Cullen College of Engineering
Degree Program Modification - *DPM Form*
Supplement

> **Degree Plan**: Industrial Engineering BS Degree Program   **Date**: Fall 2006

1. **Rational for Degree Program modification:** 1). Moving INDE 3381 (Linear Optimization) to the second semester of junior year will allow the subjects taught in this class to be applied to other classes in senior year, 2). Since INDE 4334 (Engineering Systems Design) are now offering both at first and second semester of senior year, moving the INDE 4369 to the second semester of junior year will avoid many prerequisite conflicts and general petition from students, 3). Making MECE 3400 (Intro to Mech.), ECE 3336 (Circuits) and ENGI 2334 (Thermo) as prerequisites of INDE 4334 (Engineering Systems Design) will prevent students from taking these three classes at the last semester of senior year, 4). Since INDE 4331 (Analysis of Industrial Activities) class typically involves technical communication presentation and/or final report writing, it make sense to make ENGI 2304 (Tech. Comm.) as a prerequisite of INDE 4331.

2. **Expected Effect on Program Course Outcomes (ABET Criterion #3):** It will make the measurement of ABET outcomes a-k much easier.

3. **Expected Effect on Program Objectives (ABET Criterion #2):** The Degree Program Modifications will meet the new IE Program Educational Objectives (POE) better.

4. **ABET Constituents consulted:** Students and Faculty Members

5. **Student Performance after implementing Degree Program modification:** _____ [1]

Note: Special Fees: If special fees requested, **Course Related Fee Request Form will be required.**

_____ ☐ **Approved**

Chair of Initiating Dept. Signature   Date

approved 12/20/05

---

[1] Department reports will be requested about the effects of your new degree program modification both 24 and 36 months after the effective date of the proposed modification.

D:\DeansOffice\Mary\Private\Class Schedule Development\CBM003's\2006 Folder\CBM 2006 INDE-BS-Program-2006 CBM003-Degree-Program-Form (Mod).doc
Created on 4/7/2005   Last Updated 12/20/2005 9:20 AM
                                             Created by Engineering Dean's Office/mjs/FC

Department of Industrial Engineering

Chair: Hamid R. Parsaei

Associate Professors: Christopher A. Chung, Lawrence Schulze, Ali K. Kamrani

Assistant Professors: Gino (Jinho) Lim, Maher Lahmar, Tiravat Asavapokee, Qianmei (May) Feng

Adjunct Professors: Thomas Chen, Marvin Karson, George H. Ulrich, Khaled Gadel Mola, Michael Brims

Web: www.egr.uh.edu/IE/

Industrial Engineering Program

Engineering majors must earn a grade of C- or better in all engineering, mathematics, and science courses. No grade lower than C- will be accepted on any courses transferred to the University of Houston.

Students must earn a 2.25 grade point average in all courses and in INDE major courses in order to enroll in 3000-level and above INDE courses. The major GPA of 2.25 must be maintained at all times until the last semester before graduation. If a student does not meet this major GPA criterion, he/she is placed on engineering major probation. If in a succeeding semester, while on probation, the student does not meet the 2.25 GPA criterion, he/she is placed on engineering course suspension. Students on major suspension are not allowed to take engineering courses during the semester on suspension. The major GPA is calculated using all INDE courses.

The number of attempts at an INDE course is limited to two. Attempt is defined as formal registration that results in a student's name being listed on an official grade report, which includes the grades of A-F, W, I or Q.

First Year

Fall Semester		Hours
CHEM 1372	Chemistry for Engineers	3
CHEM 1117	Fundamentals of Chemistry for Engineers Laboratory	1
ENGL 1303	Freshman Composition I	3
HIST 1376 or HIST 1377	The United States to 1877	3
MATH 1431	Calculus I	4
	Humanities Core Course	3
	Total	**17**

Spring Semester

INDE 1331	Computing for Engineers	3
ENGI 1304	Freshman Composition II	3
HIST 1378 or HIST 1379	The United States since 1877	3
MATH 1432	Calculus II	4
PHYS 1321	University Physics I	3
	Total	**16**

Second Year

Fall Semester		Hours
INDE 2333	Engineering Statistics I	3
INDE 3330	Industrial Cost Systems	3
MATH 2433	Calculus III	4
PHYS 1322	University Physics II	3
POLS 1336	U.S. and Texas Constitutions and Politics	3
	Total	**16**

Spring Semester		
MECE 3400	Introduction To Mechanics	4
INDE 2331	Computer Applications	3
INDE 3333	Engineering Economy I	3
ENGI 2304	Technical Communications	3
MATH 3321	Engineering Math	3
	Total	**16**

