UNDERGRADUATE STUDENT HANDBOOK

2012 - 2013

Department of Chemical & Materials Engineering
Kettering Labs Room 445
University of Dayton
Dayton, OH 45469-0246

Telephone: (937) 229-2627
Fax: (937) 229-3433

Web Page

http://udayton.edu/engineering/chemical_and_materials/index.php

August 2012

Student Name _____

Advisor _____

Mission Statement

The mission of the Chemical Engineering Department is to educate students who are highly sought after by employers internationally, excel in graduate and professional schools, engage in life-long learning, make significant contributions to the profession and society. The department will promote and support integrated teaching/learning, scholarship, and the Marianist tradition of community, leadership, and service.

Chemical Engineering Program Objectives

1. Chemical Engineering graduates have successful careers in the chemical process industry with the skills necessary to have opportunities to work in non-traditional industries and positions.
    - Measure 1: Extent that engineering degree assisted in career.
    - Measure 2: Extent that engineering degree provided necessary skills to succeed
    - Measure 3: Overall satisfaction with engineering education.
    - Measure 4: Oral and written communication skills.

2. Chemical Engineering graduates are successful at prestigious graduate, medical, and law schools.
    - Measure 1: Alumni attending graduate school survey.

3. Chemical Engineering graduates are committed to performing ethically while serving their professions, companies, and communities.
    - Measure 1: Serving the professions, companies, and communities survey.
    - Measure 2: Committed to performing ethically (advisory committee input, employer surveys, alumni surveys.)

4. Chemical Engineering graduates exhibit strong critical thinking skills from the breadth of their general education and the depth of their foundation in engineering principles, and engage in continuous intellectual and personal growth.
    - Measure 1: Importance and preparation of engineering topic.
    - Measure 2: Importance and preparation of educational abilities.
    - Measure 3: Continuous intellectual and personal growth.

Chemical Engineering Program Outcomes

a. An ability to apply knowledge of mathematics, science, and engineering
b. An ability to design and conduct experiments, analyze and interpret data.
c. An ability to design a system, component, or process to meet needs within realistic constraints, such as environmental, social political, ethical, health and safety, manufacturability, and sustainability.
d. An ability to function on multidisciplinary teams.
e. An ability to identify, formulate, and solve engineering problems.
f. An understanding of professional and ethical responsibility.
g. An ability to communicate effectively.
h. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
i. A recognition for the need for, and an ability to engage in life-long learning.
j. A knowledge of contemporary issues.
k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Introduction

This handbook has been prepared to inform and assist Chemical Engineering students about their program of study and about the Chemical Engineering Department at the University of Dayton. Most of the information presented is available in other sources, but it has been collected here for your convenience.

With the other activities and information you are being inundated with the first few weeks of college, it will be hard to digest all of the information contained in this handbook at once. So when you have settled into your routine of classes it is very important that you take some time to examine the information contained herein, especially the following:

Bachelor in Chemical Engineering

Chemical engineering applies the principles of the physical sciences, economics, and human relations to research, design, build, and supervise facilities that convert raw materials into useful products and services.

The majority of chemical engineers are involved in the chemical process industries that produce many of the materials and items needed in everyday life. These include medicine, food, fertilizers, plastics, synthetic fibers, petroleum, petrochemicals, ceramics, and pulp and paper products. A chemical engineer may pursue a professional career in many other fields, such as energy conversion, pollution control, medical research, and materials development in aerospace and electronic industries. Chemical engineers are employed in research, development, design, production, sales, consulting, and management positions. They are also found in government and education. Many use a chemical engineering education as a stepping stone to law, medicine, or corporate management.

The curriculum in chemical engineering serves as basic training for positions in these diverse areas of the manufacturing industry or for graduate study leading to advanced degrees. The first part of the chemical engineering curriculum provides a firm foundation in mathematics, physics, and chemistry. The chemistry background is stressed. The second part of the curriculum offers a balance between classroom and laboratory experience in stressing chemical engineering topics such as transport phenomena, thermodynamics, kinetics and reactor design, separation processes, fluid flow and heat transfer operations, process control, and process design. The development of design tools, communication, and interpersonal skills is integrated throughout the curriculum. The curriculum allows concentrations in emerging technologies such as bioengineering, environmental engineering and materials engineering. Those interested in attending medical /dental school can pursue a pre-med preparation as part of their curriculum.

The Chemical Engineering Department at the University of Dayton is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The full-time faculty focuses on core courses in the Chemical Engineering program, while part-time faculty members from industry bring current industrial practice to the classroom.

Departmental Directory

Departmental Offices: 445 Kettering Labs

Telephone: (937) 229-2627
(On campus – dial 92627)

Web Site Address:

http://www.udayton.edu/engineering/chemical_and_materials/index.php

Department Chairman:
Dr. Charles Browning
407 Kettering Labs
cbrowning1@udayton.edu

Chemical Engineering Director:
Dr. Robert Wilkens
445 Kettering Labs
rwilkens1@udayton.edu

Administrative Assistant:
Janet Pastor
445 Kettering Labs
jpastor1@udayton.edu

Lab Manager: Mike Green - Science Center Room 177A

Undergraduate Student Advisor: Advising for first year students is coordinated through the Dean's Office Kettering Lab 261. Your advisor will change with each subsequent year, but will always remain a CME full time faculty member.

Graduate Studies Coordinator: **Dr. Kevin J. Myers**

Faculty

Mr. Thane Brown
Dr. Charles E. Browning – KL 407
Dr. Amy Ciric – KL 407
Dr. Kristen Comfort – KL 542
Dr. Don Comfort – KL 542
Dr. Matthew J. Dewitt – KL 150
Dr. Michael Elsass – KL 407
Dr. Daniel Eylon – KL 407
Dr. Joseph Fellner
Dr. Joel Fried – KL 542
Dr. Lawrance Flach – KL 445
Dr. Scott Gold – KL 542
Mr. Jim Griffin
Dr. Ryan Justice
Dr. Khalid Lafdi – KL 542
Dr. Donald A. Klosterman – KL 542
Dr. C. William Lee – KL 445
Dr. Kevin Myers – KL 445
Dr. Jennifer Reid – KL 542
Dr. Tim Resch
Mrs. Jamie Riley – KL 445
Dr. Sarwan S. Sandhu – KL 407
Dr. Robert Wilkens – KL 445

UNIVERSITY OF DAYTON - SCHOOL OF ENGINEERING

Program - Bachelor of Chemical Engineering [1] Total: 137 Credit Hours

August 2012

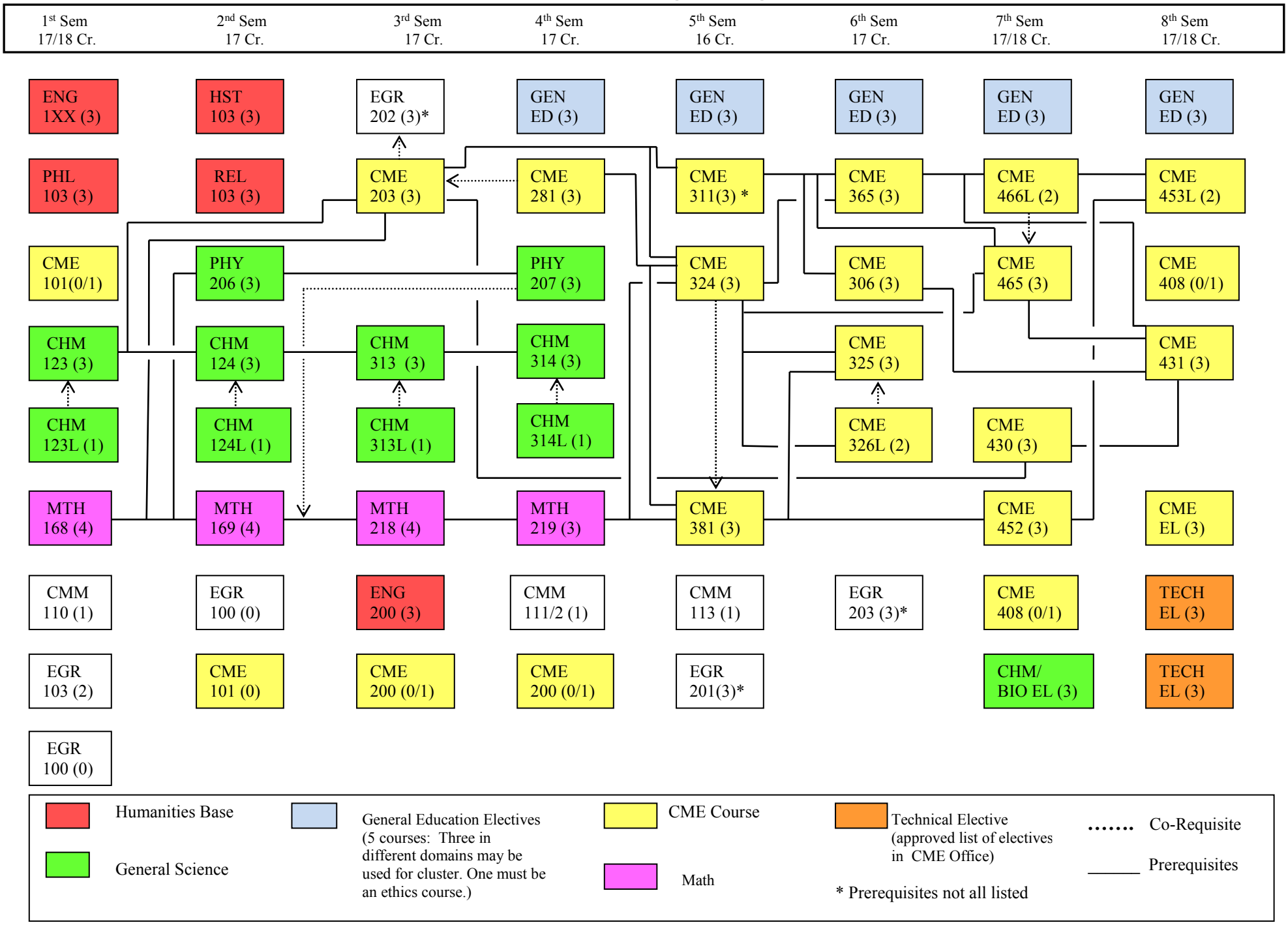
Dept. No.	Course	Credit Hours	
	FRESHMAN YEAR		
CME 101	Introduction to Chemical Engineering	0/1	
CHM 123-124	General Chemistry I, II & Labs	8	
MTH 168-169	Analytic Geometry & Calculus I, II	8	
PHY 206	General Physics I	3	
EGR 103	Engineering Innovation	2	
ENG 100	Writing Seminar I	3	
XXX.XXX	Humanities Base	3	
XXX.XXX	Humanities Base	3	
CMM XXX	Fundamentals of Communications	1	
EGR 100	Engineering Workshops	0	
		35	
	SOPHOMORE YEAR	1ST Term	2nd Term
CHM 313-314	Organic Chemistry I, II & Labs	3-3-4	3-3-4
CME 200	Professional Development Seminar	1-0-0	1-0-0
CME 203	Material & Energy Balances	3-0-3	
ENG 200	Writing Seminar II	3-0-3	
EGR 202	Engineering Thermo	3-0-3	
MTH 218	Analytic Geometry and Calculus III	4-0-4	
CME 281	Chemical Engineering Computations		3-0-3
MTH 219	Applied Differential Equations		3-0-3
PHY 207	General Physics II		3-0-3
CMM.XXX	Fundamentals of Communication		1-0-1
XXX.XXX	General Education Course		3-0-3
		17	17
	JUNIOR YEAR		
CME 311	Chemical Engineering Thermodynamics	3-0-3	
CME 324-325	Transport Phenomena I, II	3-0-3	3-0-3
CME 381	Applied Mathematics for Chemical Engineers	3-0-3	
EGR 201	Engineering Mechanics	3-0-3	
XXX.XXX	General Education Course[3]	3-0-3	
CMM XXX	Fundamentals of Communication	1-0-1	
CME 306	Chemical Reaction Kinetics and Engineering		3-0-3
CME 326L	Transport Phenomena Laboratory		1-3-2
CME 365	Separation Techniques		3-0-3
EGR 203	Electrical & Electronic Circuits		3-0-3
XXX.XXX	General Education Course		3-0-3
		16	17
	SENIOR YEAR		
CME 408	Seminar	0/1	0/1
BIO/CHM.zzz	Biology/Chemistry Elective	3-0-3	
CME 430-431	Chemical Engineering Design I, II	3-0-3	3-0-3
CME 452	Process Control	3-0-3	
CME 465	Flow & Heat Transfer Processes	3-0-3	
CME 466L	Chemical Engineering Unit Operations Laboratory	0-5-2	
XXX.XXX	General Education Course	3-0-3	
CME 453L	Process Control Laboratory		0-5-2
CME XXX	Chemical Engineering Elective[2]		3-0-3
XXX.XXX	Engineering/Science Elective[2]		3-0-3
XXX.XXX	Engineering/Science Elective[2]		3-0-3
XXX.XXX	General Education Course		3-0-3
		18	17

