

## **DEPARTMENT OF COMPUTER SCIENCE AND INDUSTRIAL TECHNOLOGY**

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### **COMPUTER SCIENCE**

The Department of Computer Science and Industrial Technology offers a four-year program leading to the Bachelor of Science degree in Computer Science. The program is accredited by the Computing Accreditation Commission of ABET, <http://www.abet.org>. This program is designed to provide the foundation necessary for computer science graduates to succeed in the computing profession as well as in graduate school.

The department also offers courses in computing applications designed to meet the needs of students in other disciplines.

### **MAJORS**

Students wishing to major, or co-major, in Computer Science must complete the following:

1. Forty-three or more semester hours of Computer Science course work as specified in the curriculum, below,
2. Six or more semester hours of mathematics course work, as specified in the curriculum, below,
3. Fifteen or more semester hours of science course work, as specified in the curriculum, below, and
4. Thirty or more semester hours of broad, general education course work.

In addition, students must complete a departmentally specified, comprehensive computer science examination in their final semester.

### **PROGRESSION REQUIREMENTS FOR THE DISCIPLINE**

Students intending to major in Computer Science should inform the Department of Computer Science and Industrial Technology of their intention as early as possible in their academic career. By the time they have earned 45 hours at Southeastern\*, students wishing to continue a major in Computer Science must pass Computer Science 161 with a C or better, or they must declare another major. In addition, students who have declared a Computer Science major with a concentration in Science or Information Systems must pass Mathematics 200 with a C or better by the time they have earned 60 hours at Southeastern\*. If they are unable to achieve this milestone, they must change their concentration to Information Technology. Students with exceptional circumstances must have an alternative progression plan approved by the Department Head.

\*Note that credit hours transferred from other institutions are not included in these total hours earned.

### **HONORS DIPLOMA IN THE DISCIPLINE**

The department also offers an upper-division honors curriculum allowing its students to earn an honors diploma in the major at graduation. For information about requirements and honors courses in this department, please contact the Department Head.

### **MINORS**

The Computer Science minor consists of the following eighteen semester hours of course work in Computer Science: CMPS 161, 257, 280, 285, 390 and three credits from CMPS 401, 411, 439, or 450.

The Applied Computer Science minor consists of eighteen semester hours of course work in Computer Science: CMPS 161, 280, 285, 294 and six credits from CMPS 209, 315, 329, or 394.

The Computer Technology minor consists of eighteen semester hours of course work in Computer Science. Nine credits are from CMPS 110, 234, and 225, and three credits from CMPS 101, 120, or 161. In addition, six credits must be earned from one of two sets: CMPS 209 and 235 or CMPS 233 and 333.

**CURRICULUM IN COMPUTER SCIENCE  
LEADING TO THE DEGREE OF BACHELOR OF SCIENCE  
INFORMATION SYSTEMS CONCENTRATION**

**FIRST YEAR**

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†Mathematics 200 .....	5	†Mathematics 201 .....	5
English 101 .....	3	English 102.....	3
History Elective .....	3	†Computer Science 257 <sup>3</sup> .....	3
†Computer Science 161 .....	3	†Computer Science 280 .....	3
Southeastern 101 .....	2		
	16		14

**SECOND YEAR**

†Computer Science 120 .....	3	†Computer Science 375 .....	3
†Computer Science 285 .....	3	†Computer Science 390 .....	3
†Computer Science 290 or 293.....	3	Social Science Elective <sup>2</sup> .....	3
Communications 211 .....	3	English 230, 231, or 232 .....	3
Science Sequence I <sup>5</sup> .....	4	Science Sequence II <sup>5</sup> .....	4
	16		16

**THIRD YEAR**

†Computer Science 401 .....	3	†Computer Science 383 .....	3
†Computer Science Elective (300-400 level).....	3	†Computer Science 431 .....	3
English 322 .....	3	Economics 201 or 202.....	3
Accounting 200.....	3	Art/Music Elective <sup>1</sup> .....	3
Biology Elective <sup>5</sup> .....	4	†Computer Science 415 .....	3
	16		15

**FOURTH YEAR**

†Computer Science 411 .....	3	†Computer Science 439 .....	3
†Computer Science Elective(300-400 level).....	3	†Computer Science 482 .....	3
Science Elective <sup>5</sup> .....	3	Mathematics Elective <sup>4</sup> .....	3
Finance 381 .....	3	OMIS 310 .....	3
Mathematics 380.....	3		
	15		12

Total semester hours required 120

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of electives.

<sup>1</sup>Choose from the following: Visual Arts, Music, Dance, or Theatre

<sup>2</sup>Choose from the following: Anthropology, Geography, Psychology, Political Science, or Sociology.

<sup>3</sup>Mathematics 223 may be substituted for Computer Science 257

<sup>4</sup>Choose from Mathematics 312, 350, 360, 370, 410, or 414.

<sup>5</sup>Choose a science sequence; including labs, from (Physics 221/223 & 222/224) or (Biology 151/152 & 153/154) or (Chemistry 121/123 & 122/124), and two science electives from the same set of courses, one of which must include the corresponding lab. If a science elective is in biology, then science sequence must be either physics or chemistry. If science sequence is in biology, then science electives must be in physics and/or chemistry. At least one biology course must include a lab.

†Students must earn a grade of "C" or better in all Computer Science courses and in Math 200 and 201.

