Biomedical Engineering, M Sc in Engineering

300 credits

Civilingenjör i medicinsk teknik

6CMED

Valid from: 2016 Spring semester

Determined by
Board of Studies for Electrical Engineering, Physics and Mathematics

Date determined
2016-01-19

Entry requirements

Degree in Swedish

Civilingenjör 300 hp och Teknologie master 120 hp

Curriculum

Semester 2 (Spring 2017)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TATA42	Calculus in One Variable 2	6	G1F	1	C
TDDC74	Programming: Abstraction and Modelling	8*	G1X	2	C
TFYA82	Oscillations and Mechanical Waves	4	G1X	4	C
TBMT32	Perspectives on Biomedical Engineering	2*	G1N	3	E
TATA40	Perspectives on Mathematics	1*	G1N	-	V
TGTU35	Introduction to University Studies	2*	G1X	-	V
Period 2					
TATA43	Calculus in Several Variables	8	G1F	2	C
TDDC74	Programming: Abstraction and Modelling	8*	G1X	1	C
TFYA84	Optics - Theory and Application	4	G1X	4	C
TBMT32	Perspectives on Biomedical Engineering	2*	G1N	3	E
TATA40	Perspectives on Mathematics	1*	G1N	-	V
TGTU35	Introduction to University Studies	2*	G1X	-	V

Semester 3 (Autumn 2017)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TATA44	Vector Analysis	4	G1F	1	C
TFYA76	Mechanics	6	G1X	3	C
TSTE05	Electronics and Measurement Technology	8*	G1F	2	C
Period 2					
TBME03	Biochemistry and Cell Biology	6	G2F	2	C
TBMT18	Biomedical Engineering	6	G1X	4	C
TSTE05	Electronics and Measurement Technology	8*	G1F	3	C

Semester 4 (Spring 2018)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TFYA62	Introduction to Biosensor Technology	6	G2X	4	C
TFYA63	Materials for Biomedical Engineering	8*	G2X	1	C
TFYA70	Electromagnetism - Theory and Application	6	G2F	3	C
TSRT04	Introduction in Matlab	2	G1X	2	C
Period 2					
TAMS14	Probability, first course	4	G1F	4	C
TATA57	Transform Theory	4	G1F	1	C
TFYA63	Materials for Biomedical Engineering	8*	G2X	3	C
TPTE06	Industrial Placement	6	G1X	-	E

Semester 5 (Autumn 2018)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TAMS24	Statistics, First Course	4	G2F	4	C
TDDC76	Programming and Data Structures	8*	G2X	2	C
TSBB31	Medical Images	6	G2F	1	C
Period 2					
TDDC76	Programming and Data Structures	8*	G2X	2	C
TFYA67	Modern Physics	6	G2F	1	C
TSDT18	Signals and Systems	6	G2F	3	C

Semester 6 (Spring 2019)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBMT41	Project - Biomedical Engineering	16*	G2X	3	C
TVFA02	Medical Radiation Physics	8*	G2X	2	C
Period 2					
TBMT41	Project - Biomedical Engineering	16*	G2X	3	C
TSRT19	Automatic Control	6	G2X	1	C
TVFA02	Medical Radiation Physics	8*	G2X	2	C

Semester 7 (Autumn 2019)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TANA21	Scientific Computing	6	G1F	3	E
TAOP88	Engineering Optimization	6	G2F	1	E
TATM38	Mathematical Models in Biology	6	A1N	3	E
TBMI19	Medical Information Systems	6*	A1N	2	E
TFKE59	Fundamentals of Chemistry	6	G1X	2	E
TFYA88	Additive Manufacturing: Tools, Materials and Methods	6	A1N	3	E
TFYA88	Additive Manufacturing: Tools, Materials and Methods	6	A1N	3	E
THFR05	Communicative French	6*	G1X	4	E
THSP05	Spanish	6*	G1X	4	E
THTY05	German	6*	G1X	4	E
TSBB06	Multidimensional Signal Analysis	6*	A1X	2	E
TSDT14	Signal Theory	6	A1X	1	E
Period 2					
TBMI19	Medical Information Systems	6*	A1N	3	E
TBMT01	Biomedical Signal Processing	6	A1F	1	E
TEAE01	Industrial Economics, Basic Course	6	G1X	2	E
TFFY70	Physics of Condensed Matter part I	6	A1X	2	E
TFYA37	Soft Condensed Matter Physics	6	A1X	1	E
TGTU49	History of Technology	6	G1F	3	E
THFR05	Communicative French	6*	G1X	4	E
THSP05	Spanish	6*	G1X	4	E
THTY05	German	6*	G1X	4	E
TKMJ24	Environmental Engineering	6	G1N	3	E
TMMS07	Biomechanics	6	A1X	4	E
TSBB06	Multidimensional Signal Analysis	6*	A1X	3	E
TSBB09	Image Sensors	6	A1X	4	E
TSRT78	Digital Signal Processing	6	A1X	2	E

