

## Associate in Arts Pathway to a major in Chemical Engineering (10906) 2015—2016

### About the Major

Chemical engineering occupies a unique position at the interface between molecular sciences and engineering. Intimately linked with the fundamental subjects of chemistry, biology, mathematics, and physics — and in close collaboration with fellow engineering disciplines like materials science, computer science, and mechanical, electrical, and civil engineering — chemical engineering offers unparalleled opportunities to do great things.



### Areas of Specialization

- ◆ Process modeling
- ◆ Simulation
- ◆ Separation process
- ◆ Fluid mechanics
- ◆ Petrochemical
- ◆ Bioprocess
- ◆ Particulate systems

### What can I do with this degree

The large number of industries which depend on the synthesis and processing of chemicals and materials place the chemical engineer in great demand. In addition to traditional examples such as the chemical, energy and oil industries, opportunities in biotechnology, pharmaceuticals, electronic device fabrication, and environmental engineering are increasing. The unique training of the chemical engineer becomes essential in these areas whenever processes involve the chemical or physical transformation of matter.



### Earn This Degree and Work as...

Position	Median Salary
Materials Scientist	\$73,060
Environmental Engineer	\$80,980
Chemical Engineer	\$94,350
Petroleum Engineer	\$130,280

Source for position and salary information is from Bureau of Labor Statistics 2012.

## A.A. Pathway to a major in Chemical Engineering Program Code 10906

Total credits required for the degree is 60.

The chemical engineer requires a complete and quantitative understanding of both the engineering and scientific principles underlying these technological processes. Chemical engineering includes the study of applied mathematics, material and energy balances, thermodynamics, fluid mechanics, energy and mass transfer, separations technologies, chemical reaction kinetics and reactor design, and process design.

### GENERAL EDUCATION REQUIREMENTS—36 credits required

(Select the following courses)

Course	Course Title	Credits
ENC1101	English Composition 1	3
ENC1102	English Composition 2	3
SPC1017	Fundamental of Speech Communication	3
PHI2604	Critical Thinking/Ethics	3
PHI2010	Introduction to Philosophy	3
PSY2012	Introduction to Psychology	3
ECO2013	Principles of Macro-Economics	3
MAC2311	Calculus 1	5
MAC2312	Calculus 2	1
CHM1045	General Chemistry 1	3
BSC2010	Principles of Biology 1	3
MAP2302	Differential Equations (Gen. Educ. Req.)	3

### MAJOR COURSE ELECTIVES— 24 credits required

Choose 24 credits of these Electives under your advisor's guidance.

MAC2312	Calculus 2	3
MAC2313	Calculus 3	4
EGN1008C	Intro to Engineering	3
CHM1045L	General Chemistry 1 Lab	2
CHM1046	General Chemistry 2	3
CHM1046L	General Chemistry 2 Lab	2
BSC2010L	Principles of Biology 1 Lab	2
PHY2048	Physics with Calculus 1	4
PHY2048L	Physics with Calculus 1 Lab	1

### COMPUTER COMPETENCY

CGS1060	Intro to Microcomputer Usage	0
---------	------------------------------	---

### \*Required Engineering pre-requisite courses

Classes which are required to transfer to a Engineering degree granting institution include the following:

COP2270	"C" for Engineers	4
PHY2049	Physics with Calculus 2	4
PHY2049L	Physics with Calculus 2 Lab	1
CHM2210	Organic Chemistry 1	3
CHM2210L	Organic Chemistry 1 Lab	2
CHM2211	Organic Chemistry 2	3
CHM2211L	Organic Chemistry 1 Lab	2

The following schedule is based on students beginning in one of the major semesters (Fall or Spring) and following the suggested schedule on a continuing Fall/Spring basis as prescribed by the Faculty of the Department. This however is only one of many possible methods to complete your degree. Please note that some classes may not be offered every semester as well as some may not be offered in the Summer. It is highly recommended that you seek the advice of an Engineering department advisor and/or faculty member prior to starting.

### First Term

15 Credits

ENC1101	English Composition 1	3
MAC2311	Calculus 1	5
SPC1017	Fundamentals of Speech Communication	3
CGS1060	Introduction to Microcomputers	4

### Second Term

15 Credits

ENC1102	English Composition 2	3
MAC2312	Calculus 2	4
CHM1045	General Chemistry 1	3
CHM1045L	General Chemistry 1 Lab	2
EGN1008C	Intro to Engineering	3

### Third Term

16 Credits

PHI2604	Critical Thinking/Ethics	3
MAC2313	Calculus 3	4
PHY2048	Physics with Calculus 1	4
PHY2048L	Physics with Calculus 1 Lab	1
COP2270	"C" for Engineers	4

### Fourth Term

16 Credits

PHI2010	Introduction to Philosophy	3
MAP2302	Differential Equations	3
PHY2049	Physics with Calculus 2	4
PHY2049L	Physics with Calculus 2 Lab	1
CHM1046	General Chemistry 2	3
CHM1046L	General Chemistry 2 Lab	2

### Fifth Term\*

16 Credits

PSY2012	Introduction to Psychology	3
ECO2013	Principles of Macro-Economics	3
CHM2210	Organic Chemistry 1	3
CHM2210L	Organic Chemistry 1 Lab	2
BSC2010	Principles of Biology 1	3
BSC2010L	Principles of Biology 1 Lab	2

**NOTE: Some classes have pre-requisite or co-requisite requirements which may or may not be listed on the program sheet. It is the students responsibility to find out which classes do have these said requirements and consult with the engineering advisor prior to starting the program.**

## FOR FURTHER INFORMATION

Miami Dade College District Board of Trustees:  
Helen Aguirre Ferré, Chair • Armando J. Bucelo Jr.,  
Vice Chair • Daniel Diaz Leyva • Benjamin León III •  
Armando J. Olivera • Marili Cancio • Bernie Navarro

Eduardo J. Padrón, President, Miami Dade College  
Rolando Montoya, College Provost  
Malou C. Harrison, President, North Campus  
Beverly Moore-Garcia, President, Kendall Campus  
José A. Vicente, President, Wolfson Campus  
Armando Ferrer, President, Medical Center Campus  
Jeanne F. Jacobs, President, Homestead Campus  
Joanne Bashford, President, InterAmerican Campus

The Miami Dade College Foundation supports the mission and values of Miami Dade College by encouraging gifts from a wide variety of sources, particularly in the areas of scholarship and program support. For more information on how you can contribute to the College, please call MDC at 305-237-8888.

Miami Dade College is an equal access/equal opportunity institution in compliance with ADA and does not discriminate because of veteran, marital or disability status or on the basis of age, sex, race, national origin or religion. This information is available in accessible formats. For this, or special accommodations, call 305-237-3848 three days before the event. TDD: 711; 1-800-955-8771



Write us

School of Engineering and Technology  
MDC Wolfson Campus  
500 NE 2nd Ave, Suite 7148  
Miami, FL 33132

Call or Email US

305-237-1169 / engineering@mdc.edu  
Visit Our Web Site  
http://entec.mdc.edu