**CURRICULUM IN COMPUTER SCIENCE  
LEADING TO THE DEGREE OF BACHELOR OF SCIENCE  
INFORMATION TECHNOLOGY CONCENTRATION**

**FIRST YEAR**

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†Mathematics 165 .....	3	†Mathematics 241 .....	3
English 101 .....	3	English 102.....	3
History Elective .....	3	†Computer Science 257 <sup>3</sup> .....	3
†Computer Science 161 .....	3	†Computer Science 280 .....	3
Social Sci Elective <sup>2</sup> .....	3	Arts/Music Elective <sup>1</sup> .....	3
Southeastern 101 .....	2		
	17		15

**SECOND YEAR**

†Computer Science 285 .....	3	†Computer Science 294 .....	3
†Computer Science 290 or 293 .....	3	†Computer Science 375 .....	3
English 230, 231, or 232 .....	3	†Computer Science 390 .....	3
Communications 211 .....	3	English 322.....	3
Science Sequence I <sup>5</sup> .....	4	Biology Elective <sup>5</sup> .....	4
	16		16

**THIRD YEAR**

†Computer Science 315 .....	3	†Computer Science 383 .....	3
Social Science Elective <sup>2</sup> .....	3	†Computer Science 431 .....	3
Science Sequence II <sup>5</sup> .....	4	†Computer Science 329 .....	3
Application Domain/Free Elective <sup>x</sup> .....	3	Science Elective <sup>5</sup> .....	3
Elective.....	1	†Computer Science 415 .....	3
	14		15

**FOURTH YEAR**

†Computer Science 411 .....	3	†Computer Science 439 .....	3
†Computer Science 420 .....	3	†Computer Science 482 .....	3
<sup>a</sup> †Computer Science Elective <sup>4</sup> .....	3	<sup>b</sup> †Computer Science Elective <sup>4</sup> .....	3
Application Domain/Free Elective <sup>x</sup> .....	3	Application Domain/Free Elective <sup>x</sup> .....	6
	12		15

Total semester hours required 120

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of electives.

<sup>a</sup> Must be selected from CMPS 389, 394, 409, 455, 494

<sup>b</sup> Must be selected from CMPS 391, 401, 434, 441, 443, 470, 479, 493

<sup>x</sup> We recommend that this course be chosen as part of a cohesive group of courses that will focus on a particular application domain. Students may consult a computer science faculty member for advice on application domains, but this is effectively a free elective.

<sup>1</sup> Choose one from the following: Visual Arts, Music, Dance, or Theatre

<sup>2</sup> Choose one from the following: Anthropology, Economics, Geography, Psychology, Political Science, or Sociology (at least one at 200 level or higher).

<sup>3</sup> Mathematics 223 may be substituted for Computer Science 257

<sup>4</sup> Students are required to take additional mathematics if they wish to pursue some Computer Science electives.

<sup>5</sup> Choose a science sequence, including labs, from (Physics 191/193 & 192/194); or (Physics 221/223 & 222/224) or (Biology 151/152 & 153/154) or (Chemistry 121/123 & 122/124) and two science electives from the same set of courses, one of which must include the corresponding lab. If a science elective is in biology, the science sequence must be in either physics or chemistry. If science sequence is biology, then science electives must be in either physics or chemistry. At least one biology course must include a lab. Note that some of these science courses require additional math prerequisites.

†Students must earn a grade of "C" or better in all Computer Science courses and in Math 165 and 241.

**CURRICULUM IN COMPUTER SCIENCE  
LEADING TO THE DEGREE OF BACHELOR OF SCIENCE  
SCIENCE CONCENTRATION**

**FIRST YEAR**

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†Mathematics 200 .....	5	†Mathematics 201 .....	5
English 101 .....	3	English 102.....	3
History Elective .....	3	†Computer Science 257 <sup>3</sup> .....	3
†Computer Science 161 .....	3	†Computer Science 280 .....	3
Southeastern 101 .....	2		
	16		14

**SECOND YEAR**

†Computer Science 285 .....	3	†Computer Science 375 .....	3
†Computer Science 290 or 293 .....	3	†Computer Science 390 .....	3
Communications 211 .....	3	Social Science Elective <sup>2</sup> .....	3
Economics 201 or 202 .....	3	English 230, 231, or 232 .....	3
Science Sequence I <sup>5</sup> .....	4	Science Sequence II <sup>5</sup> .....	4
	16		16

**THIRD YEAR**

†Computer Science 401 .....	3	†Computer Science 431 .....	3
†Computer Science Elective(300-400 level).....	3	†Computer Science Elective(300-400 level) .....	3
English 322 .....	3	Mathematics Elective <sup>4</sup> .....	3
Mathematics 380.....	3	Art/Music Elective <sup>1</sup> .....	3
Science Elective <sup>5</sup> .....	4	†Computer Science 415 .....	3
	15		15

**FOURTH YEAR**

†Computer Science 391 .....	3	†Computer Science 479 .....	3
†Computer Science 411 .....	3	†Computer Science 482 .....	3
Elective.....	3	Mathematics Elective <sup>4</sup> .....	3
Elective .....	3	Science Elective and Lab <sup>5</sup> .....	4
Elective.....	3		
	15		13

Total semester hours required 120

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of electives.

<sup>1</sup>Choose one from the following: Visual Arts, Music, Dance, or Theatre

<sup>2</sup>Choose one from the following: Anthropology, Geography, Psychology, Political Science, or Sociology.

<sup>3</sup>Mathematics 223 may be substituted for Computer Science 257

<sup>4</sup>Choose from Mathematics 312, 350, 360, 370, or 410, or 414.

