

BABEŞ-BOLYAI UNIVERSITY OF CLUJ-NAPOCA
FACULTY OF CHEMISTRY AND CHEMICAL ENGINEERING
 Domain: **CHEMICAL ENGINEERING, MASTER**
 MASTER specialization: **ADVANCED CHEMICAL PROCESS ENGINEERING**
 Teaching language: English
 Name of graduate: Master's Degree
 Duration of the studies: 4 semesters
 Education form: frequency

TEACHING PROGRAM

Valid for the master program starting from academic year 2015-2016

I. REQUIREMENTS FOR OBTAINING THE MASTER DEGREE

120 transferable credits from which:

90 credits for compulsory courses

30 credits for optional courses

and

10 credits for the dissertation exam.

Employment in school education requires graduation of a didactic master course

II. ACTIVITIES DEVELOPMENT (in number of weeks)

	Didactic activities		Exam sessions			Merged lab. works	Internships	Vacation		
	1 st Semester	2 nd Semester	Winter	Summer	Re-exam.			Winter	Spring	Summer
Year 1	14	14	3	3	2			3	1	12
Year 2	14	14	3	3	2			3	1	12

III. NUMBER OF TEACHING HOURS / WEEK

	1 st Semester	2 nd Semester
Year 1	15	15
Year 2	15	16

IV. DISSERTATION EXAM – between 2-9 July

Exam 1: Presentation and defence of dissertation thesis – 10 credits

V. CHOICE OF OPTIONAL COURSES

Semester 1: one course is chosen from Package 1

Semester 1: one course is chosen from Package 2

Semester 3: one course is chosen from Package 3

one course is chosen from Package 4

Semester 4: one course is chosen from Package 5

VI. EUROPEAN REFERENCE UNIVERSITIES

- Technical University of Aachen, Germany

- ETH University of Zürich, Switzerland

- University of Lappeenranta, Finland

- University of Tarragona, Spain

- University of Veszprém, Hungary

VII. TABLE OF COURSES (consisting in compulsory and optional courses)

YEAR 1, SEMESTER 1												
Code	Course	ECTS Credits	Teaching hours / week			Hours designated for study			Evaluation form			Course type
			Course	Seminar	Laborat.	F	I	T	E	C	Cont. Ev.	
CMX7312	Rheology of disperse systems	6	2	0	1	3	8	11	E			Specialization
CME7312	Process modeling and Artificial intelligence	6	2	0	1	3	8	11	E			Fundamental
CME6111	Advanced physical chemistry	6	2	0	1	3	8	11	E			Fundamental
CME7313	Experimental data acquisition and processing	6	2	0	1	3	8	11		C		Specialization
CMX7311	Optional course 1	6	2	0	1	3	8	11		C		Specialization
TOTAL		30	10	0	5	15	40	55	3	2	0	
YEAR 1, SEMESTER 2												
Code	Course	ECTS Credits	Teaching hours / week			Hours designated for study			Evaluation form			Course type
			Course	Seminar	Laborat.	F	I	T	E	C	Cont. Ev.	
CME7311	Process design using specific software	6	2	1	0	3	8	11	E			Specialization
CME7322	Advanced control of the chemical processes	6	2	0	1	3	8	11	E			Fundamental
CME7323	Process intensification	6	2	0	1	3	8	11	E			Fundamental
CME6131	Research Methodology	6	1	2	0	3	8	11		C		Fundamental
CMX7324	Optional course 2	6	2	0	1	3	8	11		C		Specialization
TOTAL		30	9	3	3	15	40	55	3	2	0	
YEAR 2, SEMESTER 3												
Code	Course	ECTS Credits	Teaching hours / week			Hours designated for study			Evaluation form			Course type
			Course	Seminar	Laborat.	F	I	T	E	C	Cont. Ev.	
CME7331	Molecular modelling and design	6	2	0	1	3	8	11			Cont. Ev.	Specialization
CME7134	Ceramic materials, binders and vitreous materials and methods of advanced processing	6	2	1	0	3	8	11	E			Specialization
CME7333	Thermal integration and Pinch technology	6	2	1	0	3	8	11	E			Fundamental
CMX7335	Optional course 3	6	2	0	1	3	8	11	E			Specialization
CMX7334	Optional course 4	6	2	1	0	3	8	11		C		Specialization
TOTAL		30	8	2	2	12	32	44	3	1	0	
YEAR 2, SEMESTER 4												
Code	Course	ECTS Credits	Teaching hours / week			Hours designated for study			Evaluation form			Course type
			Course	Seminar	Laborat.	F	I	T	E	C	Cont. Ev.	
CME7342	Practical activities of research and development	18	0	0	11	11	21	32			Cont. Ev.	Specialization
CME7345	Elaboration of dissertation thesis	6	0	0	2	2	9	11			Cont. Ev.	Specialization
CMX7344	Optional course 5	6	2	0	1	3	8	11	E			Specialization
TOTAL		30	2	0	13	16	38	54	1	0	2	

OPTIONAL COURSES

Code	Course	ECTS Credits	Teaching hours / week			Hours designated for study			Evaluation form			Course type
			Course	Seminar	Laborat.	F	I	T	E	C	Cont. Ev.	
OPTIONAL COURSE 1 (Year 1, Semester 1)												
CMX6136	Intelligent materials with biomedical, technological and environmental protection applications	6	2	0	1	3	8	11		C		Specialization
CMR6232	Chemical sensors and biosensors	6	2	0	1	3	8	11	E			Specialization
OPTIONAL COURSE 2 (Year 1, Semester 2)												
CMX7141	Green Chemistry – Theoretical and technological aspects	6	2	1	0	3	8	11		C		Specialization
CMX7142	Methods of structural characterization of materials	6	2	0	1	3	8	11		C		Specialization
OPTIONAL COURSE 3 (Year 2, Semester 3)												
CME7321	Risk factors assessment, safety and security	6	2	1	0	3	8	11		C		Specialization
CME7341	Project and quality management	6	2	1	0	3	8	11		C		Specialization
OPTIONAL COURSE 4 (Year 2, Semester 3)												
CMX7345	Design of electrochemical reactors	6	2	1	0	3	8	11		C		Specialization
CMX7346	Membrane processes	6	2	1	0	3	8	11		C		Specialization
OPTIONAL COURSE 5 (Year 2, Semester 4)												
CME6425	Environmental depollution processes	6	2	0	1	3	8	11	E			Specialization
CMX7342	Engineering of pharmaceutical processes	6	2	0	1	3	8	11	E			Specialization
Total credits / Hours per week / Evaluation / Percentage form total of courses		30	10	3	2	15	40	55	1	4	0	27.78%
Total hours / Total hours designated for study			140	42	28	210	560	770				
			210			770						

Rector,
Acad. Prof. dr. Ioan Aurel POP

Dean,
Assoc. Prof. dr. Gabriela Nicoleta NEMEȘ