Technische Hochschule **Rosenheim**

Modulhandbuch IWT-B

Module catalogue

Fakultät für Holztechnik und Bau

Faculty of Wood Technology and Construction

Studien- und Prüfungsordnung vom 01.08.2023
gültig für Studierende mit Studienbeginn ab 15.03.2024

Gültig ab Sommersemester 2024

Technische Hochschule Rosenheim

Akademische Leitung
Prof. Thorsten Ober (Dekan)
Prof. Martina Zurwehme (Prodekanin)

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Dipl. Ing. (FH) Katrin Gandler

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2. Modulplan *Curriculum*

International Bachelor of Wood Technology SPO 2024

CREDIT POINTS (CP)

	1–5	6–10	11–15	16–20	21–25	26–30	CP
1	Mathematics 1*	Engineering Mechanics 1: Statics*	Manufacturing Engineering of Wood Based Products*	Material Science of Wood and Wood Based Products*	Deutsch B1.1	Deutsch B1.2	30
2	Physics*	Basic Chemistry*	Holzphysik und Holzanatomie	Metallische Werkstoffe und Maschinenelemente	Deutsch B2.1	Deutsch B2.2	30
3	Grundlagen der Bauphysik	Holzchemie und Polymere	Ingenieurmathematik	Maschinenkunde und Grundlagen IT	Technisches Deutsch 1	Technisches Deutsch 2	30
4	Grundlagen der Produktentwicklung und Konstruktion - CAD	Massivholzverarbeitung und Holztrocknung	Grundlagen Betriebswirtschaftslehre und Kreislaufwirtschaft	Informations- und Elektrotechnik	Nachhaltige Energie- und Gebäudetechnik	Holzbearbeitungs-maschinen	30
5	Möbelkonstruktion	Holzbaukonstruktion, Bauelemente, Holzbaufertigung	Strategisches Produktmanagement	Produktionsoptimierung - Lean Management	Oberflächentechnik - Kleb- und Presstechnik	Vertiefungs-Wahlblock	30
6	Praxissemester						30
7	Projektseminar: technische, strategische Produktentwicklung	Finanzplanung und Controlling	Holzwerkstofftechnik und Fabrikplanung	Nachhaltigkeits-bewertung und Umweltschutz	Fertigungskonzepte und Produktionsauto-matisierung	Vertiefungs-Wahlblock	30
8	Projektseminar: Unternehmensplanung und -entwicklung	Digitale Prozess- und Ressourcenplanung - ERP	Bachelorarbeit			Vertiefungs-Wahlblock	30

* in English

Gesamt 240 CP

Mathematisch-naturwissenschaftliche Grundlagen · Technische Produktentwicklung · Betriebswirtschaft und Organisation · Projektseminar · Fremdsprache · Nachhaltigkeit, Digitalisierung, Maschinentechnik · Materialwissenschaften · Fachwissenschaftliche Wahlpflichtmodule · Produktion & Fertigungstechnik

International Bachelor of Wood Technology SPO 2024

CREDIT POINTS (CP)

	1–5	6–10	11–15	16–20	21–25	26–30	CP
1	Mathematics 1*	Engineering Mechanics 1: Statics*	Manufacturing Engineering of Wood Based Products*	Material Science of Wood and Wood Based Products*	German B1.1	German B1.2	30
2	Physics*	Basic Chemistry*	Wood Physics and Wood Anatomy	Metallic Materials and Machine Elements	German B2.1	German B2.2	30
3	Basics Building Physics	Wood Chemistry and Polymers	Engineering Mathematics	Machine Engineering and IT Basics	Technical German 1	Technical German 2	30
4	Basics of Product Development, Design and Engineering – CAD	Solid Wood Processing and Wood Drying	Basics Business Administration and Circular Economy	Computer and Electrical Engineering	Sustainable Energy and Building Technology	Woodworking Machinery	30
5	Furniture Design and Engineering	Timber Construction and Pre-Manufacturing Engineering	Strategic Product Management	Production Optimisation – Lean Manufacturing	Surface Technology – Adhesive and Pressing Technology	Advanced Electives	30
6	Practical Internship						30
7	Project Seminar: Technical and Strategic Product Development	Finance and Controlling	Wood-Based Panel Technology and Factory Planning	Sustainability Assessment and Environmental Protection	Concepts in Manufacturing and Production Automation	Advanced Electives	30
8	Project Seminar: Corporate Planning and Development	Digital Process and Resource Planning – ERP	Bachelor´s Thesis			Advanced Electives	30

* in English

Total 240 CP

Basics of Mathematics and Sciences · Technical Product Development · Business Administration and Organisation · Project Seminar · Foreign language · Sustainability, Digitalisation, Machine Technology · Material Science · Electives · Production & Manufacturing Engineering

3. Erklärung der Abkürzungen *Explanation of abbreviations*

SWS	=	Semesterwochenstunden *hours per week per semester*
ECTS	=	European Credit Transfer System
V	=	Vorlesung *lecture*
Ü	=	Übung *practical exercise*
SU	=	Seminaristischer Unterricht *seminar-based lectures*
ZV	=	Zulassungsvoraussetzung *admission requirements*
BA	=	Bachelorarbeit *Bachelor's thesis*
FWPM	=	Fachwissenschaftliche Wahlpflichtmodule *Specialist required Elective Courses*
schrP	=	schriftliche Prüfung *written examination*
PStA	=	Prüfungsstudienarbeit *coursework (such as a work experience report, or a colloquium for group work with an additional, individual examination*)
mdlP	=	mündliche Prüfung *oral examination*
Ex	=	Exkursion, *field trip*
Kol	=	Kolloquium *colloquium*
elP	=	elektronische Prüfung *electronical examination*
prP	=	praktische Prüfung *practical examination*
mE	=	mit Erfolg abgelegt *pass*
P	=	Prüfungen *exams*
PA	=	Projektarbeit *project work*
PB	=	Praxisbericht *practice report*
Pr	=	Praktikum *work experience*
S	=	Seminar *seminar*
SV	=	Seminarvortrag *seminar presentation*
TN	=	Teilnahmenachweis *attendance certification*

