THE LIST OF RELEVANT AND CLOSELY RELEVANT MAJOR
(Ph.D. program)

Definitions:

- **Group 1:** Applicants with a Master's degree in a relevant field of the registered specialization.
- **Group 2:** Applicants with a Master's degree in a field closely related to the registered specialization (**must** take up complementary courses).
- **Group 3:** Applicants with a very good/good Bachelor's degree in a relevant field of the registered specialization (**must** take up complementary courses).

No.	Major	Group 1	Group 2	Group 3
1.	**BUSINESS ADMINISTRATION (9340101)**	Candidates graduated with Master's degree: - Business Administration; - E-commercial Business. Candidates graduated with Good level or above degree: - Business Administration; - Human Resource - Management - International business.	– Finance and Banking; – Insurance; – Accounting; – Management Science; – Public Policy; – Public Administration; – Human Resource Management; – Management of Information Systems; – Science and Technology Management; – Safety Management and Occupational Health; – Economics	❖ **Complementary courses: 9 credits** – Marketing Management (3 credits) – Human Resource Management (3 credits) – Marketing Research (3 credits) ❖ **Complementary courses: 35 credits** – Marketing Management (3 credits) – Human Resource Management Marketing Research (3 credits) – Business Statistics (3 credits) – Business Research Methods (3 credits) – Strategic management (3 credits) – Leadership & Team Management (3 credits) – Advanced Organizational behavior (3 credits) – Strategic Human Resource Management (3 credits) – Advanced Consumer behavior (3 credits)

				– Research Methodology (2 credits) – Philosophy of Marxism and Leninism (3 credits) – Marketing Management (3 credits)
2.	**ACCOUNTING (9340301)**	Candidates graduated with Master's degree: – Accounting; – Accounting – Auditing; – Or some master programs which are different name with accounting master program but it got less than 10% different curriculum of Accounting master program in TDTU. Candidates graduated with Good level or above degree: - Accounting; - Auditing.	– Finance and Banking – Insurance – Business Administration – Commercial Business – Management Science – Public Policy – Public Management – Human Resource Management – Information System Management – Management of Science and Technology – Occupational Safety and Health Management – Economics – International Economic Relations – Or some master programs which are different name with accounting master program but it got from 10% to 40% different curriculum of Accounting master program in TDTU.	– **Complementary courses: 9 credits** – Compulsory courses (6 credits) • Advanced Financial Accounting (3 credits) • Advanced Managerial Accounting (3 credits) – Selective courses (3 credits) • Advanced Auditing (3 credits) • Accounting Information System (3 credits) – **Complementary courses: 30 credits** – Compulsory courses (16 credits) • Philosophy of Marxism and Leninism (3 credits) • Research Methods (2 credits) • Business Statistic (3 credits) • Accounting Theory (2 credits) • Advanced Financial Accounting (3 credits) • Advanced Managerial Accounting (3 credits) – Optional courses for orientation and research tools (4 credits) • Management Economic (2 credits) • Tools for processing and analyzing data (2 credits) • Law of Accounting & Auditing (2

				credits) – Optional specialized courses (10 credits) • Advanced Auditing (3 credits) • International Finance (2 credits) • Project Management (2 credits) • International Accounting (3 credits) • Financial Management (3 credits) • Accounting Information System (3 credits) • Strategic Human Resource Management (3 credits) • Business Ethics (3 credits) • Research Methodology in Accounting (2 credits) • Project 1 (2 credits) • Project 2 (2 credits)
3.	**COMPUTER SCIENCE (9480101)**	**Candidates graduated with Master's degree:** – Computer Science (8480101); – Computer Network and Data Communications (8480102); – Software Engineering (8480103); – Information Systems (8480104); – Computer Engineering (8480106). **Candidates graduated Good level or above degree:**	**Candidates graduated with Master's degree:** – Information Technology (8480201); – Secure Information (8480202); – Information Technology Management (8480204); – Information Systems Management (8480205); – Telecommunications Engineering (8520208); – Control and Automation Engineering (8520216); – Mathematic Foundation for Computer (8460110)	❖ **Complementary courses (9 credits):** – Advanced Graphical algorithm (3 credits); – Probability Analysis and Random Algorithm (3 credits); – Learning Machine (3 credits); ❖ **Candidates graduated Good level or above degree:** – Computer Science (7480101); – Computer Network and Data Communications (7480102); – Software Engineering (7480103); – Information Systems (7480104); – Computer Engineering (7480106). – Computer Engineering Technology (7480108)

