### Appendix A: Course Schedule

#### for the study programme Mechanical Engineering B.Eng.

Please note: The German version of this document is the legally binding version. The English translation provided here is for information purposes only.

#### Specialisation: Design and Development

First sen	nester		L	ST	E	P/S	SSS	СР
Module	Module title	Module						
number	Lintro di ratione da Marala ancie al	ID						_
1053	Introduction to Mechanical Engineering	EMA	2	0	0	2	0	5
1091	Strength of Materials	FLE	2	2	0	0	0	5
1148	Mathematics 1	MA1	2	2	0	0	0	5
1248	Statics	STK	2	2	0	0	0	5
1265	Technical Drawing	TZ	2	1	1	0	0	5
1280	Materials Engineering	WT	2	1	0	1	0	5
						Tota	I CP:	30
Second s	emester		L	ST	Е	P/S	SSS	СР
Module number	Module title	Module ID						
1048	Dynamics	DYN	2	2	0	0	0	5
1134	Plastics Technology	KT	2	1	0	1	0	5
1154	Mathematics 2	MA2	2	2	0	0	0	5
1087	Physics	PH	2	2	0	0	0	5
1267	Thermodynamics 1	TD1	2	2	0	0	0	5
1271	Connecting Elements	VBE	2	1	1	0	0	5
1271	Connecting Elements	T V D L		'	' '		I CP:	30
Third ser	mester		L	ST	E	P/S	SSS	CP
Module	Module title	Module	┪┗	31	_	1/3	333	Ci
number	Woddle title	ID						
1017	Basic Project	BP	1	3	0	0	0	5
1037	CAD	CAD	2	0	2	0	0	5
1096	Gearbox Elements	GTE	2	1	1	0	0	5
1159	Mathematics 3	MA3	2	2	0	0	0	5
1214	Production Engineering	PRT	2	2	0	0	0	5
1227	Process and Information	PIM	2	2	0	0	0	5
1221	Management	I IIVI	_	_			O	J
	,g		1		Į.	Tota	I CP:	30
Fourth se	emester		L	ST	Ε	P/S	SSS	СР
Module	Module title	Module	1					
number		ID						
1054	Electrical Machines	EM	2	1	0	1	0	5
1232	Integrated Product Development	IP	2	2	0	0	0	5
1252	Fluid Mechanics	SM	2	2	0	0	0	5
1255	System and Measurement	SUM	2	1	0	1	0	5
	Technology							
1262	Technical English	TE	0	4	0	0	0	5
9015	Elective Module	WM				0		5
						Tota	I CP:	30
Fifth sen	nester		L	ST	Е	P/S	SSS	СР
Module	Module title	Module						
number		ID						

1024	Business Administration	BW	3	1	0	0	0	5
1093	Finite Elements 1	FE1	2	2	0	0	0	5
1144	Machine Dynamics	MD	2	2	0	0	0	5
1250	Control Technology	RT	2	2	0	0	0	5
1274	Follow-up Project	VPR	1	0	0	3	0	5
9015	Elective Module	WM				0		5
		•		•		Tota	I CP:	30
Sixth ser	nester		L	ST	Е	P/S	SSS	СР
Module	Module title	Module						
number		ID						
1136	Lightweight Materials	LBW	2	2	0	0	0	5
1187	Computational Fluid Dynamics 1	CFD1	2	2	0	0	0	5
1228	Quality Management	QM	2	2	0	0	0	5
1253	Structural and Design Development	SBU	2	1	0	1	0	5
9015	Elective Module	WM				0		5
9015	Elective Module	WM				0		5
						Tota	I CP:	30
Seventh	semester		L	ST	Е	P/S	SSS	СР
Module	Module title	Module						
number		ID						
1291	Bachelor Thesis	BA	0	0	0	0	0	12
1290	Colloquium	KOL	0	0	0	0	0	3
1292	Practical Project / Internship	PRA	0	0	0	0	0	15
		•	•	•		Tota	I CP:	30

W/S = winter/summer semester

Elective Modules Design and Development										
Module number	Module title	Module ID	W/ S	L	ST	Е	P/S	SSS	СР	
1009	Applied Production	APR	W	2	1	0	1	0	5	
1016	Automation Technology	AT	S	2	1	0	1	0	5	
1022	Operational Strength	BEF	S	2	1	0	1	0	5	
1082	Energy Technology	ENT	W	2	2	0	0	0	5	
1088	Factory Organisation	FAO	S	2	2	0	0	0	5	
3135	Gender and Diversity: Success Factors for Companies	GUD	W	2	2	0	0	0	5	
1114	Innovation and Project Management	IMG	W	2	2	0	0	0	5	
1123	Engineering Designing with Plastics	KMK	S	2	1	1	0	0	5	
1135	Plastics Processing	KV	W	2	1	0	1	0	5	
1145	Material Flow	MAT	W	2	1	0	1	0	5	

1178	Molecular Materials	MOW	S	2	2	0	0	0	5
1213	Production Planning and Logistics	PPL	S	2	2	0	0	0	5
1131	Fluid Machinery	STMA	S	2	1	0	1	0	5
1268	Thermodynamics 2	TD2	W	2	2	0	0	0	5
1132	Displacement Machines	VMA	S	2	1	0	1	0	5
1278	Materials and Component Testing	WBP	W	2	0	0	2	0	5
1282	Machine Tools	WM	S	2	2	0	0	0	5
1277	Heat Transfer	WÜT	S	2	2	0	0	0	5

<b>EDUTech</b>									
Module	Module title	Module	W/	L	ST	Ε	P/S	SSS	СР
number		ID	S						
1303	General Didactics With Orientation	EDU/A	W	0	2	0	0	0	5
	Practical	D							
1306	Vocational Education I and	BP1	W	0	2	0	0	0	5
	Vocational Field Practical								
1307	Vocational Education II	EDU/BP	S	0	4	0	0	0	5
		2							
1304	Diagnosis and Support	EDU/D	S	0	4	0	0	0	5
		UF							
1312	Didactics of Technology	EDU/T	S	0	4	0	0	0	5
		D							

# Appendix B: Course Schedule

### for the study programme Mechanical Engineering B.Eng.

### **Specialisation: Energy Technology**

First sen	nester		L	ST	E	P/S	SSS	СР
Module	Module title	Module						
number		ID						
1053	Introduction to Mechanical Engineering	EMA	2	0	0	2	0	5
1091	Strength of Materials	FLE	2	2	0	0	0	5
1148	Mathematics 1	MA1	2	2	0	0	0	5
1248	Statics	STK	2	2	0	0	0	5
1265	Technical Drawing	TZ	2	1	1	0	0	5
1280	Materials Engineering	WT	2	1	0	1	0	5
						Tota	I CP:	30
Second s	semester		L	ST	E	P/S	SSS	CP
Module number	Module title	Module ID						
1048	Dynamics	DYN	2	2	0	0	0	5
1134	Plastics Technology	KT	2	1	0	1	0	5
1154	Mathematics 2	MA2	2	2	0	0	0	5
1087	Physics	PH	2	2	0	0	0	5
1267	Thermodynamics 1	TD1	2	2	0	0	0	5
1271	Connecting Elements	VBE	2	1	1	0	0	5
	,	<b>I</b>	ı		1	Tota	I CP:	30
Third ser	mester		L	ST	E	P/S	SSS	СР
Module number	Module title	Module ID						
1017	Basic Project	BP	1	3	0	0	0	5
1096	Gearbox Elements	GTE	2	1	1	0	0	5
1159	Mathematics 3	MA3	2	2	0	0	0	5
1214	Production Engineering	PRT	2	2	0	0	0	5
1227	Process and Information Management	PIM	2	2	0	0	0	5
1268	Thermodynamics 2	TD2	2	2	0	0	0	5
		-		•		Tota	I CP:	30
Fourth s	emester		L	ST	Ε	P/S	SSS	СР
Module number	Module title	Module ID						
1054	Electrical Machines	EM	2	1	0	1	0	5
1252	Fluid Mechanics	SM	2	2	0	0	0	5
1255	System and Measurement Technology	SUM	2	1	0	1	0	5
1262	Technical English	TE	0	4	0	0	0	5
9016	Elective Module	WM				0		5
1277	Heat Transfer	WÜT	2	2	0	0	0	5
						Tota	I CP:	30
Fifth sen	nester		L	ST	E	P/S	SSS	СР
Module number	Module title	Module ID						

	<u> </u>	•	•			Tota	I CP:	30
1292	Practical Project / Internship	PRA	0	0	0	0	0	15
1290	Colloquium	KOL	0	0	0	0	0	3
1291	Bachelor Thesis	BA	0	0	0	0	0	12
Module number	Module title	Module ID						
	semester	NA - de de	L	ST	Е	P/S	SSS	СР
						Tota	I CP:	30
9016	Elective Module	WM				0		5
9016	Elective Module	WM				0		5
1132	Displacement Machines	VMA	2	1	0	1	0	5
1131	Fluid Machinery	STMA	2	1	0	1	0	5
1228	Quality Management	QM	2	2	0	0	0	5
1187	Computational Fluid Dynamics 1	CFD1	2	2	0	0	0	5
number		ID						
Module	Module title	Module						
Sixth semester L ST E P/S S							SSS	СР
				I		Tota	I CP:	30
9016	Elective Module	WM	-			0		5
1274	Follow-up Project	VPR	1	0	0	3	0	5
1250	Control Technology	RT	2	2	0	0	0	5
1144	Machine Dynamics	MD	2	2	0	0	0	5
1082	Energy Technology	ENT	2	2	0	0	0	5
1024	Business Administration	BW	3	1	0	0	0	5

W/S = winter/summer semester

Elective N	Modules Energy Technology								
Module number	Module title	Module ID	W/ S	L	ST	Е	P/S	SSS	СР
1009	Applied Production	APR	W	2	1	0	1	0	5
1016	Automation Technology	AT	S	2	1	0	1	0	5
1022	Operational Strength	BEF	S	2	1	0	1	0	5
1037	CAD	CAD	W	2	0	2	0	0	5
1088	Factory Organisation	FAO	S	2	2	0	0	0	5
1093	Finite Elements 1	FE1	W	2	2	0	0	0	5
3135	Gender and Diversity: Success Factors for Companies	GUD	W	2	2	0	0	0	5
1114	Innovation and Project Management	IMG	W	2	2	0	0	0	5
1232	Integrated Product Development	IP	S	2	2	0	0	0	5

1123	Engineering Designing with Plastics	KMK	S	2	1	1	0	0	5
1135	Plastics Processing	KV	W	2	1	0	1	0	5
1136	Lightweight Materials	LBW	S	2	2	0	0	0	5
1145	Material Flow	MAT	W	2	1	0	1	0	5
1178	Molecular Materials	MOW	S	2	2	0	0	0	5
1213	Production Planning and Logistics	PPL	S	2	2	0	0	0	5
1253	Structural and Design Development	SBU	S	2	1	0	1	0	5
1278	Materials and Component Testing	WBP	W	2	0	0	2	0	5
1282	Machine Tools	WM	S	2	2	0	0	0	5

<b>EDUTech</b>									
Module	Module title	Module	W/	L	ST	Ε	P/S	SSS	СР
number		ID	S						
1303	General Didactics With Orientation Practical	EDU/A D	W	0	2	0	0	0	5
1306	Vocational Education I and Vocational Field Practical	BP1	W	0	2	0	0	0	5
1307	Vocational Education II	EDU/BP 2	S	0	4	0	0	0	5
1304	Diagnosis and Support	EDU/D UF	S	0	4	0	0	0	5
1312	Didactics of Technology	EDU/T D	S	0	4	0	0	0	5

## Appendix C: Course Schedule

### for the study programme Mechanical Engineering B.Eng.

#### **Specialisation: Plastics Technology and Materials Engineering**

First semester			L	ST	E	P/S	SSS	СР
Module	Module title	Module						
number		ID						
1053	Introduction to Mechanical Engineering	EMA	2	0	0	2	0	5
1091	Strength of Materials	FLE	2	2	0	0	0	5
1148	Mathematics 1	MA1	2	2	0	0	0	5
1248	Statics	STK	2	2	0	0	0	5
1265	Technical Drawing	TZ	2	1	1	0	0	5
1280	Materials Engineering	WT	2	1	0	1	0	5
						Tota		30
Second s	emester		L	ST	E	P/S	SSS	CP
Module number	Module title	Module ID						
1048	Dynamics	DYN	2	2	0	0	0	5
1134	Plastics Technology	KT	2	1	0	1	0	5
1154	Mathematics 2	MA2	2	2	0	0	0	5
1087	Physics	PH	2	2	0	0	0	5
1267	Thermodynamics 1	TD1	2	2	0	0	0	5
1271	Connecting Elements	VBE	2	1	1	0	0	5
	-	-		•		Tota	I CP:	30
Third ser	nester		L	ST	Ε	P/S	SSS	СР
Module number	Module title	Module ID						
1017	Basic Project	BP	1	3	0	0	0	5
1096	Gearbox Elements	GTE	2	1	1	0	0	5
1159	Mathematics 3	MA3	2	2	0	0	0	5
1214	Production Engineering	PRT	2	2	0	0	0	5
1227	Process and Information Management	PIM	2	2	0	0	0	5
1278	Materials and Component Testing	WBP	2	0	0	2	0	5
		-		•		Tota	I CP:	30
Fourth se	emester		L	ST	Ε	P/S	SSS	СР
Module number	Module title	Module						
1022	Operational Strength	BEF	2	1	0	1	0	5
1054	Electrical Machines	EM	2	1	0	1	0	5
1252	Fluid Mechanics	SM	2	2	0	0	0	5
1255	System and Measurement	SUM	2	1	0	1	0	5
1233	Technology	JOIN	_	'		'		5
1262	Technical English	TE	0	4	0	0	0	5
9014	Elective Module	WM				0		5
-	1	1	1	1	1		I CP:	30
Fifth sem	nester		L	ST	E	P/S	SSS	
Module number	Module title	Module ID						

1024	Business Administration	BW	3	1	0	0	0	5
1114	Innovation and Project Management	IMG	2	2	0	0	0	5
1135	Plastics Processing	KV	2	1	0	1	0	5
1250	Control Technology	RT	2	2	0	0	0	5
1274	Follow-up Project	VPR	1	0	0	3	0	5
9014	Elective Module	WM				0		5
						Tota	I CP:	30
Sixth ser	nester		L	ST	Е	P/S	SSS	СР
Module number	Module title	Module ID						
1123	Engineering Designing with Plastics	KMK	2	1	1	0	0	5
1136	Lightweight Materials	LBW	2	2	0	0	0	5
1178	Molecular Materials	MOW	2	2	0	0	0	5
1228	Quality Management	QM	2	2	0	0	0	5
9014	Elective Module	WM				0		5
9014	Elective Module	WM				0		5
						Tota	I CP:	30
Seventh	semester		L	ST	E	P/S	SSS	CP
Module number	Module title	Module ID						
1291	Bachelor Thesis	BA	0	0	0	0	0	12
1290	Colloquium	KOL	0	0	0	0	0	3
1292	Practical Project / Internship	PRA	0	0	0	0	0	15
		·	-			Tota	I CP:	30

W/S = winter/summer semester

Elective N	Elective Modules Plastics Technology and Materials Engineering								
Module number	Module title	Module ID	W/ S	L	ST	Е	P/S	SSS	СР
1009	Applied Production	APR	W	2	1	0	1	0	5
1016	Automation Technology	AT	S	2	1	0	1	0	5
1037	CAD	CAD	W	2	0	2	0	0	5
1082	Energy Technology	ENT	W	2	2	0	0	0	5
1088	Factory Organisation	FAO	S	2	2	0	0	0	5
1093	Finite Elements 1	FE1	W	2	2	0	0	0	5
3135	Gender and Diversity: Success Factors for Companies	GUD	W	2	2	0	0	0	5
1232	Integrated Product Development	IP	S	2	2	0	0	0	5
1144	Machine Dynamics	MD	W	2	2	0	0	0	5

1145	Material Flow	MAT	W	2	1	0	1	0	5
1187	Computational Fluid Dynamics 1	CFD1	S	2	2	0	0	0	5
1213	Production Planning and Logistics	PPL	S	2	2	0	0	0	5
1253	Structural and Design Development	SBU	S	2	1	0	1	0	5
1131	Fluid Machinery	STMA	S	2	1	0	1	0	5
1268	Thermodynamics 2	TD2	W	2	2	0	0	0	5
1132	Displacement Machines	VMA	S	2	1	0	1	0	5
1282	Machine Tools	WM	S	2	2	0	0	0	5
1277	Heat Transfer	WÜT	S	2	2	0	0	0	5

<b>EDUTech</b>									
Module number	Module title	Module ID	W/ S	L	ST	E	P/S	SSS	СР
1303	General Didactics With Orientation Practical	EDU/A D	W	0	2	0	0	0	5
1306	Vocational Education I and Vocational Field Practical	BP1	W	0	2	0	0	0	5
1307	Vocational Education II	EDU/BP 2	S	0	4	0	0	0	5
1304	Diagnosis and Support	EDU/D UF	S	0	4	0	0	0	5
1312	Didactics of Technology	EDU/T D	S	0	4	0	0	0	5

## Appendix D: Course Schedule

### for the study programme Mechanical Engineering B.Eng.

### **Specialisation: Production and Logistics**

First sen	nester		L	ST	Ε	P/S	SSS	СР
Module number	Module title	Module ID						
1053	Introduction to Mechanical Engineering	EMA	2	0	0	2	0	5
1091	Strength of Materials	FLE	2	2	0	0	0	5
1148	Mathematics 1	MA1	2	2	0	0	0	5
1248	Statics	STK	2	2	0	0	0	5
1265	Technical Drawing	TZ	2	1	1	0	0	5
1280	Materials Engineering	WT	2	1	0	1	0	5
						Tota	I CP:	30
Second s	semester		L	ST	Ε	P/S	SSS	СР
Module number	Module title	Module ID						
1048	Dynamics	DYN	2	2	0	0	0	5
1134	Plastics Technology	KT	2	1	0	1	0	5
1154	Mathematics 2	MA2	2	2	0	0	0	5
1087	Physics	PH	2	2	0	0	0	5
1267	Thermodynamics 1	TD1	2	2	0	0	0	5
1271	Connecting Elements	VBE	2	1	1	0	0	5
						Tota	I CP:	30
Third ser	mester		L	ST	Ε	P/S	SSS	СР
Module number	Module title	Module ID						
1017	Basic Project	BP	1	3	0	0	0	5
1096	Gearbox Elements	GTE	2	1	1	0	0	5
1145	Material Flow	MAT	2	1	0	1	0	5
1159	Mathematics 3	MA3	2	2	0	0	0	5
1214	Production Engineering	PRT	2	2	0	0	0	5
1227	Process and Information Management	PIM	2	2	0	0	0	5
Farratia a			Ι.	ОТ.	T =		I CP:	30
Fourth s			. L	ST	E	P/S	SSS	СР
Module number	Module title	Module ID						
1054	Electrical Machines	EM	2	1	0	1	0	5
1213	Production Planning and Logistics	PPL	2	2	0	0	0	5
1252	Fluid Mechanics	SM	2	2	0	0	0	5
1255	System and Measurement Technology	SUM	2	1	0	1	0	5
1262	Technical English	TE	0	4	0	0	0	5
9013	Elective Module	WM				0		5
							I CP:	30
Fifth sen			L	ST	E	P/S	SSS	CP
Module number	Module title	Module ID						

1009	Applied Production	APR	2	1	0	1	0	5
1024	Business Administration	BW	3	1	0	0	0	5
1114	Innovation and Project Management	IMG	2	2	0	0	0	5
1250	Control Technology	RT	2	2	0	0	0	5
1274	Follow-up Project	VPR	1	0	0	3	0	5
9013	Elective Module	WM				0		5
						Tota	I CP:	30
Sixth ser	nester		L	ST	Ε	P/S	SSS	CP
Module number	Module title	Module ID						
1016	Automation Technology	AT	2	1	0	1	0	5
1088	Factory Organisation	FAO	2	2	0	0	0	5
1228	Quality Management	QM	2	2	0	0	0	5
9013	Elective Module	WM				0		5
9013	Elective Module	WM				0		5
1282	Machine Tools	WM	2	2	0	0	0	5
						Tota	I CP:	30
Seventh	semester		L	ST	E	P/S	SSS	CP
Module number	Module title	Module ID						
1291	Bachelor Thesis	BA	0	0	0	0	0	12
1290	Colloquium	KOL	0	0	0	0	0	3
1292	Practical Project / Internship	PRA	0	0	0	0	0	15
						Tota	I CP:	30

W/S = winter/summer semester

Elective N	Modules Production and Logistics								
Module number	Module title	Module ID	W/ S	L	ST	Е	P/S	SSS	СР
1022	Operational Strength	BEF	S	2	1	0	1	0	5
1037	CAD	CAD	W	2	0	2	0	0	5
1082	Energy Technology	ENT	W	2	2	0	0	0	5
1093	Finite Elements 1	FE1	W	2	2	0	0	0	5
3135	Gender and Diversity: Success Factors for Companies	GUD	W	2	2	0	0	0	5
1232	Integrated Product Development	IP	S	2	2	0	0	0	5
1123	Engineering Designing with Plastics	KMK	S	2	1	1	0	0	5
1135	Plastics Processing	KV	W	2	1	0	1	0	5
1136	Lightweight Materials	LBW	S	2	2	0	0	0	5

1144	Machine Dynamics	MD	W	2	2	0	0	0	5
1178	Molecular Materials	MOW	S	2	2	0	0	0	5
1187	Computational Fluid Dynamics 1	CFD1	S	2	2	0	0	0	5
1253	Structural and Design Development	SBU	S	2	1	0	1	0	5
1131	Fluid Machinery	STMA	S	2	1	0	1	0	5
1268	Thermodynamics 2	TD2	W	2	2	0	0	0	5
1132	Displacement Machines	VMA	S	2	1	0	1	0	5
1278	Materials and Component Testing	WBP	W	2	0	0	2	0	5
1277	Heat Transfer	WÜT	S	2	2	0	0	0	5

<b>EDUTech</b>									
Module	Module title	Module	W/	L	ST	Ε	P/S	SSS	СР
number		ID	S						
1303	General Didactics With Orientation Practical	EDU/A D	W	0	2	0	0	0	5
1306	Vocational Education I and Vocational Field Practical	BP1	W	0	2	0	0	0	5
1307	Vocational Education II	EDU/BP 2	S	0	4	0	0	0	5
1304	Diagnosis and Support	EDU/D UF	S	0	4	0	0	0	5
1312	Didactics of Technology	EDU/T D	S	0	4	0	0	0	5

# Appendix E: Course Schedule

### for the study programme Mechanical Engineering B.Eng.

### **Cooperative Engineering Training**

First sem	nester		L	ST	E	P/S	SSS	CP
Module	Module title	Module						
number		ID						
1053	Introduction to Mechanical Engineering	EMA	2	0	0	2	0	5
1091	Strength of Materials	FLE	2	2	0	0	0	5
1148	Mathematics 1	MA1	2	2	0	0	0	5
1248	Statics	STK	2	2	0	0	0	5
1265	Technical Drawing	TZ	2	1	1	0	0	5
1280	Materials Engineering	WT	2	1	0	1	0	5
	,	· · · · · · · · · · · · · · · · · · ·	I.	I.	1	Tota	I CP:	30
Second s	emester		L	ST	Ε	P/S	SSS	СР
Module number	Module title	Module ID						
1048	Dynamics	DYN	2	2	0	0	0	5
1134	Plastics Technology	KT	2	1	0	1	0	5
1154	Mathematics 2	MA2	2	2	0	0	0	5
1087	Physics	PH	2	2	0	0	0	5
1267	Thermodynamics 1	TD1	2	2	0	0	0	5
1271	Connecting Elements	VBE	2	1	1	0	0	5
	3	L	· L	· ·	ı	Tota	I CP:	30
Third ser	nester		L	ST	E	P/S	SSS	СР
Module	Module title	Module						
number		ID						
1017	Basic Project	BP	1	3	0	0	0	5
1096	Gearbox Elements	GTE	2	1	1	0	0	5
1159	Mathematics 3	MA3	2	2	0	0	0	5
1214	Production Engineering	PRT	2	2	0	0	0	5
1227	Process and Information Management	PIM	2	2	0	0	0	5
	Specialisation Module							5
		•				Tota	I CP:	30
Fourth se	emester		L	ST	E	P/S	SSS	СР
Module number	Module title	Module ID						
1054	Electrical Machines	EM	2	1	0	1	0	5
1252	Fluid Mechanics	SM	2	2	0	0	0	5
1255	System and Measurement Technology	SUM	2	1	0	1	0	5
1262	Technical English	TE	0	4	0	0	0	5
	Specialisation Module							5
9013	Elective Module	WM				0		5
					1	Tota	I CP:	30

Practical	l year and skilled worker or jour	rneyman exa	ımina	ation				
Fifth and	sixth semesters		L	ST	Ε	P/S	SSS	СР
Module number	Module title	Module ID						
1291	Practical Project / Internship	PRA	0	0	0	0	0	15
Seventh	semester		L	ST	E	P/S	SSS	СР
Module number	Module title	Module ID						
1024	Business Administration	BW	3	1	0	0	0	5
1250	Control Technology	RT	2	2	0	0	0	5
	Specialisation Module							5
	Specialisation Module							5
1274	Follow-up Project	VPR	1	0	0	3	0	5
9013	Elective Module	WM				0		5
						Tota	I CP:	30
Eighth so	emester		L	ST	E	P/S	SSS	CP
Module number	Module title	Module ID						
1228	Quality Management	QM	2	2	0	0	0	5
	Specialisation Module							5
	Specialisation Module							5
	Specialisation Module							5
9013	Elective Module	WM				0		5
9013	Elective Module	WM				0		5
				•	•	Tota	I CP:	30
Ninth se	mester		L	ST	Е	P/S	SSS	СР
Module number	Module title	Module ID						
1291	Bachelor Thesis	BA	0	0	0	0	0	12
1290	Colloquium	KOL	0	0	0	0	0	3
	•	•	•	-	•	Tota	I CP:	15

W/S = winter/summer semester

# Appendix F: Module catalogue

for the study programme Mechanical Engineering B.Eng.

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Please note: The German version of this document is the legally binding version. The English translation provided here is for information purposes only.

Gene	eral Didact	ics With Orie	ntati	on Practical						EDU/Al	D
Ident	ification er:	Workload:		Credits:	Study	semeste	er:	Frequency offer	of the	Duration	:
1303		150 h		5	3rd se	emestei	•	Annual (Winter)		1 semes	ter
1	Course:		Pl	anned group siz	es	Scope	;	/	ontact time m teaching	Self-study	
	Lecture		60	students		0	SCH	0	h	0	h
	Seminar l	essons	30	students		2	SCH	30	h	30	h
	Exercise		20	students		0	SCH	0	h	0	h
	Practical	or seminar	15	students		0	SCH	80	h	10	h
	Supervise	ed self-study	60	students		0	SCH	0	h	0	h

#### 2 Learning outcomes/competences:

#### The students

- understand didactics as a sub-discipline of education and are able to draw further boundaries to neighbouring disciplines and related disciplines as well as to identify subject areas and functions of didactics.
- are able to distinguish between selected didactic theories and models and to highlight the significance of these theoretical foundations for the planning of teaching-learning processes.
- have a basic knowledge and understanding of categories of teaching, can apply them in initial planning attempts and critically evaluate them.
- are able to transfer the steps of lesson planning and use them for their own teaching encounter in the orientation practical.
- are able to critically question this knowledge, to modify the resulting questions in exploratory questions and to systematically elaborate them during the orientation practical.
- reflect on their own developmental process and include both their first practical professional experiences and theoretical discussions of different subjects of exploration.