[1]All engineering mathematics and science courses must be taken for grading option 1.

[2]Selected from list approved by the Department of Chemical and Materials Engineering.

[3]Ethics requirement - choose from the list approved by the Department of Chemical and Materials Engineering

Bachelor of Chemical Engineering 2012



Chemical Engineering Typical Schedule of Course Offerings

Course	Hours	Fall	Spring	Summer
Material & Energy Balances	3	CME 203	CME 203	
Professional Development Seminar	0/1	CME 200	CME 200	
Computational Methods	3		CME 281	CME 281
Kinetics	3		CME 306	CME 306
Thermodynamics	3	CME 311	CME 311	
Transport Phenomena I	3	CME 324	CME 324	
Transport Phenomena II	3		CME 325	CME 325
Transport Lab	2		CME 326L	CME 326L
Separation Processes	3		CME 365	CME 365
Applied Math	3	CME 381	CME 381	
Seminar	0	CME 408		
Seminar	1		CME 408	
Intro. Polymers	3	CME 409		
Chemical Eng. Design I	3	CME 430		
Chemical Eng. Design II	3		CME 431	
Chemical Product Design	3			CME 432
Process Control	3	CME 452		
Flow & Heat Transfer Processes	3	CME 465		
Process Control Lab	2		CME 453L	
Unit Operations Lab	2	CME 466L		
Intro to Petrol. Engineering**	3		CME 486	
Intro to Bioengineering	3	CME 490		
Intro to Biomedical Engineering	3		CME 491	
Chemical Sensors & Biosensors*	3			CME 492
Special Problems	1-3	CME 499	CME 499	
Adv. Thermodynamics	3	CME 507		
Intro. Polymers	3	CME 509		
Polymer Properties**	3		CME 510	
Principles of Corrosion	3	CME 511		
Advanced Composites	3	CME 512		
Adv. Transport Phenomena	3	CME 521		
Topics of Transport*	3		CME 522	
Fund & Appl of Fuel Cells*	3		CME 524	
Methods of Polymer Analysis	3			CME 527
Chemical Behavior of Materials	3		CME 528	
Chemical Product Design	3			CME 532
Adv. Kinetics**	3		CME 542	
Reaction Engineering**	3		CME 543	
Agitation*	3			CME 550
Air Pollution Engr. I&II*	3	CME 574	CME 575	
Environmental Engr. Sep.*	3			CME 576
Materials for Adv. Energy Appl.	3		CME 579	
Adv. Math I-Analytical	3	CME 581	CME 581	
Adv. Math II-Numerical	3		CME 582	
Process Modeling*	3			CME 583
Intro to Petrol Engineering**	3		CME 586	
Intro to Bioengineering	3	CME 590		
Intro to Biomedical Engineering	3		CME 591	
Chemical Sensors & Biosensors*	3			CME 592
Special Problems	3	CME 595	CME 595	CME 595
Thesis	3	CME 599	CME 599	CME 599

* Offered on as needed basis

** Offered in alternate years

UNIVERSITY OF DAYTON – SCHOOL OF ENGINEERING

Chemical Engineering Curriculum
Guide to Course Prerequisites
Revised, August 2012

To use this guide, find the "KEY COURSE" of interest in the center column. Then, the left column gives prerequisites for that course, and the right column lists subsequent courses, which require the key course as a prerequisite.

Prerequisite	Key Course	Prerequisite for:
High School Chemistry	**CHM 123**	CHM 124, CME 203
CHM 123	**CHM 124**	CHM 313
MTH 116 or equivalent	**MTH 168**	MTH 169, CME 203, EGR 201, EGR 202, EGR 203
MTH 168 or 138	**MTH 169**	MTH 218
MTH 168 or 148	**PHY 206**	PHY 207, EGR 201
CHM 123, MTH 168, EGR 202 (co-req)	**CME 203**	CME 281,CME 311, CME 324, CME 430
CME 203	**CME 281**	CME 324, CME 381
CHM 124	**CHM 313**	CHM 314
CHM 313	**CHM 314**	
MTH 168, PHY 206	**EGR 201**	
MTH 168	**EGR 202**	
MTH 168	**EGR 203**	
MTH 169	**MTH 218**	MTH 219, CME 311
MTH 218	**MTH 219**	CME 324, CME 381
PHY 206, MTH 169 (co-req)	**PHY 207**	
CME 311	**CME 306**	CME 431
CME 203, MTH 218	**CME 311**	CME 365, 306, 465
CME 203, CME 281, MTH 219 CME 381 (co-req)	**CME 324**	CME 325, 326L, 365, 465
CME 324, CME 381	**CME 325**	
CME 324, CME 325 (co-req)	**CME 326L**	
CME 311, CME 324	**CME 365**	CME 466L, CME 431
MTH 219, CME 281	**CME 381**	CME 325, CME 452
CHM 201 or equivalent	**CHM 304**	
CME 203	**CME 430**	CME 431
CME 311, CME 324	**CME 465**	CME 431
CME 365, CME 465 (co-req)	**CME 466L**	CME 453L
CME 381,	**CME 452**	CME 453L
CME 430, 465, 306, 365	**CME 431**	
CME 466L, CME 452	**CME 453L**	

Academic Calendar 2012-2013

https://registrar.udayton.edu/academiccalendar.asp

First Term

Mon, Aug 6	Degrees conferred—no ceremony
Sat—Tue, Aug18-21	New Student Orientation
Tue, Aug 21	Upperclass students move into UD Housing
Tue, Aug 21	Last day to complete registration
Wed, Aug 22	Classes begin at 8:00 am
Tue, Aug 28	Last day for late registration, change of grading options and schedules
Mon, Sep 3	Labor Day—no classes
Tue, Sep 11	Last day to change Second Session and full Summer Term grades
Wed, Sep 12	Last day to drop classes without record
Wed, Oct 3	Mid-Term Break begins after last class
Mon, Oct 8	Classes resume at 8:00 am
Mon, Oct 15	Last day for Graduate and Doctoral students to apply for December 2012 graduation
Wed, Oct 17	First-Year students' midterm progress reports due by 4:00 pm
Fri-Sun Oct 19-21	Family weekend
Thu, Nov 1	Last day for Undergraduate students to apply for May 2013 graduation
Mon, Nov 5	Last day to drop classes with a record of a W
Tue, Nov 20	Thanksgiving recess begins after last class
Sat, Nov 24	Saturday classes meet
Mon, Nov 26	Classes resume at 8:00 am
Thu, Dec 6	Last day of classes
Fri, Dec 7	Feast of the Immaculate Conception/Christmas on campus – no classes
Sat Dec 8	Study Day
Sun Dec 9	Study Day
Mon-Fri, Dec 10-14	Exams—Fall Term ends after final examinations
Sat, Dec 15	Diploma Exercises at 9:45 am
Tue, Dec 18	Grades due by 9:00 am Deficiency slips due in Deans' offices
Thu, Dec 20	Grades posted
Tue, Jan 22	Last day to change Fall Term grades

CHRISTMAS BREAK

Sun, Dec 16	Christmas Break begins
Sun, Jan 13	Christmas Break ends

Second Term

Fri, Jan 11	Spring New Student Orientation
Fri, Jan 11	Last day to complete registration
Mon, Jan 14	Classes begin at 8:00 a.m.
Fri, Jan 18	Last day for late registration, change of grading options and schedules
Mon, Jan 21	Martin Luther King, Jr. Day--no classes
Tue, Jan 22	Last day to change Fall Term grades

Fri, Feb 1	Last day for Graduate and Doctoral students to apply for May 2013 graduation
Mon, Feb 4	Last day to drop classes without record
Wed, Feb 27	Mid-Term Break begins after last class
Mon, Mar 4	Classes resume at 8:00 a.m.
Wed, Mar 13	First-Year students' midterm progress grades due by 4:00 p.m.
Fri, Mar 15	Last day for Undergraduate students to apply for August 2013 graduation
Wed, Mar 27	Easter Recess begins after last class
Mon, Apr 1	Easter Monday--no day classes--classes resume at 4:30 p.m.
Mon, Apr 1	Last day for Undergraduate students to apply for December 2013 graduation
Wed, Apr 3	Last day to drop classes with record of W
Wed, Apr 17	Bro. Joseph W. Stander Symposium-Alternate Day of Learning
Fri, Apr 26	Last day of classes
Sat, Apr 27	Study Day
Sun, Apr 28	Study Day
Mon-Fri, Apr 29-May 3	Exams--Spring Term ends after final examinations
Sun, May 5	Undergraduate Commencement Exercises at 9:45 a.m.
Tue, May 7	Grades due by 9:00 a.m. Deficiency slips due in Deans' offices
Thu, May 9	Grades posted
Mon, Jun 10	Last day to change Spring Term grades

Third Term – First Session

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Fri, May 10	Last day to complete registration
Sat, May 11	Saturday classes begin
Mon, May 13	Classes begin at 8:00 a.m.
Tue, May 14	Last day for late Summer Term-First Session registration, change of grading options and schedules
Thu, May 16	Last day for late full Summer Term registration, change of grading options and schedules
Wed, May 22	Last day to drop without record from First Session classes
Mon, May 27	Memorial Day--no classes
Mon, Jun 10	Last day to drop with record of W from First Session classes
Mon, Jun 10	Last day to change Spring Term grades
Fri-Sat, Jun 21-22	Exams--full Summer Term classes do not meet First Session ends after final examinations
Tue, Jun 25	Grades due by 9:00 a.m. Deficiency slips due in Deans' offices
Thu, Jun 27	Grades posted
Mon, Jul 1	Last day for Graduate and Doctoral students to apply for August 2013 graduation
Wed, Jul 3	Last day to drop without record from full Summer Term classes
Tue, Jul 30	Last day to change First Session grades,

Third Term – Second Session

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Fri, Jun 21	Last day to complete registration
Sat, Jun 22	Saturday classes begin
Mon, Jun 24	Second Session classes begin

Tue, Jun 25	Last day for late Summer Term-Second Session registration, change of grading options and schedules
Mon, Jul 1	Last day for Graduate and Doctoral students to apply for August 2013 graduation
Wed, Jul 3	Last day to drop without record from Second Session and full Summer Term classes
Thu, Jul 4	Independence Day--no classes
Mon, Jul 15	Last day to drop with record of W from Second Session and full Summer Term classes
Tue, Jul 30	Last day to change First Session grades
Fri-Sat, Aug 2-3	Exams--Second Session and full Summer Term end after final examinations
Mon, Aug 5	Degrees conferred--no ceremony
Tue, Aug 6	Grades due by 9:00 a.m. Deficiency slips due in Deans' offices
Thu, Aug 8	Grades posted
Tue, Sep 10	Last day to change Second Session and full Summer Term grades

Thematic Clusters

What is a thematic cluster?