Third Year

Fall Semester		Hours
INDE 3382	Stochastic Models	3
INDE 3364	Engineering Statistics II	3
INDE 3432	Manufacturing Processes	4
INDE 3310	Quality Control and Improvement	3
POLS 1337	U.S. Govt: Congress, President and Courts	3
	Total	**16**

Spring Semester		
INDE 3362	Computer Aided Design / Manufacturing	3
INDE 4331	Analysis of Industrial Activities	3
INDE 3381	Linear Optimization	3
INDE 4369	Facilities Planning and Design	3

approved   12/20/0r

	Visual Performing Art Course	3
	Total	**15**

Fourth Year

Fall Semester		Hours
INDE 3370	Discrete Event Simulation	3
INDE 4111	Industrial Engineering Seminar	1
ECE 3336	Circuits	3
INDE 3320	Computer-Integrated Manufacturing	3
ENGI 2334	Thermodynamics	3
	Social Sciences Core Course	3
	Total	**16**

Spring Semester		
INDE 3315	Supply Chain Design and Management	3
INDE 4334	Engineering Systems Design	3
INDE 4337	Human Factors and Ergonomics	3
INDE 4372	Operations Control	3
	Technical Elective	3
	Total	**15**

	Degree Total	**127**

Industrial Engineering Degree Program for Other UH Engineering Graduates

Students who have completed a Bachelor of Science at the University of Houston in another field of engineering may obtain a Bachelor of Science in Industrial Engineering degree by completing, at the University of Houston, the additional year of course work shown below. Required prerequisites for this program are *INOE 2333* 33 3 3 and, in addition to those courses required for the first degree.

INDE 3364	Engineering Statistics II	3
INDE 3382	Stochastic Models	3
INDE 3381	Linear Optimization	3
INDE 3432	Manufacturing Processes	3 4
INDE 4331	Analysis of Industrial Activities	3
INDE 4369	Facilities Planning and Design	3
INDE 4372	Operation Control	3
INDE xxxx	Technical Elective	3

INOE 2333
INOE 3333

Total for Degree	31

Courses: Industrial Engineering (INDE)

1331: Computing for Engineers (also CHEE 1331, CIVE 1331)
Cr. 3-0. (2-2). Prerequisite: MATH 1431. Credit may not be received for more than one of CHEE 1331, CIVE 1331 and INDE 1331. Introduction to the computing environment; matrix arithmetic; programming essentials; spreadsheets; symbolic algebra tools; solution of typical engineering problems using computer tools.

2331: Computer Applications for Industrial Engineering
Cr. 3. (3-0). Prerequisite: INDE 1331. Structured programming in Visual Basic or Java with numerical analysis applications in industrial engineering. Introduction to computer aided drafting software.

2333: Engineering Statistics I
Cr. 3. (3-0). Prerequisite: MATH 1431. Probability and statistical inference for engineering applications; probability distributions, estimation, statistical tests, and reliability theory.

3310: Quality Control and Improvement
Cr. 3. (3-0). Prerequisite: INDE 1331, and credit for or concurrent enrollment in INDE 2333. Probability theory, concepts of random variable, exception, variance, probability distribution, statistical test and inference. Statistical process quality control. Total Quality Control and Six Sigma.

3315: Supply Chain Design and Management
Cr. 3. (3-0). Prerequisite: 3381. Logistic network, inventory and demand management, value of information, distribution channels coordination, global supply chain, and related information technology.

3320: Computer-Integrated Manufacturing
Cr. 3. (3-0). Prerequisite: INDE 1331, INDE 3432 and INDE 3362. CIM system concepts and technology. Integration of manufacturing planning, design and operation. Integration with other MRP, ERP, SCM and CRM systems. Managerial issues to implementation CIM. Future trends and directions of CIM.

3330: Industrial Cost Systems
Cr. 3. (3-0). Methods to collect, organize, present, interpret, and control costs in industrial enterprises.

3333: Engineering Economy I
Cr. 3. (3-0). Prerequisite: INDE 2333 or MECE 3360. Time value of money, depreciation, after tax evaluation, decisions under uncertainty and risk. Economic evaluation of engineering alternatives and proposals.

3362: Computer Aided Design/ Computer Aided Manufacturing
Cr. 3. (2-2). Prerequisite: INDE 1331 and INDE 3432.

Computer aided design, computer aided manufacturing, and manufacturing database systems.

