# Engineering (B.S.) – Mechanical Engineering

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

## Academic Core for B.S. — 45 Hours

| CHRISTIAN STUDIES | | 6 |
|---|---|---|
| CSBS 1311 | Engaging the Old Testament | 3 |
| CSBS 1312 | Engaging the New Testament | 3 |

| ENGLISH | | 9 |
|---|---|---|
| ENGL 1321 | Rhetoric & Composition I | 3 |
| ENGL 1322 | Rhetoric & Composition II | 3 |
| ENGL | Literature | 3 |

*A grade of a "C" or higher is required in ENGL 1321 and ENGL 1322.*

| EXERCISE & SPORT SCIENCE – SELECT TWO DIFFERENT COURSES | | 2 |
|---|---|---|
| EXAC | Activity Course | 1 |
| EXAC | Activity Course | 1 |

| FINE ARTS – SELECT ONE | | 3 |
|---|---|---|
| ARTS 1350 | Art Appreciation | 3 |
| COMM 2335 | Film Appreciation | 3 |
| FINA 2330 | Exploring the Fine Arts | 3 |
| MUSI 1340 | Music Appreciation | 3 |
| THEA 2350 | Theatre Appreciation | 3 |

| WORLD CULTURES – SELECT ONE | | 3 |
|---|---|---|
| ARTS 2354 | World Art | 3 |
| EXSS 2353 | Lifespan Nutrition | 3 |
| GLBL 2310 | Cultural Immersion | 3 |
| HIST 1311 | History of World Civilizations to 1500 | 3 |
| HIST 1312 | History of World Civilizations since 1500 | 3 |
| HUMA 2355 | Foundations of the Humanities | 3 |
| MUSI 2358 | World Music | 3 |
| PHIL 2315 | Introduction to Philosophy | 3 |

| LAB SCIENCE | | 8 |
|---|---|---|
| PHYS 2421 | Physics and Calculus I | 4 |
| PHYS 2422 | Physics and Calculus II | 4 |

| PUBLIC SPEAKING | | 3 |
|---|---|---|
| COMM 1320 | Public Speaking | 3 |

| MATHEMATICS | | 4 |
|---|---|---|
| MATH 1430 | Calculus I | 4 |

| SOCIAL SCIENCE – SELECT ONE | | 3 |
|---|---|---|
| BECO 2310 | Principles of Economics | 3 |
| PSYC 1301 | General Psychology | 3 |
| PSYC 2399 | Child and Adolescent Development | 3 |
| SOCI 1311 | Introduction to Sociology | 3 |
| SOCW 2311 | Introduction to Social Work | 3 |

| US HISTORY OR US GOVERNMENT – SELECT ONE | | 3 |
|---|---|---|
| HIST 2311 | American History to 1877 | 3 |
| HIST 2312 | American History since 1877 | 3 |
| POLS 2305 | United States Government | 3 |
| POLS 2306 | Texas State and Local Government | 3 |

| RESEARCH METHODS OR INTERNSHIP | | 0 |
|---|---|---|
| ENGR 4090 | | 0 |

| FRESHMAN SEMINAR | | 1 |
|---|---|---|
| UMHB 1101 | Freshman Seminar | 1 |

| CHAPEL – 1 to 4 credits | |
|---|---|
| UMHB 1002 | Chapel |

| Fine Arts Experience – 2 to 8 credits | |
|---|---|
| UMHB 1005 | Fine Arts Experience |

## Engineering — 81 Hours

| B.S. ENGINEERING MAJOR REQUIRED COURSES | | 28 |
|---|---|---|
| ENGR 2311 | Numerical Algorithms | 3 |
| ENGR 2320 | Engineering Mechanics: Statics | 3 |
| ENGR 2321 | Engineering Mechanics: Dynamics | 3 |
| ENGR 2130 | Electric Circuits Laboratory | 1 |
| ENGR 2330 | Electrical Circuit Theory | 3 |
| ENGR 2345 | Engineering Thermodynamics | 3 |
| ENGR 3360 | Engineering Design: Engineering for Humanity | 3 |
| ENGR 4370 | Computer Science & Engineering Ethics Seminar | 3 |
| ENGR 4380 | Capstone Design I | 3 |
| ENGR 4381 | Capstone Design II | 3 |

| MECHANICAL ENGINEERING TRACK | | 20 |
|---|---|---|
| ENGR 3130 | Electronics Laboratory | 1 |
| ENGR 3315 | Mechanical Design | 3 |
| ENGR 3320 | Mechanics of Materials | 3 |
| ENGR 3346 | Advanced Thermodynamics | 3 |
| ENGR 4150 | Fluid Mechanics Laboratory | 1 |
| ENGR 4340 | Principles of Heat Transfer | 3 |
| ENGR 4350 | Fluid Mechanics | 3 |
| ENGR 3381 | Introduction to Material Science | 3 |

| ENGINEERING UPPER-LEVEL ELECTIVES – SELECT TWO | | 6 |
|---|---|---|
| CISC 3321 | Object Oriented Development | 3 |
| ENGR 3365 | Introduction to Optics | 3 |
| ENGR 4310 | Vibrations | 3 |
| ENGR 4320 | System Dynamics and Control | 3 |
| ENGR 4325 | Radio Frequency Circuit | 3 |
| ENGR 4335 | Introduction to Aerospace Engineering | 3 |
| ENGR 4365 | Mechatronics | 3 |
| ENGR 4391 | Special Topics | 3 |

| REQUIRED SUPPORT COURSES | | 27 |
|---|---|---|
| CISC 2330 | Introduction to Object-Oriented Programming | 3 |
| ENGR 1310 | Introduction to Engineering | 3 |
| ENGR 1320 | Introduction to Engineering Fundamentals | 3 |
| ENGR 2010 | AutoCAD Proficiency | 0 |
| ENGR 4090 | Practical Experience | 0 |
| MATH 2320 | Linear Algebra | 3 |
| MATH 2430 | Calculus II | 4 |
| MATH 3325 | Ordinary Differential Equations | 3 |
| MATH 3430 | Calculus III | 4 |
| CHEM 1410 | General Chemistry I | 4 |

### Total Hours

| | |
|---|---|
| Academic Core for B.S. | 45 |
| B.S. Engineering Major Required Courses | 28 |
| Mechanical Engineering Track | 20 |
| Engineering Upper Level Electives | 6 |
| Required Support Courses | 27 |
| **Total hours required for graduation** | **126** |

### Additional Graduation Requirements

| | |
|---|---|
| Minimum Upper Level hours | 36 |
| Minimum hours taken at UMHB | 30 |
| Minimum Upper Level hours taken at UMHB | 24 |
| Minimum cumulative GPA | 2.0 |