## BSE: Mechanical Engineering Concentration Model Program
### (Starting Fall 2023 or Later)

### First Year

**Fall (16)**
- **4** Chemistry 101 + 101L | General Chemistry I (F,S)
- **4** Engineering 101 + 101L | Intro to Engineering Design (F)
- **4** Mathematics 171 | Calculus I (F,S)
- **2** Core Foundations | CORE 100: Community and Commitments
- **2** Interdisciplinary 102 | Oral Rhetoric for Engineers (or CS 104)

**Spring (17)**
- **4** Engineering 205 | Principles of Materials Science (S)
- **4** Mathematics 172 | Calculus II (F,S)
- **4** Physics 133 + 133L | Introductory Physics: Mechanics and Gravity (S)
- **4** Core Comp and Skills | Foundational Writing
- **1** Core Comp and Skills | Health and Movement

### Second Year

**Fall (16)**
- **4** Engineering 20X ★
- **4** Mathematics 271 | Multivariable Calculus (F,S)
- **4** Physics 235 + 235L | Introductory Physics: Electricity and Magnetism (F)
- **2** Comp Sci 104 + 104L | Applied Computing (F) (CS 106 or 108 may be substituted but both are 4 SH)
- **2** Core Knowledge and Understanding (see Core Options sheet) - tagged
- **0** Engineering 295 | Internship Workshop
- **2** Interdisciplinary 184 | Intro to Sustainability Challenges (F) (ES Tag, required for Sustainability Designation)

**Spring (18)**
- **4** Engineering 20X ★
- **4** Engineering 20X ★
- **4** Mathematics 231 | Differential Equations with Linear Algebra (F,S)
- **2** Statistics 241 | Engineering Statistics (S)
- **2** Core Foundations | Foundations of Christianity I
- **0** Engineering 294 | Engineering Seminar (does not require registration in advance)

### Third Year

**Fall (16)**
- **4** Engineering 305 | Mechanics of Materials (F)
- **4** Engineering 319 | Intro. To Thermal/Fluid Sciences (F)
- **4** Elective: Basic Science or Advanced Math (2 SH minimum)
- **2** Core Foundations | Foundations of Christianity II
- **2** Economics (2 SH min) | ECON 191 (2) or 233 (4, ES tag) - ECON 221, 222, or 232 can be added or substituted

**Spring (17)**
- **4** Engineering 322 | Machine Design with Finite Element Analysis (S)
- **4** Engineering 328 | Intermediate Thermal/Fluid Sciences & Design (S)
- **4** Engineering 334 + 334L | Dynamics of Machinery and Instrumentation (S)
- **4** Core Knowledge and Understanding (see Core Options sheet) - tagged
- **1** Core Comp and Skills | Health and Movement
- **1** Interdisciplinary 384 | Sustainability Experience (F,S) (Required for students seeking Sustainability Designation)

### Fourth Year

**Fall (16)**
- **4** Engineering 333 | Thermal Systems Designs (F)
- **2** Engineering 339 | Senior Project (F)
- **4** Engineering Elective | ENGR 314, 315, or 342
- **4** Elective: Basic Science, Advanced Math, Engineering, or Technical
- **2** Business 357 | Business Aspects for Engineers (F)

**Spring (16)**
- **4** Engineering 324 + 324L | Materials & Processes in Manufacturing (S)
- **4** Engineering 340 | Senior Design Project (S)
- **2** Engineering Elective | Typically ENGR 350 (2 SH minimum)
- **2** Core Knowledge and Understanding (see Core Options sheet) - tagged
- **2** Core Knowledge and Understanding (see Core Options sheet - 26 SH of total K&U minimum)
- **0** Engineering 394 | Engineering Seminar (does not require registration in advance)

### Other Requirements
- **0-8** Core Comp and Skills: World Languages I (3 years in HS with B or better)
- **0-3** Engaged Citizenship Commitment Tag: Diversity and Difference
- **0-3** Engaged Citizenship Commitment Tag: Environmental Sustainability
- **0-3** Engaged Citizenship Commitment Tag: Global Regions and Cultures

Calvin Engineering
Revised Sept 2023