

### MATHEMATICAL AND PHYSICAL SCIENCE - PRE-ENGINEERING OPTION

(Note: Program requirements for this degree are offered on NOC Enid and Tonkawa campuses only.

At the beginning of each course listing, the four letter abbreviation indicates the department and the four digits indicate the course code used for enrollment. The total course hour value follows each.)

<p><b>Program Requirements</b></p> <p><b>General Education Courses - 37 Total Credit Hours</b></p> <p><b>English Composition Courses</b> ENGL 1113 English Composition I 3 hours ENGL 1213 English Composition II 3 hours</p> <p><b>History &amp; Government Courses</b> HIST 1483 Amer. History to 1877 3 hours (or) HIST 1493 Amer. History Since 1877 POLI 1113 American Government 3 hours</p> <p><b>Humanities Courses</b> Electives 6 hours One 3 hour course to be chosen from those listed with the International Dimension and 3 hours of humanities electives.</p> <p><b>Mathematics Courses</b> MATH 1513 Algebra for STEM 3 hours</p> <p><b>Science Courses</b> CHEM 1515 Chemistry for Engineers 5 hours PHYS 2014 Engineering Physics I 4 hours</p> <p><b>Computer Science Courses</b> CMSC 1013 Visual BASIC 3 hours (or other approved computer course)</p> <p><b>Orientation Courses</b> ORNT 1101 Freshman Orientation 1 hour</p> <p><b>General Education Elective Courses</b> 3 hours</p> <p><b>Program Requirement Courses - 19 Total Hours</b> MATH 1613 Plane Trigonometry 3 hours **MATH 2144 Calculus I 4 hours **MATH 2154 Calculus II 4 hours **MATH 2164 Calculus III 4 hours **PHYS 2114 Engineering Physics II 4 hours</p> <p><b>Recommended Program Elective Courses - 4 Total Hours (use gen ed hrs to choose 7 hrs)</b> ENGR 1223 Technical Writing 3 hours ENGR 1111 Intro to Engineering 1 hour **ENGR 2113 Statics 3 hours **ENGR 2443 Thermodynamics 3 hours **MATH 2163 Differential Equations 3 hours BIOL 1114 General Biology 4 hours PHIL 2223 Business Ethics 3 hours</p> <p><b>Total Credit Hours 60 hours</b></p> <p><small>*Students scoring 26 or above on the math subsection of the ACT do not have to take MATH 1513 Algebra for STEM. Students scoring 28 or above on the math subsection of the ACT do not have to take MATH 1613 Plane Trigonometry. Students not taking Algebra &amp; Trigonometry because of ACT scores or CLEP exam results are required to substitute 3-6 hours of credit in appropriate General Education Electives or RECOMMENDED PROGRAM ELECTIVES to complete 60 hours at NOC and maximize their transfer hours to the four-year institution.</small></p>	<p><b>Suggested Course Sequence:</b></p> <p><b>First Semester 17 Total Credit Hours</b> ENGL 1113 English Composition I 3 hours ENGR 1111 Introduction to Engineering 1 hour CHEM 1515 Chemistry for Engineers 5 hours ORNT 1101 Freshman Orientation 1 hour *MATH 1513 Algebra for STEM (if score requires) (or) Program Elective 3-4 hours *MATH 1613 Plane Trigonometry 3 hours</p> <p><b>Second Semester 17 Total Credit Hours</b> ENGL 1213 English Composition II 3 hours MATH 2144 Calculus I 4 hours PHYS 2014 Engineering Physics I 4 hours Computer Science Course 3 hours HIST 1483 Amer. History to 1877 3 hours (or) HIST 1493 Amer. History Since 1877</p> <p><b>Third Semester 14 Total Credit Hours</b> ENGR 2443 Thermodynamics 3 hours MATH 2154 Calculus II 4 hours PHYS 2114 Engineering Physics II 4 hours Humanities Elective 3 hours</p> <p><b>Fourth Semester 13 Total Credit Hours</b> POLI 1113 American Government 3 hours MATH 2164 Calculus III 4 hours Program Elective Recommended: 3-4 hours ENGR 2113 Statics (or) MATH 2613 Differential Equations Humanities Elective 3 hours</p> <p><b>Suggested NOC courses for specific engineering disciplines:</b> ENGR 2123 Dynamics 3 hours</p> <p><b>BIOSYSTEMS AGRICULTURAL:</b> BIOL 2124 Microbiology 4 hours BIOL 1414 General Zoology 4 hours</p> <p>Students need to consult with the engineering school of interest for Chemistry and Biology requirements.</p> <p><i>This is a suggested sequence timeline only. A student may require more than four semesters to complete an Associate in Science degree.</i></p>	<p>The Pre-Engineering degree option is designed to transfer into all disciplines of engineering. It is important to secure a catalog from the engineering school to transfer so you may select the courses to meet the requirements needed to obtain the bachelor's degree your choose. The program features small class size and individual attention for this challenging degree.</p> <p><b>Career Opportunities</b> Architect/Designer Aerospace Agriculture Biosystems Engineer Chemical Engineer Construction Technology Civil Engineer Electrical Engineer Environmental Engineer Mechanical Engineer Meteorology Metallurgical Engineer Petroleum Engineer</p> <p>NOC evaluates students for placement into either foundational or college-level courses, whichever will lead to the greatest possibility of student success. Academic placement is determined by A.C.T. test scores--primary or a residual administered in the Testing Center at NOC. Based upon the scores, students may be required to take one or more courses for remediation in English, Math, or Reading, either prior to or concurrent with credit courses. See the NOC testing web page by clicking on the following link: <a href="http://www.noc.edu/act">http://www.noc.edu/act</a> for placement guidelines.</p> <p>**These program courses are typically offered only once a year. See course descriptions for fall or spring designations and plan accordingly.</p>
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