

# MECHANICAL ENGINEERING, BACHELOR OF SCIENCE (BS)/ ADVANCED PILOTING (CCBC)

| Course              | Title   | Hours     |
|---------------------|---|-----------|
| <b>First Year</b>   |   |           |
| <b>Fall</b>         |   |           |
| AVIP 180            | Instrument Flight Theory (taken at CCBC)                | 7         |
| AVIP 190            | Instrument Flight Theory (taken at CCBC)                | 2         |
| MATH 160            | Calculus I (taken at CCBC)                              | 4         |
| ENGR 110            | Introduction to Engineering                             | 2         |
| SUBJ 139            | Foundations of Academic Discovery                       | 3         |
| <b>Hours</b>        |   | <b>18</b> |
| <b>Spring</b>       |   |           |
| AVIP 120            | Foundations and Development of Aviation (taken at CCBC) | 3         |
| CIST 100            | Introduction to Information Technology (taken at CCBC)  | 3         |
| WRIT 101            | English Composition (taken at CCBC)                     | 3         |
| MATH 230            | Calculus II   | 4         |
| PHYS 216            | University Physics 1 with Lab                           | 4         |
| <b>Hours</b>        |   | <b>17</b> |
| <b>Second Year</b>  |   |           |
| <b>Fall</b>         |   |           |
| AVIP 215            | Commercial Flight Theory (taken at CCBC)                | 5         |
| AVIP 220            | Commercial Flight Certification I (taken at CCBC)       | 3         |
| LITR 210            | Concepts of Literature (taken at CCBC)                  | 3         |
| ENGR 210            | Statics   | 3         |
| PHYS 217            | University Physics 2 with Lab                           | 4         |
| <b>Hours</b>        |   | <b>18</b> |
| <b>Spring</b>       |   |           |
| AVIP 202            | Aircraft Engines Theory (taken at CCBC)                 | 3         |
| AVIP 204            | Aircraft Systems Theory (taken at CCBC)                 | 3         |
| AVIP 225            | Commercial Flight Certification II (taken at CCBC)      | 3         |
| CHEM 107 & CHEM 111 | General Chemistry I and General Chemistry I Lab         | 4         |
| ENGR 120            | Engineering Design Tools                                | 2         |
| ENGR 240            | Dynamics  | 3         |
| <b>Hours</b>        |   | <b>18</b> |
| <b>Third Year</b>   |   |           |
| <b>Fall</b>         |   |           |
| AVIP 250            | Multi-Engine Flight Rating (taken at CCBC)              | 1         |
| AVIP 260            | Human Factors Theory (taken at CCBC)                    | 3         |
| AVIP 270            | Aerodynamics of Flight (taken at CCBC)                  | 3         |
| MATH 231            | Calculus III  | 4         |
| MATH 232            | Linear Algebra  | 3         |
| ENGR 130            | Engineering Computing Tools                             | 2         |
| <b>Hours</b>        |   | <b>16</b> |

|  |  |            |
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| <b>Spring</b>  |  |            |
| AVIP 275   | Certified Flight Instructor - Theory (taken at CCBC)       | 2          |
| Select two of the following:   |  | 4          |
| AVIP 280   | Certified Flight Instructor - Airplane (taken at CCBC)     |            |
| AVIP 285   | Certified Flight Instructor - Instruments (taken at CCBC)  |            |
| AVIP 288   | Certified Flight Instructor - Multi-Engine (taken at CCBC) |            |
| ENGR 230   | Mechanics of Materials                                     | 3          |
| ENGR 231   | Mechanics of Materials Lab                                 | 1          |
| ENGR 250 & ENGR 251  | Circuit Analysis I and Circuit Analysis Lab                | 4          |
| Creative & Aesthetic Inquiry ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/</a> ) |  | 3          |
| <b>Hours</b>   |  | <b>17</b>  |
| <b>Fourth Year</b>   |  |            |
| <b>Fall</b>  |  |            |
| COMM 201   | Public Speaking (taken at CCBC)                            | 3          |
| METR 140   | Foundations in Meteorology (taken at CCBC)                 | 4          |
| ENGR 301   | Fluid Mechanics  | 3          |
| ENGR 320   | Thermodynamics   | 3          |
| MECH 310   | Machines and Mechanisms                                    | 3          |
| <b>Hours</b>   |  | <b>16</b>  |
| <b>Spring</b>  |  |            |
| MATH 301   | Differential Equations I                                   | 3          |
| MECH 340   | Heat Transfer  | 4          |
| MECH 410   | Machine Design   | 4          |
| ENGR 220   | Engineering Materials                                      | 3          |
| Humanities Inquiry ( <a href="https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/">https://catalog.sru.edu/undergraduate/rock-studies/rock-studies-program/</a> )           |  | 3          |
| Mechanical Engineering Elective  |  | 3          |
| <b>Hours</b>   |  | <b>20</b>  |
| <b>Fifth Year</b>  |  |            |
| <b>Fall</b>  |  |            |
| ENGR 340   | Engineering Economics                                      | 3          |
| MECH 330   | Introduction to Mechatronics                               | 4          |
| MECH 320   | Manufacturing Processes                                    | 3          |
| MECH 411   | Automatic Control Systems                                  | 3          |
| MECH 460   | Capstone Design I  | 3          |
| Mechanical Engineering Elective  |  | 3          |
| <b>Hours</b>   |  | <b>19</b>  |
| <b>Spring</b>  |  |            |
| MECH 461   | Capstone Design II   | 3          |
| Mechanical Engineering Elective  |  | 3          |
| MECH 430   | Mechatronics   | 3          |
| STAT 350   | Applied Statistics   | 3          |
| ENGL 205   | Introduction to Professional Writing                       | 3          |
| <b>Hours</b>   |  | <b>15</b>  |
| <b>Total Hours**</b>   |  | <b>174</b> |