MASTER OF COMPUTATIONAL ENGINEERING, BIOMEDICINE TRACK

Curriculum

Code	Title	Credit Hours
Core Courses		**(9)**
Select nine credit hours from the following 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
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
MMAE 532	Advanced Finite Element Methods	3
Biomedicine Courses		**(12)**
Select 12 credit hours from the following courses:		12
BME 445	Quantitative Neural Function	3
BME 523	Cell Biomechanics: Principles and Biological Processes	3
BME 524	Quantitative Aspects of Cell andTissue Engineering	3
BME 525	Introduction to Medical Devices, BioMEMS and Microfluidics	3
BME 538	Neuroimaging	3
BME 597	Special Problems	1-6
CHE 516	Technologies for Treatment of Diabetes	3
or BME 517	Technologies for Treatment of Diabetes	
CHE 585	Drug Delivery	3
ECE 565	Computer Vision and Image Processing	3
Elective Courses		**(9)**
Select nine credit hours from the following 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 andTissue 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	1-9
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	Applications of Mathematics to Chemical Engineering	3
CHE 536	Computational Techniques in Engineering	3

CHE 560	Statistical Quality and Process Control	3
CHE 585	Drug Delivery	3
CHE 597	Special Problems	1-9
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	1-9
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 597	Special Topics	1-9
Total Credit Hours		**30**

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