Specialisation: Biomedical Engineering Materials

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TFKE59	Fundamentals of Chemistry	6	G1X	2	C
TAOP88	Engineering Optimization	6	G2F	1	E
TATM38	Mathematical Models in Biology	6	A1N	3	E
TDDC17	Artificial Intelligence	6	G2F	3	E
Period 2					
TFFY70	Physics of Condensed Matter part I	6	A1X	2	C
TFYA37	Soft Condensed Matter Physics	6	A1X	1	C
TMMS07	Biomechanics	6	A1X	4	E

Specialisation: Biomedical Image Analysis and Visualization

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TSBB06	Multidimensional Signal Analysis	6*	A1X	2	C
TSDT14	Signal Theory	6	A1X	1	C
TANA21	Scientific Computing	6	G1F	3	E
TATM38	Mathematical Models in Biology	6	A1N	3	E
Period 2					
TBMT01	Biomedical Signal Processing	6	A1F	1	C
TSBB06	Multidimensional Signal Analysis	6*	A1X	3	C
TSBB09	Image Sensors	6	A1X	4	E
TSRT78	Digital Signal Processing	6	A1X	2	E

Specialisation: eHealth

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBMI19	Medical Information Systems	6*	A1N	2	C
TSDT14	Signal Theory	6	A1X	1	C
TATM38	Mathematical Models in Biology	6	A1N	3	E
Period 2					
TBMI04	eHealth: Aims and Applications	6	G2F	2/4	C
TBMI19	Medical Information Systems	6*	A1N	3	C
TBMT01	Biomedical Signal Processing	6	A1F	1	C

Specialisation: Models in Biomedical Engineering

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBMI19	Medical Information Systems	6*	A1N	2	C
TSDT14	Signal Theory	6	A1X	1	C
TATM38	Mathematical Models in Biology	6	A1N	3	E
Period 2					
TBMI19	Medical Information Systems	6*	A1N	3	C
TBMT01	Biomedical Signal Processing	6	A1F	1	C
TMMS07	Biomechanics	6	A1X	4	E

Semester 8 (Spring 2020)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TAOP07	Introduction to Optimization	6	G1F	3	E
TATA53	Linear Algebra, Honours Course	6*	G2F	-	E
TBMI01	Medical Decision Support	6	A1X	4	E
TBMI03	Medical Information Models and Ontologies	6	A1X	4	E
TBMI26	Neural Networks and Learning Systems	6	A1N	2	E
TBMT02	Medical Imaging	6	A1F	3	E
TBMT09	Physiological Pressures and Flows	6	A1N	1	E

Course code	Course name	Credits	Level	Timetable module	ECV
TDDD38	Advanced Programming in C++	6*	A1N	2	E
TEAE04	Industrial Economics and Organisation	6	G1X	2	E
TEIO94	Entrepreneurship and Idea Development	6*	G2X	4	E
TFFM40	Analytical Methods in Materials Science	6*	A1X	1	E
TFYA21	Physical Metallurgy	6	A1F	3	E
TFYA85	Alternative Energy Sources and their Applications	6	G2X	4	E
TGTU94	Technology and Ethics	6	G1F	1	E
THEN18	English	6*	G1X	4	E
THFR05	Communicative French	6*	G1X	4	E
THSP05	Spanish	6*	G1X	4	E
THTY05	German	6*	G1X	4	E
TKMJ15	Environmental Management Strategies	6	G1F	3	E
TSBB15	Computer Vision	12*	A1X	1	E
TSBK07	Computer Graphics	6*	A1X	4	E
Period 2					
TATA53	Linear Algebra, Honours Course	6*	G2F	-	E
TBME08	Biomedical Modeling and Simulation	6	A1N	3	E
TBMT26	Technology in Intensive Care and Surgery	6	A1N	1	E
TDDD38	Advanced Programming in C++	6*	A1N	-	E
TDDD74	Databases for Bioinformatics	6	G2X	4	E
TEIO94	Entrepreneurship and Idea Development	6*	G2X	4	E
TFFM40	Analytical Methods in Materials Science	6*	A1X	1	E
TFMT19	Chemical Sensor Systems	6	A1X	4	E
THEN18	English	6*	G1X	4	E
THFR05	Communicative French	6*	G1X	4	E
THSP05	Spanish	6*	G1X	4	E
THTY05	German	6*	G1X	4	E
TSBB15	Computer Vision	12*	A1X	3	E
TSBK02	Image and Audio Coding	6	A1X	4	E
TSBK07	Computer Graphics	6*	A1X	1	E

