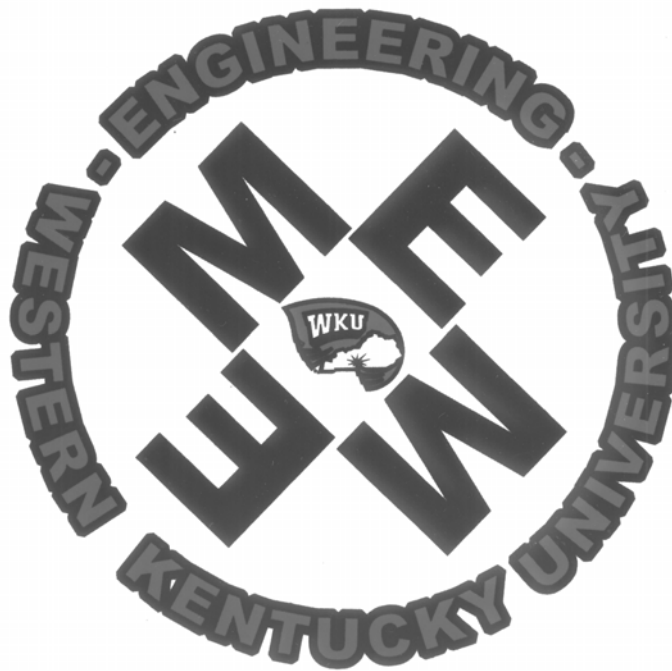


STUDENT HANDBOOK

WKU/UK JOINT BACHELOR OF SCIENCE PROGRAM IN MECHANICAL ENGINEERING

DEPARTMENT OF ENGINEERING
WESTERN KENTUCKY UNIVERSITY
EBS 2101
BOWLING GREEN, KY 42101
WWW.WKU.EDU/ENGINEERING



JANUARY 2, 2008

Accredited by the EAC Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 - telephone: (410) 347-7700

Welcome to the Mechanical Engineering (ME) program at Western Kentucky University (WKU). The faculty has assembled this handbook to familiarize you with the policies and standards associated with this program. This handbook will be periodically updated, so check the engineering home page at www.wku.edu/engineering for the latest edition. Although this handbook is as accurate as we can make it, the WKU University Catalog is the final authority on policies and procedures. Copies of the catalog are available in the Registrar's Office in Potter Hall, and are also available online.

ABET Accreditation, Mission, and Program Outcomes

This program is accredited by the EAC Accreditation Commission of ABET. The Commission can be contacted at ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 - telephone: (410) 347-7700.

The Mission Statement for the ME program is shown on page 5, along with the Program Objectives from the ABET ME accreditation plan. These Program Objectives are intended to be a concise description of what WKU graduates actually do in their practice 3-5 years after graduation. We have begun surveying our graduates on a regular basis to ensure these Objectives are a realistic description of their activities and to determine the graduates' level of preparation for these activities.

A Joint Program with the University of Kentucky

This is a Joint Program with the University of Kentucky (UK). Diplomas from this program are jointly awarded by both WKU and UK. Students do not go to the UK campus in Lexington to take classes. However, students matriculating at WKU in Fall 2004 and later are required to have at least 16 hours of transcript credit in the major taught by a UK faculty member. At the current time, these hours are offered through interactive television (ITV). Courses in the ME curriculum (and other departments as well) are not offered each academic semester. Thus, it is very important you work with your faculty advisor to monitor your progress towards this and the other academic requirements of the program.

Minors

A wide range of minors is available at WKU. Some students who complete the ME degree program requirements choose to earn a minor in Mathematics with additional Mathematics coursework. In addition, a new multidisciplinary minor in Entrepreneurship is now available. Engineering students can receive this minor upon completion of their engineering degree plus the following three courses: Accounting 200, Marketing 320, and Management 312. The advisor for the Entrepreneurship minor is in the College of Business (445 Grise Hall). Other minors are described in the WKU catalog under the appropriate program or department.