- A cluster is composed of a group of courses that focus on a common theme. Each cluster includes at least three courses from three different domains of knowledge.

- The six domains of knowledge are:
    - Arts Study
    - Historical Study
    - Philosophy
    - Physical and Life Science
    - Religious Studies
    - Social Sciences

- Clusters are part of general education. They are not an additional requirement, but a way of organizing some of the existing general education requirements.

Why are thematic clusters required at UD?

- To provide the opportunity for students to discover connections across academic disciplines.
- To enable students to further explore the question of the Humanities Base, "What does it mean to be human?" by focusing on a particular theme.
- To help students engage in a richer and broader learning experience by exploring this theme in a multidisciplinary way.

What are important considerations when choosing a cluster?

- Interest in the theme: Individual interest motivates students to raise important questions and helps connect general education requirements to issues raised in major areas of study.
- Timing: Select a cluster after completing the Humanities Base. This should be by the beginning of the sophomore year. Cluster courses should be planned in conjunction with requirements in the major.

Compatibility with a major: A student may select any cluster. However, some clusters are more compatible with specific majors. Consider how a cluster complements a major area of study and how it is compatible with major requirements. Consult with advisors and departmental chairpersons.

Types of Clusters

The Arts and Human Experience
"Art teaches nothing except the significance of life" -- Henry Miller

The Business Professional in a Global Society
"Leaving the social milieu. The preconceptions. The definitions. The language. The narrowed field of reason. The expectations. No longer expecting relationships, memories, words, or letters to mean what they used to mean. To be, in a word: Open." – Rabbi Lawrence Kushner

Catholic Intellectual Tradition
"At all times the church carries the responsibility of reading the signs of the time and of interpreting them in the light of the Gospel..." -- Vatican Council II, Gaudium et Spes, n. 4

Cross Cultural
"I am a human, and nothing human is alien to me." -- Terence

Perspectives on Global Enviromental Issues
"We have not inherited the world from our ancestors--we have borrowed it from our children."-- Kashmire Proverb

Social Justice
"Let us resolve to be masters, not victims, of our history, controlling our own destiny without giving way to blind suspicions and emotions." -- John F. Kennedy

Values, Technology, & Society
"The open society, the unrestricted access to knowledge, the unplanned and uninhibited association of people for their furtherance--these are what may make a vast, complex, ever growing, ever changing, ever more specialized and expert technological world, nevertheless a world of human community."

--J. Robert Oppenheimer

Women and Culture
"To document the experience of women would mean documenting all of history: they have always been of it, in it, and making it...half, at least, of the world's experience has been theirs, half of the world's work and much of its products." -- Gerda Lerner

Courses approved for each cluster can be found at the following web site:

http://www.udayton.edu/gened/thematic_clusters/index.php

Courses approved for general education credit can be found at the following web site:

http://www.udayton.edu/gened/gen_ed_guide/index.php

Self-Defined Cluster

While many thematic clusters have been defined and developed by the faculty, you may choose to define a cluster for yourself. This option is especially relevant to students who study abroad. although any student may develop a self-defined thematic cluster

- Self-defined thematic clusters must meet the goals of clusters:
- To facilitate an integrated view of knowledge,
- To enhance familiarity with the domains of knowledge that are part of general education, and
- To build on the humanities base.

Students wishing to develop a self-defined thematic cluster must write a proposal that:

- Clearly identifies the theme for the cluster.
- Develops a statement of rationale for the theme that explains why the theme is appropriate for general education.
- Lists the courses that will be taken to complete the cluster and explains how each course contributes to or supports the theme. There must be a minimum of three courses. Each course must come from a different domain of knowledge (Arts Study, Historical Study, Philosophy and Religious Studies, Physical and Life Sciences, and Social Sciences). Under certain circumstances, such as study-abroad, one course may be from a domain not included in general education. If such a course is included, the proposal must explain how that course meets the cluster goals. Such a course does not replace a general education domain requirement. Students must still complete all of the general education requirements. If a course is in one of the general education domains of knowledge but is not approved for general education, the proposal must explain how that course meets the goals of general education. Such a course will count for the general education requirement. Students should ordinarily define a cluster before beginning the coursework.

The approval process is as follows:

- Proposals must be signed by the student's academic advisor and chairperson.
- Proposals are then sent to the Associate Dean for Integrated Learning and Curriculum in the College of Arts and Sciences. The Associate Dean will review the proposal. If the proposal is approved, the Associate Dean will notify the student and the academic advisor in writing. If the cluster is not approved, the Associate Dean will notify the student and the advisor in writing with a rationale. Students may revise and resubmit proposals.

Special Programs Clusters

By fulfilling the program requirements of the Chaminade Scholar Program and the Core Program the requirements for the Chaminade Scholars cluster and Core cluster are also fulfilled.

Honor Students can fulfill the Honors cluster by completing any approved cluster and integrative project. The project must include information from all three cluster classes taken and address the theme of the cluster. The proposal for the project must be approved by the coordinator of the cluster. The Honors student will earn credit for one Honors designated course for fulfilling the Honors cluster.

Thematic Cluster

You should choose a thematic cluster after careful thought and consultation with your advisors. Ideally, you should select a cluster before completing your first year. Review the thematic cluster pages. Print out this page and fill it out in consultation with your advisor.

Name:_____

Student ID No._____

Major_____

_____ I am declaring a cluster

_____ I am changing to a different cluster

Check the cluster you are now declaring:

_____ The Arts and Human Experience

_____ Business Professional in a Global Society

_____ Catholic Intellectual Tradition

_____ Cross Cultural

_____ Perspectives on Global Environmental Issues

_____ Social Justice

_____ Values, Technology, and Society

_____ Women and Culture

Please note that Honors and Core students register for the clusters through the directors of those programs.

Student Signature _____Date_____

Advisor's Name_____

Advisor's Department_____

Advisor's Signature_____Date_____

Please place a copy of this in the student's file and provide your department office with a copy.

MINORS IN THE SCHOOL OF ENGINEERING

Specialization has become an increasingly important aspect of engineering practice. It is often advantageous for School of Engineering graduates to have both a balanced education in one of the traditional disciplines and specialized training in a specific area complementary to that discipline.

In recognition of this trend, the School of Engineering has a program of minors which, in some cases, may be pursued throughout the existing electives of your current engineering curriculum. The minors program serves the needs of the student by providing options which open avenues of study to fulfill specific educational goals/career objectives.

Election of a minor is strictly at the student's option and does not affect the present credit hour requirements for graduation. This is typically done at the beginning of the student's junior year. There is no penalty for discontinuing a minor program of study provided the unfulfilled balance of free and technical electives are taken in accordance with current degree requirements. Successful completion of a minor will be recorded by its formal title on the student's official transcript.

A minor consists of at least 12 semester hours of coursework sequenced such that the program of study can be completed in the third and fourth years of study. The first course in each minor will usually satisfy any prerequisite requirements for subsequent courses in that minor. Moreover, the first course will usually provide the necessary technical background needed by those students entering the program from other engineering disciplines. The courses in a minor are taken for **undergraduate credit, grading option 1 only**. Courses required for the minor may not be offered every term.

To designate a minor, the ***Request for Approval of a Minor*** form, page 18 of this booklet is available in the Office of the Dean of Engineering (KL 266), and should be completed by the student and signed by the chair of the School of Engineering department offering the minor. The form should then be submitted to the Office of the Dean, KL 266. When the minor has been successfully completed, the dean will notify the Registrar's Office, and the minor will become a part of the student's permanent record. In some instances, it may be beneficial to the student to substitute courses in an approved minor program. Such changes can be submitted on the ***Request for Approval of a Minor*** form and must be approved by the student's advisor, appropriate department chairperson, and the dean.

An undergraduate student who wishes to complete a minor in an area outside of the School of Engineering may do so by completing the courses selected by the department offering the minor. In addition to the 12 semesters there will likely be additional prerequisite courses.

Detailed descriptions of the School of Engineering minors are provided in this brochure. It is anticipated that additional minors will evolve on a continuing basis from faculty-student endeavors. A special minor, not listed, can be created with the approval of the advisor, the chairperson offering the minor, and the School of Engineering Academic Committee.

Recommended Minors in CME

For a complete list of minors, please refer to

http://www.udayton.edu/engineering/areas_of_study.php

As part of the requirements for the CME degree, the following electives can be used to satisfy a minor.

Chemistry/Biology Elective	3 credit hours
Chemical Engineering Elective	3 credit hours
Engineering/Science Elective	3 credit hours
Engineering/Science Elective	3 credit hours

Bioengineering (BIE)

Description: This is open to chemical, civil, computer, electrical, and mechanical engineering majors. The program is designed to expose the student to the use of engineering principles in the biological systems and applications.

Two required courses:

BIO 151	Concepts of Biology I **-OR-**
BIO 152	Concepts of Biology II
CME 490	Introduction to Bioengineering

Select one course from:

CME 491	Biomedical Engineering
MEE 530	Biomechanical Engineering

One of the following electives:

BIO 151	Concepts of Biology I
BIO 152	Concepts of Biology II
BIO 312	General Genetics
BIO 403	Physiology I
BIO 411	General Microbiology
BIO 440	Cell Biology
CHM 420	Biochemistry
CHM 451	General Biochemistry I
CHM 452	General Biochemistry II
CME 491	Biomedical Engineering
CME 492	Chemical and Bio Sensors
MEE 530	Biomechanical Engineering

Energy Production Engineering

Description: This minor is open to other engineering majors. The minor is for students with an interest in energy production.

Students receiving a minor in Energy Production Engineering will be required to take four required courses from the list below:

CME486/586	Introduction to Petroleum Engineering
CME 533/BIE 533/RCL 533	Biofuel Production Processes
CME 524/MEE 524/RCL 524	Electrochemical Power
CHM 234/GEO 234	Energy Resources
MEE 473/573/RCL 573	Renewable Energy Systems
MAT 579	Materials for Advanced Energy Applications
ECE 316	Introduction to Electrical Energy Systems
RCL 590	Thermal Systems Analysis
RCL 590	Solar Energy Engineering
RCL 590	Wind Energy Engineering
ECE/RCL/MAT 583	Advanced Photo-voltaics

Composite Materials Engineering (CMA)

Description: This minor is open to civil, chemical, and mechanical engineering majors. The program is designed to expose the student to the design, processing, and characterization of composite materials and their various applications in industry.

Students receiving a Composite Materials Engineering Minor will be required to take four courses total – two required courses and two electives. The required courses and electives are listed below.

