Subject	No	Code	Title	Faculty	First Admit Term			Previous Code	First Admit Term		
					After 2013-2014 ECTS TOTAL	After 2013-2014 ECTS Engineering	After 2013-2014 ECTS Basic Science		Before 2013-2014 ECTS TOTAL	Before 2013-2014 ECTS Engineering	Before 2013-2014 ECTS Basic Science
BIO	301	BIO301	Introduction to Molecular Biology	FENS	7.0	0.0	7.0	-	8	0.0	8.0
BIO	302	BIO302	Techniques in Molecular Bio.	FENS	0.0	0.0	0.0	-	0	0.0	0.0
BIO	303	BIO303	Genetics	FENS	7.0	2.0	5.0	-	6	1.7	4.3
BIO	304	BIO304	Biological Function and Structure	FENS	6.0	1.0	5.0	-	6	1.0	5.0
BIO	306	BIO306	Microbiology	FENS	7.0	0.0	7.0	-	8	0.0	8.0
BIO	308	BIO308	Plant Physiology	FENS	7.0	0.0	7.0	-	6	0.0	6.0
BIO	310	BIO310	Introduction to Bioinformatics	FENS	6.0	0.0	6.0	-	6	0.0	6.0
BIO	321	BIO321	Biochemistry I	FENS	7.0	0.0	7.0	-	8	0.0	8.0
BIO	322	BIO322	Biochemistry II	FENS	5.0	0.0	5.0	-	6	0.0	6.0
BIO	330	BIO330	Environmental Plant Biology	FENS	5.0	0.0	5.0	-	6	0.0	6.0
BIO	332	BIO332	Cell Biology	FENS	7.0	0.0	7.0	-	6	0.0	6.0
BIO	335	BIO335	Analytical Techniques	FENS	6.0	1.0	5.0	-	6	1.0	5.0
BIO	363	BIO363	Ecology	FENS	6.0	0.0	6.0	-	6	0.0	6.0
BIO	366	BIO366	Biophysics: Molecules and Sys.	FENS	0.0	0.0	0.0	-	0	0.0	0.0
BIO	370	BIO370	Mammalian Cell Culture	FENS	7.0	0.0	7.0	-	6	0.0	6.0
BIO	395	BIO395	Internship Project	FENS	5.0	5.0	0.0	-	2.0	2.0	0.0
BIO	401	BIO401	General Biotechnology	FENS	0.0	0.0	0.0	-	0	0.0	0.0
BIO	403	BIO403	Plant Pathology	FENS	5.0	0.0	5.0	-	6	0.0	6.0
BIO	404	BIO404	Plant Biotechnology	FENS	5.0	2.0	3.0	-	6	2.4	3.6
BIO	406	BIO406	Protein Engineering	FENS	6.0	3.0	3.0	-	8	4.0	4.0
BIO	407	BIO407	Multicellular Organization	FENS	5.0	0.0	5.0	-	6	0.0	6.0
BIO	409	BIO409	Mod&Simul.of Biomolecular Proc	FENS	5.0	2.5	2.5	-	6	3.0	3.0
BIO	410	BIO410	Evolution and Ecology	FENS	6.0	0.0	6.0	-	6	0.0	6.0
BIO	415	BIO415	Plant Nutrition	FENS	5.0	0.0	5.0	-	6	0.0	6.0
BIO	421	BIO421	Tissue Engineering	FENS	6.0	6.0	0.0	-	6	6.0	0.0
BIO	423	BIO423	Neurobiology	FENS	6.0	2.0	4.0	-	6	2.0	4.0
BIO	432	BIO432	Analytical Techniques	FENS	6.0	0.0	0.0	-	0	0.0	0.0
BIO	436	BIO436	Cancer Biology	FENS	6.0	2.0	4.0		6	2.0	4.0
BIO	444	BIO444	Bioengineering	FENS	6.0	4.0	2.0	-	6	4.0	2.0
BIO	445	BIO445	Plant Tissue Culture Techniques	FENS	7.0	3.0	4.0	-	6	2.6	3.4
BIO	446	BIO446	Biology of Aging	FENS	6.0	1.0	5.0	-	6	1.0	5.0
BIO	447	BIO447	Plant Breeding	FENS	5.0	0.0	5.0	-	6	0.0	6.0
BIO	452	BIO452	Immunology	FENS	6.0	0.0	6.0	-	6	0.0	6.0
BIO	466	BIO466	Biophysics: Molecules and Systems	FENS	6.0	1.0	5.0	-	6	1.0	5.0
BIO	467	BIO467	Signal Transduction	FENS	6.0	1.0	5.0	-	6	1.0	5.0
BIO	468	BIO468	Gene Regulation and Disease	FENS	6.0	2.0	4.0	-	6	2.0	4.0
BIO	480	BIO480	Spc.Top.in Bio.Sci.&Bioeng.	FENS	5.0	0.0	5.0	-	6	0.0	6.0
BIO	481	BIO481	Spc.Top.in Bio.Sci.&Bioeng.II	FENS	5.0	2.5	2.5	-	6	3.0	3.0
BIO	48006	BIO48006	Special Topics in BIO: Gene Regulation and Disease	FENS	6.0	2.0	4.0	-	6	2.0	4.0
CHEM	202	CHEM202	Chemical Kinetics	FENS	7.0	2.0	5.0	MAT202	7	2.0	5.0
CHEM	301	CHEM301	Inorganic Chemistry	FENS	6.0	1.0	5.0	-	6	1.0	5.0
CHEM	302	CHEM302	Analytical Chemistry	FENS	7.0	2.0	5.0	-	8	2.3	5.7
CHEM	369	CHEM369	Chem. of Transformable Mtrls.	FENS	6.0	3.0	3.0	-	6	3.0	3.0

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CHEM	405	CHEM405	Electrochemistry	FENS	6.0	2.0	4.0	-	6	2.0	4.0
CS	201	CS201	Introduction to Computing	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	202	CS202	Data Structures	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	204	CS204	Advanced Programming	FENS	6.0	6.0	0.0	-	6	6.0	0.0
DSA	210	DSA210	Introduction to Data Science	FENS	6.0	4.0	2.0	-	6	4.0	2.0