Curriculum, Courses, and Academic Advising

THE CURRICULUM IS UNDERGOING REVISIONS THROUGH THE UNIVERSITY SYSTEM TO MATCH THE DOCUMENTS AND CURRICULUM SHOWN IN THIS HANDBOOK. THIS MAY REQUIRE YOU AND YOUR ADVISOR TO COMPLETE SOME ADDITIONAL PAPERWORK CLOSER TO GRADUATION TO INDICATE SUBSTITUTIONS OF SOME NEW COURSES FOR OLD ONES SHOWN IN THE CATALOG. THESE CURRICULAR CHANGES WERE TO YOUR ADVANTAGE: 7.5

HOURS WERE REMOVED FROM THE COURSE OF STUDY AND SOME IMPROVED COURSES WERE SUBSTITUTED FOR COURSES CURRENTLY SHOWN IN THE CATALOG. SEE YOUR ADVISOR FOR DETAILS.

Taking personal responsibility for tracking your progress through the curriculum is key to your academic success. A suggested plan of study is shown on page 6. This form is a template for completing the degree program in eight semesters. You must recognize that this can only be achieved by taking a relatively aggressive pace of courses. If you get off sequence or you cannot take the full listed load for a given semester, make sure you work with your advisor to select the appropriate courses to minimize prerequisite problems in later semesters.

The table on page 7 documents the prerequisites and corequisites for courses in the ME program. **You must pay very close attention to these requirements, so be cautious in planning and modifying your schedule.** For instance, if you drop a class without considering the prerequisite requirements for the next semester, you may need to add a year to your course of study. Once again, work carefully with your advisor.

If you choose to change your major to Mechanical Engineering, you must use a “Change of Major/Minor/Advisor” form, as shown in the example on page 8. Original copies of this form are available in the Engineering departmental office, and are used to declare your major in ME and to be assigned an advisor. Students declaring ME as their major must use “543P Mechanical Engineering Pre-Major” for the “Major 1” code and name.

Academic advising is done by faculty in the program. Scheduling appointments is done in Advisor Trac, accessible through <https://tracweb.wku.edu> with user name and password the same as your WKU email account. You will get a security certificate error when you try to log on, but approve the site and enter anyway. This is a known problem under review. Once in the system, search for your academic advisor to make an appointment.

Academic advisors as assigned as follows:

- New students and those who are not currently taking ME 200: Prof. Joel Lenoir, EBS 2118.
- Students currently in or above ME 200, but not in ME 300: Prof. Robert Choate, EBS 2114.
- Students currently in or above ME 300, but not in ME 412: Dr. Chris Byrne, EBS 2112.
- Students currently in ME 412 or seniors needing graduation assistance: Prof. Joel Lenoir.

The iCAP (Interactive Curriculum and Academic Progress) system found in Topnet will be used to monitor degree program progress. Paper degree programs are no longer being used. Student training in the use of ICAP will be phased in during the 2007-2008 academic year.

Foreign Language Requirement

Foreign language placement is required. The WKU foreign language requirements have changed for students entering WKU in summer 2004 and later. See the Modern Languages page at www.wku.edu/mlis for details on the General Education Placement Policy.

Academic Standards and Graduation Requirements

The individual student is responsible for understanding and following the Academic Standards for the program. Basic admission and academic policies of the program are listed on page 9. Students who enter the ME program are categorized as “pre-majors” until they satisfy the eligibility standards. **The eligibility standards for transition from pre-major to major are listed on page 9. Pay particular attention to the graduation requirement of a grade of C or better for the courses listed. This policy is strictly enforced, see your academic advisor for details. Your progress towards satisfying these requirements will be tracked on the iCAP (Interactive Curriculum and Academic Progress) system found in Topnet. See your advisor for details.**

Mathematics Elective Courses

Mathematics is a necessary and important element of your engineering education. The Mechanical Engineering Program requires students to complete four required Mathematics courses (MATH 126, 227, 327, and 331) and one elective Mathematics course. This elective may be MATH 350, STAT 301, or any other 300 or 400 level Math course covered by the following guidelines (adapted from the UK ME Student Handbook).