4. Übersicht Workload *Overview Course Workload*

Modul-Nr. *Module Nr.*	Modul-Name *Module name*	SWS *contact hours/week* SU	S	Ü	Pr	Präsenzzeit *contact hours* in h	Exkursion *Excursion* in h	Häusliche Vor- und Nachbereitung und Prüfungsvorbereitung *preparation and follow-up work at home, exam preparation* in h	ECTS
IWT01	German B1.1	4				60		90	5
IWT02	German B1.2	4				60		90	5
IWT03	Mathematics 1	4		1		75		75	5
IWT04	Engineering Mechanics 1: Statics	4				60		90	5
IWT05	Manufacturing Engineering of Wood Based Products	4			1	75		75	5
IWT06	Material Science of Wood and Wood Based Products	4				60		90	5
IWT11	German B2.1	4				60		90	5
IWT12	German B2.2	4				60		90	5
IWT13	Holzphysik und Holzanatomie	4			1	75		75	5
IWT14	Physics	4			1	75		75	5
IWT15	Basic Chemistry	4				60		90	5
IWT16	Metallische Werkstoffe und Maschinenelemente	4		1		75		75	5
IWT21	Technical German 1	4				60		90	5
IWT22	Technical German 2	4				60		90	5
IWT23	Grundlagen Bauphysik	3			2	75		75	5
IWT24	Ingenieurmathematik	4			1	75		75	5
IWT25	Maschinenkunde und Grundlagen IT	4		1		75		75	5

Modul-Nr. *Module Nr.*	Modul-Name *Module name*	SWS *contact hours/week* SU	S	Ü	Pr	Präsenzzeit *contact hours* in h	Exkursion *Excursion* in h	Häusliche Vor- und Nachbereitung und Prüfungsvorbereitung *preparation and follow-up work at home, exam preparation* in h	ECTS
IWT26	Holzchemie und Polymere	4			1	75		75	5
	Hauptstudium								
HT31	Grundlagen der Produktentwicklung und Konstruktion – CAD	3		2		75		75	5
HT32	Massivholzverarbeitung und Holztrocknung	4			1	75		75	5
HT33	Grundlagen Betriebswirtschaftslehre und Kreislaufwirtschaft	4	1			75		75	5
HT34	Informations- und Elektrotechnik	4		1		75		75	5
HT35	Nachhaltige Energie- und Gebäudetechnik	4			1	75		75	5
HT36	Holzbearbeitungs-maschinen	4			1	75		75	5
HT41	Möbelkonstruktion	3		2		75		75	5
HT42	Holzbaukonstruktion, Bauelemente, Holzbaufertigung	4			1	75		75	5
HT43	Strategisches Produktmanagement	3		2		75		75	5
HT44	Produktionsoptimierung – Lean Management	4		1		75		75	5
HT45	Oberflächentechnik – Kleb- und Presstechnik	4			1	75		75	5
HT61	Projektseminar: technische, strategische Produktentwicklung		2	1		45		105	5

Modul-Nr. *Module Nr.*	Modul-Name *Module name*	SWS *contact hours/week* SU	 S	 Ü	 Pr	Präsenz-zeit *contact hours* in h	Exkursion *Excursion* in h	Häusliche Vor- und Nachbereitung und Prüfungsvorbereitung *preparation and follow-up work at home, exam preparation* in h	ECTS
HT62	Finanzplanung und Controlling	3		2		75		75	5
HT63	Holzwerkstofftechnik und Fabrikplanung	4			1	75		75	5
HT64	Nachhaltigkeitsbewert-ung und Umweltschutz	4		1		75		75	5
HT 65	Fertigungskonzepte und Produktionsautomatisie-rung	4			1	75		75	5
HT71	Projektseminar: Unternehmensplanung und -entwicklung		3	1		60		180	8
HT72	Digitale Prozess- und Ressourcenplanung – ERP	3			2	75		75	5
HT73	Vertiefungs-Wahlblock: Fachwissenschaftliche Wahlpflichtmodule	15				225		225	15
HT74	Bachelorarbeit							360	12
HT51	Praxisbegleitende Lehrveranstaltungen	2			2 (Ex)	30	50	70	5
HT52	Praxisphase							750	25
	Summe *overall*	164				6300			210

