**Nanotechnology – Physics/Materials**

**First Term**

* MATH 0220 - ANALYTIC GEOMETRY AND CALCULUS 1
* CHEM 0960 - GENERAL CHEM FOR ENGINEERS 1
* PHYS 0174 - BASIC PHYSICS, SCIENCE AND ENGINEERING 1 (INTEGRATED)
* ENGR 0011 - INTRO TO ENGINEERING ANALYSIS
* ENGR 0081 - FRESHMAN ENGINEERING SEMINAR 1
* ENGCMP 0210 - SEMINAR IN COMPOSITION: ENGINEERING

**Credits: 17**

**Second Term**

* MATH 0230 - ANALYTIC GEOMETRY AND CALCULUS 2
* CHEM 0970 - GENERAL CHEM FOR ENGINEERS 2
* PHYS 0175 - BASIC PHYSICS, SCIENCE AND ENGINEERING 2 (INTEGRATED)
* ENGR 0012 - INTRO TO ENGINEERING COMPUTING
* ENGR 0082 - FRESHMAN ENGINEERING SEMINAR 2
* ENGCMP 0412 - ENGINEERING COMMUNICATION IN A PROFESSIONAL CONTEXT

**Credits: 17**

**Third Term**

* MATH 0280 – INTRO TO MATRICES & LINEAR ALG
  + MATH 0290 – DIFFERENTIAL EQUATIONS
* PHYS 0477 – THERMAL PHYSICS RELATIVITY & QUANTUM MECHANICS
* ECE 0031 – LIN CIR & SYSTEMS 1
* ECE 0301 - PROBLEM SOLVING WITH C++
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 17**

**Fourth Term**

* + MATH 0240 – ANALYTIC GEOMETRY AND CALCULUS 3
* ENGR 0135 – STATICS AND MECHANICS OF MATERIALS 1
* ENGR 0022 – MATERIAL STRUCTURE & PROPERTIES
* MEMS 0048 – THERMODYNAMICS OF MATERIALS
* PHYS 0219 – LAB PHYSICS FOR SCIENCE & ENGINEERING
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 15**

**Fifth Term**

* ENGR 0240 INTRO TO NANOTECHNOLOGY & NANOENGINEERING
* MEMS 1010 – EXPERIMENTAL METHODS IN MSE
* MEMS 1053 – STRUCTURE OF CRYSTALS & DIFFRACTION
* MEMS 1059 – PHASE EQUILIBRIA OF MULTI-COMPONENT SYSTEMS
  + Nanotechnology Elective – 3 Credits
  + Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 18**

**Sixth Term**

* + ENGR 0241 – FABRICATION AND DESIGN IN NANOTECHOLOGY
  + MEMS 1063 – PHASE TRANSFORMAION AND MICROSTRUCTURE EVOLUTION
  + ECE 0102 – MICROELECTRONIC CIRCUITS
  + Upper Level Physics – 3 credits
* Nanotechnology Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 16**

**Seventh Term**

* Senior Design 1 – 3 Credits
* MEMS 1057 – MICRO/NANO MANUFACTURING
  + Upper Level Physics – 3 credits
  + Nanotechnology Elective – 3 Credits
* Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 15**

**Eighth Term**

* ENGR 0020 – PROBABILITY AND STATISTICS
* PHYS 0481 – PRINCIPALS IN MODERN PHYSICS
* Senior Design 2 – 3 Credits
  + Humanity/Social Science Elective – 3 Credits
* Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 16**

**Total Credits: 131**

**Physics Minor – 16 credits (0 extra courses)**

**First Term**

* MATH 0220 - ANALYTIC GEOMETRY AND CALCULUS 1
* CHEM 0960 - GENERAL CHEM FOR ENGINEERS 1
* **PHYS 0174 - BASIC PHYSICS, SCIENCE AND ENGINEERING 1 (INTEGRATED)**
* ENGR 0011 - INTRO TO ENGINEERING ANALYSIS
* ENGR 0081 - FRESHMAN ENGINEERING SEMINAR 1
* ENGCMP 0210 - SEMINAR IN COMPOSITION: ENGINEERING

**Credits: 17**

**Second Term**

* MATH 0230 - ANALYTIC GEOMETRY AND CALCULUS 2
* CHEM 0970 - GENERAL CHEM FOR ENGINEERS 2
* **PHYS 0175 - BASIC PHYSICS, SCIENCE AND ENGINEERING 2 (INTEGRATED)**
* ENGR 0012 - INTRO TO ENGINEERING COMPUTING
* ENGR 0082 - FRESHMAN ENGINEERING SEMINAR 2
* ENGCMP 0412 - ENGINEERING COMMUNICATION IN A PROFESSIONAL CONTEXT

