAFT PERFORMANCE AND STABILITY I!ENGR 3500AIRCRAFT PERFORMANCE AND STABILITY I!ENGR 3500AIRCRAFT PERFORMANCE AND STABILITY I!ENGR 45120AIRCRAFT PERFORMANCE AND STABILITY II   | 3   |
| !MATH 12003ANALYTIC GEOMETRY AND CALCULUS II!PHY 23101GENERAL UNIVERSITY PHYSICS I (KBS) (KLAB)!FMY 23101Credit HoursSemester ThreeIntegration (KBS) (KLAB)!ENGR 25200STATICS!ENGR 25200STATICS!Additional Mattreatics ElectiveIt (KBS) (KLAB)!Additional Mattreatics Elective or Kent Core Requirement!Credit HoursSemester FourCredit Hours!ECON 22060PRINCIPLES OF MICROECONOMICS (KSS)!ENGR 25000AATERIALS AND PROCESSES!ENGR 25000AERODYNAMICS FOR ENGINEERS I!ENGR 25000AERODYNAMICS FOR ENGINEERS I!Additional Mattreatics Elective!ENGR 35201THERMAL FLUID ENGINEERING LABORATORY!ENGR 35201SIGNALS AND CIRCUITS!ENGR 35201SIGNALS AND CIRCUITS LABORATORY!ENGR 3500SIGNALS AND CIRCUITS LABORATORY!ENGR 3501SIGNALS AND CIRCUITS LABORATORY!ENGR 3501SIGNALS AND CIRCUITS LABORATORY!ENGR 35001AIRCRAFT PERFORMANCE AND STABILITY I!ENGR 35001AIRCRAFT PERFORMANCE AND STABILITY I!ENGR 35001AIRCRAFT PERFORMANCE AND STABILITY I!ENGR 451021AIRCRAFT STRUCTURES!ENGR 45103AIRCRAFT STRUCTURES!ENGR 4500AIRCRAFT STRUCTURES!ENGR 4500AIRCRAFT STRUCTURES!ENGR 4   |     |
| NATE 12003     ANALYTIC GEOMETRY AND CALCULUS II       INDERING     GENERAL UNIVERSITY PHYSICS I (KBS) (KLAB)       FROR 20000     PROFESSIONAL DEVELOPMENT IN<br>ENGINEERING       INDERING     GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)       INDERING     FORTATIONS       INDERING     FORTATION       INDERING     FORTATIONS       INDERING     GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)       INDERING     ALENDYNAMICS FOR ENGINEERS I       INDERING     SIGNALS AND CIRCUITS LABORATORY       INDERING     SIGNALS AND CIRCUITS LABORATORY       INDERING     SIGNALS AND CIRCUITS LABORATORY       INDERING     SIGNALS AND CIRCUITS  |     |
| IPHY 23101GENERAL UNIVERSITY PHYSICS I (KBS) (KLAB) <td>5</td>   | 5   |
| Instruction         Credit Hours           Semester Three         PROFESSIONAL DEVELOPMENT IN<br>ENGINEERING           I         ENGR 20000         PROFESSIONAL DEVELOPMENT IN<br>ENGINEERING           I         PHY 23102         GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)           I         Additional Mathematics Elective         Image: Comparison of the co  | 5   |
| Semester Three         ENGR 20000       PROFESSIONAL DEVELOPMENT IN<br>ENGINEERING         !       ENGR 25200       STATICS         !       PHY 23102       GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)         !       Additional Mathematics Elective          !       Additional Mathematics Elective or Kent Core Requirement         ////////////////////////////////////  | 17  |
| Image: First State Sta                                 |     |
| !       ENGR 25200       STATICS         !       PHY 23102       GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)         !       Additional Matteriatics Elective or Kent Core Requirement         !       Additional Matteriatics Elective or Kent Core Requirement         !       Additional Matteriatics Elective or Kent Core Requirement         !       Semester Four         !       ECON 22060       PRINCIPLES OF MICROECONOMICS (KSS)         !       ENGR 20002       MATERIALS AND PROCESSES         !       ENGR 25000       AERODYNAMICS FOR ENGINEERS I         !       Additional Matterials Elective         /       Additional Matterials Elective         Semester Five       TereMatheruits Elective         !       ENGR 35200       THERMAL FLUID ENGINEERING LABORATORY         !       ENGR 35200       THERMAL FLUID ENGINEERING LABORATORY         !       ENGR 35501       SIGNALS AND CIRCUITS LABORATORY         !       ENGR 42111       STRENGTH OF MATERIALS FOR ENGINEERS II         !       ENGR 35000       AERODYNAMICS FOR ENGINEERS II         !       ENGR 33041       CONTROL SYSTEMS         !       ENGR 4303       AIRCRAFT PERFORMANCE AND STABILITY I         !       ENGR 45121       AEROSPACE PROPULSION FOR ENGINEERING <td>1</td>  | 1   |