Two Required Courses

CME/MAT 510	High Performance Thermostat Polymers
CME 512/MAT 542	Advanced Composite Materials and Processing

Choose two electives from the list below:

CME/MAT 509	Introduction to Polymer Science - Thermoplastics
CME/MAT 527	Methods of Polymer Analysis
CEE/MAT 540	Composite Design
CEE/MEE 546`	Finite Element Analysis I
CEE/MAT 543	Analytical Mechanical-Composite Materials
CME/MAT 580	Polymer Decomposition, Degradation, and Durability

Environmental Engineering (EVE)

Description: This minor, which is open to all non-civil engineering majors. The program defines contemporary problems of pollution and identifies the technological approaches necessary to preserve the quality of our environment.

Any four of the following not already required. It is recommended the minor include one course pertaining to water, air, and solid.

CEE 434	Water & Wastewater Engineering
CME/CEE 562	Physical & Chemical Water & Wastewater Treatment Processes
CME/CEE 563	Hazardous Waste Engineering
CME/CEE 564	Solid Waste Engineering
CME 565	Fundamentals of Combustion
CME/CEE 574	Fundamentals of Air Pollution Engineering I
CME/CEE 575	Fundamentals of Air Pollution Engineering II
CME/CEE 576	Environmental Engineering Separation Processes
CHM 341	Environmental Chemistry

Pre-Med Preparation for Engineering Students:

The courses required by the majority of medical schools include:
Note: See a pre-med adviser for further approval

BIO 151	Concepts of Biology I: Cell and Molecular Biology	3 Cr. Hrs.
BIO 151L	Biological Laboratory Investigations I: Cell Molecular Biology	1 Cr. Hr.
BIO 152	Concepts of Biology II: Evolution and Ecology	3 Cr. Hrs
BIO 152L	Biological Laboratory Investigations II: Evolution and Ecology	1 Cr. Hr.
CHM 123 and 123L*	General Chemistry I and Lab	4 Cr. Hrs.
CHM 124 and 124L*	General Chemistry II and Lab	4 Cr. Hrs.
PHY 206*	General Physics I	3 Cr. Hrs.
PHY 207*	General Physics II	3 Cr. Hrs.
PHY 201L*	General Physics Laboratory	1 Cr. Hr.
	(A higher level engineering lab may be substituted.)	
CHM 313 and 313L*	Organic Chemistry I and Lab	4 Cr. Hrs.
CHM 314 and 314L*	Organic Chemistry II and Lab	4 Cr. Hrs.

* Already part of the CME sequence

It is recommended that a student take a course in physiology and a course in microbiology.
For Chemical Engineering Students:

BIO 411	General Microbiology	3 Cr. Hrs.
BIO 403	Physiology I	3 Cr. Hrs.

Materials Engineering (MAT)

Description: This minor is open to all engineering majors. This minor is a general overview of materials with elective courses in polymers, composites, nanomaterials, and material characterization.

Students receiving a Materials Engineering Minor will be required to take four courses total – two required courses and two electives. The required courses and electives are listed below.

Two Required Courses:

MAT 501	Principles of Materials I
MAT 502	Principles of Materials II

Choose two electives from the list below:

MAT 504	Techniques of Materials Analysis
MAT 506	Mechanical Behavior of Materials
MAT 507	Introduction to Ceramic Materials
MAT 508	Principles of Material Selection
CME 509/MAT 509	Introduction to Polymer Science - Thermoplastics
CME 510/MAT 510	High Performance Thermostat Polymers
CME/MAT 511	Principles of Corrosion
MAT 521	Nondestructive Evaluation
CME/MAT 527	Methods of Polymer Analysis
CME/MAT 528	Chemical Behavior of Materials
CME 512/MAT 542	Advanced Composites
MAT 535	High Temperature Materials
MAT 541	Experimental Mechanics of Composite Materials
MAT 543	Analytical Mechanics of Composite Materials
MAT 544	Mechanics of Composite Structures
MAT 575	Fracture and Fatigue of Metals and Alloye I
MAT 577	Light Structural Metals
CME/MAT 579	Materials for Advanced Energy Applications
CME/MAT 580	Polymer Decomposition, Degradation, and Durability
MAT 590	Selected Readings in Materials Engineering
MAT 595	Special Problems in Materials Engineering
MAT 601	Surface Chemistry of Solids
MAT 604	Nanostructured Materials
MEE 312	Engineering Materials I

Polymer Materials (PME)

Description: This minor is open to all engineering majors. Coverage of polymers including thermosets and thermoplastics and composite materials in which polymers are used as constituents. Methods of polymer processing and polymer characterization are also included.

Students receiving a Polymer Materials Minor will be required to take four courses total – two required courses and two electives. The required courses and electives are listed below

Two Required Courses:

CME/MAT 509	Introduction to Polymer Science - Thermoplastics
CME/MAT 510	High Performance Thermostat Polymers

Select two of the following courses:

CME/MAT 527	Methods of Polymer Analysis
CME/MAT 528	Chemical Behavior of Materials
MAT 540	Composite Design
CME 512/MAT 542	Advanced Composites
MAT 543	Analytical Mechanics of Composite Materials
CME/MAT 580	Polymer Decomposition, Degradation, and Durability

Concentration in Energy Systems

Description: The Energy Systems Concentration provides an interdisciplinary concentration in energy systems and its social consequences. Students completing this concentration would find themselves prepared for jobs in both industrial and building energy systems, the market for which has been growing rapidly.

Students in the Energy Systems Concentration would be required to take the following courses:

Core CME Courses
CME 203 – Materials and Energy Balances
CME 311 – Chemical Engineering Thermodynamics
CME 324/325/326L – Transport Phenomena I, II and lab
CME 465 – Fluid Flow and Heat Transfer
CME 466L – Unit Operations Lab
CME 430/431 – Design I and II

CME Elective (Choose 1 from the list below)
CME 486/586 – Petroleum engineering
CME 524/MEE 575 – Fundamentals and Applications of Fuel Cells
CME 565 – Fundamentals of Combustion
CME 574 – Fundamentals of Air Pollution Engineering I

Technical Electives (Choose 2 of the following if not chosen for CME elective)

CME 486/586 – Petroleum engineering
CME 524/MEE 575 – Fundamentals and Applications of Fuel Cells
CME 565/MEE 560 – Fundamentals of Combustion
CME 574 – Fundamentals of Air Pollution Engineering
MAT 590 – Energy Materials
MEE 420/569 – Energy Efficient Buildings
MEE 471/571 – Design of Thermal Systems
MEE 474/574 – Energy Efficient Manufacturing
MEE 472/572 – Renewable Energy Systems
CME 507/MEE 511 – Advanced Thermodynamics
MEE 413/513 – Propulsion
AEE/MEE 565 – Advanced Propulsion Systems
MEE 590 – Aviation and Jet Fuels

The students must in addition to an Ethics course take
ASI 320 – Cities and Energy (satisfies History requirement) or other approved humanities elective connected to Energy Systems

REQUEST FOR APPROVAL OF A MINOR

UNIVERSITY OF DAYTON
SCHOOL OF ENGINEERING

Name _____ Student ID No. _____

Academic Department in Engineering

Chemical Engineering

Title of
Minor_____

Course Number	***Course Title***

If it is necessary or desirable to change the minor program of study, a separate sheet must be submitted for approval by the Assistant Dean.

Remarks:

Approval:

_____
Adviser

_____
Chair of School of Engineering Department Offering the Minor

Original: Student File
Copy: Student, Advisor File

UNIVERSITY OF DAYTON
"MBA-READY"
ENGINEERING PROGRAM SUMMARY

Have you considered the advantages of having an Engineering degree PLUS a Masters degree in Business Administration? This is one of the most marketable degree combinations today.

By planning your engineering program properly you can meet all of the prerequisites for the UD MBA program, and be "MBA-Ready" at graduation time. There is no wasted time, money, or effort!

- The "MBA-Ready" engineering program is a coordinated effort between the School of Engineering and the School of Business to make it possible for a graduating engineer to go directly into the UD MBA program having met all of the business foundation requirements and ready to complete the MBA with one year of MBA course work.

- The "MBA-Ready" Program is designed for engineering students who want to pursue an MBA degree immediately upon completion of their undergraduate program.

- Completion of the "MBA-Ready" Program will qualify for a minor in Business.

- It will also fulfill all UD MBA pre-requisites prior to entrance into the UD MBA program.

- If you complete the MBA-Ready program you will receive an undergraduate minor in Business Administration.

- Completing the coursework does not guarantee admission into the MBA program. You must complete the GMAT examination and apply to the MBA program.

- Students must receive a minimum grade of C- in all of the above listed MBA foundation classes.

- Please schedule a meeting with the MBA graduate office in Mirial Hall 306 prior to taking any MBA classes.

If you are interested in the MBA Ready Program, please contact:

Janet Leonard
Senior Academic Advisor
School of Business Administration
Miriam Hall Room 211
(937) 229-2259
Janet.Leonard@notes.udayton.edu

MBA READY PROGRAM REQUIREMENTS

Course	Prerequisites	Title	Term	Credits
MGT 301	JR	Organizational Behavior	Fall/Winter/Summer	3
ECO 300 Or ECO 203 &204	MTH 168 & EGR Student	Micro & Macro Economics	Winter	3 3/3
ACC 300 A&B or ACC 207 & ACC 208	Soph/EGR Student Soph/BAI 103L	Financial & Managerial Accounting	Fall/Winter	4 3 3
FIN 301	JR, ECO 300 A&B, ACC 300 or ACC 207 & 208 (co-req) and ECO 203	Business Finance	Fall/Winter/Summer	3
MBA 610 or DSC 210 or MTH 207	SR Calculus	Stat. Tech. for Decision Analysis	Fall/Summer	1.5 3
MBA 611 or DSC 211	MBA 610 or DSC 210 or MTH 207	Stat. Tech for Decision Analysis	Fall/Summer	1.5 3
MBA 630/ MKT300/MKT 301	SR	Marketing Essentials	Winter/Summer	1.5 3
MBA 650	SR	Organizations and their Environments	Winter/Summer	1.5 3
MBA 660/MIS 300/MIS 301	SR	Information Technology & Systems	Fall/Winter	1.5 3
MBA 612/OPS 300/OPS 301	MBA 610 & 611 or DSC 210 & 211, SR	Manufacturing and Service Systems	Fall/Winter	1.5 3

