Department of Mechanical Engineering

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The Department of Mechanical Engineering offers a four-year degree program leading to the Bachelor of Science in Mechanical Engineering (BSME) and a two-year degree program in Nuclear Technology. The program leading to the Bachelor of Science in Mechanical Engineering (BSME) degree is accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET).

The mission of the Department of Mechanical Engineering at Arkansas Tech University is to develop and maintain accredited programs leading to the Bachelor of Science degree. The department is committed to providing its students with a positive atmosphere in which to learn the fundamentals of engineering practice including engineering science and design. In order to meets its mission, the department has established educational objectives for its program.

The educational objectives of the engineering program of the Department of Mechanical Engineering at Arkansas Tech University are:

1. To produce graduates who use the engineering skills and technical ability gained through the program to embark upon successful careers in mechanical engineering.
2. To produce graduates who engage in life-long learning.
3. To produce graduates who employ engineering analysis, experimental methods, and design techniques to solve engineering problems.
4. To produce graduates who demonstrate skills pertinent to the design process including the ability to formulate problems, to think creatively, to communicate effectively, to synthesize information and to work collaboratively.
5. To produce graduates who understand their professional and ethical responsibilities.

Mechanical Engineering

Mechanical engineering is the profession which designs, develops, and manufactures machines that produce, transmit, or use power. Mechanical engineers are involved in the design, development, and production of virtually every product one can imagine. The range of job possibilities for mechanical engineers, both in location and function, is limitless. The mechanical engineering program at Arkansas Tech is designed to give the students a solid grounding in the machine design and thermal systems areas and to help satisfy the engineering manpower needs of industry in Arkansas and the mid-south region. The required courses provide a basic foundation in mechanical engineering with a strong cross-disciplinary component and an emphasis on engineering design.

Most graduates of the engineering programs go directly into the work force as practicing engineers. Many are employed by manufacturing companies in the Arkansas River Valley area, while others have obtained positions with large national and multinational corporations. A number of graduates have elected to attend one of many different graduate schools specializing in disciplines such as engineering (electrical, mechanical, industrial, or nuclear), mathematics, physics, or business.

The first two years of the curriculum contain the needed mathematics, science, and engineering science basics to prepare the student for the upper-level mechanical engineering courses. The junior and senior years include 12 hours of engineering electives which allows the student to concentrate in one of the available areas of specialization which include machine design, nuclear systems, or thermal systems.

Pre-Professional curriculum

Prior to enrolling in any 3000 or 4000-level engineering course, students must successfully complete a pre-professional curriculum containing preparatory courses normally taken during the first three semesters. The pre-professional curriculum is composed of the following courses:

ENGL 1013 and 1023 (or equivalent)
MATH 2914 and 2924
CHEM 2124
PHYS 2114

Satisfactory completion of the pre-professional curriculum is defined as a grade of "C" or better in each course. Students should meet with their advisor during the semester in which they anticipate completing the pre-professional curriculum to complete the procedure for admittance to upper-level engineering classes.

Transfer of Credit

Students wishing to transfer into one of the programs offered by the Department of Mechanical Engineering are urged to contact the Department Head as soon as possible to reduce the possibility of taking non-transferable courses. Course work taken at another institution must meet the requirements of the Arkansas Tech University transfer policies and, in addition, are subject to the department's current transfer policy. Contact the Department of Mechanical Engineering for the latest course transfer information and policy.

Students planning to transfer to another university can, in most cases, complete the first two years of work at Arkansas Tech University. Students who plan to transfer should consult with the school to which they plan to transfer to coordinate details.

The following curriculum represents the program of study and a suggested sequence for the Bachelor of Science in Mechanical Engineering degree. The student should be aware that not all courses are offered each semester and that the ordering of courses is subject to change. In order to minimize scheduling difficulties, each student should schedule a special session with their advisor at the beginning of their junior year to plan the remaining coursework.

Bachelor of Science in Mechanical Engineering (BSME)

