

# SPACE OPERATIONS (SPAC)

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**SPAC 310 Introduction to Space Systems 3 Credit Hours (3,1)**

A systematic overview of space systems fundamentals and satellite technology components. Topics include history of space systems, orbital mechanics, rocketry, space environment, satellite engineering, structure, propulsion, power, guidance, navigation, control, data handling, telemetry tracking, payloads, and models.

**Prerequisite(s):** MATH112 and MATH131 or higher-level calculus, CHEM091 or higher, PHYS221 or higher

**SPAC 410 Space Operations Fundamentals 3 Credit Hours (3,0)**

Overview of the key concepts of space operations. Topics include: Mission issues related to constraints (e.g. manned vs. unmanned and military vs. commercial vs. scientific), concepts and planning, and execution; Communications issues related to regulations, uplink/downlink equipment, signals and cybersecurity, ground network interconnections, performance, data analysis, and budgeting; and, Operational issues related to procedures/protocols and geopolitical considerations.

**Prerequisite(s):** SPAC310