#### 3 Contents:

- Genesis, subject areas/fields of activity, basic concepts and research approaches of general didactics
- Didactic theories, e.g. didactics of educational theory, learning-/teaching theory didactics, constructivist didactics, didactics of educational pathways
- Structure and planning logic of teaching
- Basic forms of didactic lesson planning, implementation and analysis

4	Forms of teaching:	
	Seminar lessons	
5	Participation requirem	ents:
	Formal:	
	Content:	
6	Forms of assessment:	
	Oral examination	
7	Prerequisite for the aw	vard of credit points:
	Module examination	n pass and course assessment
8	* *	dule (in the following study programmes)
	Ü	ng B.Eng. and Mechanical Engineering B.Eng.
9	Importance of the grad	de for the final grade:
	according to BRPO	
10	Module coordinator:	
	Prof. DrIng. Thors	ten Jungmann
11	Other information:	
12	Language:	
	German	

	olied Produ	ction							APR	
Iden num	tification ber:	Workload:	Credits:	Stud	y semest	er:	Frequenc offer	y of the	Duratio	on:
1009	9	150 h	5	5th s	emeste	r	Annual (Winter)		1 seme	ester
1	Course:	1	Planned group s	sizes	Scope	e		contact lassroom	Self-stud	ly
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar l	lessons	30 students		1	SCH	15	h	22.5	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		1	SCH	15	h	22.5	h
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h
3	Contents:	nce of produc	ction technology							
	applicati		tive production ponal production pr		es with	convent	ional and	modern me	aterials Fo	
	advantag mass pro	ges and disad	vantages. for gen		to be	determir	ned with	the respect	tive proces	ss-specifi
4	Forms of	ges and disad oduction teaching:	vantages. for gen	eral and	to be specifi	determir	ned with	the respect	tive proces	ss-specifi
	Forms of Lecture,	ges and disad oduction teaching: seminar-base	vantages. for gen	eral and	to be specifi	determir	ned with	the respect	tive proces	ss-specifi
	Forms of Lecture,	ges and disad oduction teaching: seminar-base ion requirement	vantages. for general vantages. general vantages. general vantages.	eral and	to be specifi	determir	ned with	the respect	tive proces	ss-specifi
4 5	Forms of Lecture,	ges and disad oduction teaching: seminar-base	vantages. for general control of the	eral and	to be specifi	determir	ned with	the respect	tive proces	ss-specifi
5	Forms of Lecture, Participat Formal: Content:	teaching: seminar-base ion requirement	vantages. for general control of the	eral and	to be specifi	determir	ned with	the respect	tive proces	ss-specifi
5	Forms of Lecture, Participat Formal: Content: Forms of	teaching: seminar-base ion requireme Nor Nor assessment:	vantages. for general control of the	eral and	to be specifi	determir	ned with	the respect	tive proces	ss-specifi
5	Forms of Lecture, Participat Formal: Content: Forms of Written Prerequise	teaching: seminar-base ion requirement Nor assessment: examination ite for the awa	ed teaching, practents:  ne or oral examination of credit points:	tical cou	to be specifi	determir	ned with	the respect	tive proces	ss-specifi
5 6 7	Forms of Lecture, Participat Formal: Content: Forms of Written of Prerequise Module	teaching: seminar-base ion requirement Nor Nor assessment: examination ite for the awa examination	ed teaching, practents: ne ne or oral examination of credit points: pass	tical cou	to be specifi	determir c compo	ned with	the respect	tive proces	ss-specifi
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Auto	omation Te	echnology							AT	
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1016	5	150 h	5	4th o	or 6th se	emester	Annual (Summer)	)	1 seme	ester
1	Course:		Planned group s	sizes	Scope	e	Actual co		Self-stuc	ly
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar l	lessons	30 students		1	SCH	15	h	22.5	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		1	SCH	15	h	22.5	h
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h
2	Learning	outcomes/comp	netences:							
3	Contents:		ms, standards, ex	amples	, aim of	the lect	ure)			
3	Introduc - Ger - Pro - Act - For pro	tion (basic ter neral requirem cess concept a mators and ser mal description grammable lo	ems, standards, ex- ments for automation and process descr asors, special fear on of the function gic controllers (F al communication	ion deviription tures of plainty of PLCs), in	process control	al-time of measur lers (inp tion to F	apability, s rement tech out language retri nets)	nology		1131-3
	Introduce - Ger - Pro - Act - For pro - Bas	tion (basic ter neral requirem cess concept a mators and ser mal description grammable lo	ents for automation and process described and process described as on of the function gic controllers (F	ion deviription tures of plainty of PLCs), in	process control	al-time of measur lers (inp tion to F	apability, s rement tech out language retri nets)	nology		1131-3
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4	Introduce - Ger - Pro - Act - For pro - Bas	tion (basic terneral requirem cess concept a cuators and ser mal description grammable losics of industri	ents for automation and process descrisors, special fearence on of the function gic controllers (Fall communication)	ion devi ription tures of adity of PLCs), in	process control ntroduc cially bu	al-time c measur lers (inp tion to F us syster	apability, s rement tech out language retri nets) ns	nology		1131-3
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4 5	Forms of Lecture Participat Forms of Written	tion (basic terneral requirem cess concept a tuators and sermal description grammable logics of industriction requiremen None Contassessment: or oral examin	d application exacts:  etail communication exacts:  etail congineering	ion deviciption tures of ality of PLCs), in on, especimples a	process control ntroduc cially bu	al-time contents measurablers (inpution to Fassyster	apability, s rement tech out language retri nets) ms	nology es accord	ing to IEC	1131-3
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4 5 7 8 9	Forms of Lecture Participat Formal: Content: Forms of Written Prerequis Module Applicati Mechani Important accordin Module of	tion (basic terneral requirements concept a suators and sermal description grammable losics of industrial seaching:  with integrate tion requirements assessment:  or oral examination proposed for the awar examination proposed for the grade and to BRPO coordinator: Ing. Sebastia	d application exacts:  e trol engineering' traition; in each card of credit points: bass with preliming the final grade: for the final grade:	ion devicion deviciption tures of ality of PLCs), in an, especimples and (1250)  asse with mary exaggisted as study p	process control ntroduc cially but and prace	nl-time of measuralers (input tion to False system	apability, s rement tech out language retri nets) ms	nology es accord	ing to IEC	1131-:
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4 5 6 7 8 9	Introduce - Ger - Pro - Act - For pro - Bas  Forms of Lecture Participat Formal: Content: Forms of Written Prerequis Module Applicati Mechani Importan accordin Module of Prof. Dr Other info	tion (basic terneral requirem cess concept a tuators and sermal description grammable losics of industrial teaching:  with integrate tion requirement	d application exacts:  e trol engineering' traition; in each card of credit points: bass with preliming the final grade: for the final grade:	ion devicing to device the control of the control o	process control ntroduc cially be and prace	nl-time of measuralers (input tion to Paus system tical control contro	apability, s rement tech out language retri nets) ms	nology es accord	ing to IEC	1131-3

Bach	elor Thesis	s								BA	
Identi	ification er:	Workle	oad:	Credits:	Study	semeste	er:	Frequency offer	of the	Duratio	on:
1291		360 h		12	6th o	r 7th se	emester	each sem	ester	12 wee	eks
1	Course:			Planned group siz	zes	Scope	<b>)</b>	Actual c time / cl teaching	assroom	Self-stud	ly
	Lecture			60 students		0	SCH	0	h	360	h
	Seminar le	essons		30 students		0	SCH	0	h	0	h
	Exercise			20 students		0	SCH	0	h	0	h
	Practical of	or semina	ar	15 students		0	SCH	0	h	0	h
	Supervise	d self-stı	ıdy	60 students		0	SCH	0	h	0	h
2	task from	bachelo his/he	r thesis,	each candidate of tarea within a spontexts, working	pecifie	d perio	d of tim	e, both in	its subject	-specific o	letails and
3	Contents:										
	technolog It should	gy task. deal w	It shoul	ually an indepen d deal with the s subject matter in	subject	matter	in detai	led descrip	otions and	explanation	ons
4	written p Forms of t	-									
5	Participati	ion requi	rements:								
	Formal:		None								
	Content:			nated topic from	the st	udent's	special	subject are	ea		
6	Forms of a	assessme	ent:								
7	Prerequisi	te for the	award o	of credit points:							
8	Apparati B.Eng., N Industria	ve Biote Mechani l Engine	echnological Eng eering a	(in the following s gy B.Sc., Electric ineering B.Eng., and Management	cal Eng , Mech	gineerir	ng B.En				
9	Importance according		_	the final grade:							
10	Module co	oordinate	or:	r							
11	Other info			••							
11				nced at the begir	nning o	f the co	ourse.				
12	Language				-						
	German										

Identifinumber 1017	Course:  Lecture Seminar I  Exercise Practical	Workload: 150 h essons or seminar ed self-study	Credits: 5 Planned group s 60 students 30 students 20 students 15 students	3rd s	semeste Scop	er e	Frequency offer Annual (Winter)  Actual c time / cla teaching	ontact	Duration 1 seme	ester
1017	Course:  Lecture Seminar I  Exercise Practical Supervise Learning	essons or seminar	Planned group s  60 students 30 students 20 students		Scop	e	Annual (Winter)  Actual c time / cla			
-	Lecture Seminar I Exercise Practical Supervise Learning	or seminar	60 students 30 students 20 students	izes	1	_	time / cla		Self-stud	ly
2	Exercise Practical Supervise Learning	or seminar	30 students 20 students							
2	Exercise Practical Supervise Learning	or seminar	20 students		_	SCH	15	h	22.5	h
2	Practical Supervise Learning				3	SCH	45	h	67.5	h
2	Supervise		15 students		0	SCH	0	h	0	h
2	Learning	ed self-study			0	SCH	0	h	0	h
2			60 students		0	SCH	0	h	0	h
3	question	and analyse ms. The stude	ds in a targeted n their own workin ents have the socia	g metho	ods and	approac	thes and ev	aluate the	em in com	parison to
	Working - Conce - Presen - Prepar - Projec - Coope - Social - Proble - Creati - Specif - Specif	on a technic ept, design, contation of the ration of proto t structuring, ration and di skills, em solving mo vity technique ications, ications,	vision of tasks in tethods,	ques, ommission echnical al docun	oning of solution	of a techr		, self-mar	nagement,	- project
4		, seminar tea								
5	Participat Formal: Content:	ion requirement Nor	ne							
6	Forms of	assessment:								
7			erformance exam	or proje	ect wor	K				
<i>'</i>	_		pass and course as	ssessme	nt					
8	Applicati	on of the modu	ale (in the following			nes)				
9		cal Engineer ce of the grade	ing B.Eng. for the final grade:							
		g to BRPO								

	Prof. DrIng. Bruno Hüsgen
11	Other information:
	Literature will be announced at the beginning of the course.
12	Language:
	German

Identification number:   1306		tical	cational Field Pra	acation I and Voc	ational Edu	Voc
1306		tudy semesto	Credits:	Workload:		
Lecture 60 students 0 SCH 0 h 0 Seminar lessons 30 students 2 SCH 30 h 30 Exercise 20 students 0 SCH 0 h 0 Practical or seminar 15 students 0 SCH 0 h 0 Supervised self-study 60 students 0 SCH 0 h 0 Supervised self-study 60 students 0 SCH 0 h 0 Supervised self-study 60 students 0 SCH 0 h 0 SCH 0 h 0 SCH 0 h 0 SCH 0 h 0 SCH	5th semester Annual	rd or 5th se	5	150 h		
Lecture 60 students 2 SCH 0 h 0 Seminar lessons 30 students 2 SCH 30 h 30 Exercise 20 students 0 SCH 0 h 0 Practical or seminar 15 students 0 SCH 0 h 10 Supervised self-study 60 students 0 SCH 0 h 0 Supervised self-study 60 students 0 SCH 0 h 0 Supervised self-study 60 students 0 SCH 0 h 0 SUB 0 SCH 0 h 0 SUB 0 SCH 0	time / classroom	Scope	Planned group size	I	Course:	1
Seminar lessons   30 students   2   SCH   30   h   30     Exercise   20 students   0   SCH   0   h   0     Practical or seminar   15 students   0   SCH   80   h   10     Supervised self-study   60 students   0   SCH   0   h   0     Learning outcomes/competences:     Students:   - understand vocational education as a sub-discipline of educational science, are able to dist the respective subject areas and research fields from each other and explain them in context systematically reflect on exemplary practical experiences in the workplace and therefore examine motives for their own career paths.   are able to identify requirements for company and school educators and in this context und vocational education as a profession.   can describe the structures, forms and interfaces of the vocational education and training in Germany in a differentiated manner and consider the historical, educational policy are framework conditions.   use tools of scientific work competently.   Contents:   Concepts, subject areas and research fields of educational science and vocational educational science,   Objectives, structures and interfaces of the Vocational Educational Training (VET) system framework of VET,   Contributors and roles in the VET system,   Processes of (vocational) pedagogical professionalisation   Software tools: Word processing programme, literature management programme   Methods of scientific work: Research, source work, text production   Formal:   Content:   Formal:   Content:   Forms of assessment:   Oral examination   Prerequisite for the award of credit points:   Module examination pass and course assessment		0	60 students	- (	Lecture	
Exercise 20 students 0 SCH 0 h 0  Practical or seminar 15 students 0 SCH 80 h 10  Supervised self-study 60 students 0 SCH 0 h 0  Learning outcomes/competences:  Students:  - understand vocational education as a sub-discipline of educational science, are able to dist the respective subject areas and research fields from each other and explain them in conte - systematically reflect on exemplary practical experiences in the workplace and therel examine motives for their own career paths.  - are able to identify requirements for company and school educators and in this context und vocational education as a profession.  - can describe the structures, forms and interfaces of the vocational education and training in Germany in a differentiated manner and consider the historical, educational policy are framework conditions.  - use tools of scientific work competently.  S Contents:  - Concepts, subject areas and research fields of educational science and vocational educational science, Objectives, structures and interfaces of the Vocational Educational Training (VET) system framework of VET,  - Contributors and roles in the VET system,  - Processes of (vocational) pedagogical professionalisation  - Software tools: Word processing programme, literature management programme  - Methods of scientific work: Research, source work, text production  4 Forms of teaching:  Seminar lessons  Participation requirements:  Formal:  Content:  Formal of teaching:  Seminar lessons  Practicipation requirements:  Formal:  Formal of teaching:  Seminar lessons  Practicipation requirements:  Formal of teaching:  Seminar lessons  Practicipation requirements:  Formal of the award of credit points:  Module examination pass and course assessment						
Practical or seminar 15 students 0 SCH 80 h 10  Supervised self-study 60 students 0 SCH 0 h 0  Learning outcomes/competences: Students:  - understand vocational education as a sub-discipline of educational science, are able to dist the respective subject areas and research fields from each other and explain them in conte systematically reflect on exemplary practical experiences in the workplace and there examine motives for their own career paths are able to identify requirements for company and school educators and in this context und vocational education as a profession can describe the structures, forms and interfaces of the vocational education and training in Germany in a differentiated manner and consider the historical, educational policy ar framework conditions use tools of scientific work competently.  Contents: - Concepts, subject areas and research fields of educational science and vocational educational science, objectives, structures and interfaces of the Vocational Educational Training (VET) system framework of VET, - Contributors and roles in the VET system, - Processes of (vocational) pedagogical professionalisation - Software tools: Word processing programme, literature management programme - Methods of scientific work: Research, source work, text production  Forms of teaching: Seminar lessons - Participation requirements: Formal: Content: - Forms of assessment: - Oral examination - Prerequisite for the award of credit points: - Module examination pass and course assessment						
Supervised self-study 60 students 0 SCH 0 h 0  Learning outcomes/competences: Students:  - understand vocational education as a sub-discipline of educational science, are able to dist the respective subject areas and research fields from each other and explain them in conte systematically reflect on exemplary practical experiences in the workplace and there examine motives for their own career paths are able to identify requirements for company and school educators and in this context und vocational education as a profession can describe the structures, forms and interfaces of the vocational education and training in Germany in a differentiated manner and consider the historical, educational policy ar framework conditions use tools of scientific work competently.  Contents: - Concepts, subject areas and research fields of educational science and vocational educational sub-discipline of educational science, - Objectives, structures and interfaces of the Vocational Educational Training (VET) syster framework of VET, - Contributors and roles in the VET system, - Processes of (vocational) pedagogical professionalisation - Software tools: Word processing programme, literature management programme - Methods of scientific work: Research, source work, text production  Forms of teaching: Seminar lessons - Participation requirements: Formal: Content: - Forms of assessment: - Oral examination - Prerequisite for the award of credit points: - Module examination pass and course assessment	0 SCH 0 h	0				
Learning outcomes/competences:  Students:  - understand vocational education as a sub-discipline of educational science, are able to dist the respective subject areas and research fields from each other and explain them in conte - systematically reflect on exemplary practical experiences in the workplace and there examine motives for their own career paths.  - are able to identify requirements for company and school educators and in this context und vocational education as a profession.  - can describe the structures, forms and interfaces of the vocational education and training in Germany in a differentiated manner and consider the historical, educational policy ar framework conditions.  - use tools of scientific work competently.  Contents:  - Concepts, subject areas and research fields of educational science and vocational educations sub-discipline of educational science,  - Objectives, structures and interfaces of the Vocational Educational Training (VET) system framework of VET,  - Contributors and roles in the VET system,  - Processes of (vocational) pedagogical professionalisation  - Software tools: Word processing programme, literature management programme  - Methods of scientific work: Research, source work, text production  Forms of teaching:  Seminar lessons  Participation requirements:  Formal:  Content:  Formal:  Content:  Formal:  Oral examination  Prerequisite for the award of credit points:  Module examination pass and course assessment	) SCH 80 h	0	5 students	or seminar	Practical	
Students:  - understand vocational education as a sub-discipline of educational science, are able to dist the respective subject areas and research fields from each other and explain them in conte systematically reflect on exemplary practical experiences in the workplace and there examine motives for their own career paths.  - are able to identify requirements for company and school educators and in this context und vocational education as a profession.  - can describe the structures, forms and interfaces of the vocational education and training in Germany in a differentiated manner and consider the historical, educational policy ar framework conditions.  - use tools of scientific work competently.  Contents:  - Concepts, subject areas and research fields of educational science and vocational educational-discipline of educational science,  - Objectives, structures and interfaces of the Vocational Educational Training (VET) system framework of VET,  - Contributors and roles in the VET system,  - Processes of (vocational) pedagogical professionalisation  - Software tools: Word processing programme, literature management programme  - Methods of scientific work: Research, source work, text production  Forms of teaching:  Seminar lessons  Participation requirements:  Formal:  Content:  Formal:  Content:  Forms of assessment:  Oral examination  Prerequisite for the award of credit points:  Module examination pass and course assessment	0 SCH 0 h	0	60 students	ed self-study 6	Supervise	
Students:  - understand vocational education as a sub-discipline of educational science, are able to dist the respective subject areas and research fields from each other and explain them in conte systematically reflect on exemplary practical experiences in the workplace and there examine motives for their own career paths.  - are able to identify requirements for company and school educators and in this context und vocational education as a profession.  - can describe the structures, forms and interfaces of the vocational education and training in Germany in a differentiated manner and consider the historical, educational policy ar framework conditions.  - use tools of scientific work competently.  Contents:  - Concepts, subject areas and research fields of educational science and vocational educational-discipline of educational science,  - Objectives, structures and interfaces of the Vocational Educational Training (VET) system framework of VET,  - Contributors and roles in the VET system,  - Processes of (vocational) pedagogical professionalisation  - Software tools: Word processing programme, literature management programme  - Methods of scientific work: Research, source work, text production  Forms of teaching:  Seminar lessons  Participation requirements:  Formal:  Content:  Formal:  Content:  Forms of assessment:  Oral examination  Prerequisite for the award of credit points:  Module examination pass and course assessment			ences:	outcomes/compete	Learning	
Seminar lessons  Participation requirements:  Formal:  Content:  Forms of assessment:  Oral examination  Prerequisite for the award of credit points:  Module examination pass and course assessment	ds from each other and explain there all experiences in the workplace as and school educators and in this concess of the vocational education and	ch fields fro oractical ex oaths. mpany and	et areas and resear to on exemplary their own career equirements for c	respective subject tematically reflect mine motives for able to identify re	the - syst exa	
Formal: Content: Forms of assessment: Oral examination Prerequisite for the award of credit points: Module examination pass and course assessment	of educational science and vocation  ocational Educational Training (VI sionalisation	telds of educem, professional	eas and research cational science and interfaces es in the VET syonal) pedagogical d processing pro	describe the structured for the	can in C frar use  Contents: Contents: Cor sub Obj frar Cor Pro Sof	3
Content: Forms of assessment: Oral examination Prerequisite for the award of credit points: Module examination pass and course assessment	of educational science and vocation  ocational Educational Training (VI sionalisation	telds of educem, professional	eas and research cational science and interfaces es in the VET syonal) pedagogical d processing pro	describe the structure of the structure of the scientification of scientifications of scientifications, subject are discipline of educatives, structure nework of VET, ntributors and rol cesses of (vocation than the scientification of scientification).	can in C frar use  Contents: Contents: Cor sub Obj frar Cor Pro Sof Met	
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Prerequisite for the award of credit points:  Module examination pass and course assessment	of educational science and vocation  ocational Educational Training (VI sionalisation	telds of educem, professional	eas and research cational science and interfaces es in the VET syonal) pedagogical d processing pro	describe the stru Germany in a difference of condition tools of scientifications and relatively accesses of (vocation tools of scientifications). Work that tools: Work thous of scientification requirements:	Contents: - Cor sub - Obj frar - Use  Contents: - Cor Sub - Obj frar - Cor Sof - Pro - Sof - Mer  Forms of Seminar Participat Formal: Content:	
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	of educational science and vocation  ocational Educational Training (VI sionalisation	telds of educem, professional	eas and research cational science is and interfaces es in the VET syonal) pedagogical processing pr	describe the structure of the structure of the scientific of the s	can in C frar use  Contents: Contents: Cor sub Obj frar Cor Pro Sof Met  Forms of Seminar Participat Formal: Content: Forms of Oral exa	
Application of the module (in the following study measurements)	of educational science and vocation  ocational Educational Training (VI sionalisation	telds of education of the Vocation of the Voca	ferentiated mannals.  c work competer  eas and research acational science s and interfaces  es in the VET sy onal) pedagogica d processing pro c work: Research	describe the structured for the structured for the scientification of scientification of scientification of the scientification of the scientification of the scientification of the scientification of scientification of the scient	can in C frar use  Contents: Cor sub Obj frar Cor Pro Sof Mer  Forms of Seminar Participat Formal: Content: Forms of Oral exa Prerequis	
Application of the module (in the following study programmes)  Electrical Engineering B.Eng. and Mechanical Engineering B.Eng.	of educational science and vocation of ocational Educational Training (VI sionalisation e, literature management programme work, text production	e and consi	ferentiated mannals.  c work competer  eas and research acational science as and interfaces es in the VET sy bonal) pedagogica d processing pro- c work: Research	describe the structured for the	Contents: - Cor sub - Obj frar - Cor - Pro - Sof - Met  Forms of Seminar Participat Formal: Content: Forms of Oral exa Prerequis Module	

	according to BRPO
10	Module coordinator:
	Prof. DrIng. Thorsten Jungmann
11	Other information:
12	Language:
	German

	ational Edi	ucation II							EDU/	BP2
Ident	tification ber:	Workload:	Credits:	Study	semest	ter:	Frequency	y of the	Durati	on:
1307		150 h	5	6th s	emeste	r	Annual (Summe	r)	1 sem	ester
1	Course:		Planned group s	sizes	Scop	e	Actual of time / conteaching	assroom	Self-stu	dy
	Lecture		60 students		0	SCH	0	h	0	h
	Seminar	lessons	30 students		4	SCH	60	h	90	h
	Exercise		20 students		0	SCH	0	h	0	h
		or seminar	15 students		0	SCH	0	h	0	h
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h
2		outcomes/com								
	of a	a training occu	actically transform pation.	m a selec	cted lea	arning fi	eld based	on the fra	mework c	urriculu
3	Edu - can leve pro	ucational Train critically reflel of knowled fession-specif	ices to general ning (VET) resea lect and classify lge. In this con ic field,	current	empirio researc	cal class th trends	room reses in VET	arch. esearch o	on the basi	is of the
3	Contents - Scir Resedu - Coi - Lea - Act	cational Train critically reflected of knowled of the control of t	ning (VET) reseat lect and classify lge. In this con	rrite and ons and received de ciented de cie	preparesearch xplore essign oruction	e texts for method own tear and tears and tears	or publicates in educates, s,	arch. research o arch desid	on the basi	is of the
3	Contents - Sci - Res edu - Cor - Lea - Act - Tra	critically reflected of knowled of knowled of knowled of the search objects, acation and transcept of praction are proposed of the search objects, acation and transcept of praction of practical of the search objects, acation and transcept of practical of the search objects, acation and transcept of practical of the search objects, acation and transcept of practical of the search objects, acation and transcept of the search objects.	Plan, structure, we research questioning research, ce or action research methods for training retains.	rrite and ons and received de ciented de cie	preparesearch xplore essign oruction	e texts for method own tear and tears and tears	or publicates in educates, s,	arch. research o arch desid	on the basi	is of the
4	Contents - Sci - Res edu - Con - Lea - Act - Tra	critically reflected of knowled of knowled of knowled of the search objects, acation and trancept of praction arning field antion-oriented raining regulation of the search objects.	Plan, structure, we research question ining research, ce or action research decompetence-or methods for training plan	rrite and ons and received de ciented de cie	preparesearch xplore essign oruction	e texts for method own tear and tears and tears	or publicates in educates, s,	arch. research o arch desid	on the basi	is of the
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4	Contents - Sci - Res edu - Cor - Lea - Act - Tra  Forms of Seminar Participar Formal:	critically reflected of knowled of knowled of knowled of the search objects, acation and trancept of praction arning field antion-oriented raining regulation of the search objects.	Plan, structure, we research question ining research, ce or action research decompetence-or methods for training plan	rrite and ons and received de ciented de cie	preparesearch xplore essign oruction	e texts for method own tear and tears and tears	or publicates in educates, s,	arch. research o arch desid	on the basi	is of the
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	Module examination pass
8	Application of the module (in the following study programmes)
	Electrical Engineering B.Eng. and Mechanical Engineering B.Eng.
9	Importance of the grade for the final grade:
	according to BRPO
10	Module coordinator:
	Prof. DrIng. Thorsten Jungmann
11	Other information:
12	Language:
	German

