



CERTIFICATE

Minden félév

Name: **Hakkel Tamás**
Neptun code: **EQA3YM**
Student ID: **77434830755**

Training: **Molecular Bionics Engineering BSc**
Training level: **BA/BSc**
Schedule: **Full-time training**

	Subject title (code), requirement, teacher	Credit	Lessons (le/p/ly)	Grade, date, examiner
1	Cultural history of Physics (P-ITMUV-0003) Term mark Dr. Csurgay Árpádné	2	2/0/0	Teacher's signature, 15.12.2014 Dr. Csurgay Árpád Istvánné Excellent, 14.01.2015 Dr. Csurgay Árpád Istvánné
2	The World of Molecules (Molecular Physico-Chemistry) (P-ITBIO-0001) Exam Dr. Iván Kristóf	10	4/2/2	Teacher's signature, 12.12.2014 Dr. Iván Kristóf Excellent, 05.01.2015 Dr. Iván Kristóf
3	Refresher Course in Physics (P-ITFIZ-0001) Teacher's signature Uhlár László	0	1/2/0	Teacher's signature, 04.09.2014 Uhlár László
4	Introduction to Programming (P-MB_B9) Term mark Dr. Feldhoffer Gergely	4	1/0/3	Teacher's signature, 22.01.2015 Dr. Feldhoffer Gergely Excellent, 22.01.2015 Dr. Feldhoffer Gergely
5	Discrete Mathematics I. (P-ITMAT-0006A) Term mark Bércesné Dr. Novák Ágnes	2	1/1/0	Teacher's signature, 11.12.2014 Szabó Kornélia Mária Satisfactory, 16.12.2014 Bércesné Novák Ágnes Excellent, 27.01.2015 Kis-Tóth Ágnes
6	Academic Writing (P-ITMUV-0002) Term mark Osztoivits Ágnes	2	2/0/0	Teacher's signature, 15.12.2014 Osztoivits Ágnes Excellent, 15.12.2014 Osztoivits Ágnes
7	Fundamental Chemistry (P-ITBIO-0000) Teacher's signature Czirók Ede, Dr. Iván Kristóf	0	2/0/0	Teacher's signature, 07.09.2014 Dr. Iván Kristóf
8	Linear Algebra I. (P-ITMAT-0003A) Exam Bércesné Dr. Novák Ágnes	5	2/2/0	Teacher's signature, 13.12.2014 Dr. Ács Bernadett Excellent, 14.01.2015 Kis-Tóth Ágnes
9	Refresher Course in Mathematics (P-ITMAT-0000) Teacher's signature Várdainé Kollár Judit	0	0/2/0	Teacher's signature, 04.11.2014 Várdainé Kollár Judit
10	Mathematical Analysis I. (P-ITMAT-0001A) Exam Dr. Gerencsérné dr. Vágó Zsuzsanna	6	3/2/0	Teacher's signature, 09.12.2014 Várdainé Kollár Judit Excellent, 05.01.2015 Dr. Gerencsérné Dr. Vágó Zsuzsanna
11	Physical education 1. (P-ITEGY-0001) Teacher's signature Rumi Péter	0	0/2/0	Teacher's signature, 02.02.2015 Rumi Péter

Registered credit: **31**
Credits completed: **31**
Weighted educational average: **5**
Credit index: **5,17**
Adjusted credit index: **5,17**
Cumulated weighted study average: **5**
Aggregated adjusted credit index: **5,17**

