

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

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					
TAOP88	Engineering Optimization	6	G2X	1	E
TATM38	Mathematical Models in Biology	6	A1X	3	E
TDDC17	Artificial Intelligence	6	G2X	3	E
TFKE59	Fundamentals of Chemistry	6	G1X	2	C
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 Imaging and Visualization

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
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
TSBB06	Multidimensional Signal Analysis	6*	A1X	2	C
TSDT14	Signal Theory	6	A1X	1	C
Period 2					
TBMT01	Biomedical Signal Processing	6	A1X	1	C
TDDD38	Advanced Programming in C++	6*	A1X	-	E
TSBB06	Multidimensional Signal Analysis	6*	A1X	3	C
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					
TATM38	Mathematical Models in Biology	6	A1X	3	E
TBMI19	Medical Information Systems	6*	A1X	2	C
TDDD38	Advanced Programming in C++	6*	A1X	2	E
TSDT14	Signal Theory	6	A1X	1	C
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					
TBMT09	Physiological Pressures and Flows	6	A1X	1	E
TDDD38	Advanced Programming in C++	6*	A1X	2	E
TFFM40	Analytical Methods in Materials Science	6*	A1X	1	C
TFYA21	Physical Metallurgy	6	A1X	3	C
TNE103	Organic Electronics 1	6	A1X	4	E
Period 2					
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
TFFM40	Analytical Methods in Materials Science	6*	A1X	1	C
TFMT19	Chemical Sensor Systems	6	A1X	4	E

Specialisation: Biomedical Imaging and Visualization

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

Specialisation: Models in Biomedical Engineering

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TAOP07	Introduction to Optimization	6	G1X	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	A1X	2	E
TBMT02	Medical Imaging	6	A1X	3	E
TBMT09	Physiological Pressures and Flows	6	A1X	1	C
Period 2					
TBME08	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					
TBMT02	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					
TBMT14	Biomedical Engineering - Project Course	12*	A1X	4	C/E
TBMT36	Biomedical Optics	6	A1X	1	E
TFYA43	Nanotechnology	6	G2X	3	E
TFYA47	Surfaces and Interfaces	6	A1X	2	C
TFYA92	Project Course in Applied Physics, CDIO	12*	A1X	4	C/E
TNE104	Organic Electronics 2	6	A1X	4	E
Period 2					
TBMT14	Biomedical Engineering - Project Course	12*	A1X	4	C/E
TFYA30	Supramolecular Chemistry	6	A1X	2	E
TFYA92	Project Course in Applied Physics, CDIO	12*	A1X	4	C/E

Specialisation: Biomedical Imaging and Visualization

Course code	Course name	Credits	Level	Timetable module	ECV
Period 1					
TAMS39	Multivariate Statistical Methods	6	A1X	4	E
TBMI19	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
TSBB11	Images and Graphics, Project Course CDIO	12*	A1X	4	C
Period 2					
TBMI02	Medical Image Analysis	6	A1X	1	C
TBMI19	Medical Information Systems	6*	A1X	3	E
TNM086	Virtual Reality Techniques	6	A1X	2	E
TSBB11	Images and Graphics, Project Course CDIO	12*	A1X	4	C

Specialisation: Models in Biomedical Engineering

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	C
TBMT36	Biomedical Optics	6	A1X	1	C
TDDC17	Artificial Intelligence	6	G2X	3	E
TSBB06	Multidimensional Signal Analysis	6*	A1X	2	E
Period 2					
TBMI02	Medical Image Analysis	6	A1X	1	E
TBMT14	Biomedical Engineering - Project Course	12*	A1X	4	C
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

* The course is divided into several semesters and/or periods.