number: 1022 150 h 5 4th or 6th semester Annual (Summer) 1 ser	on:	BEF						ength	erational Str
Course:    Planned group sizes   Scope		Duratio	of the		er:	semest	Credits:	Workload:	
Lecture 60 students 2 SCH 30 h 45  Seminar lessons 30 students 1 SCH 15 h 22.5  Exercise 20 students 0 SCH 0 h 0  Practical or seminar 15 students 1 SCH 15 h 22.5  Supervised self-study 60 students 0 SCH 0 h 0  Learning outcomes/competences:  Students: - learn about the influence of cyclic loads on the material behaviour and can assess the incracks on the component behaviour  - can evaluate the influence of different design boundary conditions on the fatigue strength can evaluate the influence of different design boundary conditions on the fatigue strength adversarial that selected test methods for cyclic loading and can derive relevant chevalues for component design develop skills to calculate the service life of cyclically loaded components under multitioperating stresses using simple examples  - become familiar with aspects of fracture mechanics and, based on this, are able to account the influence of cracks in the design of components under cyclic stresses  - Fundamentals of fatigue behaviour, especially of metallic materials  - Wöhler Curve and statistical influences  - Notch effect and influence on fatigue strength  - Other selected parameters influencing fatigue strength  - Concepts (Miner rule) for lifetime prediction for single and multi-hour cyclic loads  - Special material tests under cyclic loading (fatigue tests, compression mechanics)  - Counting method and lifetime prediction for real stress-time functions  - Fundamentals of static fracture mechanics	ester	1 seme			emester	r 6th se	5	150 h	22
Lecture	dy	Self-stud		time / clas	<b>)</b>	Scope	Planned group size:		Course:
Exercise 20 students 0 SCH 0 h 0  Practical or seminar 15 students 1 SCH 15 h 22.5  Supervised self-study 60 students 0 SCH 0 h 0  Learning outcomes/competences:  Students:  - learn about the influence of cyclic loads on the material behaviour and can assess the incracks on the component behaviour  - can evaluate the influence of different design boundary conditions on the fatigue strend earlier or can establish correlations to partial building damage on the basis of this behaviour understand the selected test methods for cyclic loading and can derive relevant the values for component design develop skills to calculate the service life of cyclically loaded components under multity operating stresses using simple examples  - become familiar with aspects of fracture mechanics and, based on this, are able to account the influence of cracks in the design of components under cyclic stresses  - Fundamentals of fatigue behaviour, especially of metallic materials  - Wöhler Curve and statistical influences  - Notch effect and influence on fatigue strength  - Other selected parameters influencing fatigue strength  - Concepts (Miner rule) for lifetime prediction for single and multi-hour cyclic loads  - Special material tests under cyclic loading (fatigue tests, compression mechanics)  - Counting method and lifetime prediction for real stress-time functions  - Fundamentals of static fracture mechanics	h	45	h		SCH	2	60 students		Lecture
Practical or seminar 15 students 1 SCH 15 h 22.5  Supervised self-study 60 students 0 SCH 0 h 0  Learning outcomes/competences:  Students:  - learn about the influence of cyclic loads on the material behaviour and can assess the incracks on the component behaviour  - can evaluate the influence of different design boundary conditions on the fatigue strent can establish correlations to partial building damage on the basis of this behaviour understand the selected test methods for cyclic loading and can derive relevant the values for component design  - develop skills to calculate the service life of cyclically loaded components under multitoperating stresses using simple examples  - become familiar with aspects of fracture mechanics and, based on this, are able to account the influence of cracks in the design of components under cyclic stresses  Contents:  - Fundamentals of fatigue behaviour, especially of metallic materials  - Wöhler Curve and statistical influences  - Notch effect and influence on fatigue strength  - Other selected parameters influencing fatigue strength  - Concepts (Miner rule) for lifetime prediction for single and multi-hour cyclic loads  - Special material tests under cyclic loading (fatigue tests, compression mechanics)  - Counting method and lifetime prediction for real stress-time functions  - Fundamentals of static fracture mechanics	h	22.5	h	15	SCH	1	30 students	essons	Seminar l
Supervised self-study 60 students 0 SCH 0 h 0  Learning outcomes/competences:  Students:  - learn about the influence of cyclic loads on the material behaviour and can assess the incracks on the component behaviour  - can evaluate the influence of different design boundary conditions on the fatigue strent can establish correlations to partial building damage on the basis of this behaviour understand the selected test methods for cyclic loading and can derive relevant the values for component design  - develop skills to calculate the service life of cyclically loaded components under multity operating stresses using simple examples  - become familiar with aspects of fracture mechanics and, based on this, are able to account the influence of cracks in the design of components under cyclic stresses  Contents:  - Fundamentals of fatigue behaviour, especially of metallic materials  - Wöhler Curve and statistical influences  - Notch effect and influence on fatigue strength  - Other selected parameters influencing fatigue strength  - Concepts (Miner rule) for lifetime prediction for single and multi-hour cyclic loads  - Special material tests under cyclic loading (fatigue tests, compression mechanics)  - Counting method and lifetime prediction for real stress-time functions  - Fundamentals of static fracture mechanics	h	0	h	0	SCH	0	20 students		Exercise
Learning outcomes/competences:  Students:  - learn about the influence of cyclic loads on the material behaviour and can assess the incracks on the component behaviour  - can evaluate the influence of different design boundary conditions on the fatigue strent  - can establish correlations to partial building damage on the basis of this behaviour  - understand the selected test methods for cyclic loading and can derive relevant chevalues for component design  - develop skills to calculate the service life of cyclically loaded components under multitoperating stresses using simple examples  - become familiar with aspects of fracture mechanics and, based on this, are able to account the influence of cracks in the design of components under cyclic stresses  - Fundamentals of fatigue behaviour, especially of metallic materials  - Wöhler Curve and statistical influences  - Notch effect and influence on fatigue strength  - Other selected parameters influencing fatigue strength  - Concepts (Miner rule) for lifetime prediction for single and multi-hour cyclic loads  - Special material tests under cyclic loading (fatigue tests, compression mechanics)  - Counting method and lifetime prediction for real stress-time functions  - Fundamentals of static fracture mechanics	h	22.5	h	15	SCH	1	15 students	or seminar	Practical of
Students:  - learn about the influence of cyclic loads on the material behaviour and can assess the it cracks on the component behaviour  - can evaluate the influence of different design boundary conditions on the fatigue strent can establish correlations to partial building damage on the basis of this behaviour  - understand the selected test methods for cyclic loading and can derive relevant chevalues for component design  - develop skills to calculate the service life of cyclically loaded components under multity operating stresses using simple examples  - become familiar with aspects of fracture mechanics and, based on this, are able to account the influence of cracks in the design of components under cyclic stresses  - Fundamentals of fatigue behaviour, especially of metallic materials  - Wöhler Curve and statistical influences  - Notch effect and influence on fatigue strength  - Other selected parameters influencing fatigue strength  - Concepts (Miner rule) for lifetime prediction for single and multi-hour cyclic loads  - Special material tests under cyclic loading (fatigue tests, compression mechanics)  - Counting method and lifetime prediction for real stress-time functions  - Fundamentals of static fracture mechanics	h	0	h	0	SCH	0	60 students	d self-study	Supervise
<ul> <li>Fundamentals of fatigue behaviour, especially of metallic materials</li> <li>Wöhler Curve and statistical influences</li> <li>Notch effect and influence on fatigue strength</li> <li>Other selected parameters influencing fatigue strength</li> <li>Concepts (Miner rule) for lifetime prediction for single and multi-hour cyclic loads</li> <li>Special material tests under cyclic loading (fatigue tests, compression mechanics)</li> <li>Counting method and lifetime prediction for real stress-time functions</li> <li>Fundamentals of static fracture mechanics</li> </ul>	stage, re	er multi-st	nents und this, are	ded compor		·	ent design lculate the service	es for compon	valu
							ith aspects of fra	rating stresses ome familiar v	oper - beco
Forms of teaching: Lecture, seminar-based teaching, practical course			ur cyclic n mechan	materials  ad multi-hou compression me function	metallic ength single an e tests, c	ally of agth gue stre on for (fatigu or real	tigue behaviour, e statistical influence fluence on fatigue meters influencing ale) for lifetime pre- sts under cyclic loa and lifetime predic- atic fracture mech	damentals of faler Curve and the effect and iter selected parcepts (Miner retail material tenting method adamentals of selected selected parcepts (Miner retail material tenting method adamentals of selected selected selected parcepts (Miner retail material tenting method adamentals of selected selec	Contents: - Fun - Wöl - Not - Oth - Con - Spe - Cou - Fun

None

Materials Engineering Module (1280)

Formal:

Content:

6	Forms of assessment:
	Written examination or oral examination
7	Prerequisite for the award of credit points:
	Module examination pass
8	Application of the module (in the following study programmes)
	Mechanical Engineering B.Eng.
9	Importance of the grade for the final grade:
	according to BRPO
10	Module coordinator:
	Prof. DrIng. Thomas Kordisch
11	Other information:
	Literature will be announced at the beginning of the course.
12	Language:
	German

Bus	iness Adm	inistration							BW	
Iden num	tification ber:	Workload:	Credits:	Study	semest	er:	Frequency	of the	Duration	1:
102		150 h	5	3rd o	or 5th se	emester	Annual (Winter)		1 semes	ster
1	Course:		Planned group si	zes	Scope	<b>)</b>	Actual co time / cla teaching		Self-study	ý
	Lecture		60 students		3	SCH	45	h	67.5	h
	Seminar	lessons	30 students		1	SCH	15	h	22.5	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		0	SCH	0	h	0	h
	Superviso	ed self-study	60 students		0	SCH	0	h	0	h
	optimisa success business students can appl	ation tasks in s criteria of eco management master metho	basic organisation elected entreprent onomic action in context and to add and tools for magement instrum	eurial fo order t evaluate problen	unction o be ale the ec n solvir	al areas ble to cl conomic ng in sel	as well as valassify their consequer lected corporate	with the been engineer of the orate func	asic principring activitieir activitieticational area	ples and ties in a ies. The as. They
3	•	Basic concept Overview of t and informatio Corporate goa	s of business adm he entrepreneuria on economy level als and corporate s of private and corporate	l function key figu	onal are	eas of th	e goods eco			onomy
4	Forms of	teaching:	d teaching with ca	ase stud	ies / ca	se studie	es / exercise	es		
5	Participal Formal:	tion requiremen	ts:							
6		assessment: examination, o	combination exam	nination	, perfoi	mance	examination	n or oral e	xamination	n
7	Prerequis		d of credit points:		· •					
8	Applicati Electrica	on of the modulal Engineering	e (in the following B.Eng., Enginee Energies B.Eng	ring Co	•	-	es B.Eng., M	Iechanica	l Engineer	ing
9	Importan		for the final grade:							
	Module o	coordinator:	1116 01							
10	Prof Dr	rer nol Hild	egard Manz-Schi	macner						
10	Other inf	ormation:	egard Manz-Schu ounced at the beginning			ourse.				

CA	D								CAD	
	tification	Workload	d: Credits	s: St	udy semes	ter:	Frequency	y of the	Durati	ion:
num 103		150 h	5	3r	d or 5th s	emester	Annual (Winter)		1 sem	nester
1	Course:		Planned gr	oup sizes	Scop	e	Actual of time / c	lassroom	Self-stu	ıdy
	Lecture		60 students	S	2	SCH	30	h	45	h
	Seminar	lessons	30 students	s	0	SCH	0	h	0	h
			20 . 1			COLL	20		1.5	
	Exercise	•	20 students		2	SCH	30	h	45	h
	Practical	or seminar	15 students	S	0	SCH	0	h	0	h
	Supervise	ed self-study	60 students	S	0	SCH	0	h	0	h
2	Learning	outcomes/c	ompetences:				ļ			
3	Contents		s well as know	uie dasics	oi produ	л шесус	ne manage	ement.		
	- Coo - Fre - CSo - Ger - Hyl - Par - Intr - 3D sur - 3D - Intr	e, relative of models an eration technique volum ameterised roduction to CAD moderaces animation roduction to	stems, sketches or associative p and BREP mode chniques for base e models and as	ositioning els sic bodies ssociated l delling logy with matics fe cycle ar	nistory tre regard to ad related	e individu	al parts, a	ssemblies	and free-i	form
		teaching:	y ore irranageme	in in com	panies					
			ses. Projection of	of more co	mplex pr	ocesses				
5	Participation Formal:	tion require								
	Content:		lone echnical Drawi	ng (1265)	Factores	e (1271)				
<u> </u>		assessment		ng (1203)	, rasienei	s (12/1)				
,			or examination a	accompan	ying the c	ourse				
			ward of credit po		, , , ,					
,	110100		on pass							
7	Module			orrina atudi	/ programi	nes)				
	Module Applicati	on of the me	odule (in the follo				13.6			
3	Module Applicati Mechan	on of the mo	eering B.Eng. a	nd Industr		eering an	id Manage	ment B.S	c.	
3	Module Applicati Mechan Importan	on of the moical Engine ce of the gra	eering B.Eng. ande for the final g	nd Industr		eering an	id Manage	ement B.S	c.	
3	Module Applicati Mechan Importan accordin	on of the moical Engine ce of the granger g to BRPC	eering B.Eng. ande for the final g	nd Industr		eering an	id Manage	ement B.S	c.	
7 8 9	Module Applicati Mechan Importan accordin Module of	on of the moical Engine ce of the grange to BRPC coordinator:	eering B.Eng. and ade for the final g	nd Industr		eering an	id Manage	ement B.S	с.	
8	Module Applicati Mechan Importan accordin Module of	on of the moical Engine ce of the grange to BRPC coordinator:	eering B.Eng. ande for the final g	nd Industr		eering ar	id Manage	ement B.S	с.	

12 Language:
German

,	gnosis and	Support							EDU/	DUF
Iden num	tification ber:	Workload:	Credits:	Study	semes	ter:	Frequency	y of the	Durati	on:
1304		150 h	5	4th s	emeste	er	Annual (Summe	r)	1 sem	ester
1	Course:		Planned group s	izes	Scop	e	Actual of time / c	lassroom	Self-stu	dy
	Lecture		60 students		0	SCH	0	l h	0	h
	Seminar	lessons	30 students		4	SCH	60	h	90	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		0	SCH	0	h	0	h
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h
2	Learning	outcomes/com	petences:			L.	- <del> </del>	<u> </u>		
	- kno	v. taaahina f								
	bac lear - hav in t	kground of the rning environr we a critical un	eatures relevant heir own learning ments, plan and co derstanding of the nave basic knowl	g biogra onduct a e aspects	phical appropa s of div	experier riate form versity ar	nces. They ns of asse nd heterog	are able ssment.	to design	effective oups and
3	bac lear - hav in t	ekground of the tring environing environing ea critical unthis context, hecesses.	heir own learning ments, plan and co derstanding of the	g biogra onduct a e aspects	phical appropa s of div	experier riate form versity ar	nces. They ns of asse nd heterog	are able ssment.	to design	effective oups and
3	bace lear lear lear lear lear lear lear lea	ekground of the tring environment a critical unthis context, had been cesses.	heir own learning ments, plan and co derstanding of the	g biogra onduct a e aspecta ledge of	phical appropries of div	experier riate form versity ar dividual	nces. They ns of asse nd heterog	are able ssment.	to design	effective oups and
3	bace lear lear lear lear lear lear lear lea	ekground of the traing environment a critical unthis context, he cesses.	heir own learning ments, plan and co derstanding of the nave basic knowl	g biogra onduct a e aspecta ledge of	phical appropries of div	experier riate form versity ar dividual	nces. They ns of asse nd heterog	are able ssment.	to design	effective oups and
3	Contents - Cog - Lea	ekground of the charming environment a critical unthis context, had been cesses.	heir own learning ments, plan and co derstanding of the nave basic knowl	g biogra onduct a e aspects ledge of	phical appropries of div	experier riate form versity ar dividual	nces. They ns of asse nd heterog	are able ssment.	to design	effective oups and
3	Contents - Cog - Lea - Tea - Cog	ekground of the raing environment a critical unthis context, he cesses.	heir own learning ments, plan and conderstanding of the have basic knowledge basic knowledge opment and person is and motivation, reformance measurementation, competer	g biogra onduct a e aspects ledge of nality de rement, nce-orie	phical appropriate of dividend in the information of the information o	experier riate form versity ar idividual ment,	nces. They ns of asser nd heterog support of	are able assment. eneity in l	to design	effective oups and
3	Contents - Cog - Lea - Tea - Contents - Contents - Contents - Contents - Contents	ekground of the rining environment a critical unthis context, he cesses.  Environment of the rining theories are a critical unthis context, he cesses.	heir own learning ments, plan and conderstanding of the have basic knowledge basic knowledge opment and person as and motivation, reformance measure intation, competer	g biogra onduct a e aspects ledge of nality de rement, nce-orie	phical appropriate of dividend in the information of the information o	experier riate form versity ar idividual ment,	nces. They ns of asser nd heterog support of	are able assment. eneity in l	to design	effective oups and
3	Contents - Cog - Lea - Tea - Contents - Cog - Lea - Tea - Con - Ind - Pro	ekground of the raing environment a critical unthis context, have seen.  Environment of the rain and permitive development and permitive development of the rain and permitive development and permitive development of the rain and permitive development of the rain and rain a	period of the pe	g biogra onduct a e aspects ledge of nality de rement, nce-ories	phical appropriates of divident in the in- eveloperated ex-	experier riate form versity ar dividual ment, camination	onces. They ns of assen nd heterog support of	or are able ssment. eneity in learners	to design	effective roups and r learnin
3	Contents - Cog - Lea - Tea - Con - Ind - Pro - Res	ekground of the raing environment a critical unthis context, he cesses.  Egnitive development theories aching and permetence orie ividuality and offessional teachearch method search method search method	person the person and ments, plan and conderstanding of the passic knowledge basic basic basics of the person and motivation, reformance measurementation, competed betterogeneity in the perception, dological basics of the perception, dological basics of the plant and perception, and perception an	g biogra onduct a e aspects ledge of nality de rement, nce-ories	phical appropriates of divident in the in- eveloperated ex-	experier riate form versity ar dividual ment, camination	onces. They ns of assen nd heterog support of	or are able ssment. eneity in learners	to design	effective roups and r learnin
	Contents - Cog - Lea - Tea - Cog - Ind - Pro - Res	ekground of the raing environment a critical unthis context, he cesses.  End of the raing environment a cesses.  End of the raing environment environm	person the person and ments, plan and conderstanding of the passic knowledge basic basic basics of the person and motivation, reformance measurementation, competed betterogeneity in the perception, dological basics of the perception, dological basics of the plant and perception, and perception an	g biogra onduct a e aspects ledge of nality de rement, nce-ories	phical appropriates of divident in the in- eveloperated ex-	experier riate form versity ar dividual ment, camination	onces. They ns of assen nd heterog support of	or are able ssment. eneity in learners	to design	effective roups and r learnin
	Contents - Cog - Lea - Tea - Cog - Ind - Pro - Res and	ekground of the raing environment a critical unthis context, he cesses.  End of the cesses.  End of the cesses.  End of the cesses.  End of the cesses are the cesses are the cesses are the cesses as the cesses are the cesses are the cesses as the cesses are the	person the person and ments, plan and conderstanding of the passic knowledge basic basic basics of the person and motivation, reformance measurementation, competed betterogeneity in the perception, dological basics of the perception, dological basics of the perception and perception, dological basics of the perception and perception, dological basics of the perception and	g biogra onduct a e aspects ledge of nality de rement, nce-ories	phical appropriates of divident in the in- eveloperated ex-	experier riate form versity ar dividual ment, camination	onces. They ns of assen nd heterog support of	or are able ssment. eneity in learners	to design	effective roups and r learnin
4	Contents - Cog - Lea - Tea - Cor - Ind - Pro - Res and Forms of	ekground of the raing environment a critical unthis context, he cesses.  Ending and permanent environment and permanent environment enviro	pheir own learning ments, plan and conderstanding of the nave basic knowledge basic knowledge basic knowledge basic knowledge basic knowledge basic basic basic basics of the conders and motivation, and the competer basic basics of the conders and motivation, competer basic basics of the conders and motivation, competer basics of the conders and the	g biogra onduct a e aspects ledge of nality de rement, nce-ories	phical appropriates of divident in the in- eveloperated ex-	experier riate form versity ar dividual ment, camination	onces. They ns of assen nd heterog support of	or are able ssment. eneity in learners	to design	effective roups and r learnin
4	Contents - Cog - Lea - Tea - Contents - Cog - Lea - Tea - Contents - Tea - Tea - Contents - Tea - Contents - Tea - Tea - Contents - Tea - Tea - Contents - Tea	ekground of the raing environment a critical unthis context, he cesses.  End of the cesses.  End of the cesses.  End of the cesses.  End of the cesses are the cesses are the cesses are the cesses as the cesses are the cesses are the cesses as the cesses are the	pheir own learning ments, plan and conderstanding of the nave basic knowledge basic knowledge basic knowledge basic knowledge basic knowledge basic basic basic basics of the conders and motivation, and the competer basic basics of the conders and motivation, competer basic basics of the conders and motivation, competer basics of the conders and the	g biogra onduct a e aspects ledge of nality de rement, nce-ories	phical appropriates of divident in the in- eveloperated ex-	experier riate form versity ar dividual ment, camination	onces. They ns of assen nd heterog support of	or are able ssment. eneity in learners	to design	effective roups and relearning
4	Contents - Cog - Lea - Tea - Cor - Ind - Pro - Res and Forms of	ekground of the raing environment a critical unthis context, he cesses.  Ending and permanent environment and permanent environment enviro	pheir own learning ments, plan and conderstanding of the nave basic knowledge basic knowledge basic knowledge basic knowledge basic knowledge basic basic basic basics corrors.	g biogra onduct a e aspects ledge of nality de rement, nce-ories	phical appropriates of divident in the in- eveloperated ex-	experier riate form versity ar dividual ment, camination	onces. They ns of assen nd heterog support of	or are able ssment. eneity in learners	to design	effective roups and relearning
4 55	Contents - Cog - Lea - Tea - Col - Ind - Pro - Res and Forms of Seminar Participar Formal: Content:	ekground of the raing environment a critical unthis context, he cesses.  Ending and permanent environment and permanent environment enviro	pheir own learning ments, plan and conderstanding of the nave basic knowledge basic knowledge basic knowledge basic knowledge basic knowledge basic basic basic basics corrors.	g biogra onduct a e aspects ledge of nality de rement, nce-ories	phical appropriates of divident in the in- eveloperated ex-	experier riate form versity ar dividual ment, camination	onces. They ns of assen nd heterog support of	or are able ssment. eneity in learners	to design	effective roups and relearning
4 55	Contents - Cog - Lea - Tea - Cor - Ind - Pro - Res and Forms of Seminar Participar Formal: Content: Forms of Oral exa	ekground of the raing environment a critical unthis context, he cesses.  Ending and permanent and permanent environment enviro	per terrors and person sent and person sent and person sent and person sent and motivation, reformance measure that the perception, dological basics corrors.	g biogra onduct a e aspects ledge of nality de rement, nce-ories	phical appropriates of divident in the in- eveloperated ex-	experier riate form versity ar dividual ment, camination	onces. They ns of assert and heterog support of ons, dual supp	or are able ssment. eneity in learners	to design	effective roups and relearning
3 4 5 6	Contents - Cog - Lea - Tea - Con - Ind - Pro - Res and Forms of Seminar Participar Formal: Content: Forms of Oral exa	ekground of the rining environment a critical unthis context, he cesses.  Egnitive development development and permanent environment envir	ments, plan and conderstanding of the nave basic knowledge basic knowledge basic knowledge basic knowledge basic basic basic basic basics of the properties and motivation, and the properties and motivation, competer basics of the properties basic basics of the properties basic basics of the properties basic	g biogra onduct a e aspects ledge of nality de rement, nce-ories	phical appropriates of divident the in- eveloperated ex-	experier riate form versity ar dividual ment, camination	onces. They ns of assert and heterog support of ons, dual supp	or are able ssment. eneity in learners	to design	effective roups and relearning
5	Contents - Cog - Lea - Tea - Contents - Forms of - Research - Ind - Pro - Research - Ind - Pro - Research - Contents - Forms of - Contents - Forms of - Oral example of the contents - Cont	ekground of the raing environment a critical unthis context, he cesses.  Environment development devel	ments, plan and conderstanding of the nave basic knowledge basic knowledge basic knowledge basic knowledge basic basic basic basic basics of the properties and motivation, and the properties and motivation, competer basics of the properties basic basics of the properties basic basics of the properties basic	g biogra onduct a e aspects ledge of	phical appropriate of dividend in the control of th	experier riate form versity ar dividual ment, camination os, indivi	onces. They ns of assert and heterog support of ons, dual supp	or are able ssment. eneity in learners	to design	effective roups and relearning

9	Importance of the grade for the final grade:
	according to BRPO
10	Module coordinator:
	Prof. DrIng. Thorsten Jungmann
11	Other information:
12	Language:
	German

Dyn	amics								DYN	
Ident	rification per:	Workload:	Credits:	Study	y semest	er:	Frequency	y of the	Durati	ion:
1048	3	150 h	5	2nd	semeste	er	Annual (Summer	r)	1 sem	nester
1	Course:		Planned group	sizes	Scope	2	Actual of time / cl	assroom	Self-stu	ıdy
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar lo	essons	30 students		2	SCH	30	h	45	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical of	or seminar	15 students		0	SCH	0	h	0	h
	Supervise	d self-study	60 students		0	SCH	0	h	0	h
2	The stude		e and learn the in description for n					ent process	ses, mode	l building
	<ul><li>2) Kines</li><li>3) Energ</li></ul>	tics of mass p gy, work, pov	es points, systems points, systems are ever, efficiency es of simple mech	nd rigid	bodies					
4	Forms of	teaching: seminar in sn	nell groups							
5		on requiremen								
5	Formal:	Non								
	Content:	Non								
6	Forms of	assessment:								
			or oral examination	on						
7	•		d of credit points:							
		examination p		, 1						
8		on of the modu cal Engineeri	le (in the following	g study p	rogramn	ies)				
9			for the final grade:							
9	_	g to BRPO	for the final grade.							
10		oordinator:								
-		-Ing. Paul Di	ekmann							
11	Other info									
			ounced at the beg	ginning o	of the co	ourse.				
12	Language	•								
	German									

Intro	oduction to	Wicchainear E	angineering						EMA	
Iden	tification	Workload:	Credits:	Study	semest	er:	Frequency	of the	Duration	n:
1053		150 h	5	1st so	emester	•	Annual (Winter)		1 semes	ster
1	Course:	1	Planned group s	izes	Scope	;	Actual co time / cla teaching		Self-study	y
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar	lessons	30 students		0	SCH	0	h	0	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		2	SCH	30	h	45	h
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h
	experier	ice in working	together and pre	senting	tasks.		, 8	m group	s, the stud	
	Contents - Pre con - Der - Pla late - Get and - Ins:	sentation of variables or authorized mands made or nning studies are to employmentating to know to documentationights into the research	arious profession norities (internal n successful engi and preparing fo ent. he university's la	nal activand extenders from a succession of the	vities or ernal sp om inde eessful ies, sen	f mecha eakers), ustry/pro transitio sible pra	nical engin ofessional li n from sch	eers in d fe. ool to hig se prepar	ifferent inc	tion and
3	Contents - Pre con - Dei - Pla late - Get and - Ins: - Fut	sentation of variables or authorized and sentence or authorized and sentence or to employmentating to know to documentation ights into the requirementation in the requirementation is sentence or a s	arious profession norities (internal n successful engi and preparing fo ent. he university's la in. esearch activities ints for engineers	nal activand extenders from a succession of the	vities or ernal sp om inde eessful ies, sen	f mecha eakers), ustry/pro transitio sible pra	nical engin ofessional li n from sch	eers in d fe. ool to hig se prepar	ifferent inc	tion and
1	Contents - Pre con - Der - Pla late - Get and - Ins: - Fut  Forms of Lecture, Participa Formal:	sentation of variables or authorized and sentation of variables or authorized and sentation in the requirement of teaching:  practical countion requirement of None	arious profession norities (internal n successful enginand preparing for ent. the university's lawn. the seearch activities onts for engineers	nal activand extenders from a succession of the	vities or ernal sp om inde eessful ies, sen	f mecha eakers), ustry/pro transitio sible pra	nical engin ofessional li n from sch	eers in d fe. ool to hig se prepar	ifferent inc	tion and
	Contents - Pre con - Der - Pla late - Get and - Ins: - Fut  Forms of Lecture, Participar Formal: Content:	sentation of vonpanies or authorized authori	arious profession norities (internal n successful enginand preparing for ent. the university's lawn. the seearch activities onts for engineers	nal activand extenders from a succession of the	vities or ernal sp om inde eessful ies, sen	f mecha eakers), ustry/pro transitio sible pra	nical engin ofessional li n from sch	eers in d fe. ool to hig se prepar	ifferent inc	tion and
1	Forms of Lecture, Participal Content:	sentation of variables or authorized sentation of variables or authorized sentation in the resulting to know to a documentation ights into the resulting to the resulting to know to a documentation ights into the resulting requirement and in the resulting in the resulting in the resulting ights into the resulting in the resulting in the resulting in the resulting ights into the resulting ights	arious profession norities (internal n successful enginand preparing for ent.  the university's lander.  the esearch activities ents for engineers  see the ents.	nal activand extenders from a succession of the	vities or ernal sp om inde eessful ies, sen	f mecha eakers), ustry/pro transitio sible pra	nical engin ofessional li n from sch	eers in d fe. ool to hig se prepar	ifferent inc	tion and
1 5	Contents - Pre con - Der - Pla late - Get and - Ins: - Fut  Forms of Lecture, Participar Formal: Content: Forms of Course a Prerequis	sentation of vanpanies or authorized authori	arious profession norities (internal n successful enginand preparing for ent. the university's lawn. the university's lawn. the esearch activities that for engineers the esearch activities that for engineers	nal activand externeers fr a succentrator	vities of ernal sp om inde essful ies, sen professo	f mecha eakers), ustry/pro transitio sible pra	nical engin ofessional li n from sch	eers in d fe. ool to hig se prepar	ifferent inc	tion and
5	Forms of Lecture, Participal Forms of Course a Prerequising Module	sentation of vanpanies or authorized authori	arious profession norities (internal norities) and preparing for ent.  the university's lawn.  the esearch activities on the second sec	nal activand externeers fr a succentrator as of the part of the pa	vities of ernal sp om inde essful ies, sen professo	f mecha eakers), ustry/pro transitio sible pra ors/mech	nical engin ofessional li n from sch	eers in d fe. ool to hig se prepar	ifferent inc	tion and
1	Contents - Pre com - Der - Pla late - Get and - Ins: - Fut  Forms of Lecture, Participar Formal: Content: Forms of Course a Prerequis Module Applicati Mechan	sentation of v. npanies or authmands made or nning studies are to employmenting to know the documentation ights into the requirement    Teaching: practical countion requirement   None   None   assessment: assessment   site for the award   examination p   on of the modulical Engineering	arious profession norities (internal norities) and preparing for ent.  the university's lander.  the university's lander.  the esearch activities that for engineers  the esearch activities that for engineers that for engineer	nal activand externeers fr a succentrator as of the part of the pa	vities of ernal sp om inde essful ies, sen professo	f mecha eakers), ustry/pro transitio sible pra ors/mech	nical engin ofessional li n from sch	eers in d fe. ool to hig se prepar	ifferent inc	tion and

10	Module coordinator:
	Prof. DrIng. Bruno Hüsgen
11	Other information:
	Literature will be announced at the beginning of the course.
12	Language:
	German

Elec	trical Mach	nines							EM		
Ident numl	rification per:	Workload:	Credits:	Stud	y semest	er:	Frequenc	y of the	Duratio	Duration:	
1054	1	150 h	5	4th	4th semester		Annual (Summer)		1 seme	1 semester	
1	Course:		Planned group si	izes	Scope		Actual contact time / classroom teaching		Self-study		
	Lecture		60 students		2	SCH	30	h	45	h	
	Seminar lessons		30 students		1	SCH	15	h	22.5	h	
	Exercise		20 students		0	SCH	0	h	0	h	
	Practical or seminar		15 students		1	SCH	15	h	22.5	h	
	Supervise	d self-study	60 students		0	SCH	0	h	0	h	
2	Learning	outcomes/comp	petences:			-					
	select an	d apply the d	he basic physical lifferent types of perating characte	machin	ies in ai	n industr	ial enviro				
3	Contents:										
	1. Elect	rical engineer	ring basics:								
			cy in mechanics a	nd elec	trical e	ngineerir	ng. Linear	oneports	R, L and		
	C. Chara	cteristics of p	eriodic stresses.	Comple	x altern	ating cu	rrent calc	ulation. A	ctive,		
	C. Characteristics of periodic stresses. Complex alternating current calculation. Active, reactive and apparent power. Moment formation in electrical machines. Three-phase										
	alternating current.										
		al electrical r									
			e, three-phase asy								
			dern drive techno Operating behavio						. Integrated	1	
4	Forms of	1	Operating benavio	our, cna	aracteris	suc curve	e recordin	ıg			
т			ratory practical c	ourse							
5		on requiremen									
	Formal:	None									
	Content:	Matl	nematics (comple	x numb	ers). Ph	nysics (el	lectricity)				
6		assessment:									
		examination									
7			d of credit points:								
		examination p		, ,		,					
8			le (in the following	study p	rogramn	nes)					
		cal Engineeri									
9	_	_	for the final grade:								
		g to BRPO oordinator:									
10			II								
10	Drof D.	Ina Sahaatia									
		-Ing. Sebastia	in Hollmann								
10	Other info	ormation:		inning	of the co	ourse.					
	Other info	ormation: e will be anno	ounced at the beg	inning	of the co	ourse.					

