

BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING

(Curriculum applicable to students who entered as freshmen beginning academic year 2015-2016)

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
1	1	DRAW10W	ENGINEERING DRAWING	-	4.5	1.0			MVA
		ENG10	ENGLISH FOR ACADEMIC PURPOSES 1	4.5	-	3.0			SLHS
		IE10	BASIC INDUSTRIAL ENGINEERING	1.5	-	1.0			IE-EMG
		MATH10-3	ALGEBRA	4.5	-	3.0			MATH
		MATH12-1	PLANE AND SPHERICAL TRIGONOMETRY	4.5	-	3.0			MATH
		SSE01	SOCIAL SCIENCE ELECTIVE	4.5	-	3.0			SLHS
		NSTP1	NATIONAL SERVICE TRAINING PROGRAM 1	-	4.5	(1.5)			SOCIP
		PE11-1	PHYSICAL EDUCATION 1 (PHYSICAL FITNESS AND GROUP GAMES)	-	3.0	(2.0)			ATHLETICS
Total			19.5	12.0	14.0				

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
1	2	CS10-1L	COMPUTER FUNDAMENTALS AND PROGRAMMING LABORATORY	-	9.0	2.0	MATH10-3		SOIT
		ENG11	ENGLISH FOR ACADEMIC PURPOSES 2	4.5	-	3.0	ENG10		SLHS
		MATH10-4	ADVANCED ALGEBRA	4.5	-	3.0	MATH10-3		MATH
		MATH13-1	SOLID MENSURATION	3.0	-	2.0	MATH12-1		MATH
		RZL10	RIZAL'S WORKS & WRITINGS OF OTHER FILIPINO HEROES	4.5	-	3.0			SLHS
		NSTP2	NATIONAL SERVICE TRAINING PROGRAM 2	-	4.5	(1.5)	NSTP1		SOCIP
		PE12	PHYSICAL EDUCATION 2 (DANCE, MARTIAL ARTS AND BOARD GAMES)	-	3.0	(2.0)			ATHLETICS
		Total	16.5	16.5	13.0				

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
1	3	CAD10L	COMPUTER-AIDED DRAFTING	-	4.5	1.0	DRAW10W		MVA
		CHM11-3	GENERAL CHEMISTRY 1	3.0	-	2.0			CHE-CHM
		CHM11-3L	GENERAL CHEMISTRY LABORATORY 1	-	4.5	1.0		CHM11-3	CHE-CHM
		FIL10	FILIPINO 1	4.5	-	3.0			SLHS
		IE12	PRINCIPLES OF ECONOMICS	4.5	-	3.0	MATH10-3, MATH12-1		IE-EMG
		MATH21-1	CALCULUS 1	7.5	-	5.0	MATH13-1, MATH10-4		MATH

	NSTP3	NATIONAL SERVICE TRAINING PROGRAM 3	-	4.5	(1.5)	NSTP2		SOCIP
	PE13-2	PHYSICAL EDUCATION 3 (INDIVIDUAL / DUAL SPORTS)	-	3.0	(2.0)			ATHLETICS
Total			19.5	16.5	15.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
1	4	CHM12-3	GENERAL CHEMISTRY 2	3.0	-	2.0	CHM11-3, CHM11-3L		CHE-CHM
		CHM12-3L	GENERAL CHEMISTRY LABORATORY 2	-	4.5	1.0	CHM11-3, CHM11-3L	CHM12-3	CHE-CHM
		FIL11	FILIPINO 2	4.5	-	3.0			SLHS
		MATH22-1	CALCULUS 2	7.5	-	5.0	MATH21-1		MATH
		SSE02	SOCIAL SCIENCE ELECTIVE	4.5	-	3.0			SLHS
		NSTP4	NATIONAL SERVICE TRAINING PROGRAM 4	-	4.5	(1.5)	NSTP3		SOCIP
		PE14	PHYSICAL EDUCATION 4 (TEAM SPORTS)	-	3.0	(2.0)			ATHLETICS
			Total	19.5	12.0	14.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
2	1	BIO20	INTRODUCTION TO BIOMIMETICS ENGINEERING AND COMPONENT DESIGN	4.5	-	3.0	CHM12-3		CHE-CHM
		HME01	HUMANITIES ELECTIVE	4.5	-	3.0			SLHS
		IE111	FINANCIAL ACCOUNTING	4.5	-	3.0	2nd Year Standing		IE-EMG
		MATH23-1	CALCULUS 3	4.5	-	3.0	MATH22-1		MATH
		MATH23-1X	ENGINEERING MATHEMATICS EXIT EXAM	-	-	0.0	MATH22-1	MATH23-1	MATH
		PHY10	GENERAL PHYSICS 1	3.0	-	2.0	MATH22-1		PHYSICS
		PHY10L	GENERAL PHYSICS LABORATORY 1	-	4.5	1.0	MATH22-1	PHY10	PHYSICS
			Total	21.0	4.5	15.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
2	2	ENV20	INTRODUCTION TO ENVIRONMENTAL ENGINEERING	3.0	-	2.0	CHM12-3		CHE-CHM
		IE112	MANAGERIAL ACCOUNTING	4.5	-	3.0	IE111		IE-EMG
		IE121	PROBABILITY AND STATISTICS	4.5	-	3.0	MATH22-1		IE-EMG
		MATH16-1L	INTRODUCTION TO SCIENTIFIC COMPUTING	-	4.5	1.0	CS10-1L, , MATH22-1		MATH
		MATH24-1	DIFFERENTIAL EQUATIONS	4.5	-	3.0	MATH23-1, MATH23-1X		MATH