3364: Engineering Statistics II
Cr. 3. (3-0). Prerequisite: INDE 2333. Quality control, sampling plans, control charts, hypothesis testing, multiple regression, analysis of variance, design of experiments, and applications to engineering problems.

3370: Discrete Event Simulation
Cr. 3. (2-2). Prerequisites: INDE 1331 and INDE 2333 or consent of instructor. Computer modeling and analysis of manufacturing and service processes. Data input analysis, model development, animation, verification and validation, experimental design, output analysis.

3381: Linear Optimization
Cr. 3. (3-0). Prerequisite: INDE 2331, MATH 3321. Matrices and simultaneous equations, simplex algorithm, primal-dual methods, sensitivity analysis, integer programming, and industrial applications of linear programming.

3382: Stochastic Models
Cr. 3. (3-0). Prerequisite: INDE 2333. Probability models, Markov chains, inventory models, queuing theory, game theory, and dynamic programming.

3432: Manufacturing Processes
Cr. 4. (3-3). Prerequisites: PHYS 1321 and CHEM 1372. Introduction to manufacturing systems, engineering manufacturing processes, design and machining of components.

4111: Industrial Engineering Seminar
Cr. 1. (1-0). Prerequisite: Senior standing in industrial engineering and credit for or concurrent enrollment in INDE 4331. Speakers, reports, and discussion of current industrial engineering topics. Emphasis on technical report writing.

4198:4298:4398: Special Problems
Cr. 1-3 per semester or more by concurrent enrollment. Prerequisite: approval of chair.

4331: Analysis of Industrial Activities
Cr. 3. (2-3). Prerequisites: ENGI 2304, INDE 3364, and INDE 3432. Analysis of production systems to determine systems capacity, capacities in situations involving complex mechanical-human interactions, production standards, and problems in instrumentation and recording.

4334: Engineering Systems Design
Cr. 3. (2-3). Prerequisites: INDE 4369, MECE 3400, ECE 3336 and ENGI 2334. Senior standing and credit for or concurrent enrollment in INDE 4369. Applications of analytical, experimental, and computational techniques in open-ended problems supplied by industry and faculty.

4337: Human Factors and Ergonomics
Cr. 3. (3-0). Prerequisite: INDE 4331. Measurement and evaluation of human-machine systems; techniques and procedures for developing and applying principles of human factors engineering to system design.

4369: Facilities Planning and Design
Cr. 3. (3-0). Prerequisites: INDE 3432, and Co-requisite of INDE 4331. Planning and design of production systems, man-machine systems, and related systems in other operational environments.

4372: Operations Control
Cr. 3. (3-0). Prerequisites: INDE 3381, INDE 3382 and INDE 4369. Design of systems to control production, inventories, and other processes in industry. Development of planning, coordination, and control of specific operations, especially through computerized data processing.

5397: Selected Topics
Cr. 1-3 per semester. May be repeated for credit when topics vary.

Cullen College of Engineering
Degree Program Modification - *DPM Form*
Supplement

Degree Plan: Industrial Engineering BS Degree Program   **Date:** Fall 2006

---

1. **Rational for Degree Program modification:** 1). Moving INDE 3381 (Linear Optimization) to the second semester of junior year will allow the subjects taught in this class to be applied to other classes in senior year, 2). Since INDE 4334 (Engineering Systems Design) are now offering both at first and second semester of senior year, moving the INDE 4369 to the second semester of junior year will avoid many prerequisite conflicts and general petition from students, 3). Making MECE 3400 (Intro to Mech.), ECE 3336 (Circuits) and ENGI 2334 (Thermo) as prerequisites of INDE 4334 (Engineering Systems Design) will prevent students from taking these three classes at the last semester of senior year, 4). Since INDE 4331 (Analysis of Industrial Activities) class typically involves technical communication presentation and/or final report writing, it make sense to make ENGI 2304 (Tech. Comm.) as a prerequisite of INDE 4331.

2. **Expected Effect on Program Course Outcomes (ABET Criterion #3):** It will make the measurement of ABET outcomes a-k much easier.

3. **Expected Effect on Program Objectives (ABET Criterion #2):** The Degree Program Modifications will meet the new IE Program Educational Objectives (POE) better.

4. **ABET Constituents consulted:** Students and Faculty Members

5. **Student Performance after implementing Degree Program modification:** _____[1]

---

[1] Department reports will be requested about the effects of your new degree program modification both 24 and 36 months after the effective date of the proposed modification.