| PHY 23102       GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)         Additional Mathematics Elective         Additional Mathematics Elective or Kent Core Requirement         Semester Four         EC0N 22060       PRINCIPLES OF MICROECONOMICS (KSS)         ENGR 20002       MATERIALS AND PROCESSES         INRE 25400       DYNAMICS         INRE 25500       AERODYNAMICS FOR ENGINEERS I         Additional Mathematics Elective       Credit Hours         Semester Five       Credit Hours         ENGR 35200       THERMAL FLUID ENGINEERING LABORATORY         I       ENGR 35500       SIGNALS AND CIRCUITS LABORATORY         I       ENGR 35500       SIGNALS AND CIRCUITS LABORATORY         I       ENGR 3500       AERODYNAMICS FOR ENGINEERS II  | 3   |
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| <ul> <li>Additional Mathematics Elective or Kent Core Requirement</li> <li>Credit Hours</li> <li>Semester Four</li> <li>ECON 22060 PRINCIPLES OF MICROECONOMICS (KSS)</li> <li>ENGR 20002 MATERIALS AND PROCESSES</li> <li>ENGR 25400 DYNAMICS</li> <li>ENGR 25500 AERODYNAMICS FOR ENGINEERS I</li> <li>Additional Mathematics Elective</li> <li>Credit Hours</li> <li>Semester Five</li> <li>ENGR 35200 THERMAL FLUID ENGINEERING LABORATORY</li> <li>ENGR 35200 THERMAL FLUID ENGINEERING LABORATORY</li> <li>ENGR 35500 SIGNALS AND CIRCUITS LABORATORY</li> <li>ENGR 35501 SIGNALS AND CIRCUITS LABORATORY</li> <li>ENGR 35500 SIGNALS AND CIRCUITS LABORATORY</li> <li>ENGR 35501 SIGNALS AND CIRCUITS LABORATORY</li> <li>ENGR 35500 AERODYNAMICS FOR ENGINEERS II</li> <li>ENGR 42111 STRENGTH OF MATERIALS FOR ENGINEERS</li> <li>ENGR 42111 STRENGTH OF MATERIALS FOR ENGINEERS</li> <li>ENGR 42111 CONTROL SYSTEMS</li> <li>ENGR 33001 AIRCRAFT PERFORMANCE AND STABILITY I</li> <li>ENGR 42363 MATERIALS SELECTION IN DESIGN AND APPLICATIONS</li> <li>ENGR 42363 MATERIALS SELECTION IN DESIGN AND APPLICATIONS</li> <li>ENGR 45121 AEROSPACE PROPULSION FOR ENGINEERING</li> <li>ENGR 45150 AIRCRAFT PERFORMANCE AND STABILITY I</li> <li>ENGR 45150 AIRCRAFT PERFORMANCE AND STABILITY II</li> <li>ENGR 4500 AIRCRAFT PERFORMANCE AND STABILITY II</li> <li>ENGR 48099 ENGINEERING CAPSTONE I (ELR)</li> <li>Specialization</li> <li>Kent Core Requirement</li> </ul>   | 4   |
| Credit Hours         Semester Four         ECON 22060       PRINCIPLES OF MICROECONOMICS (KSS)         ENGR 20002       MATERIALS AND PROCESSES         I       ENGR 25400       DYNAMICS         I       ENGR 25500       AERODYNAMICS FOR ENGINEERS I         I       Additional Matternatics Elective         Credit Hours         Semester Five         I       ENGR 35200       THERMAL FLUID ENGINEERING LABORATORY         ENGR 35201       THERMAL FLUID ENGINEERING LABORATORY         I       ENGR 35200       SIGNALS AND CIRCUITS         ENGR 35500       SIGNALS AND CIRCUITS LABORATORY         I       ENGR 35500       SIGNALS AND CIRCUITS LABORATORY         I       ENGR 35500       AERODYNAMICS FOR ENGINEERS II         I       ENGR 35500       SIGNALS AND CIRCUITS LABORATORY         I       ENGR 35500       AERODYNAMICS FOR ENGINEERS II         I       ENGR 35500       AERODYNAMICS FOR ENGINEERS II         I       ENGR 3500       AERODYNAMICS FOR ENGINEERS II         I       ENGR 43041       CONTROL SYSTEMS         I       ENGR 45121       CONTROL SYSTEMS         I       ENGR 45121       AEROSPACE PROPULSION FOR ENGINEERING     <  | 3   |
