

PROGRAM	No.	CLASSIFICATION	COURSE TITLE	CREDITS	GRADUATE OPTION	GRADUATE OPTION 2	FACULTY	TERM	YEAR
IE	503	Grad level	Thesis	1-16			All IE Graduate Faculty	All	All
IE	505	Grad level	Reading & Conference	1-16			Various	Department approval	Department approval
IE	506	Grad level	Projects	1-16			Various	Department approval	Department approval
IE	507	Grad level	Seminar	1			FUNK	Winter	All
IE	511	400/500 slash course	Visual Programming for Industrial Applications	4	ISE		PORTER	Fall	ODD
IE	512	400/500 slash course	Information Systems Engineering	4	ISE / MSE		PORTER	Fall	All
IE	515	400/500 slash course	Simulation and Decision Support Systems	4	HSE / MSE		KIM	Winter	All
IE	518	400/500 slash course	Telecommunication Concepts	3	ISE		PORTER	Fall	EVEN
IE	519	400/500 slash course	Wireless Networks	3	ISE		PORTER	Winter	ODD
IE	521	Grad level	Industrial Systems Optimization I	3	MSE		LOGENDRAN	Fall	EVEN
IE	522	Grad level	Industrial Systems Optimization II	3	MSE		KIM	Fall	ODD
IE	545	Grad level	Human Factors Engineering	4	HSE		FUNK	Fall	All
IE	546	Grad level	Human-machine Systems Engineering (Course no longer offered (See IE 599 ST/Human Factors Engineering II))	3	HSE				
IE	548	Grad level	Cognitive Engineering (Course no longer offered (See IE 599 ST/Human Factors Engineering II))	3	HSE				
IE	552	Grad level	Design of Industrial Experiments	3	Core IE Course / AM		KIM	Winter	All
IE	553	Grad level	Design of Industrial Experiments II	3	AM / HSE / ISE / MSE		KIM	Fall	EVEN
IE	563	Grad level	Advanced Production Planning and Control	3	Core IE Course / MSE		VERGARA	Winter	All
IE	564	Grad level	Design and Scheduling of Cellular Manufacturing Systems	3	MSE		LOGENDRAN	Fall	ODD
IE	570	400/500 slash course	Management Systems Engineering	4	EM/HSE		ESEONU	Winter	All
IE	571	400/500 slash course	Project Management in Engineering	3	EM / HSE		CALVO	Winter	All
IE	575	Grad level	Systems Thinking Theory and Practice	4	HSE / MSE		CALVO	Winter	All
IE	581	Grad level	Operations Management (E-CAMPUS)	4	EM / HSE		CALVO	Spring	All
IE	582	Grad level	Intro to Management for Engineers and Scientists (E-CAMPUS)	4	EM / HSE		ESEONU	All	All
IE	583	Grad level	Advanced Engineering Economic Analysis (E-CAMPUS)	4	EM / HSE		NG	Summer	All
IE	584	Grad level	Systems Engineering (E-CAMPUS)	4	EM / HSE		CALVO	Spring	All
IE	585	Grad level	Legal Aspect of Engineering Management (E-CAMPUS)	3	EM / HSE		NG	Summer	All
IE	586	Grad level	Project Risk Management (E-CAMPUS)	4	EM / HSE		NG	Fall	All
IE	587	Grad level	Management of Information Systems (E-CAMPUS)	4	EM / HSE		PORTER	Winter	All
IE	588	Grad level	Management of New Product Development (E-CAMPUS / Under development, See IE 599)	4	EM / HSE		NG	Winter	All
IE	589	Grad level	Professional Responsibility and Ethics (E-CAMPUS)	3	EM / HSE		NG	Spring	All
IE	590	Grad level	Strategic Planning (E-CAMPUS / Under development, See IE 599)	4	EM / HSE		CALVO	Summer	All
IE	594	Grad level	Research Methods in Engineering	3	ALL		NG	Spring	All
IE	599	Grad level	ST / Health Systems Engineering	3	HSE		ESEONU	Spring	EVEN
