

Exclosure to Subject Specific Regulations from 21.06.2018
 for Bachelor-Programme Technomathematik
 at TUHH
 Programme Director: Prof. Anusch Taraz
 Total: 180 CP
 Number of Specialisations to choose: 4



Course Scheme Bachelor Technomathematics (TMBS)

Consolidated Version
 for Study Cohort: WiSe17/18
 according to Decision of GA-TMBS: 21.06.2018
 and Approval of Chair from: 22.08.2018
 Replaces Version from: 20.06.2017
 In Force on: 01.10.2018
 Out of Force on: 31.03.2022

| Re com. Term | Module Name (German / English) | Module | | | | | Examination | | |
|---|--|----------|-----------------------|-----------|----------|-----------|-------------|--|---------------------|
| | | Language | Module Responsibility | Institute | C/EC (1) | CM/OM (2) | CP (4) | Grade | Examination Form(s) |
| Core qualification Compulsory Courses: 105 LP Optional Courses: 0 LP | | | | | | | | | |
| 1 | Analysis für Technomathematiker / Analysis for Technomathematicians | DE | Prof. Lindner | E-10 | C | CM | 16 | Y | KL |
| 1 | Elektrotechnik für Technomathematiker / Electrical Engineering for Technomathematicians | DE / EN | Dr. Brüns | E-18 | C | CM | 8 | Y | KL |
| 1 | Lineare Algebra für Technomathematiker / Linear Algebra for Technomathematicians | DE | Prof. Le Bome | E-10 | C | CM | 16 | Y | KL |
| 1 | Mechanik für Technomathematiker / Mechanics for Technomathematicians | DE | Prof. Seifried | M-13 | C | CM | 8 | Y | KL |
| 1 | Prozedurale Programmierung / Procedural Programming | DE | Prof. Rump | E-19 | C | CM | 6 | Y | KL |
| 2 | Objektorientierte Programmierung, Algorithmen und Datenstrukturen / Objectoriented Programming, Algorithms and Data Structures | DE | Prof. Grigat | E-2 | C | CM | 6 | Y | KL |
| 3 | Höhere Analysis / Higher Analysis | DE / EN | Prof. Cortés | 0-UNIHH | C | CM | 9 | Y | KL |
| 3 | Mathematische Stochastik / Mathematical Stochastics | DE / EN | Prof. Drees | 0-UNIHH | C | CM | 9 | Y | KL |
| 3 | Numerische Mathematik / Numerical Mathematics | DE / EN | Prof. Stuckmeier | 0-UNIHH | C | CM | 9 | Y | KL |
| 3 | Proseminar Technomathematik / Proseminar Technomathematics | DE | Prof. Taraz | E-10 | C | CM | 2 | N | RE |
| 4 | Grundlagen der Betriebswirtschaftslehre / Foundations of Management | DE | Prof. Ihl | W-11 | C | CM | 6 | Y | FFA |
| 5 | Seminar Technomathematik / Seminar Technomathematics | DE | Prof. Taraz | E-10 | C | CM | 4 | N | RE |
| 1-6 | Nichttechnische Ergänzungskurse im Bachelor / Nontechnical Complementary Courses for Bachelors | DE / EN | Richter | 0-TUHH | C | OM | 6 | Selection out of seperatly published Catalogue | |
| Specialisation I. Mathematics Compulsory Courses: 0 LP Optional Courses: 27 LP | | | | | | | | | |
| 4 | Algebra / Algebra | DE / EN | Prof. Schweigert | 0-UNIHH | EC | CM | 9 | Y | MP |
| 4 | Approximation und Stabilität / Approximation and Stability | DE / EN | Prof. Lindner | E-10 | EC | CM | 6 | Y | MP |
| 4 | Differentialgeometrie / Differential Geometry | DE / EN | Prof. Cortés | 0-UNIHH | EC | CM | 9 | Y | MP |
| 4 | Diskrete Mathematik / Discrete Mathematics | DE / EN | Prof. Schacht | 0-UNIHH | EC | CM | 9 | Y | MP |
| 4 | Funktionalanalysis / Functional Analysis | DE / EN | Prof. Lauterbach | 0-UNIHH | EC | CM | 9 | Y | MP |
| 4 | Gewöhnliche Differentialgleichungen und Dynamische Systeme / Ordinary Differential Equations and Dynamical Systems | DE / EN | Prof. Lauterbach | 0-UNIHH | EC | CM | 9 | Y | MP |
| 4 | Graphentheorie und Optimierung / Graph Theory and Optimization | DE | Prof. Taraz | E-10 | EC | CM | 6 | Y | KL |
| 4 | Komplexe Funktionen / Complex Functions | DE | Prof. Reis | 0-UNIHH | EC | CM | 3 | Y | MP |
| 4 | Löser für schwachbesetzte lineare Gleichungssysteme / Solvers for Sparse Linear Systems | DE / EN | Prof. Le Bome | E-10 | EC | CM | 6 | Y | MP |
| 4 | Maßtheoretische Konzepte der Stochastik / Measure Theory and Stochastics | DE / EN | Prof. Drees | 0-UNIHH | EC | CM | 6 | Y | MP |
| 4 | Mathematische Statistik / Mathematical Statistics | DE / EN | Prof. Neumeyer | 0-UNIHH | EC | CM | 6 | Y | KL |
| 4 | Numerik gewöhnlicher Differentialgleichungen / Numerical Treatment of Ordinary Differential Equations | DE / EN | Prof. Le Bome | E-10 | EC | CM | 6 | Y | KL |
| 4 | Optimierung / Optimization | DE / EN | Prof. Hinze | 0-UNIHH | EC | CM | 9 | Y | MP |
| 5 | Approximation / Approximation | DE / EN | Prof. Iske | 0-UNIHH | EC | CM | 9 | Y | MP |
| 5 | Diskrete Algebraische Strukturen / Discrete Algebraic Structures | DE | Prof. Zimmermann | E-13 | EC | CM | 6 | Y | KL |

