MASTER OF SCIENCE IN ENGINEERING

The Rayen School of Engineering, as part of the College of Science, Technology, Engineering, and Mathematics, offers a graduate program leading to the Master of Science degree in engineering. Admission to any of the five engineering options, including chemical, civil and environmental, electrical and computer, industrial and systems, engineering management and mechanical engineering, is granted to qualified applicants who have been judged to have a good chance of succeeding in the program and obtaining a graduate degree. Several technical concentration areas are available in each option. Students may select a thesis, non-thesis, or management curriculum plan. These opportunities serve the practicing engineer, as well as the student, who wants to pursue advanced graduate study and research. Courses offered on campus are usually held during the evenings. The educational opportunities include traditional classroom and laboratory courses, seminars, and research projects guided by experienced members of the graduate faculty.

Teaching or research assistantships may be available to qualified applicants on a competitive basis upon review and recommendation by the home department. In addition, Graduate Studies may offer scholarships or grants-in-aid to qualified students. Students desiring assistantships must submit an online application (https://ysu.elluciancrmrecruit.com/Apply/Account/Login/?ReturnUrl=%2fApply%2f) to Graduate Studies by the specified deadlines.

This description provides an overview of admission and degree requirements, advising, and program plans. Information concerning course scheduling and prospective course offerings can be obtained from the YSU website or the individual engineering departments. Further assistance with any matter related to engineering graduate programs may be obtained by telephone, email, or personal visit to the program option coordinator in the student's area of interest.

Graduate Assistantships

Students interested in a graduate assistantship position must submit a separate application along with three letters of recommendation to Graduate Studies. Further details are provided elsewhere in the Graduate Catalog under Financial Assistance. Graduate Studies will forward the application to the department. Each engineering department has established a process for evaluating applicants. Applicants should contact the option coordinator in their field of interest for details. Final recommendations are forwarded to Graduate Studies. Applicants are notified by email of the decision.

In cases where the applicant is not fully prepared for their intended graduate program, completion of undergraduate deficiency courses may be required. This is common when the applicant's undergraduate degree is in a different discipline than the intended graduate program. Such applicants may be granted provisional admission as long as they require no more than 9 semester hours of undergraduate deficiency courses. In addition, some programs may require stronger evidence of academic ability (e.g. higher GPA) for applicants having undergraduate degrees outside the discipline.

Non-Degree Admission

Students meeting all requirements for admission to Graduate Studies, but who do not intend to pursue a Master of Science degree, may apply for non-degree admission. In addition, an applicant whose academic record does not meet the required standards for admission to a Master of Science program may apply for non-degree admission to Graduate Studies. For students wishing to pursue a Master of Science in Engineering degree, non-degree admission provides an opportunity to demonstrate his/her academic capability. Non-degree students completing nine semester hours of appropriate graduate courses with grades of B or better may apply for admission to a specific engineering degree option with regular or provisional status to continue his/her study for the Master of Science in Engineering.

Advisement

The Rayen School of Engineering requires an advisor for each individual graduate student. An advisor is recommended by the option coordinator in the student's discipline and assigned by Graduate Studies upon acceptance. It is the responsibility of the student to initiate contact with his or her advisor, and this should be done as soon as possible before registering for the first time and at the time of course registration each semester. The student, with the help of his or her advisor, shall develop a study plan that includes goals and desired outcomes, and a coursework plan. The plan may be revised, if necessary, as the study progresses, with the approval of the advisor and option coordinator.

Chemical Engineering

Holly J. Martin, Ph.D., Associate Professor
Corrosion studies; modification of metal surfaces to strongly adhere polymeric coatings for corrosion resistance

Byung-Wook Park, Ph.D., Assistant Professor
Engineered biohybrid materials for biomedical applications;biohybrid microswimmers for drug delivery and bioimaging;wearable bioelectronics for chronic wound monitoring; smart wound dressing

Civil and Environmental Engineering

Richard Albert Deschenes, Jr., Ph.D., Assistant Professor
Materials science; concrete durability and materials; applied mechanics

AKM Anwarul Islam, Ph.D., Professor
Impact of blast on highway bridges; use of CFRP in enhancing structural strength of concrete members; structural health monitoring of bridges using wireless sensor network

Suresh Sharma, Ph.D., Associate Professor
Complex hydrologic and water quality modeling using various types of data driven, conceptual, physically based and distributed and semi-distributed watershed models in climate change/variability context

Electrical and Computer Engineering

Frank Xiying Li, Ph.D., Professor, Chair
Electron spin resonance imaging; EMC, RF, and software engineering; networks; applied magnetic fields

Industrial and Systems Engineering Mechanical Engineering

S. Cory Brozina, Ph.D., Assistant Professor
Student support and success in engineering; learning analytics; first-year engineering

Kyosung Choo, Ph.D., Associate Professor
Heat and mass transfer; multiphase flow; phase change phenomena; data center cooling; energy audit of buildings; microchannel heat exchangers; linear friction welding; laser welding; kinetics of human body performance

Hazel Marie, Ph.D., Professor
FEA/CFD modeling applied to solid-fluid interaction of thin film lubrication sealing; mechanical material modeling of soft biological tissue

Stefan Moldovan, Ph.D., Assistant Professor
Multi-scale computational fluid dynamics; experimental techniques as applied to crystal growth within reactors, finger seals, hydrodynamic bearings and dampers; wet friction materials in torque converters

Jae Joong Ryu, Ph.D., Associate Professor

Effect of process induced anisotropic microstructure on sliding contact fatigue damage of titanium alloy joint implants; mechanical load assisted dissolution response of medical#grade metals and alloys

Elvin B. Shields, Ph.D., Professor
Mechanical vibrations; fracture mechanics; kinematics; the scholarship of teaching and learning

Virgil C. Solomon, Ph.D., Professor
Synthesis of shape memory alloys, ceramic-metal composites and nanostructures and their characterization using metallography, thermal analysis and analytical scanning and transmission electron microscopy techniques