5. Häufigkeit und Verwendbarkeit in anderen Studiengängen

Frequency and applicability in other degree programmes

Modul-Nr. *Module Nr.*	Modul-Name *Module name*	Angeboten im *offered in* WiSe	 SoSe	Gemeinsames Modul mit anderen Studiengängen (Bachelor) *Joint module with other degree programmes (Bachelor)*
IWT01	German B1.1		x	IBR-B, SPO20231, IBR11
IWT02	German B1.2		x	IBR-B, SPO20231, IBR12
IWT03	Mathematics 1		x	IBR-B, SPO20231, IBR13
IWT04	Engineering Mechanics 1: Statics		x	IBR-B, SPO20231, IBR16
IWT05	Manufacturing Engineering of Wood Based Products		x	--
IWT06	Material Science of Wood and Wood Based Products		x	--
IWT11	German B2.1	x		IBR-B, SPO20231, IBR21
IWT12	German B2.2	x		IBR-B, SPO20231, IBR22
IWT13	Holzphysik und Holzanatomie	x		HT-B, SPO 20242, HT11
IWT14	Physics	x		IBR-B, SPO20231, IBR24
IWT15	Basic Chemistry	x		IBR-B, SPO20231, IBR25.3
IWT16	Metallische Werkstoffe und Maschinenelemente	x		HT-B, SPO 20242, HT16
IWT21	Technical German 1		x	IBR-B, SPO20231, IBR31
IWT22	Technical German 2		x	IBR-B, SPO20231, IBR32
IWT23	Grundlagen der Bauphysik		x	HT-B, SPO 20242, HT25
IWT24	Ingenieurmathematik		x	HT-B, SPO 20242, HT24
IWT25	Maschinenkunde und Grundlagen IT		x	HT-B, SPO 20242, HT26
IWT26	Holzchemie und Polymere		x	HT-B, SPO 20242, HT21
	Hauptstudium			
HT31	Grundlagen der Produktentwicklung und Konstruktion – CAD	x		--
HT32	Massivholzverarbeitung und Holztrocknung	x		IPB 36 – SPO 2020
HT33	Grundlagen Betriebswirtschaftslehre und Kreislaufwirtschaft	x		IAB 15 – SPO 2019 HA 18 – SPO 2023 BI 18 – SPO 2019

Modul-Nr. *Module Nr.*	Modul-Name *Module name*	Angeboten im *offered in*		Gemeinsames Modul mit anderen Studiengängen (Bachelor) *Joint module with other degree programmes (Bachelor)*
		WiSe	SoSe	
HT34	Informations- und Elektrotechnik	x		--
HT35	Nachhaltige Energie- und Gebäudetechnik	x		--
HT36	Holzbearbeitungsmaschinen	x		IPB 35 – SPO 2020
HT41	Möbelkonstruktion		x	--
HT42	Holzbaukonstruktion, Bauelemente, Holzbaufertigung		x	--
HT43	Strategisches Produktmanagement		x	--
HT44	Produktionsoptimierung – Lean Management		x	--
HT45	Oberflächentechnik – Kleb- und Presstechnik		x	IPB 34 – SPO 2020
HT61	Projektseminar: technische, strategische Produktentwicklung		x	--
HT62	Finanzplanung und Controlling		x	--
HT63	Holzwerkstofftechnik und Fabrikplanung		x	IPB 36 – SPO 2020
HT64	Nachhaltigkeitsbewertung und Umweltschutz		x	--
HT 65	Fertigungskonzepte und Produktionsautomatisierung		x	IPB 37 – SPO 2020
HT71	Projektseminar: Unternehmensplanung und -entwicklung	x		HA 31 – SPO 2023
HT72	Digitale Prozess- und Ressourcenplanung – ERP	x		--
HT73	Vertiefungs-Wahlblock: Fachwissenschaftliche Wahlpflichtmodule	x	x	Siehe Modulhandbuch FWPM
HT74	Bachelorarbeit	x	x	--
HT51	Praxisbegleitende Lehrveranstaltungen	x		--

Modul-Nr. *Module Nr.*	Modul-Name *Module name*	Angeboten im *offered in*		Gemeinsames Modul mit anderen Studiengängen (Bachelor) *Joint module with other degree programmes (Bachelor)*
		WiSe	SoSe	
HT52	Praxisphase	x	x	--

6. Modulbeschreibungen *Module descriptions*

Anmerkung zu den Prüfungsmodalitäten

Die in den Modulbeschreibungen angegeben erlaubten Hilfsmittel in den Prüfungen stellen einen Stand beim Erstellen der Beschreibungen dar und können von Semester zu Semester aus verschiedenen Gründen abweichen.

Deshalb gilt:

„Die verbindliche Bekanntmachung der Prüfungsmodalitäten in Pflicht- und Wahlpflichtmodulen, sowie der näheren Bestimmungen zu den Leistungs- und Teilnahmenachweisen, erfolgt durch die Bekanntmachung auf der Homepage der TH-Rosenheim."

Note on the examination modalities

The permitted aids in the examinations specified in the module descriptions represent the status at the time the descriptions were created and may differ from semester to semester for various reasons.

The following therefore applies:

„The mandatory examination requirements and examination format(s) and regulations for each module, as well as the graded components, their respective weighting and the participation requirements, are decided each semester by the HTB Faculty Council. This information is published by the Examinations Office each semester on the website of the TH Rosenheim."

https://www.th-rosenheim.de/studium-und-weiterbildung/im-studium/studienorganisation/studienregelungen/pruefungsankuendigungen

IWT01 German B1.1

Modul Nr. IWT01	**German B1.1** **Deutsch B1.1**
Courses of the module	(1) German B1.1
Duration of the module	1 semester
Semester of study	1st semester
Responsible for the module	Barbara Lembcke
Lecturer	Janika-Maria Hausner
Teaching Language	German / English
Credit Points (ECTS)	5 ECTS
Type of Teaching Method	4 SWS (contact hours/week) = seminar-type teaching
Total workload	Contact hours (15 weeks * 4 SWS) = 60 h preparation and follow-up work at home, exam preparation = 90 h total (5 ECTS * 30 h/ECTS) = 150 h
Assignment to the curriculum	IWT SPO 20241
Applicability in other degree programmes	International Bachelor of Engineering (Modul Nr. IBR11)
Course prerequisites	German Level A2 completed according to CEFR
Module Objectives / Intended Learning Outcomes (1)	This course imparts the following knowledge: • Understand frequently used expressions and clear standard language related to study, work and leisure. • Cope with most everyday situations in the language area • Express themselves simply and coherently on familiar topics and areas of personal interest skills: • Report on experiences and events • Describe hopes and goals • Give brief reasons and explanations for plans and views. competences: • Advanced language use B1.1 according to CEFR
Contents (1)	Level B1.1 • Teaching and examination focus: Speaking and listening comprehension • Practical language skills for study and everyday life

