INSTITUTE OF GRADUATE PROGRAMS, DEPARTMENT OF BIOMEDICAL ENGINEERING

BIOMEDICAL ENGINEERING MASTER OF SCIENCE COURSES (WITH THESIS)

ELECTIVE COURSES

Fall Semester Courses						Spring Semester Courses					
Course Code	Course Name	LT	LB	CR	ECTS	Course Code	Course Name	LT	LB	CR	ECTS
BMM701	Basic Mathematics for Biomedical Sciences	3	0	3	8	BMM702	Medical Biology and Genetics	3	0	3	8
BMM703	Fundamentals of Medical Informatics	3	0	3	8	BMM704	Nonlinear Physiological Control Systems	3	0	3	8
BMM705	Medical Imaging and Analysis Techniques	3	0	3	8	BMM706	Biomedical Instrumentation Techniques and Applications	3	0	3	8
BMM707	Introduction to Biomedical Optics	3	0	3	8	BMM708	Statistical Data Analysis	3	0	3	8
BMM709	Fundamentals of Biomedical Engineering	3	0	3	8	BMM710	Clinical Engineering	3	0	3	8
BMM711	Numerical Methods and MATLAB Programming	3	0	3	8	BMM712	Evolutionary Optimization Methods	3	0	3	8
BMM713	Biomaterials	3	0	3	8	BMM714	Tissue Engineering	3	0	3	8
BMM715	Anatomy and Physiology	3	0	3	8	BMM716	Applied Biomechanics	3	0	3	8
BMM717	Biomechanics and Tissue Biomechanics	3	0	3	8	BMM718	Biomechanics of Movement	3	0	3	8
BMM719	Modelling of Biomedical Systems	3	0	3	8	BMM720	Digital Image Processing with MATLAB	3	0	3	8
BMM721	Systems Theory for Biomedicine Sciences	3	0	3	8	BMM722	Biomedical Systems	3	0	3	8
BMM723	Artificial Neural Network Applications in Biomedical Engineering	3	0	3	8	BMM724	Biomedical Imaging Systems	3	0	3	8
BMM725	Signal Processing and Applications	3	0	3	8	BMM726	Biomedical Signal Processing	3	0	3	8
BMM727	Computational Cell Biology	3	0	3	8	BMM728	Basic Mathematics in Engineering	3	0	3	8
BMM729	Photonics and Lasers	3	0	3	8	BMM730	Organic Chemistry for Biomedical Engineering	3	0	3	8
BMM731	Advanced Biochemistry	3	0	3	8	BMM732	Mass Spectrometry, Clinical and Biomedical Applications	3	0	3	8
BMM733	Applications of Powder Metallurgy in Biomaterials	3	0	3	8	BMM734	Design and Materials for Manufacturing	3	0	3	8
BMM735	Failure Analysis in Engineering	3	0	3	8	BMM736	Proteomics in Medical Research	3	0	3	8
BMM737	Biodegradable Implant Materials	3	0	3	8	BMM738	Advanced Database Management Systems	3	0	3	8
BMM739	Machine Learning for Biomedical Applications	3	0	3	8	BMM740	Biomechatronics	3	0	3	8
BMM741	Biofluid Mechanics	3	0	3	8	BMM742	Omics Technologies	3	0	3	8

COMPULSORY COURSES

Institutional Compulsory Courses						Departmental Compulsory Courses					
Course Code	Course Name	LT	LB	CR	ECTS	Course Code	Course Name	LT	LB	CR	ECTS
LUEE701	Scientific Research Techniques and Scientific Ethics	3	0	3	8	BMM797	M.Sc. Seminar	0	2	0	6
						BMM7098D	M.Sc. Course Field of Specialization	4	0	0	4
						BMM7098T	M.Sc. Thesis Field of Specialization	4	0	0	4
						BMM799	M.Sc. Thesis Research	0	1	0	26

BIOMEDICAL ENGINEERING MASTER OF SCIENCE COURSES (WITH THESIS) [ENGLISH]

