## MASTER OF COMPUTATIONAL ENGINEERING, OPTIMIZATION, MACHINE VISION, AND DECISION MAKING TRACK

## **Curriculum**

Code	Title	Cred	dit Hours
Core Courses			(9)
Select nine credit hours from the fol	lowing courses:		9
BME 522	Mathematical Methods in Biomedical Engineering	3	
BME 553	Advanced Quantitative Physiology	3	
CHE 506	Entrepreneurship and Intellectual Property Management	3	
CHE 536	Computational Techniques in Engineering	3	
ECE 505	Applied Optimization for Engineers	3	
ECE 511	Analysis of Random Signals	3	
ECE 566	Machine and Deep Learning	3	
MATH 577	Computational Mathematics I	3	
MATH 581	Finite Element Method	3	
MMAE 451	Finite Element Methods in Engineering	3	
MMAE 501	Engineering Analysis I	3	
MMAE 502	Engineering Analysis II	3	
Optimization, Machine Vision, and I	Decision Making Courses		(12)
Select 12 credit hours from the follo	wing courses:		12
ECE 501	Artificial Intelligence and Edge Computing	3	
ECE 510	Internet of Things and Cyber Physical Systems	3	
ECE 533	Robust Control	3	
ECE 535	Discrete Time Systems	3	
ECE 563	Artificial Intelligence in Smart Grid	3	
ECE 565	Computer Vision and Image Processing	3	
ECE 566	Machine and Deep Learning	3	
ECE 567	Statistical Signal Processing	3	
ECE 597	Special Problems	1-6	
Elective Courses			(9)
Select nine credit hours from the fol	lowing courses: 1		9
BME 445	Quantitative Neural Function	3	
BME 522	Mathematical Methods in Biomedical Engineering	3	
BME 523	Cell Biomechanics: Principles and Biological Processes	3	
BME 524	Quantitative Aspects of Cell and Tissue Engineering	3	
BME 525	Introduction to Medical Devices, BioMEMS and Microfluidics	3	
BME 538	Neuroimaging	3	
BME 553	Advanced Quantitative Physiology	3	
BME 597	Special Problems	1-6	
CAE 530	Finite Element Method of Analysis	3	
CAE 534	Computational Techniques in Finite Element Analysis	3	
CAE 535	Nonlinear Finite Element Analysis	3	
CAE 597	Special Problems	1-6	
CHE 536	Computational Techniques in Engineering	3	
CHE 439	Numerical and Data Analysis	3	
CHE 506	Entrepreneurship and Intellectual Property Management	3	
CHE 516/BME 517	Technologies for Treatment of Diabetes	3	

CHE 535 CHE 536	Applications of Mathematics to Chemical Engineering Computational Techniques in Engineering	3	
CHE 560	Statistical Quality and Process Control	3	
CHE 585	Drug Delivery	3	
CHE 597	Special Problems	1-6	
ECE 505	Applied Optimization for Engineers	3	
ECE 511	Analysis of Random Signals	3	
ECE 533	Robust Control	3	
ECE 535	Discrete Time Systems	3	
ECE 563	Artificial Intelligence in Smart Grid	3	
ECE 565	Computer Vision and Image Processing	3	
ECE 566	Machine and Deep Learning	3	
ECE 567	Statistical Signal Processing	3	
ECE 597	Special Problems	1-6	
MATH 577	Computational Mathematics I	3	
MATH 581	Finite Element Method	3	
MMAE 450	Computational Mechanics II	3	
MMAE 451	Finite Element Methods in Engineering	3	
MMAE 501	Engineering Analysis I	3	
MMAE 502	Engineering Analysis II	3	
MMAE 517	Computational Fluid Dynamics	3	
MMAE 518	Spectral Methods in Computational Fluid Dynamics	3	
MMAE 532	Advanced Finite Element Methods	3	
MMAE 570	Computational Methods in Materials Science and Engineering	3	
MMAE 594	Project for Master of Engineering Students	1-6	
MMAE 597	Special Topics	1-6	

Course must not have been used towards the core course or specialization course requirements.