TUM Informatics Master – Modules offered in WS22/23 by area

This list is not official, might be incomplete or have errors, use with care!

I created this list by matching modules from TUMonline that will actually be offered with the list of elective modules. I only included lectures (VO) and lectures with integrated exercises (VI). There may be errors: For example, new courses might be missing if they are not yet associated with the correct curriculum on TUMonline, or (rarely) courses are present in TUMonline, but have been cancelled.

Below the main table there are modules that are not mentioned above. There are several possible reasons:
- some are bachelor courses that must be taken by some to start the master
- some are IN courses, but only counts towards other degrees
- some are new courses that count towards the Informatics master, which are not yet mentioned in the official FPSO table or not yet correctly registered in TUM online

Elective Modules of the Area "Algorithms" (ALG):

ID	Title	Term	Contact Hours	Credits	Language	THEO
IN2211	Auction theory and market design	WS	2V+2Ü	5	EN	THEO
IN2229	Computational Social Choice	WS	3V+2Ü	6	EN	THEO
IN2003	Efficient Algorithms and Data Structures	WS	4V+2Ü	8	EN	THEO
IN2360	Advanced Algorithms	WS	3V+2Ü	6	DE/EN	

Elective Modules of the Area "Computer Graphics and Vision" (CGV):

ID	Title	Term	Contact Hours	Credits	Language	THEO
IN2354	3D Scanning & Motion Capture	WS/SS	2V+1Ü+1P	6	EN	
IN2015	Image Synthesis	WS	4V	5	EN	
IN2375	Computer Vision III: as, Segmentation, and Tracking	WS	2V+2Ü	6	EN	
IN2133	Principles of Computer Vision	WS	3V	4	EN	
IN2124	Basic Mathematical Methods for Imaging and Visualization	WS	2V+2Ü	5	EN	
IN2392	Machine Learning for 3D Geometry	SS	2V+1Ü+1P	6	EN	
IN0037	Game Physics	WS	3V+2Ü	6	EN	
IN2026	Visual Data Analytics	WS	3V+1Ü	5	EN	

ID	Title	Term	Contact Hours	Credits	Language	THEO

ID	Title	Term	Contact Hours	Credits	Language	THEO
IN2390	Advanced Deep Learning for Computer Vision: Visual Computing	WS/SS	2V+3P	8	EN	

Elective Modules of the Area "Databases and Information Systems" (DBI):

ID	Title	Term	Contact Hours	Credits	Language	THEO
IN2219	Query Optimization	WS	3V+2Ü	6	EN	
IN2386	Cloud-Based Data Processing	WS	2V+2Ü	5	EN	

Elective Modules of the Area "Digital Biology and Digital Medicine" (DBM):

ID	Title	Term	Contact Hours	Credits	Language	THEO
IN2286	Image Guided Surgery	SS	2V+2P	6	EN	
IN2021	Computer Aided Medical Procedures	WS	4V	6	EN	
IN2292	Introduction to Surgical Robotics	WS	2V+2P	6	EN	
IN2293	Medical Augmented Reality	WS	2V+2Ü	5	EN	
IN2291	Protein Prediction II for Computer Scientists	WS	4V+2Ü	8	EN	
IN2344	Statistical Methods for Systems Genetics	WS	2V+2Ü	5	EN	

Elective Modules of the Area "Engineering Software-intensive Systems" (SE):

ID	Title	Term	Contact Hours	Credits	Language	THEO
IN2309	Advanced Topics of Software Engineering	WS	4V+2Ü	8	DE/EN	
IN2078	Foundations of program and system development	WS	3V	4	DE	
IN2081	Patterns in Software Engineering	WS	2V+2Ü	5	EN	
IN2235	Software Engineering in an Industrial Setting	WS	2V	3	DE	

Elective Modules of the Area "Formal Methods and their Applications" (FMA):

ID	Title	Term	Contact Hours	Credits	Language	THEO
IN2041	Automata and Formal Languages	WS	4V+2Ü	8	EN	THEO
IN2053	Program Optimization	WS	4V+2Ü	8	EN	THEO
IN2055	Semantics	WS	4V+2Ü	8	EN	THEO
ID	Title	Term	Contact Hours	Credits	Language	THEO

IN2358	Lambda Calculus	unreg	2V+2Ü	5 EN	THEO

Elective Modules of the Area "Machine Learning and Analytics" (MLA):

ID	Title	Term	Contact Hours	Credits	Language	THEO
IN2403	Artificial Intelligence in Medicine	WS/SS	2V+2Ü	5	EN	
IN2346	Introduction to Deep Learning	SS	2V+2Ü	6	EN	
IN2361	Natural Language Processing	WS	4V	6	EN	
IN2349	Advanced Deep Learning for Robotics	SS	2V+2P	6	EN	