CS	300	CS300	Data Structures	FENS	6.0	5.0	1.0	-	6	5.0	1.0
CS	301	CS301	Algorithms	FENS	6.0	5.0	1.0	-	6	5.0	1.0
CS	302	CS302	Formal Languages and Automata Theory	FENS	6.0	4.0	2.0	-	6	4.0	2.0
CS	303	CS303	Logic and Digital System Design	FENS	7.0	6.0	1.0	-	8	6.9	1.1
CS	305	CS305	Programming Languages	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	306	CS306	Database Systems	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	307	CS307	Operating Systems	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	308	CS308	Software Engineering	FENS	7.0	7.0	0.0	-	8	8.0	0.0
CS	395	CS395	Internship Project	FENS	5.0	5.0	0.0	-	2.0	2.0	0.0
CS	310	CS310	Mobile Computing	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	400	CS400	Logic in Computer Science	FENS	6.0	3.0	3.0	-	6	3.0	3.0
CS	401	CS401	Computer Architectures	FENS	6.0	6.0	0.0	-	8	8.0	0.0
CS	402	CS402	Compiler Design	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	403	CS403	Distributed Systems	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	404	CS404	Artificial Intelligence	FENS	6.0	4.0	2.0	-	6	4.0	2.0
CS	405	CS405	Computer Graphics	FENS	6.0	4.0	2.0	-	6	4.0	2.0
CS	406	CS406	Parallel Computing	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	407	CS407	Theory of Computation	FENS	6.0	4.0	2.0	-	6	4.0	2.0
CS	408	CS408	Computer Networks	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	411	CS411	Cryptography	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	412	CS412	Machine Learning	FENS	6.0	4.0	2.0	-	6	4.0	2.0
CS	414	CS414	Network Science	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	415	CS415	Introduction to deep learning	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	419	CS419	Digital Image and Video Analysis	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	432	CS432	Computer and Network Security	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	436	CS436	Cloud Computing	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	437	CS437	Cybersecurity Practices and Applications	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	438	CS438	Blockchain: Security and Applications	FENS	6.0	6.0	0.0		6	6.0	0.0
CS	439	CS439	Software Verification and Validation	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	442	CS442	Software Design Patterns	FENS	6.0	6.0	0.0		6	6.0	0.0
CS	445	CS445	Natural Language Processing	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	447	CS447	Immersive Systems Development	FENS	6.0	3.0	3.0	-	6	3.0	3.0
CS	449	CS449	Human Computer Interaction	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	450	CS450	Arts and Computing	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	455	CS455	Large Language Models: Theoretical Foundations and Practical Applications	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	460	CS460	Automated Debugging	FENS	6.0	6.0	0.0	-	6	6.0	0.0

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CS	48000	CS48000	Special Topics in CS: Software Design Patterns	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	48001	CS48001	Special Topics in CS: Blockchain: Security and Applications	FENS	6.0	6.0	0.0	-	6.0	6.0	0.0
CS	48002	CS48002	Special Topics in CS: Network Science	FENS	6.0	6.0	0.0	-	6.0	6.0	0.0