	PHY11	GENERAL PHYSICS 2	3.0	-	2.0	PHY10, PHY10L		PHYSICS
	PHY11L	GENERAL PHYSICS LABORATORY 2	-	4.5	1.0	PHY10, PHY10L	PHY11	PHYSICS
Total			19.5	9.0	15.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
2	3	EMG20	ENGINEERING MANAGEMENT	4.5	-	3.0	IE12, 2nd Year Standing		IE-EMG
		IE102	INDUSTRIAL AND MANUFACTURING PROCESSES	3.0	-	2.0	CHM12-3, CHM12-3L, DRAW10W, PHY11, PHY11L		IE-EMG
		IE122	STATISTICAL ANALYSIS	4.5	-	3.0	IE121		IE-EMG
		MATH15-1	LINEAR ALGEBRA	3.0	-	2.0	MATH13-1, MATH10-4,2nd Year Standing		MATH
		ME102L	INDUSTRIAL AND MANUFACTURING PROCESSES LABORATORY	-	4.5	1.0	CHM12-3, CHM12-3L, DRAW10W, PHY11, PHY11L	IE102	MME
		MEC30	STATICS OF RIGID BODIES	4.5	-	3.0	PHY11, PHY11L		CEGE
		PHY12	GENERAL PHYSICS 3	3.0	-	2.0	PHY11, PHY11L		PHYSICS
		PHY12L	GENERAL PHYSICS LABORATORY 3	-	4.5	1.0	PHY11, PHY11L	PHY12	PHYSICS
			Total	22.5	9.0	17.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
2	4	IE130	ORGANIZATION DYNAMICS	4.5	-	3.0	EMG20		IE-EMG
		IE131	METHODS ENGINEERING 1	3.0	-	2.0	EMG20, IE102, IE121, ME102L		IE-EMG
		IE133	SYSTEMS AND PROCEDURES	3.0	-	2.0	EMG20, IE102, IE121, ME102L	IE131	IE-EMG
		IE50	ADVANCED ENGINEERING MATHEMATICS	4.5	-	3.0	MATH24-1		IE-EMG
		MEC31-1	DYNAMICS OF RIGID BODIES	3.0	-	2.0	MEC30		MME
		PHY13	GENERAL PHYSICS 4	3.0	-	2.0	PHY12, PHY12L		PHYSICS
		PHY13L	GENERAL PHYSICS LABORATORY 4	-	4.5	1.0	PHY12, PHY12L	PHY13	PHYSICS
			Total	21.0	4.5	15.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
3	1	ENG12	ENGLISH FOR THE WORKPLACE 1	4.5	-	3.0	ENG11		SLHS
		IE124	DESIGN OF EXPERIMENTS	3.0	-	2.0	IE122		IE-EMG
		IE132P	METHODS ENGINEERING 2	3.0	4.5	3.0	IE131		IE-EMG
		MEC32	MECHANICS OF DEFORMABLE BODIES	4.5	-	3.0	MEC31-1		CEGE
		MSE20	FUNDAMENTALS OF MATERIALS SCIENCE AND ENGINEERING	4.5	-	3.0	CHM12-3, PHY13, PHY13L		CHE-CHM
			Total	19.5	4.5	14.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
3	2	IE103P	PRODUCT DESIGN AND DEVELOPMENT	3.0	4.5	3.0	IE132P	IE141P	IE-EMG
		IE123	STATISTICAL QUALITY CONTROL	4.5	-	3.0	IE124, IE132P		IE-EMG
		IE123X	STATISTICS AND METHODS EXIT EXAM	-	-	0.0	IE121, IE122, IE124, IE131, IE132P	IE123	IE-EMG
		IE141P	ERGONOMICS	3.0	4.5	3.0	IE132P		IE-EMG
		IE181	OPERATIONS RESEARCH 1	4.5	-	3.0	IE50, IE121		IE-EMG
		IE40	ENGINEERING ECONOMY	4.5	-	3.0	IE112, 3rd Year Standing		IE-EMG
			Total	19.5	9.0	15.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
3	3	HME02	HUMANITIES ELECTIVE	4.5	-	3.0			SLHS
		IE151-1	PRODUCTION SYSTEMS 1	4.5	-	3.0	IE103P, IE123, IE123X, IE181, IE40		IE-EMG
		IE180L	IE COMPUTER APPLICATIONS LABORATORY 1	-	4.5	1.0	IE122, IE132P, IE40		IE-EMG
		IE182P	OPERATIONS RESEARCH 2	4.5	4.5	4.0	IE181		IE-EMG
		SFTY100	SAFETY ENGINEERING MANAGEMENT	1.5	-	1.0	3rd Year Standing		CCESC
		SSE03	SOCIAL SCIENCE ELECTIVE	4.5	-	3.0			SLHS
			Total	19.5	9.0	15.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
3	4	IE104L	CIM LABORATORY	-	4.5	1.0	IE151-1		IE-EMG
		IE125-0	TOTAL QUALITY MANAGEMENT	4.5	-	3.0	IE123, , IE133		IE-EMG
		IE151-2	PRODUCTION SYSTEMS 2	4.5	-	3.0	IE151-1		IE-EMG

	IE151-2X	PRODUCTION AND OPERATIONS RESEARCH EXIT EXAM	-	-	0.0	IE151-1, IE181, IE182P, IE40	IE151-2, , IE153-1	IE-EMG
	IE153-1	PROJECT FEASIBILITY 1	3.0	-	2.0	IE151-1		IE-EMG
	IE183	STOCHASTIC PROCESS IN ENGINEERING	4.5	-	3.0	IE182P		IE-EMG
	SSE04	SOCIAL SCIENCE ELECTIVE	4.5	-	3.0			SLHS
Total			21.0	4.5	15.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
4	1	EE21	BASIC ELECTRICAL ENGINEERING	3.0	-	2.0	MATH24-1, PHY12, PHY12L		EECE
		EE21L	BASIC ELECTRICAL ENGINEERING LABORATORY	-	4.5	1.0	MATH24-1, PHY12, PHY12L	EE21	EECE
		IE152P	FACILITIES PLANNING AND DESIGN	3.0	4.5	3.0	IE141P, IE151-2, IE151-2X	IE184P	IE-EMG
		IE153-2	PROJECT FEASIBILITY 2	3.0	-	2.0	IE153-1		IE-EMG
		IE154P	INFORMATION SYSTEMS	3.0	4.5	3.0	CS10-1L, IE133, 4th Year Standing		IE-EMG
		IE184P	SYSTEMS SIMULATION	1.5	4.5	2.0	CS10-1L, IE151-2, IE183		IE-EMG
		ME20	THERMODYNAMICS	4.5	-	3.0	PHY12, PHY12L, MATH24-1		MME
Total				18.0	18.0	16.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
4	2	HME03	HUMANITIES ELECTIVE	4.5	-	3.0			SLHS
		IE155	SYSTEMS ENGINEERING	3.0	-	2.0	IE154P, IE152P		IE-EMG
		IE155F	SYSTEMS ENGINEERING FIELD	-	4.5	1.0	IE154P, IE152P	IE155	IE-EMG
		IE186P	LOGISTICS AND SUPPLY CHAIN MANAGEMENT	3.0	4.5	3.0	IE151-2, IE184P		IE-EMG
		IE70	BUSINESS LAWS AND ETHICS	3.0	-	2.0	IE130, 4th Year Standing		IE-EMG
		RES100-8	METHODS OF RESEARCH	3.0	-	2.0	IE124, IE182P, 4th Year Standing		IE-EMG
			PROFESSIONAL ELECTIVE 1			3.0			
Total				16.5	9.0	16.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
4	3	ENG13	ENGLISH FOR THE WORKPLACE 2	4.5	-	3.0	ENG12		SLHS
		IE200L	THESIS 1	-	4.5	1.0	IE152P, IE155, IE155F, IE184P, RES100-8		IE-EMG

		PROFESSIONAL ELECTIVE 2			3.0			
		PROFESSIONAL ELECTIVE 3			3.0			
		PROFESSIONAL ELECTIVE 4			3.0			
Total			4.5	4.5	13.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
4	4	IE191F	SEMINARS AND PLANT VISIT	-	4.5	1.0	IE200L, 4th Year Standing		IE-EMG
		IE198D	APPLIED IE	-	9.0	2.0	IE152P, IE155, IE155F, IE184P		IE-EMG
		IE200-1L	THESIS 2	-	4.5	1.0	IE200L		IE-EMG
Total				0.0	18.0	4.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
5	1	IE199R	ON-THE-JOB TRAINING	-	24.0	3.0	IE152P, IE155F, IE184P, For Graduating Students Only		IE-EMG
		IE200-2L	THESIS 3	-	4.5	1.0	IE200-1L		IE-EMG
Total				0.0	28.5	4.0			

PROFESSIONAL ELECTIVES : 12.00 UNITS

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
		IE106P	COMPUTER-AIDED MANUFACTURING	3.0	4.5	3.0	IE104L, IE151-2		IE-EMG
		IE116	FINANCIAL MANAGEMENT	4.5	-	3.0	IE112		IE-EMG
		IE126	SIX SIGMA	4.5	-	3.0	IE123, 4th Year Standing		IE-EMG
		IE127	TOTAL PRODUCTIVE MAINTENANCE & RELIABILITY	4.5	-	3.0	IE151-2, IE40		IE-EMG
		IE146	OCCUPATIONAL SAFETY AND HEALTH	4.5	-	3.0	IE141P		IE-EMG
		IE147P	RISK ANALYSIS AND MANAGEMENT	3.0	4.5	3.0	IE141P, IE151-2		IE-EMG
		IE148P	COGNITIVE ENGINEERING	3.0	4.5	3.0	IE141P		IE-EMG
		IE149	JOB EVALUATION AND COMPENSATION PLANNING	4.5	-	3.0	IE151-2		IE-EMG
		IE166	STRATEGIC PLANNING AND MANAGEMENT	4.5	-	3.0	IE116, IE151-2		IE-EMG
		IE176	LEAN MANUFACTURING	4.5	-	3.0	IE151-2		IE-EMG
		IE187P	MULTICRITERIA DECISION MAKING	3.0	4.5	3.0	IE183, IE40		IE-EMG
		IE188	ADVANCED OPERATIONS RESEARCH	4.5	-	3.0	IE182P		IE-EMG
		IE196	SPECIAL TOPICS IN IE	4.5	-	3.0	IE151-2, 4th Year Standing		IE-EMG
		IE197	SPECIAL PROBLEMS IN IE	4.5	-	3.0	IE151-2, 4th Year Standing		IE-EMG

