

SENG - SAFETY ENGINEERING (SENG)

SENG 309/NUEN 309 Radiological Safety

Credits 3. 3 Lecture Hours. Interactions of nuclear radiations with matter and biological systems; theory and practice of radiation dosimetry as applied to radiation protection; design and application of radiation dosimetry systems for personnel monitoring, area radiation monitoring and accident situation; includes external and internal dosimetry as well as long-term risk analysis. **Prerequisite:** NUEN 302. **Cross Listing:** NUEN 309/SENG 309.

SENG 310 Fundamentals of Safety Engineering

Credits 3. 3 Lecture Hours. Application of scientific and engineering principles in the selection and design of control systems related to chemical, physical and ergonomic exposures in the process and manufacturing industries; relationships of criteria, analysis and specifications for the assessment and control of occupational related illnesses.

SENG 312 System Safety Engineering

Credits 3. 3 Lecture Hours. Application of system safety analytical techniques to the design process; emphasis on the management of a system safety or product safety program; relationship with other disciplines such as reliability, maintainability, human factors and product liability applications. **Prerequisite:** Junior classification.

SENG 321 Safety Management Systems

Credits 3. 3 Lecture Hours. Concepts of design, operation and maintenance of optimally safe systems, risk management, economic impact, legislation, performance measurement and accident investigation and analysis; principles and practices in industrial hygiene engineering, fire protection engineering and introduction to systems safety engineering. **Prerequisite:** Junior classification.

SENG 422 Fire Protection Engineering - Facilities Design

Credits 3. 3 Lecture Hours. Design of facilities from a fire protection engineering viewpoint including fire detection and fire control systems; materials, equipment, exposures, occupancies and processes; both public and industrial occupancies studied to determine fire protection design specifications. **Prerequisite:** Approval of instructor.

SENG 430/CHEN 430 Risk Engineering

Credits 3. 3 Lecture Hours. Concepts of risk and risk assessment, including use of all available information to provide a foundation for risk-informed and cost-effective engineering practices; examples and exercises from a variety of engineering areas. **Prerequisite:** Junior or senior classification. **Cross Listing:** CHEN 430/SENG 430.

SENG 455/CHEN 455 Process Safety Engineering

Credits 3. 3 Lecture Hours. Applications of engineering principles to process safety and hazards analysis, mitigation, and prevention, with special emphasis on the chemical process industries; includes source modeling for leakage rates, dispersion, analysis, relief valve sizing, fire and explosion damage analysis, hazards identification, risk analysis, accident investigations. **Prerequisite:** Senior classification in any engineering major. **Cross Listing:** CHEN 455/SENG 455.

SENG 460/CHEN 460 Quantitative Risk Analysis in Safety Engineering

Credits 3. 3 Lecture Hours. Fundamental concepts, techniques, and applications of risk analysis and risk-informed decision making for engineering students; practical uses of probabilistic methods are demonstrated in exercises and case studies from diverse engineering areas. **Prerequisite:** Senior or graduate classification. **Cross Listing:** CHEN 460/SENG 460.

SENG 477 Air Pollution Engineering

Credits 3. 3 Lecture Hours. Design of air pollution abatement equipment and systems to include cyclones, bag filters and scrubbers; air pollution regulations; permitting; dispersion modeling; National Ambient Air Quality Standards. **Prerequisite:** Grade of C or better in BAEN 340, CVEN 311/ EVEN 311, EVEN 311/CVEN 311, or MEEN 344. **Cross Listing:** BAEN 477 and MEEN 477.

SENG 485 Directed Studies

Credits 1 to 4. 1 to 4 Other Hours. Permits students to develop special projects in industrial hygiene engineering, safety engineering or fire protection engineering. Project must be approved by department head.

SENG 489 Special Topics in...

Credits 1 to 4. 1 to 4 Lecture Hours. Selected topics in industrial hygiene engineering, safety engineering or fire protection engineering of specific student interest. May be repeated for credit. **Prerequisite:** Approval of instructor.