CS	48003	CS48003	Special Topics in CS: Parallel Computer Architectures	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	48004	CS48004	Special Topics in CS: Agile Software Development	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	48006	CS48006	Special Topics in CS: Decentralized Finance	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	48007	CS48007	Special Topics in CS: Internet of Things Sensing System	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	48008	CS48008	Special Topics in CS: Malware Analysis and Detection	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	48010	CS48010	Special Topics in CS: Performance Analysis and Engineering	FENS	6.0	6.0	0.0	-	6	6.0	0.0
CS	512	CS512	Machine Learning	FENS	10.0	6.0	0.0	-	10	6.0	0.0
DSA	201	DSA201	Advanced Programming for Data Science	FENS	6.0	3.0	3.0	-	6.0	3.0	3.0
DSA	301	DSA301	Data Visualization	FENS	6.0	3.0	0.0	-	6.0	3.0	0.0
DSA	428	DSA428	Big Data Processing	FENS	6.0	6.0	0.0	-	6.0	6.0	0.0
DSA	395	DSA395	Internship Project	FENS	5.0	5.0	0.0	-	5.0	5.0	0.0
DSA	440	DSA440	Data and Artificial Intelligence (AI) Ethics	FENS	6.0	6.0	0.0		6.0	6.0	0.0
DSA	473	DSA473	Time Series and Forecasting Models	FENS	6.0	4.0	2.0	-	6.0	4.0	2.0
DSA	492	DSA492	Graduation Project	FENS	5.0	0.0	0.0	-	5	0.0	0.0
EE	200	EE200	Electronic Circuit Implementations	FENS	2.0	2.0	0.0	-	2	2.0	0.0
EE	202	EE202	Electronic Circuits II	FENS	6.0	6.0	0.0	EL202	8	8.0	0.0
EE	301	EE301	Electromagnetics II	FENS	6.0	6.0	0.0	TE305	6	6.0	0.0
EE	302	EE302	Digital Integrated Circuits	FENS	6.0	6.0	0.0	EL302	8	8.0	0.0
EE	303	EE303	Analog Integrated Circuits	FENS	6.0	6.0	0.0	EL303	6	6.0	0.0
EE	306	EE306	Intr.to Radio Freq&Microw Des.	FENS	6.0	6.0	0.0	EL306	6	6.0	0.0
EE	307	EE307	Semiconductor Physics and Devices	FENS	6.0	4.0	2.0	EL204	6	4.0	2.0
EE	308	EE308	Microcomputer Based Sys Design	FENS	7.0	7.0	0.0	EL308	8	8.0	0.0
EE	310	EE310	HW Description Languages	FENS	6.0	6.0	0.0	EL310	8	8.0	0.0
EE	311	EE311	Introduction to Signal Processing and Information Systems	FENS	6.0	5.0	1.0	TE301	6	5.0	1.0
EE	312	EE312	Discrete Signals & Systems	FENS	6.0	5.0	1.0	TE302	6	5.0	1.0
EE	313	EE313	Introduction to Communication Systems	FENS	6.0	5.0	1.0	TE303	6	5.0	1.0
EE	314	EE314	Digital Communications	FENS	6.0	4.0	2.0	TE304	6	4.0	2.0
EE	395	EE395	Internship Project	FENS	5.0	5.0	0.0	-	2.0	2.0	0.0
EE	401	EE401	VLSI Systems Design I	FENS	6.0	6.0	0.0	EL401	8	8.0	0.0
EE	402	EE402	VLSI Systems Design II	FENS	6.0	6.0	0.0	EL402	6	6.0	0.0
EE	403	EE403	Optoelectronics	FENS	6.0	4.0	2.0	EL305	6	4.0	2.0
EE	404	EE404	Int. to Microelectromech. Sys.	FENS	6.0	6.0	0.0	EL404	6	6.0	0.0
EE	405	EE405	Communication Circuits Design	FENS	6.0	6.0	0.0	EL405	6	6.0	0.0
EE	406	EE406	Anten.&Propag.for Wireless Com	FENS	6.0	6.0	0.0	TE402	8	8.0	0.0
EE	407	EE407	Microelectronic Fabrication	FENS	6.0	6.0	0.0	EL407	6	6.0	0.0
EE	408	EE408	Modeling of Semicond. Devices	FENS	6.0	4.0	2.0	EL304	6	4.0	2.0
EE	409	EE409	Microwaves	FENS	6.0	6.0	0.0	TE401	6	6.0	0.0
EE	410	EE410	Information and Coding Theory	FENS	6.0	5.0	1.0	TE410	6	5.0	1.0

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EE	411	EE411	RF Integrated Circuits	FENS	6.0	6.0	0.0	-	6	6.0	0.0
EE	413	EE413	Wireless Communications	FENS	6.0	4.0	2.0	TE412	6	4.0	2.0
EE	414	EE414	Multimedia Communication	FENS	6.0	6.0	0.0	TE404	6	6.0	0.0
EE	415	EE415	Digital Speech&Audio Process.	FENS	6.0	6.0	0.0	TE405	6	6.0	0.0
EE	417	EE417	Computer Vision	FENS	6.0	5.0	1.0	TE407	8	6.7	1.3
EE	419	EE419	Signal Processing Design and Implementation	FENS	6.0	4.0	2.0	TE409	8	5.3	2.7
EE	440	EE440	Mixed-Signal Integrated Circuits	FENS	6.0	6.0	0.0	-	6	6.0	0.0
EE	444	EE444	Optics	FENS	6.0	5.0	1.0	EL444	6	5.0	1.0
EE	473	EE473	Biomedical Instrumentation	FENS	6.0	4.0	2.0	EL473	6	4.0	2.0
EE	48001	EE48001	Special Topics in EE: Nanoscale Integrated Circuit Design	FENS	6.0	6.0	0.0	-	6	6.0	0.0