<sup>5</sup>Choose a science sequence, including labs from (Physics 221/223 & 222/224) or (Biology 151/152 & 153/154) or (Chemistry 121/123 & 122/124) and two science electives from the same set of courses, one of which must include the corresponding lab. If a science elective is biology, then science sequence must be either physics or chemistry. If a science sequence is in biology, then science electives must be in physics or chemistry. At least one biology course must include a lab.

†Students must earn a grade of "C" or better in all Computer Science courses and in Math 200 and 201.

**ENGINEERING TECHNOLOGY**

Engineering Technology is a profession in which knowledge of applied mathematics, natural sciences, and engineering methods gained by higher education and practice is used for the development of technological advances and for applications of existing technology to various industries. An Engineering Technology program is different from a classical engineering one in that it is devoted primarily to the utilization of available engineering techniques and methods to solve practical technological problems.

## ENGINEERING TECHNOLOGY CONCENTRATIONS

Students must elect to study one of the Engineering Technology Concentrations: Computer Engineering Technology, Construction Engineering Technology, Energy Engineering Technology, Industrial Engineering Technology, or Mechanical Engineering Technology. A Bachelor of Science degree will be awarded upon successful completion of the required course work, which includes the Engineering Technology core curriculum, the required curriculum for each individual concentration, and the relevant technical electives.

### MAJOR

There are 27 credit hours of required Engineering Technology courses, 30 to 33 credit hours of concentration required courses, and an additional six to nine credit hours of technical elective courses required for the Bachelor of Science degree in Engineering Technology for a minimum of 66 hours of Engineering Technology.

### CURRICULUM IN ENGINEERING TECHNOLOGY LEADING TO THE DEGREE OF BACHELOR OF SCIENCE COMPUTER ENGINEERING TECHNOLOGY CONCENTRATION

#### FIRST YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†Engineering Technology 100.....	3	†Engineering Technology 202.....	3
Mathematics 165 .....	3	English 102.....	3
Chemistry 121 .....	3	Math 200 .....	5
English 101 .....	3	Physics 191.....	3
Southeastern 101 .....	2	Physics Lab 193 .....	1
	14		15

#### SECOND YEAR

†Engineering Technology 205.....	3	†Engineering Technology 221.....	3
†Engineering Technology 212.....	3	†Engineering Technology 226.....	3
†Engineering Technology 213.....	3	Computer Science 290 .....	3
†Engineering Technology 225.....	3	Computer Science 297 .....	3
Physics 192 .....	3	General Biology 151 .....	3
Physics Lab 194 .....	1	Biology Lab 152 .....	1
	16		16

#### THIRD YEAR

†Engineering Technology 320.....	3	†Engineering Technology 241 .....	3
†Industrial Technology 111 .....	3	†Engineering Technology 305.....	3
Economics 201 or 202 .....	3	†Engineering Technology 410.....	3
English 322 .....	3	†OSHE 111 .....	3
Music, Art, Theatre, or Dance .....	3	History 101, 102, 201 or 202 .....	3
	15	Communication 211 .....	3
			18

#### FOURTH YEAR

†Engineering Technology 425.....	3	†Engineering Technology 494.....	3
†Engineering Technology 490.....	1	†Technical Elective II <sup>2</sup> .....	3
†Engineering Technology 492.....	3	†Technical Elective III <sup>2</sup> .....	3
†Engineering Technology 493 .....	2	English 230, 231, or 232 .....	3
†Technical Elective I <sup>2</sup> .....	3	Social Sciences <sup>1</sup> .....	3
†Industrial Technology 407.....	3		
	15		15

Total semester hours required 124

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of electives.

<sup>1</sup> Economics, Psychology, Anthropology, Sociology or Political Science.

<sup>2</sup> Technical electives should be selected by students in consultation with their advisor.

† A grade of "C" or better is required in all major courses; and overall GPA of 2.0 is required to graduate.

**CURRICULUM IN ENGINEERING TECHNOLOGY  
LEADING TO THE DEGREE OF BACHELOR OF SCIENCE  
CONSTRUCTION ENGINEERING TECHNOLOGY CONCENTRATION**

**FIRST YEAR**

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†Engineering Technology 100.....	3	†Engineering Technology 132.....	3
† Industrial Technology 111.....	3	†Engineering Technology 202.....	3
Mathematics 165.....	3	English 102.....	3
English 101.....	3	Mathematics 200.....	5
Southeastern 101.....	2	Physics 191.....	3
		Physics Lab 193.....	1
	14		18

**SECOND YEAR**

†Engineering Technology 231.....	3	†Engineering Technology 241.....	3
†Engineering Technology 213.....	3	†Engineering Technology 232.....	3
General Biology 151.....	3	†Engineering Technology 271.....	3
Biology Lab 152.....	1	Communication 211.....	3
English 230, 231, or 232.....	3	Physic 192.....	3
Chemistry 121.....	3	Physic Lab 194.....	1
	16		16

**THIRD YEAR**

†Engineering Technology 234.....	3	†Engineering Technology 305.....	3
†Engineering Technology 244.....	3	†Engineering Technology 332.....	3
†Engineering Technology 331.....	3	†Engineering Technology 336.....	3
†OSHE 111.....	3	†Engineering Technology 441.....	3
English 322.....	3	History 101, 102, 201 or 202.....	3
	15		15

**FOURTH YEAR**

†Engineering Technology 492.....	3	†Engineering Technology 443.....	3
†Engineering Technology 490.....	1	†Engineering Technology 494.....	3
†Engineering Technology 493.....	2	†Technical Elective II <sup>2</sup> .....	3
†Technical Elective I <sup>2</sup> .....	3	Music, Art, Theatre, or Dance.....	3
†Industrial Technology 407.....	3	Social Science <sup>1</sup> .....	3
Economics 201 or 202.....	3		
	15		15

Total semester hours required 124

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of electives.