Cullen College of Engineering
Degree Program Modification - *DPM Form*
Supplement

Note: Special Fees: If special fees requested. **Course Related Fee Request Form will be required**.

	☐ **Approved**
_____	_____
Chair of Initiating Dept. Signature Date	

Department of Industrial Engineering

Chair: Hamid R. Parsaei

Associate Professors: Christopher A. Chung, Lawrence Schulze, Ali K. Kamrani

Assistant Professors: Gino (Jinho) Lim, Maher Lahmar, Tiravat Asavapokee, Qianmei (May) Feng

Adjunct Professors: Thomas Chen, Marvin Karson, George H. Ulrich, Khaled Gadel Mola, Michael Brims

Web: www.egr.uh.edu/IE/

Industrial Engineering Program

Engineering majors must earn a grade of C- or better in all engineering, mathematics, and science courses. No grade lower than C- will be accepted on any courses transferred to the University of Houston.

Students must earn a 2.25 grade point average in all courses and in INDE major courses in order to enroll in 3000-level and above INDE courses. The major GPA of 2.25 must be maintained at all times until the last semester before graduation. If a student does not meet this major GPA criterion, he/she is placed on engineering major probation. If in a succeeding semester, while on probation, the student does not meet the 2.25 GPA criterion, he/she is placed on engineering course suspension. Students on major suspension are not allowed to take engineering courses during the semester on suspension. The major GPA is calculated using all INDE courses.

The number of attempts at an INDE course is limited to two. Attempt is defined as formal registration that results in a student's name being listed on an official grade report, which includes the grades of A-F, W, I or Q.

First Year

Fall Semester		Hours
CHEM 1372	Chemistry for Engineers	3
CHEM 1117	Fundamentals of Chemistry for Engineers Laboratory	1
ENGL 1303	Freshman Composition I	3
HIST 1376 or HIST 1377	The United States to 1877	3
MATH 1431	Calculus I	4
	Humanities Core Course	3
	Total	17

Spring Semester		
INDE 1331	Computing for Engineers	3
ENGI 1304	Freshman Composition II	3
HIST 1378 or HIST 1379	The United States since 1877	3
MATH 1432	Calculus II	4
PHYS 1321	University Physics I	3
	Total	16

Second Year

Fall Semester		Hours
INDE 2333	Engineering Statistics I	3
INDE 3330	Industrial Cost Systems	3
MATH 2433	Calculus III	4
PHYS 1322	University Physics II	3
POLS 1336	U.S. and Texas Constitutions and Politics	3
	Total	16

Spring Semester		
MECE 3400	Introduction To Mechanics	4
INDE 2331	Computer Applications	3
INDE 3333	Engineering Economy I	3
ENGI 2304	Technical Communications	3
MATH 3321	Engineering Math	3
	Total	16

Third Year

Fall Semester		Hours
INDE 3382	Stochastic Models	3
INDE 3364	Engineering Statistics II	3
INDE 3432	Manufacturing Processes	4
INDE 3310	Quality Control and Improvement	3
POLS 1337	U.S. Govt: Congress, President and Courts	3
	Total	16

Spring Semester		
INDE 3362	Computer Aided Design /	3

	Manufacturing	
INDE 4331	Analysis of Industrial Activities	3
INDE 3381	Linear Optimization	3
INDE 4369	Facilities Planning and Design	3
	Visual Performing Art Course	3
	Total	**15**

Fourth Year

Fall Semester		Hours
INDE 3370	Discrete Event Simulation	3
INDE 4111	Industrial Engineering Seminar	1
INDE 4337	Human Factors and Ergonomics	3
INDE 3320	Computer-Integrated Manufacturing	3
ENGI 2334	Thermodynamics	3
	Social Sciences Core Course	3
	Total	**16**

Spring Semester		
INDE 3315	Supply Chain Design and Management	3
INDE 4334	Engineering Systems Design	3
ECE 3336	Circuits	3
INDE 4372	Operations Control	3
	Technical Elective	3
	Total	**15**

	Degree Total	**127**

Industrial Engineering Degree Program for Other UH Engineering Graduates

Students who have completed a Bachelor of Science at the University of Houston in another field of engineering may obtain a Bachelor of Science in Industrial Engineering degree by completing, at the University of Houston, the additional year of course work shown below. Required prerequisites for this program are

and, in addition to those courses required for the first degree.