Total Academic Units : 230.00

BACHELOR OF SCIENCE IN SERVICE ENGINEERING & MANAGEMENT

(Curriculum applicable to students who entered as freshmen beginning academic year 2015-2016)

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
1	1	DRAW10W	ENGINEERING DRAWING	-	4.5	1.0			MVA
		ENG10	ENGLISH FOR ACADEMIC PURPOSES 1	4.5	-	3.0			SLHS
		MATH10-3	ALGEBRA	4.5	-	3.0			MATH
		MATH12-1	PLANE AND SPHERICAL TRIGONOMETRY	4.5	-	3.0			MATH
		SSE01	SOCIAL SCIENCE ELECTIVE	4.5	-	3.0			SLHS
		NSTP1	NATIONAL SERVICE TRAINING PROGRAM 1	-	4.5	(1.5)			SOCIP
		PE11-1	PHYSICAL EDUCATION 1 (PHYSICAL FITNESS AND GROUP GAMES)	-	3.0	(2.0)			ATHLETICS
Total			18.0	12.0	13.0				

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
1	2	CS10-1L	COMPUTER FUNDAMENTALS AND PROGRAMMING LABORATORY	-	9.0	2.0	MATH10-3		SOIT
		ENG11	ENGLISH FOR ACADEMIC PURPOSES 2	4.5	-	3.0	ENG10		SLHS
		HME01	HUMANITIES ELECTIVE	4.5	-	3.0			SLHS
		MATH10-4	ADVANCED ALGEBRA	4.5	-	3.0	MATH10-3		MATH
		MATH13-1	SOLID MENSURATION	3.0	-	2.0	MATH12-1		MATH
		NSTP2	NATIONAL SERVICE TRAINING PROGRAM 2	-	4.5	(1.5)	NSTP1		SOCIP
		PE12	PHYSICAL EDUCATION 2 (DANCE, MARTIAL ARTS AND BOARD GAMES)	-	3.0	(2.0)			ATHLETICS
		Total	16.5	16.5	13.0				

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
1	3	CHM11-3	GENERAL CHEMISTRY 1	3.0	-	2.0			CHE-CHM
		CHM11-3L	GENERAL CHEMISTRY LABORATORY 1	-	4.5	1.0		CHM11-3	CHE-CHM
		FIL10	FILIPINO 1	4.5	-	3.0			SLHS
		IE12	PRINCIPLES OF ECONOMICS	4.5	-	3.0	MATH10-3, MATH12-1		IE-EMG
		MATH21-1	CALCULUS 1	7.5	-	5.0	MATH13-1, MATH10-4		MATH
		PHY10-2	COLLEGE PHYSICS 1	3.0	-	2.0	MATH10-3, MATH12-1		PHYSICS
		PHY10-2L	COLLEGE PHYSICS LABORATORY 1	-	4.5	1.0	MATH10-3, MATH12-1	PHY10-2	PHYSICS

	NSTP3	NATIONAL SERVICE TRAINING PROGRAM 3	-	4.5	(1.5)	NSTP2		SOCIP
	PE13-2	PHYSICAL EDUCATION 3 (INDIVIDUAL / DUAL SPORTS)	-	3.0	(2.0)			ATHLETICS
Total			22.5	16.5	17.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
1	4	CHM12-3	GENERAL CHEMISTRY 2	3.0	-	2.0	CHM11-3, CHM11-3L		CHE-CHM
		CHM12-3L	GENERAL CHEMISTRY LABORATORY 2	-	4.5	1.0	CHM11-3, , CHM11-3L	CHM12-3	CHE-CHM
		FIL11	FILIPINO 2	4.5	-	3.0			SLHS
		MATH22-1	CALCULUS 2	7.5	-	5.0	MATH21-1		MATH
		PHY11-2	COLLEGE PHYSICS 2	3.0	-	2.0	PHY10-2, PHY10-2L		PHYSICS
		PHY11-2L	COLLEGE PHYSICS LABORATORY 2	-	4.5	1.0	PHY10-2, PHY10-2L	PHY11-2	PHYSICS
		NSTP4	NATIONAL SERVICE TRAINING PROGRAM 4	-	4.5	(1.5)	NSTP3		SOCIP
		PE14	PHYSICAL EDUCATION 4 (TEAM SPORTS)	-	3.0	(2.0)			ATHLETICS
Total			18.0	16.5	14.0				

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
2	1	CAD10L	COMPUTER-AIDED DRAFTING	-	4.5	1.0	DRAW10W		MVA
		EE21	BASIC ELECTRICAL ENGINEERING	3.0	-	2.0	MATH22-1, , PHY11-2, , PHY11-2L		EECE
		EE21L	BASIC ELECTRICAL ENGINEERING LABORATORY	-	4.5	1.0	MATH22-1, , PHY11-2, , PHY11-2L	EE21	EECE
		IE111	FINANCIAL ACCOUNTING	4.5	-	3.0	2nd Year Standing		IE-EMG
		MSE20-3	INTRODUCTION TO MATERIALS SCIENCE AND ENGINEERING	4.5	-	3.0	CHM12-3, , PHY11-2, , PHY11-2L		CHE-CHM
		RZL10	RIZAL'S WORKS & WRITINGS OF OTHER FILIPINO HEROES	4.5	-	3.0			SLHS
		SSE02	SOCIAL SCIENCE ELECTIVE	4.5	-	3.0			SLHS
			Total	21.0	9.0	16.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
2	2	EMG20	ENGINEERING MANAGEMENT	4.5	-	3.0	IE12, 2nd Year Standing		IE-EMG
		IE121	PROBABILITY AND STATISTICS	4.5	-	3.0	MATH22-1		IE-EMG