EE	48002	EE48002	Special Topics in EE: Sensor Networks	FENS	6.0	6.0	0.0	-	6	6.0	0.0
EE	48004	EE48004	Special Topics in EE: Power Systems Analysis	FENS	6.0	6.0	0.0	-	6	6.0	0.0
EE	48008	EE48008	Special Topics in EE: Heterogeneous Computing and System-on-Chip Design	FENS	6.0	6.0	0.0	-	6	6.0	0.0
EE	48009	EE48009	Special Topics in EE: Machine Learning forCommunication Systems	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ENRG	322	ENRG322	Battery Science and Engineering	FENS	6.0	4.0	2.0	-	6	4.0	2.0
ENRG	420	ENRG420	Energy Systems Optimization	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ENRG	423	ENRG423	Electric Power Systems: Operation, Technology and Economics	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ENRG	424	ENRG424	Cell Design, Modelling and Battery Pack Development	FENS	6.0	3.0	3.0	-	6	3.0	3.0
ENRG	426	ENRG426	Battery Management Systems	FENS	6.0	3.0	3.0	-	6	3.0	3.0
ENS	201	ENS201	Electromagnetics I	FENS	6.0	4.0	2.0	-	6	4.0	2.0
ENS	202	ENS202	Thermodynamics	FENS	6.0	3.0	3.0	-	6	3.0	3.0
ENS	203	ENS203	Electronic Circuits I	FENS	6.0	6.0	0.0	-	8	8.0	0.0
ENS	204	ENS204	Mechanics	FENS	6.0	5.0	1.0	-	6	5.0	1.0
ENS	205	ENS205	Introduction to Materials Science I	FENS	6.0	4.0	2.0	-	6	4.0	2.0
ENS	206	ENS206	Systems Modeling and Control	FENS	6.0	3.0	3.0	-	6	3.0	3.0
ENS	207	ENS207	Introduction to Energy Systems	FENS	6.0	4.0	2.0	-	6	4.0	2.0
ENS	208	ENS208	Introduction to Manufacturing Systems	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ENS	209	ENS209	Introduction to Computer Aided Drafting and Solid Modeling	FENS	6.0	5.0	1.0	-	6	5.0	1.0
ENS	210	ENS210	Computational Biology	FENS	6.0	3.0	3.0	-	6	3.0	3.0
ENS	211	ENS211	Signals	FENS	6.0	3.0	3.0	-	6	3.0	3.0
ENS	214	ENS214	Dynamics	FENS	6.0	4.0	2.0	-	6	4.0	2.0
ENS	216	ENS216	Information Systems: A Historical Perspective	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ENS	222	ENS222	Intr.to:Bio.Cir.&Molec.Machin	FENS	6.0	2.0	4.0	-	6	2.0	4.0
ENRG	301	ENRG301	Energy Sys&Environment	FENS	6.0	3.0	3.0	ENS 301	6	3.0	3.0
ENS	302	ENS302	Technology and Society	FENS	5.0	5.0	0.0	-	6	6.0	0.0
ENS	303	ENS303	Introduction to Space Technology	FENS	6.0	4.0	2.0	-	6	4.0	2.0
ENS	309	ENS309	Computer Aided Engineering	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ENRG	315	ENRG315	Energy	FENS	5.0	2.0	3.0	ENS 315	6	2.4	3.6
ENS	409	ENS409	Numerical Analysis	FENS	6.0	4.0	2.0	CS409	6	4.0	2.0
ENS	410	ENS410	Advanced Solid Modeling Techniques	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ENS	413	ENS413	Experimental Methods in Nanoscience I	FENS	6.0	0.0	6.0	-	6	0.0	6.0

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ENS	414	ENS414	Experimental Methods in Nanoscience II	FENS	6.0	0.0	6.0	-	6	0.0	6.0
ENS	416	ENS416	Intr.to Scanning Probe Microsc	FENS	6.0	3.0	3.0	-	6	3.0	3.0
ENS	48000	ENS48000	Special Topics in FENS: Energy, Supply Chain, Economics ang Geopolitics	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ENS	48001	ENS48001	Special Topics in FENS: Materials Selection in Product Design	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ENS	48002	ENS48002	Special Topics in FENS: Analysis of Social Networks	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ENS	4803	ENS4803	Special Topics in FENS: Nanobiotechnology	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ENS	491	ENS491	Graduation Project (Design)	FENS	2.0	2.0	0.0	-	2	2.0	0.0
ENS	492	ENS492	Graduation Project(Implement.)	FENS	5.0	5.0	0.0	-	2	2.0	0.0
IE	303	IE303	Decision Economics	FENS	6.0	6.0	0.0	MS303	6	6.0	0.0
IE	304	IE304	Product.& Serv.Sys Plan&Design	FENS	6.0	6.0	0.0	MS304	6	6.0	0.0