INDE 3364	Engineering Statistics II	3
INDE 3382	Stochastic Models	3
INDE 3381	Linear Optimization	3
INDE 3432	Manufacturing Processes	~~3~~ 4
INDE 4331	Analysis of Industrial Activities	3
INDE 4369	Facilities Planning and Design	3
INDE 4372	Operation Control	3
INDE xxxx	Technical Elective	3
Total for Degree		**31**

Courses: Industrial Engineering (INDE)

1331: Computing for Engineers (also CHEE 1331, CIVE 1331)
Cr. 3-0. (2-2). Prerequisite: MATH 1431. Credit may not be received for more than one of CHEE 1331, CIVE 1331 and INDE 1331. Introduction to the computing environment; matrix arithmetic; programming essentials; spreadsheets; symbolic algebra tools; solution of typical engineering problems using computer tools.

2331: Computer Applications for Industrial Engineering
Cr. 3. (3-0). Prerequisite: INDE 1331. Structured programming in Visual Basic or Java with numerical analysis applications in industrial engineering. Introduction to computer aided drafting software.

2333: Engineering Statistics I
Cr. 3. (3-0). Prerequisite: MATH 1431. Probability and statistical inference for engineering applications; probability distributions, estimation, statistical tests, and reliability theory.

3310: Quality Control and Improvement
Cr. 3. (3-0). Prerequisite: INDE 1331, and credit for or concurrent enrollment in INDE 2333. Probability theory, concepts of random variable, exception, variance, probability distribution, statistical test and inference. Statistical process quality control. Total Quality Control and Six Sigma.

3315: Supply Chain Design and Management
Cr. 3. (3-0). Prerequisite: 3381. Logistic network, inventory and demand management, value of information, distribution channels coordination, global supply chain, and related information technology.

3320: Computer-Integrated Manufacturing
Cr. 3. (3-0). Prerequisite: INDE 1331, INDE 3432 and INDE 3362. CIM system concepts and technology. Integration of manufacturing planning, design and operation. Integration with other MRP, ERP, SCM and CRM systems. Managerial issues to implementation CIM. Future trends and directions of CIM.

3330: Industrial Cost Systems
Cr. 3. (3-0). Methods to collect, organize, present, interpret, and control costs in industrial enterprises.

3333: Engineering Economy I
Cr. 3. (3-0). Prerequisite: INDE 2333 or MECE 3360. Time value of money, depreciation, after tax evaluation, decisions under uncertainty and risk. Economic evaluation of engineering alternatives and proposals.

3362: Computer Aided Design/ Computer Aided Manufacturing
Cr. 3. (2-2). Prerequisite: INDE 1331 and INDE 3432. Computer aided design, computer aided manufacturing, and manufacturing database systems.

3364: Engineering Statistics II
Cr. 3. (3-0). Prerequisite: INDE 2333. Quality control, sampling plans, control charts, hypothesis testing, multiple regression, analysis of variance, design of experiments, and applications to engineering problems.

3370: Discrete Event Simulation
Cr. 3. (2-2). Prerequisites: INDE 1331 and INDE 2333 or consent of instructor. Computer modeling and analysis of manufacturing and service processes. Data input analysis, model development, animation, verification and validation, experimental design, output analysis.

3381: Linear Optimization
Cr. 3. (3-0). Prerequisite: INDE 2331, MATH 3321. Matrices and simultaneous equations, simplex algorithm, primal-dual methods, sensitivity analysis, integer programming, and industrial applications of linear programming.

3382: Stochastic Models
Cr. 3. (3-0). Prerequisite: INDE 2333. Probability models, Markov chains, inventory models, queuing theory, game theory, and dynamic programming.

3432: Manufacturing Processes
Cr. 4. (3-3). Prerequisites: PHYS 1321 and CHEM 1372. Introduction to manufacturing systems, engineering manufacturing processes, design and machining of components.

4111: Industrial Engineering Seminar
Cr. 1. (1-0). Prerequisite: Senior standing in industrial engineering and credit for or concurrent enrollment in INDE 4331. Speakers, reports, and discussion of current industrial engineering topics. Emphasis on technical report writing.

4198:4298:4398: Special Problems
Cr. 1-3 per semester or more by concurrent enrollment. Prerequisite: approval of chair.

4331: Analysis of Industrial Activities
Cr. 3. (2-3). Prerequisites: ENGI 2304, INDE 3364, and INDE 3432. Analysis of production systems to determine systems capacity, capacities in situations involving complex mechanical-human interactions, production standards, and problems in instrumentation and recording.

4334: Engineering Systems Design
Cr. 3. (2-3). Prerequisites: INDE 4369, MECE 3400, ECE 3336 and ENGI 2334. Senior standing and credit for or concurrent enrollment in INDE 4369. Applications of analytical, experimental, and computational techniques in open-ended problems supplied by industry and faculty.