EGR-MBA Ready Programs

Bachelor of Chemical Engineering												Notes
The Ideal Program												
F1	W1	F2	W2	S2	F3	W3	S3	F4	W4	V1.1	Course Title	
1										CME 101	Intro to Chem. Engineering	
2										EGR 103	Engineering Innovation	
3										XXX.XXX	Humanities Base	
0										EGR 100	Engineering Workshops	
4	4									MTH 168-169	Analytic Geometry & Calculus I, II	
4	4									CHM 123-124	General Chemistry I,II and Labs	
3	3									ENG 101-102	College Composition I, II	
	3									PHY 206	General Physics	
	3									XXX.XXX	Humanities Base	
	1									CMM XXX	Fundamentals of Communication	
		4	4							CHM 313-314	Organic Chemistry I, II & Labs	
		0	0							CME 200	Professional Development Seminar	
		3								CME 203	Material & Energy Balances	
		4								MTH 218	Analytical Geometry and Calculus III	
		3								XXX.XXX	Humanities Base	
		3								EGR 202	Engineering Thermodynamics	
			3							PHY 207	General Physics II	
			3							CME 281	Chemical Engineering Computations	
			3							MTH 219	Applied Differential Equations	
			1							CMM XXX	Fundamentals of Communication	
			3							XXX.XXX	GEN ED Electives	
				3						MGT 301	Organizational Behavior	
				3						ECO 300	Micro, & Macro Economics	GE El.
					3					CME 311	Chemical Engineering Thermodynamics	
					3					CME 381	Applied Mathematics for Chemical Engineers	
					1					CMM XXX	Fundamentals of Communication	
					3					EGR 201	Engineering Mechanics	
					3	3				XXX.XXX	GEN ED Elective	
					3	3				CME 324-325	Transport Phenomena I, II	
						3				CME 306	Chemical Reaction Kinetics & Eng.	
						2				CME 326L	Transport Phenomena Lab	
						3				CME 365	Separation Processes	
						4				ACC 300A,B	Financial and Managerial Accounting	
							3			FIN 301	Business Finance	
							1.5			MBA 611	Stat. Tech. for Decision Analysis	
								3	3	CME 430-431	Chemical Engineering Design I, II	
								3		CHM/BIO.zzz	Chemistry/Bio Elective	
								3		CME 452	Process Control	
								3		CME 465	Flow and Heat Transfer Processes	
								2		CME 466L	Chemical Engineering Unit Ops Lab	
									2	CME 453L	Process Control Lab	
									3	CME XXX	Chemical Engineering Elective	
								0/1	0/1	CME 408	Chemical Engineering Seminar	
								3		XXX.XXX	GEN ED Elective	
									3	XXX.XXX	GEN ED Elective	
									1.5	MBA 630	Marketing Essentials	
									1.5	MBA 650	Organizations and their Environments	
									1.5	MBA 660	Information Technology & Systems	
									1.5	MBA 612	Manufacturing and Service Systems	
17	18	17	17	6	16	18	4.5	17	18			Total Cr. Hrs. 148.5

SCHEDULE FOR COMPLETION OF MBA PROGRAM ONCE FINISHES WITH MBA READY PROGRAM

	Senior		5th Year		
	FALL	WINTER	SUMMER**	FALL	SPRING
Undergrad Courses	Undergrad Courses	MBA foundations			
MBA Electives			1 MBA Elective	2 MBA Elective	MBA Elective
MBA Core Courses			2 MBA Cores	1 MBA Core	1 MBA Core
Capstones				MBA 698	MBA 699
Total Hrs.	17	17	9	12	9

* Once completed, students have also earned a minor in Business Administration.

Registration on the Web

Students can register on line using Porches. Students pick courses they want approved; second, inform your advisor by e-mail that your course selections have been made and ask for advisor approval; third, after advisor approval has been obtained, students can then register on the web on the assigned day and time as noted in the composite. *You may register later than your assigned date, but not earlier*.

Transient Student Form Process

If a student wishes to take a course at a university (off-campus course) other than the University of Dayton and the student wishes for that course to be applied to their curriculum (course of study), then the following process must be completed. The purpose of the Transient Form Process is to insure that the course material and the number of credit hours of the off-campus course is equivalent to the University of Dayton course.

- The student completes the "Transient Student Permit Form" and obtains the course description(s) for the off-campus course(s). The off-campus course description can most likely be found on-line from the off-campus university bulletin. The student gives the completed form and the course description(s) to their department chair for signature. The signed form and course description are sent to the University of Dayton School of Engineering Dean's Office in KL-266.

  The "Transient Student Permit Form" is available at the

  School of Engineering department offices and the Dean's Office.

- The Associate Dean of the UD School of Engineering (SoE) signs off on the transient form (given course description along with DegreeWorks report to show change in student's record).

- A second form is created by the SoE Dean's Office for the student to give to the off-campus school when registering for course(s). This second form is signed by the SoE Associate Dean. A copy of this form is given to the student and the department office, and a copy is kept in the Dean's Office. The student is emailed to pick up their forms at the front desk in the Dean's Office, KL-266.

- The student takes the course(s)…receives a "C-" or better grade and has an original transcript sent by the off-campus institution to UD through the U.S. mail system. The address is:

  University of Dayton
  300 College Park
  Dayton, OH 45469-1668

- The student should consult their Unofficial Transcript from DegreeWorks to make sure the grade has been posted. The credit will be posted as a "K" grade and does not factor into the student's cumulative GPA at UD.

TRANSIENT STUDENT PERMIT FORM

The course description(s) for the course(s) you intend to take at another institution must accompany this form.

Student ID Number: _____

Student's Name: _____
First Middle Last

Permanent Address: _____
Street Phone Number

_____
City State Zip

has permission to take

1. Course No._____ Course Title _____ Cr. Hrs._____

2. Course No._____ Course Title _____ Cr. Hrs. _____

3. Course No. _____Course Title_____Cr. Hrs. _____

at: _____
Name of Institution

_____
Street Address

_____
City, State, Zip

during the _____session, 20 _____

The above credits are: _____ Quarter Credits _____ Semester Credits

These courses are equivalent to:

1. Course No._____ Course Title _____ Cr. Hrs. _____

2. Course No._____ Course Title _____ Cr. Hrs. _____

3. Course No._____ Course Title _____ Cr. Hrs. _____

at the University of Dayton

_____ _____
Chair's Signature of Approval Date

_____
Department

_____ _____
Associate Dean's Signature of Approval Date

MODIFY/WAIVE FORM PROCESS

MODIFY FORMS:

1) Student discusses with advisor/dept. chair the courses to be modified.
2) Student completes the modify form and submits it to the dept. chair for approval and signature. The department makes copy of signed form for office file.
3) Original signed modify form is submitted to the Dean's Office.
4) Student's advising report is run and submitted to the Assistant Dean with the original modify form.
5) Assistant Dean reviews submitted modify form with advising report and approves or provides other instruction on the form.
6) The Assistant Dean approves and signs the form and returns it to the Dean's Office Admin. to be updated in the Colleague or DegreeWorks system.
7) A copy of the approved, signed modify form is sent to the dept.
8) If the form is not approved, a copy is made and kept in the Dean's Office. The original form is returned to the dept. for review, update and resubmission.
9) The student, dept. chair, dept. admin., and Registrar Office are emailed of update on student's file of approved changes. Student may view the change on the WebAdvisor website or the DegreeWorks website.
10) The original signed (approved) modify form is filed in the student's file in the Dean's Office.

WAIVE FORMS:

1) Student discusses with advisor/dept. chair the course to be waived.
2) Dept. chair creates and submits to the Dean's Office the signed waive form with necessary documentation (if required). The department makes copy of signed form for office file.
3) Student's advising report is run and submitted to the Assistant Dean with the waive form.
4) Assistant Dean reviews submitted waive form with advising report and approves or provides other instruction on the form.
5) The Assistant Dean signs waive form and returns to the Dean's Office Admin. to be updated in the University Colleague or DegreeWorks system.
6) A copy of the signed waive form is sent to the dept.
7) If the form is not approved, a copy is made and kept in the Dean's Office. The original form is returned to the dept. for review, update and resubmission.
8) The student, dept. chair, dept. admin., and Registrar Office are emailed of update on student's file. Student may view the change on the WebAdvisor website or the DegreeWorks website.
9) The original signed waive form is filed in student's file in the Dean's Office.

DROP/ADD PROCESS WITH REGISTRATION

DROP/ADD FORMS: (See Front of the Term Composite for Dates Needed for Signatures)

1. The student completes original drop/add form for course change(s).
2. The form is submitted to his/her dept. office for advisor or dept. chair approval and signature.
3. Required advisor, instructor and Dean's signatures are acquired as the composite calendar for the term dictates.
4. The student should take the drop/add form to the Registration Office to be processed if not over 17 credit hours (student must have completed 45 credit hours before the registration date). If over 17 credit hours, the Assistant Dean's signature is required.
5. Permission Classes (identified by "P" in the Remarks column on the composite require permission of the department chairperson or faculty assigned for that class before the beginning of the term. That is, PHL 103 closed course should be taken to the PHL Department for signature.
6. Closed classes require the Chairperson's signature of the department which the course is offered.
7. Change of Grading Option requires the advisor or dept. chair's signature on the drop/add form.
8. Check the current term composite or on-line for important dates each term: Last day for Adds, Course Changes, Section Changes, Late Registration; Last day to DROP without record; To drop during the drop with W period (W will be entered beside the class on your transcript and permanent academic record); After the final day – If any student wishes to drop after this date, it is an Exception and requires the approval of the Dean's Office who would then consult with the instructor.
9. The student may view their schedule on-line (WebAdvisor or DegreeWorks).

UNIVERSITY OF DAYTON SCHOOL OF ENGINEERING	REQUEST TO MODIFY PROGRAM OF STUDY

This form is used to request a modification of a School of Engineering program of study. The decision on the request will be mailed to the student.

This section is to be completed by the student and then brought to the Department Chairperson for review and recommendation to the Dean of Engineering.

SSN	___ - ___ - ____	*Department*	
Last Name		*First Name*	

I wish to substitute _____

in place of _____

Please explain why this request is being made.

_____

_____

_____

_____

_____ _____

Student's Signature *Date*

The Department Chairperson should comment on the validity of the student's request and provide reasons why it should be approved. Please forward this form to the Office of the Dean of Engineering.

☐ I recommend approval of this request. ☐ I do not recommend approval of this request.

_____ _____

Chairperson's Signature *Date*

☐ I approve this request. ☐ I do not approve this request.

_____ _____

Associate Dean for Undergraduate Program's Signature *Date*

Engineering/Science, Chemical Engineering, Chemistry, and Ethics Requirements

Revised 8/12

* Selection of technical electives is an important decision affecting minors and preparation for jobs and graduate school. Students are strongly advised to consult with a CME academic advisor to discuss the options and constraints that apply to their situation.

* Chemical Engineering courses, Engineering courses, and Science courses can be used as technical electives

* The Engineering/Science classes can be used to complete a minor.

* Engineering Technology classes **cannot** be accepted as engineering/science requirement.

* Honors Thesis (CME 493 or CME 494) can be used as technical elective. Engineering Systems Design Seminar (EGR 320) cannot be used for an engineering/science requirement.

* **PHY 250 Descriptive Astronomy does not count as a technical elective.**

* Most common classes taken are in bold letters. Pre-requisites to courses are in parentheses.

Chemical Engineering

Any course that is not a required class can be taken.