The required Mathematics Elective must meet three criteria:

- 1. It must be a course offered by the Department of Mathematics.**
- 2. It must not be a course repeating subject matter already covered in a required course.**
- 3. It must be of a general level greater than or equal to the required courses in Mathematics**

Work with your academic advisor to select an appropriate Mathematics elective.

Course Offering Plan

The ME Joint Program relationship between WKU and UK allows an expanded range and depth of course offerings, along with increased opportunities for students to take required courses. **The following list of courses is scheduled to be offered to Mechanical Engineering students from the University of Kentucky through the spring semester 2010.** Of course, changes to this plan may be required but sufficient advance notice will be given. Pay particular attention to this list and schedule, since each ME student is required to have a minimum of 16 hours of transcript credit in the major taught by a UK faculty member.

University of Kentucky Course Offerings to the WKU/UK ME Joint Program

Fall Semester	Spring Semester
EM 221: UK Statics	EM 221: UK Statics
ME 344: Mechanical Design	EM 313: Dynamics
ME 416: UK Dynamics Systems Elective	ME 321: Engineering Thermodynamics II
ME 498: UK – ME Selected Topics (Fall)	ME 499: UK – ME Selected Topics (Spring)

One additional ME 498 or ME 499 will be offered by a UK faculty member each year.

Technical Electives

Three Technical Electives are required in the ME program. These are primarily satisfied through the four Selected Topics courses, two from each partnering institution:

ME 496: WKU – ME Selected Topics (Fall) ME 497: WKU – ME Selected Topics (Spring)
ME 498: UK – ME Selected Topics (Fall) ME 499: UK – ME Selected Topics (Spring)

Technical elective courses offered in recent semesters from each institution include:

WKU	UK
Reliability Engineering	Design for Manufacturing
Advanced Strength of Materials	Finite Element Analysis
Energy Conversion and Sustainability	Vibroacoustics
Failure Analysis and Prevention	Fluid Dynamics
Materials Processing and Selection	

These and similar courses will be offered each year, watch the ME Program Bulletin board for course announcements as they become available.

Filing for Graduation

The WKU Registrars office maintains all forms and policies for graduation application. However, the form shown on page 10 is used to inform the University of Kentucky of your intended graduation date. You will do this in ME 400 in the Fall of your senior year. This form expires two semesters after filing, and must be re-filed if you require additional time to complete your degree. It is your responsibility to keep this form updated. See the form for details.

WKU/UK Joint Program in Mechanical Engineering

Mission Statement

The Mechanical Engineering program produces graduates who are well prepared for the start of productive, successful careers as practicing engineers. Our graduates will have a strong competitive advantage with their unique background of engineering fundamentals combined with practical knowledge and experience.

The Mechanical Engineering program will provide a project-based, learner-driven environment relevant to the needs of our region. In support of this learning environment, the professional engineering activities of the faculty will create opportunities for the students to practice the art and science of contemporary Mechanical Engineering.

Program Objectives

Technical

Our graduates demonstrate competence in the use of scientific, technical, and professional skills for the practice of Mechanical Engineering.

Our graduates have demonstrated the ability to identify problem causation and have implemented practical, application-oriented solutions.

Our graduates have demonstrated the ability to find additional knowledge necessary to solve unfamiliar problems.

Professional

Our graduates exhibit excellent two-way communication skills (written, oral, visual, and graphical) with a wide variety of audiences.

Our graduates have demonstrated ethical professional behavior and a comprehension of the breadth of the Engineer's professional roles and responsibilities.

Societal

Our graduates have adapted to an ever-changing world by engaging in life-long learning and professional development activities.

Our graduates have contributed to their region's economic development through their professional practice.