Modul Nr. IWT01	**German B1.1** **Deutsch B1.1**
	• Present • Vocabulary and grammar • Pronunciation • Intercultural competence
Literature (1)	• To be announced in the course
Exam format	Written exam 60-180 min, elP 20-180 min oder/or PStA 2-15 Wo Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Allowed materials during the exam	Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Remarks	----

Technische Hochschule Rosenheim

IWT02 German B1.2

Modul Nr. IWT02	**German B1.2** **Deutsch B1.2**
Courses of the module	(2) German B1.2
Duration of the module	1 semester
Semester of study	1st semester
Responsible for the module	Barbara Lembcke
Lecturer	Janika-Maria Hausner
Teaching Language	German / English
Credit Points (ECTS)	5 ECTS
Type of Teaching Method	4 SWS (contact hours/week) = seminar-type teaching
Total workload	Contact hours (15 weeks * 4 SWS) = 60 h preparation and follow-up work at home, exam preparation = 90 h total (5 ECTS * 30 h/ECTS) = 150 h
Assignment to the curriculum	IWT SPO 20241
Applicability in other degree programmes	International Bachelor of Engineering (Modul Nr. IBR12)
Course prerequisites	- A2 completed according to CEFR
Module Objectives / Intended Learning Outcomes (2)	This course imparts the following knowledge: • Understand frequently used expressions and clear standard language related to study, work and leisure. • Cope with most everyday situations in the language area • Express themselves simply and coherently on familiar topics and areas of personal interest skills: • Report on experiences and events • Describe hopes and goals • Give brief reasons and explanations for plans and views. competences: • Advanced language use B1.2 according to CEFR
Contents (2)	Level B1.2 • Teaching and examination focus: Writing and reading comprehension • Practical language skills for study and everyday life

Modul Nr. IWT02	**German B1.2** **Deutsch B1.2**
	• Mails and written communication • Vocabulary and grammar • Intercultural competence
Literature (2)	• To be announced in the course
Exam format	Written exam 60-180 min, elP 20-180 min oder/or PStA 2-15 Wo Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Allowed materials during the exam	Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Remarks	------

IWT03 Mathematics1

Modul Nr. IWT03	**Mathematics1** **Mathematik 1**
Courses of the module	(3) Mathematics 1
Duration of the module	1 semester
Semester of study	1st semester
Responsible for the module	Prof. Dr. Link
Lecturer	Prof. Dr. Link, Winfried Knobloch
Teaching Language	English
Credit Points (ECTS)	5 ECTS
Type of Teaching Method	5 SWS (contact hours/week) = seminar-type teaching
Total workload	Contact hours (15 weeks * 5 SWS) = 75 h preparation and follow-up work at home, exam preparation = 75 h total (5 ECTS * 30 h/ECTS) = 150 h
Assignment to the curriculum	IWT SPO 20241
Applicability in other degree programmes	International Bachelor of Engineering (Modul Nr. IBR13)
Course prerequisites	- General higher education qualification (Abitur), advanced technical college certificate (Fachhochschulreife) or equivalent
Module Objectives / Intended Learning Outcomes (3)	This course imparts the following knowledge: • Due to the knowledge of mathematical basics, the students are able to independently deal with more advanced mathematical methods. skills: • The students are then able to formulate practical problems mathematically and solve them by selecting suitable methods. competences: • The aim is to teach and deepen mathematical basics and their applications.
Contents (3)	Lecture: • Basics • Linear algebra • Differential and integral calculus of a variable • Introduction to complex numbers

Modul Nr. IWT03	Mathematics1 Mathematik 1
	Exercises: • Exercises accompanying the lectures
Literature (3)	• G. James, P. Dyke: Modern Engineering Mathematics, Pearson, 6th edn. , 2020 • G. James, P. Dyke: Advanced Modern Engineering Mathematics, Pearson, 4th edn. , 2011 • E. Kreyszig,: Advanced Engineering Mathematics, John Wiley & Sons, 10th edn. , 2011
Exam format	Written exam 60-180 min, elP 20-180 min oder/or PStA 2-15 Wo Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Allowed materials during the exam	Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Remarks	------

IWT04 Engineering Mechanics1: Statics

Modul Nr. IWT04	**Engineering Mechanics1: Statics** **Technische Mechanik 1: Statik**
Courses of the module	(4) Engineering Mechanics1: Statics
Duration of the module	1 semester
Semester of study	1st semester
Responsible for the module	Prof. Dr. Schinagl, Prof. Dr. Wagner
Lecturer	Prof. Dr. Wagner
Teaching Language	English
Credit Points (ECTS)	5 ECTS
Type of Teaching Method	4 SWS (contact hours/week) = seminar-type teaching
Total workload	Contact hours (15 weeks * 4 SWS) = 60 h preparation and follow-up work at home, exam preparation = 90 h total (5 ECTS * 30 h/ECTS) = 150 h
Assignment to the curriculum	IWT SPO 20241
Applicability in other degree programmes	International Bachelor of Engineering (Modul Nr. IBR16)
Course prerequisites	Knowledge of mathematics and physics according to the contents of the FOS-Technology course or the Abitur (A-levels).
Module Objectives / Intended Learning Outcomes (4)	This course imparts the following **knowledge:** • understand important special cases and apply the methods learned to them. • document the methodical procedure for solving problems from structural analysis in a formappropriate and comprehensible manner. skills: • structure practical technical-mechanical systems. • use the mathematical relationships generated with it for calculations. competences: • apply engineering-recognised methods of rigid-body statics to analyse technical components and assemblies under point and distributed loads with regard to internal and external forces, moments and their local curves.