	MATH15-1	LINEAR ALGEBRA	3.0	-	2.0	MATH10-4, MATH13-1,2nd Year Standing		MATH
	MATH16-1L	INTRODUCTION TO SCIENTIFIC COMPUTING	-	4.5	1.0	CS10-1L, , MATH22-1		MATH
	MEC30	STATICS OF RIGID BODIES	4.5	-	3.0	PHY11-2, , PHY11-2L		CEGE
	SSE03	SOCIAL SCIENCE ELECTIVE	4.5	-	3.0			SLHS
Total			21.0	4.5	15.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
2	3	EMG130	ENGINEERING MANAGEMENT PRACTICES	4.5	-	3.0	EMG20		IE-EMG
		EMG181	INTRODUCTION TO OPTIMIZATION	4.5	-	3.0	IE121		IE-EMG
		ENV20	INTRODUCTION TO ENVIRONMENTAL ENGINEERING	3.0	-	2.0	CHM12-3		CHE-CHM
		IE112	MANAGERIAL ACCOUNTING	4.5	-	3.0	IE111		IE-EMG
		MEC31-1	DYNAMICS OF RIGID BODIES	3.0	-	2.0	MEC30		MME
		SFTY100	SAFETY ENGINEERING MANAGEMENT	1.5	-	1.0	2nd Year Standing		CCESC
			Total	21.0	0.0	14.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
2	4	EMG131	HUMAN FACTORS ENGINEERING AND WORK DESIGN	4.5	-	3.0	EMG130		IE-EMG
		EMG182	ADVANCED OPTIMIZATION	4.5	-	3.0	EMG181		IE-EMG
		EMG182L	ADVANCED OPTIMIZATION LABORATORY	-	4.5	1.0	EMG181	EMG182	IE-EMG
		IE116	FINANCIAL MANAGEMENT	4.5	-	3.0	IE112		IE-EMG
		IE122	STATISTICAL ANALYSIS	4.5	-	3.0	IE121		IE-EMG
		IE180L	IE COMPUTER APPLICATIONS LABORATORY 1	-	4.5	1.0	EMG181	IE122	IE-EMG
			Total	18.0	9.0	14.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
3	1	EMG141	HUMAN RESOURCE ENGINEERING	4.5	-	3.0	EMG130		IE-EMG
		IE123	STATISTICAL QUALITY CONTROL	4.5	-	3.0	EMG131, , IE122		IE-EMG
		IE40	ENGINEERING ECONOMY	4.5	-	3.0	IE12,3rd Year Standing		IE-EMG
		SSE04	SOCIAL SCIENCE ELECTIVE	4.5	-	3.0			SLHS
		SVM101	INTRODUCTION TO SERVICE MANAGEMENT	4.5	-	3.0	3rd Year Standing		IE-EMG
			Total	22.5	0.0	15.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
3	2	BIO20	INTRODUCTION TO BIOMIMETICS ENGINEERING AND COMPONENT DESIGN	4.5	-	3.0	CHM12-3		CHE-CHM
		EMG151	PRODUCTION AND OPERATIONS MANAGEMENT	4.5	-	3.0	EMG141, , EMG182, , IE123, , SVM101		IE-EMG
		ENG12	ENGLISH FOR THE WORKPLACE 1	4.5	-	3.0	ENG11		SLHS
		IE125-0	TOTAL QUALITY MANAGEMENT	4.5	-	3.0	IE123, , SVM101		IE-EMG
		ME20	THERMODYNAMICS	4.5	-	3.0	PHY11-2, , PHY11-2L		MME
			Total	22.5	0.0	15.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
3	3	EMG161	MARKETING SYSTEMS	4.5	-	3.0	IE40,3rd Year Standing		IE-EMG
		EMG171	VALUE ANALYSIS/ENGINEERING	3.0	-	2.0	EMG151		IE-EMG
		HME02	HUMANITIES ELECTIVE	4.5	-	3.0			SLHS
		SVM125	SERVICE QUALITY	4.5	-	3.0	IE125-0, , SVM101		IE-EMG
		SVM131	FOOD SERVICE MANAGEMENT	3.0	-	2.0	EMG151, , SVM101	SVM125	IE-EMG
		SVM141	RETAIL MANAGEMENT	3.0	-	2.0	EMG151, , SVM101	SVM125	IE-EMG
Total			22.5	0.0	15.0				

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
3	4	EMG152	FACILITIES PLANNING AND DESIGN	3.0	-	2.0	EMG151 , SFTY100		IE-EMG
		ENG13	ENGLISH FOR THE WORKPLACE 2	4.5	-	3.0	ENG12		SLHS
		IE154P	INFORMATION SYSTEMS	3.0	4.5	3.0	EMG171,3rd Year Standing		IE-EMG
		IE166	STRATEGIC PLANNING AND MANAGEMENT	4.5	-	3.0	EMG151, , IE116, , IE40		IE-EMG
		SVM151	HEALTHCARE SYSTEMS	3.0	-	2.0	EMG151, , SVM125		IE-EMG
		SVM161	TRANSPORTATION SYSTEMS	3.0	-	2.0	EMG151, , SVM125		IE-EMG
Total			21.0	4.5	15.0				

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
4	1	EMG153	PROJECT MANAGEMENT	3.0	-	2.0	EMG152 , EMG171		IE-EMG
		EMG153L	PROJECT MANAGEMENT LABORATORY	-	4.5	1.0	EMG152 , EMG171	EMG153	IE-EMG
		SVM171	BUSINESS PROCESS OUTSOURCING SYSTEMS	3.0	-	2.0	EMG151 , SVM125		IE-EMG
		SVM181	BANKING AND FINANCIAL SYSTEMS	3.0	-	2.0	EMG151 , SVM125		IE-EMG
		SVM191	HOSPITALITY MANAGEMENT	3.0	-	2.0	EMG151 , SVM125		IE-EMG
		SVM192	PROPERTY MANAGEMENT	3.0	-	2.0	EMG151 , SVM125		IE-EMG
			PROFESSIONAL ELECTIVE 1			3.0			
			Total	15.0	4.5	14.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
4	2	EMG70	BUSINESS LAWS AND ETHICS	3.0	-	2.0	IE40,4th Year Standing		IE-EMG
		HME03	HUMANITIES ELECTIVE	4.5	-	3.0			SLHS
		IE155	SYSTEMS ENGINEERING	3.0	-	2.0	EMG153, EMG153L, IE154P, IE166, SVM131, SVM141, SVM151, SVM161, SVM171, SVM181, SVM191, SVM192		IE-EMG
		IE155F	SYSTEMS ENGINEERING FIELD	-	4.5	1.0	EMG153, EMG153L, IE154P, IE166, SVM131, SVM141, SVM151,SVM161, SVM171, SVM181, SVM191, SVM192	IE155	IE-EMG
		RES100-8	METHODS OF RESEARCH	3.0	-	2.0	EMG182, IE122, 4th Year Standing		IE-EMG
			PROFESSIONAL ELECTIVE 2			3.0			
Total			13.5	4.5	13.0				

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
4	3	EMG154-1P	ENTREPRENEURIAL ENGINEERING 1	1.5	4.5	2.0	EMG153, EMG153L, EMG161, IE154P, IE155, IE155F		IE-EMG
		EMG191F	SEMINARS AND PLANT VISITS	-	4.5	1.0	4th Year Standing	EMG199R	IE-EMG
		EMG199R	ENGINEERING MANAGEMENT PROJECT 1	-	24.0	3.0	EMG153, EMG153L, IE155, IE155F, RES100-8	EMG154-1P	IE-EMG
Total				1.5	33.0	6.0			

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
4	4	EMG154-2P	ENTREPRENEURIAL ENGINEERING 2	1.5	4.5	2.0	EMG154-1P		IE-EMG
		EMG199-1R	ENGINEERING MANAGEMENT PROJECT 2	-	24.0	3.0	EMG199R		IE-EMG
			Total	1.5	28.5	5.0			

PROFESSIONAL ELECTIVES : 6.00 UNITS

Yr	Qtr	Code	Title	Lec Hrs	Lab Hrs	Credit Units	Prereq.	Co-requisites	Caretaker
4	1	EMG149	JOB EVALUATION AND COMPENSATION PLANNING	4.5	-	3.0	EMG151, 4th Year Standing		IE-EMG
		EMG196	SPECIAL TOPICS IN ENGINEERING MANAGEMENT	4.5	-	3.0	EMG151, 4th Year Standing		IE-EMG
4	2	EMG197	SPECIAL PROBLEMS IN ENGINEERING MANAGEMENT	4.5	-	3.0	EMG151, 4th Year Standing		IE-EMG
		IE186P	LOGISTICS AND SUPPLY CHAIN MANAGEMENT	3.0	4.5	3.0	EMG151, EMG182, 4th Year Standing		IE-EMG

Total Academic Units : 214.00

SCHOOL OF INDUSTRIAL ENGINEERING AND SERVICE ENGINEERING AND MANAGEMENT

EMG20. ENGINEERING MANAGEMENT

Covers nature and concept of engineering management functions, planning, decision-making, organizing, staffing, leading and controlling the organization. Other topics include selection, recruitment, training and development, management of change, communication, technology and society including real world applications. Emphasis is management in the 21st century.

