

Biomedical Systems: Advisor Dr. V. Jain

Mathematics/Statistics: 6 Hours (2 courses) elected from the following

EGN 5421 Engineering Applications of Vector Analysis
EGN 5422 Engineering Applications of Partial Differential Equations
EGN 5423 Neural Networks and Mathematics of Communication
EGN- 5425 Matrix Theory
EEL 6545 Random Processes in Electrical Engineering (**PR - mandatory - UG Statistics**)
PHC 6050 Bio-statistics I

Biomedical Systems Core: Minimum 12 Hours (4 courses) selected from the following

GM 7930 Anatomy for Bio-engineers*
ECH 6693 Introduction to Biomedical Engineering
EEL 6936 Biomedical Image Processing*
EEL 6935 Bioelectricity
EEL 6593 Mobile and Personal Communication
EEL 6502 Digital Signal Processing I
EEL 6935 Chemical and Biological Sensor Microsystems*
EML 6713 Fluid Mechanics
EML 6145 Numerical Methods in Heat Transfer

Electives: Minimum of 6 Hours (2 courses) selected from the following

PHC 6051 Bio-statistics II;	EEL 5344 Digital CMOS/VLSI Design
EEL 6886 Electromagnetic Field Theory	EEL 6820 Image Processing
EEL 6936 Pattern Recognition Theory and Apps	EEL 6765 Design and Fabrication of MEMS
EEL 6935 DSP/FPGA Lab	EEL 6936 Introduction to Nanotechnology
EEL 6935 System on a Chip	EEL 5631 Digital Control Systems
EEL 5357 Analog CMOS/VLSI Design	EEL 5356 IC Processing

Thesis Option: 6 Hours of EEL 6971 focused on 'Biomedical Systems' - TOTAL Credit Hours: 30

Course work Option: 6 Hours of a combination of (a) project, (b) additional electives and/or independent study related to information processing for biomedical systems, cell biology, DNA micro-arrays and proteomic micro-arrays, modeling and control of biomedical systems, hardware design for biomedical systems, software for biomedical systems, etc.

Possible sequences for the Biomedical Systems track could be:

Sequence #1 EEL-6935 Bioelectricity *and one of the following*
ECH-6693 Introduction to Biomedical Engineering
EEL-6935 Chemical and Biological Sensor Microsystems
GM-7930 Anatomy for Bio-engineers

Sequence #2 EEL-6502 Digital Signal Processing I
EEL-6936 Biomedical Image Processing

Sequence #3 EML-6713 Fluid Mechanics
EML-6145 Numerical Methods in Heat Transfer

***can be used as a “capstone” course**

Minimum Credit hours: 30 Thesis: minimum of 8 classes and minimum of 6 thesis hours with professor of choice.