4337: Human Factors and Ergonomics
Cr. 3. (3-0). Prerequisite: INDE 4331. Measurement and evaluation of human-machine systems; techniques and procedures for developing and applying principles of human factors engineering to system design.

4369: Facilities Planning and Design
Cr. 3. (3-0). Prerequisites: INDE 3432, and Co-requisite of INDE 4331. Planning and design of production systems, man-machine systems, and related systems in other operational environments.

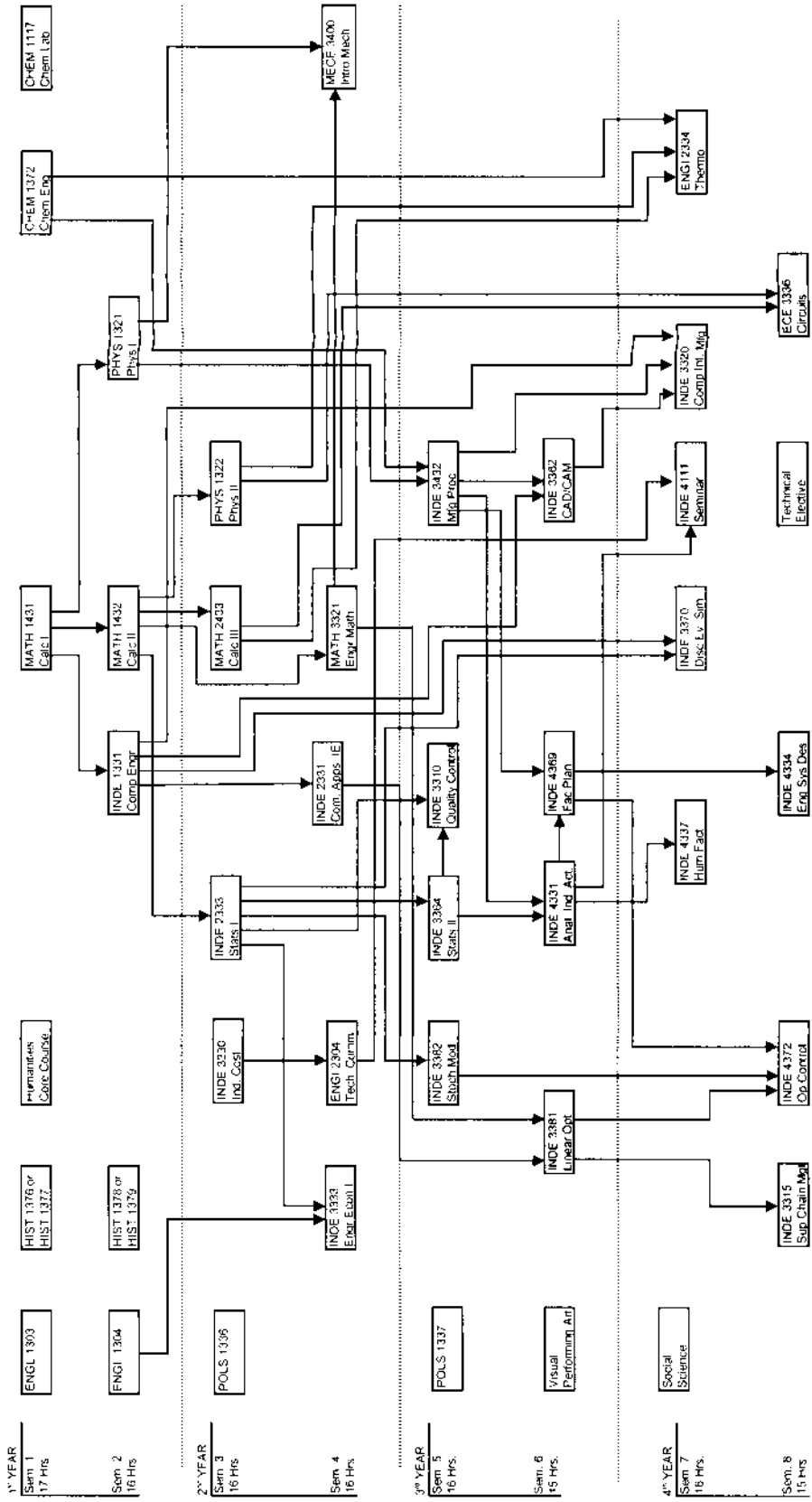### 4372: Operations Control
Cr. 3. (3-0). Prerequisites: INDE 3381, INDE 3382 and INDE 4369. Design of systems to control production, inventories, and other processes in industry. Development of planning, coordination, and control of specific operations, especially through computerized data processing.