Credit : 3 units

Prerequisite : IE12, 2nd Year Standing (BSIE and BSSEM)
4th Year Standing for CpE, EE, ECE and ME
2nd Year Standing for MnSE

EMG70. BUSINESS LAWS AND ETHICS

A study of the laws and regulations which govern the practice of Industrial Engineering and the ethical considerations of the same.

Credit : 2 units

Prerequisites : IE40, 4th Year Standing

EMG110: INTRODUCTION TO PRINCIPLES OF MANAGEMENT

This course is an introduction to business management and organizations. Its principal objective is to provide students with an understanding of the different functions, duties, and responsibilities of enterprise executives and managers. Students also learn to appreciate the importance of ethics in business and how international enterprises operate. Topics discussed include: the structure, functions, and objectives of the different types of organizations; organizations and their socio-cultural and political environment; corporate governance and business ethics; styles of management; the management process and the business management functions – marketing, operations, research and development, finance, and human resource management; and international business.

Credit : 3 units

Prerequisite : 3rd Year Standing

EMG111: FUNDAMENTALS OF MARKETING

An introduction to the basic principles of marketing, this course covers the purpose and functions of marketing and the different roles it plays in the economy, analyzing market needs and identifying marketing opportunities and how to improve the services offered, ways of satisfying the needs of consumer with specific products or services through the marketing management process, which includes the basics of the marketing mix (product, price, place, and promotion), and obtaining competitive advantages. Also discussed are the social responsibilities of

business within the context of marketing and the impact of the global economy on marketing.

Credit : 3 units

Prerequisite : EMG110

EMG120. APPLIED FINANCE AND MARKETING

This course opens up with the classic Marketing Management and Financial Management literature to homogenize the language that will be used. It then proceeds in developing a logic chain in executing the conception, pricing, promotion and distribution of goods and/or services while developing a concurrent financial model for it.

Credit : 3 units

Prerequisite/s : 4th Year Standing

EMG121. STRATEGIC PLANNING AND MANAGEMENT

This course is aimed for entrepreneur-student planning the strategic position and direction of a start-up for the first time. It provides a framework of practice to draw on and encourages strategic thinking rather than imposing a sequence of steps to follow.

Credit : 3 units

Prerequisite/s : EMG120

EMG122. BUSINESS MODELLING

This course aims to give entrepreneur-student deep insight into the nature of business models. It describes the traditional and the bleeding-edge models, their dynamics and innovation techniques. It also provides a learning environment wherein the entrepreneur-student is given a framework on how to position a conceived business model within a competitive and ever changing landscape.

Credit : 3 units

Prerequisite/s : EMG121

EMG123. BUSINESS INCUBATION

This course aims to equip the students with a real world checklist in starting a business. At the end of the course, the student will be able to develop first-hand list of success and of limiting factors in starting and in growing a business.

Credit : 3 units

Prerequisite/s : EMG122

EMG130. ENGINEERING MANAGEMENT PRACTICES

This course covers approaches in engineering management encompassing all aspects of an organization. It will deal on areas that may include resource development and management; product development and management; technology and IP development and management; and automation, methods, tools and data management.

Credit : 3 units

Prerequisite : EMG20

EMG131. HUMAN FACTORS ENGINEERING AND WORK DESIGN

Covers the framework on methods analysis and work methods improvement, introduction to ergonomics focusing on human-machine systems, anthropometric measurements, work environment, design of jobs and the workplace, and work design and measurement applied to manufacturing and service industries, so as to improve work performance, health and safety and maintain productivity.

Credit : 3 units
Prerequisite : EMG130 (BS SEM)

EMG131-1. HUMAN FACTORS ENGINEERING AND WORK DESIGN

Covers the framework on methods analysis and work methods improvement, introduction to ergonomics focusing on human-machine systems, anthropometric measurements, work environment, design of jobs and the workplace, and work design and measurement applied to manufacturing and service industries, so as to improve work performance, health and safety and maintain productivity.

Credit : 3 units
Prerequisite : MATH30-8 (BS MfgE)

EMG141. HUMAN RESOURCE ENGINEERING

Selection, placement, training, motivation, and adjustment of the worker in an industrial organization. Forms and methods in practical use.

Credit : 3 units
Prerequisite : EMG130

EMG149. JOB EVALUATION AND COMPENSATION PLANNING

This course intends to give students a theoretical understanding of the methods and implications of compensation and hands-on experience designing a compensation plan. This course is designed to provide the skills needed to obtain employment as an entry-level compensation specialist in an organization

Credit : 3 units
Prerequisite : EMG151, 4th Year Standing

EMG151. PRODUCTION AND OPERATIONS MANAGEMENT

Concepts of operations and production management are presented at an introductory level. Qualitative and quantitative tools and techniques used for the optimization of the operations component of the total enterprise are explored in the context of improved productivity and strategic competitiveness.

Credit : 3 units
Prerequisites : IE123, EMG141, EMG182, SVM101

EMG151-1. PRODUCTION AND OPERATIONS MANAGEMENT

Concepts of operations and production management are presented at an introductory level. Qualitative and quantitative tools and techniques used for the optimization of the operations component of the total enterprise are explored in the context of improved productivity and strategic competitiveness.

Credit : 3 units
Prerequisites : 3rd Year Standing for MfgE

EMG152. FACILITIES PLANNING AND DESIGN

An introduction to facility design, product and equipment analysis, process and material flow analysis, traditional approaches to facility layout, models and the layout problem, algorithms for the layout problem, materials handling storage and warehousing, and models for the location problems.

Credit : 2 units
Prerequisites : SFTY100, EMG151

EMG153. PROJECT MANAGEMENT

Considers the course from a strategic perspective, covering both the role of projects in the execution of organizational strategy and the application of strategic principles in projects; covers a wide range of project settings, from the traditional large-scale industrial projects to small-scale projects in both service and manufacturing settings.

Credit : 2 units
Prerequisites : EMG152, EMG171

EMG153L. PROJECT MANAGEMENT LABORATORY

A laboratory course to accompany project management lecture

Credit : 1 unit
Co-requisite : EMG153
Prerequisites : EMG152, EMG171

EMG154-1P. ENTREPRENEURIAL ENGINEERING 1

Covers the phases of project feasibility studies namely, marketing aspect, technical aspect, financial aspect, socioeconomic aspect and organization and management. Includes field inspection of a chosen project undertaken by the group and gathering of pertinent information about the project from actual operation to determine market, technical and financial feasibility.

Credit : 2 units
Prerequisites : EMG153, EMG153L, EMG161, IE154P, IE155, IE155F

EMG154-2P. ENTREPRENEURIAL ENGINEERING 2

Continuation of capstone project including defense and documentation.

Credit : 2 units
Prerequisites : EMG154-1P

EMG161. MARKETING SYSTEMS

Covers the stages of marketing, marketing fundamentals, marketing mix, product lifecycle, channels of distribution pricing policy, promotional mix, 3 Cs of marketing consumer, company, competitor, sampling and marketing cost, market research and plan, application of metrics in marketing. Cases include service and manufacturing based.

Credit : 3 units

Prerequisite : IE40, 3rd Year Standing

EMG171. VALUE ANALYSIS/ENGINEERING.

This course studies and applies cost-saving techniques during a product's life cycle from design and development to purchasing and manufacturing, thus providing the lowest possible cost without sacrificing reliability.