Ene	ergy Techno	ology							ENT	
Iden	ntification	Workload:	Credits:	Study	semest	ter:	Frequenc offer	y of the	Durati	ion:
108		150 h	5	5th s	emeste	r	Annual (Winter)		1 sem	nester
1	Course:		Planned group s	izes	Scope		Actual contact time / classroom teaching		Self-stu	ıdy
	Lecture		60 students	60 students		SCH	30	h	45	h
	Seminar	lessons	30 students			SCH	30	h	45	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		0	SCH	0	h	0	h
	Superviso	ed self-study	60 students		0	SCH	0	h	0	h
2	Learning	outcomes/com	petences:			-	-			
3	Contents - Energ - Comb - Power - Comb - Nucle	gy systems an loping the abi iring the computradictory tead can explain a conversion ustion and cony, climate and replant concept	mbustion calculated legal requirements	is knowld t system economorphication	ledge to ic solu ic and	o energy tions tak ecologic	engineeri ting into a al require	ng tasks a ccount the ments.	and thus e diverse,	f
4		teaching: and seminar to	eaching							
5	_	tion requirement	nts:							
	Content:	Non								
6		assessment:								
			or oral examination	on						
7	_	site for the awar examination p	rd of credit points:							
8				r ctudy n	ogramr	nec)				
		on or the moun	ue (in the following	2 Stutty in		11037				
0	Mechan		lle (in the following ng B.Eng.	study pi	ogram.	iics)				
		ical Engineeri			9	nes)				
9	Importan accordir	ical Engineeri ce of the grade ng to BRPO	ng B.Eng.			nes)				
	Importan accordir Module o	ical Engineeri ce of the grade	ng B.Eng. for the final grade:		- Samm	nics)				

11	Other information:
	Literature will be announced at the beginning of the course.
12	Language:
	German

	tory Organi	sation							FAO											
Iden num	tification ber:	Workload:	Credits:	Stud	y semes	ter:	Frequenc	y of the	Durati	ion:										
108	8	150 h	5	4th o	or 6th s	emester	Annual (Summer)		1 semester											
1	Course:		Planned group s	sizes	Scope		Actual contact time / classroom teaching		Self-study											
	Lecture		60 students	60 students		2 SCH		h	45	h										
	Seminar l	essons	30 students		2	SCH	30	h	45	h										
	Exercise		20 students		0	SCH	0	h	0	h										
	Practical	or seminar	15 students		0	SCH	0	h	0	h										
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h										
2	Learning	outcomes/co	mpetences:			-1	<del> </del>													
2			riew of the typical	MOKO III	14001)	organis .														
3	Contents:																			
		_	asics of factory org	ganisatio	on and p	production	on, the rel	evant aspe	cts are co	vered:										
		uction Prod																		
			ng and control																	
		preparation	o comont																	
	<ul><li>Supply chain management</li><li>Factory planning</li></ul>																			
	_	•	nent / Organisation	n						<ul><li>Digital factory</li><li>Strategic Management / Organisation</li></ul>										
	- LEAN Management / Industrial Engineering - Basics Change Management																			
	Forms of																			
4		teaching:																		
	Lecture,	seminar																		
5	Lecture, Participat	seminar ion requirem																		
	Lecture, Participat Formal:	seminar ion requirem	one																	
5	Lecture, Participat Formal: Content:	seminar ion requirem No	one																	
	Lecture, Participat Formal: Content: Forms of	seminar ion requirem No No assessment:	one	on																
5	Lecture, Participat Formal: Content: Forms of Written of	seminar ion requirem No No assessment: examination	one one or oral examination	on																
5	Lecture, Participat Formal: Content: Forms of Written of Prerequis	seminar ion requirem No No assessment: examination	one one or oral examination and of credit points:	on																
5 6 7	Lecture, Participat Formal: Content: Forms of Written of Prerequis Module	seminar ion requirem No No assessment: examinatior ite for the aw examination	one one or oral examination and of credit points:		rogramı	nes)														
5 6 7	Lecture, Participat Formal: Content: Forms of Written of Prerequis Module Application Mechani	seminar ion requirem No No assessment: examination ite for the aw examination on of the mod cal Enginee	one one or oral examination and of credit points: a pass dule (in the following ring B.Eng.	g study p	rogramı	nes)														
5	Lecture, Participat Formal: Content: Forms of Written of Prerequis Module of Application Important	seminar ion requirem No No assessment: examination ite for the aw examination on of the mod cal Enginee ce of the grad	one one or oral examination and of credit points: on pass dule (in the following	g study p	rogramr	nes)														
5 6 7 8 9	Lecture, Participat Formal: Content: Forms of Written of Prerequis Module Application Mechani Important accordin	seminar ion requirem No No assessment: examinatior ite for the aw examination on of the mod cal Enginee ce of the grac g to BRPO	one one or oral examination and of credit points: a pass dule (in the following ring B.Eng.	g study p	rogramı	nes)														
5 6 7 8	Lecture, Participat Formal: Content: Forms of Written of Prerequis Module of Application Important accordin Module of	seminar ion requirem No No assessment: examination ite for the aw examination on of the mod cal Enginee ce of the grad g to BRPO oordinator:	one one one or oral examination and of credit points: on pass dule (in the following bring B.Eng. le for the final grade:	g study p	rogramı	nes)														
5 6 7 8 9	Lecture, Participat Formal: Content: Forms of Written of Prerequis Module of Application Mechani Important accordin Module of Prof. Dr.	seminar ion requirem No No assessment: examination ite for the aw examination on of the mod cal Enginee ce of the grac g to BRPO oordinator: -Ing. Jürger	one one one or oral examination and of credit points: on pass dule (in the following bring B.Eng. le for the final grade:	g study p	rogramı	nes)														
5 6 7 8 9	Lecture, Participat Formal: Content: Forms of Written of Prerequis Module of Application Mechani Important accordin Module of Prof. Dr. Other info	seminar ion requirem No No assessment: examination ite for the aw examination on of the mod cal Enginee ce of the grad g to BRPO oordinator: -Ing. Jürger ormation:	one one or oral examination of credit points: a pass dule (in the following tring B.Eng. le for the final grade: a Sauser	g study p																
5 6 7 8 9	Lecture, Participat Formal: Content: Forms of Written of Prerequis Module of Application Mechani Important accordin Module of Prof. Dr. Other info	seminar ion requirem No No assessment: examination ite for the aw examination on of the more cal Enginee to of the grace g to BRPO oordinator: -Ing. Jürger ormation: re will be an	one one one or oral examination and of credit points: on pass dule (in the following bring B.Eng. le for the final grade:	g study p																

Stre	ngth of Ma	terials							FLE							
	tification ber:	Workload:	Credits:	Stud	y semest	er:	Frequenc offer	y of the	Durati	ion:						
109	1	150 h	5	1st s	semester		Annual (Winter)		1 semester							
1	Course:		Planned group s	izes	Scope	<del></del>	Actual contact time / classroom teaching		Self-study							
	Lecture		60 students		2	SCH	30	h	45	h						
	Seminar 1	lessons	30 students		2	SCH	30	h	45	h						
	Exercise		20 students		0	SCH	0	h	0	h						
	Practical	or seminar	15 students		0	SCH	0	h	0	h						
	Supervise study	ed self-	60 students		0	SCH	0	h	0	h						
2	Learning outcomes/competences:  Students learn the fundamentals of elastic material behaviour and the basic load types. They will acquire skills to analyse, calculate and evaluate the stress on components.															
3	Contents															
	1) Tensile and compressive stress															
	2) Surface pressure															
	3) Bend															
	4) Shear stress															
	5) Tors	ion														
	6) Bucl															
			strength hypothes	ses												
4		teaching:														
	Lecture,															
5		tion requireme														
	Formal:	Nor														
	Content:	Nor	ne													
6		assessment:					Written examination or oral examination									
6	Written	examination	or oral examination	on												
	Written Prerequis	examination ite for the awa	or oral examination	on												
7	Written Prerequis Module	examination ite for the awa examination	or oral examination of credit points:		rogramm	nas)										
7	Written Prerequis Module Applicati	examination ite for the awa examination on of the mode	or oral examination of credit points:  pass  ule (in the following		rogramn	nes)										
7	Written Prerequis Module Applicati Mechan	examination ite for the awa examination on of the modical Engineer	or oral examination of credit points: pass ule (in the following ing B.Eng.	study p	rogramn	nes)										
7	Written Prerequis Module Applicati Mechani Importan	examination ite for the awa examination on of the modi ical Engineer ce of the grade	or oral examination of credit points:  pass  ule (in the following	study p	rogramn	nes)										
7 8 9	Written Prerequis Module Applicati Mechani Importan accordin	examination ite for the awa examination on of the modical Engineer ce of the grade g to BRPO	or oral examination of credit points: pass ule (in the following ing B.Eng.	study p	rogramn	nes)										
7 8 9	Written Prerequis Module Applicati Mechan Importan accordin Module c	examination ite for the awa examination on of the mode ical Engineer ce of the grade g to BRPO coordinator:	or oral examination of oredit points: pass ule (in the following ing B.Eng.	study p	rogramn	nes)										
7 8 9	Written Prerequis Module Applicati Mechan Importan accordin Module c Prof. Dr	examination ite for the awa examination on of the modical Engineer ce of the grade g to BRPO	or oral examination of oredit points: pass ule (in the following ing B.Eng.	study p	rogramn	nes)										
7 8 9	Written Prerequis Module Applicati Mechan Importan accordin Module of Prof. Dr Other info	examination ite for the awa examination on of the mode ical Engineer ce of the grade g to BRPO coordinator:Ing. Raimun ormation:	or oral examination of credit points: pass ule (in the following ing B.Eng.  for the final grade:	g study p												
7 8 9	Written Prerequis Module Applicati Mechani Importan accordin Module of Prof. Dr Other inf	examination ite for the awa examination on of the mode ical Engineer ce of the grade g to BRPO coordinator:Ing. Raimun ormation: re will be ann	or oral examination or or oral examination or	study p	of the co	ourse.	otes									
7 8 9	Written Prerequis Module Applicati Mechani Importan accordin Module of Prof. Dr Other inf	examination ite for the awa examination on of the mode ical Engineer ce of the grade ag to BRPO coordinator:Ing. Raimun ormation: re will be ann, Technische	or oral examination of credit points: pass ule (in the following ing B.Eng.  for the final grade:	study p	of the co	ourse.	otes									

Fini	te Elements	s 1							FE1		
Iden num	tification ber:	Workload:	Credits:	Stuc	ly semest	er:	Frequenc offer	y of the	Durati	ion:	
109	3	150 h	5	5th	semeste	r	Annual (Winter)		1 semester		
1	Course:	<u> </u>	Planned group s	Planned group sizes		Scope		Actual contact time / classroom teaching		ıdy	
	Lecture		60 students		2	SCH	30	h	45	h	
	Seminar l	essons	30 students		2	SCH	30	h	45	h	
	Exercise		20 students		0	SCH	0	h	0	h	
	Practical	or seminar	15 students		0	SCH	0	h	0	h	
	Supervise	d self-study	60 students		0	SCH	0	h	0	h	
	and its a		oretical and nume the analysis of ela				e element	method, n	nodelling	techniqu	
3	Contents:										
	Theoretical foundations: Element stiffness relation, shape function, transformation and structure of the										
	stiffness matrix, energy approach, multi-dimensional element properties, connecting elements										
		•	earing, loading ar , evaluation and t	-		•		n of comp	onents		
4	Forms of	teaching:									
4		seminar in sr	nall groups								
5		ion requiremen									
5	Formal:	Non									
	Content:		ngth of Materials	(1091)	Mathe	matics 3	(1159)				
6		assessment:	ingui or iviateriais	(10)1)	, water	matics 5	(1137)				
0			nation; in each ca	se with	nrelimi	narv exa	mination	performar	nce		
7			rd of credit points:		_ F			<u> </u>			
	Module	examination 1	pass with prelimin	nary ex	aminatio	on					
8			ile (in the following								
	Mechani	cal Engineeri	ng B.Eng.								
9	_	-	for the final grade:								
		g to BRPO									
1.0		1: :									
10	Drof De	oordinator:	akmann								
		-Ing. Paul Di	ekmann								
10 11	Other info	-Ing. Paul Di ormation:		inning	of the o	niirse					
11	Other info	-Ing. Paul Di ormation: e will be ann	ekmann ounced at the beg	inning	of the co	ourse.					
	Other info	-Ing. Paul Di ormation: e will be ann		inning	of the co	ourse.					

Gen	der and Di	versity: Succe	ess Factors for Co	ompanie	S				GUD	
Iden num	tification ber:	Workload:	Credits:	Study	semes	ter:	Frequenc offer	y of the	Durati	ion:
313	5	150 h	5	5th s	emeste	r	Annual (Winter)		1 sem	nester
1	Course:		Planned group s	sizes	Scop	e	Actual time / c teachin	lassroom	Self-study	
	Lecture		60 students				30	h	45	h
	Seminar	lessons	30 students	30 students		SCH	30	h	45	h
	Exercise		20 students		0	SCH	0	h	0	h
		or seminar	15 students			SCH	0	h	0	h
		ed self-study	60 students		0	SCH	0	h	0	h
2	Learning The stud	outcomes/com	petences:							
	•	diversity/dive know legal pr Directive, Ge are sensitised independently business envi- are able to ind gender mains professional pare familiar w management implementation	dependently colle treaming and div	nt. ontext of atment A geneity of typing a cet relevent ersity marks and this, are	gender (ct) in the can and can ant info anagen approa able to	r and divergence or and development and aches in to develop	e context. o ideas for on establ to assess the curren o conceptu	e possible concished concetheir relevent discourse all ideas for	-Discriming thanges in epts such ance for e on divers	a the
3	•	Definitions ar Concepts and mainstreamin Legal basis ar Discriminatio Subjective an Possible approselected areas Concept for the	and delimitation of approaches to edg) and political influe on Directive, Gend social values, a coaches for taking of business (manhe sustainable integrand application estables.	ences (e. eral Equ ttitudes diversing rketing, croduction	g. EU all Treating and produce produce of here	Anti-Dis Anti-Dis atment A ejudices acteristic t develop	acrimination of the control of the c	on Directive an abbrevia atext of divender and ag man resou	re, Genera ation: AG ersity ge) into ac rces)	ıl Anti- G))
4	Forms of	teaching:								
4	Lecture,		ed teaching, prese	ntation,	group	work, pr	esentation	n of semina	ar paper	
5	Lecture,			ntation,	group	work, pr	esentatior	n of semina	ar paper	

6	Forms of assessment:
	Term paper, written examination, project work or oral examination
7	Prerequisite for the award of credit points:
	Module examination pass
8	Application of the module (in the following study programmes)
	Applied Mathematics B.Sc., Apparative Biotechnology B.Sc., Electrical Engineering B.Eng., Engineering Computer Sciences B.Eng., Mechanical Engineering B.Eng., Mechatronics B.Sc., Renewable Energies B.Eng. and Industrial Engineering and Management B.Sc.
9	Importance of the grade for the final grade:
	according to BRPO
10	Module coordinator:
	Prof. DrIng. Andrea Kaimann
11	Other information:
	Literature will be announced at the beginning of the course.
12	Language:
	German

	rbox Eleme	ents							GTE	
Ident numl	tification ber:	Workload:	Credits:	Study	semest	er:	Frequency offer	of the	Duratio	on:
1096	5	150 h	5	3rd s	emeste	r	Annual (Winter)		1 seme	ester
1	Course:	1	Planned group s	Planned group sizes		e	Actual c time / cl teaching	assroom	Self-stuc	ly
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar l	essons	30 students		1	SCH	15	h	22.5	h
	Exercise		20 students		1	SCH	15	h	22.5	h
	Practical	or seminar	15 students		0	SCH	0	h	0	h
	Supervised self-study  Learning outcomes/compe		60 students		0	SCH	0	h	0	h
	strength applicati They are with rega for the re They car	checks. They on.  able to disting ard to their qualespective applianame the different tooth shape g	eritical cross-sect are able to create guish between di ality. The studen ication and to can ferent types of ge- geometrically. The	their over fferent to ts are about the earing ar	wn desingular was designed with the correction of the correction o	gns of slope f gearbox elect the esponding ain how	hafts and a kes and ca appropriat ag service gearing wo	xles for the evaluate e plain and life verificonks. They	gearbox of rolling beations.	ve lesigns earings v to cre
3		and shafts: Fu	nction, design and notion, arrangen		_	culation				
;	- Axles - Rollin - Plain t - Types - Geome	and shafts: Fug bearings: Fugearing: Types of gearing, geetry and streng	_	nent, des n	sign	culation				
	- Axles - Rollin - Plain t - Types - Geome	and shafts: Fug bearings: Fugearing: Types of gearing, geetry and streng	nction, arrangem s, function, design cometric basics of the spur ge	nent, des n	sign	culation				

Statics (1248), Strength of Materials (1091), Technical Drawing

Formal:

Content:

None

	(1265), Connecting Elements (1271) Materials engineering (1280)
	Modules:
	1091 Strength of Materials;
	1248 Statics;
	1265 Technical Drawing;
	1271 Connecting Elements;
	1280 Materials Engineering;
6	Forms of assessment:
	Written examination, oral examination or examination accompanying the course; each with
	preliminary examination
7	Prerequisite for the award of credit points:
	Module examination pass with preliminary examination
8	Application of the module (in the following study programmes)
	Mechanical Engineering B.Eng.
9	Importance of the grade for the final grade:
	according to BRPO
10	Module coordinator:
	Prof. DrIng. Jan Robert Ziebart
11	Other information:
	Literature will be announced at the beginning of the course.
12	Language:
	German

Inno	vation and	Project Mana	gem	nent						IMG	
Ident	ification per:	Workload:		Credits: Study		dy semester:		Frequency of the offer		Durati	on:
1114	1114 150 h			5	5th semester		Annual (Winter)		1 semester		
1	Course:		Pl	anned group siz	es	Scope	;	Actual of time / cl	assroom	Self-stu	ıdy
	Lecture		60 students 30 students			2	SCH	30	h	45	h
	Seminar l	essons				2	SCH	30	h	45	h
	Exercise		20	students		0	SCH	0	h	0	h
	Practical of	or seminar	15	students		0	SCH	0	h	0	h
	Supervise	d self-study	60	) students		0	SCH	0	h	0	h

## 2 Learning outcomes/competences:

## Students:

- are prepared to lead product development and innovation projects and teams to success in terms of holistic and strategically oriented project management (also including agile methods).
- can explain the most important instruments of project management and use the elementary technical vocabulary.
- are able to lead/manage a project in a given process-organisational project organisation.
- are able to develop and specifically use control options for different project phases (controlling of the degree of completion, cost controlling).
- can explain the specifics of team building and project management.
- can carry out the moderation of team meetings projects.
- know instruments of IT-supported project management.
- can explain the importance of corporate objectives and are able to distinguish between different management cultures.
- can name essential aspects of industrial property protection.

## 3 Contents:

- Basics of innovation and project management (terms/ methods/ instruments)
- Innovation techniques in product development
- Methods of idea generation (creativity techniques)
- Basics for setting up creativity workshops
- Project phase models and planning systems (project preparation, project planning, project implementation, project completion)
- Project organisation forms
- Innovation and change management, self-management
- Project planning (project structure plan/ cost plan/ resource plan/ schedule)
- Project documentation/ project controlling
- Risk management
- Special features of the use of methods in innovation projects
- (Strategic preparation / initiation, planning, monitoring and control of innovation projects)

	in pro  Stake Train	ng project and innovation teams (social structures, special communication situations jects, real and virtual project work, problem analysis and concepts for action) holder management (factors influencing the successful management of projects) ings and workshops on selected technical examples aspects of industrial property protection
4	Forms of teaching	;:
	Lecture, semina	r
5	Participation requ	irements:
	Formal:	None
	Content:	None
6	Forms of assessm	ent:
	Written examina	ation or oral examination
7	Prerequisite for th	e award of credit points:
	Module examin	1
8	Application of the	e module (in the following study programmes)
	Mechanical Eng	
9	-	grade for the final grade:
	according to BR	
10	Module coordinat	
	Prof. DrIng. M	
11	Other information	
	Literature will b	e announced at the beginning of the course.
12	Language:	

German

111165	grated Prod	luct Developm	nent						IP	
Ident	tification ber:	Workload:	Credits:	Study	y semest	er:	Frequenc	y of the	Durati	on:
1232	2	150 h	5	4th o	or 6th se	emester	Annual (Summe	r)	1 sem	ester
1	Course:		Planned group s	sizes	Scope	e	Actual time / c	lassroom	Self-stu	dy
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar l	essons	30 students		2	SCH	30	h	45	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		0	SCH	0	h	0	h
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h
	developr are able	nent methods to work metho	aish between di and tools. They odically, systema odical developm	can sele	ect and	apply th	ese metho	ods in a tai	geted ma	nner. The
	Planning functions Idea genevaluation	g, tasks, specifics, functional struction/creation of alternative development	ent of products (bications/requirent fructure, vity process -> ve solutions, eval guidelines (e.g. of	nents lis  Overv luation j	it, develoriew of	methodires.	structurin ds, discur	g -> Overa	all functio	methods,
4	Forms of	teaching:								
			d teaching, pract	ical exe	rcises					
5		ion requirement								
_	Formal:	None								
J	Content:									
		None	<u> </u>							
_	Forms of Written	assessment: examination, c	combination exa	minatio	n, perfo	rmance	examinati	on or oral	examinati	on
6	Forms of Written of Prerequis	assessment: examination, c ite for the award	combination examination examin	minatio	ı, perfo	rmance	examinati	on or oral	examinati	on
6 7 8	Forms of Written of Prerequis Module Application	assessment: examination, c ite for the award examination p on of the modul ve Biotechnol	combination example of credit points: ass e (in the following ogy B.Sc., Engin	g study p	rogramn	nes)				
6 7 8	Forms of Written of Prerequis Module Application Apparati B.Eng. a Importance	assessment: examination, cite for the award examination p on of the modul ve Biotechnol and Mechatron ce of the grade f	combination example of credit points: ass e (in the following ogy B.Sc., Engin	g study pa	rogramn	nes)				
6 7 8	Forms of Written of Prerequis Module Application Apparati B.Eng. a Important accordin	assessment: examination, cite for the award examination p on of the modul ve Biotechnol and Mechatron ce of the grade to g to BRPO	combination example of credit points: ass e (in the following ogy B.Sc., Engine ics B.Sc.	g study pa	rogramn	nes)				
6 7 8	Forms of Written of Prerequis Module Application Apparati B.Eng. a Important accordin Module c	assessment: examination, cite for the award examination p on of the modul ve Biotechnol and Mechatron ce of the grade f g to BRPO oordinator:	combination example of credit points: ass as the following ogy B.Sc., Engine ics B.Sc. for the final grade:	g study pa	rogramn	nes)				
6 7 8 9	Forms of Written of Prerequis Module Application Apparati B.Eng. a Important accordin Module c	assessment: examination, cite for the award examination p on of the modul ave Biotechnol and Mechatron ce of the grade f g to BRPO oordinator: -Ing. Klaus D	combination example of credit points: ass as the following ogy B.Sc., Engine ics B.Sc. for the final grade:	g study pa	rogramn	nes)				
6 7 8	Forms of Written of Prerequis Module Application Apparati B.Eng. a Importance accordin Module of Prof. Dr. Other info	assessment: examination, cite for the award examination p on of the modul exe Biotechnol and Mechatron ce of the grade f g to BRPO oordinator: -Ing. Klaus D ormation:	combination example of credit points: ass to the following ogy B.Sc., Engines B.Sc. for the final grade:	g study p	Compu	nes) ter Scier				
6 7 8 9	Forms of Written of Prerequis Module Application Apparati B.Eng. a Importance accordin Module of Prof. Dr. Other info	assessment: examination, cite for the award examination p on of the modul we Biotechnol and Mechatron ce of the grade f g to BRPO oordinator: -Ing. Klaus D ormation: re will be anno	combination example of credit points: ass as the following ogy B.Sc., Engine ics B.Sc. for the final grade:	g study p	Compu	nes) ter Scier				

