# Biomedical and Mechanical Engineering

## Bachelor of Engineering (21.5 credits)

### First year

1. **5.0 credits in:**
   - **CHEM 1001 [0.5]** General Chemistry I
   - **CHEM 1002 [0.5]** General Chemistry II
   - **Biol 1003 [0.5]** Introductory Biology I
   - **Math 1004 [0.5]** Calculus for Engineering or Physics
   - **Math 1005 [0.5]** Differential Equations and Infinite Series for Engineering or Physics
   - **Math 1104 [0.5]** Linear Algebra for Engineering or Science
   - **Phys 1004 [0.5]** Introductory Electromagnetism and Wave Motion
   - **ECOR 1010 [0.5]** Introduction to Engineering
   - **ECOR 1101 [0.5]** Mechanics I
   - **ECOR 1606 [0.5]** Problem Solving and Computers

### Second year

2. **4.5 credits in:**
   - **Math 2004 [0.5]** Multivariable Calculus for Engineering or Physics
   - **Math 3705 [0.5]** Mathematical Methods I
   - **CCDP 2100 [0.5]** Communication Skills for Engineering Students
   - **MAAE 2101 [0.5]** Engineering Dynamics
   - **MAAE 2001 [0.5]** Engineering Graphical Design
   - **MAAE 2400 [0.5]** Thermodynamics and Heat Transfer
   - **MAAE 2300 [0.5]** Fluid Mechanics I
   - **MAAE 2700 [0.5]** Engineering Materials
   - **MAAE 2202 [0.5]** Mechanics of Solids I

3. **0.5 credit from:**
   - **Biol 2005 [0.5]** Human Physiology
   - **Biol 2201 [0.5]** Cell Biology and Biochemistry
   - **Chem 2203 [0.5]** Organic Chemistry I

### Third year

4. **5.5 credits in:**
   - **ECOR 2606 [0.5]** Numerical Methods
   - **Stat 3502 [0.5]** Probability and Statistics
   - **SYSC 3203 [0.5]** Bioelectrical Systems
   - **SYSC 3610 [0.5]** Biomedical Systems, Modeling, and Control
   - **SYSC 4201 [0.5]** Ethics, Research Methods and Standards for Biomedical Engineering
   - **MAAE 3004 [0.5]** Dynamics of Machinery
   - **MAAE 3202 [0.5]** Mechanics of Solids II
   - **MAAE 4500 [0.5]** Feedback Control Systems
   - **MECH 3002 [0.5]** Machine Design and Practice
   - **MECH 3310 [0.5]** Biomedical Mechanics
   - **MECH 3710 [0.5]** Biomaterials

5. **0.5 credit from:**
   - **Biol 2005 [0.5]** Human Physiology
   - **Biol 2201 [0.5]** Cell Biology and Biochemistry
   - **Chem 2203 [0.5]** Organic Chemistry I

### Fourth year

6. **3.0 credits in:**
   - **ECOR 3800 [0.5]** Engineering Economics
   - **ECOR 4995 [0.5]** Professional Practice
   - **MAAE 4000 [0.5]** Applied Thermodynamics
   - **MECH 4406 [0.5]** Heat Transfer
   - **MECH 4210 [0.5]** Biomechanics
   - **MECH 4013 [0.5]** Biomedical Device Design

7. **1.0 credit in:**
   - **MAAE 4907 [1.0]** Engineering Design Project

8. **0.5 credit in MAAE, MECH or AERO at the 4000-level, SYSC 4202 [0.5], SYSC 4203 [0.5]**

9. **1.0 credit in Complementary Studies Electives**

### Total Credits

**21.5**

### Notes:

1. For Item 3 above, with the permission of their department, students may replace this requirement with an alternate 0.5 credit course in BIOL, BIOC or CHEM.
2. For Item 5 above, with the permission of their department, students may replace this requirement with an alternate 0.5 credit course in BIOL, BIOC or CHEM.