Mechanical Engineering 460000BS

The following information has official approval of the **College of Engineering**, but is intended only as a supplemental guide. Official degree requirements are established at the time of transfer and admission to the degree-granting college. *Completion of this degree within the identified time frame below is contingent upon many factors, including but not limited to: class availability, total number of required credits, work schedule, finances, family, course drops/withdrawals, successfully passing courses, prerequisites, among others.* The transfer process is completed through an appointment with your Academic Advisor.

Italicized courses fulfill General Education requirements. Unless a course is specified, refer to the General Education guide at http://www.uakron.edu/advising/docs/General_Education_Guide.pdf

1st Year	**Fall Semester**	Credit Hours	Prerequisites
3150:151	*Principles of Chemistry I (Lecture and Recitation) (Natural Science Requirement)*	3	Placement into 3450:149 (Precalculus) or higher
3150:152	*Principles of Chemistry I Lab (Natural Science Requirement)*	1	3150:151 corequisite
3450:221	*Analytic Geometry-Calculus I*	4	Placement Test or 3450:149 (PreCalculus)
4600:165	Tools for Mechanical Engineering(Lect and Lab)	3	3450:149 (PreCalculus) or higher corequisite
	Physical Education Requirement	1	
	English Composition I Requirement	4	Appropriate placement by advisor
Total		**16**	

1st Year	**Spring Semester**		
3450:222	Analytic Geometry-Calculus II	4	3450:221 with C- or better
3150:153	Principles of Chemistry II (Lecture and Rec)	3	3150:151
	English Composition II Requirement	3	3300:111 or equivalent
	Speech/Oral Communication Requirement	3	
	Social Science Requirement (not economics)	3	
Total		**16**	

2nd Year	**Fall Semester**		
3450:223	Analytic Geometry-Calculus III	4	3450:222 with C- or better
3650:291	*Physics I (Lecture and Lab) (Natural Science Requirement)*	4	3450:221 with C- or better
4300:201	Statics	3	3450:222 and 3650:291 corequisites
3250:244	*Intro to Economic Analysis (Social Science Requirement)*	3	
3400:210 **or** 3400:221	*Humanities in the Western Tradition* ***-OR-*** *Humanities in the World since 1300*	4	32 credit hours and 3300:112 equivalent 32 credit hours and 3300:112 equivalent
Total		**18**	

2nd Year	**Spring Semester**		
3650:292	Physics II (Lecture and Lab)	4	3650:291
4600:203	Dynamics (Lecture and Problem)	3	3450:222, 3650:291, 4300:201 prerequisites 3450:223 corequisite
3450:335	Introduction to Ordinary Differential Equations	3	3450:223 with C- or better
4300:202	Mechanics of Solids (Lecture and Problem)	3	4300:201
4600:260	Engineering Analysis I	2	3450:222 prerequisite; 3450:223 corequisite
Total		**15**	

3rd Year	**Fall Semester**		
4600:300	Thermodynamics I (Lecture and Problem)	3	3450:223
4600:310	Fluid Mechanics I (Lecture and Problem)	2	4600:203 and 3450:335
4600:321	Kinematics of Machines	2	4600:203 and Tools
4600:336	Analysis of Mechanical Components (Lecture	3	4300:202 prerequisite; 3450:335 corequisite

	and Problem)		
4600:360	Engineering Analysis II (Lecture and Problem)	2	4600:260, 3450:335
3470:401	Probability and Statistics for Engineers	2	3450:222
Total		**14**	

3rd Year	**Spring Semester**		
4600:315	Heat Transfer (Lecture and Problem)	3	4600:310 or 4800:360; 4600:300; 4600:360 or 4800:220
4600:337	Design of Mechanical Components	3	4600:336
4600:340	Systems Dynamics and Response (Lecture and Problem)	3	4600:203 and 3450:335
4600:483	ME Measurements Lab (Lecture and Lab)	2	4600:300 and 4600:310 prerequisites 4600:340 corequisite
4600:301	Thermodynamics II	2	4600:300 and 3450:335
	Humanities Elective Requirement	3	
Total		**16**	

3rd Year	**Summer Semester**		
4600:311	Fluid Mechanics II	3	4600:310
4600:380	Mechanical Metallurgy	2	3150:153 prerequisite; 4300:202 corequisite
4600:431	Fundamentals of Mechanical Vibrations	3	4600:203 and 3450:335
Total		**8**	

4th Year	**Fall Semester**		
4600:400	Thermal System Components (Lecture and Problem)	3	4600:310, 4600:311 and 4600:315
4600:441	Control Systems Design (Lecture and Problem)	3	4600:340
4600:460	Concepts of Design (Lecture and Design)	3	4600:460
4600:461	ME Senior Design Project I	2	Department consent required 4600:400, 4600:441 and 4600:460 corequisites
4600:484	Mechanical Engineering Laboratory	2	4600:301, 4600:311, 4600:315, 4600:380, 4600:431, 4600: 483 prerequisites 4600:441 corequisite
4600:402	Senior Seminar	1	4600:401, 4600:461 or 4700:499 prerequisites 4600:400, 4600:441, 4600: 460 corequisites
	ME Elective*	3	
Total		**17**	