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| | | Language | Module Responsibility | Institute | C/EC (1) | CM/OM (2) | CP (4) | Grade | Examination Form(s) | |
| 5 | Einführung in die Mathematische Modellierung / Introduction to Mathematical Modeling | DE / EN | Prof. Gasser | 0-UNIHH | EC | CM | 9 | Y | MP | |
| 5 | Funktionentheorie / Complex Analysis | DE / EN | Prof. Siebert | 0-UNIHH | EC | CM | 9 | Y | MP | |
| 5 | Geometrie / Geometry | DE / EN | Prof. Kreuzer | 0-UNIHH | EC | CM | 9 | Y | MP | |
| 5 | Graphentheorie / Graph Theory | DE / EN | Prof. Diestel | 0-UNIHH | EC | CM | 9 | Y | MP | |
| 5 | Hierarchische Algorithmen / Hierarchical Algorithms | DE / EN | Prof. Le Bome | E-10 | EC | CM | 6 | Y | MP | |
| 5 | Kombinatorische Optimierung / Combinatorial Optimization | DE / EN | Prof. Schacht | 0-UNIHH | EC | CM | 9 | Y | MP | |
| 5 | Kombinatorische Strukturen und Algorithmen / Combinatorial Structures and Algorithms | DE / EN | Prof. Taraz | E-10 | EC | CM | 6 | Y | MP | |
| 5 | Mathematische Bildverarbeitung / Mathematical Image Processing | DE / EN | Prof. Lindner | E-10 | EC | CM | 6 | Y | MP | |
| 5 | Mathematische Systemtheorie / Mathematical Systems Theory | EN | Prof. Reis | 0-UNIHH | EC | CM | 6 | Y | MP | |
| 5 | Matrixalgorithmen / Matrix Algorithms | DE | Dr. Zemke | E-10 | EC | CM | 6 | Y | MP | |
| 5 | Numerik partieller Differentialgleichungen / Numerics of Partial Differential Equations | DE / EN | Prof. Le Bome | E-10 | EC | CM | 6 | Y | MP | |
| 5 | Stochastische Prozesse / Stochastic Processes | DE / EN | Prof. Drees | 0-UNIHH | EC | CM | 6 | Y | MP | |
| 6 | Diskrete Differentialgeometrie / Discrete Differential Geometry | DE / EN | Prof. Zimmermann | E-13 | EC | CM | 6 | Y | MP | |
| 6 | Elementare Zahlentheorie / Introductory Number Theory | DE / EN | Prof. Kühn | 0-UNIHH | EC | CM | 9 | Y | MP | |
| 6 | Grundbegriffe der Mathematischen Logik / Foundations of Mathematical Logic | DE / EN | Prof. Loewe | 0-UNIHH | EC | CM | 5 | Y | MP | |
| 6 | Naive Mengenlehre / Set Theory | DE / EN | Prof. Loewe | 0-UNIHH | EC | CM | 5 | Y | MP | |
| 6 | Numerische Mathematik II / Numerical Mathematics II | DE / EN | Prof. Le Bome | E-10 | EC | CM | 6 | Y | MP | |
| 6 | Praktische Statistik / Practical Statistics | DE / EN | Prof. Neumeyer | 0-UNIHH | EC | CM | 5 | Y | MP | |
| 6 | Topologie / Topology | DE / EN | Prof. Richter | 0-UNIHH | EC | CM | 9 | Y | MP | |
| Specialisation II. Informatics Compulsory Courses: 0 LP Optional Courses: 12 LP | | | | | | | | | | |
| 4 | Automatentheorie und Formale Sprachen / Automata Theory and Formal Languages | EN | Prof. Knopp | E-5 | EC | CM | 6 | Y | KL | |
| 4 | Software-Engineering / Software Engineering | EN | Prof. Schupp | E-16 | EC | CM | 6 | Y | KL | |
| 5 | Datenbanken / Databases | EN | NN | E-16 | EC | CM | 6 | Y | KL | |
| 5 | Einführung in die Informationssicherheit / Introduction to Information Security | EN | Prof. Gollmann | E-15 | EC | CM | 6 | Y | KL | |
