

# Benjamin M. Statler College of Engineering and Mineral Resources

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## Contact Information

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## Degrees Offered

- Master of Science, Aerospace Engineering (M.S.A.E.)
- Master of Science, Chemical Engineering (M.S.Ch.E.)
- Master of Science, Civil Engineering (M.S.C.E.)
- Master of Science, Computer Science (M.S.C.S.)
- Master of Science, Electrical Engineering (M.S.E.E.)
- Master of Science, Energy Systems Engineering (M.S.E.S.E.)
- Master of Science, Engineering (M.S.E.)
- Master of Science, Industrial Engineering (M.S.I.E.)
- Master of Science, Industrial Hygiene (M.S.)
- Master of Science, Material Science and Engineering (M.S.M.S.E.)
- Master of Science, Mechanical Engineering (M.S.M.E.)
- Master of Science, Mining Engineering (M.S.Min.E.)
- Master of Science, Petroleum and Natural Gas Engineering (M.S.P.N.G.E.)
- Master of Science, Safety Management (M.S.)
- Master of Science, Software Engineering (M.S.S.E.)
- Doctor of Philosophy, Aerospace Engineering (Ph.D.)
- Doctor of Philosophy, Chemical Engineering (Ph.D.)
- Doctor of Philosophy, Civil Engineering (Ph.D.)
- Doctor of Philosophy, Computer Science (Ph.D.)
- Doctor of Philosophy, Computer Engineering (Ph.D.)
- Doctor of Philosophy, Electrical Engineering (Ph.D.)
- Doctor of Philosophy, Industrial Engineering (Ph.D.)
- Doctor of Philosophy, Material Science and Engineering (Ph.D.)
- Doctor of Philosophy, Mechanical Engineering (Ph.D.)
- Doctor of Philosophy, Mining Engineering (Ph.D.)
- Doctor of Philosophy, Occupational Safety and Health (Ph.D.)
- Doctor of Philosophy, Petroleum and Natural Gas Engineering (Ph.D.)

## Degree Programs

The Benjamin M. Statler College of Engineering and Mineral Resources (Statler College) graduate programs are administered through seven academic departments:

- Chemical and Biomedical Engineering
- Civil and Environmental Engineering
- Lane Department of Computer Science and Electrical Engineering
- Industrial and Management Systems Engineering
- Mechanical and Aerospace Engineering
- Mining Engineering
- Petroleum and Natural Gas Engineering

The M.S. degree in Energy Systems Engineering, the M.S. in Engineering and the M.S. and the Ph.D. in Material Science and Engineering are degrees administered by the Statler College and available to students from of its academic units participating in those degree programs. Statler College facilities are primarily housed on the Evansdale campus in the Engineering Sciences Building, the Mineral Resources Building, the Engineering

Research Building, and the Advanced Engineering Research Building. These buildings house state-of-the-art research facilities, well-equipped teaching laboratories, computer classrooms and offices for the faculty and administration of the graduate programs.

The Ph.D. program prepares graduates for leadership in industrial, government or academic fields. The college offers a doctor of philosophy with areas of specialization in aerospace, chemical, civil, computer, electrical, industrial, mining, and petroleum and natural engineering, as well as computer science, material science and engineering and occupational safety and health.

Designated master's degree programs in engineering are offered in aerospace, chemical, civil, electrical, industrial, mechanical, mining, petroleum and natural gas, and software engineering, as well as computer science, energy systems engineering, and material science and engineering. The college offers two accredited master of science degrees in industrial hygiene and safety management. The MSIH and MSSM programs are accredited by the Applied Science Accreditation Commission (ASAC) of ABET, <http://abet.org>. A master of science in engineering (M.S.E.) degree is offered to qualified students as determined at the departmental level.

Currently, the college offers graduate certificate programs in computer forensics, information assurance and biometrics, interactive technologies and serious gaming, and software engineering. For specific information about a program, students should review research and graduate studies information on the specific department section.

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## ADMINISTRATION

### DEAN

- Eugene V. Cilento - Ph.D. (University of Cincinnati)  
Glen H. Hiner Dean

### ASSOCIATE DEAN FOR ACADEMIC AFFAIRS

- David A. Wyrick - Ph.D. (University of Missouri-Rolla)

### ASSOCIATE DEAN FOR RESEARCH

- Pradeep P. Fulay - Ph.D. (University of Arizona)

### ASSISTANT DEAN FOR ADMINISTRATION

- R. Jason Dean - M.A. (West Virginia University)

## Degree Designation Learning Goals

### MASTER OF SCIENCE (MS)

#### Industrial Hygiene

The M.S. in Industrial Hygiene is accredited by the Applied Science Accreditation Commission of ABET. Upon graduation, with a Masters of Science degree in Industrial Hygiene, students will have:

- Ability to use the techniques, skills, and modern scientific and technical tools necessary for professional practice such as:
  - Principles and methods of industrial hygiene
  - Principles and methods of ergonomics
  - Principles and methods of safety
  - Principles of environmental sciences (environmental elective)
  - Principles of epidemiology and biostatistics
  - Principles and methods of control of physical and chemical hazards
- Ability to apply knowledge of math, science, and industrial hygiene
- Ability to design and conduct experiments, analyze and interpret data, develop implementation strategies, and shape recommendations so that results will be achieved and findings will be communicated effectively
- Ability to work individually, in teams, and/or in multi-disciplinary teams to identify, formulate, and solve problems using industrial hygiene, safety, and ergonomics knowledge, skills, and tools
- Ability to formulate or design a system, process, or program to meet desired needs
- Understanding of professional and ethical responsibility and the broad education and knowledge of contemporary issues necessary to understand the impact of solutions in a global and societal context
- Recognition of the need for and an ability to engage in life-long learning

#### Safety Management

Graduates of the Safety Management program must be able to meet the following outcomes at the time of their graduation:

- Demonstrate knowledge and skills to build a comprehensive Safety and Health program based on loss control and regulations

- Demonstrate knowledge and skills to use analytical techniques in the Safety and Health function
- Demonstrate knowledge and skills with federal, state, and non-governmental Safety and Health program standards and best practices
- Demonstrate skills in written and oral communications at the level of professionals in safety and health positions
- Demonstrate knowledge and skills in writing and evaluating safety and health research proposals
- Demonstrate knowledge and skills in using management tools to implement and evaluate Safety and Health programs

## **MASTER OF SCIENCE IN AEROSPACE ENGINEERING (MSAE)**

Upon graduation with a Masters of Science degree in Aerospace Engineering, students will have:

- Expert-level understanding of the advanced principles of aerospace engineering, which include aerospace systems design, aircraft or spacecraft dynamics, stability and control, flight mechanics and simulation, advanced materials, vehicle propulsion, aerodynamics, aeroelasticity, and computational mechanics.
- Ability to complete on time specific research tasks
- Strong oral and written communication skills
- Ability to work independently in a collaborative environment
- Understanding for holding the highest standards of ethical and professional responsibility in the practice of their profession to contribute to the well-being of society and to the advancement of the aerospace engineering profession.

## **MASTER OF SCIENCE IN CHEMICAL ENGINEERING (MSCHE)**

Upon graduation, with a Masters of Science degree in Chemical Engineering, students will have:

- Understanding of advanced principles of chemical engineering, which include reaction engineering, transport phenomena, and thermodynamics
- Expert-level understanding of the background and theory/principles of their research topics.
- Ability to plan research projects, to perform the tasks, and to draw conclusions based on sound scientific and engineering principles.
- Ability to write technical articles for publication in refereed journals and to make oral and poster presentations at technical meetings.
- Demonstrated initiative in research planning and management, including safety and environmental issues.
- Been technically prepared for a lifetime of continuing education.
- Understanding of professional and ethical responsibilities.

## **MASTER OF SCIENCE IN CIVIL ENGINEERING (MSCE)**

Upon graduation, with a Masters of Science degree in Civil Engineering, students will have:

- Ability to function on teams involving multiple civil engineering specialties.
- Ability to apply advanced methodologies in their specialty area.
- Ability to effectively communicate technical information.
- Ability to design and conduct experiments, analyze and interpret data, and develop recommendations.
- An understanding of professional and ethical responsibility.
- An ability to understand the impact of engineering solutions in global and societal context.
- Recognition of the need to engage in life-long learning.
- Ability to use contemporary techniques, skills, and tools necessary for engineering practice in education, industry, and/or government.

## **MASTER OF SCIENCE IN COMPUTER SCIENCE (MSCS)**

Upon graduation, with a Masters of Science degree in Computer Science, students will:

- Have obtained knowledge, skills, and attitudes that will ensure success in professional positions in business, industry, research, government service, or in further graduate or professional study
- Achieve a depth of proficiency in a specific field of Computer Science by completing major courses in one of three areas: computer systems, software and knowledge engineering, or the theory of computation.
- Achieve a breadth of understanding of Computer Science by completing minor coursework requirements in other areas, and by participation in graduate seminar requirements.
- Demonstrate professionalism and communication skills through completion of coursework, project, or thesis defense.

## **MASTER OF SCIENCE IN ELECTRICAL ENGINEERING (MSEE)**

Upon graduation, with a Masters of Science degree in Electrical Engineering, students will:

- Have obtained knowledge, skills, and attitudes that will ensure success in professional positions in business, industry, research, government service, or in further graduate or professional study

- Achieve a depth of proficiency in a specific field of electrical engineering by completing major courses in one of four areas: electronics and photonics; systems and signals; computer systems; or software and knowledge engineering.
- Achieve a breadth of understanding of electrical engineering by completing minor coursework requirements in another area, and by participation in graduate seminar requirements.
- Demonstrate professionalism and communication skills through completion of coursework, project or thesis defense.