Date of closing: **25.01.2018**



	Subject title (code), requirement, teacher	Credit	Lessons (le/p/ly)	Grade, date, examiner
1	Introduction to Matlab Programming (P-ITMAT-0014) Term mark Dr. Zsedrovits Tamás	2	0/0/2	Teacher's signature , 22.05.2015 Dr. Zsedrovits Tamás Excellent , 25.05.2015 Dr. Zsedrovits Tamás
2	Introduction to Programming II. (P-MIB_T8B) Exam Dr. Feldhoffer Gergely	4	1/0/3	Teacher's signature , 23.06.2015 Dr. Feldhoffer Gergely Excellent , 26.06.2015 Dr. Feldhoffer Gergely
3	Biochemistry (P-ITBIO-0003) Exam Dr. Dobó József, Dr. Balog Erika, Dr. Gáspári Zoltán	5	2/0/2	Teacher's signature , 26.05.2015 Dr. Dobó József Excellent , 01.06.2015 Dr. Dobó József
4	Discrete Mathematics II. (P-ITMAT-0006B) Exam Bércesné Dr. Novák Ágnes, Ács Bernadett, Kis-Tóth Ágnes, Szabó Kornélia Mária	3	1/1/0	Teacher's signature , 23.05.2015 Szabó Kornélia Mária Pass , 23.05.2015 Szabó Kornélia Mária Excellent , 09.06.2015 Bércesné Novák Ágnes
5	Introduction to Electrical Measurements (P-MB_B2_4) Term mark Dr. Kiss András	4	1/0/3	Teacher's signature , 23.05.2015 Tihanyi Attila Excellent , 23.05.2015 Tihanyi Attila
6	Classical Physics (P-ITFIZ-0002) Exam Dr. Bérces György	4	4/0/0	Teacher's signature , 15.05.2015 Dr. Bérces György Excellent , 04.06.2015 Dr. Bérces György
7	Linear Algebra II. (P-ITMAT-0003B) Exam Bércesné Dr. Novák Ágnes, Ács Bernadett, Kis-Tóth Ágnes, Szabó Kornélia Mária	5	2/2/0	Teacher's signature , 20.05.2015 Szabó Kornélia Mária Satisfactory , 27.05.2015 Szabó Kornélia Mária Excellent , 25.06.2015 Bércesné Novák Ágnes
8	Mathematical Analysis II. (P-ITMAT-0001B) Exam Dr. Gerencsérné Dr. Vágó Zsuzsanna	7	3/3/0	Teacher's signature , 13.05.2015 Várdainé Kollár Judit Excellent , 12.06.2015 Dr. Gerencsérné Dr. Vágó Zsuzsanna
9	Organic Chemistry (P-ITBIO-0002) Exam Dr. Balogh Balázs	5	2/0/2	Teacher's signature , 19.05.2015 Dr. Krajsovsky Gábor Good , 19.05.2015 Dr. Krajsovsky Gábor Excellent , 11.06.2015 Dr. Gáspári Zoltán

Registered credit: **39**
 Credits completed: **39**
 Weighted educational average: **5**
 Credit index: **6,5**
 Adjusted credit index: **6,5**
 Cumulated weighted study average: **5**
 Aggregated adjusted credit index: **5,83**