| Semester Four         ECON 22060       PRINCIPLES OF MICROECONOMICS (KSS)         ENGR 20002       MATERIALS AND PROCESSES         IENGR 25400       DYNAMICS         ENGR 25500       AERODYNAMICS FOR ENGINEERS I         IENGR 25500       AERODYNAMICS FOR ENGINEERS I         IENGR 25500       AERODYNAMICS FOR ENGINEERS I         IENGR 35200       THERMAL FLUID ENGINEERING         ENGR 35201       THERMAL FLUID ENGINEERING LABORATORY         ENGR 35201       THERMAL FLUID ENGINEERING LABORATORY         ENGR 35501       SIGNALS AND CIRCUITS LABORATORY         ENGR 35500       SIGNALS AND CIRCUITS LABORATORY         IENGR 35501       SIGNALS AND CIRCUITS LABORATORY         IENGR 35500       AERODYNAMICS FOR ENGINEERS II         ENGR 42111       STRENGTH OF MATERIALS FOR ENGINEERS         IENGR 42111       STRENGTH OF MATERIALS FOR ENGINEERS         IENGR 35300       AIRCRAFT PERFORMANCE AND STABILITY I         IENGR 42363       MATERIALS SELECTION IN DESIGN AND<br>APPLICATIONS         IENGR 45121       AEROSPACE PROPULSION FOR ENGINEERING         Kent Core Requirement       Credit Hours         Semester Sive       ICRORAFT PERFORMANCE AND STABILITY II         IENGR 435150       AIRCRAFT PERFORMANCE AND STABILITY II         IENGR 48099   | 16  |
| ECON 22060       PRINCIPLES OF MICROECONOMICS (KSS)         ENGR 20002       MATERIALS AND PROCESSES         !       ENGR 25400       DYNAMICS         !       ENGR 25500       AERODYNAMICS FOR ENGINEERS I         !       Additional Matternatics Elective         ////////////////////////////////////   | 10  |
| ENGR 20002MATERIALS AND PROCESSES!ENGR 25500AERODYNAMICS!ENGR 25500AERODYNAMICS FOR ENGINEERS I!Additional Matt+matics Elective///////////////////////////////////   | 3   |
| Image: Instantion of the second of the s                                 | 3   |
| <ul> <li>ENGR 25500 AERODYNAMICS FOR ENGINEERS I</li> <li>Additional Mathematics Elective</li> <li>Credit Hours</li> <li>Semester Five</li> <li>ENGR 35200 THERMAL FLUID ENGINEERING</li> <li>ENGR 35201 THERMAL FLUID ENGINEERING LABORATORY</li> <li>ENGR 35500 SIGNALS AND CIRCUITS</li> <li>ENGR 35500 AERODYNAMICS FOR ENGINEERS II</li> <li>ENGR 35500 AERODYNAMICS FOR ENGINEERS II</li> <li>ENGR 42111 STRENGTH OF MATERIALS FOR ENGINEERS</li> <li>Kent Core Requimement</li> <li>ENGR 33041 CONTROL SYSTEMS</li> <li>ENGR 35300 AIRCRAFT PERFORMANCE AND STABILITY I</li> <li>ENGR 42363 MATERIALS SELECTION IN DESIGN AND APPLICATIONS</li> <li>ENGR 45121 AEROSPACE PROPULSION FOR ENGINEERING</li> <li>Kent Core Requimement</li> <li>Credit Hours</li> <li>Semester Six</li> <li>ENGR 45121 AEROSPACE PROPULSION FOR ENGINEERING</li> <li>ENGR 45121 AEROSPACE PROPULSION FOR ENGINEERING</li> <li>Kent Core Requimement</li> <li>Credit Hours</li> <li>Semester Seven</li> <li>AERN 35150 AIRCRAFT STRUCTURES</li> <li>ENGR 45600 AIRCRAFT PERFORMANCE AND STABILITY II</li> <li>ENGR 45600 AIRCRAFT PERFORMANCE AND STABILITY II</li> <li>ENGR 45600 AIRCRAFT PERFORMANCE AND STABILITY II</li> <li>ENGR 45600 AIRCRAFT STRUCTURES</li> <li>ENGR 45600 AIRCRAFT PERFORMANCE AND STABILITY II</li> <li>ENGR 48099 ENGINEERING CAPSTONE I (ELR)</li> <li>Specialization</li> </ul>   | 3   |
