Western Engineering

Chemical Engineering and AI (Option G)
September 2023

Year 2
Term A
NMM 2270A	Applied Mathematics for Engineering II
SE 2205A	Algorithms and Data Structures
CBE 2290A	Fundamentals of Biochemical and Environmental Eng.
CBE 2206A	Industrial Organic Chemistry I
CBE 2214A	Engineering Thermodynamics
CBE 2220A	Chemical Process Calculations

Term B
NMM 2277B	Applied Mathematics for Chem & Civil Eng. III
SE 2251B	Software Design for Systems Engineering
CBE 2207B	Industrial Organic Chemistry II
CBE 2221B	Fluid Flow
CBE 2224B	Chemical Engineering Thermodynamics
CBE 2291B	Computational Methods in Chemical Engineering

Year 3
Term A
DS 3000A	Intro to Machine Learning
SE 3309A	Database Systems
ECE 3350A	Cyber-Physical Systems Theory
CBE 3307A	Energy and Environment
CBE 3315A	Reaction Engineering
CBE 3322A	Heat Transfer Operations

Term B
Writing 2130F/G	Building Better (Communication) Bridges: Rhetoric and Professional Communications for Engineers
SS 2143B	Applied Statistics and Data Analysis for Engineers
AISE 3010B	Data Engineering and Machine Learning
ECE 3351B	Digital Systems and Signal Processing
CBE 3323B	Staged Operations
CBE 3324B	Mass Transfer Operations

Year 4
Term A
AISE 3020A	AI: Ethics, Bias, and Privacy
AISE 4010A	Deep Learning for Time Series Data
SE 4430A	Introduction to Computer Networking, Security and IoT Systems
CBE 3318A	Introduction to Chemical Process Simulation
CBE 3395Y	Chemical Engineering Lab

Term B
AISE 4020B	Artificial Intelligence Systems Engineering Design I
CBE 3310B	Process Dynamics and Control
CBE 3316B	Sustainable Chemical Eng and Life Cycle Analysis
CBE 3319B	Introduction to Plant Design and Safety
CBE 3395Y	Chemical Engineering Lab
One 0.5-credit non-technical elective	

CBE 4404A/B	Downstream Processing in Pharmaceutical Manufacturing
CBE 4405A/B	Air Pollution
CBE 4407A/B	Solid Waste Treatment
CBE 4409A/B	Wastewater Treatment
CBE 4411A/B	Engineering Coffee
CBE 4413A/B	Selected Topic in Chemical Engineering
CBE 4415	Chemical Engineering Project
CBE 4416A/B	Carbon Footprint & Management
CBE 4417A/B	Catalytic Processes
CBE 4418A/B	Industrial Multiphase Reactor Design
CBE 4420A/B	Computer Process Control
CBE 4421A/B	Introduction to Biomaterials Engineering
CBE 4422A/B	Nanobiotechnology
CBE 4423A/B	Tissue Engineering
CBE 4424A/B	Biosensor Principles and Applications
CBE 4428A/B	Introduction to Nanoengineering
CBE 4432A/B	Energy and Fuels Production Systems
CBE 4463A/B	Water Pollution Design
CBE 4485A/B	Energy & Society
CBE 4493A/B	Polymer Engineering
CEE 3362A/B	Drinking Water Quality and Treatment
GPE 4484A/B	Green Fuels and Chemicals
MME 4429A/B	Nuclear Engineering

Year 5

Term A

AISE 4050	Artificial Intelligence Systems Engineering Design
ECE 4450A	Data Driven Control of Cyber-Physical Systems
ELI 4110F	Engineering Ethics, Sustainability Development and the Law

One 0.5 credit non-technical elective
One 0.5 credit from AISE technical elective (can be in term A or B)

Term B

AISE 4050	Artificial Intelligence Systems Engineering Design

One 0.5 credit non-technical elective
Two 0.5 credits CBE Technical Elective
One 0.5 credit from AISE technical elective (can be in Term A or B)