**Credits: 17**

**Third Term**

* MATH 0280 – INTRO TO MATRICES & LINEAR ALG
  + MATH 0290 – DIFFERENTIAL EQUATIONS
* **PHYS 0477 – THERMAL PHYSICS RELATIVITY & QUANTUM MECHANICS**
* ECE 0031 – LIN CIR & SYSTEMS 1
* ECE 0301 - PROBLEM SOLVING WITH C++
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 17**

**Fourth Term**

* + MATH 0240 – ANALYTIC GEOMETRY AND CALCULUS 3
* ENGR 0135 – STATICS AND MECHANICS OF MATERIALS 1
* ENGR 0022 – MATERIAL STRUCTURE & PROPERTIES
* MEMS 0048 – THERMODYNAMICS OF MATERIALS
* PHYS 0219 – LAB PHYSICS FOR SCIENCE & ENGINEERING
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 15**

**Fifth Term**

* ENGR 0240 INTRO TO NANOTECHNOLOGY & NANOENGINEERING
* MEMS 1010 – EXPERIMENTAL METHODS IN MSE
* MEMS 1053 – STRUCTURE OF CRYSTALS & DIFFRACTION
* MEMS 1059 – PHASE EQUILIBRIA OF MULTI-COMPONENT SYSTEMS
  + Nanotechnology Elective – 3 Credits
  + Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 18**

**Sixth Term**

* + ENGR 0241 – FABRICATION AND DESIGN IN NANOTECHOLOGY
  + MEMS 1063 – PHASE TRANSFORMAION AND MICROSTRUCTURE EVOLUTION
  + ECE 0102 – MICROELECTRONIC CIRCUITS
  + Upper Level Physics – 3 credits
* Nanotechnology Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 16**

**Seventh Term**

* Senior Design 1 – 3 Credits
* MEMS 1057 – MICRO/NANO MANUFACTURING
  + Upper Level Physics – 3 credits
  + Nanotechnology Elective – 3 Credits
* Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 15**

**Eighth Term**

* ENGR 0020 – PROBABILITY AND STATISTICS
* **PHYS 0481 – PRINCIPALS IN MODERN PHYSICS**
* Senior Design 2 – 3 Credits
  + Humanity/Social Science Elective – 3 Credits
* Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 16**

**Total Credits: 131**

**Materials Science and Engineering – 15 credits (1 extra course, 3 credits)**

**First Term**

* MATH 0220 - ANALYTIC GEOMETRY AND CALCULUS 1
* CHEM 0960 - GENERAL CHEM FOR ENGINEERS 1
* PHYS 0174 - BASIC PHYSICS, SCIENCE AND ENGINEERING 1 (INTEGRATED)
* ENGR 0011 - INTRO TO ENGINEERING ANALYSIS
* ENGR 0081 - FRESHMAN ENGINEERING SEMINAR 1
* ENGCMP 0210 - SEMINAR IN COMPOSITION: ENGINEERING

**Credits: 17**

**Second Term**

* MATH 0230 - ANALYTIC GEOMETRY AND CALCULUS 2
* CHEM 0970 - GENERAL CHEM FOR ENGINEERS 2
* PHYS 0175 - BASIC PHYSICS, SCIENCE AND ENGINEERING 2 (INTEGRATED)
* ENGR 0012 - INTRO TO ENGINEERING COMPUTING
* ENGR 0082 - FRESHMAN ENGINEERING SEMINAR 2
* ENGCMP 0412 - ENGINEERING COMMUNICATION IN A PROFESSIONAL CONTEXT

**Credits: 17**

**Third Term**

* MATH 0280 – INTRO TO MATRICES & LINEAR ALG
  + MATH 0290 – DIFFERENTIAL EQUATIONS
* PHYS 0477 – THERMAL PHYSICS RELATIVITY & QUANTUM MECHANICS
* ECE 0031 – LIN CIR & SYSTEMS 1
* ECE 0301 - PROBLEM SOLVING WITH C++
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 17**

