DOCTOR OF CHEMICAL ENGINEERING — TRAINING PROGRAM FRAMEWORK

A. MASTER'S DEGREE OR EQUIVALENT ENTRY — 90 CREDITS

No.	Course Code	Education Block / Course Title	Total Credits	Theory	Practical / Lab	Seminar / Assignment / Project / Internship
7.1		**Doctoral Coursework**	15	12,5	0	2,5
7.1.1		**Compulsory Courses**	9	7,5	0	1,5
1	CT8201	Structural Elucidation of Organic Compounds Using Spectroscopic Methods	3	2,5	0	0,5
2	CT8202	Modern Organic Synthesis	3	2,5	0	0,5
3	CT8204	Process Integration in Chemical Engineering	3	1,5	0	0,5
7.1.2		**Elective Courses (Choose 2 of 4)**	6	5	0	1
1	CT8203	Nanomaterials Technology	3	2,5	0	0,5
2	CT8205	Synthesis and Characterization of Catalytic Materials for Chemical Reactions	3	2,5	0	0,5
3	CT8206	Organometallic Compounds	3	2,5	0	0,5
4	CT8207	Experimental Methods for Biological Activity Evaluation	3	2,5	0	0,5
7.2		**Scientific Research**	10	0	0	10
7.3.1	CT8208	**+ Literature Review**	4	0	0	4
7.3.2	CT8209	**+ Doctoral Research Seminar 1**	3	0	0	3
7.3.3	CT8210	**+ Doctoral Research Seminar 2**	3	0	0	3
7.3	CT8211	**Doctoral Dissertation**	65	0	0	65
		Total	90	12,5	0	77,5

B. BACHELOR'S DEGREE OR EQUIVALENT ENTRY — 132 CREDITS

No.	Course Code	Education Block / Course Title	Total Credits	Theory	Practical / Lab	Seminar / Assignment / Project / Internship
7.1		**Master's-Level Coursework**	42	32	0	10
7.1.1		**General Knowledge**	5	3	0	1
1	LP7201	Philosophy	3	3	0	0
2	ME7218	Scientific Research Methodology	2	1	0	1

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No.	Course Code	Education Block / Course Title	Total Credits	Theory	Practical / Lab	Seminar / Assignment / Project / Internship
7.1.2		**Discipline Foundation**	11	8,5	0	2,5
a.		**Compulsory Courses**	7	5,5	0	1,5
1	CT7210	Kinetics of Chemical Engineering Processes	2	1,5	0	0,5
2	CT7222	Chemical Engineering Thermodynamics	2	1,5	0	0,5
3	CT7232	Methods for Materials Structure Characterization	3	2,5	0	0,5
b.		**Elective Courses (Choose 2 of 5)**	4	3	0	1
1	CT7218	Multicomponent Separation Techniques	2	1,5	0	0,5
2	CT7217	Advanced Analytical Techniques	2	1,5	0	0,5
3	CT7235	Optimization of Chemical Engineering Processes	2	1,5	0	0,5
4	CT7215	Surface Physical Chemistry	2	1,5	0	0,5
7.1.3		**Specialized Knowledge**	26	19,5	0	6,5
a.		**Compulsory Courses**	10	7,5	0	2,5
1	CT7231	Industrial Catalysis	2	1,5	0	0,5
2	CT7236	Industrial Waste Treatment	2	1,5	0	0,5
3	CT7221	Alternative Fuels	2	1,5	0	0,5
4	CT7226	Equipment Design Calculations for Inorganic Chemical Processing	2	1,5	0	0,5
5	CT7237	Advanced Composite Materials	2	1,5	0	0,5
b.		**Elective Courses (Choose 8 of 12)**	16	12	0	4
1	CT7214	Rare-Earth Chemistry and Technology	2	1,5	0	0,5
2	CT7204	Emulsion Technology	2	1,5	0	0,5
3	CT7216	Bioactive Compounds	2	1,5	0	0,5
4	CT7219	Film Formation and Coating Technology	2	1,5	0	0,5
5	CT7238	Mineral Processing Technology	2	1,5	0	0,5
6	CT7239	Technical Ceramics and Refractory Materials Technology	2	1,5	0	0,5
7	CT7240	Inorganic Coatings	2	1,5	0	0,5
8	CT7241	Biodegradable Polymers	2	1,5	0	0,5

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No.	Course Code	Education Block / Course Title	Total Credits	Theory	Practical / Lab	Seminar / Assignment / Project / Internship
9	CT7242	Stereochemistry	2	1,5	0	0,5
10	CT7213	Petroleum Chemistry and Processing Technology	2	1,5	0	0,5
11	CT7243	Inspection and Calibration of Measuring Instruments	2	1,5	0	0,5
12	CT7224	Photochemistry and Electrochemistry in Chemical Synthesis	2	1,5	0	0,5
7.2		**Doctoral Program**	90	12,5	0	77,5
7.2.1		**Doctoral Coursework**	15	12,5	0	2,5
a.		**Compulsory Courses**	9	7,5	0	1,5
1	CT8201	Structural Elucidation of Organic Compounds Using Spectroscopic Methods	3	2,5	0	0,5
2	CT8202	Modern Organic Synthesis	3	2,5	0	0,5
3	CT8204	Process Integration in Chemical Engineering	3	1,5	0	0,5
b.		**Elective Courses (Choose 2 of 4)**	6	5	0	1
1	CT8203	Nanomaterials Technology	3	2,5	0	0,5
2	CT8205	Synthesis and Characterization of Catalytic Materials for Chemical Reactions	3	2,5	0	0,5
3	CT8206	Organometallic Compounds	3	2,5	0	0,5
4	CT8207	Experimental Methods for Biological Activity Evaluation	3	2,5	0	0,5
7.2.2		**Scientific Research**	10	0	0	10
1	CT8208	+ Literature Review	4	0	0	4
2	CT8209	+ Doctoral Research Seminar 1	3	0	0	3
3	CT8210	+ Doctoral Research Seminar 2	3	0	0	3
7.2.3	CT8211	**Doctoral Dissertation**	65	0	0	65
		Total	132	44,5	0	87,5