(Approved by ME faculty on October 11, 2002)

**WKU/UK Joint Bachelor of Science
Program in Mechanical Engineering**

Curriculum and Suggested Plan of Study

FALL SEMESTER

SPRING SEMESTER

ME 175	University Experience	2
CHEM 120/121	Chemistry I & LAB (4,1)	5
MATH 126	Calculus I	4.5
ENG 100	Freshman English	3
COMM 161	Business Speaking	<u>3</u>
		17.5

ME 180	Freshman Design II	3
MATH 227	Calculus II	4.5
PHYS 250/251	Intro. Mech. & LAB (3,1)	4
HIST 119/120	Western Civilization	3
*Foreign Lang.	Modern Language	<u>3</u>
		17.5

MATH 327	Multivariable Calculus	4
EM 221	UK Statics	3
ME 240/241	Mats./Meth. & LAB (3,1)	4
PHYS 260/261	Intro E&M & LAB (3,1)	4
ENG 200	Introduction to Literature	<u>3</u>
		18

ME 200	Sophomore Design	3
MATH 331	Differential Equations	3
EM 313	UK Dynamics	3
EM 303	WKU Mech. Def. Solids	3
ME 285	Intro. Ind. Automation	1
ME 347	Mechanics LAB	1
Category B	Elective 1 of 2	<u>3</u>
		17

ME 220	Eng. Thermo I	3
ME 344	UK Mechanical Design	3
EE 350	EE Fundamentals	4
MATH ---	Math Elective 1 of 1	3
Category C	Engineering Econ.	3
Category F	Elective 1 of 2	<u>1</u>
		17

ME 300	Junior Design	2
ME 310	Eng. Instrumentation	3
ME 321	UK Eng. Thermo II	3
ME 330	Fluid Mechanics	3
ME ---	ME Tech Elective 1 of 3	3
ENG 300	Junior English	<u>3</u>
		17

ME 325	Heat Transfer	3
ME 416	UK Dyn. Systems Elect.	3
ME 400	Mech. Engr. Design	2
ME 440	Thermal/Fluid Sys. LAB	2
ME 445	Dynamic Syst. LAB	2
ME ---	ME Tech. Elective 2 of 3	<u>3</u>
		15

ME 412	ME Senior Project	3
ME ---	ME Tech Elective 3 of 3	3
Category C	Elective 1 of 1	3
Category B	Elective 2 of 2	3
Category E	Elective 1 of 1	3
Category F	Elective 2 of 2	<u>1</u>
		16

PROGRAM TOTAL = 135 hours

Notes:

- Each student's transcript must have at least 16 hours of credit in the major taught by a UK faculty member.
- UK faculty are scheduled to deliver the following courses to the ME Joint Program:
EM 221, EM 313, ME 321, ME 344, ME 416, and a range of technical electives: ME 498 (Fa) or 499 (Sp).
- Check the ME Student Handbook for the latest institutional course offering plan, including technical electives and a list of suitable Mathematics electives.
- * Review the WKU Undergraduate Catalog for the current policies concerning the foreign language course.
- Consult the WKU Undergraduate Catalog and ICAP for category B, C, E, and F electives. Categories A and D are covered by the plan of study shown.

Approved by MEJPF, 04 May 2007

WKU-UK Joint Program in Mechanical Engineering

Pre-requisite: required before taking a course

Co-requisite: a course required at the same time (concurrent)