**Fourth Term**

* + MATH 0240 – ANALYTIC GEOMETRY AND CALCULUS 3
* ENGR 0135 – STATICS AND MECHANICS OF MATERIALS 1
* **ENGR 0022 – MATERIAL STRUCTURE & PROPERTIES**
* MEMS 0048 – THERMODYNAMICS OF MATERIALS
* PHYS 0219 – LAB PHYSICS FOR SCIENCE & ENGINEERING
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 15**

**Fifth Term**

* ENGR 0240 INTRO TO NANOTECHNOLOGY & NANOENGINEERING
* MEMS 1010 – EXPERIMENTAL METHODS IN MSE
* **MEMS 1053 – STRUCTURE OF CRYSTALS & DIFFRACTION**
* **MEMS 1059 – PHASE EQUILIBRIA OF MULTI-COMPONENT SYSTEMS**
  + Nanotechnology Elective – 3 Credits
  + Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 18**

**Sixth Term**

* + ENGR 0241 – FABRICATION AND DESIGN IN NANOTECHOLOGY
  + **MEMS 1063 – PHASE TRANSFORMAION AND MICROSTRUCTURE EVOLUTION**
  + ECE 0102 – MICROELECTRONIC CIRCUITS
  + Upper Level Physics – 3 credits
* Nanotechnology Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 16**

**Seventh Term**

* Senior Design 1 – 3 Credits
* MEMS 1057 – MICRO/NANO MANUFACTURING
  + Upper Level Physics – 3 credits
  + Nanotechnology Elective – 3 Credits
* Humanity/Social Science Elective – 3 Credits
  + Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 18**

**Eighth Term**

* ENGR 0020 – PROBABILITY AND STATISTICS
* PHYS 0481 – PRINCIPALS IN MODERN PHYSICS
* **MEMS 0040 – MATERIALS AND MANUFACTURING**
* Senior Design 2 – 3 Credits
  + Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 16**

**Total Credits: 134**

**Photonics Certificate – 46-54 credits (1 extra course and one lab, 6 credits)**

**First Term**

* **MATH 0220 - ANALYTIC GEOMETRY AND CALCULUS 1**
* **CHEM 0960 - GENERAL CHEM FOR ENGINEERS 1**
* **PHYS 0174 - BASIC PHYSICS, SCIENCE AND ENGINEERING 1 (INTEGRATED)**
* ENGR 0011 - INTRO TO ENGINEERING ANALYSIS
* ENGR 0081 - FRESHMAN ENGINEERING SEMINAR 1
* ENGCMP 0210 - SEMINAR IN COMPOSITION: ENGINEERING

**Credits: 17**

**Second Term**

* **MATH 0230 - ANALYTIC GEOMETRY AND CALCULUS 2**
* **CHEM 0970 - GENERAL CHEM FOR ENGINEERS 2**
* **PHYS 0175 - BASIC PHYSICS, SCIENCE AND ENGINEERING 2 (INTEGRATED)**
* ENGR 0012 - INTRO TO ENGINEERING COMPUTING
* ENGR 0082 - FRESHMAN ENGINEERING SEMINAR 2
* ENGCMP 0412 - ENGINEERING COMMUNICATION IN A PROFESSIONAL CONTEXT

**Credits: 17**

**Third Term**

* **MATH 0280 – INTRO TO MATRICES & LINEAR ALG**
  + **MATH 0290 – DIFFERENTIAL EQUATIONS**
* **PHYS 0477 – THERMAL PHYSICS RELATIVITY & QUANTUM MECHANICS**
* ECE 0031 – LIN CIR & SYSTEMS 1
* ECE 0301 - PROBLEM SOLVING WITH C++
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 17**

**Fourth Term**

* + MATH 0240 – ANALYTIC GEOMETRY AND CALCULUS 3
* ENGR 0135 – STATICS AND MECHANICS OF MATERIALS 1
* ENGR 0022 – MATERIAL STRUCTURE & PROPERTIES
* MEMS 0048 – THERMODYNAMICS OF MATERIALS
* **PHYS 0219 – LAB PHYSICS FOR SCIENCE & ENGINEERING**
* **ECE 0501 – DIGITAL SYSTEMS LABORATORY (See other options here)**
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 18**

**Fifth Term**

* ENGR 0240 INTRO TO NANOTECHNOLOGY & NANOENGINEERING
* **MEMS 1010 – EXPERIMENTAL METHODS IN MSE**
* MEMS 1053 – STRUCTURE OF CRYSTALS & DIFFRACTION
* MEMS 1059 – PHASE EQUILIBRIA OF MULTI-COMPONENT SYSTEMS
  + **ECE 1247 – SEMICONDUCTOR DEVICE THEORY (Nanotechnology Elective)**
  + Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 18**

