Concordia University — GINA CODY SCHOOL OF ENGINEERING AND COMPUTER SCIENCE

Program Planning Worksheet
Industrial Engineering (Co-op)
2021-2022 Academic Year

	SUMMER /1		FALL /2		WINTER /4	
YEAR 1			**ENGR 213** 3.00 **Applied Ord. Differential Eq.** Prerequisite: MATH previously or concurrently; MATH 205		**ACCO 220** 3.00 **Financial & Managerial Acco.** Prerequisite: none	
			INDU 211 3.00 **Intro Prod & Manufacturing Sys.** Prerequisite: none		**ENCS 282** 3.00 **Tech. Writing & Comm.** Prerequisite: The Engineering Writing Test (EWT) or ENCS 272 must be completed prior to registering.	
			MIAE 211 3.50 **Mech. Engineering Drawing** Prerequisite: none		**ENGR 201** 1.50 **Professional Practice & Resp.** Prerequisite: none	
			MIAE 215 3.50 **Prog. for Mech & Indu Eng.** Prerequisite: MATH 204		**ENGR 245** 3.00 **Mechanical Analysis** Prereq: PHYS 204; ENGR 213 previously or concurrently.	
			MIAE 221 3.00 **Materials Science** Prerequisite: CHEM 205		**ENGR 251** 3.00 **Thermodynamics I** Prerequisite: MATH 203	
					MIAE 313 3.50 **Machine Drawing and Design** Prerequisite: MECH 211 or MIAE 211	
YEAR 2	**ENGR 202** 1.50 **Sust. Dev. Enviro. Stewardship** Prerequisite: none		**WORK TERM 1** **(You must complete ENCS 282 before your first work-term)**		**INDU 323** 3.50 **Operations Research I** Prerequisite: ENGR 213, 233; INDU 211.	
	ENGR 233 3.00 **Applied Advanced Calculus** Prerequisite: MATH 204; MATH 205				**INDU 371** 3.00 **Stochastic Models in Indu. Engr** Prerequisite: ENGR 371.	
	ENGR 371 3.00 **Probability & Stats in Eng.** Prerequisite: ENGR 213, 233				**INDU 372** 3.00 **Quality Control and Reliability** Prerequisite: ENGR 371.	
	MIAE 311 3.00 **Manufacturing Processes** Prerequisite: MECH 313 or MIAE 313				**INDU 411** 3.50 **Comp. Integrated Manufac.** Prerequisite: MECH 311 or MIAE 311.	
	MIAE 312 1.00 **EDML Lab** Prerequisite: MIAE 311 previously or concurrently.				**MIAE 380** 3.00 **Product Design & Development** Prerequisite: MECH 211 or MIAE 211	
	Basic & Natural Science 3.00 (See Ugrad Calendar 71.40.2)					
YEAR 3	**ENGR 301** 3.00 **Engr. Manage. Principles Econ** Prerequisite: none		**INDU 311** 3.50 **Simulation of Industrial Systems** Prerequisite: ENGR 371.		**WORK TERM 2**	
	ENGR 311 3.00 **Trans. Cal. & Partial Diff. Eq.** Prerequisite: ENGR 213, 233		**INDU 320** 3.00 **Production Engineering** Prerequisite: INDU 323.			
	ENGR 391 3.00 **Numerical Methods in Eng.** Prerequisite: ENGR 213, 233; COMP 248 or COEN 243 or MECH 215 or MIAE 215 or BCEE 231		**INDU 324** 3.50 **Operations Research II** Prerequisite: INDU 323.			
	ENGR 392 3.00 **Impact of Technology on Society** Prerequisite: ENCS 282; ENGR 201, 202		**INDU 330** 3.00 **Engineering Management** Prerequisite: ENCS 282; ENGR 301 previously or concurrently.			
			INDU 412 3.50 **Human Factors Engineering** Prerequisite: ENGR 371.			
YEAR 4	**WORK TERM 3**		**INDU 421** 3.50 **Facilities & Material Handling** Prereq: INDU 311 previously or concurrently; INDU 320.		**INDU 321** 3.00 **Lean Manufacturing** Prerequisite: INDU 320.	
			INDU 423 3.50 **Inventory Control** Prerequisite: INDU 320.		**INDU 342** 3.00 **Logistics Network Models** Prerequisite: INDU 324.	
			Technical Electives (Undergraduate Calendar, Sec. 71.40.1) Review your advisement report for the number of credits required. --- Speak with your Undergraduate Program Assistant if you have any further questions			
			INDU 490 **Capstone Industrial Engineering Design Project** 4.00 Prerequisite: 75 credits in the program; ENGR 301; MIAE 380; INDU 421 previously or concurrently.			