Modul Nr. IWT04	Engineering Mechanics1: Statics **Technische Mechanik 1: Statik**
Contents (4)	• Terms, basic laws, basic tasks of statics • Central, plane force system • Force, force couple and moment of a force • Resultant force of a non-central planar force system • Stock reactions • Spatial force system • Focus • Internal forces and moments, internal force curves also under distributed loads • Friction
Literature (4)	Skript and Formulary • M.Mayer: Technische Mechanik, Carl Hanser, 9th Edition, 2021 • D.Gross,W.Hauger, J.Schröder,W.A.Wall: Technische Mechanik 1:Statik, Springer Vieweg, 14th Edition, 2019 • C. Eller: Holzmann/Meyer/Schumpich Technische Mechanik Statik, Springer Vieweg, 15th Edition, 2018 • R.C. Hibbeler: Engeneering Mechanics: Statics, Pearson, 15th Edition, 2022 • D. Gross et. Al.: Statics – Formulas and Problems: Engineering Mechanics 1, Springer, 1st Edition, 2022
Exam format	Written exam 60-180 min, eIP 20-180 min oder/or PStA 2-15 Wo Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Allowed materials during the exam	Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Remarks	------

Modul Nr. 05	**Manufacturing Engineering of Wood Based Products** **Fertigungstechnik Holz**
Courses of the module	(5) Manufacturing Engineering of Wood Based Products (6) Manufacturing Engineering of Wood Based Products – Lab
Duration of the module	1 semester
Semester of study	1st semester
Responsible for the module	Prof. Dr. Holly Ott
Lecturer	Prof. Dr. Holly Ott, Michael Stocker
Teaching Language	English
Credit Points (ECTS)	5 ECTS
Type of Teaching Method	4 SWS = SU 1 SWS = Pr
Total workload	Contact hours (15 weeks * 5 SWS) = 75 h preparation and follow-up work at home, exam preparation = 75 h total (5 ECTS * 30 h/ECTS) = 150 h
Assignment to the curriculum	IWT SPO 20241
Applicability in other degree programmes	
Course prerequisites	
Module Objectives / Intended Learning Outcomes	This course imparts the following knowledge: • In the lectures and laboratory work, students learn about the most important manufacturing processes for processing panel materials and solid wood in industrial furniture production or the furniture sector. skills: • Students are able to design and production processes for new products based on the target market and the production strategy. competences: • Students will be able to select suitable production technology depending on product properties.

Modul Nr. 05	**Manufacturing Engineering of Wood Based Products** **Fertigungstechnik Holz**
Contents	• Introduction to production organisation: product structure, bill of materials, production processes and principles • Processing of wood-based panels and solid wood: sawing, planing, veneering, edge processing, drilling, sanding, assembly, transport and storage • Production systems: Throughfeed technology, stationary technology, flexible production cells • Production logistics • Classification and selection of finishing technology based on cost comparison calculation • Practical training on machines for basic mechanical wood processing, from sawing to assembly
Literature	• DIN 8580 Fertigungsverfahren (Beuth Verlag) • Förster: Einführung in die Fertigungstechnik (Springer Verlage)
Exam format	Written Exam 60-180 min Laboratory (including Machine Workshop) attendance is a prerequisite to take the exam. Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Allowed materials during the exam	Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Remarks	--

Modul Nr. IWT 06	**Material Science of Wood and Wood Based Products** **Materialwissenschaften Holz und Holzwerkstoffe**
Courses of the module	(1) Wood Based Materials (2) Wood economy and Sustainability of wood products (3) Practical course Testing of wood materials
Duration of the module	1st semester
Semester of study	1st semester
Responsible for the module	Prof. Torsten Leps
Lecturers	(1) Prof. Torsten Leps (2) LB Risse (3) Prof. Torsten Leps, Dipl.-Ing. (FH) Florian Resch
Teaching Language	English
Credit Points (ECTS)	5 ECTS
Type of Teaching Method	4 SWS = SU 1 SWS = Pr
Total workload	Contact hours (15 weeks * 5 SWS) = 75 h preparation and follow-up work at home, exam preparation = 75 h total (5 ECTS * 30 h/ECTS) = 150 h
Assignment to the curriculum	IWT SPO 20241
Applicability in other degree programmes	HA 17 – SPO 2023, HT 22 – SPO 2024
Course prerequisites	
Module Objectives / Intended Learning Outcomes (1) Wood based Materials (2) Wood economy and Sustaina-bility of wood products (3) Practical course Testing of wood materials	• Knowledge of material properties, areas of application and market conditions of classic wood-based materials • Knowledge of alternative materials made from renewable raw materials in use of wood based panels • Applying of Wood based panels based on technical, economic and ecological criteria • Knowledge about the further development and specifics of new wood materials, lightweight construction materials and materials made from alternative materials • Knowledge about the technically and economically important types of wood worldwide