**Sixth Term**

* + ENGR 0241 – FABRICATION AND DESIGN IN NANOTECHOLOGY
  + MEMS 1063 – PHASE TRANSFORMAION AND MICROSTRUCTURE EVOLUTION
  + ECE 0102 – MICROELECTRONIC CIRCUITS
  + Upper Level Physics – 3 credits
* **ECE 1232 – INTRO TO LASERS & OPTICAL ELECTRONICS**
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 16**

**Seventh Term**

* Senior Design 1 – 3 Credits
* MEMS 1057 – MICRO/NANO MANUFACTURING
  + **PHYS 1361 – WAVE MOTION AND OPTICS (Upper Level Physics Elective)**
  + **MEMS 1058 – ELECTROMAGENTIC PROPERTIES OF MATERIALS (See other options here)**
  + Nanotechnology Elective – 3 Credits
* Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 18**

**Eighth Term**

* ENGR 0020 – PROBABILITY AND STATISTICS
* PHYS 0481 – PRINCIPALS IN MODERN PHYSICS
* Senior Design 2 – 3 Credits
  + Humanity/Social Science Elective – 3 Credits
* Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 16**

**Total Credits: 137**

**Nanotechnology – Physics/Materials**

**First Term**

* MATH 0220 - ANALYTIC GEOMETRY AND CALCULUS 1
* CHEM 0960 - GENERAL CHEM FOR ENGINEERS 1
* PHYS 0174 - BASIC PHYSICS, SCIENCE AND ENGINEERING 1 (INTEGRATED)
* ENGR 0011 - INTRO TO ENGINEERING ANALYSIS
* ENGR 0081 - FRESHMAN ENGINEERING SEMINAR 1
* ENGCMP 0210 - SEMINAR IN COMPOSITION: ENGINEERING

**Credits: 17**

**Second Term**

* MATH 0230 - ANALYTIC GEOMETRY AND CALCULUS 2
* CHEM 0970 - GENERAL CHEM FOR ENGINEERS 2
* PHYS 0175 - BASIC PHYSICS, SCIENCE AND ENGINEERING 2 (INTEGRATED)
* ENGR 0012 - INTRO TO ENGINEERING COMPUTING
* ENGR 0082 - FRESHMAN ENGINEERING SEMINAR 2
* ENGCMP 0412 - ENGINEERING COMMUNICATION IN A PROFESSIONAL CONTEXT

**Credits: 17**

**Third Term**

* MATH 0280 – INTRO TO MATRICES & LINEAR ALG
  + MATH 0290 – DIFFERENTIAL EQUATIONS
* PHYS 0477 – THERMAL PHYSICS RELATIVITY & QUANTUM MECHANICS
* ECE 0031 – LIN CIR & SYSTEMS 1
* ECE 0301 - PROBLEM SOLVING WITH C++
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 17**

**Fourth Term**

* + MATH 0240 – ANALYTIC GEOMETRY AND CALCULUS 3
* ENGR 0135 – STATICS AND MECHANICS OF MATERIALS 1
* ENGR 0022 – MATERIAL STRUCTURE & PROPERTIES
* MEMS 0048 – THERMODYNAMICS OF MATERIALS
* PHYS 0219 – LAB PHYSICS FOR SCIENCE & ENGINEERING
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 15**

**Fifth Term**

* ENGR 0240 INTRO TO NANOTECHNOLOGY & NANOENGINEERING
* MEMS 1010 – EXPERIMENTAL METHODS IN MSE
* MEMS 1053 – STRUCTURE OF CRYSTALS & DIFFRACTION
* MEMS 1059 – PHASE EQUILIBRIA OF MULTI-COMPONENT SYSTEMS
  + Nanotechnology Elective – 3 Credits
  + Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 18**

**Sixth Term**

* + ENGR 0241 – FABRICATION AND DESIGN IN NANOTECHOLOGY
  + MEMS 1063 – PHASE TRANSFORMAION AND MICROSTRUCTURE EVOLUTION
  + ECE 0102 – MICROELECTRONIC CIRCUITS
  + Upper Level Physics – 3 credits
* Nanotechnology Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 16**

**Seventh Term**

* Senior Design 1 – 3 Credits
* MEMS 1057 – MICRO/NANO MANUFACTURING
  + Upper Level Physics – 3 credits
  + Nanotechnology Elective – 3 Credits
* Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 15**

