Structure and Content of the Doctoral Program in Mechanical Engineering

Applicants holding a master's degree or equivalent qualification

No.	Course Code		Knowledge Area / Course Title	Total Credits	Credit Breakdown			
	Prefix	Number			Theory	TH/ TN	Seminar / Assignment	Internship / Thesis / Dissertation
6.1			**Doctoral Coursework**	**15**				
			+ ***Compulsory Courses***	***9***	***4***	***0***	***5***	***0***
1	ME	8201	Advanced Scientific Research Methods	3	1	0	2	0
2	ME	8202	Advanced Management	2	1	0	1	0
3	ME	8120	Modern Optimization Techniques	2	1	0	1	0
4	ME	8121	Advanced System Modeling and Simulation	2	1	0	1	0
			+ ***Elective Group 1 (select 1 of 3 courses)***	***2***	***1***	***0***	***1***	***0***
5	ME	8122	Neural Network	2	1	0	1	0

No.	Course Code		Knowledge Area / Course Title	Total Credits	Credit Breakdown			
	Prefix	Number			Theory	TH/ TN	Seminar / Assignment	Internship / Thesis / Dissertation
			Control					
6	ME	8123	Intelligent Control and Applications	2	1	0	1	0
7	ME	8124	Distributed Control Systems	2	1	0	1	0
			+ Elective Group 2 (select 2 of 4 courses)	***4***	***2***	***0***	***2***	***0***
8	ME	8125	Micro/Nano Mechatronic Systems	2	1	0	1	0
9	ME	8126	Machine and Robot Structures	2	1	0	1	0
10	ME	8127	Autonomous Systems	2	1	0	1	0
11	ME	8128	Intelligent Mechatronic Systems	2	1	0	1	0
6.2			**Scientific Research**	**10**	**0**	**0**	**10**	**0**
12	ME	8129	+ Literature Review	4	0	0	4	0
13	ME	8130	+ Doctoral Research	3	0	0	3	0

No.	Course Code		Knowledge Area / Course Title	Total Credits	Credit Breakdown			
	Prefix	Number			Theory	TH/ TN	Seminar / Assignment	Internship / Thesis / Dissertation
			Seminar 1					
14	ME	8131	+ Doctoral Research Seminar 2	3	0	0	3	0
6.3	ME	8132	**Doctoral Dissertation**	**65**	**0**	**0**	**65**	**65**
			Total	**90**				

Applicants holding a bachelor's degree or equivalent qualification

No.	Course Code		Knowledge Area / Course Title	Total Credits	Credit Breakdown			
	Prefix	Number			Theory	TH/ TN	Seminar / Assignment	Internship / Thesis / Dissertation
6.1			**Supplementary Master's-level Coursework***	**42**	**23**	**12**	**7**	**0**
1	LP	7201	Philosophy	3	3	0	0	0
2	ME	7218	Scientific Research Methods	2	1	0	1	0
3			Foreign Language*					
4	ME	7215	System Modeling and Simulation	2	1	0	1	0
5	ME	7259	Dynamics of Mechanical Systems	2	1	0	1	0
6	ME	7237	Modern Control Theory	2	1.5	0	0.5	0
7	ME	7224	Sensors and Measurement Signal Processing	2	1	0	1	0

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	Prefix	Number			Theory	TH/ TN	Seminar / Assignment	Internship / Thesis / Dissertation
8	ME	7258	Digital Control Systems	2	1	0	1	0
9	ME	7241	Engineering Optimization	2	1	0	1	0
10	ME	7228	Automatic Hydraulic and Pneumatic Control	2	1	0	1	0
11	ME	7230	Robot Manipulator Dynamics and Control	2	2	0	0	0
012	ME	7251	Intelligent Control	2	1.5	0	0.5	0
13	ME	7252	Electric Motor Modeling and Control	2	1.5	0	0.5	0
14	ME	7248	Advanced Production Management	3	2	1	0	0
15	ME	7209	Flexible Manufacturing Systems (FMS) and Computer-Integrated Manufacturing (CIM)	2	1	1	0	0
16	ME	7249	Special Topics in Measurement Systems	2	1	0	1	0
17	ME	7262	Computer Vision and Applications	2	1.5	0.5	0	0
18	FE	7208	Machine Learning and Pattern Recognition	2	1.5	0	0.5	0
19	ME	7250	Special Topics in Production Systems	2	1	0	1	0
20	ME	7242	Microelectromechanical Systems (MEMS)	2	1.5	0	0.5	0
21	ME	7233	Embedded Systems	2	1.5	0.5	0	0
6.2			**Doctoral Coursework**	**15**				
1	ME	8201	Advanced Scientific Research Methods	3	1	0	2	0
2	ME	8202	Advanced Management	2	1	0	1	0

No.	Course Code		Knowledge Area / Course Title	Total Credits	Credit Breakdown			
	Prefix	Number			Theory	TH/ TN	Seminar / Assignment	Internship / Thesis / Dissertation
3	ME	8120	Modern Optimization Techniques	2	1	0	1	0
4	ME	8121	Advanced System Modeling and Simulation	2	1	0	1	0
			+ Elective Group 1 (select 1 of 3 courses)	***2***	***1***	***0***	***1***	***0***
5	ME	8122	Neural Network Control	2	1	0	1	0
6	ME	8123	Intelligent Control and Applications	2	1	0	1	0
7	ME	8124	Distributed Control Systems	2	1	0	1	0
			+ Elective Group 2 (select 2 of 4 courses)	***4***	***2***	***0***	***2***	
8	ME	8125	Micro/Nano Mechatronic Systems	2	1	0	1	0
9	ME	8126	Machine and Robot Structures	2	1	0	1	0
10	ME	8127	Autonomous Systems	2	1	0	1	0
11	ME	8128	Intelligent Mechatronic Systems	2	1	0	1	0
6.3			**Scientific Research**	**10**	**0**	**0**	**10**	**0**
12	ME	8129	+ Literature Review	4	0	0	4	0
13	ME	8130	+ Doctoral Research Seminar 1	3	0	0	3	0
14	ME	8131	+ Doctoral Research Seminar 2	3	0	0	3	0
6.4	ME	8132	**Doctoral Dissertation**	**65**	**0**	**0**	**65**	**65**
			Total	**132**				