## **MASTER OF SCIENCE IN ENERGY SYSTEMS ENGINEERING (MSESE)**

Upon graduation, with a Masters of Science degree in Energy Systems Engineering, students will have:

- Understanding of the supply chain for carbon based and “green” energy, for production, conversion or processing, transmission, and point of utilization;
- Advanced training in specialized areas of energy systems engineering;
- Ability to function at the highest levels of expertise in their chosen sub-discipline of energy, and who are well versed in the overall concepts of getting energy to consumers;
- Ability to complete on time specific professional-paper tasks
- Strong oral and written communication skills
- Ability to work independently in a collaborative environment
- Understanding of professional and ethical responsibility
- Ability to understand the impact of engineering solutions in global and societal context
- Recognition of the need to engage in life-long learning

## **MASTER OF SCIENCE IN ENGINEERING (MSE)**

Upon graduation, with a Masters of Science degree in Engineering, students will have:

- An expert level understanding of the advanced principles of their engineering specialty
- Ability to apply advanced methodologies in their specialty area
- Ability to design and conduct original experiments, analyze and interpret data, and develop recommendations with a high degree of independence
- Advanced ability to use contemporary techniques, skills, and tools necessary for engineering practice in education, industry, and/or government
- Ability to effectively communicate technical information in the form of a thesis, scientific publication or presentation
- Understanding of professional and ethical responsibility
- Ability to understand the impact of engineering solutions in global and societal context
- Recognition of the need to engage in life-long learning
- Foundational preparation to pursue doctoral studies

## **MASTER OF SCIENCE IN INDUSTRIAL ENGINEERING (MSIE)**

Upon graduation, with a Masters of Science degree in Industrial Engineering, students will have:

- Ability to use and master modern and classical industrial engineering methodologies in their area of concentration
- Ability to apply knowledge of math, science, and engineering
- Ability to do research, and to design and conduct experiments, analyze and interpret data, develop implementation strategies, and shape recommendations so that results will be achieved and findings will be communicated effectively
- Ability to work individually, on teams, and/or on multi-disciplinary teams to identify, formulate, and solve problems using industrial engineering knowledge, skills, and tools
- Ability to design and implement or improve integrated systems that include people, materials, information, equipment, and energy using appropriate analytical, computational, and experimental practices
- Understanding of professional and ethical responsibility and the broad education and knowledge of contemporary issues necessary to understand the impact of solutions in a global and societal context
- Recognition of the need for and an ability to engage in life-long learning
- Professional characteristics expected of a successful industrial engineer

## **MASTER OF SCIENCE IN MATERIAL SCIENCE AND ENGINEERING (MSMSE)**

Upon graduation, with a Masters of Science degree in Material Science and Engineering, students will have:

- An expert level understanding of the advanced principles of their engineering specialty
- Ability to apply advanced methodologies in their specialty area
- Ability to design and conduct original experiments, analyze and interpret data, and develop recommendations with a high degree of independence

- Advanced ability to use contemporary techniques, skills, and tools necessary for engineering practice in education, industry, and/or government
- Ability to effectively communicate technical information in the form of a thesis, scientific publication or presentation
- Understanding of professional and ethical responsibility
- Ability to understand the impact of engineering solutions in global and societal context
- Recognition of the need to engage in life-long learning
- Foundational preparation to pursue doctoral studies

## **MASTER OF SCIENCE IN MECHANICAL ENGINEERING (MSME)**

Upon graduation, with a Masters of Science degree in Mechanical Engineering, students will have:

- Expert-level understanding of the advanced principles of mechanical engineering, which include mechanical systems design, system dynamics, solid mechanics, energy systems, engineering materials, automatic controls, mechatronics, and computational mechanics
- Ability to complete on time specific research tasks
- Strong oral and written communication skills
- Ability to work independently in a collaborative environment
- Understanding for holding the highest standards of ethical and professional responsibility in the practice of their profession to contribute to the well-being of society and to the advancement of the aerospace engineering profession.

## **MASTER OF SCIENCE IN MINING ENGINEERING (MSMINE)**

Upon graduation, with a Masters of Science degree in Mining Engineering, students will have:

- Ability to investigate and develop solutions to advanced mining engineering problems
- Advanced technical knowledge and research experience needed to address the most challenging contemporary issues within a specialized area of study

## **MASTER OF SCIENCE IN PETROLEUM AND NATURAL GAS ENGINEERING (MSPNGE)**

Upon graduation, with a Masters of Science degree in Petroleum and Natural Gas Engineering, students will have:

- Advanced technical knowledge and engineering skills needed by the oil and gas industry in the state, the nation, and the world
- In-depth knowledge of petroleum and natural gas engineering principles and applications to function effectively in their profession or continue their education
- Ability to perform independent research to solve engineering and scientific problems encountered in their profession
- In-depth petroleum and natural gas scientific and engineering knowledge to provide high quality education in petroleum and natural gas engineering

## **MASTER OF SCIENCE IN SOFTWARE ENGINEERING (MSSE)**

Upon graduation, with a Masters of Science degree in Software Engineering, students will have:

- Knowledge, skills, and attitudes that will ensure success in professional positions in business, industry, research, or governmental service
- Achieved proficiency in the area of Software Project Management.
- Achieved proficiency in Software Analysis and Design.
- Understanding of the process of software Validation and Verification.
- Understanding of the process of Software Evolution.
- Achieved proficiency in Object-Oriented Design of software.