| 5 | Funktionales Programmieren / Functional Programming | EN | Prof. Schupp | E-16 | EC | CM | 6 | Y | KL | |
| 5 | Numerik und Computer Algebra / Numerics and Computer Algebra | DE | Prof. Rump | E-19 | EC | CM | 6 | Y | MP | |
| 5 | Rechnernetze und Internet-Sicherheit / Computer networks and Internet Security | EN | Prof. Timm-Giel | E-4 | EC | CM | 6 | Y | KL | |
| 5 | Technische Informatik / Computer Engineering | DE | Prof. Falk | E-13 | EC | CM | 6 | Y | KL | |
| 5 | Verteilte Systeme / Distributed Systems | DE | Prof. Turau | E-17 | EC | CM | 6 | Y | KL | |
| 5 | Wissenschaftliches Rechnen und Genauigkeit / Scientific Computing and Accuracy | DE | Prof. Rump | E-19 | EC | CM | 6 | Y | MP | |
| 6 | Algebraische Methoden in der Regelungstechnik / Algebra and Control | DE / EN | Dr. Batra | E-19 | EC | CM | 6 | Y | MP | |
| 6 | Anwendungssicherheit / Application Security | EN | Prof. Gollmann | E-15 | EC | CM | 6 | Y | KL | |
| 6 | Berechenbarkeit und Komplexität / Computability and Complexity Theory | DE / EN | Prof. Zimmermann | E-13 | EC | CM | 6 | Y | MP | |
| 6 | Betriebssysteme / Operating Systems | DE | Prof. Turau | E-17 | EC | CM | 6 | Y | KL | |
| 6 | Compilerbau / Compiler Construction | EN | Prof. Schupp | E-16 | EC | CM | 6 | Y | FFA | |
| Specialisation III. Engineering Science Compulsory Courses: 0 LP Optional Courses: 12 LP | | | | | | | | | | |
| 4 | Biochemie und Mikrobiologie / Biochemistry and Microbiology | DE | Dr. Bubenheim | V-6 | EC | CM | 6 | Y | KL | |
| 4 | Bioverfahrenstechnik - Grundlagen / Bioprocess Engineering - Fundamentals | DE | Prof. Liese | V-6 | EC | CM | 6 | Y | KL | |
| 4 | Einführung in Medizintechnische Systeme / Introduction into Medical Technology and Systems | DE | Prof. Schlaefer | E-1 | EC | CM | 6 | Y | KL | |
| 4 | Geotechnik I / Geotechnics I | DE | Prof. Grabe | B-5 | EC | CM | 6 | Y | KL | |
| 4 | Grundlagen der Strömungsmechanik / Fundamentals of Fluid Mechanics | DE | Prof. Schlüter | V-5 | EC | CM | 6 | Y | KL | |
| 4 | MED I: Einführung in die Anatomie / MED I: Introduction to Anatomy | DE | Prof. Schumacher | M-3 | EC | CM | 3 | Y | KL | |
| 4 | MED I: Einführung in die Radiologie und Strahlentherapie / MED I: Introduction to Radiology and Radiation Therapy | DE | Prof. Carl | M-3 | EC | CM | 3 | Y | KL | |
| 4 | Signale und Systeme / Signals and Systems | DE / EN | Prof. Bauch | E-8 | EC | CM | 6 | Y | KL | |
| 4 | Strömungsmechanik / Fluid Dynamics | DE | Prof. Rung | M-8 | EC | CM | 6 | Y | KL | |
| 4 | Technische Thermodynamik I / Technical Thermodynamics I | DE | Prof. Schmitz | M-21 | EC | CM | 6 | Y | KL | |
| 4 | Theoretische Elektrotechnik I: Zeitunabhängige Felder / Theoretical Electrical Engineering I: Time-Independent Fields | DE | Prof. Schuster | E-18 | EC | CM | 6 | Y | KL | |
| 5 | Baustatik I / Structural Analysis I | DE | Prof. Starossek | B-4 | EC | CM | 6 | Y | KL | |