Credit : 2 units

Prerequisite : EMG151

EMG181. INTRODUCTION TO OPTIMIZATION

This course discusses the methodologies and algorithms for optimization for engineering management applications.

Credit : 3 units

Prerequisite : IE121

EMG182. ADVANCED OPTIMIZATION

A course on advanced mathematical and optimization theories for engineering management applications including introduction to econometrics.

Credit : 3 units

Prerequisite : EMG181

EMG182L. ADVANCED OPTIMIZATION LABORATORY

A laboratory course to accompany lecture course in engineering design optimization.

Credit : 1 unit

Prerequisite : EMG181

Co-requisite : EMG182

EMG191F. SEMINARS AND PLANT VISITS

A course which deals with topics of special concern that will be needed for future responsibilities. Resource persons are invited from industry to share real world scenarios. Supplemental to the course is the conduct of visit to industrial firms and plants.

Credit : 1 unit

Prerequisites : 4th Year Standing

Co-requisites : EMG199R

EMG196. SPECIAL TOPICS IN ENGINEERING MANAGEMENT

This course covers technical development techniques and new trends in the field of engineering management.

Credit : 3 units

Prerequisites : EMG151, 4th Year Standing

EMG197. SPECIAL PROBLEMS IN ENGINEERING MANAGEMENT

This course covers advances in the field of engineering management. This allows flexibility in offering courses under the EMG curriculum. This course provides for

opportunity to work on applications in the field of engineering management

Credit : 3 units

Prerequisites : EMG151, 4th Year Standing

EMG199R. ENGINEERING MANAGEMENT PROJECT 1

This is an industry immersion to let students synthesize all the theories, concepts, and practices with minimum 240 hours apprenticeship certification. This will require project that must be defended before a panel.

Credit : 3 units

Prerequisites : EMG153, EMG153L, IE155, IE155F, RES100-8

Co-requisite : EMG154-1P

EMG199-1R. ENGINEERING MANAGEMENT PROJECT 2

Continuation of EMG Project 1 project including defense and documentation.

Credit : 3 units

Prerequisite : EMG199R

IE10. BASIC INDUSTRIAL ENGINEERING

This is a course that provides freshmen students an overview of industrial engineering, its areas of specialization, and the practice of Industrial Engineering profession.

Credit : 1 unit

IE12. PRINCIPLES OF ECONOMICS

A course on the principles and concepts of economics, theory of demand, theory of production, price and output determination, market structure, theory of distribution, economic systems, national income taxation and agrarian reform, money price level, monetary policy, inflation and unemployment, international trade and finance, the role of the government. Emphasis is on development economics.

Credit : 3 units

Prerequisites : MATH10-3, MATH12-1

IE40. ENGINEERING ECONOMY

A course on the principles and concepts of economics, economic environment, minimum cost operation, economizing and comparing value analysis, time value mechanics, interest and money, equivalent annual worth comparisons, present worth comparison, rate of return comparison, risks, uncertainty, and sensitivity, including depreciation.

Credit : 3 units

Prerequisites : IE112, 3rd Year Standing (BSIE)
IE12, 3rd Year Standing (BSSEM)

IE50. ADVANCED ENGINEERING MATHEMATICS

A course on advanced mathematical and optimization theories for industrial engineering including introduction in econometrics.

Credit : 3 units

Prerequisite : MATH 24-1

IE70. BUSINESS LAWS AND ETHICS

A study of the laws and regulations which govern the practice of Industrial Engineering and the ethical considerations of the same.

Credit : 2 units

Prerequisites : IE130, 4th Year Standing

IE102. INDUSTRIAL AND MANUFACTURING PROCESSES

This course covers the technical aspects of manufacturing the industrial process, engineering equipment, basic manufacturing process, the fundamental principles underlying the construction, and the operation of selected mechanical and electrical equipment which are commonly subjected to work analysis.

Credit : 2 units

Prerequisites : DRAW10W, CHM12-3, CHM12-3L, PHY11, PHY11L

IE103P. PRODUCT DESIGN AND DEVELOPMENT

This provides a systematic approach to product development that achieves a timely collaboration of relevant stakeholders throughout the product life cycle to better satisfy customer needs. This emphasizes design policies of concurrent engineering and teamwork, and documenting design process knowledge.

Credit : 3 units

Prerequisites : IE132P

Co-requisite : IE141P

IE104L. CIM LABORATORY

The course covers an introduction to computer integrated manufacturing applications.

Credit : 1 unit

Prerequisites : IE151-1

IE106P. COMPUTER-AIDED MANUFACTURING

The course covers study of the design and use of computer-aided manufacturing management systems in the allocation and control of plant, equipment, manpower, and materials. This is accompanied by a laboratory course that will cover advanced and integrated topics on computer integrated manufacturing applications, as enterprise resource planning.

Credit : 3 units

Prerequisites : IE151-2, IE104L

IE111. FINANCIAL ACCOUNTING

Covers the study of the accounting equation, debit and credit, journalizing and posting, simple worksheet and simple financial statement, merchandise accounts, adjusting, closing and reversing entries, corporations, organization and operation.

Credit : 3 units

Prerequisite : 2nd Year Standing

IE112. MANAGERIAL ACCOUNTING

This course covers cost concepts, overhead allocation, job costing, variance analysis, breakeven, budgeting, and

differential costs. It highlights the importance of accounting information in managerial decision making.

Credit : 3 units

Prerequisite : IE 111

IE116. FINANCIAL MANAGEMENT

A course on the goals and functions of financial management, financial ratio analysis, fund flow analysis and financial forecasting, working capital policy, the management of working capital and capital investment analysis.

Credit : 3 units

Prerequisite : IE112

IE121. PROBABILITY AND STATISTICS

A study of descriptive statistics, measures of location, variation, skewness and kurtosis, probability concepts, sample space, counting theory, permutation and combination, laws of probability, Bayes' theorem, random variables, mathematical expectations, Chebychev's theorem, discrete and continuous probability distribution, normal distribution and binomial, exponential and chi-square distributions, forecasting techniques and applications to operational management systems.

Credit : 3 units

Prerequisite : MATH22-1

IE122. STATISTICAL ANALYSIS

A course on sampling, estimate and hypothesis testing, variance analysis, simple and multiple regression, simple and multiple correlation, nonparametric methods, multivariate statistics including applications to quality management systems.

Credit : 3 units

Prerequisite : IE121

: MATH10-2 (for MAS)

IE123. STATISTICAL QUALITY CONTROL

An introduction to Quality Control (QC) and Statistical Quality Control, the seven basic QC tools, new seven QC tools, statistical process control, control charts for variables and attributes, process capability analysis, and acceptance sampling.

Credit : 3 units

Prerequisites : IE124, IE132P (BS IE)

EMG131, IE122 (BS SEM)

IE123-1. STATISTICAL QUALITY CONTROL

An introduction to Quality Control (QC) and Statistical Quality Control, the seven basic QC tools, new seven QC tools, statistical process control, control charts for variables and attributes, process capability analysis, and acceptance sampling.

Credit : 3 units

Prerequisites : EMG131-1 for MfgE

IE123X. STATISTICS AND METHODS EXIT EXAM

This course includes a set of examinations covering the topics on counting and probability, inferential statistics, factorial design, control limits, process capability, acceptance sampling, direct time study and work sampling

Credit : 0 units

Prerequisites : IE121, IE122, IE124, IE131, IE132P

Corequisite : IE123

IE124. DESIGN OF EXPERIMENTS

Topics include tools for sound experimentation, contrast between classical and modern methods of experimentation, different types of design, models as factorial design, fixed effects and models, Latin square design, mixed effects model, randomized block design, random effects models nested and split-plot design. Also covers fitting regression models, response surface methods, and other approaches to process optimization. Includes case analysis.