<sup>1</sup> Economics, Psychology, Anthropology, Sociology or Political Science.

<sup>2</sup> Technical electives should be selected by students in consultation with their advisor.

† A grade of "C" or better is required in all major courses; and overall GPA of 2.0 is required to graduate.

**CURRICULUM IN ENGINEERING TECHNOLOGY  
LEADING TO THE DEGREE OF BACHELOR OF SCIENCE  
ENERGY ENGINEERING TECHNOLOGY CONCENTRATION**

**FIRST YEAR**

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†Engineering Technology 100.....	3	English 102.....	3
Mathematics 165.....	3	Mathematics 200.....	5
English 101.....	3	Physics 191.....	3
Chemistry 121.....	3	Physics Lab 193.....	1
Southeastern 101.....	2	General Biology 151.....	3
		Biology Lab 152.....	1
	14		16

**SECOND YEAR**

†Engineering Technology 212.....	3	†Engineering Technology 202.....	3
†Engineering Technology 213.....	3	†Engineering Technology 221.....	3
†Engineering Technology 205.....	3	†Engineering Technology 226.....	3
†Engineering Technology 225.....	3	†Engineering Technology 241.....	3
†Industrial Technology 111.....	3	Physics 192.....	3
		Physics Lab 194.....	1
	15		16

**THIRD YEAR**

†Engineering Technology 365.....	3	†Engineering Technology 361.....	3
†Engineering Technology 375.....	3	†Engineering Technology 305.....	3
English 322.....	3	†Engineering Technology 363.....	3
Music, Art, Theatre, or Dance.....	3	†OSHE 111.....	3
		History 101, 102, 201 or 202.....	3
		Communication 211.....	3
	15		18

**FOURTH YEAR**

†Engineering Technology 433.....	3	†Engineering Technology 431.....	3
†Engineering Technology 490.....	1	†Engineering Technology 494.....	3
†Engineering Technology 492.....	3	†Technical Elective II <sup>2</sup> .....	3
†Engineering Technology 493.....	2	English 230, 231, or 232.....	3
†Industrial Technology 407.....	3	Social Science <sup>1</sup> .....	3
†Technical Elective I <sup>2</sup> .....	3		
	15		15

Total semester hours required 124

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of electives.

<sup>1</sup> Economics, Psychology, Anthropology, Sociology or Political Science.

<sup>2</sup> Technical electives should be selected by students in consultation with their advisor.

† A grade of "C" or better is required in all major courses; and overall GPA of 2.0 is required to graduate.

**CURRICULUM IN ENGINEERING TECHNOLOGY  
LEADING TO THE DEGREE OF BACHELOR OF SCIENCE  
INDUSTRIAL ENGINEERING TECHNOLOGY CONCENTRATION**

**FIRST YEAR**

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†Engineering Technology 100.....	3	†Engineering Technology 202.....	3
English 101 .....	3	†Computer Science 173 .....	3
†Industrial Technology 111 .....	3	English 102.....	3
Mathematics 165 .....	3	Mathematics 200 .....	5
Southeastern 101 .....	2	Physics 191 .....	3
		Physics Lab 193 .....	1
	14		18

**SECOND YEAR**

†Engineering Technology 213.....	3	†Engineering Technology 241 .....	3
†OSHE 111 .....	3	†Engineering Technology 283.....	3
Mathematics 241 .....	3	History 101, 102, 201, or 202 .....	3
English 230, 231, or 232.....	3	English 322.....	3
Chemistry 121 .....	3	Physic 192 .....	3
		Physic Lab 194 .....	1
	15		16

**THIRD YEAR**

†Engineering Technology 357.....	3	†Engineering Technology 305.....	3
†Industrial Technology 407 .....	3	†Engineering Technology 353.....	3
Economics 201 or 202 .....	3	†Industrial Technology 308 .....	3
Communication 211 .....	3	†Industrial Technology 405 .....	3
General Biology 151 .....	3	Social Sciences <sup>1</sup> .....	3
Biology Lab 152 .....	1		
	16		16

**FOURTH YEAR**

†Engineering Technology 490.....	1	†Engineering Technology 463.....	3
†Engineering Technology 492.....	3	†Engineering Technology 465.....	3
†Engineering Technology 493.....	2	†Engineering Technology 494.....	3
†Industrial Technology 406 .....	3	Music, Art, Theatre, or Dance .....	3
†Technical Elective I <sup>2</sup> .....	3	†Technical Elective II <sup>2</sup> .....	3
†Technical Elective I <sup>2</sup> .....	3		
	15		15

Total semester hours required 124

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of electives.

<sup>1</sup>Economics, Psychology, Anthropology, Sociology or Political Science.

<sup>2</sup>Technical electives should be selected by students in consultation with their advisor.

† A grade of "C" or better is required in all major courses; and overall GPA of 2.0 is required to graduate..