Degree Completion Plan Beginning in Fall Semester

Freshman				Sophomore			
Fall		**Spring**		**Fall**		**Spring**	
ENGL 1013[1]	3	ENGL 1023[1]	3	MATH 2934	4	MATH 3243	3
MCEG 1012	2	MCEG 1002	2	PHYS 2114	4	PHYS 2124	4
Social Sciences[1]	3	Fine Arts[1]	3	MCEG 2013	3	MCEG 2033	3
Biological Science[1]	4	CHEM 2124	4	MCEG 2023	3	MCEG 3013	3
MATH 2914	4	MATH 2924	4	MCEG 2203	3	ELEG 2103	3
		Physical Activity[1]	1			Physical Activity[1]	1
Total Hours	**16**	**Total Hours**	**17**	**Total Hours**	**17**	**Total Hours**	**17**
Junior				**Senior**			
Fall		**Spring**		**Fall**		**Spring**	
MATH 3153	3	Technical Elective[4]	3	MCEG 4202	2	ELEG 4303	3
MCEG 3313	3	MCEG 4403	3	MCEG 4433	3	MCEG 4443	3
MCEG 3413	3	MCEG 4423	3	ENGR Lab Elective[2]	1	MCEG 4442	2
MCEG 3442	2	ELEG 2113	3	ENGR Electives[3]	3	ENGR Electives[3]	3
ECON 2003	3	ELEG 2111	1	Humanities[1]	3	MCEG 4493	3
ENGR Electives[3]	3	Social Sciences[1]	3	MCEG/ELEG 3003	3	Social Sciences[1]	3
Total Hours	**17**	**Total Hours**	**16**	**Total Hours**	**15**	**Total Hours**	**17**

Bachelor of Science in Mechanical Engineering (BSME)

Degree Completion Plan Beginning in Spring Semester

Freshman				Sophomore			
Spring		**Fall**		**Spring**		**Fall**	
ENGL 1013[1]	3	ENGL 1023[1]	3	MATH 2934	4	MATH 3243	3
MCEG 1012	2	MCEG 1002	2	PHYS 2124	4	PHYS 2114	4
Social Sciences[1]	3	Fine Arts[1]	3	MCEG 2023	3	MCEG 2013	3
Biological Science[1]	4	CHEM 2124	4	ELEG 2103	3	ECON 2003	3
MATH 2914	4	MATH 2924	4	MCEG 2203	3	ELEG 2113	3
		Physical Activity[1]	1			ELEG 2111	1
Total Hours	**16**	**Total Hours**	**17**	**Total Hours**	**17**	**Total Hours**	**17**
Junior				**Senior**			
Spring		**Fall**		**Spring**		**Fall**	
MATH 3153	3	MCEG/ELEG 3003	3	MCEG 4202	2	ELEG 4303	3
MCEG 3013	3	MCEG 3413	3	MCEG 4423	3	MCEG 4433	3
MCEG 2033	3	MCEG 4403	3	MCEG 4443	3	ENGR Lab Elective[2]	1
MCEG 3313	3	MCEG 3442	2	MCEG 4442	2	ENGR Electives[3]	3
ENGR Electives[3]	3	Technical Elective[4]	3	ENGR Electives[3]	3	MCEG 4493	3
Physical Activity[1]	1	Social Sciences[1]	3	Humanities[1]	3	Social Sciences[1]	3
Total Hours	**16**	**Total Hours**	**17**	**Total Hours**	**16**	**Total Hours**	**16**

[1]See appropriate alternatives or substitutions in "General Education Requirements" on page 79.
[2]3000-level or above ELEG or MCEG laboratory class.
[3]3000-level or above ELEG or MCEG course with minimum of three (3) hours at the 4000-level and approval of advisor.
[4]Technical elective course to be chosen with approval of advisor from list of eligible courses maintained in the departmental office.

Nuclear Technology

The department also offers a two-year program leading to the Associate of Science in Nuclear Technology (ASNT) degree. This degree is designed to allow the student to obtain the knowledge base and training necessary to work in one of the many areas in the nuclear field. While many technology degrees, especially at the associate's level, are seen as less rigorous paths, the ASNT program at Arkansas Tech University includes most of the same courses as the first two years of the engineering programs.

Graduates of the program leading to the Associate of Science Degree in Nuclear Technology may find employment in many areas of the nuclear industry. Many past ASNT graduates have continued their studies to obtain bachelors degrees in engineering or the physical sciences either at Arkansas Tech University or at other institutions.

Associate of Science in Nuclear Technology (ASNT)

Suggested Sequence of Courses

Freshman				Sophomore			
Fall		**Spring**		**Fall**		**Spring**	
ENGL 1013	3	ENGL 1023	3	MATH 2934	4	Technical Elective[2]	3
MCEG 1012	2	MCEG 1002	2	PHYS 2114	4	PHYS 2124	4
Social Science[1]	3	Technical Elective[2]	3	MCEG 2013	3	MCEG 2033	3
CHEM 2124	4	MCEG 2023	3	MCEG 3503	3	MCEG 3523	3
MATH 2914	4	MATH 2924	4	MCEG 3313	3	ELEG 2103	3
Physical Activity[1]	1	Physical Activity[1]	1			MCEG 3512	2
Total Hours	**17**	**Total Hours**	**16**	**Total Hours**	**17**	**Total Hours**	**18**

[1]See appropriate alternatives or substitutions in "General Education Requirements" on page 79.
[2]Mathematics, science, or engineering elective must be approved by an engineering advisor and the Mechanical Engineering Department Head.