IE	305	IE305	Simulation	FENS	6.0	5.0	1.0	MS305	6	5.0	1.0
IE	306	IE306	Ergonomics	FENS	5.0	5.0	0.0	MS306	6	6.0	0.0
IE	307	IE307	Work Analysis & Design	FENS	5.0	5.0	0.0	MS307	6	6.0	0.0
IE	309	IE309	Manufacturing Processes I	FENS	6.0	5.0	1.0	MS309	6	5.0	1.0
IE	311	IE311	Operations Research I	FENS	6.0	4.0	2.0	IE301	8	5	3
IE	398	IE398	Integrated Manufacturing Systems- Special Studies	FENS	1.0	1.0	0.0	-	1.0	1.0	0.0
IE	395	IE395	Internship Project	FENS	5.0	5.0	0.0	-	2.0	2.0	0.0

Subject	No	Code	Title	Faculty	First Admit Term			Previous Code	First Admit Term		
					After 2013-2014 ECTS TOTAL	After 2013-2014 ECTS Engineering	After 2013-2014 ECTS Basic Science		Before 2013-2014 ECTS TOTAL	Before 2013-2014 ECTS Engineering	Before 2013-2014 ECTS Basic Science
ENS	511	ENS511	Engineering Optimization	FENS	10.0	4.0	2.0	-	10	4.0	2.0
IE	312	IE312	Operations Research II	FENS	6.0	5.0	1.0	-	6	5.0	1.0
IE	313	IE313	Operations Research III	FENS	6.0	4.0	2.0	IE302	8	5.0	3.0
IE	401	IE401	Produc.&Service Sys.Operations	FENS	6.0	6.0	0.0	MS401	6	6.0	0.0
IE	402	IE402	Integrated Manufacturing Sys.	FENS	6.0	6.0	0.0	MS402	8	8.0	0.0
IE	403	IE403	Quality Planning & Control	FENS	6.0	6.0	0.0	MS403	6	6.0	0.0
IE	404	IE404	Digital Transformation	FENS	6.0	5.0	1.0		6.0	5.0	1.0
IE	405	IE405	Decision Analysis	FENS	6.0	6.0	0.0	MS405	6	6.0	0.0
IE	407	IE407	Investment Decision Making	FENS	6.0	6.0	0.0	MS407	6	6.0	0.0
IE	408	IE408	Reliability&Maintenance Analy.	FENS	6.0	6.0	0.0	MS408	6	6.0	0.0
IE	409	IE409	Project Scheduling & Managemen	FENS	6.0	6.0	0.0	MS409	6	6.0	0.0
IE	411	IE411	Modeling&Analysis of Large Sys	FENS	6.0	6.0	0.0	MS411	6	6.0	0.0
IE	412	IE412	Financial Engineering	FENS	6.0	6.0	0.0	MS412	6	6.0	0.0
IE	413	IE413	Informations Systems	FENS	5.0	5.0	0.0	MS413	6	6.0	0.0
IE	414	IE414	Manufacturing Strategies	FENS	6.0	6.0	0.0	MS414	6	6.0	0.0
IE	415	IE415	Decision Support Systems	FENS	6.0	6.0	0.0	MS415	6	6.0	0.0
IE	416	IE416	Additive Manufacturing	FENS	7.0	7.0	0.0	-	6	6.0	0.0
IE	417	IE417	Facilit.&Material Handling Des	FENS	6.0	6.0	0.0	MS417	6	6.0	0.0
IE	418	IE418	Manufacturing Processes II	FENS	6.0	6.0	0.0	MS418	6	6.0	0.0
IE	419	IE419	Total Quality Management	FENS	5.0	5.0	0.0	MS419	6	6.0	0.0
IE	420	IE420	Storage & Distribution Systems	FENS	6.0	6.0	0.0	MS420	6	6.0	0.0
IE	430	IE430	Logistics Sys&Plan. and Design	FENS	6.0	6.0	0.0	MS430	6	6.0	0.0
IE	432	IE432	Stochastic Models in Finance	FENS	6.0	4.0	2.0	MS432	6	4.0	2.0
IE	436	IE436	Monte Carlo Methods in Finance	FENS	6.0	4.0	2.0	MS433	6	4.0	2.0
IE	451	IE451	Data Visualization&Analysis	FENS	6.0	6.0	0.0	MS451	6	6.0	0.0
IE	454	IE454	Supply Chain Analysis	FENS	6.0	6.0	0.0	MS454	6	6.0	0.0
IE	471	IE471	Supply Chain Practice	FENS	5.0	5.0	0.0	-	5	5.0	0.0
IE	472	IE472	Strategic Decision Making Practice	FENS	5.0	5.0	0.0	-	5	5.0	0.0
IE	480	IE480	Spc.Top.Industrial Eng.	FENS	5.0	5.0	0.0	MS480	6	6.0	0.0
IE	481	IE481	Spc.Top.Industrial Eng.II	FENS	5.0	5.0	0.0	MS481	6	6.0	0.0
IE	482	IE482	Spc.Top.Industrial Eng.III	FENS	5.0	5.0	0.0	MS482	6	6.0	0.0
IE	48001	IE48001	Special Topics in IE: Managing New Product Development	FENS	5.0	5.0	0.0	-	5	5.0	0.0
IE	48002	IE48002	Special Topics in IE: Advanced statistics with R	FENS	6.0	2.0	4.0	-	6	2.0	4.0
IE	48003	IE48003	Special Topics in IE: Multi-axis Machining	FENS	6.0	6.0	0.0	-	6	6.0	0.0
IE	48004	IE48004	Special Topics in IE: Computer-Aided Biomodeling and Fabrication	FENS	6.0	6.0	0.0	-	6	6.0	0.0
IE	48005	IE48005	Special Topics in IE: Digital Manufacturing	FENS	6.0	6.0	0.0	-	6	6.0	0.0
IF	100	IF100	Computational Approaches to Problem Solving	FENS	5.0	5.0	0.0	-	5	5.0	0.0