5397: Selected Topics
Cr. 1-3 per semester. May be repeated for credit when topics vary.

INDUSTRIAL ENGINEERING – IE UNDERGRADUATE CURRICULUM
IE Degree Plan (Proposed for Fall 2006)

1st YEAR

Sem 1
17 Hrs.
- ENGL 1303
- MATH 1431 Calc I
- CHEM 1372 Chem Eng I
- CHEM 1117 Chem Lab

Sem 2
16 Hrs.
- ENGI 1304
- HIST 1376 or HIST 1377
- MATH 1432 Calc II
- PHYS 1321 Phys I

2nd YEAR

Sem 3
16 Hrs.
- POLS 1336
- HIST 1378 or HIST 1379
- INDE 1331 Comp Engr
- MATH 2433 Calc III
- PHYS 1322 Phys II
- MECE 3400 Intro Mech

Sem 4
16 Hrs.
- INDE 3333 Engr Econ I
- INDE 3330 Ind Cost
- INDE 2331 Com Apps IE
- MATH 3321 Engr Math

3rd YEAR

Sem 5
16 Hrs.
- POLS 1337
- INDF 2333 Stats I
- ENGI 2304 Tech Comm
- INDE 3310 Quality Control
- INDE 3432 Mfg Proc
- ENGI 2334 Thermo

Sem 6
15 Hrs.
- Visual/Performing Art
- INDE 3382 Stoch Mod
- INDE 3304 Stats II
- INDE 4331 Anal Ind Act.
- INDE 3382 CAD/CAM
- INDE 3320 Comp Int. Mfg
- INDE 3370 Disc Ev Sim

4th YEAR

Sem 7
16 Hrs.
- Social Science
- INDE 3381 Linear Opt
- INDE 4369 Fac Plan
- INDE 4337 Hum Fact
- INDE 4111 Seminar
- ECE 3336 Circuits

Sem 8
15 Hrs.
- INDE 3315 Sup Chain Mgt
- INDE 4372 Op Control
- INDE 4334 Eng Sys Des
- Technical Elective

127 Total Credit Hours

Note:
The technical elective supports the students engineering education, it is generally a 3000 or 4000 math, science, or engineering course subject to approval by the faculty advisor.

Course A is a prerequisite for C
Course B is a co-requisite for C
Co-requisites may be taken earlier

Course A → Course C

Course B

INDUSTRIAL ENGINEERING – IE UNDERGRADUATE CURRICULUM
IE Degree Plan (Effective Fall 2005)

Course boxes and layout:

1st YEAR
- Sem 1, 17 Hrs.: ENGL 1303; MATH 1431 Calc I; CHEM 1372 Chem Eng; C-FM 1117 Chem Lab
- Sem 2, 16 Hrs.: ENGL 1304; HIST 1376 or HIST 1377

2nd YEAR
- Sem 3, 16 Hrs.: POLS 1336; MATH 1432 Calc II; PHYS 1321 Phys I; INDE 1331 Comp Engr; Humanities Core Course
- Sem 4, 16 Hrs.: Soc Beh Sci Writ Intensive; HIST 1378 or HIST 1379; INDE 2331 Com Apps. IE; MATH 2433 Calc III; PHYS 1322 Phys II; MECE 3400 Intro Mech

3rd YEAR
- Sem 5, 16 Hrs.: POLS 1337; INDE 3330 Ind Cost; INDE 2333 Stats I; MATH 3321 Engr Math; ECE 3336 Circuits; INDE 3432 Mfg Proc; ENGI 2334 Thermo
- Sem 6, 15 Hrs.: Visual Performing Art; ENGI 2304 Tech Comm; INDE 3364 Stats II; INDE 3310 Quality Control; INDE 3362 CAD/CAM; INDE 3320 Comp Int Mfg

4th YEAR
- Sem 7, 16 Hrs.: Social Science; INDE 3381 Linear Opt; INDE 3333 Engr Econ I; INDE 3315 Sup Chain Mgt; INDE 3382 Stoch Mod; INDE 4331 Anal Ind Act; INDE 3370 Disc Ev Sim; INDE 4337 Hum Fact; INDE 4111 Seminar
- Sem 8, 15 Hrs.: INDE 4372 Op Control; INDE 4369 Fac Plan; INDE 4334 Engr Sys Des; Technical Elective