## **DOCTOR OF PHILOSOPHY (PHD)**

Upon graduation with a Ph.D. degree from the Statler College of Engineering and Mineral Resources students will have:

- Ability to initiate research ideas in order to solve specific problems and to write research proposals on these ideas
- Have an expert-level understanding of the advanced principles of their fields of study
- Furthered a novel research idea which has contributed to the state of the art in their specific areas of expertise
- Ability to plan original research projects, to perform laboratory or field based experimental tasks, generate data from those tasks, and draw conclusions based on sound scientific and engineering principles
- Ability to develop innovative research in order to advance the frontiers of knowledge and secure sponsored research
- Ability to write technical articles for dissemination through peer-reviewed, refereed journals or other venues
- Ability to make oral and poster presentations at technical meetings
- Understanding of professional and ethical responsibilities in the practice of their profession to contribute to the well-being of society and to the advancement of their profession

- Demonstrated initiative in research planning and management, including safety and environmental issues
- Technical preparation for and an awareness of the need for life-long learning and continuing education

A student desiring to take courses for graduate credit in the college must comply with the appropriate university regulations for graduate study. To become enrolled in a Statler College graduate program, a prospective student must apply for admission through the Office of Admissions to the department housing the student's choice of major. Acceptance will depend upon review of the student's academic background and available facilities in the major program's department.

An applicant with a baccalaureate degree, or its equivalent, from a program accredited by ABET or an internationally recognized program in engineering or computer science will be admitted on the same basis as engineering or computer science graduates of WVU. Lacking these qualifications, an applicant must first fulfill any special requirements of the department in which the student is seeking an advanced degree.

## Admission

To enter any of the degree programs, a prospective student must first submit to the WVU Office of Admissions a completed online application, and include:

- Original, official transcripts of all college work attempted
- English proficiency test scores, for international applicants, as required by WVU
- Graduate Record Exam (GRE) scores, if required by the program; the GRE is highly encouraged for all applicants

Depending on the requirements of specific programs, prospective students may also have to submit additional material, such as:

- A resume
- Statement of purpose (typically one page), providing any additional information that would help the Admissions Committee in determining the applicant's suitability
- Letters of reference, as specified by the program

## Masters Program

There are three types of degrees granted within the Statler College of Engineering and Mineral Resources:

1. *Master of Science in an engineering discipline* – The Master of Science degree in an engineering discipline requires an undergraduate degree in the same discipline, or closely allied discipline with appropriate remedial course work determined by the department.
2. *Master of Science in engineering* – The Master of Science in engineering degree is intended for students who wish to earn an engineering master's degree but do not have an undergraduate degree in the same field or a closely aligned field. The MSE may be appropriate for students seeking a unique master's program.
3. *Master of Science in an Applied Science area* – The applied science master's programs are intended for students wishing to obtain a master's degree in one of these non-engineering disciplines (Industrial Hygiene, Safety Management, Software Engineering, and Computer Science).

For these degree programs, students will normally be required to obtain a baccalaureate level of proficiency in subjects directly related to their area of graduate study by taking undergraduate prerequisite courses, either prior to starting or as an integral part of their degree program. The degree designation and additional course requirements will be determined by the department admitting the student. The two types of engineering degrees both require a calculus-based undergraduate education in an accredited program or an internationally recognized program. The applied science areas do not.

Students who do not hold a correspondingly named bachelor's degree may be admitted into either a discipline-designated program or the undesignated Master of Science in engineering degree program, depending on their credentials.

## Doctoral Program

Additionally, there are three types of doctoral degrees granted in the Statler College of Engineering and Mineral Resources:

1. Doctor of Philosophy in an Engineering discipline – To be eligible for admission into an engineering Doctorate of Philosophy program, a candidate is expected to hold or expect to have received, by the time of enrollment, a B.S. or an M.S. degree in:
  - Some discipline of Engineering from an institution which has an ABET-accredited program in that discipline, or which has an internationally recognized program in Engineering or Mineral Resources
  - Mathematics/Physical Sciences (as specified by individual programs)
2. Doctor of Philosophy in Computer Science – To be eligible for admission into the Computer Sciences Doctorate of Philosophy program, a candidate is expected to hold a B.S. or an M.S. degree in:
  - Computer Science, Engineering, or
  - Mathematics/Physical Sciences (as specified by the program)

3. Doctor of Philosophy in Occupational Safety and Health – To be eligible for admission into the Occupational Safety and Health Doctorate of Philosophy program, a candidate is expected to hold a B.S. or an M.S. degree in:
  - Industrial Hygiene, Safety Management, Engineering, or
  - Mathematics/Physical/Life Sciences (as specified by the program)

For potential doctoral students, although a bachelor's degree is the minimum requirement, applicants are normally encouraged to hold a master's degree in a relevant discipline.