Specialisation: Biomedical Engineering Materials

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TFFM40	Analytical Methods in Materials Science	6*	A1X	1	C
TFYA21	Physical Metallurgy	6	A1F	3	C
TBMT09	Physiological Pressures and Flows	6	A1N	1	E
TDDD38	Advanced Programming in C++	6*	A1N	2	E
TNE103	Organic Electronics 1	6	A1X	4	E
Period 2					
TFFM40	Analytical Methods in Materials Science	6*	A1X	1	C
TBME08	Biomedical Modeling and Simulation	6	A1N	3	E
TBMT26	Technology in Intensive Care and Surgery	6	A1N	1	E
TDDD38	Advanced Programming in C++	6*	A1N	-	E
TFMT19	Chemical Sensor Systems	6	A1X	4	E

Specialisation: Biomedical Image Analysis and Visualization

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBMT02	Medical Imaging	6	A1F	3	C
TSBK07	Computer Graphics	6*	A1X	4	C
TAOP07	Introduction to Optimization	6	G1F	3	E
TBMI26	Neural Networks and Learning Systems	6	A1N	2	E
TBMT09	Physiological Pressures and Flows	6	A1N	1	E
TSBB15	Computer Vision	12*	A1X	1	E
Period 2					
TSBK07	Computer Graphics	6*	A1X	1	C
TBME08	Biomedical Modeling and Simulation	6	A1N	3	E
TSBB15	Computer Vision	12*	A1X	3	E
TSBK02	Image and Audio Coding	6	A1X	4	E

Specialisation: eHealth

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TDDD38	Advanced Programming in C++	6*	A1N	2	C/E
TDDD97	Web Programming	6	G2F	3	C/E
TBMI03	Medical Information Models and Ontologies	6	A1X	4	E
TBMI26	Neural Networks and Learning Systems	6	A1N	2	E
TBMT02	Medical Imaging	6	A1F	3	E
TBMT09	Physiological Pressures and Flows	6	A1N	1	E
Period 2					
TEIO95	eHealth: Innovation and Entrepreneurship	6	G2F	2/4	C
TDDD38	Advanced Programming in C++	6*	A1N	-	C/E
TBME08	Biomedical Modeling and Simulation	6	A1N	3	E
TBMT26	Technology in Intensive Care and Surgery	6	A1N	1	E

Specialisation: Models in Biomedical Engineering

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBMT09	Physiological Pressures and Flows	6	A1N	1	C
TAOP07	Introduction to Optimization	6	G1F	3	E
TBMI01	Medical Decision Support	6	A1X	4	E
TBMI03	Medical Information Models and Ontologies	6	A1X	4	E
TBMI26	Neural Networks and Learning Systems	6	A1N	2	E
TBMT02	Medical Imaging	6	A1F	3	E
Period 2					
TBME08	Biomedical Modeling and Simulation	6	A1N	3	C
TBMT26	Technology in Intensive Care and Surgery	6	A1N	1	E
TDDD74	Databases for Bioinformatics	6	G2X	4	E