Date of closing: **25.01.2018**



	Subject title (code), requirement, teacher	Credit	Lessons (le/p/ly)	Grade, date, examiner
1	Basics of Economics (P-ITKOZ-0001) Exam Dr. Körösi István, Dr. Schlett András	5	4/0/0	Teacher's signature , 09.12.2015 Dr. Schlett András Excellent , 13.01.2016 Dr. Schlett András
2	Molecular biology and genetics of the cell I (P-MB_A5A) Exam Dr. Lippai Mónika	5	2/2/0	Teacher's signature , 25.11.2015 Dr. Lippai Mónika Excellent , 05.01.2016 Dr. Lippai Mónika
3	Data Structures and Algorithms (P-ITSZT-0012) Exam Dr. Reguly István Zoltán, Dr. Zsedrovits Tamás, Gelencsér András, Dr. Tornai Kálmán	6	2/0/3	Teacher's signature , 15.12.2015 Dr. Tornai Kálmán Excellent , 07.01.2016 Dr. Tornai Kálmán
4	Electrical networks -theory and computation (P-ITEEA-0009) Exam Dr. Kolumbán Géza, Dr. Kiss András, Tihanyi Attila	5	2/0/2	Teacher's signature , 11.12.2015 Dr. Kolumbán Géza Excellent , 19.01.2016 Dr. Kolumbán Géza
5	Introduction to Biophysics (P-MB_B7_4) Exam Dr. Gál Péter, Dr. Závodszy Péter	4	3/0/0	Teacher's signature , 18.12.2015 Dr. Gál Péter Excellent , 11.01.2016 Dr. Gál Péter
6	Introduction to Information Technology (P-ITSZT-0011) Term mark Siklósi Borbála	2	0/0/2	Teacher's signature , 05.01.2016 Dr. Novák Borbála Excellent , 05.01.2016 Dr. Novák Borbála
7	Bio- and Environmental Ethics I. (P-ITMUUV-0008) Exam Ft. Nyéky Kálmán, Bálint Flóra	2	2/0/0	Teacher's signature , 04.01.2016 Dr. Bálint Flóra Excellent , 12.01.2016 Dr. Bálint Flóra
8	Teaching (P-ITGYV-0002B) Term mark	2	0/2/0	Teacher's signature , 26.01.2016 Bércesné Novák Ágnes Excellent , 27.01.2016 Bércesné Novák Ágnes
9	Teaching (P-ITGYV-0002A) Term mark	2	0/2/0	Teacher's signature , 15.12.2015 Gelencsér András Excellent , 15.12.2015 Gelencsér András
10	Mathematics Comprehensive (P-ITSZM-0000) Comprehensive exam Várdainé Kollár Judit, Dr. Gerencsérné Dr. Vágó Zsuzsanna, Bércesné Dr. Novák Ágnes, Dr. Garay Barnabás	0		Excellent , 03.09.2015 Dr. Gerencsérné Dr. Vágó Zsuzsanna
11	Mathematical analysis III. (P-ITMAT-0001C) Exam Dr. Reguly István Zoltán, Nika Zsolt, Dr. Gerencsérné Dr. Vágó Zsuzsanna	5	2/2/0	Teacher's signature , 18.12.2015 Dr. Gerencsérné Dr. Vágó Zsuzsanna Satisfactory , 18.12.2015 Dr. Gerencsérné Dr. Vágó Zsuzsanna Excellent , 22.01.2016 Dr. Gerencsérné Dr. Vágó Zsuzsanna
12	Programming II. (P-MB_B10B) Term mark Dr. Feldhoffer Gergely	2	0/0/2	Teacher's signature , 29.01.2016 Dr. Feldhoffer Gergely Excellent , 29.01.2016 Dr. Feldhoffer Gergely
13	Probability, statistics (P-ITMAT-0004) Exam Dr. Rásonyi Miklós	6	3/2/0	Teacher's signature , 30.12.2015 Dr. Rásonyi Miklós Excellent , 30.12.2015 Dr. Rásonyi Miklós

Registered credit: **46**
 Credits completed: **46**
 Weighted educational average: **5**
 Credit index: **7,67**
 Adjusted credit index: **7,67**
 Cumulated weighted study average: **5**
 Aggregated adjusted credit index: **6,44**