| !       Additional Mathematics Elective         !       Additional Mathematics Elective         Credit Hours         Semester Five         I       ENGR 35200         ENGR 35201       THERMAL FLUID ENGINEERING LABORATORY         ENGR 35500       SIGNALS AND CIRCUITS         ENGR 35501       SIGNALS AND CIRCUITS LABORATORY         !       ENGR 35500       AERODYNAMICS FOR ENGINEERS II         ENGR 42111       STRENGTH OF MATERIALS FOR ENGINEERS II         ENGR 42303       AERODYNAMICS FOR ENGINEERS II         ENGR 33041       CONTROL SYSTEMS         !       ENGR 42363       MATERIALS SELECTION IN DESIGN AND APPLICATIONS         I       ENGR 45121       AEROSPACE PROPULSION FOR ENGINEERING         Kent Core Requirement       Credit Hours         Semester Sevent       Credit Hours         I       ENGR 45500       AIRCRAFT STRUCTURES         !       ENGR 45600       AIRCRAFT PERFORMANCE AND STABILITY II         !       ENGR 48099 <td< td=""><td>3</td></td<>   | 3   |
| Credit Hours         Semester Five         ENGR 35200       THERMAL FLUID ENGINEERING         ENGR 35201       THERMAL FLUID ENGINEERING LABORATORY         ENGR 35500       SIGNALS AND CIRCUITS         ENGR 35501       SIGNALS AND CIRCUITS LABORATORY         I       ENGR 35500       AERODYNAMICS FOR ENGINEERS II         ENGR 42111       STRENGTH OF MATERIALS FOR ENGINEERS II         ENGR 42111       STRENGTH OF MATERIALS FOR ENGINEERS II         Kent Core Requimement       Credit Hours         Semester Six       ENGR 33041       CONTROL SYSTEMS         I       ENGR 33041       CONTROL SYSTEMS         I       ENGR 42363       MATERIALS SELECTION IN DESIGN AND APPLICATIONS         I       ENGR 42363       MATERIALS SELECTION IN DESIGN AND APPLICATIONS         I       ENGR 45121       AEROSPACE PROPULSION FOR ENGINEERING         Kent Core Requimement       Credit Hours         I       ENGR 45500       AIRCRAFT STRUCTURES         I       ENGR 45600       AIRCRAFT PERFORMANCE AND STABILITY II         I       ENGR 45600       AIRCRAFT PERFORMANCE AND STABILITY II         I       ENGR 48099       ENGINEERING CAPSTONE I (ELR)         Specialization       Kent Core Requimement   | 3-4 |
| Semester Five         ENGR 35200       THERMAL FLUID ENGINEERING         ENGR 35201       THERMAL FLUID ENGINEERING LABORATORY         ENGR 35500       SIGNALS AND CIRCUITS         ENGR 35501       SIGNALS AND CIRCUITS LABORATORY         !       ENGR 35500       AERODYNAMICS FOR ENGINEERS II         ENGR 42111       STRENGTH OF MATERIALS FOR ENGINEERS II         ENGR 42111       STRENGTH OF MATERIALS FOR ENGINEERS         Kent Core Requimemt       Credit Hours         Semester Six       ENGR 33041         ENGR 33041       CONTROL SYSTEMS         !       ENGR 42363       MATERIALS SELECTION IN DESIGN AND APPLICATIONS         Rend Core Requimemt       Credit Hours         Semester Sever       Credit Hours         Semester Sever       Credit Hours         Rend X5120       AEROSPACE PROPULSION FOR ENGINEERING         Kent Core Requimemt       Credit Hours         Semester Sever       Credit Hours         Semester Sever       ENGR 45150         I       ENGR 45600       AIRCRAFT STRUCTURES         !       ENGR 45600       AIRCRAFT PERFORMANCE AND STABILITY II         !       ENGR 48099       ENGINEERING CAPSTONE I (ELR)         Specialization       Kredt Core Requimement  | 16  |