## ENTRANCE AND CLASSIFICATION

Not all students who meet minimum college and program requirements will necessarily be accepted. Faculty members in a given graduate program have the right to set standards and conditions more restrictive than those set forth in these guidelines and the right to limit enrollment. For example, a program may choose to reject an applicant because his or her goals are not perceived to match the current needs and resources of the program. Similarly, although a student may be admitted solely for the purpose of enrolling in advanced coursework (e.g., non-degree students); program faculty may decline to allow that student to continue toward a degree even though the student has completed all required coursework successfully.

Students admitted to a graduate program will be classified in one of three categories:

1. Regular – To be admitted as a regular graduate student, an applicant must have an equivalent grade point average (GPA) of 3.0/4.0 or better in all previous college work, and must meet all other requirements set by the department or program, including minimum GRE scores. Any exceptions to the stated requirements must be approved by the dean.
2. Provisional – An applicant not qualifying for the regular graduate student admission status, either due to insufficient GPA, insufficient GRE scores, incomplete credentials or inadequate academic background, may be admitted as a provisional student.
  - a. Any applicant with a GPA below 2.75 in any previous college work cannot be admitted without special approval from the dean. Applications will be returned to the program coordinator if the application shows a GPA less than 2.75 unless it is accompanied by a signed approval from the dean. Students are notified of their provisional status by WVU's Office of Admissions.
  - b. The admitting program is responsible for communicating to the student the requirements they must meet before attaining regular status. The Provisional Student Notification of Requirements Form must be used for this purpose. One copy of the notification should be given to the student, another kept in the student's files and a third given to the dean's office.
3. Non-degree – A student who is not deemed qualified for admission to regular or provisional status, or who does not desire to pursue a degree, may be admitted as a *non-degree* student. Each department determines the minimum qualification requirements for admission as non-degree students. Such students are allowed to take graduate courses but are not allowed to pursue a graduate degree. A non-degree student seeking admission to a graduate program must apply to the specific program.

Admission to a Ph.D. program does not confer or guarantee candidacy for the Ph.D., which requires a separate decision.

The Benjamin M. Statler College of Engineering and Mineral Resources (Statler College) at West Virginia University (WVU) is authorized to admit qualified students to graduate programs that lead to successful completion of the degrees of master's of science (M.S.) and doctor of philosophy (Ph.D.). The guidelines presented here and departmental guidelines, describe in detail the minimum College requirements for the above mentioned degrees. Each department and program within a department may impose stricter requirements than those required by the College. These requirements are listed in the department guidelines and procedures, and are available on the department website/catalog to prospective and current students.

## Roles of the Faculty, College, and University

The research and course work requirements of students are administered through research advisors, Advisory and Examining Committees, academic advisors, and graduate program coordinators in the various departments.

- The academic advisor is the faculty member that approves the student's course selections each semester, approves registration and add/drop forms, and maintains the student's files.
- The Advisory and Examining Committee (AEC) advises the student in the selection of courses and in the conduct of the student's research program. The AEC also evaluates the technical quality of the student's research, decides whether to admit the student to candidacy (Ph.D. only), and evaluates the final thesis or dissertation. Normally, the chairman of the AEC is also the director of the student's research (Research Advisor).
- The graduate program coordinator is the person designated by the department chair to assure that the regulations governing the student's graduate program have been fulfilled.

The roles of the research advisor, academic advisor, AEC chair, and graduate program coordinator may be vested in one to four individuals, depending on the policies of the individual department. The administration and oversight of the departments and programs are guided through the department chair, college dean, Office of Student Services, Office of the University Registrar, and Office of Admissions.

- The Department Chair and the College Dean are responsible for ensuring that the guidelines are followed by all parties. The Dean may delegate certain tasks to the Associate Dean for Academic Affairs or to a specified faculty member if there is a special need.
- The Statler College Office of Student Services is the unit the College dean delegate's responsibility to ensuring that the guidelines are followed by student and faculty.

- The Office of the University Registrar (OUR) oversees graduation/degree audits, registration, grading, and all academic record-keeping for the University.
- The University's Office of Admissions manages all applications for the University. Applications, transcripts, and standardized test scores will be submitted to WVU Admissions.

## Course Load

A full-time graduate student must register for at least nine, but no more than fifteen, credit hours during each regular semester, or at least six, but no more than twelve, credit hours in the summer session. A student wishing to carry more than the maximum course load must file a Course Overload Request.

## Student Petition to Resolve Controversies

Attempts to resolve controversies regarding a graduate student's academic progress should first be between the student and the chairperson of the AEC, followed by the graduate program coordinator, the department chair, and the Dean, in that order. If no satisfactory solution of problems can be achieved by the above procedure, the student may then follow the formal University Policies and Procedures for appeals.

The Student Conduct Code addresses both academic and non-academic rights and responsibilities, sanctions, and procedural due process, and includes procedures for undergraduate, graduate, and professional students. The code outlines the procedures to be followed in handling graduate student grievances and appeals.