**CURRICULUM IN ENGINEERING TECHNOLOGY  
LEADING TO THE DEGREE OF BACHELOR OF SCIENCE  
MECHANICAL ENGINEERING TECHNOLOGY CONCENTRATION**

**FIRST YEAR**

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†Engineering Technology 100.....	3	†Engineering Technology 202.....	3
English 101 .....	3	English 102.....	3
Math 165 .....	3	Math 200 .....	5
Chemistry 121.....	3	Physics 191.....	3
Southeastern 101.....	2	Physics Lab 193 .....	1
	14		15

**SECOND YEAR**

†Engineering Technology 205.....	3	†Engineering Technology 241.....	3
†Engineering Technology 212.....	3	†Engineering Technology 271.....	3
†Industrial Technology 111.....	3	†Engineering Technology 283.....	3
English 230, 231, or 232.....	3	English 322.....	3
General Biology 151.....	3	Physics 192.....	3
Biology Lab 152 .....	1	Physics 194.....	1
	16		16

**THIRD YEAR**

†Engineering Technology 213.....	3	†Engineering Technology 305.....	3
†Engineering Technology 371 .....	3	†Engineering Technology 376.....	3
†Engineering Technology 375.....	3	†Engineering Technology 385.....	3
†Engineering Technology 381.....	3	†Engineering Technology 386.....	3
Economics 201 or 202 .....	3	†Industrial Technology 407.....	3
	15	Communication 211 .....	3
			18

**FOURTH YEAR**

†Engineering Technology 478.....	3	†Engineering Technology 494.....	3
†Engineering Technology 490.....	1	History 101, 102, 210, or 202 .....	3
†Engineering Technology 492.....	3	Music, Art, Theatre, or Dance .....	3
†Engineering Technology 493.....	2	Social Science <sup>1</sup> .....	3
†Occupational Safety 111.....	3	†Technical Elective II <sup>2</sup> .....	3
†Technical Elective I <sup>2</sup> .....	3		
	15		15

Total semester hours required 124

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of electives.

<sup>1</sup>Economics, Psychology, Anthropology, Sociology or Political Science.

<sup>2</sup>Technical electives should be selected by students in consultation with their advisor.

†A grade of "C" or better is required in all major courses; an overall GPA of 2.0 is required to graduate.

**INDUSTRIAL TECHNOLOGY**

Industrial Technology is a profession, which requires such education and experience as is necessary to understand and apply technological and managerial sciences to industry.

**TYPICAL ELEMENTS**

The Industrial Technology program is a management-oriented technical curriculum built upon a balanced program of studies drawn from a variety of disciplines related to manufacturing technology. Included are a sound knowledge and understanding of materials and production processes; principles of distribution and concepts of industrial management and human relations; experiences in communication skills, humanities, and

social sciences; and a proficiency level in the physical sciences, mathematics, design, and technical skills to permit the graduate to resolve technical-managerial and manufacturing production problems.

### THE INDUSTRIAL TECHNOLOGY GRADUATE

The Industrial Technology graduate is a professional with a broad technical and managerial background. Typically included in this background are a functional knowledge and understanding of materials and production processes; industrial management and human relations; communication skills, the physical sciences, mathematics, and current technical skills to enable the graduate to effectively meet technical, managerial, and industrial requirements.

### PRE-PROFESSIONAL PROGRAMS

#### PRE-ARCHITECTURE

Students should plan to transfer after two years at Southeastern. Typical requirements include mathematics; physics; courses in design; English composition, and speech. Consult advisor, since specific requirements differ widely among schools of architecture.

#### MANUFACTURING TECHNOLOGY CONCENTRATIONS

Students must elect to study one of the manufacturing technology concentrations: Automated Systems, Drafting/Design, and Supervision. Upon satisfactory completion of the Industrial Technology core curriculum and the concentration area, the student will be awarded a Bachelor of Science degree. The Industrial Technology program at Southeastern Louisiana University is accredited by the National Association of Industrial Technology (NAIT). Included in this section, are the curriculum sheets for the manufacturing technology concentrations.

#### MAJOR

A minimum of 36 hours of required I.T. courses, 15 hours of I.T. Concentration Courses, and an additional 6 hours of I.T. electives are required for a Bachelor of Science degree in Industrial Technology for a total of 57 hours of Industrial Technology.

#### HONORS DIPLOMA IN THE DISCIPLINE

The department also offers an upper-division honors curriculum allowing its students to earn an honors diploma in the major at graduation. For information about requirements and honors courses in this department, please contact the Department Head.

#### MINORS

In order to minor in Industrial Technology, the student must complete twenty-one (21) semester hours from the following:

IT 111 – Engineering Drafting .....	3 semester hours
IT 112 – Descriptive Geometry .....	3 semester hours
IT 233 – Introduction to Basic Electricity and Electronics .....	3 semester hours
IT 242 – Materials and Processes .....	3 semester hours
IT 264 – Industrial Fluid Power .....	3 semester hours
IT 308 – Production Planning and Control or IT 402 – Industrial Supervision.....	3 semester hours
OSHE 111 – Intro to Occ Safety & Health or IT 311 – Industrial Design .....	3 semester hours

### BACHELOR OF SCIENCE IN INDUSTRIAL TECHNOLOGY AUTOMATED SYSTEMS CONCENTRATION (ACCREDITED BY ATMAE)

#### FIRST YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†Industrial Technology 111 .....	3	†Industrial Technology 112 .....	3
Mathematics 161 .....	3	Mathematics 162 .....	3
English 101 .....	3	English 102 .....	3
Biological Science .....	4	Chemistry 101 .....	3
Sociology 101or Psychology 101 .....	3	Chemistry Laboratory 103 .....	1
Southeastern 101 .....	2	Computer Science 173 .....	3

### SECOND YEAR

†Industrial Technology 242 .....	3	†Industrial Technology 233 .....	3
†Industrial Technology 264 .....	3	†Industrial Technology 256 .....	3
Mathematics 165 or 241 .....	3	Communication 211 .....	3
English 230, 231 or 232 .....	3	Computer Science 273 .....	3
Physics 191 .....	3	Physical Science <sup>1</sup> .....	4
Physics Lab 193 .....	1		
	16		16

