

CHEMICAL ENGINEERING MINOR
DEPARTMENT OF PAPER & CHEMICAL ENGINEERING
20 SEMESTER HOURS

Chemical Engineering (20 Semester Hours) For information contact the Department of Paper & Chemical Engineering, 64 Engineering Building (513-529-0760).

The minor provides an understanding of basic chemical engineering principles, concepts, and methodologies and how they are applied to the design and performance analysis of industrial processes. This minor is for students not majoring in paper science & engineering. The minor satisfies Thematic Sequence PCE I: Material & Energy Balances, Fluid Mechanics, and Heat Transfer.

A minimum GPA of 2.0 is required for all courses in the minor. None of these courses may be taken on a credit/no-credit basis.

Prerequisites: CHM 142, CHM 145, MTH 245, PCE 219 or MME 211, PHY 181, PCE/MME 341

All of these:

CHM 363 ANALYTICAL CHEMISTRY (3) Fundamentals of analytical chemistry including classical and instrumental methods. Prerequisite: CHM 142,145. Concurrent registration in CHM 364.

CHM 364 ANALYTICAL CHEMISTRY LABORATORY (2) Analytical chemistry laboratory including classical and instrumental methods. Prerequisite: CHM 142, 145. Concurrent registration in CHM 363. CAS-D/LAB

PCE 204 MATERIAL AND ENERGY BALANCES (3) Techniques used to calculate material and energy balances with special emphasis on paper industry applications. Prerequisite: grade of C or better in CHM 142. Co-requisite: PHY 181.

PCE 313 FLUID MECHANICS (3) Fundamentals and application of the mechanics of fluids including properties, statics and dynamics of fluids, dimensional analysis and similitude, steady state flow, and topics in compressible flow. Prerequisites: MTH 251, PHY 181 and PCE 219 or MME 211. Cross-listed with MME 313.

PCE 314 ENGINEERING THERMODYNAMICS (3) Study of the fundamental principles of thermodynamics. Emphasis placed on engineering applications such as power cycles, refrigeration, and heat transfer systems. Prerequisite: MTH 251, PHY 181. Cross-listed with MME 314.

PCE 403/503 HEAT TRANSFER (3) Continued study of unit operations with emphasis on heat transfer. Study of steady and unsteady conduction, and laminar, turbulent, boiling, and condensing convective heat transfer. Radiation heat transfer, heat exchangers, evaporators, and transfer units. Prerequisites: PCE/MME 313, PCE/MME 314 and MTH 245. Cross-listed with MME 403

PCE414/514 MASS TRANSFER (3) Continued study of unit operations, with emphasis on mass transfer and special problems. Steady and unsteady diffusion, convective mass transfer, absorption, scrubbing, and stripping. Humidification, psychrometry, and drying. Multiple effect evaporators, cooling towers, packed towers, and distillation. Prerequisite: PCE/MME 313, PCE/MME 314 and MTH 245, and a grade of C or better in PCE 204.