Course schedules are based on the recommended sequence; however, you may choose to follow a reduced load. Step-by-step instructions on re-sequencing are available on our website.

DETAILED COURSE INFORMATION
Industrial Engineering 2021-22

COURSE	TITLE	CREDIT	PRE-REQUISITE	CO-REQUISITE	SUM 1	SUM 2	FALL	WIN
ACCO 220	Financial and Managerial Accounting	3.00						X
BIOL 206	Elementary Genetics	3.00	Basic and Natural Science (INDU)		TBD	TBD	TBD	TBD
BIOL 261	Molecular and General Genetics	3.00	Basic and Natural Science (INDU)		TBD	TBD	TBD	TBD
BSTA 478	Data Mining Techniques	3.00	Permission from JMSB				X	X
BTM 430	Enterprise Resource Planning & Information Technology Integration	3.00	Permission from JMSB		X		X	X
BTM 480	Project Management	3.00	Permission from JMSB				X	X
CHEM 217	Introductory Analytical Chemistry I	3.00	Basic and Natural Science (INDU)		TBD	TBD	TBD	TBD
CHEM 221	Introductory Organic Chemistry I	3.00	Basic and Natural Science (INDU)		TBD	TBD	TBD	TBD
CIVI 231	Geology for Civil Engineers	3.00	Basic and Natural Science (INDU)		TBD	TBD	TBD	TBD
ENCS 282	Technical Writing and Communication	3.00	Engineering Writing Test (EWT), or ENCS 272 (min. C-)		X	X	X	X
ENGR 201	Professional Practice and Responsibility	1.50			X		X	X
ENGR 202	Sustainable Development and Environmental Stewardship	1.50			X		X	X
ENGR 213	Applied Ordinary Differential Equations	3.00	MATH 205	MATH 204	X		X	X
ENGR 233	Applied Advanced Calculus	3.00	MATH 204, 205		X	X	X	X
ENGR 245	Mechanical Analysis	3.00	PHYS 204	ENGR 213				X
ENGR 251	Thermodynamics I	3.00	MATH 203			X	X	X
ENGR 301	Engineering Management Principles and Economics	3.00			X	X	X	X
ENGR 311	Transform Calculus and Partial Differential Equations	3.00	ENGR 213, 233		X	X	X	X
ENGR 361	Fluid Mechanics I	3.00	ENGR 213, 233, 251		X		X	X
ENGR 371	Probability and Statistics in Engineering	3.00	ENGR 213, 233		X	X	X	X
ENGR 391	Numerical Methods in Engineering	3.00	ENGR 213, 233; COMP 248 or COEN 243 or MECH 215 or MIAE 215 o		X	X	X	X
ENGR 392	Impact of Technology on Society	3.00	ENCS 282; ENGR 201, 202		X	X	X	X
ENGR 411	Special Technical Report	1.00	ENCS 282; permission of the Department		X		X	X
ENGR 412	Honours Research Project	3.00	ENCS 282; 75cr in the program; min. CGPA 3.00; permission of the De		X		X	X
GEOL 206	Earthquakes, Volcanoes, and Plate Tectonics	3.00	Basic and Natural Science (INDU)		TBD	TBD	TBD	TBD
GEOL 208	The Earth, Moon and the Planets	3.00	Basic and Natural Science (INDU)		TBD	TBD	TBD	TBD
INDU 211	Introduction to Production and Manufacturing Systems	3.00					X	
INDU 311	Simulation of Industrial Systems	3.50	ENGR 371				X	
INDU 320	Production Engineering	3.00	INDU 323				X	
INDU 321	Lean Manufacturing	3.00	INDU 320					X
INDU 323	Operations Research I	3.50	ENGR 213, 233; INDU 211		X			X
INDU 324	Operations Research II	3.50	INDU 323				X	
