

Biomedical Engineering, M Sc in Engineering

300 credits

Civilingenjör i medicinsk teknik

6CMED

Valid from: 2015 Spring semester

Determined by

Board of Studies for Electrical
Engineering, Physics and Mathematics

Date determined

Entry requirements

Degree in Swedish

Civilingenjör 300 hp och Teknologie master 120 hp

Curriculum

Semester 4 (Spring 2017)

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	G2X	3	C
TSRT04	Introduction in Matlab	2	G1X	2	C
Period 2					
TAMS14	Probability, first course	4	G1X	4	C
TATA57	Transform Theory	4	G1X	1	C
TFYA63	Materials for Biomedical Engineering	8*	G2X	3	C
TPTE06	Industrial Placement	6	G1X	-	E

Specialisation: Additional courses

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TATA53	Linear Algebra, Honours Course	6*	G2X		E
Period 2					
TATA53	Linear Algebra, Honours Course	6*	G2X		E

Semester 5 (Autumn 2017)

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

Semester 6 (Spring 2018)

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 2018)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TANA21	Scientific Computing	6	G1X	3	E
TAOP88	Engineering Optimization	6	G2X	1	E
TATM38	Mathematical Models in Biology	6	A1X	3	E
TBMI19	Medical Information Systems	6*	A1X	2	E
TFKE59	Fundamentals of Chemistry	6	G1X	2	E
TFYA88	Additive Manufacturing: Tools, Materials and Methods	6	A1X	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*	A1X	3	E
TBMT01	Biomedical Signal Processing	6	A1X	1	E
TEAE01	Industrial Economics, Basic Course	6	G1X	2	E
TFY70	Physics of Condensed Matter part I	6	A1X	2	E
TFYA37	Soft Condensed Matter Physics	6	A1X	1	E
TGTU49	History of Technology	6	G1X	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	G1X	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	G2X	1	E
TATM38	Mathematical Models in Biology	6	A1X	3	E
TDDC17	Artificial Intelligence	6	G2X	3	E
Period 2					
TFY70	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 Imaging 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	G1X	3	E
TATM38	Mathematical Models in Biology	6	A1X	3	E
TDDD38	Advanced Programming in C++	6*	A1X	2	E
Period 2					
TBMT01	Biomedical Signal Processing	6	A1X	1	C
TSBB06	Multidimensional Signal Analysis	6*	A1X	3	C
TDDD38	Advanced Programming in C++	6*	A1X	-	E
TSBB09	Image Sensors	6	A1X	4	E
TSRT78	Digital Signal Processing	6	A1X	2	E

Specialisation: Models in Biomedical Engineering

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBMI19	Medical Information Systems	6*	A1X	2	C
TSDT14	Signal Theory	6	A1X	1	C
TATM38	Mathematical Models in Biology	6	A1X	3	E
TDDD38	Advanced Programming in C++	6*	A1X	2	E
Period 2					
TBMI19	Medical Information Systems	6*	A1X	3	C
TBMT01	Biomedical Signal Processing	6	A1X	1	C
TDDD38	Advanced Programming in C++	6*	A1X	-	E
TMMS07	Biomechanics	6	A1X	4	E

Semester 8 (Spring 2019)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TAOP07	Introduction to Optimization	6	G1X	3	E
TATA53	Linear Algebra, Honours Course	6*	G2X	-	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	A1X	2	E
TBMT02	Medical Imaging	6	A1X	3	E
TBMT09	Physiological Pressures and Flows	6	A1X	1	E
TDDD38	Advanced Programming in C++	6*	A1X	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	A1X	3	E
TFYA85	Alternative Energy Sources and their Applications	6	G2X	4	E
TGTU01	Technology and Ethics	6	G1X	1	E
THEN18	English	6*	G1X	4	E
THFR05	Communicative French	6*	G1X	4	E

Course code	Course name	Credits	Level	Timetable module	ECV
THSP05	Spanish	6*	G1X	4	E
THTY05	German	6*	G1X	4	E
TKMJ15	Environmental Management Strategies	6	G1X	3	E
TSBB15	Computer Vision	12*	A1X	1	E
TSBK07	Computer Graphics	6*	A1X	4	E
Period 2					
TATA53	Linear Algebra, Honours Course	6*	G2X	-	E
TBME08	Biomedical Modeling and Simulation	6	A1X	3	E
TBMT26	Technology in Intensive Care and Surgery	6	A1X	1	E
TDDD38	Advanced Programming in C++	6*	A1X	-	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	A1X	3	C
TBMT09	Physiological Pressures and Flows	6	A1X	1	E
TDDD38	Advanced Programming in C++	6*	A1X	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	A1X	3	E
TBMT26	Technology in Intensive Care and Surgery	6	A1X	1	E
TDDD38	Advanced Programming in C++	6*	A1X	-	E
TFMT19	Chemical Sensor Systems	6	A1X	4	E

