

## 11.2. Course Overview

Study Program: **Computer Science and Engineering**

Year I					
Semester I					
No.	Code	Course			
Core courses			Total Numbers of Lecturers and Tutorials	EKTS Credits	
1	11.3.F.1101.C	Programming 1		3+2	6
2	11.1.F.1102.C	Mathematics 1		3+2	6
3	11.9.F.1103.C	Discrete Mathematics		3+2	6
4	09.0.F.1104.C	Technical Communication 1		3+2	6
Minor elective					
5	13.2.F.1101.C	Physics		3+2	6
Semester II					
No.	Code	Course			
Core					
1	11.3.F.1201.C	Programming 2		3+2	6
2	11.1.F.1202.C	Mathematics 2		3+2	6
3	09.0.F.1203.C	Technical Communication 2		3+2	6
4	11.3.CSE.1201.MR	Computer Organization		3+2	6
5	11.3.CSE.1202.MR	Assembly Language		3+2	6
Year II					
Semester III					
No.	Code	Course			
Core courses					
1	11.2.F.1301.C	Programming 3		3+2	6
2	11.3.F.1302.C	Database Systems 1		3+2	6
3	11.3.F.1303.C	Algorithms and Data Structures 1		3+2	6
4	11.3.CSE.1301.MR	Computer System Configuration		3+2	6
Minor Elective Course					
5	1 course from Minor Elective List		3+2	6	

Semester IV				
No.	Code	Course		
Core courses				
1	11.3.F.1401.C	Database Systems 2	3+2	6
2	11.3.F.1402.C	Algorithms and Data Structures 2	3+2	6
3	11.2.F.1403.C	Probability and Statistics	3+2	6
4	11.3.CSE.1401.MR	Operating Systems	3+2	6
Minor Elective Course				
5	1 course from Minor Elective List		3+2	6

Year III				
Semester V				
No.	Code	Course		
Core Courses				
1	11.3.F.1501.C	Programming 4	3+2	6
2	11.9.CSE.1501.MR	Finite State Machines	3+2	6
Major Elective Course				
3	1 course from Major Elective List (Compiler Concept Theory)		3+2	6
Minor Elective Course				
4	1 course from Minor Elective List		3+2	6
5	1 course from Minor Elective List		3+2	6
Semester VI				
No.	Code	Course		
Core Courses				
1	11.3.CSE.1601.MR	Network Architectures	3+2	6
2	11.9.CSE.1602.MR	Programming Language	3+2	6
Major Elective Course				
3	1 course from Major Elective List (Wireless Sensor Networks)		3+2	6
Minor Elective Course				
4	1 course from Minor Elective List		3+2	6
5	1 course from Minor Elective List		3+2	6

Year IV				
Semester VII				
No.	Code	Course		
Core Course				
1	11.3.CSE.1701.MR	Cloud Computing Technology	3+2	6
Two Major Elective Course				
2	1 course from Major Elective List (Data Mining)		3+2	6
3	1 course from Major Elective List (Project Management)		3+2	6
Two Final Projects from Major Elective Course				
4	Final Project from MaE List		3+2	6
5	Final Project from MaE List		3+2	6
Semester VIII				
No.	Code	Course		
Core Courses				
1	11.3.F.1801.C	Advanced Algorithms	3+2	6
2	11.9.F.1802.C	Models and Simulations	3+2	6
Two Major Elective Course				
3	1 course from Major Elective List (Internet Programming)		3+2	6
4	1 course from Major Elective List (Embedded Systems Design)		3+2	6
Final Project from Major Elective Course				
5	Final Project from Major Elective List		3+2	6

**List of Minor Elective Courses**

1	13.9.F.1101.MiE	<b>Physics</b>	3+2	6
2	03.0.F.1301.MiE	<b>Digital medium and Photography</b>	3+2	6
3	14.1.F.1302.MiE	<b>Political Sciences</b>	3+2	6
4	14.3.F.1303.MiE	<b>Economics</b>	3+2	6
5	08.0.F.1304.MiE	<b>Humanity 1</b>	3+2	6
6	03.6.F.1401.MiE	<b>History of Arts</b>	3+2	6
7	14.2.F.1402.MiE	<b>Sociology</b>	3+2	6
8	04.0.F.1403.MiE	<b>Management</b>	3+2	6
9	04.0.F.1404.MiE	<b>Entrepreneurship</b>	3+2	6