Coll	oquium									KOL	
Ident	rification	Workload	l:	Credits:	Study	semest	er:	Frequenc	y of the	Durati	on:
1290	)	90 h		3	6th o	r 7th se	emester	each semester			
1	Course:		Pl	lanned group siz	zes	Scope	e e		contact classroom	Self-stu	ıdy
	Lecture		60	) students		0	SCH	0	h	90	h
	Seminar l	essons	30	) students		0	SCH	0	h	0	h
	Exercise		20	) students		0	SCH	0	h	0	h
	Practical of	or seminar	15	5 students		0	SCH	0	h	0	h
	Supervise	d self-study	60	) students		0	SCH	0	h	0	h
	thesis, it	s subject-	related	lly presenting foundations, gnificance for	its into	erdiscij	olinary	connectio	ns and its	non-subj	ject-related
3	- Disj	itent of the	the pr	according to the	-		of the the	esis and th	ne question	s that aros	se in the
3	- Con - Disp	ntent of the putation or text of the	the pr	•	-		f the the	esis and th	e question	s that aros	se in the
	- Con - Disp con Forms of	ntent of the putation or text of the teaching:	the protection thesis	•	prepar		of the the	esis and th	e question	s that aros	se in the
	- Con - Disp con Forms of Oral exa	ntent of the putation or text of the teaching:	the protection the thesis	ocedure in the	prepar		f the the	esis and th	e question	s that aros	se in the
4	- Con - Disp con Forms of Oral exa	ntent of the putation of text of the teaching: mination f ion requires	the protection the thesis	ocedure in the	prepar		f the the	esis and th	e question	s that aros	se in the
4	- Con - Disp con Forms of Oral exa	ntent of the putation of text of the teaching: mination from requires	or the benefits:	ocedure in the	prepar	ration o	f the the	esis and th	e question	s that aros	se in the
4	- Con - Disp con Forms of Oral exa Participat Formal: Content:	ntent of the putation of text of the teaching: mination from requires	or the benents:	ocedure in the	prepar	ration o	f the the	esis and th	e question	s that aros	se in the
5	- Con - Disp con Forms of Oral exa Participat Formal: Content: Forms of Oral exa	tent of the putation of text of the teaching: mination from requirer N T assessment mination	or the benefits:  One  reatments:	pachelor thesis	prepar	ration o	f the the	esis and th	e question	s that aros	se in the
5	- Con - Disp con Forms of Oral exa Participat Formal: Content: Forms of Oral exa	tent of the putation of text of the teaching: mination from requirer N T assessment mination	or the benefits:  One  reatments:	ocedure in the	prepar	ration o	f the the	esis and th	e question	s that aros	se in the
<ul><li>4</li><li>5</li><li>6</li></ul>	- Con - Disp con Forms of Oral exa Participat Formal: Content: Forms of Oral exa Prerequisi Application Applied Engineer	tent of the putation of text of the teaching: mination from requirer  N Tassessment mination ite for the a  On of the market of	or the bound of th	pachelor thesis	elor the	sis	nes) nology cal Eng	B.Sc., E	lectrical F	Engineerin	ng B.Eng.
4 5 6 7	- Con - Disp con Forms of Oral exa Participat Formal: Content: Forms of Oral exa Prerequisi Application Applied Engineer Renewal	tent of the putation of text of the teaching: mination from requirer  N T assessment mination ite for the a con of the market mination composed the properties of the graduation of the graduation of the graduation con of	or the breathers:  fone reatments: ward of  bodule (intics B bouter S B B.En)  ande for the breathers in the properties of the boundary in the properties of	nt of the bache credit points:  the following solution. Apparate Sciences B.Er	elor the	sis	nes) nology cal Eng	B.Sc., E	lectrical F	Engineerin	ng B.Eng.
4 5 6 7 8	- Con - Disp con Forms of Oral exa Participat Formal: Content: Forms of Oral exa Prerequisi  Application Applied Engineer Renewals	tent of the putation of text of the teaching: mination from requirer  N T assessment mination ite for the a con of the maring Compole Energies are of the grag to BRPC	or the breathers:  fone reatments: ward of  bodule (intics B bouter S B B.En)  ande for the breathers in the properties of the boundary in the properties of	ocedure in the pachelor thesis ant of the bachelor the bachelor the bachelor the bachelor the bachelor the following solution. Sc., Apparata Sciences B.Erg. and Industria	elor the	sis	nes) nology cal Eng	B.Sc., E	lectrical F	Engineerin	ng B.Eng.
4 5 6 7 8	- Con - Disp con Forms of Oral exa Participat Formal: Content: Forms of Oral exa Prerequisi Application Applied Engineer Renewale Importance according Module con	tent of the putation of text of the teaching: mination from requirer  N Tassessment mination ite for the a con of the maching Compose Energies to BRPC coordinator:	or the breathers:  one reatments: ward of  odule (intics Bouter Ses B.Englished for the	ocedure in the pachelor thesis ant of the bachelor the bachelor the bachelor the bachelor the bachelor the following solution. Sc., Apparata Sciences B.Erg. and Industria	elor the	sis	nes) nology cal Eng	B.Sc., E	lectrical F	Engineerin	ng B.Eng.
4 5 6 7 8	- Con - Disp con Forms of Oral exa Participat Formal: Content: Forms of Oral exa Prerequisi Application Applied Engineer Renewale Importance according Module con	tent of the putation of text of the teaching: mination from requirer    N   T	or the breathers:  one reatments: ward of  odule (intics Bouter Ses B.Englished for the	ocedure in the pachelor thesis ant of the bachelor the bachelor the bachelor the bachelor the bachelor the following solution. Sc., Apparata Sciences B.Erg. and Industria	elor the	sis	nes) nology cal Eng	B.Sc., E	lectrical F	Engineerin	ng B.Eng.
4 5 6 7 8	- Con - Disp con Forms of Oral exa Participat Formal: Content: Forms of Oral exa Prerequisi Application Applied Engineer Renewab Importance accordin Module co Prof. Dr. Other info	tent of the putation of text of the teaching: mination from requirer Nassessment mination ite for the amount of the management of the management of the gray of th	or the breathers:  fone reatments: ward of  odule (intics B bouter S best B.En)  and for the breathers B.En bouter S bou	achelor thesis  nt of the bache  credit points:  n the following s .Sc., Apparat Sciences B.Er g, and Industri	elor the	sis  ogramn iotechr echanicineerin	nes) iology cal Eng g and M	B.Sc., E	lectrical F	Engineerin	ng B.Eng.
4 5 6 7 8	- Con - Disp con Forms of Oral exa Participat Formal: Content: Forms of Oral exa Prerequisi Application Applied Engineer Renewab Importance accordin Module co Prof. Dr. Other info	tent of the putation of text of the teaching: mination of the	or the breathers:  fone reatments: ward of  odule (intics B bouter S best B.En)  and for the breathers B.En bouter S bou	ocedure in the pachelor thesis ant of the bachelor the bachelor the bachelor the bachelor the bachelor the following solution. Sc., Apparata Sciences B.Erg. and Industria	elor the	sis  ogramn iotechr echanicineerin	nes) iology cal Eng g and M	B.Sc., E	lectrical F	Engineerin	ng B.Eng.

Eng	ineering D	esigning	With Pla	stics						KMK	
Iden num	tification ber:	Worklo	oad:	Credits:	Study	semest	er:	Frequenc offer	y of the	Duratio	on:
112	3	150 h		5	4th o	or 6th se	emester	Annual (Summer)		1 semester	
1	Course:		P	lanned group si	zes	Scope	2		contact lassroom	Self-stud	dy
	Lecture		6	0 students		2	SCH	30	h	45	h
	Seminar	lessons	3	0 students		1	SCH	15	h	22.5	h
	Exercise		2	0 students		1	SCH	15	h	22.5	h
		or semina	r 1	5 students		0	SCH	0	h	0	h
	Superviso	ed self-stu	dy 6	0 students		0	SCH	0	h	0	h
2		outcomes		nces: esign compone		1	1				
			ire air iiij	ection-moulde	ed part.						
3	Contents										
	- Manu - Proces - Mater - Mould	facturing ss simula ial mech	(process tion, app anics, ma ruction a	materials, spe ses, especially lication aterial selection and standards, t	injection	n moul	ding)	g)			
4	Forms of	teaching:									
-	Lecture,	_		al course							
5		tion requi									
	Formal:		None								
	Content:		None								
6		assessme									
				tion exam							
7	_			credit points:							
0		examina			_4						
8			•	n the following B.Eng. and Me	• •	•					
9				the final grade:	echanol	iics D.S	5C.				
		ng to BRI									
10		coordinate									
				aroschek							
11		ormation: re will be		ced at the begi	nning o	of the co	ourse.				
12	Language										
	German										

Plas	tics Techn	ology							KT	
Iden num	tification ber:	Workload:	Credits:	Study	semest	er:	Frequency	of the	Duratio	on:
1134	4	150 h	5	2nd o seme	or 6th ester		Annual (Summer)		1 seme	ester
1	Course:		Planned group s	izes	Scope	e	Actual co		Self-stuc	ly
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar	lessons	30 students		1	SCH	15	h	22.5	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		1	SCH	15	h	22.5	h
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h
2	Learning	outcomes/comp	petences:				_ <b>-</b>	4	↓	<b>.</b>
	evaluate	suitable man	ssess for which tea aufacturing proce knowledge in pra	esses fo	r comp	onent p	production.	The stud	dents can	apply th
}	Contents	:								
3			economic signific	cance						
3	- Histor		_	cance						
3	- Histor	ry of plastics, eal differences	_		al desig	n)				
3	<ul><li>Histor</li><li>Gener</li><li>Mode</li><li>Crysta</li></ul>	ry of plastics, e ral differences I conception a allisation cond	to metals nd morphology (s itions		al desig	n)				
3	<ul><li>Histor</li><li>Gener</li><li>Mode</li><li>Crysta</li><li>Synthe</li></ul>	ry of plastics, en differences l conception and allisation condessis of plastics	to metals nd morphology (s itions	structura						
3	<ul><li>Histor</li><li>Gener</li><li>Mode</li><li>Crysta</li><li>Synthe</li><li>Mecha</li></ul>	ry of plastics, en al differences l conception and lisation condesis of plastics anical behavio	to metals nd morphology (s itions ur (modulus of e	structura lasticity	, creep	modulus	s)			
3	<ul><li>Histor</li><li>Gener</li><li>Mode</li><li>Crysta</li><li>Synth</li><li>Mecha</li><li>Rheol</li></ul>	ry of plastics, e ral differences I conception an allisation cond esis of plastics anical behavio ogy (flow prop	to metals nd morphology (s itions	structura lasticity	, creep	modulus	s)			
3	<ul><li>Histor</li><li>Gener</li><li>Mode</li><li>Crysta</li><li>Synthe</li><li>Mecha</li><li>Rheol</li><li>Proces</li></ul>	ry of plastics, eral differences I conception and allisation cond esis of plastics anical behavio ogy (flow propossing method	to metals and morphology (s itions arr (modulus of e perties, viscosity	structura lasticity and visc	, creep	modulus nodels)				
3	<ul> <li>Histor</li> <li>Gener</li> <li>Mode</li> <li>Crysta</li> <li>Synthe</li> <li>Mecha</li> <li>Rheol</li> <li>Proces</li> <li>Influe</li> </ul>	ry of plastics, eral differences of conception and allisation conduction of plastics anical behavior ogy (flow propossing method nce of process	to metals and morphology (s itions are (modulus of experties, viscosity) ing on the materi	structura lasticity and viso	, creep	modulus nodels)				
3	<ul> <li>Histor</li> <li>Gener</li> <li>Model</li> <li>Crysta</li> <li>Synthe</li> <li>Mecha</li> <li>Rheol</li> <li>Proces</li> <li>Influe</li> <li>Joinin</li> </ul>	ry of plastics, eral differences of conception and lisation conduction of plastics anical behavior ogy (flow propossing method nce of processing of plastics (list)	to metals and morphology (s itions are (modulus of e- perties, viscosity ing on the materi bonding and welc	structura lasticity and viso	, creep	modulus nodels)				
3	<ul> <li>Histor</li> <li>Gener</li> <li>Mode</li> <li>Crysta</li> <li>Synthe</li> <li>Mecha</li> <li>Rheol</li> <li>Proces</li> <li>Influe</li> <li>Joinin</li> <li>Recyc</li> </ul>	ry of plastics, eral differences of conception and allisation conduction of plastics anical behavior ogy (flow propossing method nce of process	to metals and morphology (s itions are (modulus of e- perties, viscosity ing on the materi bonding and welc	structura lasticity and viso	, creep	modulus nodels)				
	- Histor - Gener - Mode - Crysta - Synthe - Mecha - Rheol - Proces - Influe - Joinin - Recyc	ry of plastics, eral differences of conception and lisation conduction easies of plastics anical behavior ogy (flow proposing method nce of processing of plastics (bling of plastics).	to metals and morphology (s itions are (modulus of experties, viscosity ing on the materi bonding and welces	structura lasticity and viso	, creep	modulus nodels)				
	- Histor - Gener - Model - Crysta - Synthe - Mecha - Rheol - Proces - Influe - Joinin - Recyc	ry of plastics, eral differences of conception and lisation conduction and esis of plastics anical behavior ogy (flow propossing method note of processing of plastics (beling of plastics teaching: s, seminar, pration requirement	to metals and morphology (s itions are (modulus of experties, viscosity) ing on the materi bonding and welces ctical course ts:	structura lasticity and viso	, creep	modulus nodels)				
4	- Histor - Gener - Model - Crysta - Synthe - Mecha - Rheol - Proces - Influe - Joinin - Recyc	ry of plastics, eral differences of conception and lisation conduction and esis of plastics anical behavior ogy (flow propossing method note of processing of plastics (leling of plastics teaching:  s, seminar, pration requirement	to metals and morphology (s itions are (modulus of e- perties, viscosity ing on the materi bonding and welces ctical course ts:	structura lasticity and viso	, creep	modulus nodels)				
4	- Histor - Gener - Model - Crysta - Synthe - Mecha - Rheol - Proces - Influe - Joinin - Recyc Forms of Lectures Participal Formal: Content:	ry of plastics, et al differences of conception and lisation conduction and esis of plastics anical behavior ogy (flow propersing method note of processing of plastics of pla	to metals and morphology (s itions are (modulus of e- perties, viscosity ing on the materi bonding and welces ctical course ts:	structura lasticity and viso	, creep	modulus nodels)				
4	- Histor - Gener - Mode - Crysta - Synthe - Mecha - Rheol - Proces - Influe - Joinin - Recyc Forms of Lectures Participar Formal: Content:	ry of plastics, eral differences l conception and lisation condesis of plastics anical behavior ogy (flow propersing method noce of processing of plastics (leling of plastics teaching:  s, seminar, pration requirement   None of the No	to metals and morphology (s itions are (modulus of experties, viscosity) ing on the materi bonding and welces ctical course ts:	lasticity and viso al/comp ling)	, creep cosity n	modulus nodels) propertie	es,			
4 5	- Histor - Gener - Model - Crysta - Synthe - Mecha - Rheol - Proces - Influe - Joinin - Recycl Forms of Lectures Participal Formal: Content: Forms of Written	ry of plastics, eral differences I conception and allisation conduction easies of plastics anical behavior ogy (flow propossing method ance of processing of plastics (leiling of plastics (teaching: s, seminar, pration requirement None None Sassessment: examination, of	to metals and morphology (s itions aur (modulus of experties, viscosity ing on the materi bonding and welces ctical course ts:	lasticity and viso al/comp ling)	, creep cosity n	modulus nodels) propertie	es,			
4 5	- Histor - Gener - Model - Crysta - Synthe - Mecha - Rheol - Proces - Influe - Joinin - Recycl Forms of Lectures Participal Formal: Content: Forms of Written	ry of plastics, eral differences of conception and lisation conduction and lisation conduction and lisation conduction and lisation conduction and plastics and plastics of plastics (ling of plastics (teaching:  s, seminar, prastion requirement None None assessment:  examination, osite for the awar	to metals and morphology (sitions aur (modulus of experties, viscosity ing on the materic bonding and welces ctical course ts: e combination exard d of credit points:	lasticity and viso al/comp ling)	, creep cosity n	modulus nodels) propertie	es,			
4 5 7	- Histor - Gener - Model - Crysta - Synthe - Mecha - Rheol - Proces - Influe - Joinin - Recycl Forms of Lectures Participal Formal: Content: Forms of Written Prerequis Module	ry of plastics, eral differences of conception and lisation conduction and esis of plastics anical behavior ogy (flow propossing method note of processing of plastics (leing of plastics (teaching: s, seminar, pration requirement None None assessment: examination, esite for the awar examination pration requirement of the semination of	to metals and morphology (sitions aur (modulus of experties, viscosity ing on the materic conding and welces ctical course ts:	lasticity and viso al/comp ling)	creep cosity n	modulumodels) propertie	es,			
4 5	- Histor - Gener - Model - Crysta - Synthe - Mecha - Rheol - Proces - Influe - Joinin - Recyc Forms of Lectures Participal Formal: Content: Forms of Written Prerequis Module Applicati	ry of plastics, et al differences of conception and allisation conduction and esis of plastics anical behavior ogy (flow propossing method note of processing method note of processing of plastics (bling of plastics teaching:  s, seminar, pration requirement None None assessment:  examination, osite for the awar examination proposed in the moduling of the moduling	to metals and morphology (sitions aur (modulus of experties, viscosity are on the material ponding and welces actical course a	lasticity and viso al/comp ling)	cosity noonent poonent poonent	modulus nodels) propertie	es,			
4 5 7	- Histor - Gener - Model - Crysta - Synthe - Mecha - Rheol - Proces - Influe - Joinin - Recyc Forms of Lectures Participal Formal: Content: Forms of Written Prerequis Module Applicati	ry of plastics, eral differences of conception and lisation conduction and esis of plastics anical behavior ogy (flow proposing method note of process of plastics	to metals and morphology (sitions aur (modulus of experties, viscosity ing on the materi bonding and welces contical course ts: ce combination exar d of credit points: bass le (in the following and M	lasticity and viso al/compling) mination study prechatron	cosity noonent poonent poonent	modulus nodels) propertie	es,			
4 5 7 8	- Histor - Gener - Model - Crysta - Synthe - Mecha - Rheol - Proces - Influe - Joinin - Recyc Forms of Lectures Participal Formal: Content: Forms of Written Prerequis Module Applicati Mechan Importan	ry of plastics, eral differences of conception and lisation conduction and esis of plastics anical behavior ogy (flow proposing method note of process of plastics	to metals and morphology (sitions aur (modulus of experties, viscosity are on the material ponding and welces actical course a	lasticity and viso al/compling) mination study prechatron	cosity noonent poonent poonent	modulus nodels) propertie	es,			
4 5 7 8	- Histor - Gener - Model - Crysta - Synthe - Mecha - Rheol - Proces - Influe - Joinin - Recycl Forms of Lectures Participal Formal: Content: Forms of Written Prerequis Module Applicati Mechan Importan accordin	ry of plastics, et al differences of conception and lisation conduction and lisation conduction on the sis of plastics anical behavior ogy (flow proposing method note of processing of plastics of pl	to metals and morphology (sitions aur (modulus of experties, viscosity ing on the materi bonding and welces contical course ts: ce combination exar d of credit points: bass le (in the following and M	lasticity and viso al/compling) mination study prechatron	cosity noonent poonent poonent	modulus nodels) propertie	es,			
4 5 7 8	- Histor - Gener - Model - Crysta - Synthe - Mecha - Rheol - Proces - Influe - Joinin - Recycl Forms of Lectures Participal Formal: Content: Forms of Written Prerequis Module Applicati Mechan Importan accordin Module of	ry of plastics, et al differences of conception and lisation conduction and lisation conduction of plastics anical behavior ogy (flow proposing method nice of processing of plastics (feaching:  It is the content of the content of the aware examination processing of the grade of	to metals and morphology (sitions aur (modulus of experties, viscosity ing on the materi bonding and welces contical course ts: ce combination exard d of credit points: bass le (in the following ang B.Eng. and M for the final grade:	lasticity and viso al/compling) mination study prechatron	cosity noonent poonent poonent	modulus nodels) propertie	es,			
4 5 7 8	- Histor - Gener - Model - Crysta - Synthe - Mecha - Rheol - Proces - Influe - Joinin - Recycl Forms of Lectures Participal Formal: Content: Forms of Written Prerequis Module Applicati Mechan Importan accordin Module of	ry of plastics, et al differences al conception and allisation conduction and allisation conduction of plastics anical behavior ogy (flow proposing method ance of process ag of plastics (feling of plastics (feaching:  streaching:  None None assessment:  examination, on the modulical Engineering to BRPO coordinator:	to metals and morphology (sitions aur (modulus of experties, viscosity ing on the materi bonding and welces contical course ts: ce combination exard d of credit points: bass le (in the following ang B.Eng. and M for the final grade:	lasticity and viso al/compling) mination study prechatron	cosity noonent poonent poonent	modulus nodels) propertie	es,			

German

1 14	stics Proces	sing							KV	
	ntification nber:	Workload:	Credits:	Study	semest	ter:	Frequenc	y of the	Duratio	on:
113	35	150 h	5	5th s	emeste	r	Annual (Winter)		1 semester	
1	Course:		Planned group siz	zes	Scop	e	Actual time / c teachin	lassroom	Self-stud	dy
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar	lessons	30 students		1	SCH	15	h	22.5	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		1	SCH	15	h	22.5	h
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h
3	can asse	ess the influer es to ensure las	nachine technolog nces of the manu ting quality in ma	facturi	ng pro	cess on	the quali	ty of com	iponents a	nd desig
		properties of	plastics for proces							
	Flow pro Injection Machine	ocesses of plas n moulding – F e technology –	es in plastics procestic melts (rheolog Process and influer Melt production v Statist. design of e	essing (y) – Sinces or (with sc	mulation qualit	on Appli	cation			
4	Flow pro Injection Machine Quality	ocesses of plas n moulding – F e technology – optimisation; S teaching:	es in plastics procestic melts (rheologo Process and influent Melt production we Statist, design of e	essing (y) – Si (nces or (with sc (experim	mulation qualit rews nents	on Appli	cation			
	Flow pro Injection Machine Quality Forms of Lecture,	ocesses of plas n moulding – F e technology – optimisation; S teaching: seminar-based	es in plastics procestic melts (rheolog Process and influer Melt production v Statist. design of e	essing (y) – Si (nces or (with sc (experim	mulation qualit rews nents	on Appli	cation			
4 5	Flow pro Injection Machine Quality Forms of Lecture,	ocesses of plas n moulding – F e technology – optimisation; S teaching:	es in plastics procestic melts (rheology Process and influent Melt production voltatist, design of editeaching and practs:	essing (y) – Si (nces or (with sc (experim	mulation qualit rews nents	on Appli	cation			
	Flow pro Injection Machine Quality Forms of Lecture, Participat Formal:	ocesses of plas n moulding – Fe technology – optimisation; S teaching: seminar-based tion requirement	es in plastics procestic melts (rheology process and influent Melt production with Melt production of Statist, design of each discount melting and practice).	essing yy) – Si nces or with sc experim	mulation quality rews ments	on Appli	cation			
	Flow production of Injection Machine Quality of Entry of Lecture, Participate Formal: Content: Forms of	teaching: seminar-based tion requirement None assessment:	es in plastics procestic melts (rheologo Process and influent Melt production of Statist, design of editeaching and practs:	essing  yy) – Si  nces or  with sc  experiment  actical of	mulation quality rews ments course (1134)	on Appli y, specia	cation al processo			
5	Flow production of Injection Machine Quality of Every Participal Formal: Content: Forms of Written Prerequise	bocesses of plass in moulding – Fe technology – optimisation; Streaching:  seminar-based iton requirement None Mode assessment: examination, osite for the awards	es in plastics procestic melts (rheology crocess and influent Melt production with Melt production and practices.  Example 1	essing  yy) – Si  nces or  with sc  experiment  actical of	mulation quality rews ments course (1134)	on Appli y, specia	cation al processo			
5 6 7	Flow production of Injection Machine Quality of Ecture, Participal Formal: Content: Forms of Written Prerequis Module Application	ocesses of plass in moulding — Fe technology — optimisation; Steaching: seminar-based ion requirement — None — Modulassessment: examination, of the for the aware examination pon of the moduling in the modula in the content of t	es in plastics procestic melts (rheology process and influent Melt production with Melt production and practices.  Example 1	essing (y) – Sinces or with scenario (actical control of the contr	mulation quality rews ments  course  (1134)	on Appli y, specia	cation al processo			
5 6 7 8	Flow production of the content of th	teaching: seminar-based in requirement None assessment: examination pon of the modulical Engineering of the grade in the g	es in plastics procestic melts (rheology process and influent Melt production with Melt production and practices.  Example 1	essing (y) – Sinces or with scenario (actical control of the contr	mulation quality rews ments  course  (1134)	on Appli y, specia	cation al processo			
5 6 7	Flow production of the contents of the content	bocesses of plass in moulding – Fe technology – optimisation; Steaching: seminar-based in moulding – Fe technology – optimisation; Steaching: seminar-based in moulding mount in moulding mouldi	es in plastics procestic melts (rheology crocess and influent Melt production of Statist. design of each design and practs:  But the Plastics Technology combination examed of credit points:  But the plastics Technology combination examed of credit points:  But the plastics Technology combination examed of credit points:  But the plastics Technology combination examed of credit points:  But the plastics Technology combination examed of credit points:  But the plastics Technology combination examed of credit points:  But the plastics Technology combination examed of credit points:  But the plastics Technology combination examed of credit points:  But the plastic p	essing (y) – Sinces or with scenario (actical control of the contr	mulation quality rews ments  course  (1134)	on Appli y, specia	cation al processo			
5 6 7 8 9	Flow production of the contents of the contents of the contents of the content of	bocesses of plass in moulding – Fe technology – optimisation; Steaching: seminar-based in moulding – Fe technology – optimisation; Steaching: seminar-based in moulding mount in moulding mouldi	es in plastics procestic melts (rheology crocess and influent Melt production of Statist. design of each design and practs:  But the Plastics Technology combination examed of credit points:  But the plastics Technology combination examed of credit points:  But the plastics Technology combination examed of credit points:  But the plastics Technology combination examed of credit points:  But the plastics Technology combination examed of credit points:  But the plastics Technology combination examed of credit points:  But the plastics Technology combination examed of credit points:  But the plastics Technology combination examed of credit points:  But the plastic p	essing (y) – Sinces or with scenario (actical control of the contr	mulation quality rews ments  course  (1134)	on Appli y, specia	cation al processo			
5 6 7 8 9	Flow production of the content of th	teaching: seminar-based in moulding – Fe technology – optimisation; Seminar-based in requirement None Mod assessment: examination, on the for the award examination proportion of the modulical Engineering to BRPO coordinator:Ing. Christop formation: re will be annother technology and the semination in the modulical engineering to the grade of the grade	es in plastics procestic melts (rheology crocess and influent Melt production with Melt Plastics Technologies and Melt Plastics Technologies with Melt Plastics Technologie	essing (y) – Si nces or with sc experimentation actical of nology ination study pr	mulation quality rews nents  course  (1134)  or ora	on Appli y, specia	cation al processo			
5 6 7 8 9	Flow production of the content of th	teaching: seminar-based in moulding — Fe technology — optimisation; Seminar-based in moulding — Mode is seminar-based in moulding — Mode is sessment: examination proportion of the modulical Engineering to BRPO coordinator:Ing. Christop formation: re will be annoted in moulding in the modulical in the modulin	es in plastics procestic melts (rheology crocess and influent Melt production with Melt production and practices.  Example Combination example of credit points: was asset (in the following sing B.Eng.)  For the final grade:	essing (y) – Si nces or with sc experimentation actical of nology ination study pr	mulation quality rews nents  course  (1134)  or ora	on Appli y, specia	cation al processo			

