

# Engineering (B.S.) – Electrical Engineering

2024-2025 Academic Catalog, Bachelor of Science – Engineering, Electrical Engineering Track

| Academic Core for B.S.                                                    |                                           | 45 Hours | Engineering                                           | 81 Hours                                      |           |
|---------------------------------------------------------------------------|-------------------------------------------|----------|-------------------------------------------------------|-----------------------------------------------|-----------|
| <b>CHRISTIAN STUDIES</b>                                                  |                                           | <b>6</b> | <b>B.S. ENGINEERING MAJOR REQUIRED COURSES</b>        | <b>28</b>                                     |           |
| CSBS 1311                                                                 | Engaging the Old Testament                | 3        | ENGR 2311                                             | Numerical Algorithms                          | 3         |
| CSBS 1312                                                                 | Engaging the New Testament                | 3        | ENGR 2320                                             | Engineering Mechanics: Statics                | 3         |
| <b>ENGLISH</b>                                                            |                                           | <b>9</b> | ENGR 2321                                             | Engineering Mechanics: Dynamics               | 3         |
| ENGL 1321                                                                 | Rhetoric & Composition I                  | 3        | ENGR 2130                                             | Electric Circuits Laboratory                  | 1         |
| ENGL 1322                                                                 | Rhetoric & Composition II                 | 3        | ENGR 2330                                             | Electrical Circuit Theory                     | 3         |
| ENGL                                                                      | Literature                                | 3        | ENGR 2345                                             | Engineering Thermodynamics                    | 3         |
| <i>A grade of a "C" or higher is required in ENGL 1321 and ENGL 1322.</i> |                                           |          | ENGR 3360                                             | Engineering Design: Engineering for Humanity  | 3         |
| <b>EXERCISE &amp; SPORT SCIENCE – SELECT TWO DIFFERENT COURSES</b>        |                                           | <b>2</b> | ENGR 4370                                             | Computer Science & Engineering Ethics Seminar | 3         |
| EXAC                                                                      | Activity Course                           | 1        | ENGR 4380                                             | Capstone Design I                             | 3         |
| EXAC                                                                      | Activity Course                           | 1        | ENGR 4381                                             | Capstone Design II                            | 3         |
| <b>FINE ARTS – SELECT ONE</b>                                             |                                           | <b>3</b> | <b>ELECTRICAL ENGINEERING TRACK</b>                   |                                               | <b>20</b> |
| ARTS 1350                                                                 | Art Appreciation                          | 3        | ENGR 3130                                             | Electronics Laboratory                        | 1         |
| COMM 2335                                                                 | Film Appreciation                         | 3        | ENGR 3137                                             | Digital Logic Design Laboratory               | 1         |
| FINA 2330                                                                 | Exploring the Fine Arts                   | 3        | ENGR 3330                                             | Electronics                                   | 3         |
| MUSI 1340                                                                 | Music Appreciation                        | 3        | ENGR 3337                                             | Digital Logic Design                          | 3         |
| THEA 2350                                                                 | Theatre Appreciation                      | 3        | ENGR 4312                                             | Digital Signal Processing                     | 3         |
| <b>WORLD CULTURES – SELECT ONE</b>                                        |                                           | <b>3</b> | ENGR 4315                                             | Power Systems                                 | 3         |
| ARTS 2354                                                                 | World Art                                 | 3        | ENGR 4330                                             | Engineering Electromagnetics                  | 3         |
| EXSS 2353                                                                 | Lifespan Nutrition                        | 3        | ENGR 4360                                             | Signals and Systems                           | 3         |
| GLBL 2310                                                                 | Cultural Immersion                        | 3        | <b>ENGINEERING UPPER-LEVEL ELECTIVES – SELECT TWO</b> |                                               | <b>6</b>  |
| HIST 1311                                                                 | History of World Civilizations to 1500    | 3        | CISC 3321                                             | Object Oriented Development                   | 3         |
| HIST 1312                                                                 | History of World Civilizations since 1500 | 3        | ENGR 3365                                             | Introduction to Optics                        | 3         |
| HUMA 2355                                                                 | Foundations of the Humanities             | 3        | ENGR 4310                                             | Vibrations                                    | 3         |
| MUSI 2358                                                                 | World Music                               | 3        | ENGR 4320                                             | System Dynamics and Control                   | 3         |
