INDUSTRIAL ENGINEERING: COMPUTING

2022 – 2023 Curriculum

***Fall Only** ****Spring Only**

Student: _____
Date: _____
CUID: _____
Advisor: _____

FRESHMAN YEAR							
Term Info		**Cr**	**Course**	**Term Info**		**Cr**	**Course**
		4	CH 1010 & 1011 General Chemistry[1]			3	ENGR 1410 & 1411 Programming and Problem Solving[1,5]
		3	ENGL 1030 & 1031 Composition and Rhetoric[1]			4	MATH 1080 Calculus of One Variable II[1]
		3	ENGR 1020 & 1021 Engineering Disciplines and Skills[1,2]			3	PHYS 1220 Physics with Calculus I[1]
		4	MATH 1060 Calculus of One Variable I[1,3]			1	PHYS 1240 Physics Laboratory[6]
		3	Arts & Humanities *OR* Social Science Req[4]			3	Arts & Humanities *OR* Social Science Req[4]
		17				**14**	
SOPHOMORE YEAR							
Term Info		**Cr**	**Course**	**Term Info**		**Cr**	**Course**
		3/4	IE 2100 & 2101 Design and Analysis of Work Systems *OR* IE 3010 & 3011 Systems Design I			3/4	IE 2100 & 2101 Design and Analysis of Work Systems *OR* IE 3010 & 3011 Systems Design I
		4	MATH 2060 Calculus of Several Variables			1	IE 2140 Seminar in Industrial Engineering
		3	MATH 3110 Linear Algebra			3	IE 3600 Industrial Applications of Prob. and Stats I
		3	PHYS 2210 Physics with Calculus II			3	IE 3800 Deterministic Operations Research[7]
		4	Emphasis Area Req[1,7]			4	Emphasis Area Req[1,7]
		17/ 18				**14/ 15**	
JUNIOR YEAR							
Term Info		**Cr**	**Course**	**Term Info**		**Cr**	**Course**
		4	CPSC 2120 & 2121 Algorithms and Data Structures			3	IE 3860 Production Planning and Control
		3	IE 3610 Industrial Applications of Prob. and Stats. II			3	IE 4610 Quality Engineering
		3	IE 3810 Probabilistic Operations Research			4	IE 4820 Systems Modeling
		3	IE 4400 & 4401 Decision Support Systems in IE			3	Arts & Humanities *OR* Social Science Req[4]
		3	Engineering Science Requirement[8]			3	Engineering Science Requirement[8]
		16				**16**	
SENIOR YEAR							
Term Info		**Cr**	**Course**	**Term Info**		**Cr**	**Course**
		3	IE 3840 Engineering Economic Analysis			4	IE 4670 & 4671 System Design II
		3	IE 4880 Human Factors Engineering			3	Arts & Humanities *OR* Social Science Requirement[4]
		3	Engineering Science Requirement[8]			3	Broadening Requirement[11]
		4	Industrial Engineering Lab Science Req[9]			4	Emphasis Area Requirement[1,7]
		3	Oral Communication Req[10]			3	Industrial Engineering Integrating Requirement[12]
		16				**17**	
							128 Total Semester Hours

GENERAL EDUCATION REQUIREMENTS					
Literature	**Non-Literature**	**Social Science** (SC REACH Act, if required)	**Social Science** (from a different department)	**Global Challenges** (ENGR 1020 at Clemson or another course)	**Global Challenges -3000 or 4000 level Or if already met with Tech Requirement, then need Dept Arts & Humanities/Social Sci Req**

CHANGE OF MAJOR REQUIREMENTS: C grade or higher in each class and a 2.0 Clemson cumulative GPA						
CH 1010	**ENGL 1030**	**ENGR 1020**	**ENGR 1410**	**MATH 1060**	**MATH 1080**	**PHYS 1220**

Students should always refer to the Academic Catalog for course descriptions and for course pre-requisites, corequisites, and concurrent enrollment requirements. Academic Catalog can be found here: https://www.clemson.edu/registrar/academic-catalogs/. Advisors will assist students in scheduling courses to fulfill the requirements of the degree program; nevertheless, it is the responsibility of the student to fulfill the relevant requirements of the degree.

Footnotes

[1] This course must be passed with a grade of *C* or better to transfer into Industrial Engineering or to satisfy later course prerequisites.

[2] The combination of ENGR 1050 and ENGR 1060 or the combination of ENGR 1510 and ENGR 1520 may be substituted for ENGR 1020.

[3] Depending on a student's Clemson Mathematics Placement Test score, MATH 1040 and MATH 1070 may be substituted for MATH 1060; or the student may be required to take MATH 1050 before enrolling in MATH 1060.

[4] See General Education Requirements. Three General Education credits must also satisfy the South Carolina REACH Act R-equirement. See the South Carolina REACH Act Requirement in the Academic Regulations section.

[5] ENGR 1640 with a grade of *C* or higher; or the combination of ENGR 1070, ENGR 1080 and ENGR 1090, each with a grade of *C* or higher; or the combination of CHE 1300 plus one of CPSC 1010, CPSC 1110 or CPSC 1610, each with a grade of *C* or higher, will also satisfy this requirement.

[6] PHYS 2230 may be substituted.