Date of closing: **25.01.2018**



	Subject title (code), requirement, teacher	Credit	Lessons (le/p/ly)	Grade, date, examiner
1	Molecular biology and genetics of the cell II. (P-MB_A5B) Exam Dr. Lippai Mónika	5	2/2/0	Teacher's signature , 24.04.2016 Dr. Lippai Mónika Excellent , 16.06.2016 Dr. Lippai Mónika
2	Database management (P-MB_B6) Exam Dr. Lukács Gergely István	5	2/0/2	Teacher's signature , 13.05.2016 Dr. Lukács Gergely István Good , 13.05.2016 Dr. Lukács Gergely István Excellent , 23.05.2016 Dr. Lukács Gergely István
3	Physics of Information Technology and Bionics I. (P-ITFIZ-0006) Exam Dr. Csurgay Árpád István, Juhász Imre Benedek	7	4/2/0	Teacher's signature , 20.05.2016 Dr. Juhász Imre Benedek Excellent , 14.06.2016 Dr. Juhász Imre Benedek
4	Digital Signal Processing (P-ITJEL-0026) Exam Dr. Levendovszky János, Dr. Oláh András	5	2/0/2	Teacher's signature , 20.05.2016 Dr. Oláh András Excellent , 01.06.2016 Dr. Oláh András
5	Digital systems and computer architectures (P-ITEEA-0004) Exam Dr. Szolgay Péter Norbert, Dr. Kiss András	7	4/1/1	Teacher's signature , 17.05.2016 Dr. Kiss András Excellent , 20.05.2016 Dr. Kiss András
6	Functional Analysis (P-ITMAT-0007) Exam Dr. Gerencsérné Dr. Vágó Zsuzsanna, Földi Sándor, Juhász János, Nikházy László	5	2/2/0	Teacher's signature , 19.05.2016 Juhász János Satisfactory , 19.05.2016 Juhász János Excellent , 08.06.2016 Dr. Gerencsérné Dr. Vágó Zsuzsanna
7	Teaching (P-ITGYV-0001A) Term mark	1	0/1/0	Teacher's signature , 23.05.2016 Bércesné Novák Ágnes Excellent , 23.05.2016 Bércesné Novák Ágnes
8	Teaching (P-ITGYV-0001B) Term mark	1	0/1/0	Teacher's signature , 22.06.2016 Dr. Feldhoffer Gergely Excellent , 24.06.2016 Dr. Feldhoffer Gergely
9	Java Programming (P-ITSZT-0006) Term mark Dr. Reguly István Zoltán, Dr. Tornai Kálmán, Dr. Zsedrovits Tamás, Kovács Bertalan	3	0/0/3	Teacher's signature , 20.05.2016 Dr. Reguly István Zoltán Excellent , 20.05.2016 Dr. Reguly István Zoltán
10	Complex biolaboratory I. (P-MB_B3A) Term mark Perczel György Miklós, Dr. Iván Kristóf	3	0/0/3	Teacher's signature , 13.05.2016 Dr. Iván Kristóf Excellent , 13.05.2016 Dr. Iván Kristóf
11	Basics of Management (P-ITKOZ-0002) Exam Dr. Harangozó Gábor	5	4/0/0	Teacher's signature , 14.05.2016 Dr. Harangozó Gábor Excellent , 22.06.2016 Dr. Harangozó Gábor
12	Computing Sciences Comprehensive (P-MB_SZSZT) Comprehensive exam Dr. Szolgay Péter Norbert, Dr. Lukács Gergely István	0		Excellent , 27.05.2016 Dr. Lukács Gergely István
13	Stochastic processes (P-ITMAT-0005) Exam Gerencsér Balázs, Várdainé Kollár Judit	4	2/1/0	Teacher's signature , 20.05.2016 Várdainé Kollár Judit Excellent , 20.05.2016 Várdainé Kollár Judit

Registered credit: **51**
 Credits completed: **51**
 Weighted educational average: **5**
 Credit index: **8,5**
 Adjusted credit index: **8,5**
 Cumulated weighted study average: **5**
 Aggregated adjusted credit index: **6,96**