## Degree Options and Hours

For master's students, the College faculty believes that the desirable characteristics of graduate education are the experience gained in advanced coursework and performing and reporting on a research endeavor. Consistent with that philosophy, the College is authorized to grant master's degrees under each of the following three options:

1. Thesis Option – This option requires a minimum of 24 credit hours of course work and at least 6 credit hours of research leading to the thesis.
2. Problem Report Option – This option requires a minimum of 30 credit hours of course work and at least 3 credit hours of a research or design project leading to a formal written report.
3. Course Work Option – This option requires a minimum of 33 credit hours of course work. In addition, the department must require successful completion of a written or oral comprehensive examination. The department or program can choose to offer students within a designated program the course work only option, where courses are determined by the program or the AEC.

For Ph.D. students, the College, consistent with its philosophy, believes that one of the required characteristics of doctoral education are the experiences gained in performing and reporting in an original research endeavor. For this reason, all doctoral programs require a research track culminating in an original research project.

## Course Requirements

Specific course requirements are determined by the student's program and AEC. For master's students, no more than 40 percent of course work at the 400 level can count toward meeting degree requirements.

The College requires Ph.D. programs to have a minimum of 18 semester hours of course work, beyond the course credit required for a master's degree, at the 500 and higher levels with an average of 3.0 or better.

Only courses with grades of "A", "B" or "C" (not "S") can be used to meet the minimum coursework requirements. Grades of "S" or "U" will only be recorded for research credits and select seminar courses. The college normally will not issue a grade of "I" (incomplete) for research courses.

Departments may establish more stringent requirements than those adopted for the college as a whole.

## Research Requirements

The faculty of the college believes that the experience gained in performing and reporting a research endeavor should be over a prolonged period. Therefore, a significant portion of doctoral credit is research based.

- Ph.D. in engineering and the Ph.D. in occupational safety and health degrees require a minimum of 24 credit hours of research at the Ph.D. level (797) leading to a dissertation .
- Ph.D. in computer science degree requires a minimum of 18 credit hours of research at the Ph.D. level (797) leading to a dissertation.

Additionally, master's students (except coursework only students) are also required by their AEC to perform basic research.

- Master's students under the thesis option are required to complete a minimum of 6 credit hours of research at the M.S. level (697).
- Master's students under the problem report options are required to complete a minimum of 3 credit hours of research at the M.S. level (697).

## Plan of Study

A Plan of Study must be prepared by the student and the Advisory and Examining Committee (AEC, see below), which outlines the coursework the student must finish and its timeline, the research topic (if applicable for Master's students and required for Ph.D. students), and the composition of the AEC. This plan must be approved by the student, all members of the AEC, the graduate program coordinator, the department chair, and the college dean by the end of the second semester of the student's attendance or by the completion of the 12<sup>th</sup> credit hour applicable to the degree requirements, whichever is later. Otherwise the student may be refused permission to register for the following semester. All students:

1. The AEC may add course requirements to the Plan of Study.
2. The plan of study for a student admitted to a Ph.D. program with only a B.S. degree normally will require sufficient coursework to attain the competencies expected of graduates of that master's program as well as the competencies expected for the Ph.D. program.
3. The plan of study must include courses to remove deficiencies as well as courses required by the program curriculum. Deficiency course requirements are determined by the graduate program coordinator at the time of enrollment.
4. The Plan should schedule deficiency courses in a timely manner such that a decision regarding qualification for change of status to regular status can be made at the end of the semester in which the 18th credit hour is completed.

The college provides templates for M.S. Plan of Study and Ph.D. Plan of Study. Any revisions to a plan of study necessitate submission of a complete, revised plan which incorporates all approval signatures.

## Advisory and Examining Committee

Each graduate student will form an Advisory and Examining Committee (AEC), with:

- M.S. committees consisting of a minimum of three members.
- Ph.D. committees consisting of a minimum of five members.
- For Ph.D. students, at least one of the five members of the committee must be from outside the degree-granting department.
- The majority of the members of the AEC must be regular members of the graduate faculty.
- A minimum of two members for M.S. and four member for Ph.D. committees must be members of the College Graduate Faculty

Additionally, each department can impose stricter rules on the AEC selection process.

The AEC Chair should be selected by the student in consultation with the Graduate Program Coordinator or the Department Chair. Normally, the AEC Chair should be a member of the degree-granting program. The Chair must be a regular member of the College Graduate Faculty. Non-tenure track faculty may serve as Chair if they are a regular member of the College Graduate Faculty.

Members should be selected by the student in consultation with the AEC Chair. All members should be selected based on their perceived ability to contribute to the progress and evaluation of the student's research and their ability to work cooperatively with other members and the student. The College Dean and the Department Chair each has the right to appoint one member to this committee.

Members, including the Chair, may resign from the committee after providing a written explanation to the graduate program coordinator and to the chair of the department. Any changes to the AEC must be signed by the previous and new members of the committee, to the extent that a previous committee member is available on campus. The resigning member must complete an AEC Membership Modification Form.

## Transfer Credit

A student wishing to apply graduate course credit earned at another institution to a master's or Ph.D. degree at WVU must complete an Application for Transfer of Graduate Credit to WVU. This form requires the signature of the appropriate department chair or graduate program coordinator. An official transcript from the institution where the course credit was taken must be on file with the WVU Office of Admissions.