127 Total Credit Hours

Note:
INDE 3370 may also be taken in the 1st semester of the third year.
INDE 3381 may also be taken in the 2nd semester of the third year.
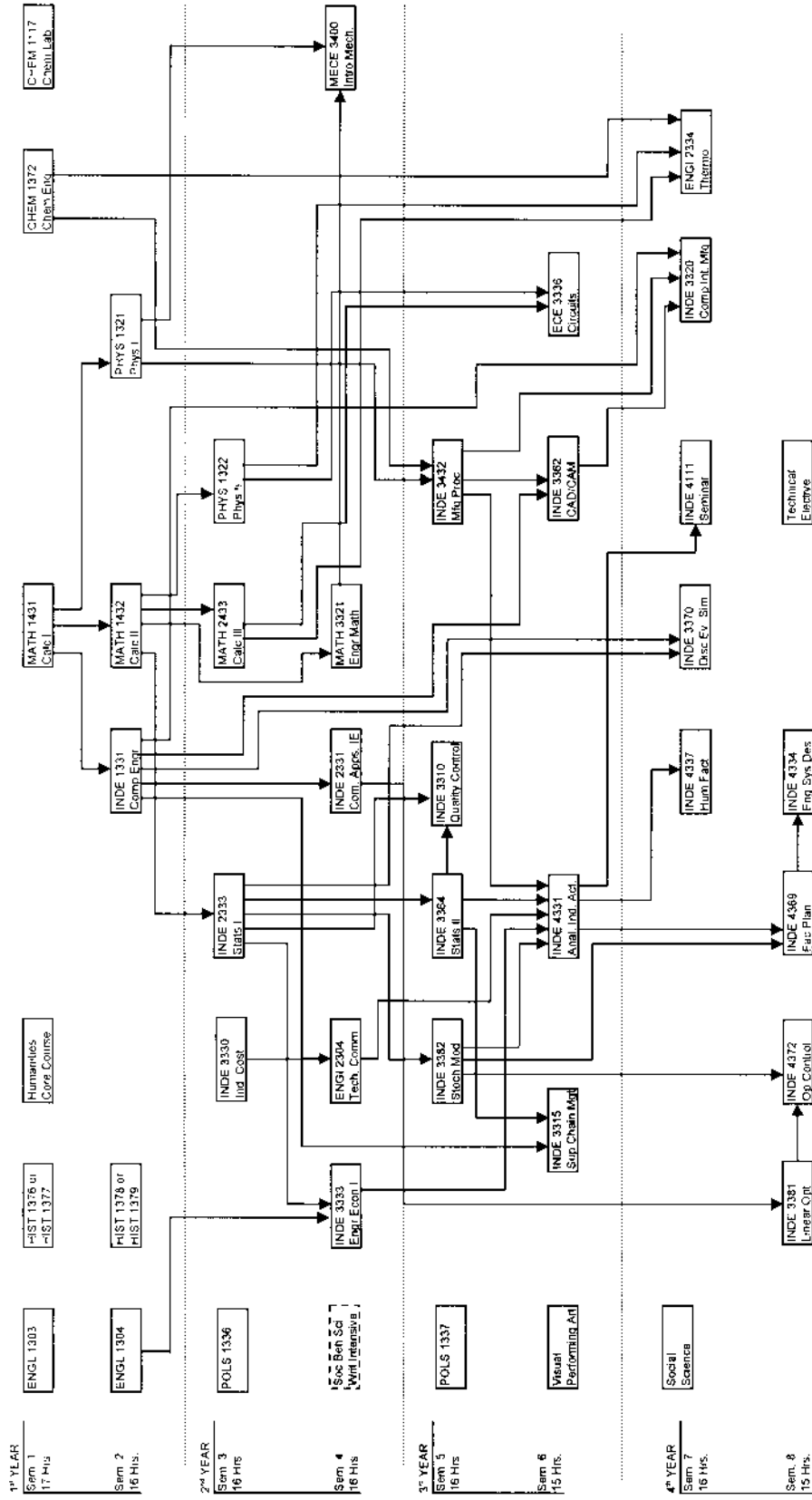INDE 3362 may also be taken in the 1st or 2nd semester of the fourth year.
The technical elective supports the students engineering education, it is generally a 3000 or 4000 math, science, or engineering course subject to approval by the faculty advisor.

Legend:
Course A is a prerequisite for C
Course B is a co-requisite for C
Co-requisites may be taken earlier