Curriculum Framework for the Talented Master's Program in Mechanical Engineering

Course Code	Knowledge Area / Course Title	Total Credits	Credit Breakdown				Sem.
			Theory	Prac./ Lab	Discussion / Project	Thesis	
Prefix	**General Knowledge**	**5**	**4**	**0**	**1**	**0**	
LP7302	Philosophy	3	3	0	0	0	1
SM7071_TN	Research Methods in Engineering	2	1	0	1	0	1
	Part 2. Foundational Knowledge of the Major	**18**	**10**	**-**	**-**	**0**	
	Compulsory Courses	***14***	***7***	***4***	***3***	***0***	
SM7059_TN	Optimization in engineering	2	1	0	1	0	2
SM7002_TN	Reverse Engineering and Industrial Metrology	2	1	1	0	0	1
SM7003_TN	Advanced CAE	2	1	1	0	0	1
SM7004_TN	Modelling and Simulation of Engineering Systems	2	1	0	1	0	1
SM7005_TN	Artificial Intelligence for Manufacturing systems	2	1	0	1	0	2
SM7006_TN	Innovation and Technology Management	2	1	0	1	0	1
SM7046_TN	Computational Dynamics	2	1	1	0	0	1
	Electives	***4***	***2***	***-***	***-***	***0***	
SM7008_TN	Digital Design Methodology	2	1	1	0	0	2
SM7007_TN	Manufacturing Processes and Systems	2	1	0	1	0	2

SM7047_TN	Image Processing and Machine Vision	2	1	1	0	0	2
SM7010_TN	Simulations and New Materials	2	1	1	0	0	2
SM7011_TN	Advanced Project Management	2	1	0	1	0	2
SM7012_TN	Fatigue Design and Analysis	2	1	0	1	0	2
SM7013_TN	Manufacturing System and Supply Chain Design	2	1	0	1	0	2
SM7015_TN	Mechanical Behavior of Nanomaterials	2	1	0	1	0	2
SM7016_TN	Introduction to Molecular Dynamics simulation	2	1	1	0	0	2
SM7017_TN	Specialized Seminar	2	1	0	1	0	2
	Part 3. Specialized Knowledge	**22**	**10**	**-**	**-**		
	Compulsory Courses	***18***	***6***	***1***	***11***	***0***	
SM7018_TN	Advanced Additive Manufacturing Engineering	2	1	0	1	0	2
SM7019_TN	Digital Twin Engineering	2	1	1	0	0	3
SM7020_TN	Smart Materials and Structures	2	1	0	1	0	2
SM7021_TN	Digital Factory	2	1	0	1	0	3
SM7022_TN	Manufacturing system optimization	2	1	0	1	0	3
SM7025_TN	Advanced surface and coating technology	2	1	0	1	0	2
SM7036_TN	Master's Seminar	3	0	0	3	0	2
SM7050_TN	Masters Research Project	3	0	0	3	0	3
	Electives	***4***	***2***	***-***	***-***	***0***	

SM7023_TN	Machine learning for mechanical engineers	2	1	1	0	0	3
SM7026_TN	Artificial Intelligence and Machine Learning for Engineering Design	2	1	1	0	0	3
SM7028_TN	Magnetic Abrasive Technology	2	1	1	0	0	3
SM7049_TN	Advanced Additive Manufacturing	2	1	1	0	0	3
SM7031_TN	Smart Systems Engineering	2	1	0	1	0	3
SM7032_TN	Materials Engineering in Digital Manufacturing	2	1	0	1	0	3
SM7033_TN	Materials Processing Technologies in Digital Manufacturing	2	1	0	1	0	3
SM7034_TN	Micro/Nano Processing Technology	2	1	0	1	0	3
SM7024_TN	Smart Product Design Applications	2	1	1	0	0	3
SM7037_TN	**MASTER'S THESIS**	**15**	**0**	**0**	**0**	**15**	4
	Total	**60**	**24**	**-**	**-**	**15**	