0	tweight M	aterials							LBW	
Ident numl	rification per:	Workload:	Credits:	Stud	y semes	ter:	Frequenc	y of the	Durati	ion:
1136	5	150 h	5	4th o	or 6th s	emester	Annual (Summe	r)	1 sem	nester
1	Course:		Planned group s	sizes	Scop	e		contact lassroom	Self-stu	ıdy
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar l	lessons	30 students		2	SCH	30	h	45	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		0	SCH	0	h	0	h
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h
	ana - can con	lyse them, explain the s cept,	ecific material be							•
3	Contents: - Fun con - Lig mic -	adamentals of struction in restruction in restruction in restructural periodic distruction in the structural periodic distructural periodic distructural periodic distructural distructural distructural distriction and distr	lloys lloys ys	and to a the behave th regar rial parerial required in the cial may be follow	apply the viour of d to the cameter quirement aterial ing man	s with	omponent ls at high tion.  regard to	design temperature	ect of li	n evaluat
3	Contents: - Fun con - Lig mic Forms of	atweight constitute in the spread of the spr	f relevant mate elation to the mate elation to the mate elation to the mate elation and spe eculiarities of the steels lloys lloys ys ites apples of lightweig	and to a the behave th regar rial parerial required in the cial may be follow	apply the viour of d to the cameter quirement aterial ing man	s with	omponent ls at high tion.  regard to	design temperature	ect of li	n evaluate
4	Contents: - Function - Lig mic App Forms of Lecture,	adamentals of struction in restruction in restructural phigh-strength Aluminium allowing allowing and teaching:  seminar-base	f relevant materelation to the materelation to the materelation to the materelation to the materelation and speculiarities of the a steels lloys lloys ys ites apples of lightweight distance.	and to a the behave th regar rial parerial required in the cial may be follow	apply the viour of d to the cameter quirement aterial ing man	s with	omponent ls at high tion.  regard to	design temperature	ect of li	n evaluate
4	Contents: - Funcon - Ligmic App  Forms of Lecture, Participat	adamentals of struction in rehtweight potrostructural phigh-strength Aluminium allowing and tranium allowing phication examples and teaching:  seminar-base ion requirement	f relevant material and speculiarities of the steels lloys lloys ys ites in the steel at the ste	and to a the behave th regar rial parerial required in the cial may be follow	apply the viour of d to the cameter quirement aterial ing man	s with	omponent ls at high tion.  regard to	design temperature	ect of li	n evaluat
4	Contents: - Fun con - Lig mic App Forms of Lecture, Participat Formal:	adamentals of struction in rehtweight potrostructural phigh-strength Aluminium allowing and tranium allowing phication examples and teaching:  seminar-base ion requirement in Non-	f relevant material and speculiarities of the steels lloys lloys ys ites apples of lightweight d teaching atts:	and to a he behave the regardial parerial recipied material materi	rameter quireme aterial ing materials	s with propert	omponent ls at high tion.  regard to	design temperature	ect of li	n evaluat
4	Contents: - Fun con - Lig mic App Forms of Lecture, Participat Formal: Content:	adamentals of struction in restruction in restruction in restructural period of the struction in restructural period of the structural period of t	f relevant material and speculiarities of the steels lloys lloys ys ites in the steel at the ste	and to a he behave the regardial parerial recipied material materi	rameter quireme aterial ing materials	s with propert	omponent ls at high tion.  regard to	design temperature	ect of li	n evaluat
4 5	Contents: - Fun con - Lig mic App  Forms of Lecture, Participat Formal: Content:	adamentals of struction in restruction in restruction in restructural period of the struction in restructural period of the structural period of t	f relevant material and speculiarities of the asteels lloys lloys ys ites apples of lightweig d teaching ats:  e erials Engineering	rial parerial required for the second material m	rameter quireme aterial ing materials	s with propert	omponent ls at high tion.  regard to	design temperature	ect of li	n evaluat
	Contents: - Function - Lig mic App  Forms of Lecture, Participat Formal: Content: Forms of Written	adamentals of struction in restruction in restructural phigh-strength Aluminium allo Fibre composolication examinar-base ion requirementals assessment: examination of	f relevant material and speculiarities of the steels lloys lloys ys ites apples of lightweight d teaching atts:	rial parerial required material materia	rameter quireme aterial ing materials	s with propert	omponent ls at high tion.  regard to	design temperature	ect of li	n evaluat

	Mechanical Engineering B.Eng.
9	Importance of the grade for the final grade:
	according to BRPO
10	Module coordinator:
	Prof. DrIng. Thomas Kordisch
11	Other information:
	Literature will be announced at the beginning of the course.
12	Language:
	German

Mac	hine Dyna	mics							MD	
Iden num	tification ber:	Workload:	Credits:	Stud	y semes	ter:	Frequenc	y of the	Durati	on:
114	4	150 h	5	5 5th semester		er	Annual (Winter)		1 semester	
1	Course:	1	Planned group	sizes	Scop	e e	Actual of time / conteaching	lassroom	Self-stu	ıdy
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar l	essons	30 students		2	SCH	30	h	45	h
	Exercise		20 students		0	SCH	0	h	0	h
		or seminar	15 students		0	SCH	0	h	0	h
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h
	Basic the Systema Dynamic	tic competence problems oc	practical knowle ee: curring in drive	systems	and ma	achines sl	nould be 1	eliably re	cognised,	earn
	Basic the Systema Dynamic described independent further in Identify Commun To prese	eoretical and partic competence problems oc d, evaluated a dently what romachine applications interface problems.	practical knowledge: curring in drive and solved and sole machine dyn cations of their olems and deal v etence: ainate the dynar	e systems scientifica namics pl own. with then	and ma ally sou ays in n	nchines sl nd judge nachine t erdisciplii	nould be not not not not nould be nould	reliably recived from y. This is the eration.	cognised, them to less be prove	

Linear vibrations with several degrees of freedom, vibrations of continuous systems, simulation software Balancing technology in theory – rigid and elastic rotor

Laval rotor, balancing machines – displacement and force measuring balancing machines Measurement technology and evaluation of vibrations: FFT, DFT Condition monitoring: especially rolling bearings

## 4 Forms of teaching:

Lecture and seminar teaching

5	Participation requ	irements:
	Formal:	None
	Content:	Modules:
		1048 Dynamics;
		1087 Physics;
		1152 Mathematics 2;
		1159 Mathematics 3;
		1248 Statics
6	Forms of assessm	ent:
	Written examina	ation or oral examination
7	_	e award of credit points:
	Module examina	1
8	^ ^	e module (in the following study programmes)
	Mechanical Eng	· · ·
9	Importance of the	grade for the final grade:
	according to BR	
10	Module coordinat	or:
	Prof. DrIng. Jü	
11	Other information	
	Literature will b	be announced at the beginning of the course.
12	Language:	
	German	

	erial Flow								MAT	
Ident numb	ification per:	Workload:	Credits:	Study	semest	er:	Frequency	y of the	Duratio	on:
1145	<b>i</b>	150 h	5	3rd o	r 5th s	emester	Annual (Winter)		1 seme	ester
1	Course:		Planned group siz	zes	Scop	e	Actual of time / c	lassroom	Self-stuc	ly
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar l	essons	30 students		1	SCH	15	h	22.5	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		1	SCH	15	h	22.5	h
	Supervise	d self-study	60 students		0	SCH	0	h	0	h
	guideline practical modules	es. Systems thi way. Concre and into pract	ic elements and t nking with refere te examples consice.	ence to	detail i	is deeper	ned and ca	an be appli	ed and ass	essed in a
3	supply a	ogy of materiand disposal of p	l flow systems. In production. Key fi rces – from plann	igures s	such as	system p				
4	Forms of									
	1 011113 01	teaching:								
		-	n/integration of w	orksho	ps, pro	ject wor	k, site vis	its, trade fa	irs, guest	lectures
5	See line	-		orksho	ps, pro	ject wor	k, site vis	its, trade fa	irs, guest	lectures
	See line	1 with addition	s:	orksho	ps, pro	ject wor	k, site vis	its, trade fa	irs, guest	lectures
	See line  Participat Formal: Content:	1 with addition requirement None None	s:	orksho	ps, pro	ject wor	k, site vis	its, trade fa	irs, guest	lectures
-	See line  Participat Formal: Content: Forms of	1 with addition requirement None None assessment:	s:							
5	See line  Participat Formal: Content: Forms of Written of	1 with addition ion requirement None None assessment: examination, p	roject work or ora	al exam	ninatio	n; in eacl				
5	See line  Participat Formal: Content: Forms of Written of Prerequisi Module of Application	1 with addition  ion requirement  None  None assessment: examination, p  ite for the award examination p on of the module	roject work or oral of credit points: ass with preliminate (in the following s	al exam	nination	n; in eacl				
6	Participat Formal: Content: Forms of Written of Prerequisi Module of Application Mechanic	1 with addition  ion requirement  None  None assessment: examination, p  ite for the award examination pa on of the module cal Engineerin	roject work or oral of credit points: ass with preliminate (in the following s	al exam	nination	n; in eacl				
5 6 7 8 9	Participat Formal: Content: Forms of Written of Prerequise Module of Application Important accordin	1 with addition  None None assessment: examination, p  ite for the award examination po on of the module cal Engineering of the grade f g to BRPO	roject work or oral of credit points: ass with preliminate (in the following sorg B.Eng.	al exam	nination	n; in eacl				
5 6 7 8	Participat Formal: Content: Forms of Written of Prerequise Module of Application Important accordin Module of	1 with addition  None None assessment: examination, p  ite for the award examination pa on of the module cal Engineering the of the grade f g to BRPO oordinator:	roject work or oral of credit points: ass with preliminate (in the following state) B.Eng. or the final grade:	al exam	nination	n; in eacl				
5 6 7 8 9	Participat Formal: Content: Forms of Written of Prerequist Module of Application Mechani Important accordin Module of Prof. Dr.	1 with addition  None None assessment: examination, p  ite for the award examination particle of the module cal Engineering the of the grade f g to BRPO oordinator: -Ing. Jürgen S	roject work or oral of credit points: ass with preliminate (in the following state) B.Eng. or the final grade:	al exam	nination	n; in eacl				
5 6 7 8 9	Participat Formal: Content: Forms of Written of Prerequise Module of Application Mechani Important accordin Module of Prof. Dr. Other info	1 with addition  None None assessment: examination, p  ite for the award examination proportion of the module cal Engineering to of the grade f g to BRPO coordinator: -Ing. Jürgen S ormation: e will be anno	roject work or oral of credit points: ass with preliminate (in the following set) B.Eng. or the final grade: auser	al exam	nination minatio	n; in each	h case wit	h examina	tion prepa	
5 6 7 8 9	Participat Formal: Content: Forms of Written of Prerequise Module of Application Mechani Important accordin Module of Prof. Dr. Other info	1 with addition  None None assessment: examination, p  ite for the award examination poon of the module cal Engineering the of the grade f g to BRPO coordinator: -Ing. Jürgen S commation: e will be anno e on one platfo	roject work or oral of credit points: ass with preliminate (in the following set) B.Eng. or the final grade: auser	al exam	nination minatio	n; in each	h case wit	h examina	tion prepa	

Mat	hematics 1								MA1	
Iden	tification ber:	Workload:	Credits:	Study	semeste	er:	Frequenc offer	y of the	Duratio	n:
114	8	150 h	5	1st se	emester		Annual (Winter)		1 semester	
1	Course:		Planned group siz	zes	Scope	,		contact lassroom	Self-stud	ly
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar l	essons	30 students		2	SCH	30	h	45	h
	Exercise		20 students		0	SCH	0	h	0	h
		or seminar	15 students		0	SCH	0	h	0	h
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h
3	of the mo	ethods of diffe	mple technical progression of the control of the co	oblems	rrom t	ne field ora, as w	of mecha yell as by	nical engin using suital	ble softwar	n the help re.
	derivation Linear a equation Compute	on, derivation r algebra: Vecto s, systems of l	Functions, relatiules, power series ors, vector space inear equations. oduction to a compact.	s, extre	ma, cur ar proc	ve disci luct, ve	ussion. ector prod	luct, matri	ces, deter	minants,
4	Forms of	teaching:								
•	Lecture,	-								
5		ion requirement	s:							
	Formal: Content:	None		cal kno	wledge	at Geri	man 'Fach	oberschuln	iveau' leve	el
6		assessment: examination								
7	Prerequis		l of credit points:							
8	Application		e (in the following s	study pr	ogramm	ies)				
9	Importano		or the final grade:							
10	Module c	oordinator: rer. nat. Marti	in Petry							
11	Other info	ormation: e will be anno	unced at the begin	nning o	f the co	ourse.				
12	Language	<b>:</b>								
	German									

Mat	hematics 2								MA2		
Iden num	tification ber:	Workload:	Credits:	Stud	y semest	er:	Frequenc	y of the	Durat	ion:	
115	4	150 h	150 h 5		semeste	er	Annual (Summer)		1 sem	1 semester	
1	Course:		Planned group	sizes	Scop	e	Actual time / c	lassroom	Self-stu	ıdy	
	Lecture		60 students		2	SCH	30	h	45	h	
	Seminar l	lessons	30 students		2	SCH	30	h	45	h	
	Exercise		20 students		0	SCH	0	h	0	h	
	Practical	or seminar	15 students		0	SCH	0	h	0	h	
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h	
	The students know the basic concepts of integral calculus and the theory of differential equations. Students are able to analyse and solve simple technical problems from the field of mechanical engineering using the methods of integral calculus and the theory of differential equations, also through the use of suitable software.  Contents:  Integral calculus: Definite and indefinite integral, main theorem of differential and integral calculus, mean value theorem of integral calculus, integration rules and methods.  Differential equations: Basic concepts, classification, ordinary differential equations of first and										
3	Integral mean va Differen second of Compute	calculus: Defi lue theorem of tial equations order, systems er algebra: Use	f integral calculute: Basic concept of linear difference of a computer	us, integ ts, class ntial equ	ration ration rations	ules and n, ordina with con	methods. ary differ stant coef	ential equ	ations of	first and ambers.	
	Integral mean va Differen second of Compute and diffe	calculus: Defi lue theorem of tial equations order, systems er algebra: Use erential equation	f integral calcult : Basic concept of linear differe e of a computer ons.	us, integ ts, class ntial equ	ration ration rations	ules and n, ordina with con	methods. ary differ stant coef	ential equ	ations of	first and ambers.	
3	Integral mean va Differen second of Compute and diffe	calculus: Defi lue theorem of tial equations order, systems er algebra: Use erential equation teaching: seminar-based	f integral calculuters Basic concept of linear difference of a computer ons.	us, integ ts, class ntial equ	ration ration rations	ules and n, ordina with con	methods. ary differ stant coef	ential equ	ations of	first and ambers.	
4	Integral mean va Differen second of Compute and diffe	calculus: Defi lue theorem of tial equations order, systems er algebra: Use erential equation teaching: seminar-based tion requirement	f integral calculu : Basic concept of linear differe e of a computer ons. d teaching ts:	us, integ ts, class ntial equ	ration ration rations	ules and n, ordina with con	methods. ary differ stant coef	ential equ	ations of	first and ambers.	
4	Integral mean va Differen second of Compute and diffe	calculus: Defi	f integral calculu : Basic concept of linear differe e of a computer ons.  d teaching ts:	us, integ ts, class ntial equ algebra	ration rification rations system	ules and n, ordina with con for prob	methods. ary differ stant coef	ential equ	ations of	first and ambers.	
4 5	Integral mean va Differen second of Compute and differen Forms of Lecture, Participat Formal: Content:	calculus: Defi	f integral calculu : Basic concept of linear differe e of a computer ons. d teaching ts:	us, integ ts, class ntial equ algebra	ration rification rations system	ules and n, ordina with con for prob	methods. ary differ stant coef	ential equ	ations of	first and ambers.	
4 5	Integral mean va Differen second of Compute and differen Forms of Lecture, Participat Formal: Content: Forms of	calculus: Defi	f integral calculu : Basic concept of linear differe e of a computer ons.  d teaching ts:	us, integ ts, class ntial equ algebra	ration rification rations system	ules and n, ordina with con for prob	methods. ary differ stant coef	ential equ	ations of	first and ambers.	
5 6	Integral mean va Differen second of Computer and different and different and different in the content in the co	calculus: Defi	f integral calculu : Basic concept of linear differe e of a computer ons.  d teaching ts: e ent of the lecture	us, integ ts, class ntial equ algebra	ration rification rations system	ules and n, ordina with con for prob	methods. ary differ stant coef	ential equ	ations of	first and ambers.	
4 5 6	Integral mean va Differen second of Compute and differen Forms of Lecture, Participat Formal: Content: Forms of Written of Prerequis Module	calculus: Defi	f integral calculu : Basic concept of linear differe e of a computer ons.  d teaching ts: e ent of the lecture d of credit points: ass	us, integ ts, class ntial equ algebra	ration rification rations system	ules and n, ordina with con for prob	methods. ary differ stant coef	ential equ	ations of	first and ambers.	
4 5 6	Integral mean va Differen second of Compute and differ  Forms of Lecture, Participat Formal: Content: Forms of Written Prerequis Module Applicati	calculus: Defi	f integral calculu : Basic concept of linear differe e of a computer ons.  d teaching ts: e ent of the lecture d of credit points: ass e (in the following	us, integ ts, class ntial equ algebra	ration rification rations system	ules and n, ordina with con for prob	methods. ary differ stant coef	ential equ	ations of	first and ambers.	
5 7 8	Integral mean va Differen second of Compute and differen and differen Forms of Lecture, Participat Formal: Content: Forms of Written of Prerequis Module Application Mechanic	calculus: Defi	f integral calculu : Basic concept of linear differe e of a computer ons.  d teaching ts: e ent of the lecture d of credit points: ass e (in the following	e Mathe	ration rification rations system	ules and n, ordina with con for prob	methods. ary differ stant coef	ential equ	ations of	first and ambers.	
5 6 7 8 8	Integral mean va Differen second of Compute and differen and differen Forms of Lecture, Participat Formal: Content: Forms of Written of Prerequis Module Applicati Mechani Important accordin	calculus: Defi	f integral calculu : Basic concept of linear differe e of a computer ons.  d teaching ts: e ent of the lecture d of credit points: ass e (in the following ng B.Eng.	e Mathe	ration rification rations system	ules and n, ordina with con for prob	methods. ary differ stant coef	ential equ	ations of	first and ambers.	
4 5 6 7 8	Integral mean va Differen second of Compute and differ and differ  Forms of Lecture, Participat Formal: Content: Forms of Written Prerequis Module Applicati Mechani Importance accordin Module of	calculus: Defi	f integral calculus: Basic concept of linear differe e of a computer ons.  d teaching ts: ent of the lecture d of credit points: ass e (in the following B.Eng. for the final grade	e Mathe	ration rification rations system	ules and n, ordina with con for prob	methods. ary differ stant coef	ential equ	ations of	first and ambers.	
4 5 6 7 8 8	Integral mean va Differen second of Computer and different	calculus: Defi	f integral calculus: Basic concept of linear differe e of a computer ons.  d teaching ts: ent of the lecture d of credit points: ass e (in the following B.Eng. for the final grade	e Mathe	ration rification rations system	ules and n, ordina with con for prob	methods. ary differ stant coef	ential equ	ations of	first and ambers.	
	Integral mean va Differen second of Compute and differ  Forms of Lecture, Participat Formal: Content: Forms of Written of Prerequis Module Applicati Mechani Important accordin Module of Prof. Dr. Other info	calculus: Defi	f integral calculus. Basic concept of linear difference of a computer ons.  d teaching ts: element of the lecture d of credit points: ass element of the following B.Eng. for the final grade	e Mathe	matics	ules and n, ordina with con for prob	methods. ary differ stant coef	ential equ	ations of	first and ambers.	
4 5 6 7 8 8	Integral mean va Differen second of Compute and differ  Forms of Lecture, Participat Formal: Content: Forms of Written of Prerequis Module Applicati Mechani Important accordin Module of Prof. Dr. Other info	calculus: Defi	f integral calculus: Basic concept of linear differe e of a computer ons.  d teaching ts: ent of the lecture d of credit points: ass e (in the following B.Eng. for the final grade	e Mathe	matics	ules and n, ordina with con for prob	methods. ary differ stant coef	ential equ	ations of	first and ambers.	

Mat	hematics 3										MA3	
Iden	tification ber:	Workload	l:	Credits:	Study	semest	er:		requency offer	of the	Duratio	on:
115	9	150 h		5 3:		rd semester			Annual (Winter)		1 semester	
1	Course:		Pla	anned group siz	es	Scope	2		Actual co		Self-stuc	ly
	Lecture		60	students		2	SCH		30	h	45	h
	Seminar 1	lessons	30	students		2	SCH		30	h	45	h
	Exercise		20	students		0	SCH		0	h	0	h
	Practical	or seminar	15	students		0	SCH		0	h	0	h
	Supervise	ed self-study	60	students		0	SCH		0	h	0	h
3		vrite and in		s and numeric nt simple algor								
	Vector a integral Numeric with iter	nalysis: De theorems o es: Determi ative metho	f Gauss nation o ods, solv	e of a vector, of and Stokes. of zeros, differ ving ordinary a anguage such	rentiati	ion and	integra ferential	tic l ec	on, solving quations, i	g systems mplemei	s of linear	equations
4	Forms of	teaching:										
	Lecture,	seminar-b	ased tea	ching								
5	Participat	tion requirer	nents:									
	Formal:	N	one									
	Content:			of the lecture I	Mather	natics 2	2 (1154)	)				
6	Forms of	assessment:		of the lecture l	Mather	matics 2	2 (1154)	)				
6	Forms of Written	assessment: examination	n		Mather	matics 2	2 (1154)	)				
6 7	Forms of Written Prerequis	assessment: examination	n ward of o	of the lecture I	Mather	matics 2	2 (1154)	)				
	Forms of Written Prerequis Module Applicati	assessment: examination ite for the a examination on of the mo	n ward of on pass odule (in	credit points:				)				
7 8	Forms of Written Prerequis Module Applicati Mechani	assessment: examination ite for the and examination on of the motical Engine	n ward of on pass odule (in ering B	credit points: the following s .Eng.								
7	Forms of Written Prerequis Module Applicati Mechani Important	assessment: examination ite for the arexamination on of the modical Engine ce of the gra	n ward of on pass odule (in ering B de for th	credit points:								
7 8 9	Forms of Written Prerequis Module Applicati Mechani Importana accordin	assessment: examination ite for the and examination on of the motical Engine	n ward of on pass odule (in ering B de for th	credit points: the following s .Eng.								
7 8 9	Forms of Written Prerequis Module Applicati Mechani Important accordin Module c	assessment: examination ite for the arexamination on of the modical Engine ce of the grang to BRPC	n ward of on pass odule (in ering B de for th	the following s .Eng. te final grade:								
7 8 9	Forms of Written Prerequis Module Applicati Mechani Important accordin Module c	assessment: examination ite for the arexamination on of the motical Engine ce of the gra ag to BRPC coordinator: . rer. nat. N	n ward of on pass odule (in ering B de for th	the following s .Eng. te final grade:								
7	Forms of Written Prerequis Module Applicati Mechani Importan accordin Module of Prof. Dr	assessment: examination ite for the arexamination on of the molecular Engine to Grant Engine to BRPC to ordinator: . rer. nat. Mormation:	n ward of on pass odule (in ering B de for the	the following s .Eng. te final grade:	study pr	ogramn	nes)					
7 8 9	Forms of Written Prerequis Module Applicati Mechani Importan accordin Module of Prof. Dr	assessment: examination ite for the arexamination on of the motical Engine ical Engine ica	n ward of on pass odule (in ering B de for the	the following s .Eng. te final grade:	study pr	ogramn	nes)					

	lecular Ma	terials							MOW	
	ntification	Workload:	Credits:	Study	semest	er:	Frequency offer	of the	Duration	1:
117		150 h	5	4th o	r 6th se	emester	Annual (Summer)		1 semes	ster
1	Course:		Planned group si	izes	Scope	) )	Actual co		Self-study	ī
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar	lessons	30 students		2	SCH	30	h	45	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		0	SCH	0	h	0	h
	Supervis	ed self-study	60 students		0	SCH	0	h	0	h
3	Contents	rs.	een so-called bi	iopolym	ers, bi	ological	l composite	es and p	etrochemic	cal-based
			e and physical ar	rangem	ent of r	nacromo	olecules			
	- Monar - Gerwer - Teoche - Bioche - pol - Sili	emical structureing processes odification of spanioparticles, antinerating specificability, etc. chnical biopolyemical structure ocompatibility	mers, history, bie, technical proper olymer materials	possibi propertie ties, suc odegrad erties, er	lities of es throu th as se ability, ad of lif	f polyme gh filler lf-cleani legal fr	er materials es and reinfo ing, scratch amework, to	resistance	e, metallic goduction an	nd
4	- Monard name - Gerwer were - Teoche - Bioche - Special - Sili - Bioche - B	emical structureing processes odification of spanishers, antinerating specification in tability, etc. chnical biopolyemical structure occupatibility ecial cases of pymers in mediciones	and stabilisation pecific material p istatic finishes ic surface proper mers, history, bi e, technical proper olymer materials cal technology	possibi propertie ties, suc odegrad erties, er	lities of es throu th as se ability, ad of lif	f polyme gh filler lf-cleani legal fr	er materials es and reinfo ing, scratch amework, to	resistance	e, metallic goduction an	nd
4 5	- Mo nan - Ger wer - Tec che - Bic - Spe - pol - Sili - Bic	emical structureing processes odification of spanioparticles, antinerating specificability, etc. chnical biopolyemical structure ocompatibility ecial cases of pymers in mediciones ological compo	and stabilisation pecific material pristatic finishes ic surface proper timers, history, bite, technical proper colymer materials cal technology sites	possibi propertie ties, suc odegrad erties, er	lities of es throu th as se ability, ad of lif	f polyme gh filler lf-cleani legal fr	er materials es and reinfo ing, scratch amework, to	resistance	e, metallic goduction an	nd
	- Monard - German - German - German - Bio - Bio - Sperman - Silin - Bio	emical structureing processes odification of spanionarticles, antinerating specification in the specification in t	and stabilisation pecific material pristatic finishes ic surface proper mers, history, bite, technical proper olymer materials cal technology sites	possibi propertie ties, suc odegrad erties, er	lities of es through as se- ability, and of life	f polyme gh filler If-cleani legal fr e option	er materials, es and reinfo	resistance	e, metallic goduction an	nd
5	- Monard - General - General - Bio - Spender - Poll - Siling - Bio	emical structure eing processes odification of sproperticles, anti- nerating specification in specific trability, etc. chnical biopoly emical structure occupatibility ecial cases of processes of proce	and stabilisation pecific material projection is surface proper mers, history, bite, technical proper projection materials call technology sites	possibi propertie ties, suc odegrad erties, er	lities of es through as se- ability, and of life	f polyme gh filler If-cleani legal fr e option	er materials, es and reinfo	resistance	e, metallic goduction an	nd
5	- Monar - Gerwer - Teoche - Bioche - Speche - Poll - Silin - Bioche - Bioch	emical structure eing processes odification of sproperticles, anti- nerating specification in specification in the specific specific structure occupatibility ecial cases of processes of processes of processes of specific specifi	and stabilisation pecific material pristatic finishes ic surface proper mers, history, bits, technical proper olymer materials cal technology sites	possibi propertie ties, suc odegrad erties, er and the	lities of set through as set ability, and of lift ir use,	f polyme gh filler If-cleani legal fr è option	er materials, es and reinfo	resistance	e, metallic goduction an	nd

9	Importance of the grade for the final grade:
	according to BRPO
10	Module coordinator:
	Prof. DrIng. Bruno Hüsgen
11	Other information:
	Literature will be announced at the beginning of the course.
12	Language:
	German