[7] One of the following course sequences is required:

- CPSC 1010, CPSC 1020, and CPSC 2120, and one additional course selected from CPSC 2070, CPSC 2150, CPSC 2310, CPSC 3120, CPSC 3500, CPSC 4030, CPSC 4040, CPSC 4050, CPSC 4120, CPSC 4180, CPSC 4300, CPSC 4420, CPSC 4430, or CPSC 4550. CPSC 1110 may be substituted for CPSC 1010 if one credit of elective credit is also taken.

  or

- CPSC 1060, CPSC 1070, and CPSC 2120, and one additional course selected from CPSC 2070, CPSC 2150, CPSC 2310, CPSC 3120, CPSC 3500, CPSC 4030, CPSC 4040, CPSC 4050, CPSC 4120, CPSC 4180, CPSC 4300, CPSC 4420, CPSC 4430, or CPSC 4550.

[8] A total of nine credits selected from the following: CE 2010 or ME 2050; CE 2080 or ME 2060; ECE 2070/ECE 2080 or ECE 2020/ECE 2110; CE 3510 or MSE 2100; or one of CE 3410 or ME 2030 or MSE 3260.

[9] Select from BIOL 1030/BIOL 1050; BIOL 1040/BIOL 1060; BIOL 1100; BIOL 1220/BIOL 1200; BIOL 1230/BIOL 1200; CH 1020; GEOL 1010/GEOL 1030; or GEOL 1120/GEOL 1140.

[10] See General Education Requirements. COMM 1500 is recommended.

[11] Select from AGM 2050; AMFG 3800; AMFG 4200; ARCH 4240; AUE 4030; AUE 4620; BE 4400; BIOE 4610; BT 2200; CE 2060; CE 2550; CE 3110; CE 3310; CE 4350; CE 4400; CE 4820; CE 4530; either CH 2010 or CH 2230; CPSC 2920; CPSC 4550; CRP 4010; CRP 4300; CTE 1150; ECE 1010; EES 4140; EES 4860; ENGL 3140; ENGR 2200; ENGR 2210; ENR 3120; ENSP 1250; GEOL 2700; one of HIST 1010 or POSC 1010 or POSC 1030; HLTH 4750; HON 2070; IE 4300; IE 4460; IE 4510; IE 4520; IE 4530; IE 4560; IE 4570; IE 4580; IE 4620; IE 4640; IE 4650; IE 4700; IE 4810; IE 4850; IE 4860; IE 4870; IE 4890; IE 4910; MATH 2080; MATH 3190; MATH 4110; MATH 4120; MATH 4190; MATH 4310; MATH 4340; MATH 4350; either MATH 4530 or MATH 4630; ME 2070; ME 3030; ME 3100; ME 4560; ME 4620; one of ACCT 2010 or AS 3090 or MGT 2010 or MGT 3070 or MGT 4110 or MKT 4210 or ML 3010; both ML 4010 and ML 4020; MSE 3100; MSE 3190; MSE 4160; MSE 4530; MSE 4570; MSE 4580; one of PHIL 1030 or PHIL 3440 or PHIL 3450 or PHIL 3460 or LAW 3220; PSYC 3240; PSYC 3350; PSYC 3640; PSYC 3680; PSYC 3690; PSYC 3770; PSYC 4260; PSYC 4560; PSYC 4770; STAT 4020; SUST 2010; or up to six credits of general education courses in any area other than Industrial Engineering.

[12] Select from IE 4460, IE 4560, IE 4640, IE 4650, and IE 4890. Students participating in the Combined Bachelor of Science/Master of Science program may use corresponding 6000-level courses through the appropriate processes.

NOTES:

1. CH 1010, ENGL 1030, ENGR 1020 (or ENGR 1050 and ENGR 1060 or ENGR 1510 and ENGR 1520 if substituted for ENGR 1020), ENGR 1410 (or ENGR 1070, ENGR 1080 and ENGR 1090 or ENGR 1640 or CPSC 1010 or CPSC 1060 or CPSC 1110), MATH 1060, MATH 1080, MATH 2060, MATH 3110, and PHYS 1220 must be passed with a grade of *C* or better.
2. No student may exceed three attempts, including a *W* and academic forgiveness (with the exception of a withdrawal from the University), to successfully complete (with a grade of *D* or better) any of the following required IE courses: IE 2100, IE 2140, IE 3010, IE 3600, IE 3610, IE 3800, IE 3810, IE 3840, IE 3860, IE 4400, IE 4610, IE 4670, IE 4820, and IE 4880. Moreover, a third attempt is only granted by a written request to the department chair before the deadline to add a course in a subsequent term.
3. Students participating in the Combined Bachelor of Science/Master of Science program may count a maximum of 12 credits towards the graduate program.
4. Depending on a student's math placement, they may be invited to take part in the General Engineering Learning Community where they complete the following courses: ENGR 1000, ENGR 1010, ENGR 1100, ENGR 1110, ENGR 1510, ENGR 1520, and ENGR 1640. The combination of ENGR 1510 and ENGR 1520 may be substituted for ENGR 1020. ENGR 1640 may be substituted for ENGR 1410.
5. A transfer course may not be used to satisfy the General Education Global Challenges Requirement. While a transfer course may fulfill other degree requirements, students must enroll in a Clemson course(s) on the Global Challenges list to fulfill the Global Challenges Requirement.