**Eighth Term**

* ENGR 0020 – PROBABILITY AND STATISTICS
* PHYS 0481 – PRINCIPALS IN MODERN PHYSICS
* Senior Design 2 – 3 Credits
  + Humanity/Social Science Elective – 3 Credits
* Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 16**

**Total Credits: 131**

**Sustainability Certificate – 18 credits (3 extra courses – 9 credits)**

**First Term**

* MATH 0220 - ANALYTIC GEOMETRY AND CALCULUS 1
* CHEM 0960 - GENERAL CHEM FOR ENGINEERS 1
* PHYS 0174 - BASIC PHYSICS, SCIENCE AND ENGINEERING 1 (INTEGRATED)
* ENGR 0011 - INTRO TO ENGINEERING ANALYSIS
* ENGR 0081 - FRESHMAN ENGINEERING SEMINAR 1
* ENGCMP 0210 - SEMINAR IN COMPOSITION: ENGINEERING

**Credits: 17**

**Second Term**

* MATH 0230 - ANALYTIC GEOMETRY AND CALCULUS 2
* CHEM 0970 - GENERAL CHEM FOR ENGINEERS 2
* PHYS 0175 - BASIC PHYSICS, SCIENCE AND ENGINEERING 2 (INTEGRATED)
* ENGR 0012 - INTRO TO ENGINEERING COMPUTING
* ENGR 0082 - FRESHMAN ENGINEERING SEMINAR 2
* ENGCMP 0412 - ENGINEERING COMMUNICATION IN A PROFESSIONAL CONTEXT

**Credits: 17**

**Third Term**

* MATH 0280 – INTRO TO MATRICES & LINEAR ALG
  + MATH 0290 – DIFFERENTIAL EQUATIONS
* PHYS 0477 – THERMAL PHYSICS RELATIVITY & QUANTUM MECHANICS
* ECE 0031 – LIN CIR & SYSTEMS 1
* ECE 0301 - PROBLEM SOLVING WITH C++
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 17**

**Fourth Term**

* + MATH 0240 – ANALYTIC GEOMETRY AND CALCULUS 3
  + ENGR 0020 – PROBABILITY AND STATISTICS
* ENGR 0022 – MATERIAL STRUCTURE & PROPERTIES
* MEMS 0048 – THERMODYNAMICS OF MATERIALS
* **CEE 1610 – ENGINEERING & SUSTAINABLE DEVELOPMENT**
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 17**

**Fifth Term**

* ENGR 0240 INTRO TO NANOTECHNOLOGY & NANOENGINEERING
* MEMS 1010 – EXPERIMENTAL METHODS IN MSE
* MEMS 1053 – STRUCTURE OF CRYSTALS & DIFFRACTION
* MEMS 1059 – PHASE EQUILIBRIA OF MULTI-COMPONENT SYSTEMS
  + Nanotechnology Elective – 3 Credits
  + **Humanity/Social Science Elective – 3 Credits (Check options here)**
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 18**

**Sixth Term**

* + ENGR 0241 – FABRICATION AND DESIGN IN NANOTECHOLOGY
  + MEMS 1063 – PHASE TRANSFORMAION AND MICROSTRUCTURE EVOLUTION
  + ECE 0102 – MICROELECTRONIC CIRCUITS
* PHYS 0219 – LAB PHYSICS FOR SCIENCE & ENGINEERING
  + Upper Level Physics – 3 credits
* Nanotechnology Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 18**

**Seventh Term**

* Senior Design 1 – 3 Credits
* MEMS 1057 – MICRO/NANO MANUFACTURING
  + Upper Level Physics – 3 credits
  + Nanotechnology Elective – 3 Credits
  + **ENGR 1905 – CURRENT ISSUES IN SUSTAINABILITY**
  + **Humanity/Social Science Elective – 3 Credits (Check options here)**
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 18**

**Eighth Term**

* ENGR 0135 – STATICS AND MECHANICS OF MATERIALS 1
* PHYS 0481 – PRINCIPALS IN MODERN PHYSICS
* **ENGR 1907 – SUSTAINABILITY CAPSTONE EXPERIENCE**
* Senior Design 2 – 3 Credits
* **Humanity/Social Science Elective – 3 Credits (Check options here)**
  + Humanity/Social Science Elective – 3 Credits
* MEMS 1085 – DEPARTMENTAL SEMINAR

**Credits: 18**

**Total Credits: 140**