Modul Nr. IWT 06	**Material Science of Wood and Wood Based Products** **Materialwissenschaften Holz und Holzwerkstoffe**
	• Knowledge of the global timber industry context, trade customs and problems, species protection issues, supply chain law • Knowledge and application of environmental assessments EPD / LCA • Know about certifications of wood and wood products • Applying the essential measurement methods to determine parameters for wood and wood-based materials • Knowledge for assessing measurement results and material testing
Contents (1) Wood based Materials	• Material properties, areas of application and market conditions of wood-based materials and materials made from renewable raw materials • New wood materials, wood-plastic composites, lightweight construction materials for the construction and furniture sectors • Application and use of modified wood and wood-based materials in construction • Materials made from alternative raw materials such as bamboo, palm oil fibers, straw,… • Wood products for thermal use (pellets, briquettes)
Contents (2) Wood economy and Sustaina-bility of wood products	• Regions of the world that are important for the timber industry: zones with a temperate climate, tropics, etc. • Softwoods: species, occurrence, properties, use • Hardwoods of the temperate zones and the African and American, Southeast Asian and Oceanic tropics • Trade customs and problems • Species protection / EUDR / Supply Chain Care Act • Certification of wood and wood products • LCA of wood products, creation of EPDs
Contents (3) Practical course Testing of wood materials	independent testing of mechanical properties of wood and wood-based materials: • Growth characteristics • Bulk density • Wood moisture • Compressive strength • Bending strength • E module • Shear strength • Suction behavior

Modul Nr. IWT 06	Material Science of Wood and Wood Based Products Materialwissenschaften Holz und Holzwerkstoffe
	• Fracture impact work
Literature (1) Wood based Materials (2) Wood economy and Sustainability of wood products (3) Practical course Testing of wood materials	• Scripts • Schriftenreihe Informationsdienst Holz • Handbook of Wood Science and Technology; Niemz et.al Springer, 2023
Exam format	Written exam 60-180 Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Allowed materials during the exam	Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Remarks	---

Modul Nr. IWT11	**German B2.1** **Deutsch B2.1**
Courses of the module	(7) German B2.1
Duration of the module	1 semester
Semester of study	2st semester
Responsible for the module	Barbara Lembcke
Lecturer	Janika-Maria Hausner
Teaching Language	German / English
Credit Points (ECTS)	5 ECTS
Type of Teaching Method	4 SWS (contact hours/week) = seminar-type teaching
Total workload	Contact hours (15 weeks * 5 SWS) = 60 h preparation and follow-up work at home, exam preparation = 90 h total (5 ECTS * 30 h/ECTS) = 150 h
Assignment to the curriculum	IWT SPO 20241
Applicability in other degree programmes	International Bachelor of Engineering (Modul Nr. IBR21)
Course prerequisites	German Level B1 completed according to CEFR
Module Objectives / Intended Learning Outcomes (5)	This course imparts the following knowledge: • Understand the main contents of complex texts on concrete and abstract topics and on technical discussions in their own field of specialisation. • Communicate so spontaneously and fluently that a conversation with a native speaker is possible without much effort on either side skills: • Express themselves on a wide range of topics • Explain a point of view on a current issue and state the advantages and disadvantages of different competences: • Independent language use B2 according to CEFR
Contents (5)	Level B2.1 • Teaching and examination focus: Speaking and listening comprehension • Practical language skills for study and everyday life

Modul Nr. IWT11	**German** **B2.1** **Deutsch B2.1**
	• Present • Pronunciation • Vocabulary and grammar • Intercultural competence
Literature (5)	• To be announced in the course
Exam format	Written exam 60-180 min, elP 20-180 min oder/or PStA 2-15 Wo Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Allowed materials during the exam	Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Remarks	------

Modul Nr. IWT12	**German B2.2** **Deutsch B2.2**
Courses of the module	(8) German B2.2
Duration of the module	1 semester
Semester of study	2st semester
Responsible for the module	Barbara Lembcke
Lecturer	Janika-Maria Hausner
Teaching Language	German / English
Credit Points (ECTS)	5 ECTS
Type of Teaching Method	4 SWS (contact hours/week) = seminar-type teaching
Total workload	Contact hours (15 weeks * 4 SWS) = 60 h preparation and follow-up work at home, exam preparation = 90 h total (4 ECTS * 30 h/ECTS) = 150 h
Assignment to the curriculum	IWT SPO 20241
Applicability in other degree programmes	International Bachelor of Engineering (Modul Nr. IBR22)
Course prerequisites	German Level B1 completed according to CEFR
Module Objectives / Intended Learning Outcomes (6)	This course imparts the following knowledge: • Understand the main contents of complex texts on concrete and abstract topics and on professional discussions in their own field of specialisation. • Communicate so spontaneously and fluently that a conversation with a native speaker is possible without much effort on either side. skills: • Express themselves on a wide range of topics • Explain a point of view on a current issue and state the advantages and disadvantages of different options. competences: • Independent language use B2 according to CEFR
Contents (6)	Level B2.2 • Teaching and examination focus: Writing and reading comprehension

Modul Nr. IWT12	**German** **B2.2** **Deutsch B2.2**
	• Practical language skills for study and everyday life • Writing an internship report • Vocabulary and grammar • Intercultural competence
Literature (6)	• To be announced in the course
Exam format	Written exam 60-180 min, elP 20-180 min oder/or PStA 2-15 Wo Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Allowed materials during the exam	Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Remarks	------

Modul Nr. IWT14	**Physics** **Physik**
Courses of the module	(9) Physics
Duration of the module	1 semester
Semester of study	2^{st} semester
Responsible for the module	Prof. Dr. Stanzel
Lecturer	Prof. Dr. Stanzel
Teaching Language	English
Credit Points (ECTS)	5 ECTS
Type of Teaching Method	5 SWS (contact hours/week) = seminar-type teaching
Total workload	Contact hours (15 weeks * 5 SWS) = 75 h preparation and follow-up work at home, exam preparation = 75 h total (5 ECTS * 30 h/ECTS) = 150 h
Assignment to the curriculum	IWT SPO 20241
Applicability in other degree programmes	International Bachelor of Engineering (Modul Nr. IBR24)
Course prerequisites	Mathematics and science school education: • Knowledge of vector calculus (understanding the meaning of scalar and vector product) • Be able to carry out a curve discussion of simple functions • Understand the meaning of integration and differentiation of simple functions, be able to perform differentiation and integration of simple functions. • Understand and calculate exponential and logarithm functions • Understand and calculate trigonometric functions (sin, cos, tan) • Be able to solve linear and quadratic equations
Module Objectives / Intended Learning Outcomes (7)	This course imparts the following knowledge: • Understand and confidently apply the basic kinematic relationships between displacement, velocity and acceleration in translation and circular motion. • Define the fundamental concept of force and describe the types of force. • Use Newton's laws confidently and understand them as an important tool in solving problems.