10	08.0.F.1405.MiE	<b>Humanity 2</b>	3+2	6
11	14.7.F.1501.MiE	<b>Anthropology</b>	3+2	6
12	04.7.F.1502.MiE	<b>Marketing</b>	3+2	6
13	13.9.F.1503.MiE	<b>Ecology</b>	3+2	6
14	16.0.F.1504.MiE	<b>Culture Heritage</b>	3+2	6
15	16.0.F.1506.MiE	<b>Military Sciences</b>	3+2	6
16	10.0.F.1507.MiE	<b>Ethics and IT Law</b>	3+2	6
17	14.7.F.1601.MiE	<b>Archeology</b>	3+2	6
18	04.9.F.1602.MiE	<b>E-business</b>	3+2	6
19	13.9.F.1603.MiE	<b>Geography information systems GIS</b>	3+2	6
20	15.3.F.1604.MiE	<b>Public Speaking</b>	3+2	6
21	03.0.F.1605.MiE	<b>Graphic design</b>	3+2	6
22	03.2.F.1606.MiE	<b>Music</b>	3+2	6
23	09.9.F.1607.MiE	<b>Macedonian Language</b>	3+2	6
24	13.9.F.1608.MiE	<b>Genetics</b>	3+2	6
25	03.3.F.1609.MiE	<b>Theatre</b>	3+2	6

**List of Major Elective Courses**

1	11.3.F.1x01.MaE	Client/server system	3+2	6
2	11.9.F.1x02.MaE	Cryptography	3+2	6
3	11.9.F.1x03.MaE	Data Mining	3+2	6
4	04.9.F.1x04.MaE	Project Management	3+2	6
5	11.9.F.1x05.MaE	Computer components	3+2	6
6	11.9.F.1x06.MaE	Systems Theory	3+2	6
7	11.9.F.1x07.MaE	Models and Simulations	3+2	6
8	11.9.F.1x08.MaE	Discrete mathematics 2	3+2	6
9	11.9.F.1x09.MaE	Integrated Systems Design	3+2	6
10	11.9.F.1x10.MaE	Digital Electronics	3+2	6
11	11.9.F.1x11.MaE	Digital Libraries	3+2	6
12	11.9.F.1x12.MaE	Distance Learning Systems	3+2	6
13	04.0.F.1x13.MaE	E-commerce	3+2	6
14	14.0.F.1x14.MaE	E-government	3+2	6
15	11.9.F.1x15.MaE	Embedded Systems	3+2	6
16	04.2.F.1x16.MaE	Innovation Technologies	3+2	6
17	04.9.F.1x17.MaE	Commercialization of Technologies and Entrepreneurship	3+2	6
18	11.9.F.1x18.MaE	Internet Programming	3+2	6
19	11.9.F.1x19.MaE	Internet Technologies	3+2	6
20	11.9.F.1x20.MaE	Knowledge Based Systems	3+2	6
21	11.9.F.1x21.MaE	Knowledge Management	3+2	6

22	11.9.F.1x22.MaE	Knowledge Systems	3+2	6
23	11.9.F.1x23.MaE	Engineering Management	3+2	6
24	11.3.F.1x24.MaE	Telecommunication Networks Management	3+2	6
25	04.2.F.1x25.MaE	Management of Technologies and Innovation	3+2	6
26	04.2.F.1x26.MaE	ICT Industry and Management	3+2	6
27	11.9.F.1x27.MaE	Microcomputers Systems	3+2	6
28	11.9.F.1x28.MaE	Modeling of Business Processes	3+2	6
29	11.9.F.1x29.MaE	Language Processing	3+2	6
30	11.9.F.1x30.MaE	Virtual Society	3+2	6
31	11.9.F.1x31.MaE	Visual Programming	3+2	6
32	11.9.F.1x32.MaE	Web Design	3+2	6
33	11.9.F.1x33.MaE	Bioinformatics	3+2	6
34	11.9.F.1x34.MaE	Security and Identity Management	3+2	6
35	11.9.F.1x35.MaE	Electric circles	3+2	6
36	11.9.F.1x36.MaE	Game Theory	3+2	6
37	11.9.F.1x37.MaE	Optimization Theory	3+2	6
38	11.9.F.1x38.MaE	Parallel Data Processing	3+2	6
39	11.9.F.1x39.MaE	UML Designed Models	3+2	6
40	11.9.F.1x40.MaE	Cloud Computing Technologies	3+2	6
41	11.9.F.1x41.MaE	Copyright Protection	3+2	6
42	11.9.F.1x42.MaE	Software Engineering Economics	3+2	6