Credit : 2 units

Prerequisite : IE122

IE125-0. TOTAL QUALITY MANAGEMENT

An introduction to the quality management philosophies of Deming, Crosby and Juran, Kaizen, Hoshin-Kanri, Standards of Excellence, ISO and QS standards, and Quality Function Deployment.

Credit : 3 units

Prerequisites : IE123, IE133 (BS IE)

IE123, SVM101 (BS SEM)

IE126. SIX SIGMA

This course covers Six Sigma Concepts, methodologies, and practices. This will emphasize how process improvement and variation reduction can be achieved through Six Sigma improvement projects. This will include projects and cases.

Credit : 3 units

Prerequisites : IE123, 4th Year Standing

IE127. TOTAL PRODUCTIVE MAINTENANCE & RELIABILITY

Topics include probability concepts, and their application to reliability evaluation, reliability models, failure-time distribution, failure rate curve, exponential failure law, Weibull distribution, Poisson process, maintenance models, planned replacement under certainty, block replacement, preventive vs. breakdown maintenance, spares management and reliability and maintenance applications.

Credit : 3 units

Prerequisites : IE151-2, IE40

IE130. ORGANIZATION DYNAMICS

Covers the scope and importance of industrial and organizational psychology, definition, methods, areas, history, training requirements, problems, human behavior in organization, employee selection, resolution of conflict, motivation, labor relation and stress at work, job description, job analysis, job evaluation, salary scale administration, job pricing and performance appraisal system as introduction to work measurement.

Credit : 3 units

Prerequisites : EMG20

IE131. METHODS ENGINEERING 1

The study of productivity concepts and measurement, principles and standards of plant layout, work study and measurement, method improvements, process, operations analysis, man-machine relationship, activity chart and the principles of motion economy, time study, and work sampling.

Credit : 2 units

Prerequisites : EMG20, IE102, ME102L, IE121

IE132P. METHODS ENGINEERING 2

A course on predetermined time systems, standard time, line balancing, work standards, work measurement and costing, compensation principles and wage incentive systems. This is accompanied by a laboratory course.

Credit : 3 units

Prerequisite : IE131

IE133. SYSTEMS AND PROCEDURES

Systems documentation and charting; introduction to information management and related Quality System Standards; Systems and Procedures Guidelines and Practices

Credit : 2 units

Co-requisite : IE131

Prerequisites : EMG20, IE102, ME102L, IE121

IE141P. ERGONOMICS

Covers an introduction to ergonomics, economics of ergonomics, human-machine systems, heavy work, work environment, anthropometric measurements, workplace design, design of products and information aids and manual handling task and tools. This is accompanied by a laboratory course.

Credit : 3 units

Prerequisite : IE132P

IE146. OCCUPATIONAL SAFETY AND HEALTH

An introduction to OSH including typical health and safety responsibilities, laws and regulations, survey of analytical methods, workplace hazards, special topics (fire protection and technology, toxicology, protective devices), and OSH management.

Credit : 3 units

Prerequisite : IE141P

IE147P. RISK ANALYSIS AND MANAGEMENT

This course focuses on risk assessment and management while integrating risk, cost and benefits into a comprehensive policy support assessment. This is accompanied by a laboratory course.

Credit : 3 units

Prerequisites : IE141P, IE151-2

IE148P. COGNITIVE ENGINEERING

This course covers cognitive ergonomics which includes topics on nervous system, responding to stimuli, information processing and other aspects human cognition. This includes discussion on models, processes, and characteristics of human cognition. This is accompanied by a laboratory course

Credit : 3 units

Prerequisite : IE141P

IE149. JOB EVALUATION AND COMPENSATION PLANNING

This will cover job evaluation concepts and principles, conduct of job analysis, job description writing, job rating methods and classification, job pricing and design of salary/wage structure. This will also include administering salary/wages and trends in compensation management.

Credit : 3 units

Prerequisite : IE151-2

IE151-1. PRODUCTION SYSTEMS 1

An introduction to operations management and control systems, operations strategy and decision making, product and service design, process selection, capacity planning, introduction to facilities layout and location planning and design of work system.

Credit : 3 units

Prerequisites : IE103P, IE123, IE181, IE40, IE123X

IE151-2. PRODUCTION SYSTEMS 2

Covers supply chain management, inventory management and equipment (deterministic and probabilistic models), aggregate planning, materials requirements planning, scheduling, enterprise resource planning, just-in time systems and lean manufacturing , emphasis in doing the production planning and control design.

Credit : 3 unit

Prerequisite : IE151-1

IE151-2X, PRODUCTION AND OPERATIONS RESEARCH EXIT EXAM

This course includes a set of examinations covering the topics on LP formulation, time value of money, inventory management, MRP scheduling, market analysis, queuing analysis and decision analysis

Credit : 0 units

Prerequisites : IE40, IE181, IE182P, IE151-1

Corequisites : IE151-2, IE153-1

IE152P. FACILITIES PLANNING AND DESIGN

An introduction to facility design, product and equipment analysis, process and material flow analysis, traditional approaches to facility layout, models and the layout problem, algorithms for the layout problem, materials handling storage and warehousing and models for the location problems. This is accompanied by a laboratory course that will cover computer applications of theories discussed in the facilities planning and design lecture.

Credit : 3 units

Prerequisites : IE151-2, IE141P, IE151-2X

Co-requisites : IE184P

IE153-1. PROJECT FEASIBILITY 1

This covers discussion on the technical and marketing phase of project feasibility. Included also in this course is field inspection of a chosen project undertaken by the group and gathering of pertinent information about the project from actual operation to determine market feasibility.

Credit : 2 units

Prerequisites : IE151-1

IE153-2. PROJECT FEASIBILITY 2

Covers the financial economic and socio-economic phases of project feasibility studies. Included also in this course is field inspection of a chosen project undertaken by the group and gathering of pertinent information about the project from actual operation to determine technical, socio-economic, management and financial feasibility

Credit : 2 units

Prerequisite : IE153-1

IE154P. INFORMATION SYSTEMS

This covers concepts and frameworks of information systems, analysis and design of information systems. It also provides opportunity to work on analysis and design of Information Systems. This covers implementation considerations in information systems design and relational database systems. This is accompanied by a laboratory course.

Credit : 3 units

Prerequisites : IE133, CS10-1L, 4th Year Standing (IE)
EMG171, 3rd Year Standing (SEM)

IE155. SYSTEMS ENGINEERING

This covers total systems design; integration of sub-systems with concentration on optimal total systems implementation

Credit : 2 units

Prerequisite : IE152P, IE154P (BS IE)
EMG153, EMG153L,
IE166, IE154P SVM131,
SVM141, SVM151, SVM161, SVM171,
SVM181, SVM191, SVM192, (BS SEM)

IE155F. SYSTEMS ENGINEERING FIELD

This is a course that accompanies IE155 and is a project and case study oriented.

Credit : 1 unit

Prerequisite : IE152P, IE154P (BS IE)
EMG153, EMG153L,
IE166, IE154P SVM131,
SVM141, SVM151, SVM161, SVM171,
SVM181, SVM191, SVM192, (BS SEM)

Co-requisite : IE155

IE166. STRATEGIC PLANNING AND MANAGEMENT

Focuses on helping organizations optimize their resources so they can better achieve their strategic goals. Typical areas include corporate planning, organization diagnosis, policy analysis, strategic formulation, strategy implementation, evaluation and control and strategic issues.

Credit : 3 units
Prerequisites : IE151-2, IE116 (BS IE)
EMG151, IE40, IE116 (BS SEM)

IE176. LEAN MANUFACTURING

Focuses lean manufacturing practices and its impact on manufacturing operations including cost analysis.

