

Master of Engineering Program in Information Science and Technology (International Program)
Master of Engineering (Information Science and Technology)
2 Year

A2: Research and Coursework (2-year program) IST

Total Credits of the Program	No less than	40	Credit
Curriculum Structure			
1) Core Courses	No less than	22	Credit
1.1) Professional Development			3 Credit (non credit)
IST 591 Professional Development (SU)			3(3-0-6)
1.2) Leadership Training Course			3 Credit (non credit)
IST 592 Leadership in Science and Engineering (SU)			3(3-0-6)
1.3) Seminar		2	Credit
IST 597 Seminar (GD)			1(0-0-0)
1.4) English for Academic Research		2	Credit
IST 598 English for Academic Research (GD)			1(--)
1.5) Compulsory Core Courses	No less than	9	Credit
IST 501 Mathematical Foundations (GD)			3(3-0-6)
IST 502 Data Structures (GD)			3(3-0-6)
IST 503 Algorithm Design and Analysis (GD)			3(3-0-6)
1.6) Compulsory Elective Courses	No less than	9	Credit
1.6.1) Frontiers in Information Science and Technology			
IST 511 Computer Network (GD)			3(3-0-6)
IST 512 Operating System (GD)			3(3-0-6)
IST 513 Programming Languages (GD)			3(3-0-6)
IST 514 Data Manipulation for Applied Machine Intelligence (GD)			3(3-0-6)
IST 515 Computational Machine Intelligence and Applications (GD)			3(3-0-6)
IST 516 Robot Operating System (GD)			3(3-0-6)
IST 521 Neural Networks (GD)			3(3-0-6)
IST 522 Optimization and Numerical Methods (GD)			3(3-0-6)
IST 523 Advanced Cloud Computing and Distributed System (GD)			3(3-0-6)
IST 524 Advanced Big Data Management (GD)			3(3-0-6)
IST 525 Computer Architectures (GD)			3(3-0-6)
IST 531 Advanced Cyber Securities (GD)			3(3-0-6)
IST 532 Embodied Artificial Intelligence (GD)			3(3-0-6)
IST 533 Advanced Robotics (GD)			3(3-0-6)
IST 534 Artificial Intelligence in Biomedical and Health Informatics (GD)			3(3-0-6)
IST 551 Probability for Information Science (GD)			3(3-0-6)
IST 553 Principles of Mathematical Analysis (GD)			3(3-0-6)
IST 555 Convex and Combinatorial Optimization (GD)			3(3-0-6)
IST 557 Network Optimization (GD)			3(3-0-6)
IST 571 Computer Vision (GD)			3(3-0-6)
1.6.2) Frontiers in Energy and Materials Technology			
CHE 511 Principles of Biofuel Engineering (GD)			3(3-0-6)
CHE 512 Oil and Natural Gas Technologies (GD)			3(3-0-6)
CHE 513 Residue Oil Upgrading (GD)			3(3-0-6)
MSE 522 Synthesis and Processing of Electronic and Photonic Materials (GD)			3(3-0-6)

MSE 525	Electrochemical Processing of Materials (GD)	3(3-0-6)
MSE 541	Materials for Energy Environmental and Biological Applications (GD)	3(3-0-6)
MSE 542	Photovoltaic and Solar Cell Materials and Devices (GD)	3(3-0-6)
MSE 543	Sensor and Transducer Materials and Technology (GD)	3(3-0-6)
1.6.3) Petrobased Engineering and Advanced Materials		
CHE 521	Applied Catalysis (GD)	3(3-0-6)
CHE 522	Design and Preparation of Heterogeneous Catalysts (GD)	3(3-0-6)
MSE 514	Electrical, Magnetic, and Optical Properties of Materials (GD)	3(3-0-6)
MSE 524	Sol-Gel Nano Materials and Processing (GD)	3(3-0-6)
MSE 533	Thermal Analysis (GD)	3(3-0-6)
MSE 544	Advanced Ceramics and Applications (GD)	3(3-0-6)
MSE 545	Catalytic Materials and Applications (GD)	3(3-0-6)
1.6.4) Bioresource Engineering		
CHE 531	Biological Engineering (GD)	3(3-0-6)
CHE 532	Biomass and Biological Waste Utilization (GD)	3(3-0-6)
CHE 533	Food Chemistry and Microbiology (GD)	3(3-0-6)
MSE 521	Advanced Synthesis for Organic and Inorganic and Biological Materials (GD)	3(3-0-6)
1.6.5) Molecular Design and Functional Polymers		
CHE 541	Polymer Structure and Property (GD)	3(3-0-6)
CHE 542	Polymerization Engineering (GD)	3(3-0-6)
CHE 543	Computational Polymer Science and Engineering (GD)	3(3-0-6)
CHE 544	Polymer Processing (GD)	3(3-0-6)
MSE 526	Rheology and Processing of Polymers (GD)	3(3-0-6)
1.6.6) Green Process Engineering, Process Control, and Others		
CHE 551	Advanced Process Control (GD)	3(3-0-6)
CHE 552	Computer Process Control (GD)	3(3-0-6)
CHE 553	Computer-aided Computation for Chemical Engineers (GD)	3(3-0-6)
CHE 554	Chemical Reactor Analysis, Design and Scale-up (GD)	3(3-0-6)
CHE 555	Energy Conservation and Management (GD)	3(3-0-6)
CHE 556	Safety and Environmental Risk Analysis (GD)	3(3-0-6)
CHE 557	Cleaner Technology, Life Cycle Assessment and Eco-Design (GD)	3(3-0-6)
MSE 515	Modeling and Simulation of Materials (GD)	3(3-0-6)
MSE 523	Ceramic Processing (GD)	3(3-0-6)
1.6.7) Frontier Research, Selected Topics, Seminar and Thesis		
IST 596	Selected Topics: "Applications of Computational Intelligence for Brain-Computer Interface" (GD)	3(3-0-6)
IST 596	Selected Topics: "Database Systems" (GD)	3(3-0-6)
IST 596	Selected Topics: "Introduction to IST Research" (GD)	3(3-0-6)
IST 596	Selected Topics: "Mathematical Foundation for Data Science" (GD)	3(3-0-6)
IST 596	Selected Topics: "Robot Operating System" (GD)	3(3-0-6)
IST 596	Selected Topics: "Computer Vision" (GD)	3(3-0-6)
IST 596	Selected Topics: "Natural Language Processing" (GD)	3(3-0-6)
IST 596	Selected Topics: "Probability" (GD)	3(3-0-6)
IST 596	Selected Topics: "Modeling and Simulation of Complex Systems" (GD)	3(3-0-6)
2) Thesis	No less than	18 Credit
IST 599	Thesis (SU)	0(0-0-0)