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| 5 | Baustoffgrundlagen und Bauphysik / Principles of Building Materials and Building Physics | DE | Prof. Schmidt-Döhl | B-3 | EC | CM | 6 | Y | KL | |
| 5 | BIO I: Implantate und Frakturheilung / BIO I: Implants and Fracture Healing | DE | Prof. Morlock | M-3 | EC | CM | 3 | Y | KL | |
| 5 | Bioverfahrenstechnik - Vertiefung / Bioprocess Engineering - Advanced | DE | Prof. Zeng | V-1 | EC | CM | 6 | Y | KL | |
| 5 | Chemie / Chemistry | DE | Dr. Rechtenbach | SD-B | EC | CM | 6 | Y | KL | |
| 5 | Einführung in die Nachrichtentechnik und ihre stochastischen Methoden / Introduction to Communications and Random Processes | DE / EN | Prof. Bauch | E-8 | EC | CM | 6 | Y | KL | |
| 5 | Elektrotechnik III: Netzwerktheorie und Transienten / Electrical Engineering III: Circuit Theory and Transients | DE | Prof. Jacob | E-3 | EC | CM | 6 | Y | KL | |
| 5 | Finite-Elemente-Methoden / Finite Elements Methods | EN | Prof. von Estorff | M-16 | EC | CM | 6 | Y | KL | |
| 5 | Geotechnik II / Geotechnics II | DE | Prof. Grabe | B-5 | EC | CM | 6 | Y | KL | |
| 5 | Grundlagen der Regelungstechnik / Introduction to Control Systems | DE | Prof. Wemer | E-14 | EC | CM | 6 | Y | KL | |
| 5 | Grundlagen der Werkstoffwissenschaften / Fundamentals of Materials Science | DE | Prof. Weißmüller | M-22 | EC | CM | 6 | Y | KL | |
| 5 | Mechanik III (Hydrostatik, Kinematik, Kinetik I) / Mechanics III (Hydrostatics, Kinematics, Kinetics I) | DE | Prof. Seifried | M-13 | EC | CM | 6 | Y | KL | |
| 5 | MED II: Einführung in die Biochemie und Molekularbiologie / MED II: Introduction to Biochemistry and Molecular Biology | DE | Prof. Kreienkamp | M-3 | EC | CM | 3 | Y | KL | |
| 5 | Messtechnik und Messdatenverarbeitung / Measurements: Methods and Data Processing | DE | Prof. Schlaefer | E-1 | EC | CM | 6 | Y | KL | |
| 5 | Numerische Methoden der Thermofluidynamik I / Computational Fluid Dynamics I | DE | Prof. Rung | M-8 | EC | CM | 6 | Y | KL | |
| 5 | Technische Thermodynamik II / Technical Thermodynamics II | DE | Prof. Schmitz | M-21 | EC | CM | 6 | Y | KL | |
| 5 | Theoretische Elektrotechnik II: Zeitabhängige Felder / Theoretical Electrical Engineering II: Time-Dependent Fields | DE | Prof. Schuster | E-18 | EC | CM | 6 | Y | KL | |
| 5 | Wärme- und Stoffübertragung / Heat and Mass Transfer | DE | Prof. Smimova | V-8 | EC | CM | 6 | Y | KL | |
| 6 | BIO I: Experimentelle Methoden der Biomechanik / BIO I: Experimental Methods in Biomechanics | DE | Prof. Morlock | M-3 | EC | CM | 3 | Y | KL | |
| 6 | Boundary-Elemente-Methoden / Boundary Element Methods | EN | Prof. von Estorff | M-16 | EC | CM | 6 | Y | KL | |
| 6 | Elektrotechnik IV: Leitungen und Forschungsseminar / Electrical Engineering IV: Transmission Lines and Research Seminar | DE / EN | Prof. Jacob | E-3 | EC | CM | 6 | Y | KL | |