Semester 9 (Autumn 2020)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TAMS39	Multivariate Statistical Methods	6	A1N	4	E
TBMT14	Biomedical Engineering - Project Course	12*	A1F	4	E
TBMT57	Biomedical Optics	6	A1F	1	E
TDDC17	Artificial Intelligence	6	G2F	3	E
TFFM08	Experimental Physics	6*	A1X	1	E
TFYA43	Nanotechnology	6	G2X	3	E
TFYA47	Surfaces and Interfaces	6	A1X	2	E
TFYA92	Project Course in Applied Physics, CDIO	12*	A1X	4	E
TNM067	Scientific Visualization	6	A1X	3	E
TSBB08	Digital Image Processing	6	A1X	4	E
TSBB11	Images and Graphics, Project Course CDIO	12*	A1F	4	E
Period 2					
TBMI02	Medical Image Analysis	6	A1N	1	E
TBMT14	Biomedical Engineering - Project Course	12*	A1F	4	E
TFFM08	Experimental Physics	6*	A1X	1	E
TFYA30	Supramolecular Chemistry	6	A1N	2	E
TFYA92	Project Course in Applied Physics, CDIO	12*	A1X	4	E
TGTU04	Leadership	6	G2X	2	E
TNM086	Virtual Reality Techniques	6	A1X	2	E
TSBB11	Images and Graphics, Project Course CDIO	12*	A1F	4	E

Specialisation: Biomedical Engineering Materials

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TFYA47	Surfaces and Interfaces	6	A1X	2	C
TBMT14	Biomedical Engineering - Project Course	12*	A1F	4	C/E
TFYA92	Project Course in Applied Physics, CDIO	12*	A1X	4	C/E
TBMT57	Biomedical Optics	6	A1F	1	E
TFYA43	Nanotechnology	6	G2X	3	E
TNE104	Organic Electronics 2	6	A1X	4	E
Period 2					
TBMT14	Biomedical Engineering - Project Course	12*	A1F	4	C/E
TFYA92	Project Course in Applied Physics, CDIO	12*	A1X	4	C/E
TFYA30	Supramolecular Chemistry	6	A1N	2	E

Specialisation: Biomedical Image Analysis and Visualization

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TSBB11	Images and Graphics, Project Course CDIO	12*	A1F	4	C
TAMS39	Multivariate Statistical Methods	6	A1N	4	E
TBMI19	Medical Information Systems	6*	A1N	2	E
TBMT57	Biomedical Optics	6	A1F	1	E
TDDC17	Artificial Intelligence	6	G2F	3	E
TNM067	Scientific Visualization	6	A1X	3	E
TSBB08	Digital Image Processing	6	A1X	4	E
Period 2					
TBMI02	Medical Image Analysis	6	A1N	1	C
TSBB11	Images and Graphics, Project Course CDIO	12*	A1F	4	C
TBMI19	Medical Information Systems	6*	A1N	3	E
TNM086	Virtual Reality Techniques	6	A1X	2	E

Specialisation: eHealth

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBMI28	eHealth Project	12*	A1F	2/4	C
TBMT57	Biomedical Optics	6	A1F	1	E
TDDC17	Artificial Intelligence	6	G2F	3	E
TDDE15	Advanced Machine Learning	6	A1F	1	E
Period 2					
TBMI28	eHealth Project	12*	A1F	-	C
TDDC73	Interaction Programming	6	G2F	1	C/E
TBMI02	Medical Image Analysis	6	A1N	1	E
TDDD37	Database Technology	6	G2F	1	E
TDDD49	Programming in C# and .NET Framework	4	G2F	3	E
TDDE01	Machine Learning	6	A1N	1	E

Specialisation: Models in Biomedical Engineering

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBMT14	Biomedical Engineering - Project Course	12*	A1F	4	C
TBMT57	Biomedical Optics	6	A1F	1	C
TAMS39	Multivariate Statistical Methods	6	A1N	4	E
TDDC17	Artificial Intelligence	6	G2F	3	E
TSBB06	Multidimensional Signal Analysis	6*	A1X	2	E
Period 2					
TBMT14	Biomedical Engineering - Project Course	12*	A1F	4	C
TBMI02	Medical Image Analysis	6	A1N	1	E
TSBB06	Multidimensional Signal Analysis	6*	A1X	3	E

Semester 10 (Spring 2021)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TQXX33	Degree project - Master's Thesis	30*	A1X	-	C
Period 2					
TQXX33	Degree project - Master's Thesis	30*	A1X	-	C

ECV = Elective / Compulsory /Voluntary
*The course is divided into several semesters and/or periods