| PHIL 2315                                                                 | Introduction to Philosophy                | 3        | ENGR 4325                                             | Radio Frequency Circuit                       | 3         |
| <b>LAB SCIENCE</b>                                                        |                                           | <b>8</b> | ENGR 4365                                             | Mechatronics                                  | 3         |
| PHYS 2421                                                                 | Physics and Calculus I                    | 4        | ENGR 4391                                             | Special Topics                                | 3         |
| PHYS 2422                                                                 | Physics and Calculus II                   | 4        | <b>REQUIRED SUPPORT COURSES</b>                       |                                               | <b>27</b> |
| <b>PUBLIC SPEAKING</b>                                                    |                                           | <b>3</b> | CISC 2330                                             | Introduction to Object-Oriented Programming   | 3         |
| COMM 1320                                                                 | Public Speaking                           | 3        | ENGR 1310                                             | Introduction to Engineering                   | 3         |
| <b>MATHEMATICS</b>                                                        |                                           | <b>4</b> | ENGR 1320                                             | Introduction to Engineering Fundamentals      | 3         |
| MATH 1430                                                                 | Calculus I                                | 4        | ENGR 2010                                             | AutoCAD Proficiency                           | 0         |
| <b>SOCIAL SCIENCE – SELECT ONE</b>                                        |                                           | <b>3</b> | ENGR 4090                                             | Practical Experience                          | 0         |
| BECO 2310                                                                 | Principles of Economics                   | 3        | MATH 2320                                             | Linear Algebra                                | 3         |
| PSYC 1301                                                                 | General Psychology                        | 3        | MATH 2430                                             | Calculus II                                   | 4         |
| PSYC 2399                                                                 | Child and Adolescent Development          | 3        | MATH 3325                                             | Ordinary Differential Equations               | 3         |
| SOCI 1311                                                                 | Introduction to Sociology                 | 3        | MATH 3430                                             | Calculus III                                  | 4         |
| SOCW 2311                                                                 | Introduction to Social Work               | 3        | CHEM 1410                                             | General Chemistry I                           | 4         |
| <b>US HISTORY OR US GOVERNMENT – SELECT ONE</b>                           |                                           | <b>3</b> | <b>Total Hours</b>                                    |                                               |           |
| HIST 2311                                                                 | American History to 1877                  | 3        | Academic Core for B.S.                                | 45                                            |           |
| HIST 2312                                                                 | American History since 1877               | 3        | B.S. Engineering Major Required Courses               | 28                                            |           |
| POLS 2305                                                                 | United States Government                  | 3        | Electrical Engineering Track                          | 20                                            |           |
| POLS 2306                                                                 | Texas State and Local Government          | 3        | Engineering Upper Level Electives                     | 6                                             |           |
| <b>RESEARCH METHODS OR INTERNSHIP</b>                                     |                                           | <b>0</b> | Required Support Courses                              | 27                                            |           |
| ENGR 4090                                                                 |                                           | 0        | <b>Total hours required for graduation</b>            | <b>126</b>                                    |           |
| <b>FRESHMAN SEMINAR</b>                                                   |                                           | <b>1</b> | <b>Additional Graduation Requirements</b>             |                                               |           |
| UMHB 1101                                                                 | Freshman Seminar                          | 1        | Minimum Upper Level hours                             | 36                                            |           |
| <b>CHAPEL – 1 to 4 credits</b>                                            |                                           |          | Minimum hours taken at UMHB                           | 30                                            |           |
| UMHB 1002                                                                 | Chapel                                    |          | Minimum Upper Level hours taken at UMHB               | 24                                            |           |
| <b>Fine Arts Experience – 2 to 8 credits</b>                              |                                           |          | Minimum cumulative GPA                                | 2.0                                           |           |
| UMHB 1005                                                                 | Fine Arts Experience                      |          |                                                       |                                               |           |