| ENGR 35200 THERMAL FLUID ENGINEERING ENGR 35200 THERMAL FLUID ENGINEERING LABORATORY ENGR 35201 THERMAL FLUID ENGINEERING LABORATORY ENGR 35500 SIGNALS AND CIRCUITS ENGR 35500 AERODYNAMICS FOR ENGINEERS II ENGR 42111 STRENGTH OF MATERIALS FOR ENGINEERS ENGR 42111 STRENGTH OF MATERIALS FOR ENGINEERS Kent Core Requirement Credit Hours Semester Six ENGR 33041 CONTROL SYSTEMS ENGR 42363 MATERIALS SELECTION IN DESIGN AND APPLICATIONS ENGR 45121 AEROSPACE PROPULSION FOR ENGINEERING Kent Core Requirement Credit Hours Semester Seven AERN 35150 AIRCRAFT PERFORMANCE AND STABILITY I ENGR 45600 AIRCRAFT STRUCTURES ENGR 45600 AIRCRAFT PERFORMANCE AND STABILITY II ENGR 45600 AIRCRAFT PERFORMANCE AND STABILITY II ENGR 48099 ENGINEERING CAPSTONE I (ELR) Specialization Kent Core Requirement Credit Hours  | 10  |
| ENGR 35201       THERMAL FLUID ENGINEERING LABORATORY         ENGR 35500       SIGNALS AND CIRCUITS         ENGR 35501       SIGNALS AND CIRCUITS LABORATORY         I       ENGR 35500       AERODYNAMICS FOR ENGINEERS II         ENGR 42111       STRENGTH OF MATERIALS FOR ENGINEERS II         ENGR 42111       STRENGTH OF MATERIALS FOR ENGINEERS         Kent Core Requirement       Credit Hours         Semester Six       ENGR 33041       CONTROL SYSTEMS         ENGR 42363       MATERIALS SELECTION IN DESIGN AND APPLICATIONS         ENGR 45121       AEROSPACE PROPULSION FOR ENGINEERING         Kent Core Requirement       Credit Hours         Semester Seven       Credit Hours         AERN 35150       AIRCRAFT PERFORMANCE AND STABILITY I         ENGR 45121       AEROSPACE PROPULSION FOR ENGINEERING         Kent Core Requirement       Credit Hours         Semester Seven       ENGR 45600         AIRCRAFT STRUCTURES       ENGR 45600         AIRCRAFT PERFORMANCE AND STABILITY II       ENGR 45600         Specialization       Kent Core Requirement         Kent Core Requirement       Credit Hours  | 3   |
| ENGR 35500       SIGNALS AND CIRCUITS         ENGR 35501       SIGNALS AND CIRCUITS LABORATORY         !       ENGR 35600       AERODYNAMICS FOR ENGINEERS II         ENGR 42111       STRENGTH OF MATERIALS FOR ENGINEERS         Kent Core Requirement       Credit Hours         Semester Six       ENGR 35300         !       ENGR 35300         I       ENGR 33041         CONTROL SYSTEMS       Image: Control Systems         !       ENGR 35300       AIRCRAFT PERFORMANCE AND STABILITY I         ENGR 42363       MATERIALS SELECTION IN DESIGN AND APPLICATIONS         ENGR 45121       AEROSPACE PROPULSION FOR ENGINEERING         Kent Core Requirement       Credit Hours         Semester Seven       Credit Hours         Semester Seven       ENGR 45600         AIRCRAFT STRUCTURES       ENGR 45600         !       ENGR 45600       AIRCRAFT PERFORMANCE AND STABILITY II         !       ENGR 48099       ENGINEERING CAPSTONE I (ELR)         Specialization       Kent Core Requirement   | 1   |
| ENGR 35501       SIGNALS AND CIRCUITS LABORATORY         I       ENGR 35500       AERODYNAMICS FOR ENGINEERS II         ENGR 42111       STRENGTH OF MATERIALS FOR ENGINEERS         Kent Core Requirement       Credit Hours         Semester Six       ENGR 33041       CONTROL SYSTEMS         ENGR 35300       AIRCRAFT PERFORMANCE AND STABILITY I         ENGR 42363       MATERIALS SELECTION IN DESIGN AND APPLICATIONS         ENGR 45121       AEROSPACE PROPULSION FOR ENGINEERING         Kent Core Requirement       Credit Hours         Semester Seven       Credit Hours         Semester Seven       ENGR 45121         AERN 35150       AIRCRAFT STRUCTURES         I       ENGR 45600       AIRCRAFT STRUCTURES         I       ENGR 45600       AIRCRAFT PERFORMANCE AND STABILITY II         I       ENGR 48099       ENGINEERING CAPSTONE I (ELR)         Specialization       Kent Core Requirement   | 3   |