4th Year	**Spring Semester**		
4600:471	ME Senior Design Project II	2	Department consent, 4600:461
4400:307	Basic Electrical Engineering	4	3650:292 prerequisite; 3450:335 corequisite
	ME Elective*	3	
	ME Elective*	3	
	Area Studies/Cultural Diversity Requirement	2-3	
	Humanities Requirement	3	
Total		**17-18**	

	Minimum Total Credits for Degree	**137 min**	

ALERT: 1) By the end of your first 48 credit hours attempted, you should have completed your General Education English, Math, and Oral Communication (Speech) requirements; 2) By the end of your first 48 credit hours attempted, you should have declared a major and transferred to (been accepted by) a degree granting college at The University of Akron.

*Electives must include 3 credits of Mechanical Engineering design elective, 3 credits technical elective and 3 credits Mechanical Engineering technical elective.

Department Chair, Dr. Sergio Felicelli, 101 Auburn Science and Engineering, (330) 972-7731 or (330) 972-7672.
E-Mail: sergio@uakron.edu & Web Address: www.uakron.edu/engineering/ME/

IN GENERAL: Mechanical Engineering is a branch of engineering concerned with the production, transmission, and storage of energy and motion and the design and analysis of physical systems to carry out these objectives. The curriculum is based on a firm grounding in mathematics and physical sciences with further study in the engineering sciences and design including solid mechanics, thermal sciences, control systems, fluid flow, energy system design and mechanical system design.

SALARY LEVEL: Starting salary offers for new graduates range from $30,000 to $75,000 per year. The average is $56,500.

CO-OP OPTION: Students can choose between a five-year program, which includes up to four semesters of co-op experience, or a four-year program without co-op experience. The Co-op Program provides an opportunity to gain real-world, relevant experience while working toward a bachelor's degree. Students who participate in the Co-op Program earn money to help fund their education, graduate with 12 or more months of career-related experience, and often receive a higher starting salary after graduation. More information about the Co-op Program can be found at engineering.uakron.edu/coop.

OUT-OF-PHASE STUDENTS: A student who is out of phase with his/her class through course failure, transfer, etc. should be aware of the importance of giving priority to Mathematics, Physics, Statics, Mechanics of Solids, and Dynamics in scheduling. These courses are prerequisites to other engineering courses and should be completed as early as possible.

STUDENT ACTIVITIES: A student interested in Mechanical Engineering is encouraged to affiliate with the student section of the American Society of Mechanical Engineers. This society holds monthly meetings, plant tours and social events and provides an opportunity for the engineering student to learn more about the chosen field and to become acquainted with faculty members and fellow students. Student sections of the Society of Automotive Engineers and the American Institute for Aeronautics and Astronautics are also based in the Mechanical Engineering Department.

PLACEMENT: The Engineering Co-op and Placement Office, ASEC 203, Akron, Ohio 44325 assists all graduates with full-time placement.

TRANSFER TO COLLEGE OF ENGINEERING: To be admitted to the college, the student must:

- Complete at least 30 semester hours of coursework post high school
- Complete Calculus 2 with a C- or higher
- Have a 2.3 grade point average in at least three of the following categories:
    - in all coursework
    - in all engineering coursework
    - in all required mathematics coursework
    - in all required science coursework (chemistry, physics, computer science, biology)

Admission of students who do not meet the above requirements will be considered by the dean or representative only if the request originates by an Engineering department head or representative.

Students can arrange inter-college transfers through an appointment with their academic advisor; advisor contact information is listed in "My Akron."

DIRECT ADMISSION TO MECHANICAL ENGINEERING: An entering freshman student will have the option of direct admission to the Department of Mechanical Engineering if he or she (1) had at least a 3.4 high school grade point average, (2) was in the upper 25% of his or her high school graduating class, and (3) had a core curriculum of four units of math including trigonometry with a grade of B or above and one unit of chemistry with a grade of B or above. In addition, the freshman must have either (1) a 24 ACT composite score with a 25 ACT math score or (2) a 1010 SAT composite score with a 560 SAT math score.

WOMEN AND MINORITY ENGINEERS: Eligible students are invited to register into the applicable engineering course elective. There are two options; 4100:110, Women in Engineering Seminar & Peer Group (Contact: Heidi Cressman, 330-972-7701, or hec9@uakron.edu). This course provides beginning women students an overview of the career opportunities for women in engineering. The course introduces relevant topics in engineering, an overview of career opportunities, student led discussion groups and an opportunity to meet with professionals in various engineering disciplines. The other option is 4100:120, Minority Engineering Seminar and Peer Groups (Contact: Julie Zhao, 330-972-2823, or zhao1@uakron.edu). This course provides an overview of disciplines and opportunities in engineering. It also reinforces educational/ career choices and provides role models of successful minority engineers.

(Jackson)