Date of closing: **25.01.2018**



	Subject title (code), requirement, teacher	Credit	Lessons (le/p/ly)	Grade, date, examiner
1	Basic Image Processing (P-ITJEL-0014) Exam Dr. Szolgay Dániel	5	2/1/1	Teacher's signature , 17.12.2016 Dr. Szolgay Dániel Good , 03.01.2017 Dr. Szolgay Dániel
2	Teaching (P-ITGYV-0002C) Term mark	2	0/2/0	Teacher's signature , 16.01.2017 Dr. Feldhoffer Gergely Excellent , 17.01.2017 Dr. Feldhoffer Gergely
3	Teaching (P-ITGYV-0002D) Term mark	2	0/2/0	Teacher's signature , 16.01.2017 Bércesné Novák Ágnes Excellent , 17.01.2017 Bércesné Novák Ágnes
4	Immunology (P-MB_C13) Exam Dr. Falus András	3	2/0/0	Teacher's signature , 07.12.2016 Dr. Falus András Good , 13.01.2017 Dr. Falus András Excellent , 02.02.2017 Dr. Falus András
5	Information and Coding Theory (P-ITTAV-0003) Exam Dr. Levendovszky János, Dr. Oláh András	6	4/1/0	Teacher's signature , 16.12.2016 Dr. Oláh András Good , 11.01.2017 Dr. Oláh András
6	Introduction to Bioinformatics (P-ITBIO-0009) Exam Juhász János, Harmat Zita, Hinsenkamp Anett Márta	5	2/0/2	Teacher's signature , 13.12.2016 Harmat Zita Excellent , 20.12.2016 Dr. Ligeti Balázs
7	Introduction to Neurobiology (P-ITBIO-0008) Exam Dr. Freund Tamás, Dr. Kalló Imre, Dr. Liposits Zsolt, Sáray Sára	6	3/2/0	Teacher's signature , 21.12.2016 Dr. Kalló Imre Satisfactory , 18.01.2017 Dr. Kalló Imre
8	Introduction to Law and Issues of Copyrights (P-ITKOZ-0003) Exam Dr. Gödölle István	5	4/0/0	Teacher's signature , 02.12.2016 Dr. Gödölle István Excellent , 22.12.2016 Dr. Gödölle István
9	Chamber Music I. (P-ITEGY-0033) Term mark Bércesné Novák Ágnes	1	0/1/0	Teacher's signature , 01.02.2017 Bércesné Novák Ágnes Excellent , 01.02.2017 Bércesné Novák Ágnes
10	Neural networks (P-ITEEA-0011) Exam Dr. Levendovszky János, Dr. Oláh András	5	2/2/0	Teacher's signature , 14.12.2016 Dr. Oláh András Excellent , 11.01.2017 Dr. Oláh András
11	Physics of Information Technology and Bionics II. (P-ITFIZ-0007) Exam Dr. Csurgay Árpád István, Juhász Imre Benedek	5	3/1/0	Teacher's signature , 12.12.2016 Dr. Juhász Imre Benedek Excellent , 27.01.2017 Dr. Juhász Imre Benedek

Registered credit: **45**
 Credits completed: **45**
 Weighted educational average: **4,49**
 Credit index: **6,73**
 Adjusted credit index: **6,73**
 Cumulated weighted study average: **4,89**
 Aggregated adjusted credit index: **6,91**

Date of closing: **25.01.2018**



	Subject title (code), requirement, teacher	Credit	Lessons (le/p/ly)	Grade, date, examiner
1	Training on AFM (P-MB_L2) Term mark Dr. Laki András József	1	0/0/1	Teacher's signature , 26.05.2017 Dr. Laki András József Excellent , 26.05.2017 Dr. Laki András József
2	English language credits (P-ITANG-0050) Term mark	5		Teacher's signature , 22.06.2017 Dr. Góth Júlia Krisztina Excellent , 22.06.2017 Dr. Góth Júlia Krisztina
3	Electrophysiological Methods for the Study of the Nervous and Muscular Systems (P-ITBIO-0007) Exam Dr. Karmos György, Dr. Ulbert István	5	2/0/2	Teacher's signature , 18.05.2017 Dr. Karmos György Pass , 18.05.2017 Dr. Karmos György Excellent , 22.06.2017 Dr. Karmos György
4	Introduction to Functional Neurobiology (P-ITBIO-0021) Exam Dr. Liposits Zsolt, Dr. Freund Tamás, Dr. Kalló Imre	6	3/2/0	Teacher's signature , 23.05.2017 Dr. Kalló Imre Good , 07.06.2017 Dr. Kalló Imre
5	Cellular wave computers (P-ITEEA-0003) Exam Dr. Horváth András	5	2/2/0	Teacher's signature , 19.05.2017 Dr. Horváth András Satisfactory , 19.05.2017 Dr. Horváth András Excellent , 01.06.2017 Dr. Horváth András
6	Teaching (P-ITGYV-0002F) Term mark	2	0/2/0	Teacher's signature , 30.05.2017 Dr. Feldhoffer Gergely Excellent , 30.05.2017 Dr. Feldhoffer Gergely
7	Teaching (P-ITGYV-0002E) Term mark	2	0/2/0	Teacher's signature , 18.05.2017 Bércesné Novák Ágnes Excellent , 18.05.2017 Bércesné Novák Ágnes
8	Chamber Music II. (P-ITEGY-0034) Term mark	1	0/1/0	Teacher's signature , 29.06.2017 Bércesné Novák Ágnes Excellent , 30.06.2017 Bércesné Novák Ágnes
9	Microelectronics (P-ITEEA-0010) Exam Dr. Kovács Ferenc	6	3/2/0	Teacher's signature , 23.05.2017 Dr. Kovács Ferenc Excellent , 31.05.2017 Dr. Kovács Ferenc
10	Biomedical Imaging (P-ITBIO-0004) Exam Dr. Gál Andor Viktor	3	2/0/0	Teacher's signature , 23.05.2017 Dr. Gál Andor Viktor Excellent , 13.06.2017 Dr. Gál Andor Viktor
11	Dynamic Models in Biology (P-ITBIO-0005) Exam Dr. Garay Barnabás Miklós	5	2/1/1	Teacher's signature , 18.05.2017 Dr. Garay Barnabás Miklós Excellent , 16.06.2017 Dr. Garay Barnabás Miklós
12	Individual laboratory MBE-BSc (P-MB_L1) Term mark Dr. Iván Kristóf	4	0/0/4	Teacher's signature , 30.05.2017 Dr. Iván Kristóf Excellent , 30.05.2017 Dr. Iván Kristóf
13	Medical Biology (P-MB_C20) Exam Dr. Falus András	1	1/0/0	Teacher's signature , 25.05.2017 Dr. Falus András Excellent , 26.05.2017 Dr. Falus András
14	Training on STM (P-MB_L3) Term mark Dr. Laki András József	1	0/0/1	Teacher's signature , 26.05.2017 Dr. Laki András József Good , 07.06.2017 Dr. Laki András József