For M.S. students, a maximum of 12 semester (vs. quarter) credit hours from other institutions may be transferred for credit at WVU in master's programs in the college. Individual graduate programs can choose to accept fewer transfer credit hours. Only courses with grades of "A" or "B" may be considered for transfer. For Ph.D. students, appropriateness of accepting transfer credit is left to the discretion of the student's AEC and department with the restrictions that only courses with grades of "A" or "B" may be considered for transfer and no more than one-third of the minimum semester course credit hours required by the program may be transferred.

After the student completes the appropriate section of the Application for Transfer of Graduate Credit form, the department chair or graduate program coordinator will perform the following tasks:

- Verify that courses from other institutions qualify as valid graduate level work.
- Verify that the request is within the maximum number of allowable credit hours.
- Verify that the credit has been earned within the acceptable time limit.

When the completed application form is returned to the Statler College Office of Student Services, it will then be forwarded to the WVU Office of the University Registrar; they will match forms with transcripts and enter the credit on the student's permanent record.

## Requirements for Ph.D. Candidacy

Programs that admit students with only a B.S. degree are encouraged to require such students to demonstrate the competencies expected of a master's graduate in addition to the competencies required by the doctoral program before achieving candidacy.

Each major under the doctoral program will specify in writing its own requirements and standards for a student to be admitted to candidacy. At a minimum, these requirements will include one written examination, completion of all course requirements and an oral defense of a written research proposal. The AEC may approve the research proposal conditioned upon stipulated changes to the proposal. In such cases, the AEC Chair should ensure that the required changes to the proposal are made by the student before signing the Approval of Candidacy. The AEC Chair must provide a copy of the revised research proposal to all members of the AEC before signing his or her approval.

At the completion of the candidacy requirements, the results must be reported to the dean by the student's AEC using the Admission to Candidacy for the Ph.D. form. For a positive recommendation for admission to candidacy, no more than one negative vote may be cast. A minimum of one opportunity for reexamination must be available for each student. Students who fail to receive a positive recommendation on re-examination for admission to candidacy are terminated at the end of that semester and may not re-enter the program.

## Maximum Time For Completion

All requirements for master's degrees must be completed within eight years preceding the student's graduation. This is a WVU requirement. Courses taken more than eight years previously must be revalidated for master's degree credit and procedures to revalidate are outlined in the policy on Revalidation of MS Course Work.

All requirements for Ph.D. degrees must be completed within five years after the student has been admitted to candidacy.

## Second Degree Masters Students

A student desiring to obtain more than one master's degree, either enrolled concurrently or returning after earning a master's degree at WVU, may use up to 25 percent of previous graduate level coursework toward the second degree. The approval for second/concurrent WVU master degree form must be completed for this coursework and needs to be approved by the degree-granting unit. The student must successfully complete additional credit hours so as to constitute the remaining 75 percent of the credit hours required by the additional master's degree. Individual departments or programs may require higher percentages of original coursework to be earned for a second degree.

## Academic Status

There are two categories of status: regular/non-degree and provisional.

### REQUIREMENTS FOR EACH STATUS

The minimum academic standards for students are as follows:

- Regular and non-degree – To be in good standing, a regular or non-degree student must maintain at least cumulative GPA of 3.0/4.0 grade point average throughout the time enrolled in graduate work. A student failing to achieve this standard will be placed on probation.
- Provisional – A student not admitted as a regular or non-degree will be admitted as provisional. A provisional student must obtain and maintain a minimum cumulative GPA of 3.0/4.0 after the completion of the first 9 credit hours of graduate study or he/she will become eligible for suspension.

### CHANGE OF STATUS

Change of status from provisional to regular may be made for a student with a cumulative GPA of 3.0/4.0 or higher for graduate courses when the student has met the conditions outlined in his/her conditions for acceptance as a provisional student.

For provisional students, by the end of the semester in which the 18th credit hour is completed, the student must be elevated to regular student status, and then the regulations governing good standing for regular students will apply. Failure to meet the provisions of admission, or failure to achieve the required grade point average, will result in suspension.

A non-degree student seeking admission to a graduate program must apply to the specific program. A maximum of 12 credit hours of coursework can be applied toward fulfilling a degree requirement if approved by the graduate program coordinator for that program.

### INTRA-UNIVERSITY TRANSFER

A student may initiate a transfer to another department within the college or another program within the University by contacting the graduate program coordinator in the department in which the student is currently enrolled and the Dean's Office. The department's graduate program coordinator will then send the student's departmental file, along with an Academic Status Update form to the program that the student is interested in transferring to.

After a decision is made by the new department to accept the transfer, the Academic Status Update form is returned to the Statler College Office of Student Services and the departmental file is transferred to the new academic unit. If not, the departmental file is returned to the department originating the request, and the student may remain in that department.