| !       ENGR 35600       AERODYNAMICS FOR ENGINEERS II         !       ENGR 42111       STRENGTH OF MATERIALS FOR ENGINEERS         Kent Core Requirement       Credit Hours         Semester Six       ENGR 33041       CONTROL SYSTEMS         !       ENGR 35300       AIRCRAFT PERFORMANCE AND STABILITY I         !       ENGR 42363       MATERIALS SELECTION IN DESIGN AND APPLICATIONS         ENGR 45121       AEROSPACE PROPULSION FOR ENGINEERING         Kent Core Requirement       Credit Hours         Semester Seven       AERN 35150         AERN 35150       AIRCRAFT STRUCTURES         !       ENGR 45600       AIRCRAFT PERFORMANCE AND STABILITY II         !       ENGR 48099       ENGINEERING CAPSTONE I (ELR)         Specialization       Kent Core Requirement   | 1   |
| ENGR 42111       STRENGTH OF MATERIALS FOR ENGINEERS         Kent Core Requirement         Credit Hours         Semester Six         ENGR 33041       CONTROL SYSTEMS         ENGR 35300       AIRCRAFT PERFORMANCE AND STABILITY I         ENGR 42363       MATERIALS SELECTION IN DESIGN AND<br>APPLICATIONS         ENGR 45121       AEROSPACE PROPULSION FOR ENGINEERING         Kent Core Requirement       Credit Hours         Semester Seven       Credit Hours         Semester Seven       Semester Seven         ENGR 4500       AIRCRAFT STRUCTURES         ENGR 45600       AIRCRAFT PERFORMANCE AND STABILITY II         ENGR 48099       ENGINEERING CAPSTONE I (ELR)         Specialization       Kent Core Requirement  | 3   |
| Kent Core Requirement         Credit Hours         Semester Six         ENGR 33041       CONTROL SYSTEMS         ENGR 35300       AIRCRAFT PERFORMANCE AND STABILITY I         ENGR 42363       MATERIALS SELECTION IN DESIGN AND<br>APPLICATIONS         ENGR 45121       AEROSPACE PROPULSION FOR ENGINEERING         Kent Core Requirement       Credit Hours         Semester Sever       Verdit Hours         AERN 35150       AIRCRAFT STRUCTURES         I       ENGR 45600       AIRCRAFT PERFORMANCE AND STABILITY II         I       ENGR 48099       ENGINEERING CAPSTONE I (ELR)         Specialization       Kent Core Requirement  | 3   |
| Credit Hours         Semester Six         ENGR 33041       CONTROL SYSTEMS         ENGR 35300       AIRCRAFT PERFORMANCE AND STABILITY I         ENGR 42363       MATERIALS SELECTION IN DESIGN AND<br>APPLICATIONS         ENGR 45121       AEROSPACE PROPULSION FOR ENGINEERING         Kent Core Requirement       Credit Hours         Semester Seven       Credit Hours         4ERN 35150       AIRCRAFT STRUCTURES         ENGR 45600       AIRCRAFT STRUCTURES         I       ENGR 48099       ENGINEERING CAPSTONE I (ELR)         Specialization       Kent Core Requirement  | 0-3 |
| ENGR 33041 CONTROL SYSTEMS<br>ENGR 33041 AIRCRAFT PERFORMANCE AND STABILITY I<br>ENGR 42363 MATERIALS SELECTION IN DESIGN AND<br>APPLICATIONS<br>ENGR 45121 AEROSPACE PROPULSION FOR ENGINEERING<br>Kent Core Requirement<br>Credit Hours<br>Semester Seven<br>AERN 35150 AIRCRAFT STRUCTURES<br>ENGR 45600 AIRCRAFT PERFORMANCE AND STABILITY II<br>ENGR 45600 AIRCRAFT PERFORMANCE AND STABILITY II<br>ENGR 48099 ENGINEERING CAPSTONE I (ELR)<br>Specialization<br>Kent Core Requirement<br>Credit Hours  | 14  |
| !       ENGR 35300       AIRCRAFT PERFORMANCE AND STABILITY I         !       ENGR 42363       MATERIALS SELECTION IN DESIGN AND<br>APPLICATIONS         ENGR 45121       AEROSPACE PROPULSION FOR ENGINEERING<br>Kent Core Requirement         Credit Hours         Semester Seven         AERN 35150       AIRCRAFT STRUCTURES         !       ENGR 45600       AIRCRAFT PERFORMANCE AND STABILITY II         !       ENGR 48099       ENGINEERING CAPSTONE I (ELR)         Specialization       Kent Core Requirement         Credit Hours  |     |