Registered credit: **47**
 Credits completed: **47**
 Weighted educational average: **4,85**
 Credit index: **7,6**
 Adjusted credit index: **7,6**
 Cumulated weighted study average: **4,88**
 Aggregated adjusted credit index: **7,03**

Date of closing: **25.01.2018**



	Subject title (code), requirement, teacher	Credit	Lessons (le/p/ly)	Grade, date, examiner
1	Training on fMRI (P-MB_L4) Term mark Füzesi Krisztián	2	0/0/2	Teacher's signature , 12.12.2017 Füzesi Krisztián Excellent , 12.12.2017 Füzesi Krisztián
2	FPGA-based Algorithm Design (P-ITEEA-0014) Exam Dr. Cserey György Gábor, Dr. Nagy Zoltán	5	2/0/2	Teacher's signature , 13.12.2017 Dr. Nagy Zoltán Excellent , 18.12.2017 Dr. Nagy Zoltán
3	Teaching (P-ITGYV-0003A) Term mark	3	0/3/0	Teacher's signature , 20.12.2017 Dr. Feldhoffer Gergely Excellent , 20.12.2017 Dr. Feldhoffer Gergely
4	Numerical Analysis I. (P-ITMAT-0009) Exam Dr. Gergó Lajos	4	2/0/1	Teacher's signature , 07.12.2017 Dr. Gergó Lajos Satisfactory , 18.12.2017 Dr. Gergó Lajos
5	Thesis Seminar (P-ITLTD-0001) Teacher's signature Dr. Góth Júlia Krisztina	0	1/0/0	Teacher's signature , 21.12.2017 Dr. Góth Júlia Krisztina
6	Computerised Systems Biology (P-MB_C21) Exam Dr. Csikász-Nagy Attila	4	3/0/0	Teacher's signature , 13.12.2017 Dr. Csikász-Nagy Attila Excellent , 14.12.2017 Dr. Csikász-Nagy Attila
7	Physical education 2. (P-ITEGY-0002) Teacher's signature Bognár Ferenc Károly	0	0/2/0	Teacher's signature , 15.12.2017 Bognár Ferenc Károly

Registered credit: **18**
Credits completed: **18**
Weighted educational average: **4,56**
Credit index: **2,73**
Adjusted credit index: **2,73**
Cumulated weighted study average: **4,86**
Aggregated adjusted credit index: **6,41**

Date of closing: **25.01.2018**

Date of authorization:

06.05.2019

FL o RT

Study administrator