CME 409 Introduction to Polymer Science – Thermoplastics (CME 311, CHM 314)
CME 410 High Performance Thermoset Polymers (Organic Chemistry), permission of instructor
CME 412 Advanced Composites (CME 409 or CME 509 or MAT 501 or consent of instructor)
CME 429 Computational Chemistry and Molecular Simulations
CME 432 Chemical Product Design
CME 486 Introduction to Petroleum Engineering
CME 489 Principles of Biology for Beioengineers
CME 490 Introduction to Bioengineering (CME 324, CME 306 co-req)
CME 491 Biomedical Engineering
CME 492 Chemical Sensors & Biosensors
CME 499 Special Problems

CME 507 Advanced Thermodynamics

CME 509 Introduction to Polymer Science - Thermoplastics (College Chemistry; physics and differential equations)

CME 510 High Performance Thermoset Polymers (Background in differential equations, organic or physical chemistry, or CME 509)

CME 511 Principles of Corrosion (MAT 501)

CME 512 Advanced Composites (MAT 501, MAT 509 or perm of instructor)

CME 515 Statistical Thermodynamics (CME 311, MTH 219)

CME 521 Advanced Transport Phenomena

CME 524 Electrochemical Power

CME 526 Polymer Engineering (CME 510 or consent of instructor)

CME 527 Methods of Polymer Analysis (CME 509, 510 or consent of instructor)

CME 528 Chemical Behavior of Materials (CHM 123 or permission of instructor)

CME 529 Computational Chemistry and Molecular Simulations

CME 532 Chemical Product Design (CME 311, 324 or consent of instructor)

CME 533 Biofuel Production Processes (EGR 202; CHM 123 or consent of instructor)

CME 541 Process Dynamics

CME 542 Chemical Engineering Kinetics (CME 306 and CME 381 or equivalent)

CME 543 Chemical Reactor Analysis and Design (CME 306 & CME 381 or equivalent)

CME 550 Agitation (CME 412 or consent of instructor)

CME 560 Biological Processes in Wastewater Engineering

CME 562 Physical and Chemical Wastewater Treatment Processes (CHM 123 and CME 411 or consent of instructor)

CME 563 Hazardous Waste Engineering (CHM 123 and CME 411 or consent of instructor)

CME 564 Solid Waste Engineering (CHM 123 and CME 411 or consent of instructor)

CME 565 Fundamentals of Combustion (CME 311, CME 306 or consent of instructor)

CME 574 Fundamentals of Air Pollution Engineering I (CME 311, CME 324 or consent of instructor)

CME 575 Fundamentals of Air Pollution Engineering II (CME 574 or consent of of instructor)

CME 576 Environmental Engineering Separation Processes

CME 579 Materials for Advanced Energy Application

CME 580 Polymer Decomposition, Degradation, and Durability

CME 582 Advanced Chemical Engineering Calculations II

CME 583 Process Modeling (CME 582 or equivalent)

CME 586 Introduction to Petroleum Engineering

CME 590 Introduction to Bioengineering

CME 591 Biomedical Engineering

CME 592 Chemical Sensors and Biosensors

CME 595 Special Problems in Chemical Engineering

Bioengineering

BIE	529	Computational Chemistry and Molecular Simulations (CHM 124 or consent of instructor)
BIE	533	Biofuel Production Processes (EGR 202; CHM 123 or consent of instructor)
BIE	560	Biological Processes in Wastewater Engineering (CHM 124)
BIE	561	Biomedical Engineering I (BIO 151 and CME 324) or BIE 501 or permission of instructor

Biology

BIO	**151**	**Concepts of Biology I: Cell and Molecular Biology**
BIO	152	Concepts of Biology II: Evolution and Ecology (BIO 151 suggested)
BIO	312	General Genetics (BIO 152)
BIO	350	Applied Microbiology (BIO 152, CHM 314)
BIO	403	Physiology I (BIO 152, CHM 314)
BIO	404	Physiology II (BIO 403)
BIO	411	General Microbiology (BIO 152, CHM 313)
BIO	415	Neurobiology (BIO 152, CHM 124)
BIO	440	Cell Biology (BIO 152, CHM 314)
BIO	462	Molecular Biology (BIO 312, CHM 314)

Chemistry

Any course that has CHM 124 as a prerequisite.

CHM	**201**	**Quantitative Analysis (CHM 124, 124L; Concurrent with CHM 201L)**
CHM	**201L**	**Quantitative Analysis Lab**
CHM	303	Physical Chemistry (CHM 201 or equivalent; co-requisite MTH 218; Concurrent with 303L)
CHM	303L	Physical Chemistry Lab
CHM	304	Physical Chemistry
CHM	304L	Physical Chemistry Lab (MTH 218 co-requisite)
CHM	341	Environmental Chemistry (CHM 314 or permission of instructor)
CHM	341L	Environmental Chemistry Lab (Co-requisite CHM 341)
CHM	415	Analytical Chemistry (CHM 201, 201L, 302 or 304; Concurrent with 415L)
CHM	415L	Analytical Chemistry Lab (CHM 201L, CHM 302 or equivalent)
CHM	417	Inorganic Chemistry (CHM 124, 314; co-requisite CHM 302 or 304)
CHM	418L	Inorganic Chemistry Laboratory (CHM 201L, 314L; co-requisite CHM 417)
CHM	**420**	**Biochemistry (CHM 314)**
CHM	427	Medicinal Chemistry (CHM 314 and CHM 420 or CHM 451)
CHM	451	General Biochemistry I (CHM 201, 314)
CHM	452	General Biochemistry II (CHM 451)
CHM	462L	Biochemistry Laboratory (CHM 420 or 451)
CME	528	Chemical Behavior of Materials

Civil & Environmental Engineering

CEE	213	Surveying
CEE	214	Highway Geometrics
CEE	215L	Surveying Field Practice
CEE	311L	Civil Engineering Materials Laboratory
CEE	312	Geotechnical Engineering
CEE	312L	Geotechnical Engineering Laboratory
CEE	313	Hydraulics
CEE	313L	Hydraulics Laboratory
CEE	316	Analysis of Structures I
CEE	333	Water Resources Engineering
CEE	403	Transportation Engineering
CEE	411	Design of Steel Structures
CEE	412	Design of Concrete Structures
CEE	421	Construction Engineering
CEE	422	Design and Construction Project Management
CEE	434	Water and Wastewater Engineering
CEE	434L	Water & Wastewater Engineering Laboratory
CEE	450	Civil Engineering Design
CEE	463	Hazardous Waste Engineering

Computer Science

CPS	132	Computer Programming for Engineering and Science (Co-requisite MTH 168)
CPS	**150**	**Algorithm & Programming I (4 credit hour)**
CPS	151	Algorithm & Programming II (4 credit hour, CPS 150)
CPS	250	Introduction to Computer Organization (CPS 151)
CPS	346	Operating Systems I (CPS 250, 350)
CPS	350	Data Structures & Algorithms (CPS 151)
CPS	**353**	**Numerical Methods I (MTH 169, CPS 132 or 150)**

Electrical and Computer Engineering

Any course that is not a required class can be taken.

ECE	201	Circuit Analysis (MTH 138 or 168, Concurrent with ECE 201L)
ECE	**204**	**Electronic Devices (EGR 203; Co-Req ECE 204L)**
ECE	215	Introduction to Digital Systems (EGR 203; Co-Req ECE 215L)
ECE	303	Signals and Systems (ECE 204; MTH 218; Co-Req ECE 303L)
ECE	304	Electronic Systems (ECE 303; Co-req ECE 304L)
ECE	314	Fundamentals of Computer Architecture (CPS 150; ECE 215; Co-Req ECE 314L)
ECE	401	Communication Systems (ECE 304; 340; Co-req ECE 401L)
ECE	401L	Communication Systems Lab (ECE 304; Co-Req ECE 401)
ECE	414	Electro-Mechanical Devices (ECE 303, ECE 332)

Engineering Mechanics

EGM	202	Dynamics (EGR 201)
EGM	**303**	**Strength of Materials (EGR 201)**
EGM	445	Finite Element Applications (EGM 303, MTH 219)

Geology

GEO	115	Physical Geology
GEO	208	Environmental Geology (GEO 109 or 115, permission of instructor)
GEO	**218**	**Engineering Geology**
GEO	309	Surface and Groundwater Hydrology (GEO 109 or GEO 218 or permission of instructor)
GEO	412	Introductory Geochemistry (GEO 201, or permission of instructor)

Industrial and Systems Engineering

ISE	**300**	**Probability and Statistics for Engineers (MTH 218)**
ISE	411	Problem Solving and Decision Making
ISE	430	Engineering Economy (MTH 218 not recommended; covered in Design I)
ISE	441	Production Engineering (CPS 132; ISE 300 or MTH 167)
ISE	455	Systems Dynamics (MTH 368 or ISE 369; CPS 132)
ISE	460	Quality Assurance (ISE 300 or MTH 367; CPS 132)
ISE	461	Design and Analysis of Experiments (CPS 132, ISE 300, MTH 367)
ISE	465	Reliability and Maintainability (MTH 367 or ISE 300; CPS 132)

Mathematics

MTH	310	Linear Algebra and Matrices (MTH 308, MTH 218 or perm of instructor)
MTH	**367**	**Statistical Methods I (MTH 149, or 169)**
MTH	368	Statistical Methods II (MTH 367)
MTH	403	Boundary Value Problems (MTH 219)
MTH	411	Probability and Statistics I (MTH 218, MTH 308)
MTH	412	Probability and Statistics II (MTH 411)
MTH	440	Introduction to Mathematical Modeling (MTH 219, 310 or permission of instructor)

Mechanical Engineering

Any course can be taken.
Strength and Materials is a prerequisite for many of the classes so it is listed here.

EGM	**303**	**Strength and Materials (EGM 201)**
MEE	312	Engineering Materials I (PHY 208, EGM 303, MEE 301 or **permission)**
MEE	**313**	**Engineering Materials II (MEE 312 or permission of instructor)**
MEE	401	Aerodynamics (MEE 308)
MEE	402	Energy Conversion Systems (MEE 302 or CME 311 or MCT 232)
MEE	413	Propulsion
MEE	417	Internal Combustion Engines (MEE 301 or permission)

MEE 420 Energy Efficient Buildings
MEE 471 Design of Thermal Systems
MEE 473 Renewable Energy Systems
MEE 478 Energy Efficient Manufacturing

Physics

Any course that has PHY 206 as a prerequisite.

PHY 208 General Physics III - Mechanics of Waves

Graduate Classes

The following are acceptable graduate classes:

BIE	529	Computational Chemistry and Molecular Simulations (CHM 124 or consent of instructor)
BIE	533	Biofuel Production Processes (EGR 202; CHM 123 or consent of instructor)
BIE	560	Biological Processes in Wastewater Engineering (CHM 124)
BIE	561	Biomedical Engineering I (BIO 151 and CME 324) or BIE 501 or permission of instructor
CEE	546	Finite Element Analysis
CEE	560	Industrial/Domestic Waste Treatment
CEE	562*	Physical and Chemical Wastewater Treatment Processes
CEE	563	Hazardous Waste Treatment
CEE	564*	Solid Waste Engineering
CEE	580	Hydrology and Seepage (CIE 312, 313)
CEE	582	Advanced Hydraulics (CIE 313)
CME	507	Advanced Thermodynamics
CME	**509**	**Introduction to Polymer Science – Thermoplastics (College Chemistry and Calculus)**
CME	**510**	**High Performance Thermoset Polymers (Background in differential equations, organic or physical chemistry, or CME 509)**
CME	**511**	**Principles of Corrosion (MAT 501)**
CME	**512**	**Advanced Composites (MAT 501, MAT 509 or perm of instructor)**
CME	515	Statistical Thermodynamics (CME 311, MTH 219)
CME	521	Advanced Transport Phenomena (CME 324 or 381 or equivalent)
CME	524	Fundamentals and Applications of Fuel Cells
CME	525	Design of Macromolecular Systems (CHM 314; CME 510 or consent of instructor)
CME	526	Polymer Engineering (CME 510 or consent of instructor)
CME	527	Methods of Polymer Analysis (CME 509, 510 or consent of instructor)
CME	528	Chemical Behavior of Materials (CHM 123 or permission of instructor)
CME	529	Computational Chemistry and Molecular Simulations
CME	**532**	**Chemical Product Design**
CME	533	Biofuel Production Processes
CME	541	Process Dynamics
CME	**542**	**Chemical Engineering Kinetics (CME 306 and CME 381 or equivalent)**
CME	543	Chemical Reactor Analysis and Design (CME 306 and 381 or equivalent)
CME	550	Agitation
CME	560	Biological Processes in Wastewater Engineering
CME	562	Physical and Chemical Wastewater Treatment Processes (CHM 123 and CME 411 or consent of instructor)
CME	563	Hazardous Waste Engineering (CHM 123 and CME 411 or consent of instructor)