| ENGR 42363       MATERIALS SELECTION IN DESIGN AND<br>APPLICATIONS         ENGR 45121       AEROSPACE PROPULSION FOR ENGINEERING<br>Kent Core Requirement         Credit Hours         Semester Seven         AERN 35150       AIRCRAFT STRUCTURES         I       ENGR 45600       AIRCRAFT PERFORMANCE AND STABILITY II         I       ENGR 48099       ENGINEERING CAPSTONE I (ELR)         Specialization       Kent Core Requirement         Credit Hours  | 3   |
| APPLICATIONS APPLICATIONS ENGR 45121 AEROSPACE PROPULSION FOR ENGINEERING Kent Core Requirement Eredit Hours AERN 35150 AIRCRAFT STRUCTURES AERN 35150 AIRCRAFT PERFORMANCE AND STABILITY II AEROR 48099 ENGINEERING CAPSTONE I (ELR) ENGR 48091 ENGINEERING CAPSTONE I (ELR) ENGR 48091 ENGINEERING CAPSTONE I (ELR) ERGR 48001 ENGINEERING CAPSTONE I ENGINEERING ENGINEIRING CAPSTONE I ELGINEIRING ENGINEIRING CAPSTONE I (ELR) ERGR 48001 ENGINEERING ENGINEIRING ENGINEI | З   |
| Kent Core Requirement         Credit Hours         Semester Sever         Semester Sever       AIRCRAFT STRUCTURES         IMARCRAFT STRUCTURES       AIRCRAFT PERFORMANCE AND STABILITY II         IMARCRAFT PERFORMANCE AND STABILITY II       ENGINEERING CAPSTONE I (ELR)         Specialization       Kent Core Requirement         Credit Hours  | 3   |
| Credit Hours         Semester Seven         AERN 35150       AIRCRAFT STRUCTURES         I       ENGR 45600       AIRCRAFT PERFORMANCE AND STABILITY II         I       ENGR 48099       ENGINEERING CAPSTONE I (ELR)         Specialization       Kent Core Requirement         Credit Hours  | 3   |
| Semester Seven         AERN 35150       AIRCRAFT STRUCTURES         INDER 45600       AIRCRAFT PERFORMANCE AND STABILITY II         INDER 48099       ENGINEERING CAPSTONE I (ELR)         Specialization       Kent Core Requirement         Credit Hours   | З   |
| AERN 35150     AIRCRAFT STRUCTURES       I     ENGR 45600     AIRCRAFT PERFORMANCE AND STABILITY II       I     ENGR 48099     ENGINEERING CAPSTONE I (ELR)       Specialization     Kent Core Requirement         Credit Hours  | 15  |
| !       ENGR 45600       AIRCRAFT PERFORMANCE AND STABILITY II         !       ENGR 48099       ENGINEERING CAPSTONE I (ELR)         Specialization       Kent Core Requirement         Credit Hours   |     |
| ! ENGR 48099       ENGINEERING CAPSTONE I (ELR)         Specialization       Kent Core Requirement         Credit Hours  | 3   |
| Specialization<br>Kent Core Requirement<br>Credit Hours  | 3   |
| Kent Core Requirement Credit Hours   | З   |
| Credit Hours   | 3   |
|  | 3   |
| Semester Light   | 15  |
| ENGR 45901 INTRODUCTION TO FINITE ELEMENT METHOD     AND ADDUCATIONS   | 3   |
|  | ~   |
| !         ENGR 48001         ORBITAL MECHANICS           I         ENCR 48100         ENCINEERING CARECONE II (EL R) (MIC)   | 3   |
| ! ENGR 48199 ENGINEERING CAPSTONE II (ELR) (WIC)   | 3   |
| Kent Core Requirement<br>Kent Core Requirement   | 3   |

| Credit Hours  | 16                    |
|---|-----------------------|
| Minimum Total Credit Hours:   | 124                   |
| University Requirements   |                       |
| All students in a bachelor's degree program at Kent State Univ<br>complete the following university requirements for graduation.  |                       |
| <b>NOTE:</b> University requirements may be fulfilled in this program course requirements. Please see Program Requirements for de |                       |
| Flashes 101 (UC 10001)  | 1 credit<br>hour      |
| Course is not required for students with 30+ transfer credits (excluding College Credit Plus) or age 21+ at time of admission.    |                       |