Pre/Co: a course taken before or at the same time

<u>Course</u>	<u>Prerequisites</u>	<u>Corequisites</u>
ME 175: University Experience Mech. Engr.	none	none
ME 180: Freshman Design II	ME 175/176/Permit, MATH 126 ≥C	none
ME 200: Sophomore Design	ME 180≥C, EM 221	none
ME 220: Engineering Thermodynamics I	MATH 227	none
ME 240/241: Materials and Methods of Mfg.	CHEM 116 or higher, MATH 126≥C	ME 241
ME 285: Introduction to Industrial Automation	ME 180≥C	none
ME 300: Junior Design	ME 200, ME 344	Pre/Co ME 310, Pre-Major Satisfied
ME 310: Engineering Instru. & Exp.	EM 303, ME 285	Pre/Co ME 347
ME 321: UK Engineering Thermodynamics II	ME 220, MATH 331	none
ME 325: Heat Transfer	ME 330	none
ME 330: Fluid Mechanics	EM 221, MATH 331	none
ME 344: UK Mechanical Design	EM 303, ME 240	none
ME 347: Mechanical Systems Laboratory	ME 241	Pre/Co EM 303, Pre/Co MATH 331
ME 400: Mechanical Engineering Design	ME 300	none
ME 416: UK Dynamic Systems Elective	EM 313, MATH 331	none
ME 412: ME Senior Project	ME 400	none
ME 440: Thermal-Fluid Systems Laboratory	ME 310≥C	Pre/Co ME 325
ME 445: Dynamic Systems Laboratory	ME 310≥C	Pre/Co ME 416
ME 496: WKU ME Selected Topics (Fall)	Course Dependent	Course Dependent
ME 497: WKU ME Selected Topics (Spring)	Course Dependent	Course Dependent
ME 498: UK ME Selected Topics (Fall)	Course Dependent	Course Dependent
ME 499: UK ME Selected Topics (Spring)	Course Dependent	Course Dependent
EM 221: UK Statics	MATH 126	Pre/Co MATH 227, Pre/Co PHYS 250
EM 303: WKU Mechanics Of Deformable Solids	MATH 227, EM 221≥C	none
EM 313: UK Dynamics	EM 221	Pre/Co MATH 327, Pre/Co MATH 331
EE 350: Electrical Engineering Fundamentals	PHYS 260	Pre/Co MATH 331
CHEM 120/121: College Chemistry I / LAB	Placement or CHEM 116≥C	
MATH 126: Calculus and Analytic Geometry I	MATH 117	
MATH 227: Calculus and Analytic Geometry II	MATH 126≥C	
MATH 327: Multivariable Calculus	MATH 227	
MATH 331: Differential Equations	MATH 227	
PHYS 250/251: Introductory Mechanics / LAB	MATH 126≥C	MATH 227
PHYS 260/261: Intro Elect. And Mag. / LAB	PHYS 250≥C, MATH 227≥C	

CHANGE OF MAJOR/MINOR/ADVISOR

Name: _____ SSN: _____

NOTICE: USE THIS FORM IF YOU DO NOT HAVE AN UNDERGRADUATE DEGREE PROGRAM ON FILE.
(Students with a degree program on file must submit either a revised Undergraduate Degree Program or an Undergraduate Degree Program Change Form).

DIRECTIONS:

1. Check the line below that best describes the change you are making:
 - a. _____ I am changing majors within the University
 - b. _____ I am changing majors within the Community College
 - c. _____ I am moving from a major in the University to a major in the Community College effective _____ term.
 - d. _____ I am moving from a major in the Community College to a major in the University effective _____ term.

* Note: If you marked major change (d), university admissions criteria will be checked prior to final approval.
2. List your proposed degree, major(s) and minor(s) below, including all information that is not to be changed or deleted. The Primary degree should be the one you will complete first.
3. Take this form to the department of your major for the department head's approval and assignment of an advisor.
4. Return this form to:
 - a. Community College Enrollment Services, South Campus – for major changes within the Community College
 - b. The Office of Academic Advising and Retention Center, 226 Cherry Hall – for all other major changes
308 Potter Hall

Proposed Program of Study:

Primary Degree: (Circle One) BA BFA BM BS BSN BGS AA AS AAS AGS

Major1 Code: _____ Major1 Name: _____

Concentration: _____ Teacher Certification: Yes or No

Advisor's Full Name: _____ Dept Head's Signature: _____

Major2 Code: _____ Major2 Name: _____

Concentration: _____ Teacher Certification: Yes or No

Advisor's Full Name: _____ Dept Head's Signature: _____

Minor1 Code: _____ Name: _____ Minor2 Code: _____ Name: _____

Secondary Degree: (Circle One) BA BFA BM BS BSN BGS AA AS AAS AGS

Major1 Code: _____ Major1 Name: _____

Concentration: _____ Teacher Certification: Yes or No

Advisor's Full Name: _____ Dept Head's Signature: _____

Minor1 Code: _____ Name: _____ Minor2 Code: _____ Name: _____

Student's Signature: _____ Date: _____

FOR OFFICE USE:

Date Entered: _____ Initials: _____ University Admission _____

Copy, see office

WKU/UK Joint Program in Mechanical Engineering

Academic Standards

Admission to Western Kentucky University

1. Students are admitted to Western under the institutional standard, see the WKU Undergraduate Catalog for details.
2. Students are not immediately admitted directly into any major of the university. If a student expresses an interest in a specific major, then that student will be assigned an advisor from that area and may be put in an appropriate section of our university introductory course, University Experience. However, the student is identified as a pre-major until certain specified courses are completed.
3. A student transitions from pre-major upon completion of a specified portion of curriculum. Required are a minimum of 24 hours including University Experience, English 100, History 119 or 120, Communications 145 or 161, and a mathematics course. Additional requirements are specified for each major for a minimum total requirement of 24 hours. A department may also specify a required grade point average. The ME programmatic requirements are below.
4. Students are expected to meet the pre-major requirements within the first 48 hours of degree credit.

Eligibility to transition from Pre-Major to Major in the Joint WKU/UK ME Program

In order to graduate with a degree in Mechanical Engineering, students must complete the following courses with a GPA of 2.5 in these courses and a grade of C or better in each course:

ME 175: Freshman Seminar (or ME 176 for transfers)	2/1 hrs
English 100: Freshman English	3 hrs
History 119 or 120: Western Civilization	3 hrs
Communications 145 161: Public or Business Speaking	3 hrs
MATH 126: Calculus and Analytic Geometry I	4.5 hrs
MATH 227: Calculus and Analytic Geometry II	4.5 hrs
ME 180: Freshman Design II	3 hrs
Physics 250/251: Intro. Mechanics and Laboratory	4 hrs
Chemistry 120/121: College Chemistry I and Laboratory	5 hrs
ME 240/241: Materials and Methods of Manufacturing	<u>4 hrs</u>
TOTAL HRS =	36/35 hrs

This eligibility requirement must be complete before enrolling in ME 300: Junior Design. Check ICAP for your status.

Graduation Requirements

After satisfying the requirements to transition from Pre-Major to Major in ME:

1. Students must satisfy the graduation requirements of Western Kentucky University, including a minimum GPA of 2.0 in all coursework.
2. Students must have a grade of C or better for:
 - each course listed in the Pre-Major Transition list above, as well as MATH 327 and MATH 331
 - the following courses required of the major:
EM 221, EM 303, ME 200, ME 220, ME 310, ME 330, and ME 347.
3. Each student's transcript must have at least 16 hours of credit in the major taught by a UK faculty member.

Approved by MEJPF Faculty, 04 May 2007

WKU/UK JOINT PROGRAM IN MECHANICAL ENGINEERING

Declaration of Anticipated Graduation Date

During the first week of ME 400, this form will be faxed to the University of Kentucky to inform them of your best estimate of the term you intend to graduate. This form does not remove your obligation to file for graduation at WKU. **This form must be filed no more than 1 semester before you intend to graduate. If your declared date is not in the fall of your ME 400 or the next spring, you will need to file another form at the beginning of your graduation semester. SEE YOUR ADVISOR FOR ASSISTANCE!**

Please print neatly and darkly, this is a faxed form!

Full Legal Name as on diploma: _____
Last First Middle

WKU Student ID #: 800 - - .

Hometown: _____
City State Country

Local WKU address : _____
Number & Street

City State Zip

Student Signature: _____

Date: _____

Semester you intend to graduate: **FALL** _____
INDICATE YEAR! **SPRING** _____
MAY TERM _____
SUMMER _____