IE	599	Grad level	ST / Human Factors / Ergonomics in Healthcare	4	HSE		ZHU	Spring	EVEN
IE	599	Grad level	ST / Design of Human Factors / Ergonomics Experiments	4	HSE		ZHU	Spring	ODD
IE	599	Grad level	ST / Human Factors Engineering II	3	ISE		PORTER	Fall	EVEN
IE	599	Grad level	ST / Introduction to Data Mining	3	ISE		PORTER	Fall	EVEN
IE	599	Grad level	ST / Integer Programming	3	MSE		VERGARA	Spring	EVEN

updated July 2017

IE	599	Grad level	ST / Network Models and Analysis	3	MSE		VERGARA	Spring	ODD
IE	599	Grad level	ST / Human Analytics & Behavioral Operations	3	MSE / HSE		NEMBARD, D	Fall	ODD
IE	603	Grad level	Thesis	1-16	ALL		All IE Graduate Faculty	All	All
IE	605	Grad level	Reading and conference	1-16			Various	Department approval	Department approval
IE	606	Grad level	Projects	1-16			Various	Department approval	Department approval
MATS	509	Grad level	MATERIALS SCIENCE SEMINAR (Taught as ME 507 SEM / MATERIALS SCIENCE)	1	MATS / MM		GIBBONS	ALL	All
MATS	545	400/500 slash course	WELDING METALLURGY	4	MATS / MM		TUCKER	Spring	All
MATS	555	400/500 slash course	EXPERIMENTAL TECHNIQUES IN MATERIAL SCIENCE	4	MATS / MM		XU	Winter	ODD
MATS	570	Grad level	STRUCTURE PROPERTY RELATIONS IN MATERIALS	4	AM / MATS		GIBBONS	Fall	All
MATS	571	Grad level	ELECTRONIC PROPERTIES OF MATERIALS	4	MATS		CANN	Winter	EVEN
MATS	578	400/500 slash course	THIN FILM MATERIALS CHARACTERIZATION AND PROPERTIES	4	MATS		GIBBONS	Winter	EVEN
MATS	581	Grad level	THERMODYNAMICS OF SOLIDS	4	MATS		SANTALA	Winter	All
MATS	582	Grad level	RATE PROCESSES IN MATERIALS	4	MATS		WARNES	Spring	All
MATS	584	Grad level	ADVANCED FRACTURE OF MATERIALS (See ME 585)	4	MATS / MM				
MATS	585	Grad level	Fatigue of Materials	4	MATS / MM				
MATS	587	Grad level	DISLOCATIONS, DEFORMATION, AND CREEP	4	MATS / MM				
MATS	588	Grad level	COMPUTATIONAL METHODS IN MATERIALS SCIENCE	4	MATS		XU	Spring	All
MATS	599	Grad level	ST / PRINCIPLES OF TRANSMISSION ELECTRON MICROSCOPY	4	MATS		SANTALA	Spring	ODD
MATS	671	Grad level	ELECTRONIC PROPERTIES OF OXIDES	4	MATS		CANN	Fall	ODD
ME	501	Grad level	Research	1-16			Various	Department approval	Department approval
ME	502	Grad level	Independent Studies	1-16			Various	Department approval	Department approval
ME	503	Grad level	Thesis	1-16	ALL		All ME Graduate Faculty	All	All
ME	505	Grad level	Reading and conference	1-16			Various	Department approval	Department approval
ME	506	Grad level	Projects	1-16			Various	Department approval	Department approval
ME	507	Grad level	Sem / Materials Science	1			GIBBONS	Fall/Winter/Spring	All
ME	507	Grad level	Sem / Thermal Fluid Science	1			NIEMEYER	Fall/Winter/Spring	All
ME	507	Grad level	Sem / Design	1			DuPONT	Fall and Winter	All
ME	507	Grad level	Sem / Marine Forum	1			BATTEN	Fall/Winter/Spring	All
ME	511	Grad level	Precision Machine Design	3	AM / DES				
ME	512		Design of Mechanisms	4	AM / DES / MM		CAMPBELL	Spring	All
ME	513	Grad level	Bio-Inspired Design	4	DES		STONE	Spring	ODD
ME	515	Grad level	Risk & Reliability Analysis in Engr Design	4	AM / DES / MSE		TUMER, I		
ME	516	Grad level	Modeling and Analysis of Complex Systems	4	DES		TUMER, I	Winter	EVEN