IF	200	IF200	Fantasy,Reality,Sci.&Society	FENS	6.0	0.0	0.0	-	6	0.0	0.0
ENRG	401	ENRG401	Energy: Supply Chain, Economics and Geopolitics	FENS	6.0	3.0	0.0	IF 401	6	3.0	0.0
IF	301	IF301	Gender in Science and Technology	FENS	6.0	0.0	0.0	-	6	0.0	0.0
IF	333	IF333	Creativity, Innovation and Entrepreneurship	FENS	6.0	0.0	0.0	-	6	0.0	0.0

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IF	467	IF467	Decision, Psychology and Brain	FENS	6.0	5.0	1.0	-	6	5.0	1.0
IF	402	IF402	Sustainability and Circularity in Materials	FENS	6.0	2.0	0.0	-	6.0	2.0	0.02
MAT	204	MAT204	Electrical, Optical and Magnetic Properties of Materials	FENS	6.0	2.0	4.0	-	6	2.0	4.0
MAT	206	MAT206	Kinetics of Materials	FENS	6.0	5.0	1.0	-	6	5.0	1.0
MAT	302	MAT302	Polymer Synthesis	FENS	7.0	2.0	5.0	-	8	2.3	5.7
MAT	304	MAT304	Biopolymers	FENS	5.0	2.5	2.5	-	6	3.0	3.0
MAT	305	MAT305	Polymer Engineering I	FENS	5.0	4.0	1.0	-	6	4.8	1.2
MAT	306	MAT306	Computational Techniques for Materials Science	FENS	6.0	4.0	2.0	-	6	4.0	2.0
MAT	307	MAT307	Composite Materials	FENS	7.0	7.0	0.0	-	6	6.0	0.0
MAT	308	MAT308	Phase Equilibria	FENS	5.0	4.0	1.0	-	6	4.8	1.2
MAT	309	MAT309	Transport Phenomena in Materials Processing	FENS	6.0	6.0	0.0	-	6	6.0	0.0
MAT	310	MAT310	Chemical Processes for New Materials	FENS	5.0	4.0	1.0	-	6	4.8	1.2
MAT	312	MAT312	Materials Characterization	FENS	7.0	7.0	0.0	-	8	8.0	0.0
MAT	314	MAT314	Mechanical Properties of Materials	FENS	5.0	4.0	1.0	-	6	4.8	1.2
MAT	395	MAT395	Internship Project	FENS	5.0	5.0	0.0	-	2.0	2.0	0.0
MAT	401	MAT401	Surface Chemistry	FENS	6.0	2.0	4.0	-	6	2.0	4.0
MAT	402	MAT402	Polymer Engineering II	FENS	6.0	5.0	1.0	-	6	4.8	1.2
MAT	403	MAT403	Polymer Processes	FENS	5.0	4.0	1.0	-	6	4.8	1.2
MAT	404	MAT404	Polymer Physics	FENS	5.0	1.0	4.0	-	6	4.8	1.2
MAT	405	MAT405	Advanced Materials Characterization	FENS	7.0	2.0	5.0	-	8	2.3	5.7
MAT	406	MAT406	Introduction to Nanoscience	FENS	5.0	5.0	0.0	-	6	6.0	0.0
MAT	408	MAT408	Introduction to Ceramics	FENS	5.0	4.0	1.0	-	6	4.8	1.2
MAT	416	MAT416	Biomaterials Science and Biocompatibility	FENS	5.0	2.0	3.0	-	6	2.4	3.6
MAT	422	MAT422	Glass Science and Engineering	FENS	6.0	5.0	1.0	-	10	5.0	5.0
MAT	423	MAT423	Cement Chemistry and Technology	FENS	6.0	6.0	0.0	-	6	6.0	0.0
MAT	424	MAT424	Materials Selection in Product Design	FENS	6.0	6.0	0.0	-	6	6.0	0.0
MAT	480	MAT480	Spc.Top.in Mat.Scien&Eng.	FENS	5.0	5.0	0.0	-	6	6.0	0.0
MAT	481	MAT481	Spc.Top.in Mat.Scien&Eng.II	FENS	5.0	5.0	0.0	-	6	6.0	0.0
MAT	48000	MAT48000	Special Topics in Materials Science and Nanoengineering: Adhesion Science and Engineering	FENS	6.0	6.0	0.0	-	6	6.0	0.0
MAT	48003	MAT48003	Special Topics in MAT: Failure Analysis	FENS	6.0	6.0	0.0	-	6	6.0	0.0
MAT	48004	MAT48004	Special Topics in MAT: Polymer Matrix Composites	FENS	6.0	6.0	0.0	-	6	6.0	0.0
MAT	48005	MAT48005	Special Topics in MAT: Polymer Engineering/ Processing Fundamentals	FENS	6.0	6.0	0.0	-	6	6.0	0.0
MATH	101	MATH101	Calculus I	FENS	6.0	0.0	6.0	-	5	0.0	5.0
MATH	102	MATH102	Calculus II	FENS	6.0	0.0	6.0	-	5	0.0	5.0
MATH	201	MATH201	Linear Algebra	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	202	MATH202	Differential Equations	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	203	MATH203	Introduction to Probability	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	204	MATH204	Discrete Mathematics	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	206	MATH206	Vector Calculus	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	221	MATH221	History of Mathematics	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	301	MATH301	Introduction to Mathematical Analysis	FENS	6.0	0.0	6.0	-	6	0.0	6.0