		– Computer Science – Computer Network and Data Communications; – Software engineering; – Information Systems; – Computer Engineering – Computer Engineering Technology		
				❖ **Complementary courses (35 credits):** **Compulsory courses (11 credits):** – Philosophy of Marxism and Leninism (3 credits) – Research Methodology (2 credits) – Learning Machine (3 credits) – Probability Analysis and Random Algorithm (3 credits) **Optional courses (12 credits):**

				– Advanced Digital Signal Processing (3 credits) – Advanced Graphical algorithm (3 credits) – Secure Information (3 credits) – Encryption (3 credits) – Knowledge-based systems (3 credits) – Distributed systems (3 credits) – Uncertainty patterns in Artificial Intelligence (3 credits) – Multi-agent system (3 credits) – Graphical model with probabilities (3 credits) **Optional specialized courses (12 credits):** – Computer Vision (3 credits); – Information Retrieval and Web searching (3 credits); – Big data sets exploitation (3 credits); – Computational Genomics (3 credits); – Algorithms and representations in computational molecular biology (3 credits); – Decision making under uncertainty (3 credits); – Multimedia calculations and applications (3 credits); – Natural language processing (3 credits); – Speech processing (3 credits); – Data mining (3 credits); – Advanced topics in Data Science (3 credits); – Advanced radio communications (3 credits);

				– Wireless network (3 credits); – Machine learning in communication (3 credits); – Optical communication systems and networks (3 credits); – Broadband communication network (3 credits); – Advanced digital communication (3 credits); – IoT Technology (3 credits); – Advanced topics in network (3 credits); – Advanced topics in communication (3 credits); – Nonlinear and adaptive control system (3 credits); – Microcontrollers and embedded systems (3 credits); – Smart control (3 credits); – Dynamism and robot control (3 credits); – Advanced topics in robots (3 credits); – Advanced topics in mechatronics (3 credits);
4.	**CIVIL ENGINEERING (9580201)**	**Candidates graduated with Master's degree:** □ Civil Engineering (8580201); □ Hydraulic engineering construction (8580202); □ Marine Civil Engineering (8580203);	**Candidates graduated with Master's degree:** – Construction economy (8580301); – Construction management (8580302); – Architecture (8580101); – Interior Architecture (8580103); – Regional and urban planning	**Complementary courses: 14 credits** – Advanced structural mechanics (02 credits) – Finite Element Method (FEM) (03 credits) – Shell & plate structures (03 credits) – Advanced reinforced concrete structures (03 credits)

		Underground construction engineering (8580204); Transportation Engineering (8580205); Special Construction Engineering (8580206); Infrastructure Engineering (8580210); Geotechnical Engineering (8580211); Water resource Engineering (8580212); – Water supply and drainage engineering (8580213). Candidates graduated with Good level or above degree: - Engineering construction - Hydraulic engineering construction - Transportation Engineering - Infrastructure Engineering - Geotechnical Engineering - Water Resource Engineering - Water supply and drainage engineering	(8580105); – Urban and construction management (8580106); – Interior design (8580408) – Urbanology (8580112) – Or some other related major programs which Science Council and Training in TDTU.	– Advanced construction materials (03 credits) – **Complementary courses (33 credits)** **Mandatory course (16 credits):** - Advanced structural mechanics (02 credits) - Finite Element Method (FEM) (03 credits) - Shell & plate structures (03 credits) - Advanced reinforced concrete structures (03 credits) - Research Methodology (02 credits) - Philosophy (03 credits) **Selective courses (17 credits):** - Scheduling methods (03 credits) - Advanced construction materials (03 credits) - Construction project management (2 credits) - Pre-stressed concrete (2 credits) - Advanced foundation engineering (2 credits) - Advanced steel structures (2 credits) - IT in Engineering Constructions (2 credits) - Solid & Hazardous Waste Management (2 credits) - Soil improvement and slope stability (2 credits) - Excavation and & Retaining walls (2 credits) - Project Appraisal and Analysis (2 credits) - Strategic Project Management (3 credits) - Construction risk management and

				business analysis (3 credits) - Research topic 1 (3 credits) - Research topic 2 (3 credits)