ME	517	Grad level	Optimization in Design	3	AM / DES / MSE		HOYLE	Fall	All
ME	519	Grad level	ST/ Decision-Based Design	4	DES		HOYLE	Spring	EVEN
ME	519	Grad level	ST/ Sustainable Product Development (will be numbered ME 613)	4	DES		DuPONT	Spring	EVEN
ME	519	Grad level	ST / Human-in-the-Loop Design		DES		DEMERIL		
ME	519	Grad level	ST / Design for Manufacture		DES		DuPONT	Spring	ODD
ME	611-618	Grad level	(Additional courses taught by MIME's Design faculty)		DES				

ME	520	400/500 slash course	Applied Stress Analysis	4	MM / MATS		ALBERTANI	Fall	All
ME	521	Grad level	Linear Elasticity	4	MM / MATS		PARMIGIANI	Winter	EVEN
ME	522	400/500 slash course	Mechanical Vibrations	4	MM		SQUIRES	Winter	All
ME	523	Grad level	Advanced Stress Analysis	4	MM		PARMIGIANI	Winter	ODD
ME	524	400/500 slash course	Finite Element Modeling of Mech Engr Sys	3	MM		BAY	Spring	EVEN
ME	526	Grad level	Numerical Methods for Engineering Analysis	3	TFS		APTE	Varies (usually Fall)	All
ME	531	Grad level	Linear Multivariable Control Systems I	4	R&C		HATTON	Fall	EVEN
ME	532	Grad level	Linear Multivariable Control Systems II	4	R&C				
ME	533	Grad level	Nonlinear Dynamic Analysis	4	R&C/MM		BALASUBRAMANIAN	Winter or Spring	ODD
ME	534	Grad level	Nonlinear Multivariable Control Systems		R&C				
ME	540	Grad level	Intermediate Thermodynamics	4	TFS		HAGEN	Spring	All
ME	541	Grad level	Liquid-Vapor Phase Change and Heat Transfer	3	TFS		FRONK	Spring	All
ME	543	400/500 slash course	Renewable Energy TFS	4	TFS		LIBURDY	Spring	EVEN
ME	544	400/500 slash course	Advanced Power Generation Systems	4	TFS				
ME	545	400/500 slash course	Intro to Combustion	4	TFS		BLUNCK	Winter	All
ME	546	Grad level	Convection Heat Transfer	3	TFS		GESS	Spring	EVEN
ME	547	Grad level	Conductive Heat Transfer	3	TFS		GESS	Spring	ODD
ME	550	400/500 slash course	Applied Heat Transfer	4	TFS		MacCARTY	Winter	All
ME	552	Grad level	Measurements in Fluid Mech and Heat Transfer	4	TFS		BLUNCK	Winter	All
ME	553	400/500 slash course	Structure and Mechanics Lab	4	MM		BAY	Spring	All
ME	560	400/500 slash course	Intermediate Fluid Dynamics	4	TFS		LIBURDY	Fall	All
ME	561	400/500 slash course	Gas Dynamics	4	TFS		NIEMEYER	Fall	All
ME	564	Grad level	Turbulence Modelling	3	TFS		APTE	Spring	Odd
ME	565	Grad level	Incompressible Fluid Mech	3	TFS		LIBURDY	Fall	EVEN
ME	566	Grad level	Viscous Flow	3	TFS		LIBURDY	Fall	ODD
ME	567	Grad level	Engr Applications of CFD	4	TFS		PENCE	Winter	NOT 2017-18
ME	568	Grad level	Turbulent Flow Dynamics	4	TFS		LIBURDY	Spring	EVEN
ME	580	400/500 slash course	MATERIALS SELECTION	3	AM / DES / MATS / MM		BAY	Fall	All
ME	583	Grad level	Composite Materials	3	DES / MM / MATS		ALBERTANI	Winter	Even
ME	584	Grad level	ADVANCED FRACTURE OF MATERIALS (not same as ME 484)	4	MM / MATS		GREENE	Fall	All
ME	585	Grad level	Fatigue of Materials	4	MM / MATS				
ME	587	Grad level	Dislocations, Deformation, and Creep	4	MM / MATS				
ME	588	Grad level	COMPUTATIONAL METHODS IN MATERIALS SCIENCE	4	MATS		XU	Spring	All
ME	589	Grad level	ST in Materials	3	MATS				
ME	596	Grad level	ST in Thermodynamics	3					