Specialisation: Biomedical Imaging and Visualization

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBMT02	Medical Imaging	6	A1X	3	C
TSBK07	Computer Graphics	6*	A1X	4	C
TAOP07	Introduction to Optimization	6	G1X	3	E
TBMI26	Neural Networks and Learning Systems	6	A1X	2	E
TBMT09	Physiological Pressures and Flows	6	A1X	1	E
TSBB15	Computer Vision	12*	A1X	1	E
Period 2					
TSBK07	Computer Graphics	6*	A1X	1	C
TBME08	Biomedical Modeling and Simulation	6	A1X	3	E
TSBB15	Computer Vision	12*	A1X	3	E
TSBK02	Image and Audio Coding	6	A1X	4	E

Specialisation: Models in Biomedical Engineering

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBMT09	Physiological Pressures and Flows	6	A1X	1	C
TAOP07	Introduction to Optimization	6	G1X	3	E
TBMT01	Medical Decision Support	6	A1X	4	E
TBMT03	Medical Information Models and Ontologies	6	A1X	4	E
TBMT26	Neural Networks and Learning Systems	6	A1X	2	E
TBMT02	Medical Imaging	6	A1X	3	E
Period 2					
TBMT08	Biomedical Modeling and Simulation	6	A1X	3	C
TBMT26	Technology in Intensive Care and Surgery	6	A1X	1	E
TDDD74	Databases for Bioinformatics	6	G2X	4	E

Semester 9 (Autumn 2019)

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TAMS39	Multivariate Statistical Methods	6	A1X	4	E
TBMT14	Biomedical Engineering - Project Course	12*	A1X	4	E
TBMT36	Biomedical Optics	6	A1X	1	E
TDDC17	Artificial Intelligence	6	G2X	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*	A1X	4	E
Period 2					
TBMI02	Medical Image Analysis	6	A1X	1	E
TBMT14	Biomedical Engineering - Project Course	12*	A1X	4	E
TFFM08	Experimental Physics	6*	A1X	1	E
TFYA30	Supramolecular Chemistry	6	A1X	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*	A1X	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*	A1X	4	C/E
TFYA92	Project Course in Applied Physics, CDIO	12*	A1X	4	C/E
TBMT36	Biomedical Optics	6	A1X	1	E
TFYA43	Nanotechnology	6	G2X	3	E
TNE104	Organic Electronics 2	6	A1X	4	E
Period 2					
TBMT14	Biomedical Engineering - Project Course	12*	A1X	4	C/E
TFYA92	Project Course in Applied Physics, CDIO	12*	A1X	4	C/E
TFYA30	Supramolecular Chemistry	6	A1X	2	E

Specialisation: Biomedical Imaging and Visualization

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TSBB11	Images and Graphics, Project Course CDIO	12*	A1X	4	C
TAMS39	Multivariate Statistical Methods	6	A1X	4	E
TBMT19	Medical Information Systems	6*	A1X	2	E
TBMT36	Biomedical Optics	6	A1X	1	E
TDDC17	Artificial Intelligence	6	G2X	3	E
TNM067	Scientific Visualization	6	A1X	3	E
TSBB08	Digital Image Processing	6	A1X	4	E
Period 2					
TBMT02	Medical Image Analysis	6	A1X	1	C
TSBB11	Images and Graphics, Project Course CDIO	12*	A1X	4	C
TBMT19	Medical Information Systems	6*	A1X	3	E
TNM086	Virtual Reality Techniques	6	A1X	2	E

Specialisation: Models in Biomedical Engineering

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TBMT14	Biomedical Engineering - Project Course	12*	A1X	4	C
TBMT36	Biomedical Optics	6	A1X	1	C
TAMS39	Multivariate Statistical Methods	6	A1X	4	E
TDDC17	Artificial Intelligence	6	G2X	3	E
TSBB06	Multidimensional Signal Analysis	6*	A1X	2	E
Period 2					
TBMT14	Biomedical Engineering - Project Course	12*	A1X	4	C
TBMT02	Medical Image Analysis	6	A1X	1	E
TSBB06	Multidimensional Signal Analysis	6*	A1X	3	E

Semester 10 (Spring 2020)

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