Modul Nr. IWT14	Physics Physik
	• Understand and distinguish between the concepts of work, energy and power and apply the mechanical law of conservation of energy when solving problems. • Set up the equation of motion of the one-mass oscillator for the free, damped and forced case and to discuss and interpret the different solution. • Get to know different forms and realisations of oscillatory systems including damping and excitation mechanisms. • Understand the phenomenon of resonance in forced oscillation in particular and understand and interpret the meaning of the amplitude resonance curve (amplitude frequency response). • Name and distinguish thermal state and process variables. • Calculate changes of state of the ideal gas and reproduce them in p-V diagrams. • Name the main laws of thermodynamics and apply them to the evaluation and calculation of thermal processes. • Safely consider heat capacities, phase transformations and heat transport mechanisms in calculations. • Comprehend the principle of thermal plants based on circular processes. skills: Furthermore, after successful completion of the internship, students are able to ... • Independently understand the physical relationships in the context of the subject area. • Perform uncertainty assessments safely. • Plan experiments and record measurement data as well as evaluate, critically question and scientifically document the results obtained. • Support each other through teamwork and to have professional discussions. competences: • Calculate safely with physical quantities and units including prefixes and powers and include them in all calculations. • Independently understand the physical relationships in the context of the subject area.
Contents (7)	Quantities, units, measurement and evaluation • Physical quantities, units, orders of magnitude, significant digits, measurement uncertainties, calculating • with uncertainties, compensation line, linearization Kinematics

Modul Nr. IWT14	**Physics** **Physik**
	• Definition and relationship of displacement, velocity and acceleration as vectorial quantities, special cases: • rectilinear and circular motion Dynamics 1 • Concept of force and Newton's axioms, examples of forces, work, energy, power, efficiency, mechanical law • of conservation of energy Oscillations • Setting up the equation of motion of the single-mass oscillator for the free, damped and forced • case including discussion and interpretation of the solution, examples of oscillatory systems including damping • and excitation mechanisms, resonance, amplitude resonance curve (amplitude frequency response), • phase shift (phase frequency response). Basics of thermodynamics • Thermal state and process variables, heat capacity, ideal gas, main laws of thermodynamics, cyclic processes, • phase transformations, heat transport
Literature (7)	• P. A. Tipler, G. Mosca: Physics for Scientists and Engineers, W. H. Freeman, 6. Auflage , 2007
Exam format	Written exam 60-180 min, elP 20-180 min oder/or PStA 2-15 Wo Laboratory attendance is a prerequisite to take the exam. Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Allowed materials during the exam	Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Remarks	------

Modul Nr. IWT15	**Basic Chemistry** **Grundlagen Chemie**
Courses of the module	(10) Basic Chemistry
Duration of the module	1 semester
Semester of study	2nd semester
Responsible for the module	Prof. Dr. Larbig
Lecturer	Prof. Dr. Larbig
Teaching Language	English
Credit Points (ECTS)	5 ECTS
Type of Teaching Method	4 SWS (contact hours/week) = seminar-type teaching
Total workload	Contact hours (15 weeks * 4 SWS) = 60 h preparation and follow-up work at home, exam preparation = 90 h total (5 ECTS * 30 h/ECTS) = 150 h
Assignment to the curriculum	IWT SPO 20241
Applicability in other degree programmes	International Bachelor of Engineering (Modul Nr. IBR25.3)
Course prerequisites	------
Module Objectives / Intended Learning Outcomes (8)	This course imparts the following knowledge: • Simple redox equations can be created independently. • Electrochemical concepts can be applied to galvanic cells and to issues related to corrosion and corrosion protection. skills: • The students can apply different atomic and molecular models to practical tasks. competences: • The students understand the structure of atoms and the formation of the different types of chemical bonds.
Contents (8)	Basics of chemistry • Atomic models and the chemical bond • Intermolecular forces • chemical reactions and stoichiometry • Fundamentals of organic chemistry Metals and electrochemistry Redox equations Electrochemical

Modul Nr. IWT15	**Basic Chemistry** **Grundlagen Chemie**
	series • galvanic cells • Corrosion and protection against corrosion • Electrochemistry
Literature (8)	• lecture notes
Exam format	Written exam 60-180 min, elP 20-180 min oder/or PStA 2-15 Wo Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Allowed materials during the exam	Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Remarks	------

