

ECE 8673	Computer Methods in Power System Analysis (ECE 4613/6613 or equivalent). 3 hours
ECE 8693	Power Systems Seminar (consent of instructor). 3 hours
ECE 8803	Random Signals and Systems (IE 4613 or MA 4523 or equivalent). 3 hours
ECE 8913	Advanced Feedback Control Systems (ECE 4613/6613). 3 hours
ECE 8923	Non-Linear Control Systems (ECE 4913/6913). 3 hours
ECE 8933	Random Processes in Automatic Control (ECE 4913/6913). 3 hours
ECE 8943	Theory of Optimal Control. 3 hours
ECE 8953	Sampled-Data Control Systems (ECE 4913/6913). 3 hours
ECE 8963	Digital Control Systems (ECE 4913/6913 and ECE 4923/6923 or consent of instructor). 3 hours
ECE 8990	Special Topics in Electrical Engineering. 1-9 hours
ECE 9000	Research/Dissertation. 20 hours

Elementary Education

(See Curriculum and Instruction)

Elementary, Middle, and Secondary Education Administration

(See Educational Leadership)

Engineering

James Worth Bagley College of Engineering

Dr. Glenn Steele, Acting Dean
 Dr. Roger L. King, Associate Dean for Research and Graduate Studies

The Bagley College of Engineering offers the Doctor of Philosophy degree in the following majors:

- Biomedical Engineering
- Computational Engineering
- Computer Engineering
- Computer Science
- Electrical Engineering

The Bagley College of Engineering offers the Doctor of Philosophy degree in Engineering in the following concentration areas:

- Aerospace Engineering
- Biological Engineering
- Chemical Engineering

- Civil Engineering
- Engineering Physics
- Industrial Engineering
- Mechanical Engineering

Detailed information for each concentration can be found in the individual department's listing in this publication.

Master of Engineering Degree

Dr. Roger L. King, Associate for Research and Graduate Studies and Graduate Coordinator, Master of Engineering

Ms. Rita A. Burrell, Manager for Graduate and Distance Education

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Graduate study is offered through the Office of the Dean, James Worth Bagley College of Engineering, leading to the degree of Master of Engineering (M Eng). The M Eng, designed primarily for the professional engineer, is a non-thesis, interdisciplinary program which is delivered via distance learning and combines graduate-level courses from different engineering programs into an advanced-level educational experience. All courses are delivered in a flexible, web-based format. This program is restricted to off-campus students only.

The M Eng upholds the same rigorous academic requirements as all engineering programs offered on the Mississippi State University (MSU) campus and is a unique program in the state of Mississippi. Students enrolled in courses in this program may use credit hours to satisfy continuing education hours for the Mississippi Engineering Board of Registration. Licensed professional engineers from other states also may use these courses to satisfy licensing requirements.

All students admitted to the M Eng should read and become familiar with all academic requirements and processes associated with graduate studies in the Bagley College of Engineering and Mississippi State University as noted in the MSU *Graduate School Bulletin*—General Requirements of the Graduate School and General Master's Degree Requirements. The *Bulletin* is available at <http://www.msstate.edu/dept/grad/>. For specific information about the program, contact Rita Burrell, Manager for Graduate and Distance Education, James Worth Bagley College of Engineering.

Admission Criteria—In addition to meeting the requirements set forth by the Graduate School as noted in the admission section of this publication, the basic requirements for admission to the M Eng include a 3.00/4.00 GPA on a B.S. degree in an engineering discipline area or remedial engineering course work. Students should refer to the General Requirements for Admission section in the *Graduate School Bulletin* regarding University admission policy. A satisfactory performance is required on the GRE for students with a degree from a program that is not EAC/ABET-accredited. Consideration may be given to students who hold non-engineering undergraduate degrees on a case-by-case basis. Admission decisions are made by the Associate Dean for Research and Graduate Studies.

As part of the standard engineering undergraduate program, a student will have had mathematics through ordinary differential equations, one year of calculus-based physics, a general chemistry class, a class in electric circuits, and several courses in engineering mechanics. The commonality in fundamental course work in ABET-accredited engineering programs generally allows for the offering of graduate-level engineering courses with a prerequisite of “graduate standing.” A student with an unusual amount of practical work experience in an area will have “consent of Instructor” as a standard prerequisite. If specific, significant prerequisites are required for any course, these will be clearly identified when the course is posted.

Provisional Admission—A student who does not meet the 3.00 GPA requirement for the M Eng may be admitted to the program on a provisional basis. If provisional admission is granted, the student must achieve a GPA of 3.00 on the first nine credit hours of graduate courses. Transfer credit and unclassified graduate credit may not be used to satisfy provisional admission requirements. Upon meeting the provisional admission requirements, the student receives regular admission status. If the student does not achieve a 3.00 GPA, the student may be terminated from the M Eng program. If a probationary period is granted, the student must achieve a cumulative 3.00 GPA within the next 6 hours of approved course work.

Unclassified Admission—In certain circumstances, a student may be granted admission in unclassified status. Only nine hours of graduate course work received as an unclassified student may be transferred to the M Eng with the approval of the Associate Dean for Research and Graduate Studies. Hours completed in unclassified status may not be used to satisfy provisional admission requirements.