INDU 330	Engineering Management	3.00	ENCS 282	ENGR 301			X	
INDU 342	Logistics Network Models	3.00	INDU 324					X
INDU 371	Stochastic Models in Industrial Engineering	3.00	ENGR 371					X
INDU 372	Quality Control and Reliability	3.00	ENGR 371					X
INDU 410	Safety Engineering	3.00	MECH 311 or MIAE 311				X	
INDU 411	Computer Integrated Manufacturing	3.50	MECH 311 or MIAE 311					X
INDU 412	Human Factors Engineering	3.50	ENGR 371				X	
INDU 421	Facilities Design and Material Handling Systems	3.50	INDU 320	INDU 311			X	
INDU 423	Inventory Control	3.50	INDU 320				X	
INDU 431	Quantitative Methods in Health-care Systems	3.00						
INDU 441	Introduction to Six Sigma	3.00	INDU 372			X		X
INDU 466	Decision Models in Service Sector	3.00	ENGR 371; INDU 320					X
INDU 475	Advanced Concepts in Quality Improvement	3.00	INDU 372				X	
INDU 480	Cases in Industrial Engineering	3.00	INDU 311, 324					X
INDU 490	Capstone Industrial Engineering Design Project	4.00	75 credits in the program; ENGR 301; MIAE 380	INDU 421			X	X
INDU 498	Topics in Industrial Engineering	3.00			n/a	n/a	n/a	n/a
MANA 300	Entrepreneurship: Launching Your Business	3.00	Permission from JMSB				X	X
MECH 321	Properties and Failure of Materials	3.50	MECH 221 or MIAE 221					X
MECH 370	Modelling and Analysis of Dynamic Systems	3.50	PHYS 205; ENGR 213; ENGR 245 or 243	ENGR 311		X	X	X
MECH 412	Computer-Aided Mechanical Design	3.50	MECH 313 or MIAE 313				X	
MECH 415	Advanced Programming for Mechanical and Industrial Engineers	3.00	MECH 215 or MIAE 215				X	
MECH 421	Mechanical Shaping of Metals and Plastics	3.50	MECH 221 or MIAE 221					X
MECH 423	Casting, Welding, Heat Treating and Non-Destructive Testing	3.50	MECH 221 or MIAE 221				X	
MECH 425	Manufacturing of Composites	3.50	MECH 311 or MIAE 311				X	
MIAE 211	Mechanical Engineering Drawing	3.50			X		X	X
MIAE 215	Programming for Mechanical and Industrial Engineers	3.50	MATH 204		X		X	X
MIAE 221	Materials Science	3.00	CHEM 205				X	X
MIAE 311	Manufacturing Processes	3.00	MECH 313 or MIAE 313		X		X	
MIAE 312	Engineering Design and Manufacturing Processes Lab	1.00		MIAE 311	X		X	X
MIAE 313	Machine Drawing and Design	3.50	MECH 211 or MIAE 211				X	X
MIAE 380	Product Design and Development	3.00	MECH 211 or MIAE 211				X	X
PHYS 252	Optics	3.00	Basic and Natural Science (INDU)		TBD	TBD	TBD	TBD
PHYS 260	Introductory Biophysics	3.00	Basic and Natural Science (INDU)		TBD	TBD	TBD	TBD
PHYS 273	Introduction to Energy and Environment	3.00	Basic and Natural Science (INDU)		TBD	TBD	TBD	TBD
PHYS 284	Introduction to Astronomy	3.00	Basic and Natural Science (INDU)		TBD	TBD	TBD	TBD
PHYS 385	Astrophysics	3.00	Basic and Natural Science (INDU)		TBD	TBD	TBD	TBD

Note: In the case of discrepancies between this and the current Undergraduate Calendar, please contact your Undergraduate Program Assistant for clarification.