### THIRD YEAR

†Industrial Technology 236 .....	3	†Industrial Technology 215 .....	3
†Industrial Technology 351 .....	3	†Industrial Technology 322 .....	3
†Occupational Safety, Hlth & Environment 111 ..	3	†Industrial Technology 331 .....	3
Economics 201 .....	3	Accounting 200 or Management 351 .....	3
English 322 .....	3	History 101, 102, 201 or 202 .....	3
	15		15

### FOURTH YEAR

†Industrial Technology 405 .....	3	†Industrial Technology 406 .....	3
†Industrial Technology 442 .....	3	†Industrial Technology 407 .....	3
Arts <sup>2</sup> .....	3	†Industrial Technology 444 .....	3
†Technical Elective <sup>3</sup> .....	3	†Technical Elective .....	3
	12		12

Total semester hours required 120

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of electives.

<sup>1</sup>Select Chemistry 102/104 or Physics 192/194.

<sup>2</sup>Select one course in Art, Dance, Music or Theatre.

<sup>3</sup>Technical electives should be selected by students in consultation with their advisors. Three hours must be selected from Industrial Technology and an additional 3 hours from Computer Science, Engineering Technology, Industrial Technology, Management, Mathematics, or Physical Science. No 100-level course will be accepted without approval of the Department Head.

†A "C" or better must be earned in all major courses.

## BACHELOR OF SCIENCE IN INDUSTRIAL TECHNOLOGY DRAFTING DESIGN CONCENTRATION (ACCREDITED BY ATMAE)

### FIRST YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†Industrial Technology 111 .....	3	†Industrial Technology 112 .....	3
Mathematics 161 .....	3	Mathematics 162 .....	3
English 101 .....	3	English 102 .....	3
Biological Science .....	4	Chemistry 101 .....	3
Computer Science 173 .....	3	Chemistry Laboratory 103 .....	1
Southeastern 101 .....	2	†Industrial Technology 215 .....	3
	18		16

### SECOND YEAR

†Industrial Technology 242 .....	3	†Industrial Technology 233 .....	3
†DDT Elective <sup>3</sup> (100-200 level) .....	3	†DDT Elective (100-200 level) .....	3
Mathematics 165 or 241 .....	3	Communication 211 .....	3
English 230, 231 or 232 .....	3	English 322 .....	3
Physics 191 .....	3	Physical Science <sup>1</sup> .....	4
Physics Lab 193 .....	1		
	16		16

### THIRD YEAR

†Industrial Technology 236 .....	3	†Industrial Technology 264 .....	3
†Industrial Technology or Occupational .....		†Industrial Technology 322 .....	3
Safety, Health and Environment 111 .....	3	†DDT Elective <sup>3</sup> (200-300 level) .....	3
†Industrial Technology 256 .....	3	Accounting 200 .....	3
†DDT Elective <sup>3</sup> (200-300 level) .....	3	†Industrial Technology 351 .....	3
Psychology 101 or Sociology 101 .....	3		
	15		15

### FOURTH YEAR

†DDT Elective (300-400 level) .....	3	†DDT 411 .....	3
†Industrial Technology 405 .....	3	Economics 201 .....	3
Art <sup>2</sup> .....	3	†Industrial Technology 406 .....	3
History .....	3	Management 351 .....	3
	12		12

Total semester hours required 120

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of electives.

<sup>1</sup>Select Chemistry 102/104 or Physics 192/194.

<sup>2</sup>Select one course in Art, Dance, Music or Theatre.

<sup>3</sup>Design Drafting electives should be selected by students in consultation with their advisors.

†A "C" must be earned in all major courses.

## BACHELOR OF SCIENCE IN INDUSTRIAL TECHNOLOGY SUPERVISION CONCENTRATION (ACCREDITED BY NAIT)

### FIRST YEAR

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
†Industrial Technology 111 .....	3	†Industrial Technology 215 .....	3
Mathematics 161 .....	3	Mathematics 162 .....	3
English 101 .....	3	English 102 .....	3
Biological Science .....	4	Chemistry 101 .....	3
Computer Science 173 .....	3	Chemistry Laboratory 103 .....	1
Southeastern 101 .....	2	Psychology 101 or Sociology 101 .....	3
	18		16

### SECOND YEAR

†Industrial Technology 242 .....	3	†Industrial Technology 233 .....	3
†Industrial Technology 264 .....	3	†Industrial Technology 256 .....	3
Mathematics 165 or 241 .....	3	Communication 211 .....	3
English 230, 231 or 232 .....	3	Computer Science 273 .....	3
Physics 191 .....	3	Physical Science .....	4
Physics Lab 193 .....	1		
	16		16

### THIRD YEAR

†Industrial Technology 236 .....	3	†Industrial Technology 322 .....	3
†Industrial Technology or Occupational .....		†Industrial Technology 402 .....	3
Safety, Health & Environment 111 .....	3	Accounting 200 or Management 351 .....	3
†Industrial Technology 351 .....	3	†Technical Elective <sup>3</sup> .....	3
English 322 .....	3	History 101, 102, 201 or 202 .....	3
Economics 201 .....	3		
	15		15

#### FOURTH YEAR

†Industrial Technology 331 .....	3	†Industrial Technology 406 .....	3
†Industrial Technology 405 .....	3	†Industrial Technology 308 .....	3
†Industrial Technology 407 .....	3	†Industrial Technology 442 .....	3
Arts <sup>2</sup> .....	3	†Technical Elective .....	3
	12		12

Total semester hours required 120

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of electives.

<sup>1</sup>Select Chemistry 102/104 or Physics 192/194.