ME	597	Grad level	Precision Motion Generation	4	AM / R&C		SENCER	Spring	ODD
ME	599	Grad level	ST / Computer Programming for Thermal-fluid Systems (NAME?)	4-Jan	TFS		NIEMEYER	Spring	EVEN
ME	601	Grad level	Research	1-16					
ME	603	Grad level	Thesis	1-16					

ME	605	Grad level	R & C	1-16					
ME	606	Grad level	Projects	1-16					
ME	607	Grad level	Seminar	1-16					
ME	611	Grad level	Modern Product Design	4	DES		Stone	Fall	All
ME	613	Grad level	Sustainable Product Design (Under Development)	4	DES		DuPONT	Winter	ODD
ME	615	Grad level	Design Under Uncertainty	4	DES		HOYLE	Spring	ODD
ME	617	Grad level	Design Automation	4	DES		CAMPBELL	Winter	All
ME	667	Grad level	Computational Fluid Dynamics	3	TFS		Apte	Winter or Spring	Odd
ME/NE	526	Grad level	Numerical Methods for Engineering Analysis	3	MM/TFS		Apte	Fall	All
MFGE	507	Grad level	Seminar \ Advanced Manufacturing	3	AM		PAUL	Fall / Winter / Spring	All
MFGE	511	Grad level	Precision Machine Design	3	AM / DES				
MFGE	531	Grad level	Micromanufacturing	4	AM		PAUL	Fall	All
MFGE	535	Grad level	Industrial Sustainability Analysis	3	AM		HAAPALA	Fall	All
MFGE	536	400/500 slash course	Lean Manufacturing Systems Engineering	4	AM / EM / HSE		ESEONU	Fall	All
MFGE	538	400/500 slash course	Composites Manufacturing	4	AM / MM		ALBERTANI	Fall	All
MFGE	599	400/500 slash course	ST / Additive Manufacturing	4	AM		PASEBANI	Winter	All
MFGE	599	Grad level	ST / Sensor Design for Manufacturing	3	AM		FAN	Spring	
ROB	501	Grad level	RESEARCH	1-16			Various	Department approval	Department approval
ROB	503	Grad level	THESIS	1-16			All ROB Graduate Faculty	All	All
ROB	505	Grad level	R&C	1-16			Various	Department approval	Department approval
ROB	506	Grad level	PROJECTS	1-16			Various	Department approval	Department approval
ROB	507	Grad level	SEMINAR	1-16			MENGUC	Fall / Winter / Spring	All
ROB	514	Grad level	INTRO TO ROBOTICS	4	R&C		SMART	Fall	All
ROB	521	400/500 slash course	APPLIED ROBOTICS	4	R&C		HURST	Spring	All
ROB	534	Grad level	SEQUENTIAL DECISION MAKING IN ROBOTICS	4	R&C		HOLLINGER	Winter	ODD
ROB	537	Grad level	LEARNING-BASED CONTROL	4	R&C		TUMER, K	Fall	ODD
ROB	538	Grad level	AUTONOMOUS AGENTS AND MULTI-AGENT SYSTEMS	4	R&C		TUMER, K	Fall	EVEN
ROB	541	Grad level	GEOMETRIC MECHANICS	4	R&C		HATTON	Fall	ODD
ROB	542	Grad level	ACTUATOR DYNAMICS	4	R&C		HURST	Winter	EVEN
ROB	562	Grad level	HUMAN CONTROL SYSTEMS	4	R&C		BALASUBRAMANIAN	Spring	ODD
ROB	564	Grad level	SOFT ROBOTICS	4	R&C		MENGUC	Spring	EVEN
ROB	567	Grad level	HUMAN ROBOT INTERACTION	4	R&C		GRIMM / ADAMS	Spring	EVEN
ROB	599	Grad level	Social Robotics (Will be taught as ROB 599 Fall 2017)	4	R&C		KNIGHT	Fall	ODD
ROB	599	Grad level	ST / Multiple Robot Systems	4	R&C		ADAMS	Fall	ODD
ROB	599	Grad level	ST / Mobile Robots	4	R&C		SMART	Spring	ODD
ROB	599	Grad level	ST / Ethics & Philos of Robotics	4	R&C			Winter	EVEN
ROB	599	Grad level	ST / Social Robotics (ROB 568)	4	R&C		KNIGHT	Fall	ODD
ROB	601	Grad level	RESEARCH	1-16					
ROB	603	Grad level	THESIS	1-16					

ROB	605	Grad level	R&C	1-16					
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