

Requires completing 24 Credits (Not Including Seminar on Biomedical Engineering, Seminar, Thesis (M.A.) and Foreign Languages)
 *** At least 15 must be from courses in the Institute. Other courses to be counted toward graduation must be approved by the Advisor. ***

Required Courses

- Principles of Biomedical Engineering (3)
- Seminar on Biomedical Engineering (1)
(At most 4 Credit per Semester)
- Human Anatomy and Physiology
(without a background in medical sciences)
- Seminar
(required each semester)
- Thesis (M.A.)
(during the final semester)

Elective Courses

Foundation	A 、 Biomaterials	B 、 Biomechanical Engineering	C 、 Biomedical Electronics 、 Informatics	D 、 Clinical Engineering
<ul style="list-style-type: none"> -Scientific Paper Writing for Biomedical Engineering -Innovative Medical Device Development and Regulation -Special Topics on Innovative Medical Device Development and Regulation (I) (II)(III) -Special Topics on Bio-fabrication and Bio-monitoring -Medical Device Innovation and Design -Biomedical Innovation and Commercialization 	<ul style="list-style-type: none"> -Cell and Molecular Biology -Advanced Biochemistry -Introduction to Biomaterials -Drug Delivery Systems -Biomedical Polymers -Polymer Characterization -Introduction to Tissue Engineering -Introduction to Mechanobiology -Topics in Skin Development and Regeneration - Applications of Mems for Cell and Tissue Physiology -Regenerative Medicine: Principle and Application -Optical Nanomaterials -Biomedical Sensors 	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Human Movement Analysis <ul style="list-style-type: none"> -Human Movement Analysis -Optimization in Biomechanical Engineering -Computer Methods in Human Motion Analysis -Clinical Gait Analysis: Theory Application -Machine Learning in Human Motion Analysis </div> <div style="border: 1px solid black; padding: 5px;"> Biomechanics <ul style="list-style-type: none"> -Biomechanics of the Human Neuromusculoskeletal System -Experimental Method of Biomechanical Engineering -Topics in Cellular Mechanobiology of Ultrasound -Cellular Mechanobiology of Ultrasound -Application of Ultrasound in Regenerative Medicine -Solid Biomechanics -Development and Practice of Orthopaedic Instruments -Spinal Biomechanics -Introduction to Mechanobiology -Biomedical Wave Propagation -Application of Ultrasound in Neural Science -Computational Modeling and Analysis in Engineering -Computer Aided Design and Manufacturing </div>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px; text-align: center;"> Biomedical Informatics </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Biomedical Informatics <ul style="list-style-type: none"> -Algorithms -Medical Database Systems -Biomedical Big Data Processing and Analytics -Machine Learning </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Computer Assisted Surgery <ul style="list-style-type: none"> -Fundamentals of Biomedical Image Processing -Principles of Medical Imaging Systems -Medical Image Analysis -Machine Learning </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px; text-align: center;"> Bioelectronics </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Biomedical Electronics <ul style="list-style-type: none"> -Medical Electronics -Design of Medical Electronic System -Applications of Microprocessor -Introduction to Biophotonics Digital Engineering Signal and Systems </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> Neuroscience <ul style="list-style-type: none"> -Electrophysiology -Neurophysiology </div> <div style="border: 1px solid black; padding: 5px;"> Medical Microsensor <ul style="list-style-type: none"> -Medical Microsensor -Medical Devices Quality System -Nano/micro Engineering in Biomedicine -Virtual Instrument for Biomedicine -Applications of Mems for Cell and Tissue Physiology -Biomedical Microelectromechanical Systems -Biomedical Microimplantable Systems </div>	<ul style="list-style-type: none"> -Principles of Clinical Engineering -Principle and Application of Radiotherapy -Strategy for Ageing Society -Disease-oriented and Transdisciplinary Program of Clinical and Basic Science -Application of Ultrasound in Neural Science