Credit : 3 units
Prerequisite : IE151-2

IE176-1. LEAN MANUFACTURING

Focuses lean manufacturing practices and its impact on manufacturing operations including cost analysis.

Credit : 3 units
Prerequisite : 4th Year Standing for MfgE

IE180L. IE COMPUTER APPLICATIONS LABORATORY

Covers computer applications for Process Flow, Accounting, Advanced Mathematics, Statistics, Statistical Quality Control, and Methods Engineering.

Credit : 1 unit
Prerequisites : IE122, IE132P, IE40 (BS IE)
EMG181 (BS SEM)
Co-Requisites : IE122 (BS SEM)

IE181. OPERATIONS RESEARCH 1

An introductory course to the field of operations research and planning. Topics include model building, the varied aspects of linear programming, duality and sensitivity analysis, goal programming and integer programming, transportation and assignment method, PERT, CPM, and other network scheduling techniques.

Credit : 3 units
Prerequisite : IE121, IE50

IE182P. OPERATIONS RESEARCH 2

An introduction to some probabilistic models to include queuing theory and its applications; decision analysis, game theory, Markov analysis, dynamic programming and an introduction to non-linear programming. This is accompanied by a laboratory course.

Credit : 4 units
Prerequisite : IE181

IE183. STOCHASTIC PROCESS IN ENGINEERING

This covers the elements of stochastic processes. Queuing theory and decision models. Markov chains, renewal theory and its applications to engineering problems.

Credit : 3 units
Prerequisites : IE182P

IE184P. SYSTEMS SIMULATION

A course on simulation of complex discrete-event systems with applications in manufacturing and service organizations. It includes random number and variate generation, input distribution modeling, and statistical analysis of simulation output. This is accompanied by a laboratory course for the computer applications.

Credit : 2 units
Prerequisites : CS10-1L, IE151-2, IE183

IE186P. LOGISTICS AND SUPPLY CHAIN MANAGEMENT

This course focuses primarily on both quantitative and qualitative issues which arise in the integrated design and management of the entire logistics network and distribution systems. Models and solutions techniques for facility location and logistics network design will be considered. In addition, qualitative issues in distribution network structuring, centralized vs. decentralized network control, variability in the supply chain, strategic partnerships, and product design for logistics will be considered through discussions and cases. This is accompanied by a laboratory course.

Credit : 3 units
Prerequisites : IE184P and IE151-2 (BS IE)
EMG151, EMG182, 4th Year Standing
(BS SEM)

IE187P. MULTICRITERIA DECISION MAKING

This covers the different decision making strategies, the process, evaluation and applications of multicriteria decision making (MCDM). This is accompanied by a laboratory course to cover computer applications of MCDM.

Credit : 3 units
Prerequisites : IE183, IE40

IE188. ADVANCED OPERATIONS RESEARCH

Focuses on advanced topics in operations research to include non-linear optimization, probabilistic, and case analysis. This is accompanied by a laboratory course.

Credit : 3 units
Prerequisite : IE182P

IE196. SPECIAL TOPICS IN IE

This course covers high technology industrialization and other technical development techniques in the field of industrial engineering. This allows flexibility in offering courses under the IE curriculum

Credit : 3 units
Prerequisites : IE151-2, 4th Year Standing

IE197. SPECIAL PROBLEMS IN IE

This course covers advances in the field of industrial engineering. This allows flexibility in offering courses under the IE curriculum. This course provides for opportunity to work on applications in the field of industrial engineering

Credit : 3 units
Prerequisites : IE151-2, 4th Year Standing

IE200L. THESIS 1

This is a course covering the development of an approved thesis topic. Students are expected to apply concepts, tools and techniques, and research methodologies.

Credit : 1 unit

Prerequisites : IE152P, IE155, IE155F, IE184P,
RES100-8

IE200-1L. THESIS 2

This is a continuation of Thesis 1 where students are expected to have achieved a significant development from the approved thesis topic.

Credit : 1 unit

Prerequisite : IE200L

IE200-2L. THESIS 3

This is the last of the three thesis courses where students are expected to submit a written documentation of the research study as well as a oral defense in front of a panel.

Credit : 1 unit

Prerequisite : IE200-1L

IE191F. SEMINARS AND PLANT VISIT

A course which deals with topics of special concern that will be needed for future responsibilities. Resource Persons are invited from industry to share real world scenarios. Supplemental to the course is the conduct of visit to industrial firms and plants.

Credit : 1 unit

Prerequisites : IE200L, 4th Year Standing

IE198D. APPLIED IE

This is an integration course covering the application of major industrial engineering courses. Emphasis is placed on cases and problems related to industrial engineering practice.

Credit : 2 units

Prerequisites : IE152P, IE155, IE155F, IE184P

IE199R. ON-THE-JOB TRAINING

This is industry immersion program to provide exposure to graduating students and let them synthesize all the theories, concepts and practices in the field of industrial engineering.

Credit : 3 units

Prerequisites : IE155F, IE152P, IE184P,
For graduating students only

RES100-8. METHODS OF RESEARCH

Nature and characteristics of research, the general approach to research studies, the process and methodologies of research as applied to engineering; elements of technical writing as applied to the preparation of reports, proposals and theses; writing of a research proposal.

Credits : 2 units

Prerequisite : IE124, IE182P,

4th Year Standing (BSIE)

IE122, EMG182,

4th Year Standing (BSSEM)

SVM101. INTRODUCTION TO SERVICE MANAGEMENT

This course is an introduction to the management of services. The general classification of services will be discussed.

Credit : 3 units

Prerequisite : 3rd Year Standing

SVM125. SERVICE QUALITY

A course which tackles Service Quality for professionals in financial services, human resource departments and other areas that use metrics such as time, defect rates, and revenue data.

Credit : 3 units

Prerequisite : SVM101, IE125-0

SVM131. FOOD SERVICE MANAGEMENT

This course discusses in detail the issues in basic food creation, storage, and delivery. Discussions on the use of facilities planning tools and statistical tools will be covered.

Credit : 2 units

Corequisite : SVM125

Prerequisites : SVM101, EMG151

SVM141. RETAIL MANAGEMENT

This course covers retail management operations and practices.

Credit : 2 units

Corequisite : SVM125

Prerequisites : SVM101, EMG151

SVM151. HEALTHCARE SYSTEMS

This course focuses on the problems currently faced in the area of health care management, which also covers public health care. The application of IE tools, such as methods improvement and optimization will be tackled in the context of these two services.

Credit : 2 units

Prerequisites : SVM125, EMG151

SVM161. TRANSPORTATION SYSTEMS

The course covers how transportation systems operate and best practices in the industry. This will also cover specific tools and techniques that may be applied to achieve better operations.

Credit : 2 units

Prerequisites : SVM125, EMG151

SVM171. BUSINESS PROCESS OUTSOURCING SYSTEMS

The course which deals with the transfer of specified key activities relating to sourcing and supplier management to a third party — perhaps to reduce overall costs or maybe to tighten the company's focus on its core competencies.

Credit : 2 units

Prerequisites : SVM125, EMG151

SVM181. BANKING AND FINANCIAL SYSTEMS

This course covers banking operations and practices of different financial institutions. The emphasis of the course is more on operations and its products

Credit : 2 units

Prerequisites : SVM125, EMG151

SVM191. HOSPITALITY MANAGEMENT

This course covers hotel, resort and mall operations, cruise ships, convention centers, international tourism industry, competition, ecotourism, sustainable development theory

Credit : 2 units

Prerequisites : SVM125, EMG151

SVM192. PROPERTY MANAGEMENT

This course covers effective management of commercial, residential, industrial and recreational property

Credit : 2 units

Prerequisites : SVM125, EMG151