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					After 2013-2014 ECTS TOTAL	After 2013-2014 ECTS Engineering	After 2013-2014 ECTS Basic Science		Before 2013-2014 ECTS TOTAL	Before 2013-2014 ECTS Engineering	Before 2013-2014 ECTS Basic Science
MATH	302	MATH302	Integration	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	305	MATH305	Complex Calculus	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	306	MATH306	Statistical Modelling	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	307	MATH307	Dynamical Systems	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	311	MATH311	Introduction to Algebra	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	317	MATH317	Elementary Number Theory	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	318	MATH318	Introduction to Combinatorics	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	322	MATH322	Partial Differential Equations	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	401	MATH401	Introduction to Functional Analysis	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	402	MATH402	Hilbert Space Techniques	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	405	MATH405	Numerical Methods	FENS	6.0	3.0	3.0	-	6	3.0	3.0
MATH	409	MATH409	Proofs from the Notebook	FENS	6.0	0.0	6.0	-	10	0.0	10.0
MATH	410	MATH410	Introduction to Stochastic Calculus	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	414	MATH414	Finite Fields and Applications	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	479	MATH479	Calculus of Variations	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	480	MATH480	Spc.Top.in Mathematics	FENS	6.0	3.0	3.0	-	6	3.0	3.0
MATH	481	MATH481	Special Topics in Advanced Linear Algebra	FENS	6.0	0.0	6.0	-	6	0.0	6.0
MATH	484	MATH484	Mathematical Introduction to Quantum Algorithms and Post-Quantum Cryptography	FENS	6.0	3.0	3.0	-	6	3.0	3.0
ME	301	ME301	Mechanical Systems I	FENS	6.0	5.0	1.0	-	6	5.0	1.0
ME	302	ME302	Mechanical Systems II	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ME	303	ME303	Control System Design	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ME	304	ME304	Motion Control Systems	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ME	305	ME305	Power Electronics	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ME	307	ME307	Fluid Dynamics	FENS	6.0	5.0	1.0	-	6	5.0	1.0
ME	308	ME308	Industrial Control	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ME	309	ME309	Heat and Mass Transfer	FENS	6.0	5.0	1.0	-	6	5.0	1.0
ME	310	ME310	Computer Aided Design	FENS	0.0	0.0	0.0	-	0	0.0	0.0
ME	312	ME312	Analysis and Synthesis of Mechanisms	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ME	395	ME395	Internship Project	FENS	5.0	5.0	0.0	-	2.0	2.0	0.0
ME	402	ME402	Plasmonics	FENS	6.0	5.0	1.0	-	6	5.0	1.0
ME	403	ME403	Introduction to Robotics	FENS	7.0	6.0	1.0	-	7	6.0	1.0
ME	405	ME405	Mechanical Vibrations	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ME	406	ME406	Robotics Systems Application	FENS	0.0	0.0	0.0	-	0	0.0	0.0
ME	407	ME407	Embedded Systems	FENS	6.0	5.0	1.0	-	6	5.0	1.0
ME	408	ME408	Mechatronics System Design	FENS	6.0	6.0	0.0	-	8	8.0	0.0
ME	409	ME409	Foundations of Microsystems	FENS	7.0	5.0	2.0	-	6	4.3	1.7
ME	410	ME410	Computer Aided Engineering	FENS	6.0	4.0	2.0	-	6	4.0	2.0
ME	411	ME411	Mechanical System Design	FENS	6.0	5.0	1.0	-	8	6.7	1.3
ME	412	ME412	Introduction to the Finite Element Method	FENS	6.0	3.0	3.0	-	6	3.0	3.0
ME	415	ME415	Computational Analysis and Simulation	FENS	6.0	3.0	3.0	-	6	3.0	3.0