Con	nputational	Fluid Dynami	ics 1						CFD:	1	
Iden num	tification ber:	Workload:	Credits:	Stud	y semes	ter:	Frequenc	ey of the	Durat	ion:	
118′	87   150 h		5 4th		or 6th semester		Annual (Summer)		1 sem	1 semester	
1	Course:		Planned group si	zes	Scop	e		contact classroom	Self-stu	ıdy	
	Lecture		60 students		2	SCH	30	h	45	h	
	Seminar	lessons	30 students		2	SCH	30	h	45	h	
	Exercise		20 students		0	SCH	0	h	0	h	
	Practical	or seminar	15 students		0	SCH	0	h	0	h	
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h	
3	method, Commen CCM+ of program	Tensor calculu boundary con rcial tools: Intr or ANSYS CF ming language	ditions, grid type roduction to flow X. Software deve e for simple flow	s, strea simula lopmer	mfunct tion wi nt: Impl	ion. th a com ementat	mercial C	CFD progra	amme suc	h as STA higher	
	Basics: method, Commen CCM+ c program Facing-S	Tensor calculu boundary con rcial tools: Intro or ANSYS CFI ming language Step Problem.	ditions, grid type oduction to flow X. Software deve	s, strea simula lopmer	mfunct tion wi nt: Impl	ion. th a com ementat	mercial C	CFD progra	amme suc	h as STA higher	
4	Basics: method, Commer CCM+ or program Facing-S	Tensor calculu boundary con- rcial tools: Intro or ANSYS CF, uming language Step Problem.	ditions, grid type roduction to flow X. Software deve e for simple flow	s, strea simula lopmer	mfunct tion wi nt: Impl	ion. th a com ementat	mercial C	CFD progra	amme suc	h as STA higher	
	Basics: method, Commer CCM+ or program Facing-S	Tensor calculu boundary con rcial tools: Intro or ANSYS CFI ming language Step Problem.	ditions, grid type roduction to flow X. Software deve e for simple flow	s, strea simula lopmer	mfunct tion wi nt: Impl	ion. th a com ementat	mercial C	CFD progra	amme suc	h as STA higher	
4	Basics: method, Commer CCM+ or program Facing-S	Tensor calculum boundary concial tools: Introper ANSYS CF aming language Step Problem.  Steaching: seminar-based	ditions, grid type roduction to flow X. Software deve e for simple flow	s, strea simula lopmer	mfunct tion wi nt: Impl	ion. th a com ementat	mercial C	CFD progra	amme suc	h as STA higher	
4	Basics: 'method, Commer CCM+ or program Facing-S	Tensor calculum boundary conscial tools: Intror ANSYS CF2 ming language Step Problem.  Teaching: seminar-based tion requirement	ditions, grid type roduction to flow X. Software deve e for simple flow	s, stream simula lopmer problem	mfunct tion wi it: Impl ms, e.g	ion. th a com ementat the Lid	mercial ( ion of a C -Driven-C	CFD progra	amme suc	h as STA higher	
4	Basics: method, Comment CCM+ comprogram Facing-S  Forms of Lecture, Participal Formal: Content:	Tensor calculum boundary conscial tools: Intror ANSYS CF2 ming language Step Problem.  Teaching: seminar-based tion requirement	ditions, grid type roduction to flow X. Software deve e for simple flow d teaching ts:	s, stream simula lopmer problem	mfunct tion wi it: Impl ms, e.g	ion. th a com ementat the Lid	mercial ( ion of a C -Driven-C	CFD progra	amme suc	h as STA higher	
4 5	Basics: method, Commer CCM+ or program Facing-S  Forms of Lecture, Participal Formal: Content: Forms of	Tensor calculum boundary control tools: Introl ANSYS CF aming language Step Problem.  Teaching: seminar-based tion requirement None Control	ditions, grid type roduction to flow X. Software deve e for simple flow d teaching ts:	s, stream simula lopmer problem	mfunct tion wi it: Impl ms, e.g	ion. th a com ementat the Lid	mercial ( ion of a C -Driven-C	CFD progra	amme suc	h as STA higher	
4 5 6	Basics: method, Commer CCM+ of program Facing-S  Forms of Lecture, Participal Formal: Content: Forms of Written Prerequise	Tensor calculum boundary control tools: Introl ANSYS CF aming language Step Problem.  I teaching: Seminar-based tion requirement   None Control Contro	ditions, grid type roduction to flow X. Software deve e for simple flow d teaching ts:	s, stream simula lopmer problem	mfunct tion wi it: Impl ms, e.g	ion. th a com ementat the Lid	mercial ( ion of a C -Driven-C	CFD progra	amme suc	h as STA higher	
4 5 6 7	Basics: method, Commer CCM+ of program Facing-S  Forms of Lecture, Participal Formal: Content: Forms of Written Prerequising Module	Tensor calculum boundary control tools: Introl ANSYS CF aming language Step Problem.  Teaching: Seminar-based tool requirement None Control assessment: Examination site for the award examination p	ditions, grid type roduction to flow X. Software deve e for simple flow d teaching ts:	s, streaments simula lopmer problements fluid M	mfunct tion wi ht: Impl ms, e.g	ion. th a com ementat: the Lid	mercial ( ion of a C -Driven-C	CFD progra	amme suc	h as STA higher	
4 5 7	Basics: method, Commer CCM+ or program Facing-Sectors of Lecture, Participal Formal: Content: Forms of Written Prerequising Module Application	Tensor calculum boundary control tools: Introl ANSYS CF aming language Step Problem.  Teaching: Seminar-based tool requirement None Control assessment: Examination site for the award examination p	ditions, grid type roduction to flow X. Software deve e for simple flow d teaching ts: e ent of the lecture d of credit points: ass e (in the following	s, streaments simula lopmer problements fluid M	mfunct tion wi ht: Impl ms, e.g	ion. th a com ementat: the Lid	mercial ( ion of a C -Driven-C	CFD progra	amme suc	h as STA higher	
4 5 7 8	Basics: method, Commer CCM+ or program Facing-Section Forms of Lecture, Participal Formal: Content: Forms of Written Prerequis Module Applicati Mechan Importan	Tensor calculum boundary control tools: Introl ANSYS CF aming language Step Problem.  I teaching: Seminar-based tool requirement None Control assessment: Examination site for the award examination proportion of the modulical Engineering ce of the grade for the grade f	ditions, grid type roduction to flow X. Software deve e for simple flow d teaching ts: e ent of the lecture d of credit points: ass e (in the following	s, streaments simula lopmer problements fluid M	mfunct tion wi ht: Impl ms, e.g	ion. th a com ementat: the Lid	mercial ( ion of a C -Driven-C	CFD progra	amme suc	h as STA higher	
4 5 7 8	Basics: method, Commer CCM+ or program Facing-Section Forms of Lecture, Participal Formal: Content: Forms of Written Prerequis Module Applicati Mechan Importan according	Tensor calculum boundary control tools: Introl ANSYS CF aming language Step Problem.  Teaching: Seminar-based tool requirement None Control assessment: examination site for the award examination proportion of the modulical Engineering to BRPO	ditions, grid type roduction to flow X. Software deve e for simple flow d teaching ts: e ent of the lecture d of credit points: ass e (in the following the gradual of the solution of the lecture)	s, streaments simula lopmer problements fluid M	mfunct tion wi ht: Impl ms, e.g	ion. th a com ementat: the Lid	mercial ( ion of a C -Driven-C	CFD progra	amme suc	h as STA higher	
4 5 6 7 8	Basics: method, Commer CCM+ of program Facing-S  Forms of Lecture, Participal Formal: Content: Forms of Written Prerequise Module Applicati Mechan Importan accordin Module of	Tensor calculum boundary control tools: Introl ANSYS CF, aming language Step Problem.  Teaching: Seminar-based tion requirement  None Control assessment: examination site for the award examination plon of the modulical Engineering to BRPO coordinator:	ditions, grid type roduction to flow X. Software deve e for simple flow d teaching ts: e ent of the lecture d of credit points: ass e (in the following ng B.Eng. for the final grade:	s, streaments simula lopmer problements fluid M	mfunct tion wi ht: Impl ms, e.g	ion. th a com ementat: the Lid	mercial ( ion of a C -Driven-C	CFD progra	amme suc	h as STA higher	
4 5 6 7 8 9	Basics: method, Commer CCM+ of program Facing-S  Forms of Lecture, Participal Formal: Content: Forms of Written Prerequise Module Applicati Mechan Importan accordin Module of Prof. Dr	Tensor calcult boundary concial tools: Intror ANSYS CF, aming language Step Problem.  Teaching: Seminar-based tools assessment: Examination site for the award examination plon of the modulical Engineering to BRPO coordinator: Terr. nat. Mart	ditions, grid type roduction to flow X. Software deve e for simple flow d teaching ts: e ent of the lecture d of credit points: ass e (in the following ng B.Eng. for the final grade:	s, streaments simula lopmer problements fluid M	mfunct tion wi ht: Impl ms, e.g	ion. th a com ementat: the Lid	mercial ( ion of a C -Driven-C	CFD progra	amme suc	h as STA higher	
4 5 6 7 8 9	Basics: method, Commer CCM+ of program Facing-S  Forms of Lecture, Participal Formal: Content: Forms of Written Prerequise Module Applicating Mechan Important according Module of Prof. Dr. Other inf	Tensor calcult boundary concial tools: Intror ANSYS CF aming language Step Problem.  Teaching: Seminar-based tools continuous assessment: Examination of the award examination planed in the grade of th	ditions, grid type roduction to flow X. Software deve e for simple flow d teaching ts: e ent of the lecture d of credit points: ass e (in the following the form of the final grade: in Petry	s, streament simula lopmer problement problement fluid Market Study problement fluid Market Stud	mfunct tion wi it: Impl ms, e.g	ion. th a com ementat: the Lid  ics (125	mercial ( ion of a C -Driven-C	CFD progra	amme suc	h as STA higher	
4 5 6 7 8	Basics: method, Commer CCM+ of program Facing-S  Forms of Lecture, Participal Formal: Content: Forms of Written Prerequise Module Applicating Mechan Important according Module of Prof. Dr. Other inf	Tensor calculum boundary control tools: Introl ANSYS CF. Introl ANSYS CF. Introl ANSYS CF. Introl ANSYS CF. Introl Barbara and tool and to	ditions, grid type roduction to flow X. Software deve e for simple flow d teaching ts: e ent of the lecture d of credit points: ass e (in the following ng B.Eng. for the final grade:	s, streament simula lopmer problement problement fluid Market Study problement fluid Market Stud	mfunct tion wi it: Impl ms, e.g	ion. th a com ementat: the Lid  ics (125	mercial ( ion of a C -Driven-C	CFD progra	amme suc	h as ST <i>A</i> higher	

Phys	sics								PH	
Ident	tification ber:	Workload:	Credits:	Stud	y semest	er:	Frequenc offer	y of the	Durati	ion:
1087	7 150 h		5 2nd		l semester		Annual (Summer)		1 semester	
1	Course:		Planned group si	zes	Scope	e	Actual time / c	lassroom	Self-stu	ıdy
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar l	essons	30 students		2	SCH	30	h	45	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		0	SCH	0	h	0	h
	Supervise	d self-study	60 students		0	SCH	0	h	0	h
2	The stud	ing. Students	petences: e basic concepts a understand the mo lems from the field	st imp	ortant e	quations	of physic	s. The stud	ents are a	ble to solve
	quantitie Mechani conserva Electricit capacitor Ohm's la	s, units, meas cs: Kinemati tion laws of r ty theory: Cl c, current strea w, Kirchhoff Geometrical	cs and dynamics	of a 1 eld, ele ld, mag power	mass poectric fignetic flin a DC	oint, Neveld stre	wton's lanngth, electry, Lorent	ws of mot etric poten z force, lav	ion, worl	x, energy, age, plate ction, coil,
4	Forms of	Ū	1. 1.							
		seminar-base								
5	Formal:	ion requiremen								
	Content:		d basic knowledge	e of nh	veice ~	athamas	tice Land	ΙΤ		
6		assessment:	a basic kilowieugi	or bii	y sics, ii	iauiCiliai	ico i aliu .	1.1		
U		examination								
7			rd of credit points:							
,	_	examination p								
8			le (in the following	study n	rogramn	nes)				
J		cal Engineeri		Р	-0-4					
9			for the final grade:							
	_	g to BRPO								
10		oordinator:								
		-Ing. Tobias	Böhm							
11	Other info									
	T 14				C .1					
	Literatur	e will be anno	ounced at the begi	ınnıng	of the co	ourse.				
12	Language		ounced at the begi	inning	of the co	ourse.				

Prac	tical Proje	ct / Internship							PRA	
Iden num	tification ber:	Workload:	Credits:	Study	semest	er:	Frequency	of the	Duratio	on:
1292	450 h		15	7th s	emeste	r	each sem	ester	12 we	eks
1	Course:		Planned group s	Planned group sizes		e	Actual contact time / classroom teaching		Self-study	
	Lecture		60 students		0	SCH	0	h	450	h
	Seminar	lessons	30 students		0	SCH	0	h	0	h
	Exercise		20 students		0	SCH	0	h	0	h
		or seminar	15 students		0	SCH	0	h	0	h
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h
2	Learning	outcomes/comp	petences:		1					
	projects	and develop s	riented manner. suitable solution solving, presenta	strategie	es. The	main ai	m is to de			
2	Contont									
3	Contents The con	tents result fro	m the field of ac	tivity of	the resp	pective o	chosen cor	npany or en	nterprise a	and shou
3	The con include an activi	tents result fro an engineering ity report and t	m the field of act g task. At the end the students a fin ional advising from	d of the al report	practica . Durin	al projec g the pra	t, the supeactical pha	ervising con se, the stud	npany is	to prepa
	The con include an activi individu	tents result fro an engineering ity report and t al and profess	g task. At the end the students a fin	d of the al report	practica . Durin	al projec g the pra	t, the supeactical pha	ervising con se, the stud	npany is	to prepa
	The con include an activi individu	tents result fro an engineering ity report and t al and profess	g task. At the end the students a fin- tional advising from	d of the al report om the s	practica . Durin upervis	al project g the pra g univ	et, the supe actical pha versity lect	ervising con se, the stud	npany is	to prepa
4	The con include an activi individu  Forms of Seminar	tents result fro an engineering ity report and t al and profess teaching:	g task. At the end the students a fin- tional advising from	d of the al report om the s	practica . Durin upervis	al project g the pra g univ	et, the supe actical pha versity lect	ervising con se, the stud	npany is	to prepa
	The con include an activi individu  Forms of Seminar	tents result fro an engineering ity report and t al and profess	g task. At the end the students a fin- tional advising from	d of the al report om the s	practica . Durin upervis	al project g the pra g univ	et, the supe actical pha versity lect	ervising con se, the stud	npany is	to prepa
4	The con include an activi individu  Forms of Seminar  Participa	tents result fro an engineering ity report and t al and profess teaching: -based teaching tion requiremen	g task. At the end the students a finitional advising from the students are great advising from the students are great advising from the students are great at the students ar	d of the al report om the s	practica . Durin upervis	al project g the pra g univ	et, the supe actical pha versity lect	ervising con se, the stud	npany is	to prepa
4 5	The con include an activitindividu  Forms of Seminar Participat Formal: Content:	tents result fro an engineering ity report and t al and profess  teaching: -based teaching tion requiremen	g task. At the end the students a finitional advising from the students are great advising from the students are great advising from the students are great at the students ar	d of the al report om the s	practica . Durin upervis	al project g the pra g univ	et, the supe actical pha versity lect	ervising con se, the stud	npany is	to prepa
4	The con include an activitindividu  Forms of Seminar Participat Formal: Content:	tents result fro an engineering ity report and t al and profess  teaching: -based teaching tion requiremen None None assessment:	g task. At the end the students a finitional advising from the students are great advising from the students are great advising from the students are great at the students ar	d of the al report om the s	practica . Durin upervis	al project g the pra g univ	et, the supe actical pha versity lect	ervising con se, the stud	npany is	to prepa
4 5 6	Forms of Seminar Participar Formal: Content: Forms of Term pa	tents result fro an engineering ity report and t al and profess  teaching: -based teaching tion requiremen None None assessment:	g task. At the end the students a finitional advising from the students are great advising from the students are great advising from the students are great at the students ar	d of the al report om the s	practica . Durin upervis	al project g the pra g univ	et, the supe actical pha versity lect	ervising con se, the stud	npany is	to prepa
4 5 6	The con include an activition individus.  Forms of Seminar Participal Formal: Content: Forms of Term participal Prerequise Module	tents result fro an engineering ity report and t al and profess  teaching: -based teaching tion requiremen None None assessment: aper site for the awar examination p	g task. At the end the students a finitional advising from the students are greater than the stu	as acco	practica Durin upervis mpanyi	nl project g the pra sing univ	et, the supe actical pha versity lect	ervising con se, the stud	npany is	to prepa
4 5 6	The con include an activition individus.  Forms of Seminar Participal Formal: Content: Forms of Term participal Prerequise Module	tents result fro an engineering ity report and t al and profess  teaching: -based teaching tion requiremen None None assessment: aper site for the awar examination p	g task. At the end the students a finitional advising from the students are greatly as with exercises the end of credit points:	as acco	practica Durin upervis mpanyi	nl project g the pra sing univ	et, the supe actical pha versity lect	ervising con se, the stud	npany is	to prepa
4 5 6	Forms of Seminar Participar Formal: Content: Forms of Term participar Module Application Electricar	tents result fro an engineering ity report and t al and profess  teaching: -based teaching tion requiremen None assessment: aper site for the awar examination p ion of the modul al Engineering	g task. At the end the students a fin ional advising from the students a fin ional advising from the students are with exercises the end of credit points: the base is the following g. B.Eng., Engin	as acco	mpanyi rogramn	ng guida nes)	ance B.Er	ervising corse, the studurers.	npany is lents shou	to prepa ild recei
4 5 6	Forms of Seminar Participar Formal: Content: Forms of Term participar Prerequise Module Application Electricar B.Eng.,	tents result fro an engineering ity report and t al and profess  teaching: -based teaching tion requiremen None assessment: aper site for the awar examination p ion of the modul al Engineering	g task. At the end the students a finitional advising from the students are greatly as with exercises the end of credit points: the end of credit points is the end of credit points: the end of credit points is the end of cre	as acco	mpanyi rogramn	ng guida nes)	ance B.Er	ervising corse, the studurers.	npany is lents shou	to prepa ild recei
4 55 66 77 88	Forms of Seminar Participar Formal: Content: Forms of Term participar Prerequist Module Application B.Eng., B.Sc.	tents result fro an engineering ity report and t al and profess  Teaching: -based teaching tion requiremen None assessment: uper site for the aware examination p ion of the modul al Engineering Mechatronics	g task. At the end the students a finitional advising from the students are greatly as with exercises the end of credit points:  Description of the following graphs of the following graphs of the following graphs. Sc., Renewable the students are graphs of the following graphs.	as acco	mpanyi rogramn	ng guida nes)	ance B.Er	ervising corse, the studurers.	npany is lents shou	to prepa ild recei
4 55 66 77 88	Forms of Seminar Participar Formal: Content: Forms of Term par Prerequist Module Application Electrica B.Eng., B.Sc.	tents result fro an engineering ity report and t al and profess  Teaching: -based teaching tion requiremen None None assessment: aper site for the aware examination p ion of the modul al Engineering Mechatronics ace of the grade	g task. At the end the students a fin ional advising from the students a fin ional advising from the students are with exercises the end of credit points: the base is the following g. B.Eng., Engin	as acco	mpanyi rogramn	ng guida nes)	ance B.Er	ervising corse, the studurers.	npany is lents shou	to prepa ild recei
4 5 7 8	The con include an activition individual ind	tents result fro an engineering ity report and t al and profess  Teaching: -based teaching tion requirement None None assessment: aper site for the aware examination p ion of the modul al Engineering Mechatronics age of the grade age to BRPO	g task. At the end the students a finitional advising from the students are greatly as with exercises the end of credit points:  Description of the following graphs of the following graphs of the following graphs. Sc., Renewable the students are graphs of the following graphs.	as acco	mpanyi rogramn	ng guida nes)	ance B.Er	ervising corse, the studurers.	npany is lents shou	to prepared for the pre
4 5 7 8	The con include an activi individual individ	tents result fro an engineering ity report and t al and profess  Teaching: -based teaching tion requirement None None assessment: uper site for the awar examination p ion of the modul al Engineering Mechatronics ace of the grade in g to BRPO coordinator:	g task. At the end the students a finitional advising from the students a finitional advising from the g with exercises the end of credit points: the end of credit points the end of c	as acco	mpanyi rogramn	ng guida nes)	ance B.Er	ervising corse, the studurers.	npany is lents shou	to prepaild received
4 5 6 7 8 9	Forms of Seminar Participar Formal: Content: Forms of Term participar Module Application Electricar B.Eng., B.Sc. Importan according Module of Prof. Dr	tents result fro an engineering ity report and t al and profess  Teaching: -based teaching tion requiremen None None assessment: aper site for the aware examination p ion of the modul al Engineering Mechatronics age of the grade of the gra	g task. At the end the students a finitional advising from the students a finitional advising from the g with exercises the end of credit points: the end of credit points the end of c	as acco	mpanyi rogramn	ng guida nes)	ance B.Er	ervising corse, the studurers.	npany is lents shou	to prepaild received
4 5 6 7 8 8	Forms of Seminar Participar Formal: Content: Forms of Term participar Application Electricar B.Eng., B.Sc. Important according Module of Prof. Dr. Other inf	tents result fro an engineering ity report and t al and profess  Teaching: -based teaching tion requirement None None assessment: uper site for the aware examination profess in the modulation of the modulation of the modulation of the grade of the grad	g task. At the end the students a finitional advising from the students a finitional advising from the students are stated as a state of the following g. B.Eng., Enging B.Sc., Renewable for the final grade:	as acco	mpanyi rogramn Computes B.Er	ng guida nes) ter Scieng, and I	ance B.Er	ervising corse, the studurers.	npany is lents shou	to prepaild received
4 5	Forms of Seminar Participar Formal: Content: Forms of Term participar Application Electricar B.Eng., B.Sc. Important according Module of Prof. Dr. Other inf	tents result fro an engineering ity report and t al and profess  Teaching: -based teaching tion requirement None None assessment: uper site for the aware examination p ion of the modulal Engineering Mechatronics al Engineering Mechatronics ce of the grade in the gr	g task. At the end the students a finitional advising from the students a finitional advising from the g with exercises the end of credit points: the end of credit points the end of c	as acco	mpanyi rogramn Computes B.Er	ng guida nes) ter Scieng, and I	ance B.Er	ervising corse, the studurers.	npany is lents shou	to prepaild received

Proc	duction Pla	nning and Log	gistics						PPL		
Iden num	tification ber:	Workload:	Credits:	Study	semes	ter:	Frequency	y of the	Durati	Duration: 1 semester	
1213		150 h	5	4th or 6th semester		emester	Annual (Summer)		1 sem	ester	
1	Course:		Planned group s	izes	Scop	e	Actual of time / conteaching	assroom	Self-stu	study	
	Lecture		60 students		2	SCH	30	h	45	h	
	Seminar	lessons	30 students		2	SCH	30	h	45	h	
	Exercise		20 students		0	SCH	0	h	0	h	
		or seminar	15 students		0	SCH	0	h	0	h	
	Superviso	ed self-study	60 students		0	SCH	0	h	0	h	
supply of Applica dimension Question students		chain managen	ion and logistics nent are taught for	r these p	oroblei	ns.					
3	dimension Question students	oning, plannin ns that arise in and the result asis of a syste	ods for production and operation at the design and o ing sub-tasks can matic problem de	are giver peration be prov	n. of log ided w	istics sys	stems can	be recorde e sense of	ed and stru	ctured by	
3	Contents The mod layout a procedu types (ir producti modellir logistics The stuc custome	coning, planning that arise in and the results asis of a system that arise in a system that arise of a system that the realisation logistics aring and analysis and analysis and are enally are that arise in a system that arise in a system that are that	g and operation a the design and o ing sub-tasks can matic problem design and controlling and controlling and supply chain ming complex decipled to plan the hand and the mar	basics a in production anagem ision-ma	nd confuction occass in on). In ent areaking s	cepts for systems n produce additions covered ituations	the design. The couction system, procedured that occurred on the	n, the tech rese will doms in corres, procest lents acquar when d	ed and struction astem.  Inical-orga leepen conmpanies of sses and maire competetermining	nisationa cepts an differentethods of tences for g efficier	
3	Contents On the b  Contents The modeling logistics The students Contents The model ling logistics The students Contents The model ling logistics The students The prob	coning, planning that arise in and the result asis of a system asis of a system asis of a system and the realisation logistics aring and analysis. It is dents are enabled as that arise are that are that arise are tha	g and operation a the design and o ing sub-tasks can matic problem design and controlling and controlling and supply chain ming complex decipled to plan the hand and the mar	basics a in production anagem ision-male logistics ketable	nd con uction ocess i on). In ent areaking s	cepts for systems n produce additions covered ituations ess baseds compo	the design. The couction system, procedured that occurrents on the system of the study of the system.	h, the tech rese will doms in corres, procedents acquirement the other h	ed and struction of a function of stem.  Inical-organies of sees and maire compensate of superand and to the state of superand and superand and superand supera	nisationa cepts and differentethods of tences for gefficient opliers and oformali	
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	Content:	None
6	Forms of assessm	ent:
	Term paper, wri	tten exam, combination exam, project work or oral exam
7	Prerequisite for th	e award of credit points:
	Module examin	ation pass
8	Application of the	module (in the following study programmes)
	Mechanical Eng	ineering B.Eng.
9	Importance of the	grade for the final grade:
	according to BR	PO
10	Module coordinat	or:
	Prof. DrIng. M	lagnus Horstmann
11	Other information	
	Literature will b	e announced at the beginning of the course.
12	Language:	
	German	

