

PRE-ENGINEERING

With an ever-growing population and an ever-changing world, engineers will always be needed. Bridges, roads, tunnels, houses, and other building structures need to be built and maintained. A solid base of math, science, physics, chemistry, and graphic design are the skills needed to become an engineer, and you can develop them all at Wayne State. You have a couple of options with the pre-engineering program. You can either spend two years at Wayne State and then transfer to a school offering an engineering degree; or you can choose a relevant major at WSC, obtain your bachelor's degree here, and move on to graduate work in engineering.

fast facts

Degrees offered: This program is set up so you can begin your engineering education at WSC, then transfer to a school offering an undergraduate degree in engineering. Or you can obtain a B.S. at WSC and then be ready for graduate work in the engineering field.

Suggested programs of study: Mathematics, Biology, Chemical Sciences, Computer Science

Department: Physical Sciences and Mathematics

School: Science, Health, and Criminal Justice

focus on results

Skills Learned

- Methods to solve problems in math and science
- Proficiency in solving complex math problems
- Chemical processes and materials
- Chemical experiment and design
- University physics and experimentation
- Research, observation, and analysis of data
- Critical thinking and problem-solving
- Ability to work independently
- Time management

Possible Careers

- Chemical engineer
- Civil engineer
- Electrical engineer
- Mechanical engineer
- Architectural engineer
- Industrial engineer
- Aerospace engineer
- Product design engineer
- Plant engineer
- Biomedical engineer

Types of Employers

- Engineering firms
- Tech companies
- Government / federal agencies
- Manufacturing companies
- Product development companies
- Aerospace companies
- Aviation companies
- Processing companies
- Biomedical companies
- Research labs
- Construction companies

outside the classroom

Activities / Opportunities

- Conduct research projects
- Conferences and presentations
- Peer mentoring and tutoring
- Service-Learning
- Study Abroad

Clubs / Organizations

- Association for Computing Machinery
- Biology Club
- Kappa Mu Epsilon (Math Honorary)



Visit www.wsc.edu/clubs to learn more about clubs and organizations on campus.

Sample program of study

2021-22 Academic Year

Every effort is made to ensure this information is current, but please be aware that some content may have changed. There is no substitute for developing a careful course registration plan in consultation with your advisor. The class sequence listed is suggested only. The final decision rests with the student and academic advisor.

The actual program makeup will vary according to the particular discipline or school. Most programs will consist of engineering science courses, mathematics courses in calculus and differential equations, science courses in physics and chemistry, communication courses in composition, speech, and graphic communication, and courses in the humanities and social sciences. Wayne State College collaborated with South Dakota School of Mines and Technology (SD Mines) to develop an engineering science concentration. If the student knows which engineering discipline they are interested in, they should contact the coordinator of the programs noted on the reverse of this sheet for a specific program of study. The program below is only for students uncertain of which engineering discipline interests them.

Freshman - 1st semester

ENG 102 Composition Skills I.....	3
MAT 140 Calculus I.....	5
PHY 115 Professionalism in Science.....	2
PHY 301 University Physics I.....	4
PHY 321 Physics Lab I.....	1

Freshman - 2nd semester

CNA 100 Principles of Human Communication.....	3
MAT 240 Calculus II.....	5
*PED 103 Lifestyle Assessment.....	2
PHY 302 University Physics II.....	4
PHY 322 Physics Lab II.....	1
General Studies.....	3

Sophomore - 1st semester

CHE 106 General Chemistry I.....	4
CSC 150 Programming Fundamentals I.....	3
MAT 340 Calculus III.....	4
PHY 214 Applied Statics.....	3
General Studies.....	3

Sophomore - 2nd semester

CHE 107 General Chemistry II.....	4
MAT 250 Differential Equations.....	3
PHY 215 Applied Dynamics.....	3
***Natural science elective.....	3
General Studies.....	3

*Most institutions have a “wellness” requirement of 2 to 3 credits. Some institutions either require or allow physical education classes to meet this requirement but in many, if not most, cases PED 103 is the transferable class.

**Studies in the humanities and social sciences serve not only to meet the objectives of a broad education but also to meet the objectives of the engineering profession. Therefore, studies in the humanities and social sciences must be planned to reflect a rationale or fulfill an objective appropriate to the engineering profession as well as Wayne State College’s and the receiving engineering college’s objectives. To satisfy this requirement, the courses selected must provide both breadth and depth and not be limited to a selection of unrelated introductory courses. Such coursework must meet the generally accepted definitions that humanities are the branches of knowledge concerned with man and his culture, while social sciences are the studies of individual relationships in and to society. Examples of qualifying subjects are philosophy, religion, history, literature, fine arts, sociology, psychology, political science, anthropology, economics, and foreign languages other than English or a student’s native language. Subjects such as accounting, management, finance, personnel administration, personal economics and military training do not fulfill the objectives desired of the humanities and social sciences content.

***Engineers will take a fair amount of science courses but this science elective should reflect the receiving engineering college’s requirement for citizenship of the engineer to the environment or humanity and not just the science directly and specifically pursuant to the engineer’s field.

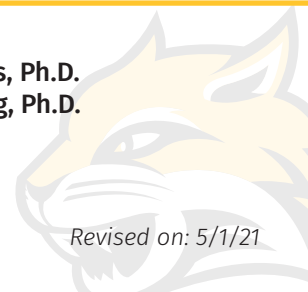
pre-engineering faculty



Visit www.wsc.edu/psm to learn more about the Department Physical Sciences and Mathematics.

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Revised on: 5/1/21