| Diversity Domestic/Global (DIVD/DIVG)   | 2 courses             |
| Students must successfully complete one domestic and one global<br>course, of which one must be from the Kent Core.               |                       |
| Experiential Learning Requirement (ELR)   | varies                |
| Students must successfully complete one course or approved experience.  |                       |
| Kent Core (see table below)   | 36-37 credit<br>hours |
| Writing-Intensive Course (WIC)  | 1 course              |
| Students must earn a minimum C grade in the course.   |                       |
| Upper-Division Requirement  | 39 credit<br>hours    |
| Students must successfully complete 39 upper-division (numbered 30000 to 49999) credit hours to graduate.                         |                       |
| Total Credit Hour Requirement   | 120 credit<br>hours   |

#### **Kent Core Requirements**

Kent Core Requirement

| Kent Core Composition (KCMP)  | 6     |
|---|-------|
| Kent Core Mathematics and Critical Reasoning (KMCR)                 | 3     |
| Kent Core Humanities and Fine Arts (KHUM/KFA) (min one course each) | 9     |
| Kent Core Social Sciences (KSS) (must be from two disciplines)      | 6     |
| Kent Core Basic Sciences (KBS/KLAB) (must include one laboratory)   | 6-7   |
| Kent Core Additional (KADL)   | 6     |
| Total Credit Hours:   | 36-37 |

#### **Program Learning Outcomes**

Graduates of this program will be able to:

- 1. Identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics.
- 2. 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.
- 3. Communicate effectively with a range of audiences.
- 4. 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.
- 5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks and meet objectives.

- 6. Develop and conduct appropriate experimentation, analyze and interpret data and use engineering judgment to draw conclusions.
- 7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

The educational objectives of the program are the following:

- 1. Drive positive change in the community by engaging in careers in the field of aerospace engineering and beyond in a manner that promotes excellence and integrity.
- Practice forward-thinking through continued education by way of graduate education, professional development and other continued self-motivated learning.
- Successfully navigate the ever-changing trajectory of the world, practicing compassion as you strive to meet your personal career goals.

#### **Full Description**

The Bachelor of Science degree in Aerospace Engineering successfully prepares the aerospace engineers of the future to work in multidisciplinary teams to design products and perform research in innovative ways that affect positive change on a regional, national and global scale. The program focuses on the application of engineering principles to the design, manufacturing and functionality of aerospace vehicles such as aircraft, missiles and spacecraft. Students gain indepth knowledge of aerodynamics, engineering materials and processes, structures, propulsion, flight mechanics and control, while being exposed to orbital mechanics, space structures and rocket propulsion.

Applicants to this program should understand that this is a mathintensive program.

Students may apply early to the M.S. degree in Aerospace Engineering and double count 9 credit hours of graduate courses toward both degree programs. See the Combined Bachelor's/Master's Degree Program policy in the University Catalog for more information.