ME	420	ME420	Renewable and Sustainable Energy Systems	FENS	6.0	5.0	1.0	-	6	5.0	1.0

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ME	425	ME425	Autonomous Mobile Robotics	FENS	6.0	5.0	1.0	-	6	5.0	1.0
ME	435	ME435	Scaling in Engineering Systems	FENS	6.0	4.0	2.0	-	6	4.0	2.0
ME	437	ME437	Biomechatronics	FENS	6.0	4.0	2.0	-	6	4.0	2.0
ME	441	ME441	Advanced Vehicle Systems	FENS	6.0	6.0	0.0	-	6	6.0	0.0
ME	480	ME480	Spc.Top.Manufact.Sys.Eng.	FENS	5.0	5.0	0.0	-	6	6.0	0.0
ME	480	ME480	Spc.Top.in Mechatronics I	FENS	6.0	4.0	2.0	-	6	4.0	2.0
ME	481	ME481	Spc.Top.Manufact.Sys.Eng.II	FENS	5.0	5.0	0.0	-	6	6.0	0.0
ME	481	ME481	Spc.Top.in Mechatronics II	FENS	6.0	3.0	3.0	-	6	3.0	3.0
ME	482	ME482	Spc.Top.Manufact.Sys.Eng.III	FENS	5.0	5.0	0.0	-	6	6.0	0.0
NS	101	NS101	Science of Nature I	FENS	6.0	0.0	6.0	-	6	0.0	6.0
NS	102	NS102	Science of Nature II	FENS	6.0	0.0	6.0	-	6	0.0	6.0
NS	200	NS200	Einstein's Relativity	FENS	5.0	0.0	5.0	-	6	0.0	6.0
NS	201	NS201	Discovering Life	FENS	6.0	1.0	5.0	-	6	1.0	5.0
NS	202	NS202	Biochemistry I	FENS	0.0	0.0	0.0	-	0	0.0	0.0
NS	204	NS204	Quantum Physics	FENS	0.0	0.0	0.0	-	0	0.0	0.0
NS	205	NS205	Dynamics of the Cell	FENS	0.0	0.0	0.0	-	0	0.0	0.0
NS	206	NS206	What is There in the Universe: Inside the Milky Way?	FENS	5.0	0.0	5.0	-	6	0.0	6.0
NS	207	NS207	Organic Chemistry	FENS	7.0	2.0	5.0	-	8	2.7	5.3
NS	208	NS208	General Biotechnology	FENS	5.0	2.0	3.0	-	6	2.4	3.6
NS	209	NS209	What is there in the Universe: "Beyond the Milky Way"	FENS	5.0	0.0	5.0	-	6	0.0	6.0
NS	210	NS210	Water: Its Physics, Nanophysics, Chemistry and Geopolitics	FENS	5.0	0.0	5.0	-	6	0.0	6.0
NS	212	NS212	Volcanoes, Earthquakes, Rocks (Understanding the Earth)	FENS	5.0	0.0	5.0	-	5	0.0	5.0
NS	213	NS213	Basic Concepts of Physics	FENS	6.0	0.0	6.0	-	6	0.0	6.0
NS	214	NS214	Oscillations, Waves and Optics	FENS	6.0	0.0	6.0	-	6	0.0	6.0
NS	216	NS216	Life on Earth	FENS	6.0	1.0	5.0	-	6	1.0	5.0
NS	218	NS218	Fundamentals of Nanoscience	FENS	6.0	2.0	4.0	-	6	2.0	4.0
ENRG	220	ENRG220	World Energy Outlook: The Coming Year	FENS	6.0	3.0	0.0	NS 220	6	3.0	0.0
NS	222	NS222	Planetary Systems and Extrasolar Planets	FENS	5.0	0.0	5.0	-	6	0.0	6.0
NS	223	NS223	Environmental Science	FENS	6.0	0.0	6.0	-	6	0.0	6.0
NS	224	NS224	Urban Agriculture	FENS	6.0	2.0	4.0	-	6	2.0	4.0
NS	48000	NS48000	Special Topics in NS: Astrobiology Fundamentals and Contemporary Research Topics	FENS	6.0	2.0	4.0	-	6	2.0	4.0
PHYS	211	PHYS211	Modern Physics	FENS	6.0	0.0	6.0	-	6	0.0	6.0
PHYS	302	PHYS302	Solid State Physics	FENS	6.0	0.0	6.0	-	6	0.0	6.0
PHYS	303	PHYS303	Quantum Mechanics I	FENS	6.0	0.0	6.0	-	6	0.0	6.0
PHYS	304	PHYS304	Quantum Mechanics II	FENS	6.0	0.0	6.0	-	6	0.0	6.0
PHYS	312	PHYS312	Classical Mechanics	FENS	6.0	0.0	6.0	-	6	0.0	6.0
PHYS	313	PHYS313	Quantum Mechanics Laboratory	FENS	6.0	3.0	3.0	-	6	3.0	3.0
PHYS	322	PHYS322	Concepts of Modern Physics	FENS	6.0	0.0	6.0	-	6	0.0	6.0
PHYS	401	PHYS401	Classical Mechanics	FENS	6.0	0.0	6.0	-	6	0.0	6.0
PHYS	411	PHYS411	Electromagnetic Theory I	FENS	6.0	0.0	6.0	-	6	0.0	6.0
PHYS	412	PHYS412	Statistical Mechanics	FENS	6.0	0.0	6.0	-	6	0.0	6.0

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PHYS	438	PHYS438	Phase Transitions and Renormalization-Group Theory	FENS	6.0	0.0	6.0	-	6	0.0	6.0
PHYS	484	PHYS484	Quantum Computation and Quantum Information	FENS	6.0	1.0	5.0	-	6	1.0	5.0
PHYS	492	PHYS492	Modern Topics in Condensed Matter Physics	FENS	6.0	0.0	6.0	-	6	0.0	6.0
PROJ	102	PROJ102	Project Course	FENS	2.0	1.0	1.0	-	6	3.0	3.0
PROJ	201	PROJ201	Project Course	FENS	1.0	1.0	0.0	-	1	1.0	0.0
PROJ	302	PROJ302	Summer Project	FENS	5.0	5.0	0.0	-	2	2.0	0.0