CME 564 Solid Waste Engineering (CHM 123 and CME 411 or consent of instructor)
CME 565 Fundamentals of Combustion (CME 311, CME 306 or consent of instructor)
CME 574 Air Pollution Engineering I (CME 311 or MEE 301, 302; CME 324 or MEE 410; or permission of instructor)
CME 575 Air Pollution Engineering II (CME 574 or permission of instructor)
CME 576 Environmental Engineering Separation Processes (Consent of instructor)
CME 579 Materials for Advanced Energy Application
CME 580 Polymer Decomposition, Degradation, and Durability
CME 582 Advanced Chemical Engineering Calculations II
CME 583 Process Modeling (CME 582 or equivalent)
CME 586 Introduction to Petroleum Engineering
CME 590 Introduction to Bioengineering (CME 324, CME 306)
CME 591 Introduction to Biomedical Engineering
CME 592 Chemical Sensors & Biosensors
CME 595 Special Problems in Chemical Engineering
ENM 541 Production Engineering (ENM 521 or permission of instructor)
ENM 560 Quality Assurance (MSC 501 or equivalent)
ENM 561 Design and Analysis of Experiments (MSC 501 or equivalent)
ENM 575 Introduction to Artificial Intelligence
ENM 577 Introduction to Expert Systems
MAT 501 Principles of Materials I (MTH 219, college chemistry and physics)
MAT 502 Principles of Materials II (MAT 501 or equivalent)
MAT 504 Techniques of Material Analysis (MAT 501 or permission of instructor
MAT 506 Mechanical Behavior of Materials (EGM 303 or permission of instructor)
MAT 507 Introduction to Ceramic Materials (MAT 501)
MAT 508 Principles of Material Selection (MAT 501 or permission of instructor)
MAT 521 Nondestructive Evaluation (Permission of Instructor)
MAT 526 Polymer Engineering (MEE 308, MEE 410, MAT 510)
MAT 527 Methods of Polymer Analysis (MAT 509, MAT 510)
MAT 529 Computational Chemistry and Molecular Simulations
MAT 535 High-Temperature Materials (MAT 501 or equivalent)
MAT 542 Advanced Composites (MAT 501, MAT 509, permission of instructor)
MAT 544 Mechanics of Composite Structures
MAT 570 Fracture Mechanics (MAT 506 or permission of instructor)
MAT 575 Fracture and Fatigue of Metals and Alloys I (MAT 501, MAT 506, or permission of instructor)
MAT 576 Fracture and Fatigue of Metals and Alloys II (MAT 575 or equivalent)
MAT 577 Light Structural Metals
MAT 579 Materials for Adv Energy Applications (consent of instructor)
MAT 580 Polymer Decomposition, Degradation, and Durability

MAT	601	Surface Chemistry of Solids (MAT 501 or permission of instructor)
MEE	530	Biomechanical Engineering
MEE	567	Solar Heating Analysis
MTH	547	Statistics for Experimenters (MTH 367 or equivalent)

*** may be dropped or changed in the future.**

Ethics Requirement

Choose one 3 credit hour course that covers ethics.

PHL 312	Ethics
PHL 313	Business Ethics
PHL 315	Medical Ethics
PHL 316	Engineering Ethics
PHL 317	Ethics and Modern War
PHL 318	Family Ethics
PHL 319	Information Ethics
PHL 321	Environmental Ethics
REL 360	Christian Ethics
REL 365	Christian Ethics and the Environment
REL 367	Christian Ethics and Health Care Issues
REL 368	Christian Ethics and the Business World
REL 369	Christian Ethics and Engineering

Retake Policy

A student who earns a grade of D or F in a course may retake that course at the University of Dayton and remove the original D or F from their cumulative GPA.

If a higher grade is earned in the retaken course the original D or F will not be removed from the student's transcript but will have "same as" and the term the course was repeated in the line of the original course along with the original grade. The original GPA for that term will also remain. The D or F will be removed from the cumulative GPA calculation only after a higher grade is earned and will not be retroactive.

If a lower grade is earned in the retaken course the notation "same as" and term the course was originally taken will be listed with the retaken course along with the grade earned. This grade will not be used in the calculation of the student's cumulative GPA.

Only 15 semester hours may be retaken by any student.

If the same course is retaken twice both courses will be counted toward their maximum retake hours and both previous grades will be replaced.

Exceptions to this policy may be made by the dean (or the dean's designee) of the school or college in which the student is enrolled.

UD Web Sites

http://udayton.edu/engineering/chemical_and_materials/index.php
Chemical Engineering Department Home Page

http://bulletin.udayton.edu/index.jsp -
Undergraduate Bulletin Home Page

http://bulletin.udayton.edu/bulletin.ud?v=31&g=0&pp=1000004528
Chemical Engineering Department Bulletin Home Page

http://www.udayton.edu/engineering/index.php
School of Engineering Home Page

http://www.udayton.edu/gened/
General Education Information

http://www.udayton.edu/gened/thematic_clusters/approved_cluster_courses.php
Thematic Cluster Information

www.udayton.edu/flyersfirst/registrar/
Flyers First (Registrar-Registration Office)

UD Offices

Engineering Computing and Information Services
Kettering Lab Room 211 – 229-3171

Bursar's Office – St. Mary's Hall Room 105
229-4111

Computer Help Desk – Anderson Hall Room 28
229-3888

Registration - St. Mary's Room 411
229-4141

Student Employment – St. Mary's Room 411
229-3249

Health Center -- Gosiger Hall, Ground Floor
229-3131

Learning Teaching Center and Office of
Learning Resources
Roesch Library, Ground Floor
229-4898

Tech Shop --- Miriam Hall, Room 43
229-3573

Dining Services --- Powerhouse, Room 201
229-2441

The Co-op Program

The co-op program integrates classroom study with employment related to the student's major. Practical work experience is gained ***before*** graduation - and in today's job market, that's a big advantage. Employers vary from small, local firms to multi-national corporations and government agencies and provide unique experiences to undergraduate students.

A student is generally eligible to begin the co-op program in their second semester of their sophomore year but no later than mid-junior year. The co-op program requires alternating semesters of full-time study and full-time work.

Co-operative education allows students to --

- define career goals and evaluate choices
- gain valuable work experience and meet professionals in their chosen field
- reinforce classroom learning
- evaluate an employer over a period of time
- assist in financing education
- improve opportunity for higher starting salary after graduation

Applying to the Co-op Program . . .

Requirements -

- Full-time status as a sophomore or junior undergraduate student at the University of Dayton
- Successful completion of CME 203
- Minimum grade point average - 2.3
- Serious intent to pursue the co-op option through preparation and interview process

Competitive interviews are offered both on campus and at employer work sites. The student makes the final decision whether or not to accept an offer for co-op employment

Visit the Co-operative Education Office located in the Kettering Labs - Room 261 or call 229-2335 (on campus just dial Ext. 92335). The engineering advisor is Nancy Forthofer. The web site address is http://careers.udayton.edu/students/co-op.asp

Internship

Internship opportunities are also available and offer an alternative route to gaining work experience while still completing the degree program in four years. Visit the careerservices@careers.udayton.edu .

Honors Program

Requirements

- For students pursuing the ***Honors*** diploma (thesis option), the 15 Honors credits may include at most 6 credit hours with any specific academic prefix. *For example, at most six credit hours of Honors-level coursework coded as ENG XXX may apply.* The remaining 9 hours must be from other disciplines.

- For students pursuing the ***Honors*** diploma (courses-only option) or ***Honors with Distinction*** diploma, the 21 Honors credits may include at most 9 hours with any specific academic prefix. The breadth requirement does not apply to the credit hours obtained as part of thesis research

Admission

A student may enter the Honors Program in one of three ways:

- An incoming first-year student is automatically designated an Honors student if he or she meets certain criteria:
    - 3.7 GPA or top 10% of high school class, and
    - 29 ACT or 1300 SAT
- By earning a UD cumulative GPA of 3.5 or higher by the end of the first or second year as a full-time student, and having a sufficient number of Honors credits, the student is eligible to become a member. The Honors credits criteria are:
    - 3 Honors credits by the completion of 60 credit hours.
    - 6 Honors credits by the completion of 75 credit hours.
    - 9 Honors credits by the completion of 90 credit hours.
- A transfer student, after the first or second year, with a minimum cumulative GPA of 3.5 or higher, may apply directly to the University Honors Program, where the Honors credits are negotiated on a case-by-case basis.

Special Benefits and Privileges for University Honors Students

The Honors Program sponsors a variety of speakers, cultural activities and special events for students, including the Honors Symposium and the Honors Art Exhibition:

- Students completing the Honors Program diploma criteria will graduate with a specially notated Honors diploma and key.

- Incoming first-year Honors students are assured academic scholarships through the University's scholarship selection process, provided appropriate application materials are submitted on time.

- Honors students may apply for grants to assist with international study, research or service projects through the University's Cordell W. Hull International Fellows Fund.

- Honors students may apply for grants to assist with Honors Thesis projects and for travel funds to present their research at scholarly or professional conferences. Outstanding thesis projects may be eligible for additional funding through the Patrick F. Palermo Honors Program Founders Fund.

- Honors students receive special library benefits, including the use of the Honors Study Room 403 (visit the library circulation desk staff to check out the room key).

- The Associate Director for Fellowship Advising assists students considering graduate school and students applying for prestigious awards and national competitive fellowships.

- Honors students may participate in the annual **Honors Art Competition and Exhibit**.

- Honors students can enjoy the cultural arts on campus and in the Dayton area (within a 35-mile radius of campus) with help from the University Honors Program:

  - We will subsidizes up to $10 towards a student ticket to the University Arts Series each fall. Just bring us your ticket stub and the receipt in person within 30 days of the performance.

  - We will subsidize tickets (for you and a friend)—half the cost of the ticket up to $10 each—for Dayton-area cultural events. Just bring us your ticket stub and the receipt in person within 30 days of the performance.

- Honors students are guaranteed University housing for four years and are eligible for special Honors housing and Honors residential programming.

Earning Honors Credits

Honors credits may be obtained in a variety of ways.

Situations Where One Credit Hour of Coursework Equals One Honors Credit

- **Honors courses** (as ENG 114) or Honors sections (usually marked "H")
- **Honors-approved LLCs** (may not be coded "H").

  Honors on Globalism:
  PHL 103 G sections = 3 Honors credits
  HST 103 G sections = 3 Honors credits

  School of Business
  ECO 203 H sections = 3 Honors credits

  Sustainability, Energy and the Environment:
  PHL 103 S sections = 3 Honors credits
  HST 103 S sections = 3 Honors credits

- **Graduate-level courses** taken for undergraduate credit
  The University of Dayton Graduate School will allow Honors students to register for all 500-level classes and above, which will count toward the required Honors credits. Students should work closely with their academic advisors as all such course access must be approved through each department's own standards and procedures

- **Contract Honors courses**, with prior approval of the Honors Program and the Department; limited to two contract courses per student. Note that Honors courses taken as part of a study abroad are counted as contract courses and contribute to the maximum contract course credit limit.