ID	Title	Term	Contact Hours	Credits	Language	THEO
IN2028	Business Analytics and Machine Learning	WS	2V+2Ü	5	EN	
IN2339	Data Analysis and Visualization in R	WS	2V+4Ü	6	EN	
IN2030	Data Mining and Knowledge Discovery	WS	2V	3	EN	

ID	Title	Term	Contact Hours	Credits	Language	THEO
IN2064	Machine Learning	WS	4V+2Ü	8	EN	

Elective Modules of the Area "Computer Architecture, Computer Networks and Distributed Systems" (RRV):

ID	Title	Term	Contact Hours	Credits	Language	THEO
IN2324	Connected Mobility Basics	WS	4V+2Ü	8	EN	
IN2097	Advanced Computer Networking	WS	3V+1Ü	5	EN	
IN2315	Network Coding	WS	3V+2Ü	6	DE/EN	THEO
IN2076	Advanced Computer Architecture	WS	4V	6	EN	
IN2259	Distributed Systems	WS	3V+1Ü	5	EN	
IN2125	Virtualization Techniques	WS	2V+2Ü	5	EN	

Elective Modules of the Area "Robotics" (ROB):

ID	Title	Term	Contact Hours	Credits	Language	THEO
IN2060	Real-Time Systems	WS	3V+2Ü	6	DE/EN	
IN2062	Techniques in Artificial Intelligence	WS	3V+1Ü	5	DE/EN	

ID	Title		Term	Contact Hours	Credits	Language
IN2405	Neuroprosthetics: Artificial Limbs		WS	2V	5	EN
IN2308	Robot Programming and Control for Human Interaction		SS	2V+2Ü	5	EN
IN2067	Robotics		WS	3V+2Ü	6	EN
IN2071	Knowledge-based Systems for Industrial Applications		WS	3V	4	EN

Elective Modules of the Area "Security and Privacy" (SP):

ID	Title	Term	Contact Hours	Credits	Language	THEO
IN2101	Network Security	WS	3V+1Ü	5	EN	

Elective Modules of the Area "Scientific Computing and High Performance Computing" (HPC):

ID	Title	Term	Contact Hours	Credits	Language	THEO
IN2381	Introduction to Quantum Computing	WS	2V+2Ü	5	EN	THEO
IN2365	Parallel Programming Systems	unreg	2V	3	EN	
IN2311	Turbulent Flow Simulation on HPC-Systems	WS	2V+1Ü	5	EN	THEO

Elective Modules not Assigned to any Area:

ID	Title	Term	Contact Hours	Credits	Language	THEO
IN2093	eLearning - Techniques and Infrastructures	WS	2V	3	DE/EN	

IN Master Informatics Modules present in TUMonline, but not yet mentioned above:

IN0001	Introduction to Informatics
IN0004	Introduction to Computer Architecture
IN0008	Fundamentals of Databases
IN0009	Basic Principles: Operating Systems and System Software
IN0015	Discrete Structures
IN0019	Numerical Programming
IN2126	Advanced Topics of SW Engineering
IN2157	Fundamental AlgorithmsCSE
IN2369	Machine Vision
IN2377	Concepts of C++ programming
IN2398	Numerical Algorithms for High Performance Computing
IN2406	Fundamentals of Artificial Intelligence
IN8019	Visual Data Analytics
IN9048	Innovation Generation in The Healthcare Domain

IN modules not associated with Master Informatics and not yet mentioned above:

These are included in this list because some of them might nevertheless be eligible for Master Infor example because the course is new and the info in TUMonline is not up to date!

IN0021	Introduction to Information Systems
IN0031	Introduction to Informatics for Games Engineering
IN0033	Interactionmethods and -devices

Modules by Master Areas

IN0042	IT Sicherheit
IN1503	Advanced Programming
IN2005	Scientific Computing 1
IN2085	Software Engineering for Business Applications - Bachelor's Course
IN2117	Database Systems
IN2140	Advanced Concepts of Distributed Databases - Programming Database Web Applications
IN2152	Didactics of Informatics
IN2185	BGCE - Research Day
IN2198	Praktische IT-SicherheitElite SE,
IN2230	Protein Prediction II for Bioinformaticians
IN2247	Functional Safety
IN2258	Middleware and Distributed Systems
IN2300	Design of of Business Simulations
IN2379	Advanced Data Handling and Visualization Techniques
IN2401	Concept Art und Game Design
IN2404	Mobile Robotics
IN3100	Selected Topics in Databases and Information SystemsHigh-Performance Query Processing
IN4714	Database System Concepts for Non-Computer Scientists
IN8005	Introduction into Computer Sciencefor non Informatics studies, TUM BWL
IN8008	Introduction to Scientific Programming
IN8011	Engineering Informatics 1BSc. Engineering Science
IN8014	Embedded Networked SystemsBSc. Engineering Science
IN9049	Technology and Law
IN9050	Introduction to Data Protection Law