

# ENGR - ENGINEERING (ENGR)

## ENGR U201 Statics 3 Credit Hours

Vector mechanics and equilibrium of particles and rigid bodies. Applications include trusses, frames, and distributed loads. Prerequisite(s): PHYS U211/L, MATH U141.

## ENGR U202 Dynamics 3 Credit Hours

Kinematics and kinetics of particles and rigid bodies in plane motion. Emphasis is on Newton's Laws, energy and momentum methods. Prerequisite(s): ENGR U201. Pre/Corequisite(s): MATH U241.

## ENGR U220 Engineering Graphics 3 Credit Hours

Fundamentals of graphical communication within the context of engineering and technical design. Topics include sketching, line drawing, and solid modeling. Development and interpretation of drawings and specifications for product realization is emphasized.

## ENGR U230 Engineering Statistics 3 Credit Hours

Probability theory, statistical inference, and data analysis with a focus on applications relevant to engineering practice. Topics include probability distributions, including discrete and continuous distributions such as binomial, normal, and exponential distributions, statistical inference, estimation, hypothesis testing, and regression analysis.

## ENGR U250 Construction Project Management 3 Credit Hours

Fundamentals of planning, scheduling, and controlling construction projects in environmental engineering contexts. Topics include project delivery methods, cost estimation, contract administration, critical path method (CPM), and construction safety. Emphasis is placed on managing time, budget, and resources within regulatory and environmental constraints. Prerequisite(s): ENCP U101 or sophomore standing in an engineering program.

## ENGR U300 Contemporary Issues in Engineering 3 Credit Hours

Challenges, emerging trends, and advancements shaping the field of engineering in the 21st century. Engineering ethics, communications for engineers, sustainability, and professionalism will be covered through case studies and guest lectures from industry representatives. Prerequisite(s): ENCP U101, IENG U102.

## ENGR U301 Fluid Mechanics 3 Credit Hours

Fundamental principles of fluid statics and dynamics with applications to environmental and civil systems. Topics include Bernoulli's equation, momentum analysis, and pipe flow. Prerequisite(s): ENGR U202, MATH U245.

## ENGR U342 Artificial Intelligence in Engineering 3 Credit Hours

Theory, techniques, and applications of artificial intelligence and machine learning within the field of engineering. Case studies will explore how AI technologies are leveraged to enhance problem-solving, decision-making, and innovation across various engineering domains.

## ENGR U395 Engineering Internship 1-3 Credit Hours

Supervised practical experience related to the Engineering field in an elected setting planned in conjunction with the relevant Engineering faculty. Pass/Fail credit.

## ENGR U398 Topics in Engineering 3 Credit Hours

Selected topics in engineering. Topics vary depending on faculty expertise. This course may be repeated for credit if the topic is different.

## ENGR U399 Independent Study 1-3 Credit Hours

A planned individual research experience carried out in conjunction with an engineering faculty member. Course may be repeated for a total of no more than three hours of undergraduate credit. Prerequisite(s): Consent of instructor.

## ENGR U420 Engineering Design Methods 3 Credit Hours

Structured methods for planning, analyzing, and executing engineering design projects. Emphasis is placed on stakeholder needs assessment, conceptual design, system modeling, and decision-making under constraints. Integration of sustainability, regulatory compliance, ethics, and life-cycle considerations into engineering solutions is highlighted through iterative design approaches and case studies. Prerequisites: Senior standing in an engineering program or permission of instructor.