  Since an Honors course is fundamentally different from a non-Honors course, the University Honors Program believes that the contract course option should be used as infrequently as possible. These courses are, however, possible options for students whose opportunities for obtaining the necessary credits to graduate with a University Honors Program diploma are seriously limited.

  The UHP also acknowledges that each department or program makes the final decision whether or not to offer the ability to contract for Honors credits through a regular course offering. In all cases, the Department Chair or Program Director, the course instructor, the Honors student and the Honors Program Director must all agree to the proposal for Honors credits through a contract course. PLEASE NOTE that the Biology Department does not offer contract courses at this time.

  Restrictions
  - The contract course option may be used only after the completion of 75 credit hours of coursework.
  - The contract course must be taken for a letter grade.
  - The student must earn a grade of B or higher to earn Honors credits.
  - A grade of B- or lower results in the course not counting for Honors credits.

- **Chaminade Scholars** earn 6 Honors credit hours.
  Year 1: REL 356 = 3 Honors credits
  Year 3: ASI 358 = 3 Honors credits

Situations Where One Credit Hour of Coursework
Equals Less Than One Honors Credit

CORE completion earns 15 Honors credits.
- Completing year 1, ASI 111-112 (12 credit hours) = 6 Honors credits
- Completing year 2, three courses (9 credit hours) = 6 Honors credits
- Completing year 3, “Professional Ethics in a Global Community” (3 credit hours) = 3 Honors credits

Additional Ways to Earn Honors Credit Hours

- **Study Abroad**: Students participating in a summer or semester study abroad experience (with a minimum of 6 UD academic credit hours) earn 3 Honors credits per study abroad. A maximum of two such study abroad experiences can be used to earn a total of 6 Honors credits.

  Honors credits for Honors courses successfully completed and taken as part of a study abroad are counted separately; however, they are considered contract courses and contribute to the maximum contract course limit of two.

- **Substantial scholarly activities in which no academic credit hours are earned**.

  - The University Honors Program recognizes that many activities are fundamental to the development of the emerging scholar for which no academic credit is received. The Honors Program acknowledges these activities with Honors credits that apply toward the requirements for the ***Honors*** and ***Honors with Distinction*** diplomas.
  - Activities that may include a substantial scholarly component are (but not limited to), for example, Spring Breakouts, cultural immersions, ETHOS participation and research experiences for undergraduates. Likewise, participation in the above activities does not necessarily result in the awarding of Honors credits.
  - At the discretion of the Honors Program leadership, non-academic credit experiences may earn 1, 2 or 3 Honors credits. Approved activities will typically earn 1 Honors credit, with the exceptional activity earning 2. In rare circumstances, 3 Honors credits may be granted for an activity.
  - A maximum of 3 Honors credits may be applied to the requirements of the Honors Program diploma through non-academic credit work.
  - Honors students interested in obtaining Honors credits for non-academic credit work must request such consideration prior to the experience and must submit an Honors Credits Application for Non-Academic Credit Work, including a letter of support from a faculty advisor.

Minority Engineering Program

The Minority Engineering Program (MEP) helps support minorities engineering students. It is open to African American, Hispanic American or Native American who want a career in engineering. The students in this program are clustered together in their first-year chemistry, physics and math classes. They also meet twice a week at enrichment workshops during the first year. The students are assigned a junior or senior engineering student as a mentor to help them adjust to campus life as well as a mentor from local industry. MEP students are required to attend Professional and Team Building Development seminars their first year. The first semester the seminar focuses on specific job functions of engineers. The second semester the focus is co-oping and internships. The goal of MEP is to help minority students develop a circle of support to help them succeed at their engineering studies.

Enriched Engineering Program

The Enriched Engineering Program (EEP) helps support students who are at the low end of our acceptance criteria. The students in this program are clustered together in their first-year chemistry, physics and math classes. See below for a listing of the potential clustered courses. They are also clustered in EGR100 sections together. They are required to attend enrichment workshops twice a week. Enrichment workshops give students an opportunity to study with their peers with upper-class engineering students as facilitators. The facilitators are available to assist the students with technical coursework. The goal is to help students develop both a solid foundation in their engineering skills as well as a support structure to help them succeed at their engineering studies.

Potential cluster courses for EEP

MTH137	CHM123	PHY206
MTH138	CHM124	
MTH168		
MTH169		

Get Involved

- American Institute of Chemical Engineers (AIChE) . . .

  The student branch of the American Institute of Chemical Engineers actively participates in student activities such as Engineers' Week and social events. Industrial speakers and plant tours help familiarize the chemical engineering student with professional opportunities after graduation. Contact the departmental office at 229-2627 or in Kettering Lab Room 445 to get additional information.

- Society for the Advancement of Materials and Process Engineering (SAMPE) . . .

  Contact the CME department office in Kettering Lab 445 or 229-2627 to get contact information.

- Society for Women Engineers (SWE) . . .

  Holds regular meetings to develop the professional and social skills of the members though social activities, speakers and workshops. Contact Dr. Laura Bistrek, Kettering Lab Room 261 for further details. Their web address www.udayton.edu/~swe/

- Tau Nu Kappa . . .

  Tau Nu Kappa is an honorary for students involved in different engineering organizations. To qualify, students must be involved in at least two engineering activities, some of which are listed above. Their web address www.udayton.engr.udayton.edu/stud for additional information.

- Tau Beta Pi . . .

  Tau Beta Pi is the National Honor Society for engineers in all disciplines. Academic standing during the junior and senior years determines eligibility. Students are notified of their eligibility each semester. Activities include tutoring, socials, and service events. Their web address is www.udayton.edu/~tbp/ for additional details.

- Christmas on Campus - (COC) . . .

  Each year UD students host approximately 1,300 City of Dayton Children for an evening of fun, food, and entertainment. On or about December 8, the event is put into action with the annual house-decorating contest in the Student Neighborhood. The COC committee is composed of student volunteers who work to plan and implement this event. Contact the Office of Student Development to get involved. Their web address is www.udayton.edu/~coc/ for additional details. Check with the Office of Student Development and UD's web site to see what else is available. The University of Dayton web site is located at www.udayton.edu. The web page address for the Office of Student Activities is www.udayton.edu/~studact/.

Information for the New Chemical Engineering Student

Information we know you will find useful . . .

→ Enrichment Workshops . . .

These workshops are conducted once each week for 2 hours and are staffed by highly motivated upper class engineering students (and monitored by a faculty member). They provide a means for engineering students to work in a collaborative learning environment with other first-year students and upper class engineering students. This is a good way to exchange information, ideas, and sort out problems with respect to courses - in particular calculus, physics, and chemistry.

→ If you fall behind in a course . . .

When you first become aware that you are falling behind in a course, you should ***immediately*** see your instructor to arrange for extra help. All faculty members maintain office hours so as to be available to students, but you must take the initiative in asking for help. You are now in a professional course of study and you have a responsibility to yourself to get the best education you possibly can. One can fall behind in a course by "cutting class" or sleeping in class. You (or your parents) are paying a lot of money for your education - get your money's worth by attending class and getting help if you are having difficulty understanding any of the material.

→ Office of Learning Resources …. Tutoring, etc.

We know a lot about learning these days. We know it happens both inside and outside the classroom, in formal and informal, individual and group settings, and in different ways for different people. We know that learning is influenced by attitude and motivation, by pedagogy, by environment (space, time, lighting, sound), by learning habits and preferences.

The Ryan C. Harris Learning Teaching Center's Office of Learning Resources (formerly known as Student Learning Services) is a learning resource for students, parents, faculty,and staff at the University of Dayton. OLR offers a wide variety of information and services to help everyone become a successful learner. Peruse the web site, attend one of our offerings, or contact our office and meet with a staff member -- however you look at it, OLR is **Your Partner in Learning**

http://www.udayton.edu/ltc/learningresources/index.php

→ Academic Regulations . . .

Become familiar with the academic regulations of the University of Dayton. Be sure that you know how to compute a GPA, and be sure that you know the prerequisites for the courses that you must take. Additional information can be found at www.bulletin.udayton.edu

Faculty of the Department of Chemical Engineering

Mr. Thane Brown, Part-Time Instructor, B.S. Oregon State University (1961), retired Director of North American Engineering for Proctor & Gamble

Dr. Charles E. Browning, Department Chairman**,** Professor, Ph.D., University of Dayton (1976). Research interests composite materials

Dr. Amy Ciric, Senior Lecturer, Ph.D., Princeton University (1990). Research interests lie in the areas of process Synthesis and optimization and non ideal distillation.

Dr. Kristen K. Comfort, Assistant Professor, Ph.D., North Carolina State University (2008)

Dr. Donald A. Comfort, Assistant Professor, Ph.D., North Carolina State University (2006). Research interests – biocatalysts, bioremediation.

Dr. Matthew J. Dewitt, Assistant Professor and UDRI Joint Appointee, Ph.D., Northwestern University (1999). Oxidative and pyrolytic reaction chemistry; quantitation and mitigation of emissions from combustion sources; hydrocarbon fuel chemistry and engineering

Dr. Michael J. Elsass, Lecturer, Ph.D., The Ohio State University (2001). Research interests are in the areas of data analysis, decision support, diagnostics and modeling knowledge in chemical engineering operations

Dr. Daniel Eylon, Professor, Ph.D., Israel Institute of Technology (1987). Research interests titanium technology, fatigue failure, microstructure mechanical properties and powder metallurgy.

Dr. Joseph Fellner, Part-Time Instructor, Ph.D. University of Dayton (1997).

Dr. Lawrance Flach, Professor; Ph.D., University of Colorado at Boulder (1989). Research interests are in the areas of process control, numerical methods, and mathematical modeling.

Dr. Joel Fried, Professor, Ph.D., UMASS (Amherst) (1976). Research interests are in membrane separation and transport, computational chemistry, molecular simulations, polymer blends and composites, biomimetic membranes, proton transfer in fuel cell membranes, ion and small molecule transport through membrane proteins.

Dr. Scott Gold, Associate Professor, Ph.D. Arizona State University. Research interests are in nanostructures materials and composites, surface chemistry, conjugated polymers, and electrochemical energy technologies.

Dr. Donald A. Klosterman, Assistant Professor and UDRI Joint Appointee, Ph.D., The University of Dayton (1994). Research interests are composite and polymer engineering.

Dr. Khalid Lafdi, Professor, Ph.D., (1989). Research interests include carbon foams, carbon nanoconstituents, composite materials, and design fabrication of thermal property devices for micro- and nanometric measurements.

Dr. C. William Lee, Professor; Ph.D., The Ohio State University (1982). Research has been in the area of modeling, control and automation of polymer processing.

Dr. Kevin Myers, Professor, D.Sc., Washington University (1986).
Research interests include mixing, chemical reaction engineering, and process modeling.

Dr. Tim Resch, Part-Time Instructor, Ph.D. Massachusetts Institute of Technology, (1995).

Dr. Tony Saliba, Professor, Dean – School of Engineering, Ph.D., The University of Dayton (1986). Research involves the development and use of process models, expert systems and expert models for the intelligent processing of advanced composite materials

Dr. Sarwan Sandhu, Professor, Ph.D., The Imperial College, London (1973).
Research activities involves the application of thermodynamics, kinetics and reaction engineering in addition to fluidization, electrochemistry and electrochemical engineering, batteries/fuel cells, optics, and material science engineering.

Dr. Robert Wilkens, Director – Chemical Engineering, Professor, Ph.D., Ohio University, (1997). Research interests are in the area of multiphase flow, thermal management, and fluid mechanics.