

**Chemical Engineering Technology (CET)
Associates of Applied Science (A.A.S.)
(Proposed Curriculum for Fall 2009)**

Fall (1st Academic Year)		Credit hours
*CET 1010	Intro. to Process Industries	2
ENGL 1010	English Composition	3
MATH 1110	Algebraic Problem Solving	3
PHYS 1020	Conceptual Physics	3
PHYS 1021	Conceptual Physics Laboratory	1
CHEM 1010	Chemistry: Soc. & Environment	3
CHEM 1011	Chemistry: Soc. & Environment Laboratory	1
		16
Spring (1st Academic Year)		
*CET 1020	Intro. to Process Operations	2
MATH 1530	Statistics	3
HIST 2040	History and Environmental Impact of Technology	3
*CHEM 1040	Industrial Chemistry	3
*CHEM 1041	Industrial Chemistry Laboratory	1
CSCI 1005	Computer Hardware and Software	3
		15
Fall (2nd Academic Year)		
ENG 1100	Technical Writing	3
*CET 2100	Fundamentals of Chemical Engineering	3
*CET 2010	Process Instrumentation	3
*CET 2011	Process Instrumentation Laboratory	2
*CET 2140	Quality Control	3
*CET 2131	Mechanical Systems Laboratory	1
		15
Spring (2nd Academic Year)		
COMM 1010	Public Speaking	3
*CET 2020	Process Troubleshooting	3
*CET 2030	Process Operations Management	3
*CET 2150	Selected Topics in Chemical Industry	3
*CET 2190 or *CET 2161	Internship or Advanced Instrumentation Laboratory	2
		14



* courses still pending approval from the Tennessee Board of Regents (TBR) *



Proposed Courses for AAS in Chemical Engineering Technology

Chemistry

Fall (1st Academic Year)

CHEM 1010 / CHEM 1011 - Chemistry: Society and the Environment (three hours lecture, three hours lab)

- The nature of matter and energy, the developments of chemical technology, and the interaction of this technology with humans and their environment. Topics include atomic structure, energy in matter, chemical bonding and molecular structure, solutions, acid-base reactions, and redox reactions.

Spring (1st Academic Year)

CHEM 1040 – Industrial Chemistry (3 credit hours lecture)

Prerequisite: CHEM 1010, Co-requisite: CHEM 1041

- Chemical concepts of industry; basic chemical engineering and chemical processing; basic organic chemistry, synthetic polymers, diffusion, fluid flow, heat transfer, air and water pollution, energy sources

CHEM 1041 (1 credit hour lab)

Co-requisite: CHEM 1040

- Organic distillations, extractions, separation techniques, crystallizations, filtrations; product drying, storage, and packaging techniques

Chemical Engineering Technology

Fall (1st Academic Year)

CET 1010 – Introduction to Process Industries (2 credit hours lecture)

- Introduction of the chemical process industry; basic knowledge of the raw materials involved and chemical processing techniques used to acquire finished product; chemical plant operations; job responsibilities of the chemical technician

Spring (1st Academic Year)

CET 1020 – Introduction to Process Operations (2 credit hours lecture)

- Introduction of the operations at chemical plants; basic understanding of safety, health, and environmental regulations for chemical plant operators; hazardous materials/waste handling and transportation; industrial hygiene plans; emergency response

Fall (2nd Academic Year)

CET 2010 – Process Instrumentation (3 credit hours lecture)

Co-requisite: CET 2011

- Theory and application of instrumentation of the chemical processing industry; flow sheet applications, tagging procedures

CET 2011 – Process Instrumentation Laboratory (2 credit hours lab)

Co-requisite: CET 2010

- Hands-on use of the instruments used in the chemical processing industry

CET 2100 – Fundamentals of Chemical Engineering (3 hours lecture)

Prerequisite: CHEM 1040

- Fundamental principles and terminology of chemical engineering; engineering problem solving; chemical reactor design; reaction systems; 1st law of thermodynamics; pressure, temperature and volume relationship of liquids; vapor-liquid equilibria

CET 2140 – Quality Control (3 credit hours lecture)

Prerequisites: CET 1010 and CET 1020

- Quality control concepts utilized by the chemical process industry; operating consistency; plant operations economics; team-working skills; quality control regulations

CET 2131 – Mechanical Systems Lab (1 credit hour lab)

Prerequisites: CET 1010 and CET 1020

- Hands-on use and maintenance of basic mechanical equipment used in the chemical process industry; pumps, compressors, piping, valves

Spring (2nd Academic Year)

CET 2020 – Process Troubleshooting (3 credit hours lecture)

Prerequisite: CET 2010

- Understanding of the troubleshooting methods and techniques used to solve and prevent chemical processing problems; cause and effect scenario studies; critical thinking skills necessary for troubleshooting procedures

CET 2030 – Process Operations Management (3 credit hours lecture)

Prerequisite: CET 1020

- Basic understanding of efficiency and effectiveness in operations of chemical process industry; resource management; distribution of finished products; planning and scheduling of operations maintenance

CET 2150 – Selected Topics in Chemical Industry (3 hours lecture)

Prerequisites: CET 2100 and permission of instructor

- Advanced topics in chemical processing industry

CET 2161 – Advanced Instrumentation Lab (2 hours lab)

Prerequisites: CET 2011 and CET 2131

- Hands-on use of electrical, mechanical, and quality control instruments used in the chemical processing industry

CET 2190 – Chemical Industry Internship (2 hours lab)

Prerequisites: CET 2100 and permission of instructor

- Internship experience providing practical exposure in chemical processing industry; students will be assigned to a departmentally approved industrial site. The host industrial site may require background checks and drug screening of student interns.