## Probation and Suspension

Graduate students are placed on probation the semester after their cumulative GPA falls below 3.0/4.0. Additionally, a grade of unsatisfactory ("U") in graduate-level research (697 or 797) makes the student eligible for probation. Two consecutive grades of "U" in research make the student eligible for suspension. Otherwise, college policies regarding probation and suspension mirror those set by the University.

## Graduation

### THESIS, PROBLEM REPORT AND DISSERTATION APPROVAL PROCEDURES

The AEC must approve the thesis/problem report or dissertation, with no more than one member not signing the approval sheet, before this requirement for degree completion can be considered completed. The thesis/problem report or dissertation must be produced according to the University's regulations governing the preparation of theses and dissertations. An electronic version of the approved thesis/problem report or dissertation must be submitted to the University library along with the ETD packet. Approval must be obtained from the library.

The student shall furnish each member of the AEC and the department with a copy of the thesis/problem report or dissertation. The copy may be bound, electronic or both, at the discretion of the department.

### GRADE POINT AVERAGES REQUIRED FOR GRADUATION

The college requires an overall GPA of at least 3.0/4.0 GPA for (1) all courses taken as a graduate student (graduate or undergraduate level) at WVU; and (2) all courses taken as required for a degree by the Plan of Study. Individual programs and departments may set higher minimum requirements in their written guidelines.

### FINAL EXAMINATION FOR THESIS/PROBLEM REPORT OR DISSERTATION

A student should schedule the final oral and/or written examination upon completion of a draft of the thesis/problem report or dissertation, and/or completed coursework, and after fulfilling all requirements set by the AEC. The student will initiate the formal request by the department for the final examination using the Request for Examination form.

The examination is conducted by the AEC. The AEC chair must indicate in advance the time and place of the final examination on the Request for Final Examination form sent to the dean before the examination can be scheduled. Final examinations are open to the public. The final examination must be given:

- No sooner than three weeks after the form is submitted and no later than three weeks before commencement for Ph.D. candidates. This lead time is required for public notice to the University community.
- No sooner than one week after the form is submitted and no later than three weeks before commencement for master's students.

The AEC may vote to:

1. Pass unconditionally
2. Pass conditionally with minor modifications to the problem report, thesis or dissertation
3. Defer with recommendations for additional work to satisfactorily complete the research and/or the problem report, thesis or dissertation.
4. Fail

If the vote is to pass with minor modifications, the chair should withhold his or her approval until the student has made all stipulated modifications. A vote to defer is not counted as a "fail," but only one deferral is allowed. More than one negative vote of the committee members will constitute a failure of this examination. The department or program will report the results of the final examination to the Dean's Office. The student must be given at least one opportunity for re-examination. The department or program may establish guidelines to determine how many opportunities are given for reexamination and whether the student is re-examined on the portions failed. Students who fail the additional opportunities for re-examination are terminated at the end of that semester and may not re-enter the program.

All students must pass a final oral and/or written examination to be certified for graduation. The department or program will report the results of the final examination to the Dean's Office.

### GRADUATION REQUEST

After successful completion of the final examination, students must complete the Final Approval for Graduation form and submit it to the Statler College Office of Student Services, along with other college and departmental requirements.

Students must be active and enrolled at WVU in the semester they plan to graduate. Students in their final semester, who have no course work or research to complete, can register for 1 credit hour, usually research, to satisfy the University enrollment requirement.

Students must apply for graduation in the semester in which they plan to graduate. Students failing to graduate in the semester that they applied will be required to enroll again and apply for graduation in the following semester.

## **QUALITY**

The quality control of each program will be the joint responsibility of the AEC, graduate program coordinator, department chair, and the college dean.

## **DEADLINES**

The graduation date for each semester can be obtained from the Statler College Office of Student Services. It is the student's responsibility to see that all deadlines are met. Failure to meet the specified deadlines may result in delay of graduation to the following semester.

- Application for Graduation and Diploma - An application for graduation and diploma must be submitted online through the student's MIX/STAR account.
- Request for Final Examination - Requests to the dean's office using the Request for Final Exam No examination is to be given until the approval is received. A new form must be filed each time the examination is re-scheduled or repeated. Early scheduling of the final examination is recommended. Timelines (one week for M.S. and three weeks for Ph.D.) will be strictly adhered.
- Final Examination for Thesis/Problem Report or Dissertation – Final examinations, or oral defense, must be given according to the suggested deadlines set by the University Library for a given semester. Final examination material will be given to the AEC chair after the Request for Final Examination has been made. The results, through the return of the signed shuttle sheet, must be delivered to the Statler College Office of Student Services within 24 hours of the defense.
- Thesis, Problem Report or Dissertation Submission - The student must submit to the University Library an electronic copy of the approved problem report, thesis or dissertation with the ETD packet, according to the deadline set by the library. The library will notify the Statler College Office of Student Services upon the initial submission and again when approval has been given.
- Final Deadlines - The Alumni Data Form must be completed and delivered to the departmental graduate program coordinator at least one week before the graduation date. The Final Approval for Graduation form for must be completed and delivered to the dean's office at least one week before the graduation date. If this form is not submitted, the student will not graduate.