Modul Nr. IWT21	**Technical German 1** **Technisches Deutsch 1**
Courses of the module	(11) Technical German1
Duration of the module	1 semester
Semester of study	3st semester
Responsible for the module	Barbara Lembcke
Lecturer	Janika-Maria Hausner
Teaching Language	German / English
Credit Points (ECTS)	5 ECTS
Type of Teaching Method	4 SWS (contact hours/week) = seminar-type teaching
Total workload	Contact hours (15 weeks * 4 SWS) = 60 h preparation and follow-up work at home, exam preparation = 90 h total (4 ECTS * 30 h/ECTS) = 150 h
Assignment to the curriculum	IWT SPO 20241
Applicability in other degree programmes	International Bachelor of Engineering (Modul Nr. IBR31)
Course prerequisites	German Level B2 according to CEFR or higher
Module Objectives / Intended Learning Outcomes (9)	This course imparts the following knowledge: • Understand a wide range of demanding texts • Express themselves spontaneously and fluently without searching for clearly recognisable words more often skills: • Use the language in study, social and professional life • Express themselves clearly and in a structured way on complex issues, using different means of linking text. competences: • Proficient use of language Level B2/C1 according to CEFR
Contents (9)	• Practical language skills for studying • Oral forms of examination in German • Technical Language German for Engineers

Modul Nr. IWT21	**Technical German 1** **Technisches Deutsch 1**
Literature (9)	• M. Steinmetz, H. Dintera: German for Engineers, Springer Vieweg, 2nd edition, 2018
Exam format	Written exam 60-180 min, elP 20-180 min oder/or PStA 2-15 Wo Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Allowed materials during the exam	Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Remarks	------

Modul Nr. IWT22	**Technical German 2** **Technisches Deutsch 2**
Courses of the module	(12) Technical German 2
Duration of the module	1 semester
Semester of study	3st semester
Responsible for the module	Barbara Lembcke
Lecturer	Janika-Maria Hausner
Teaching Language	German / English
Credit Points (ECTS)	5 ECTS
Type of Teaching Method	4 SWS (contact hours/week) = seminar-type teaching
Total workload	Contact hours (15 weeks * 4 SWS) = 60 h preparation and follow-up work at home, exam preparation = 90 h total (4 ECTS * 30 h/ECTS) = 150 h
Assignment to the curriculum	IWT SPO 20241
Applicability in other degree programmes	International Bachelor of Engineering (Modul Nr. IBR32)
Course prerequisites	German Level B2 according to CEFR or higher
Module Objectives / Intended Learning Outcomes (10)	This course imparts the following knowledge: • Understand a wide range of demanding texts • Express oneself spontaneously and fluently without searching for clearly recognisable wordsmore often skills: • Use the language in study, social and professional life • Express themselves clearly and in a structured way on complex issues, using different means of linking texts. competences: • Proficient use of language Level B2/C1 according to CEFR
Contents (10)	• Practical language skills for studying • Written forms of examination in German • German for Engineers

Modul Nr. IWT22	**Technical German 2** **Technisches Deutsch 2**
Literature (10)	• M. Steinmetz, H. Dintera: German for Engineers, Springer Vieweg, 2nd edition, 2018 • Further materials will be announced in the course
Exam format	Written exam 60-180 min, elP 20-180 min oder/or PStA 2-15 Wo Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Allowed materials during the exam	Please refer to the examination announcement for the current semester for the International Bachelor of Wood Technology.
Remarks	------

Restliche Module *All other modules*

Die Modulbeschreibungen für die folgenden Module finden sich im Modulhandbuch des Bachelorstudiengangs Holztechnik HT-B.

The module descriptions for the following modules can be found in the module handbook for the Bachelor's degree programme in Wood Technology.

https://www.th-rosenheim.de/studium-und-weiterbildung/studienangebot-der-th-rosenheim/bachelorstudiengaenge/holztechnik-bachelor

Modul-Nr. *Module Nr.*	Modul-Name *Module name*	Modul Nr. HT-B *Modul Nr. HT-B*
IWT13	Holzphysik und Holzanatomie	HT-B, SPO 20242, HT11
IWT16	Metallische Werkstoffe und Maschinenelemente	HT-B, SPO 20242, HT16
IWT23	Grundlagen der Bauphysik	HT-B, SPO 20242, HT25
IWT24	Ingenieurmathematik	HT-B, SPO 20242, HT24
IWT25	Maschinenkunde und Grundlagen IT	HT-B, SPO 20242, HT26
IWT26	Holzchemie und Polymere	HT-B, SPO 20242, HT21
	Hauptstudium	
HT31	Grundlagen der Produktentwicklung und Konstruktion – CAD	
HT32	Massivholzverarbeitung und Holztrocknung	
HT33	Grundlagen Betriebswirtschaftslehre und Kreislaufwirtschaft	
HT34	Informations- und Elektrotechnik	
HT35	Nachhaltige Energie- und Gebäudetechnik	
HT36	Holzbearbeitungsmaschinen	
HT41	Möbelkonstruktion	
HT42	Holzbaukonstruktion, Bauelemente, Holzbaufertigung	

Modul-Nr. *Module Nr.*	Modul-Name *Module name*	Modul Nr. HT-B *Modul Nr. HT-B*
HT43	Strategisches Produktmanagement	
HT44	Produktionsoptimierung – Lean Management	
HT45	Oberflächentechnik – Kleb- und Presstechnik	
HT61	Projektseminar: technische, strategische Produktentwicklung	
HT62	Finanzplanung und Controlling	
HT63	Holzwerkstofftechnik und Fabrikplanung	
HT64	Nachhaltigkeitsbewertung und Umweltschutz	
HT 65	Fertigungskonzepte und Produktionsautomatisierung	
HT71	Projektseminar: Unternehmensplanung und -entwicklung	
HT72	Digitale Prozess- und Ressourcenplanung – ERP	
HT73	Vertiefungs-Wahlblock: Fachwissenschaftliche Wahlpflichtmodule	Siehe Modulhandbuch FWPM
HT74	Bachelorarbeit	--
HT51	Praxisbegleitende Lehrveranstaltungen	--
HT52	Praxisphase	--