5.	**ELECTRICAL ENGINEERING (9520201)**	**Candidates graduated with Master's degree:** – Electrical Engineering – Power System Engineering – Electrical & Electronics Engineering – Industrial Electrics – Refrigeration Electrical Engineering **Candidates graduated with Good level or above degree:** – Electrical Engineering	**Candidates graduated these following degrees:** – Automation and Control Engineering – Automation Control – Electronics and Communication Engineering – Electronics and Communication – Electronics Engineering – Electronics – Thermal mechanical – Manufacturing automation industry – Industrial informatics – Or some other related major programs which Science Council and Training in TDTU.	❖ **Complementary courses:** – Intelligent Control (3 credits) – Power System Stability and Optimization (3 credits) – Automation Control for Motor Drives (3 credits) – Robotics (3 credits) – Renewable sources and applications (3 credits) – Advanced Wireless Communications (3 credits) – Wireless Networks (3 credits) – Statistical Signal Processing (3 credits) ❖ **Complementary courses (35 credits):** **Mandatory courses (14 credits)** – Research Methodology (2 credits) – Philosophy of Marxism and Leninism (3 credits) – Intelligent Control (3 credits) – Power System Stability and Optimization (3 credits) – Electricity Market Structure and Operation (3 credits) **Selective courses (21 credits):** – Advanced Power Electronics and Applications (3 credits) – Automation Control for Motor Drives (3 credits) – Renewable Sources and Applications (3 credits) – Advanced Power System Protection and Control (3 credits)

				– SCADA and Substation Automation (3 credits) – Smart Grid (3 credits) – Flexible AC Transmission and HVDC (3 credits) – Demand Side Management (3 credits) – Power Quality Management (3 credits) – Reliability Analysis and Risk (3 credits) – Management in Power Systems (3 credits) – Energy Management and Efficiency (3 credits) – Analyzing and Managing Energy Projects (3 credits) – Power System Analysis (3 credits) – Advanced Topics in Modern (3 credits) – The technology of Electrical Engineering Fields (3 credits) – Advanced Topics in Electric Safety and Reliability (3 credits) – Advanced Topics In Energy (3 credits) – Measurement and Supervisory (3 credits) – Advanced Topics In Energy Saving, Renewable, and Green Energy Technology (3 credits) – Advanced Topics in Electricity Market (3 credits)
6.	**COMPUTATIONAL SCIENCE (9460107)**	**Candidates graduated with Master's degree:** – Computational Science – Computational Engineering	**Candidates graduated with Master's or Philosophy's degree with these following majors:** – Mathematics; – Probability Theory and Mathematical	❖ **Complementary courses: 15 credits** – Scientific computing environment (3 credits) – Scientific data visualization (3 credits) – Advanced matrix computation (3 credits)

		Candidates graduated with Good or above degree: – Computational Science – Computational Engineering	Statistics; – Mathematics for Informatics; – Applied Mathematics; – Mathematics - Informatics; – Statistical; – Algebra and number theory; – Computer Science; – Computer Networks and Data Communications; – Information System; – Cryptographic technique; – Computer Engineering; – Information Technology; – Information Technology Management; – Information System Management; – Mechanical Engineering; – Mechatronics Engineering; – Heat Engineering; – Mechanical Dynamics Engineering; – Aviation Engineering; – Marine engineering; – Automotive engineering; – Electrical Engineering; – Electronic Engineering; – Telecommunications Engineering; – Control and Automation technology; – Chemical Engineering; – Material Engineering; – Environmental Engineering;	– Numerical Methods for Partial Differential Equations (3 credits) – Numerical optimization (3 credits) ❖ **Complementary courses: 33 credits** – Scientific computing environment (3 credits) – Scientific data visualization (3 credits) – Advanced matrix computation (3 credits) – Numerical methods for Partial Differential Equations (3 credits) – Numerical optimization (3 credits) – Introduction to Simulation - Computational Softwares (3 credits) – Fundamentals of Scientific computing (3 credits) – Programming methods (4 credits) – Applied Computational Statistics and Data Analysis (3 credits) – Methodology for scientific research (2 credits) – Philosophy of Marxism and Leninism (3 credits)

			– Physics Engineering; – Nuclear Engineering; – Geological engineering; – Geophysical Engineering; – Civil Engineering; – Civil Engineering of Hydraulic Construction; – Civil Engineering of Marine Construction; – Civil Engineering of Underground Construction; – Civil Engineering of Transportation Construction; – Civil Engineering of Special Construction; – Infrastructure Engineering; – Geotechnical construction; – Water Resources Engineering; – Water Supply and Drainage Engineering; – Other science and technology majors.	