<sup>2</sup>Select one course in Art, Dance, Music or Theater

<sup>3</sup>Technical electives should be selected by students in consultation with their advisors. Three hours must be selected from Industrial Technology and an additional 3 hours from Computer Science, Engineering Technology, Industrial Technology, Management, Mathematics, or Physical Science. No 100-level course will be accepted without approval of the Department Head.

†A "C" must be earned in all major courses.

### OCCUPATIONAL SAFETY, HEALTH AND ENVIRONMENT

The Bachelor of Science in Occupational Safety, Health, and Environment (OSH&E) program is designed to provide an academically comprehensive curriculum that prepares graduates with the ability and competency to become highly qualified safety, industrial hygiene, and environmental professionals.

#### MISSION STATEMENT

The educational objectives of the OSH&E program are to prepare students who:

1. Apply knowledge and principles of mathematics, science, technology, and management in industry, business, or other related areas of employment as occupational safety, health, and environment professionals;
2. Apply practical-oriented knowledge and skills in safety, health, and environment to anticipate, identify and evaluate hazardous conditions and practices, to develop hazard control designs, methods, procedures and programs, and to implement and manage effective safety, health, and environment programs;
3. Become effective communicators and ethical facilitators within the practice of safety, health, and environment;
4. Continue professional development to address the need of applying principles of safety, health, and environment within a constantly changing and increasingly diverse environment.

#### TYPICAL ELEMENTS

The OSH&E program prepares students to succeed as occupational safety, health, and environment professionals with a broad technical and managerial background. Typically included in this background are a functional knowledge and understanding of safety, health, and environment fundamentals; legal aspects of safety, health, and environmental practices; interactions of physical, chemical, biological, and ergonomic agents, factors, and/or stressors on the human body; basic principles of fire prevention and protection in the workplace; industrial and construction safety throughout work processes; industrial management and human relations; communication skills, mathematics, sciences, and statistics; and practical skills of basic laboratory techniques associated with industrial hygiene and basic sciences; fundamental exposure assessment sampling techniques; pollution fundamentals and control techniques; accident/incident investigation and analysis; measurement of safety performance; safety, health, and environment program management; performance of education and training for safety.

**CURRICULUM IN OCCUPATIONAL SAFETY, HEALTH AND ENVIRONMENT  
LEADING TO THE DEGREE OF BACHELOR OF SCIENCE**

**FIRST YEAR**

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
English 101 .....	3	English 102 .....	3
Mathematics 161 .....	3	Mathematics 162 .....	3
†OSHE 111 .....	3	Computer Science 173 .....	3
†OSHE 112 .....	3	†OSHE 121 .....	3
General Biology 151 .....	3	†OSHE 141 .....	3
Biology Lab 152 .....	1		
Southeastern 101 .....	2		
	18		15

**SECOND YEAR**

Chemistry 101 .....	3	Physics 191 .....	3
Chemistry Lab 103 .....	1	Physics Lab 193 .....	1
Mathematics 241 .....	3	Communication 211 .....	3
Psychology 101 .....	3	†OSHE 231 .....	3
†OSHE 251 .....	3	†OSHE 242 .....	3
		†OSHE 261 .....	3
	13		16

**THIRD YEAR**

Chemistry 102 .....	3	Chemistry 261 .....	3
Chemistry Lab104 .....	1	History 101 or 102 or 201 or 202 .....	3
English 230 or 231 or 232 .....	3	Economics 201 or 202 .....	3
Zoology 241 .....	4	English 322 .....	3
†OSHE 381 .....	3	†OSHE 341 .....	3
	14		15

**FOURTH YEAR**

†OSHE 424 .....	3	†OSHE 382 .....	3
†OSHE 452 .....	3	†OSHE 421 .....	3
Management 351 .....	3	†Industrial Technology 391 or 492 .....	3
Arts Elective <sup>1</sup> .....	3	†Professional Elective <sup>2</sup> .....	3
†Professional Elective <sup>2</sup> .....	3	†Professional Elective <sup>2</sup> .....	2
	15		14

Total semester hours required 120

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of professional electives.

<sup>1</sup>Select one course in Art, Dance, Music or Theater.

<sup>2</sup>Professional electives should be selected in consultation with advisors.

†A "C" must be earned in all major courses and professional electives.

**ASSOCIATE DEGREE PROGRAM IN INDUSTRIAL TECHNOLOGY**

The Associate of Applied Science Degree program in the Department of Computer Science and Industrial Technology is designed to enable graduates to enter various fields of industry after completing two years of study. Graduates may also elect to continue their education in the four-year degree Manufacturing Technology Concentrations. Graduates of the two-year curriculum will be awarded the degree of Associate of Applied Science.

**CURRICULUM IN INDUSTRIAL TECHNOLOGY  
LEADING TO THE DEGREE OF ASSOCIATE OF APPLIED SCIENCE  
CONSTRUCTION TECHNOLOGY CONCENTRATION (ACCREDITED BY NAIT)**

**FIRST YEAR**

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
English 101 .....	3	English 102 .....	3
Mathematics 161 <sup>3</sup> .....	3	Mathematics 162 .....	3
†Industrial Technology 111 .....	3	Computer Science 173 .....	3
†Occupational Safety, Health & Enviro 111 .....	3	†Construction Technology 111 .....	3
†Construction Technology 101 .....	3	†Construction Technology 121 .....	3
Southeastern 101 .....	2	†Technical Elective <sup>2</sup> .....	3
	17		18

**SECOND YEAR**

Physics 191 .....	3	Chemistry 101 .....	3
Physics Laboratory 193 .....	1	Chemistry Lab 103 .....	1
Communication 211 or 215 .....	3	†Industrial Technology 291 or 292 .....	3
Psychology 101 or Sociology 101 <sup>1</sup> .....	3	†Technical Elective <sup>2</sup> .....	6
†Construction Technology 201 .....	3	†Construction Technology 271 .....	3
†Technical Elective <sup>2</sup> .....	3		
	16		16
Total semester hours required			67

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of electives.