Program of Study—The curriculum for the M Eng is flexible with a minimum requirement of 33 hours of graduate course work. Course work is selected from courses offered across the Bagley College of Engineering. There are no core requirements associated with the program. Up to six hours may be taken from outside the engineering field (normally business, science, mathematics, or statistics; upon petition to the Associate Dean for Research and Graduate Studies, other areas may be considered). The program of study must include at least 15 hours of course work at the 8000 level.

Graduate Committee—All graduate students are required to have a graduate committee. A graduate committee for a student in the M Eng is comprised of the Associate Dean for Research and Graduate Studies as major professor and two committee members who hold graduate faculty status in the Bagley College of Engineering. A student will select the two committee members in consultation with the Associate Dean.

Academic Performance—To be in good academic standing, a student is expected to maintain a cumulative graduate GPA of 3.00 after admission to the program. If a graduate student’s cumulative GPA falls below 3.00, the student will be placed on academic probation. The student must raise the cumulative GPA to 3.00 on the next six hours of approved course work in order to return to satisfactory academic performance.

A student will be dismissed from the M Eng if:

- In any subsequent semester the student’s cumulative GPA again falls below 3.00
- A student makes a grade of D, F, or more than two Cs.

In the case of academic dismissal, the student may appeal his/her academic status according to Appeal of Academic Status as outlined in the *MSU Graduate School Bulletin*.

Completion Requirements—A student pursuing the M Eng is required to pass a written comprehensive examination related to all graduate courses taken toward the degree. In order to take the examination, the student must be enrolled at MSU during the semester in which the examination is administered, must have a 3.00 in all courses taken after admission to the program, and must be in the terminal semester of course work.

A student completing the degree must apply to take the comprehensive examination through the office of the Manager for Graduate and Distance Education, James Worth Bagley College of

Engineering. The examination will be administered by the Associate Dean for Research and Graduate Studies. The examination will be open-book and open-notes and will be administered using testing tools available in WebCT. Each student is required to secure a proctor to monitor his/her comprehensive examination; the proctor must be approved by the Associate Dean at least two weeks prior to the examination. The student's graduate committee will grade the examination with either a Pass or Fail as the final assessment. A student who fails the examination cannot apply to retake it until four months from the date of the original test. Two failures will result in the student's being dropped from the M Eng program.

Graduate Courses—Any graduate courses offered through the Bagley College of Engineering via distance may be applied toward the M Eng. With the permission of the Associate Dean for Research and Graduate Studies, a student may take up to six hours of course work outside the engineering discipline (normally mathematics, science, business).

Student Support Services—A student enrolled in the M Eng can access the MSU University Library System via the web to utilize resources for class assignments. Using his/her MSU ID number, a student can access Library databases online and order articles electronically. A link on the M Eng website directs the student to the services provided by the Library: Library Instruction; Research Services; Borrow/Order Materials; Workshops; Instructional Media Center, etc. The student may contact Library personnel by email or telephone; all contact information is provided on the Library website. A page on this website is dedicated to Distance Education; information includes Requesting Help; Getting Connected; Getting Library Materials; and Doing Research.

Certificates

The James Worth Bagley College of Engineering offers graduate certificates in the following areas: Computational Biology; Geospatial and Remote Sensing; Information Assurance; Manufacturing; Materials; Six Sigma; and Software Engineering. Certificates are available to traditional and non-traditional students who meet all admission requirements; students must be admitted to Mississippi State University in order to pursue certificates. Prerequisite courses are required in order to qualify for the certificate programs (normally satisfied at the undergraduate level). Some engineering certificate programs may be available to non-engineering graduate students. Please refer to the specific certificate of interest

for prerequisite requirements and certificates available to non-engineering graduate students.

All certificates require that a student take a minimum of 15 hours of academic credit (5 courses) in an approved certificate area and may be earned by completing selected courses from a list of qualifying courses designated by a representative faculty member or committee. Hours earned in acquiring a certificate may be counted toward completion of an advanced engineering degree. A graduate student must achieve a minimum cumulative GPA of 3.00 on courses taken to acquire a certificate. Upon satisfactory completion of the required course work, the student will become a candidate for certification. The MSU transcript will indicate successful completion of the certificate program. Contact information is provided below for each certificate program.

Automotive Engineering—The Automotive Engineering Certificate enhances the education of a student in topical subject matter related specifically to automotive engineering in support of the diverse automotive-related manufacturing companies in the State of Mississippi and provides an opportunity to focus on engineering knowledge and issues related to the design of vehicles and their production. The program is multi-disciplinary, allowing students from all areas of engineering to participate. Course work will be selected from Aerospace Engineering, Chemical Engineering, Civil Engineering, Electrical and Computer Engineering, Computer Science Engineering, Engineering Mechanics, Industrial Engineering, and Mechanical Engineering. All students are required to participate in a vehicle design/construction experience which must be approved by the director of the Automotive Engineering Certificate and will be designated as a three-hour Directed Individual Study (7000) course. Membership in the student section (or appropriate level) of the Society of Automotive Engineers is strongly encouraged. An Automotive Engineering Committee comprised of faculty members from various engineering departments who have an interest in the automotive industry will administer the certificate in conjunction with the Office of the Dean of Engineering. For additional information, contact Dr. Louay Chamra, 662-325-3261 or chamra@me.msstate.edu.

Computational Biology—The Computational Biology Certificate combines course work in computer science and biology to offer students a formal program of study to address how biological systems work by analyzing the data made available with high throughput biology. Students will gain fundamental skills in computing integrated with biology (i.e., application