| 6 | Elektrotechnisches Projektpraktikum / Electrical Engineering Project Laboratory | DE | Prof. Becker | E-6 | EC | CM | 6 | N | FFA | |
| 6 | Grundlagen der Konstruktionslehre / Fundamentals of Mechanical Engineering Design | DE | Prof. Krause | M-17 | EC | CM | 6 | Y | KL | |
| 6 | Halbleiterschaltungstechnik / Semiconductor Circuit Design | DE | Prof. Kuhl | E-9 | EC | CM | 6 | Y | KL | |
| 6 | Mechanik IV (Kinetik II, Schwingungen, Analytische Mechanik, Mehrkörpersysteme) / Mechanics IV (Kinetics II, Oscillations, Analytical Mechanics, Multibody Systems) | DE | Prof. Seifried | M-13 | EC | CM | 6 | Y | KL | |
| 6 | MED II: Einführung in die Physiologie / MED II: Introduction to Physiology | DE | Dr. Zimmermann | M-3 | EC | CM | 3 | Y | KL | |
| 6 | Numerische Algorithmen in der Strukturmechanik / Numerical Algorithms in Structural Mechanics | DE | Prof. Düster | M-10 | EC | CM | 6 | Y | KL | |
| 6 | Technische Akustik I (Akustische Wellen, Lärmschutz, Psychoakustik) / Technical Acoustics I (Acoustic Waves, Noise Protection, Psycho Acoustics) | EN | Prof. von Estorff | M-16 | EC | CM | 6 | Y | KL | |
| 6 | Vertiefende Grundlagen der Werkstoffwissenschaften / Enhanced Fundamentals of Materials Science | DE / EN | Prof. Schneider | M-9 | EC | CM | 6 | Y | KL | |
| Specialisation IV. Subject Specific Focus Compulsory Courses: 0 LP Optional Courses: 12 LP | | | | | | | | | | |
| 4 | Technischer Ergänzungskurs I Technomathematik (laut FSPO) / Technical Complementary Course I for Technomathematics (according to Subject Specific Regulations) | | Prof. Taraz | E-10 | EC | OM | 6 | according to Subject Specific Regulations | | |
| 5 | Mathematisches Projektpraktikum / Mathematical Project Laboratory | | Dozenten der Mathematik | E-10 | EC | CM | 6 | N | SA | |
| 5 | Technischer Ergänzungskurs II Technomathematik (laut FSPO) / Technical Complementary Course II for Technomathematics (according to Subject Specific Regulations) | | Prof. Taraz | E-10 | EC | OM | 6 | according to Subject Specific Regulations | | |
| Thesis Compulsory Courses: 12 LP Optional Courses: 0 LP | | | | | | | | | | |
| 6 | Bachelorarbeit / Bachelor Thesis | | Professoren der TUHH | 0-TUHH | C | CM | 12 | Y | AB | |

Explanation:

¹C=Compulsory, EC=Elective Compulsory

²CM=Compulsory Defined Module, OM=Optional Defined Module

³KL=Written exam, MT=Midterm, SA=Written elaboration, FFA=Subject theoretical and practical work, FFST=Subject theoretical and practical work, MP=Oral exam, RE=Presentation, ÜA=Exercises, AB=Thesis, TE=Attestation

⁴CP=Credit Points

⁵VL=Lecture, SE=Seminar, UE=Recitation Section (small), PBL=Project-/problem-based Learning, PR=Practical Course, PS=Project Seminar, HU=Recitation Section (large)

⁶DE=German, EN=English, DE/EN=German and English

⁷SWS=Contact hours