ELECTIVE COURSES

Fall Semester Courses						Spring Semester Courses					
Course Code	Course Name	LT	LB	CR	ECTS	Course Code	Course Name	LT	LB	CR	ECTS
BME701	Basic Mathematics for Biomedical Sciences	3	0	3	8	BME702	Medical Biology and Genetics	3	0	3	8
BME703	Fundamentals of Medical Informatics	3	0	3	8	BME704	Nonlinear Physiological Control Systems	3	0	3	8
BME705	Medical Imaging and Analysis Techniques	3	0	3	8	BME706	Biomedical Instrumentation Techniques and Applications	3	0	3	8
BME707	Introduction to Biomedical Optics	3	0	3	8	BME708	Statistical Data Analysis	3	0	3	8
BME709	Fundamentals of Biomedical Engineering	3	0	3	8	BME710	Clinical Engineering	3	0	3	8
BME711	Numerical Methods and MATLAB Programming	3	0	3	8	BME712	Evolutionary Optimization Methods	3	0	3	8
BME713	Biomaterials	3	0	3	8	BME714	Tissue Engineering	3	0	3	8
BME715	Anatomy and Physiology	3	0	3	8	BME716	Applied Biomechanics	3	0	3	8
BME717	Biomechanics and Tissue Biomechanics	3	0	3	8	BME718	Biomechanics of Movement	3	0	3	8
BME719	Modelling of Biomedical Systems	3	0	3	8	BME720	Digital Image Processing with MATLAB	3	0	3	8
BME721	Systems Theory for Biomedicine Sciences	3	0	3	8	BME722	Biomedical Systems	3	0	3	8
BME723	Artificial Neural Network Applications in Biomedical Engineering	3	0	3	8	BME724	Biomedical Imaging Systems	3	0	3	8
BME725	Signal Processing and Applications	3	0	3	8	BME726	Biomedical Signal Processing	3	0	3	8
BME727	Computational Cell Biology	3	0	3	8	BME728	Basic Mathematics in Engineering	3	0	3	8
BME729	Photonics and Lasers	3	0	3	8	BME730	Organic Chemistry for Biomedical Engineering	3	0	3	8
BME731	Advanced Biochemistry	3	0	3	8	BME732	Mass Spectrometry, Clinical and Biomedical Applications	3	0	3	8
BME733	Applications of Powder Metallurgy in Biomaterials	3	0	3	8	BME734	Design and Materials for Manufacturing	3	0	3	8
BME735	Failure Analysis in Engineering	3	0	3	8	BME736	Proteomics in Medical Research	3	0	3	8
BME737	Biodegradable Implant Materials	3	0	3	8	BME738	Advanced Database Management Systems	3	0	3	8
BME739	Machine Learning for Biomedical Applications	3	0	3	8	BME740	Biomechatronics	3	0	3	8
BME741	Biofluid Mechanics	3	0	3	8	BME742	Omics Technologies	3	0	3	8

COMPULSORY COURSES

Institutional Compulsory Courses						Departmental Compulsory Courses					
Course Code	Course Name	LT	LB	CR	ECTS	Course Code	Course Name	LT	LB	CR	ECTS
GEI701	Scientific Research Techniques and Scientific Ethics	3	0	3	8	BME797	M.Sc. Seminar	0	2	0	6
						BME7098C	M.Sc. Course Field of Specialization	4	0	0	4
						BME7098T	M.Sc. Thesis Field of Specialization	4	0	0	4
						BME799	M.Sc. Thesis Research	0	1	0	26

BIOMEDICAL ENGINEERING DOCTOR OF PHILOSOPHY COURSES

ELECTIVE COURSES

Fall Semester Courses						Spring Semester Courses					
Course Code	Course Name	LT	LB	CR	ECTS	Course Code	Course Name	LT	LB	CR	ECTS
BMM807	Advanced Biomedical Signal Processing and Applications	3	0	3	8	BMM802	Molecular and Cell Biology for Biomedical Engineers	3	0	3	8
BMM809	Analog Circuits in Biomedical Instrumentation	3	0	3	8	BMM806	Antibiotics	3	0	3	8
BMM811	Biomedical Optical Imaging	3	0	3	8	BMM808	Advanced Biopolymers	3	0	3	8
BMM815	Advanced Biomaterials	3	0	3	8	BMM810	Advanced Biomedical Image Processing	3	0	3	8
BMM817	Pharmaceutical Chemistry and Design	3	0	3	8	BMM812	Magnetic Resonance Imaging	3	0	3	8
BMM819	Advanced Numerical Methods and MATLAB Programming	3	0	3	8	BMM814	Chemical, Biological and Nuclear Processes	3	0	3	8
BMM821	Advanced Anatomy and Physiology	3	0	3	8	BMM816	Biomaterials Production by Powder Metallurgy	3	0	3	8
BMM823	Advanced Biomechanics	3	0	3	8	BMM818	Electroneurophysiological Signals and Applications	3	0	3	8
BMM825	Tissue and Cell Engineering	3	0	3	8	BMM820	Advanced Artificial Neural Network Applications in Biomedical Engineering	3	0	3	8
BMM827	Clinical Applications of Bioceramics	3	0	3	8	BMM822	Computational Biology and Bioinformatics	3	0	3	8
BMM829	Finite Element Analysis	3	0	3	8	BMM824	Bioceramic Coatings for Medical Implants	3	0	3	8
BMM831	Advanced Biocorrosion	3	0	3	8	BMM826	Plastic Deformation in Metals	3	0	3	8
						BMM828	Mass Spectrometry-Based Imaging Techniques	3	0	3	8
						BMM830	Production of Nanofibers and Biomedical Engineering Applications	3	0	3	8

COMPULSORY COURSES

Institutional Compulsory Courses						Departmental Compulsory Courses					
Course Code	Course Name	LT	LB	CR	ECTS	Course Code	Course Name	LT	LB	CR	ECTS
LUEE801	Scientific Research Techniques and Scientific Ethics	3	0	3	8	BMM896	Ph.D. Qualification	0	1	0	26
						BMM897	Ph.D. Seminar	0	2	0	6
						BMM8098D	Ph.D. Course Field of Specialization	4	0	0	4
						BMM8098T	Ph.D. Thesis Field of Specialization	4	0	0	4
						BMM899	Ph.D. Thesis Research	0	1	0	26