<sup>1</sup>Social/Behavioral Sciences course must be selected by students in consultation with their advisors.  
<sup>2</sup>Technical electives must be selected by students in consultation with their advisors.  
 †A "C" (2.0 minimum GPA) must be earned in all major courses and professional electives.

**CURRICULUM IN INDUSTRIAL TECHNOLOGY  
LEADING TO THE DEGREE OF ASSOCIATE OF APPLIED SCIENCE  
DESIGN DRAFTER TECHNOLOGY CONCENTRATION (ACCREDITED BY NAIT)**

**FIRST YEAR**

FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
English 101 .....	3	English 102 .....	3
Mathematics 161 <sup>3</sup> .....	3	Mathematics 162 .....	3
†Industrial Technology 111 .....	3	Computer Science 173 .....	3
†Occupational Safety, Health & Enviro 111 .....	3	†Industrial Technology 112 .....	3
Psychology 101 or Sociology 101 <sup>1</sup> .....	3	†Industrial Technology 215 .....	3
Southeastern 101 .....	2	†Technical Elective <sup>2</sup> .....	3
	17		18

**SECOND YEAR**

Physics 191 .....	3	Chemistry 101 .....	3
Physics Laboratory 193 .....	1	Chemistry Lab 103 .....	1
Communication 211 or 215 .....	3	†Design Drafter Techno Elective(100-200) .....	3
†Design Drafter Techno Elective(100-200) .....	6	†Industrial Technology 291 or 292 .....	3
†Technical Elective <sup>2</sup> .....	3	†Technical Elective <sup>2</sup> .....	6
	16		16
Total semester hours required			67

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of electives.

<sup>1</sup>Social/Behavioral Sciences course must be selected by students in consultation with their advisors.  
<sup>2</sup>Technical electives must be selected by students in consultation with their advisors.  
<sup>†</sup>A "C" or better (2.0 minimum GPA) must be earned in all major courses and professional electives.

**CURRICULUM IN INDUSTRIAL TECHNOLOGY  
 LEADING TO THE DEGREE OF ASSOCIATE OF APPLIED SCIENCE  
 OCCUPATIONAL SAFETY, HEALTH AND ENVIRONMENT CONCENTRATION  
 (ACCREDITED BY NAIT)**

<b>FIRST YEAR</b>			
FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
English 101 .....	3	English 102 .....	3
Mathematics 161 <sup>1</sup> .....	3	Mathematics 162 .....	3
†OSHE 111 .....	3	Computer Science 173 .....	3
†OSHE 112 .....	3	†OSHE 121 .....	3
General Biology 151 .....	3	†OSHE 141 .....	3
Biology 152 .....	1		
Southeastern 101 .....	2		
	18		15
<b>SECOND YEAR</b>			
Chemistry 101 .....	3	Physics 191 .....	3
Chemistry Lab 103 .....	1	Physics Lab 193 .....	1
Mathematics 241 .....	3	Communication 211 .....	3
Psychology 101 .....	3	†OSHE 231 .....	3
†OSHE 251 .....	3	†OSHE 242 .....	3
		†OSHE 261 .....	3
	13		16
Total semester hours required			62

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of electives.

<sup>†</sup>A "C" (2.0 minimum GPA) must be earned in all major courses and professional electives.

**CURRICULUM IN INDUSTRIAL TECHNOLOGY  
 LEADING TO THE DEGREE OF ASSOCIATE OF APPLIED SCIENCE  
 SUPERVISION CONCENTRATION (ACCREDITED BY NAIT)**

<b>FIRST YEAR</b>			
FIRST SEMESTER	S.H.	SECOND SEMESTER	S.H.
English 101 .....	3	English 102 .....	3
Mathematics 161 <sup>3</sup> .....	3	Mathematics 162 .....	3
†Industrial Technology 111 .....	3	Psychology 101 or Sociology 101 <sup>1</sup> .....	3
Computer Science 173 .....	3	†Industrial Technology 112 .....	3
†Occupational Safety, Health & Enviro 111 .....	3	†Industrial Technology 242 .....	3
Southeastern 101 .....	2	†Technical Elective <sup>2</sup> .....	3
	17		18
<b>SECOND YEAR</b>			
Physics 191 .....	3	Chemistry 101 .....	3
Physics Laboratory 193 .....	1	Chemistry Lab 103 .....	1
Communication 211 or 215 .....	3	†Industrial Technology 264 .....	3
†Industrial Technology 233 .....	3	†Industrial Technology 291 or 292 .....	3

†Industrial Technology 256 .....	3	†Industrial Technology 205 .....	3
†Industrial Technology 202 .....	3	†Technical Elective .....	3
	16		16
Total semester hours required		67	

Southeastern 101 is not required of transfer or readmitted Southeastern students with 30 hours or more. Those students will replace Southeastern 101 with 2 hours of electives.

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<sup>1</sup>Social/Behavioral Sciences course must be selected by students in consultation with their advisors.

<sup>2</sup>Technical electives must be selected by students in consultation with their advisors.

†A "C" or better (2.0 minimum GPA) must be earned in all major courses and professional electives.