Pro	duction En	gineering							PRT		
	tification ber:	Workload:	Credits:	Study	semes	ter:	Frequency of the offer		Durati	Duration:	
121		150 h	5	3rd o	or 5th s	emester	Annual (Winter)	)	1 sem	nester	
1	Course:		Planned group s	sizes	Scop	e		contact classroom	Self-stu	ıdy	
	Lecture		60 students		2	SCH	30	h	45	h	
	Seminar	lessons	30 students		2	SCH	30	h	45	h	
	Exercise		20 students		0	SCH	0	h	0	h	
		or seminar	15 students		0	SCH	0	h	0	h	
	Superviso	ed self-study	60 students		0	SCH	0	h	0	h	
	Supervised self-study  Learning outcomes/con Students:  - can define the base of the characteristics are characteristics are able to deter with the help of their advantages  - know the essent the economic and		o select suitable r sses. nine process-spec	nanufac	turing <sub>]</sub>	processes	s for diffe				
3	Contents Applicate assemble processes	ir advantages by the essentia economic and a select suitable  tion-relevant by y and testing es, forming p	the results obtained and disadvantage all basics in the field organisational field e measuring and passics of industriate of components rocesses, separate and testing equiprimal disadvantage of the separate	ed, to assess. eld of asseramewo testing e	sess the sembly rk conc equipm manuf of met	e various  technologitions of the to che  facturing allic man	manufac ogy and a f assembly aracterise processes terials an	turing produce able to y concepts compone	evaluate a . nt properti	h regard to the	
3	Contents Applicate assemble processes concepts	ir advantages by the essentia economic and a select suitable  tion-relevant by y and testing es, forming pour s, measuring a	and disadvantage al basics in the fid d organisational f e measuring and pasics of industria of components rocesses, separat and testing equipr	ed, to assess. eld of asseramewo testing e	sess the sembly rk conc equipm manuf of met	e various  technologitions of the to che  facturing allic man	manufac ogy and a f assembly aracterise processes terials an	turing produce able to y concepts compone	evaluate a . nt properti	h regard to the	
4	Contents Applicar assembl processe concepts  Forms of Lecture,	ir advantages by the essentia economic and a select suitable  ition-relevant by y and testing es, forming pour s, measuring a f teaching: , seminar-base	and disadvantage al basics in the fid organisational fide measuring and pasics of industrial of components rocesses, separational testing equipment and testing equipment and teaching	ed, to assess. eld of asseramewo testing e	sess the sembly rk conc equipm manuf of met	e various  technologitions of the to che  facturing allic man	manufac ogy and a f assembly aracterise processes terials an	turing produce able to y concepts compone	evaluate a . nt properti	h regard to the	
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ļ.	Contents Applica assembl processe concepts  Forms of Lecture, Participa Formal:	ir advantages by the essentia economic and a select suitable  tion-relevant by y and testing es, forming p s, measuring a  teaching: , seminar-base tion requirement Non	and disadvantage al basics in the fid organisational fide measuring and pasics of industrial of components of components or coesses, separate and testing equipments:	ed, to assess. eld of asseramewo testing e	sess the sembly rk conc equipm manuf of met	e various  technologitions of the to che  facturing allic man	manufac ogy and a f assembly aracterise processes terials an	turing produce able to y concepts compone	evaluate a . nt properti	h regard in the regard in ther	
ļ	Contents Applica assembl processe concepts  Forms of Lecture, Participa Formal: Content:	ir advantages by the essentia economic and a select suitable  tion-relevant by y and testing es, forming p s, measuring a  f teaching: , seminar-base tion requiremen  Non  Non	and disadvantage al basics in the fid organisational fide measuring and pasics of industrial of components of components or coesses, separate and testing equipments:	ed, to assess. eld of asseramewo testing e	sess the sembly rk conc equipm manuf of met	e various  technologitions of the to che  facturing allic man	manufac ogy and a f assembly aracterise processes terials an	turing produce able to y concepts compone	evaluate a . nt properti	h regard  nd assess  ies.  machinin  mouldi	
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j	Contents Applicate assemble processes concepts  Forms of Lecture, Participate Formal: Content: Forms of Written	ir advantages by the essentia economic and a select suitable  ition-relevant by y and testing es, forming pes, measuring a  f teaching: , seminar-base tion requirement Non Non f assessment: examination of	and disadvantage al basics in the fid d organisational f e measuring and  pasics of industria g of components rocesses, separat and testing equipr  ed teaching hts: e e	ed, to assess. eld of asseramewo testing eding processing processi	sess the sembly rk conc equipm manuf of met	e various  technologitions of the to che  facturing allic man	manufac ogy and a f assembly aracterise processes terials an	turing produce able to y concepts compone	evaluate a . nt properti	h regard  nd assess  ies.  machinir mouldi	
5	Contents Applicar assembl processe concepts  Forms of Lecture, Participa Formal: Content: Forms of Written Prerequise	ir advantages ow the essential economic and a select suitable select sele	and disadvantage al basics in the fid organisational fide measuring and pasics of industrial of components of components of components of teaching equipments:  The components of teaching equipments:	ed, to assess. eld of asseramewo testing eding processing processi	sess the sembly rk conc equipm manuf of met	e various  technologitions of the to che  facturing allic man	manufac ogy and a f assembly aracterise processes terials an	turing produce able to y concepts compone	evaluate a . nt properti	h regard  nd assess  ies.  machinir mouldi	
5	Contents Applicar assembl processe concepts  Forms of Lecture, Participa Formal: Content: Forms of Written Prerequis Module	ir advantages by the essential economic and a select suitable select	and disadvantage al basics in the fid d organisational f e measuring and  pasics of industria g of components rocesses, separat and testing equipr  ed teaching ests: e e or oral examination d of credit points: pass	ed, to assess. eld of assesses testing extended made of the company of the compan	manuf of metacesses,	e various  technologitions of ent to che  acturing allic man joining	manufac ogy and a f assembly aracterise processes terials an	turing produce able to y concepts compone	evaluate a . nt properti	h regard  nd assess  ies.  machinir mouldi	
5	Contents Applica assembl processe concepts  Forms of Lecture, Participa Formal: Content: Forms of Written Prerequis Module Application	ir advantages by the essential economic and a select suitable	and disadvantage al basics in the fid d organisational f e measuring and  pasics of industria g of components rocesses, separat and testing equipments: e e or oral examination pass ale (in the following	ed, to assess. eld of assess. eld of assessessessessessessessessessessessesse	sess the sembly rk concequipm manufof metacesses,	re various re technological titions of the ent to che to c	manufac ogy and a f assembly aracterise processes terials an	turing produce able to y concepts compone	evaluate a . nt properti	nd assessies.	
14 55 77	Contents Application Application Forms of Lecture, Participa Formal: Content: Forms of Written Prerequis Module Application Mechan	ir advantages by the essentia economic and a select suitable  tion-relevant by y and testing es, forming p s, measuring a  f teaching: , seminar-base tion requiremer  Non  Non f assessment: examination of site for the awar examination of ion of the modu ical Engineeri	and disadvantage al basics in the fid d organisational f e measuring and  pasics of industria g of components rocesses, separat and testing equipments ed teaching ee e or oral examination d of credit points: pass ale (in the following ling B.Eng. and M	ed, to assess. eld of	sess the sembly rk concequipm manufof metacesses,	re various re technological titions of the ent to che to c	manufac ogy and a f assembly aracterise processes terials an	turing produce able to y concepts compone	evaluate a . nt properti	h regard  nd assess  ies.  machinir mouldi	
55	Contents Application Application Forms of Lecture, Participa Formal: Content: Forms of Written Prerequis Module Application Mechan Important	ir advantages by the essential economic and a select suitable select select select select suitable select select select suitable select s	and disadvantage al basics in the fid d organisational f e measuring and  pasics of industria g of components rocesses, separat and testing equipments: e e or oral examination pass ale (in the following	ed, to assess. eld of	sess the sembly rk concequipm manufof metacesses,	re various re technological titions of the ent to che to c	manufac ogy and a f assembly aracterise processes terials an	turing produce able to y concepts compone	evaluate a . nt properti	h regard  nd assess  ies.  machinir mouldi	
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11	Other information:
	Literature will be announced at the beginning of the course.
12	Language:
	German

Proc	cess and Inf	formation Ma	nagement						PIM		
den	tification ber:	Workload:	Credits:	Study	y semest	er:	Frequency of the offer		Duration:		
122′	7	150 h	5	3rd s	rd semester		Annual (Winter)		1 sem	1 semester	
-	Course:		Planned group s	Planned group sizes		Scope		Actual contact time / classroom teaching		Self-study	
	Lecture		60 students		2	SCH	30	h	45	h	
	Seminar l	essons	30 students		2	SCH	30	h	45	h	
	Exercise		20 students		0	SCH	0	h	0	h	
	Practical	or seminar	15 students		0	SCH	0	h	0	h	
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h	
	Learning	outcomes/com	petences:		1	1	+	-	+	-	
	_		understanding of	operatio	onal IT	systems	and appli	cations.			
	Stadents	gam a oasie	anderstanding of	орегии	Jiidi II	systems	ши прри	cations.			
	Contents:										
	After the basic concepts of computer science have been taught, procedures of information need										
	analysis	and the class	sification of info	rmation	system	ns are w	orked out	. Furthern	nore, the	followi	
		are taught:									
			mming, UML								
			ems in industrial a								
			s and information				-				
			ns and IT systems	s to supp	port ind	ustrial m	nanufactui	ring (ERP,	MES, PL	M, PDI	
	SCI	,									
		gration of IT Digital Facto									
			outlooks of the fa	actory o	f tomor	TOW/					
			outlooks of the fa	actory o	of tomor	row					
4		teaching:	outlooks of the fa	actory o	of tomor	row					
	Lecture	teaching: / Seminar		actory o	of tomor	тоw					
	Lecture /	teaching: / Seminar tion requiremen	nts:	actory o	of tomoi	TOW					
	Lecture Participat	teaching: / Seminar ion requiremer Non	nts:	actory o	of tomoi	row					
5	Participat Formal: Content:	teaching: / Seminar ion requiremer	nts:	actory o	of tomoi	TOW					
5	Participat Formal: Content: Forms of	teaching: / Seminar tion requirement Non Non assessment:	nts: e e		of tomor	TOW					
5 6	Participat Formal: Content: Forms of Written	teaching: / Seminar ion requiremen Non Non assessment: examination of	nts: le le or oral examinatio		of tomor	TOW					
5 6	Participat Formal: Content: Forms of Written of Prerequise	teaching: / Seminar ion requirement Non Non assessment: examination of the awar	nts: ne		of tomor	TOW					
5 6 7	Participat Formal: Content: Forms of Written of Prerequis Module	teaching: / Seminar ion requirement Non Non assessment: examination of the for the awar examination p	nts: ne	Dn							
5 6 7	Participat Formal: Content: Forms of Written of Prerequis Module Applicati	teaching:  / Seminar tion requirement Non Non assessment: examination of the for the awar examination of the modu	nts:  ne  ne  or oral examination  rd of credit points:  pass  ule (in the following	Dn							
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5 6 7	Participat Formal: Content: Forms of Written of Prerequis Module Application Importance	teaching:  / Seminar  ion requirement  Non  assessment: examination of the awar examination pon of the modulical Engineerice of the grade	nts:  ne  ne  or oral examination  rd of credit points:  pass  ule (in the following	on g study pa							
5 6 7 7 88	Participat Formal: Content: Forms of Written of Prerequis Module Applicati Mechani Important accordin	teaching: / Seminar ion requiremen	nts:  ne  or oral examination  rd of credit points:  pass  alle (in the following  ing B.Eng.	on g study pa							
4 5 6 7 8 9	Participat Formal: Content: Forms of Written of Prerequis Module Applicati Mechani Important accordin Module of	teaching: / Seminar ion requirement Non Non assessment: examination of the awar examination pon of the modulical Engineering to BRPO oordinator:	or oral examination of credit points: pass alle (in the following for the final grade:	on g study pa							
5 6 7 8 8	Participat Formal: Content: Forms of Written of Prerequis Module Applicati Mechani Important accordin Module of Prof. Dr.	reaching:  / Seminar  ion requirement  Non  Non  assessment: examination of the aware examination pon of the modulical Engineering to BRPO reaching to BRPO rea	or oral examination of credit points: pass alle (in the following for the final grade:	on g study pa							
5	Lecture / Participat Formal: Content: Forms of Written of Prerequise Module Applicati Mechani Important accordine Module of Prof. Dr. Other info	teaching: / Seminar ion requirement Non Non assessment: examination of the awar examination pon of the modulical Engineering to BRPO oordinator:Ing. Jürgen formation:	or oral examination of credit points: pass alle (in the following ing B.Eng. for the final grade:	on g study pr	rogramn	nes)					
5 6 7 7 88	Lecture / Participat Formal: Content: Forms of Written of Prerequise Module Applicati Mechani Important accordine Module of Prof. Dr. Other info	teaching:  / Seminar  ion requiremer  Non  assessment: examination of the awar examination pon of the modu ical Engineerice of the grade g to BRPO oordinator: -Ing. Jürgen ormation: re will be anne	or oral examination of credit points: pass alle (in the following for the final grade:	on g study pr	rogramn	nes)					

German

Qual	ity Manag	ement								QM	
	Identification Workload: number:		Credits: Stu		Study	tudy semester:		Frequency of the offer		Durat	ion:
1228	1228 150 h			5	6th se	6th semester			Annual (Summer)		nester
1	Course:		Pl	anned group siz	es	Scope	,	Actual of time / contents	assroom	Self-stu	ıdy
	Lecture		60	students		2	SCH	30	h	45	h
	Seminar l	essons	30	students		2	SCH	30	h	45	h
	Exercise		20	students		0	SCH	0	h	0	h
	Practical or seminar		15 students			0	SCH	0	h	0	h
	Supervise	d self-study	60	students		0	SCH	0	h	0	h
	Laamina	outoomos/oomr		2221		l	L			_!	

### 2 Learning outcomes/competences:

#### Students:

- can define the basic terms of quality theory.
- can explain the basics of setting up a quality management system.
- can implement standard requirements for a quality management system in a familiar field of
  work by identifying requirements, formulating objectives and describing processes on the basis
  of the defined terms and principles of quality management.
- can apply basic methods from the sub-disciplines of statistics, methodical work, quality and economic efficiency.
- can classify the industrial application of quality methods and techniques in the product development process.
- are proficient in the essential quality methods and techniques, such as FMEA, QFD, Poka Yoke, SPC, inspection planning.
- can apply the above-mentioned quality methods and techniques in the relevant stages of the product creation process.
- can systematically determine, eliminate and avoid causes of defects by selecting and applying the methods for data collection, data analysis and cause determination that are suitable for the application purpose in order to later solve quality problems reactively and preventively.
- can assess the role of quality management in development, procurement and production.
- are able to analyse significant influencing variables and risks with regard to the quality level of a production.
- are able to evaluate and analyse quality data from production and derive measures for optimising the production process.
- can deduce the legal aspects of warranty and product liability.

#### 3 Contents:

The students learn the basic principles of classical quality theory and quality management. Furthermore, the basics of the product development process and the quality management methods used in the series preparation, procurement, production/quality testing and field application phases are taught.

## 4 Forms of teaching:

Lecture, seminar-based teaching, supplemented by workshops, project

	work, company	visits, guest lectures
5	Participation requ	irements:
	Formal:	None
	Content:	None
6	Forms of assessm	ent:
	Term paper, wri	tten exam, combination exam, project work or oral exam
7	Prerequisite for th	e award of credit points:
	Module examin	ation pass
8	Application of the	e module (in the following study programmes)
	Mechanical Eng	rineering B.Eng.
9	Importance of the	grade for the final grade:
	according to BR	PO PO
10	Module coordinat	or:
	Prof. DrIng. M	Iagnus Horstmann
11	Other information	1:
	Literature will b	be announced at the beginning of the course.
12	Language:	
	German	

Stat	ics									STK	
Iden num 124		Workload:		Credits:		semester		Frequency of the offer Annual (Winter)		Duration:  1 semester	
1	Course:		Pl	Planned group sizes		Scope		Actual contact time / classroom		Self-study	
	Lecture		60	) students		2	SCH	teaching 30	h h	45	h
	-	Seminar lessons		students		2	SCH	30	h	45	h
	Exercise		20	students		0	SCH	0	h	0	h
	Practical of	or seminar	15	15 students		0	SCH	0	h	0	h
	Supervise	d self-study	60	students		0	SCH	0	h	0	h
3	mechanic	cally loaded or ring structure	comp	of mechanical onents and acc h the aim of de	quire a	n under	standin	g of the st	ructure of s	statically o	letermine
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10	I Prof Dr	-Ing. Paul Di	ekma	ann							
					11 Other information:						
10	Other info	ormation:	Olina		ning o	of the co	nurca				
	Other info	ormation: e will be ann	ounc	ed at the begir	nning o	of the co	ourse.				

	trol Techno	ology							RT		
Iden num	tification ber:	Workload:	Credits:	Study	y semest	er:	Frequency	of the	Durati	Duration:	
1250		150 h	5 5th s		semeste	r	Annual (Winter)		1 sem	1 semester	
1	Course:		Planned group s	sizes	Scope		Actual contact time / classroom teaching		Self-stu	dy	
	Lecture		60 students		2 SCH		30 h		45	h	
	Seminar l	lessons	30 students		2	SCH	30	h	45	h	
	Exercise		20 students		0	SCH	0	h	0	h	
	Practical	or seminar	15 students		0	SCH	0	h	0	h	
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h	
2	Learning	outcomes/comp	petences:			1	1	1	1		
	selection control/r	of a suitable regulation in th	es. They can ap e control strategy ne time or image g/programming of	y. In add	dition, i	it is poss domain.	sible for th Furthermo	em to sy	stematical	lly design	
3	Contents:										
	Contents:  - Introduction (definitions, standard - Binary controls (logic circuits, wo - Continuous transfer systems (class linearisation) - Description and analysis of LTI sy frequency response diagrams, stab - Design of single-loop control loop domain, design based on the frequency										
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number: 1253 150 h 5 4th or 6th semester Offer Annual (Summer) 1 se		ai aiia L	Design Develo	opment						SBU		
Course:    Planned group sizes   Scope   Actual contact time / classroom teaching		ation	Workload:	Credits:	Study	semest	er:	offer	y of the	Duratio	on:	
Lecture 60 students 2 SCH 30 h 45  Seminar lessons 30 students 1 SCH 15 h 22.5  Exercise 20 students 0 SCH 0 h 0  Practical or seminar 15 students 1 SCH 15 h 22.5  Supervised self-study 60 students 0 SCH 0 h 0  Learning outcomes/competences:  Students learn how to design and optimise machine components and functional assemblies accordance with their function and strength  Contents:  Use creative methods to develop technical solutions, design and sketch principle solutions modelling kinematic movement sequences, component design suitable for production, taki account material, shape and manufacturing restrictions.  Optimisation using simulation techniques  4 Forms of teaching:  Lecture, seminar in small groups, practical course  Participation requirements:  Formal: None  Content: Strength of Materials (1091) and Finite Elements 1 (1093)  Forms of assessment:  Written examination or oral examination  Prerequisite for the award of credit points:  Module examination pass  Application of the module (in the following study programmes)  Mechanical Engineering B.Eng.  Importance of the grade for the final grade: according to BRPO  Module coordinator: Prof. DrIng. Paul Diekmann  11 Other information:	;		150 h	5 4th		or 6th se	emester		r)	1 semester		
Seminar lessons   30 students   1   SCH   15   h   22.5     Exercise   20 students   0   SCH   0   h   0     Practical or seminar   15 students   1   SCH   15   h   22.5     Supervised self-study   60 students   0   SCH   0   h   0     Learning outcomes/competences:     Students learn how to design and optimise machine components and functional assemblies accordance with their function and strength     Contents:   Use creative methods to develop technical solutions, design and sketch principle solutions modelling kinematic movement sequences, component design suitable for production, taking account material, shape and manufacturing restrictions.     Optimisation using simulation techniques	Course:			Planned group s	sizes	-		time / classroom		Self-study		
Exercise 20 students 0 SCH 0 h 0 Practical or seminar 15 students 1 SCH 15 h 22.5 Supervised self-study 60 students 0 SCH 0 h 0  Learning outcomes/competences: Students learn how to design and optimise machine components and functional assemblies accordance with their function and strength  Contents: Use creative methods to develop technical solutions, design and sketch principle solutions modelling kinematic movement sequences, component design suitable for production, taki account material, shape and manufacturing restrictions.  Optimisation using simulation techniques  Forms of teaching: Lecture, seminar in small groups, practical course  Participation requirements: Formal: None Content: Strength of Materials (1091) and Finite Elements 1 (1093)  Forms of assessment: Written examination or oral examination Prerequisite for the award of credit points: Module examination pass Application of the module (in the following study programmes) Mechanical Engineering B.Eng. Importance of the grade for the final grade: according to BRPO Module coordinator: Prof. DrIng. Paul Diekmann Other information:				60 students		2	SCH	30	h	45	h	
Practical or seminar 15 students 1 SCH 15 h 22.5  Supervised self-study 60 students 0 SCH 0 h 0  Learning outcomes/competences:  Students learn how to design and optimise machine components and functional assemblies accordance with their function and strength  Contents:  Use creative methods to develop technical solutions, design and sketch principle solutions modelling kinematic movement sequences, component design suitable for production, taki account material, shape and manufacturing restrictions.  Optimisation using simulation techniques  Forms of teaching:  Lecture, seminar in small groups, practical course  Participation requirements:  Formal: None  Content: Strength of Materials (1091) and Finite Elements 1 (1093)  Forms of assessment:  Written examination or oral examination  Prerequisite for the award of credit points:  Module examination pass  Application of the module (in the following study programmes)  Mechanical Engineering B.Eng.  Importance of the grade for the final grade: according to BRPO  Module coordinator: Prof. DrIng. Paul Diekmann  Other information:	S	eminar le	essons	30 students		1		15	h	22.5	h	
Supervised self-study 60 students 0 SCH 0 h 0  Learning outcomes/competences: Students learn how to design and optimise machine components and functional assemblies accordance with their function and strength  Contents: Use creative methods to develop technical solutions, design and sketch principle solutions modelling kinematic movement sequences, component design suitable for production, taking account material, shape and manufacturing restrictions.  Optimisation using simulation techniques  Forms of teaching: Lecture, seminar in small groups, practical course  Participation requirements: Formal: None Content: Strength of Materials (1091) and Finite Elements 1 (1093)  Forms of assessment: Written examination or oral examination  Prerequisite for the award of credit points: Module examination pass Application of the module (in the following study programmes) Mechanical Engineering B.Eng. Importance of the grade for the final grade: according to BRPO Module coordinator: Prof. DrIng. Paul Diekmann Other information:	Е	xercise				0		0	h		h	
Learning outcomes/competences: Students learn how to design and optimise machine components and functional assemblies accordance with their function and strength  Contents: Use creative methods to develop technical solutions, design and sketch principle solutions modelling kinematic movement sequences, component design suitable for production, taking account material, shape and manufacturing restrictions.  Optimisation using simulation techniques  Forms of teaching: Lecture, seminar in small groups, practical course  Participation requirements: Formal: None Content: Strength of Materials (1091) and Finite Elements 1 (1093)  Forms of assessment: Written examination or oral examination  Prerequisite for the award of credit points: Module examination pass Application of the module (in the following study programmes) Mechanical Engineering B.Eng. Importance of the grade for the final grade: according to BRPO  Module coordinator: Prof. DrIng. Paul Diekmann  Other information:	P	ractical c	or seminar	15 students		1	SCH	15	h	22.5	h	
Students learn how to design and optimise machine components and functional assemblies accordance with their function and strength  Contents: Use creative methods to develop technical solutions, design and sketch principle solutions modelling kinematic movement sequences, component design suitable for production, taking account material, shape and manufacturing restrictions.  Optimisation using simulation techniques  Forms of teaching: Lecture, seminar in small groups, practical course  Participation requirements: Formal: None Content: Strength of Materials (1091) and Finite Elements 1 (1093)  Forms of assessment: Written examination or oral examination  Prerequisite for the award of credit points: Module examination pass  Application of the module (in the following study programmes) Mechanical Engineering B.Eng.  Importance of the grade for the final grade: according to BRPO  Module coordinator: Prof. DrIng. Paul Diekmann  Other information:	S	upervised	d self-study	60 students		0	SCH	0	h	0	h	
Contents: Use creative methods to develop technical solutions, design and sketch principle solutions modelling kinematic movement sequences, component design suitable for production, taking account material, shape and manufacturing restrictions.  Optimisation using simulation techniques  4 Forms of teaching: Lecture, seminar in small groups, practical course  Participation requirements: Formal: None Content: Strength of Materials (1091) and Finite Elements 1 (1093)  Forms of assessment: Written examination or oral examination  Prerequisite for the award of credit points: Module examination pass  Application of the module (in the following study programmes) Mechanical Engineering B.Eng.  Importance of the grade for the final grade: according to BRPO  Module coordinator: Prof. DrIng. Paul Diekmann  Other information:	S	tudents	learn how to	design and optim		hine co	mponen	its and fur	ectional as	semblies in	1	
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Participation requirements: Formal: None Content: Strength of Materials (1091) and Finite Elements 1 (1093)  Forms of assessment: Written examination or oral examination  Prerequisite for the award of credit points: Module examination pass  Application of the module (in the following study programmes) Mechanical Engineering B.Eng.  Importance of the grade for the final grade: according to BRPO  Module coordinator: Prof. DrIng. Paul Diekmann  Other information:	F	orms of t										
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Content: Strength of Materials (1091) and Finite Elements 1 (1093)  Forms of assessment: Written examination or oral examination  Prerequisite for the award of credit points: Module examination pass  Application of the module (in the following study programmes) Mechanical Engineering B.Eng.  Importance of the grade for the final grade: according to BRPO  Module coordinator: Prof. DrIng. Paul Diekmann  Other information:	L	ecture,	seminar in sm		tical cou	rse						
Forms of assessment: Written examination or oral examination Prerequisite for the award of credit points: Module examination pass Application of the module (in the following study programmes) Mechanical Engineering B.Eng. Importance of the grade for the final grade: according to BRPO Module coordinator: Prof. DrIng. Paul Diekmann Other information:	P	ecture, s articipati	seminar in sm on requiremen	ts:	tical cou	rse						
Written examination or oral examination Prerequisite for the award of credit points: Module examination pass Application of the module (in the following study programmes) Mechanical Engineering B.Eng. Importance of the grade for the final grade: according to BRPO Module coordinator: Prof. DrIng. Paul Diekmann Other information:	L Pa	ecture, s articipati ormal:	seminar in sm on requiremen None	ts:			ite Flen	nents 1 (10	093)			
Module examination pass  Application of the module (in the following study programmes)  Mechanical Engineering B.Eng.  Importance of the grade for the final grade: according to BRPO  Module coordinator: Prof. DrIng. Paul Diekmann  Other information:	Pa Fe	ecture, s articipati ormal: ontent:	seminar in smoon requirement None Stren	ts:			ite Elem	nents 1 (10	093)			
Application of the module (in the following study programmes) Mechanical Engineering B.Eng.  Importance of the grade for the final grade: according to BRPO  Module coordinator: Prof. DrIng. Paul Diekmann  Other information:	Po Fo	articipati ormal: content:	seminar in smoon requirement None Stren	ts: e agth of Materials	(1091)		ite Elen	nents 1 (10	)93)			
Mechanical Engineering B.Eng.  Importance of the grade for the final grade: according to BRPO  Module coordinator: Prof. DrIng. Paul Diekmann  Other information:	Property of the Property of th	articipati ormal: content: orms of a Vritten e	seminar in smoon requirement None Stremassessment: examination of the for the award	ts: e e e e e e e e e e e e e e e e e e e	(1091)		ite Elen	nents 1 (10	093)			
Importance of the grade for the final grade: according to BRPO  Module coordinator: Prof. DrIng. Paul Diekmann  Other information:	L Po C Fo W Po M	ecture, sarticipationmal: content: corms of avritten erequisi	seminar in smoon requirement None Stremussessment:  xamination of the for the award examination p	ts: egh of Materials r oral examination d of credit points: ass	(1091) on	and Fin		nents 1 (10	093)			
according to BRPO  Module coordinator: Prof. DrIng. Paul Diekmann  Other information:	L Pa	ecture, sarticipationmal: content: corms of a Vritten e rerequisi Module e	seminar in smoon requirement  None Strent assessment: examination of the for the award examination pon of the module	ts:  egh of Materials  r oral examination d of credit points: ass e (in the following	(1091) on	and Fin		nents 1 (10	)93)			
10 Module coordinator: Prof. DrIng. Paul Diekmann  Other information:	Property of the control of the contr	ecture, sarticipationmal: content: corms of a Vritten e rerequisi Module e application Mechanica	seminar in smoon requirement  None Strent assessment: examination of the for the award examination profit the modulical Engineering	ts: e e e e e e e e e f e e e e e e e e e	(1091) on g study pr	and Fin		nents 1 (1 <b>0</b>	093)			
Prof. DrIng. Paul Diekmann  Other information:	E Properties of the second sec	ecture, se articipation ormal: content: corms of a Vritten e rerequisi Module e application dechanica portance	seminar in smoon requirement  None Strent assessment: examination of the for the award examination profit the modulical Engineering of the grade in	ts: e e e e e e e e e f e e e e e e e e e	(1091) on g study pr	and Fin		nents 1 (10	093)			
Other information:	L Professional Pro	ecture, sarticipation ormal: content: corms of a Vritten experience of the content of the content of the content of the cordinal or cordinal ormal or cordinal ormal or cordinal ormal or cordinal ormal ormal ormal or cordinal ormal ormal ormal ormal ormal or cordinal ormal orm	Seminar in smoon requirement None Strent Str	ts: e e e e e e e e e f e e e e e e e e e	(1091) on g study pr	and Fin		nents 1 (10	093)			
Literature will be announced at the beginning of the course.	E L Properties of the second s	ecture, sarticipationmal: content: corms of a Vritten erequisite Module explication dechanic eccording fodule conding	seminar in smoon requirement None Strent Str	ts: e e e e e e e e e e e e e e e e e e e	(1091) on g study pr	and Fin		nents 1 (10	093)			
	LL PROFESSION OF THE PROFESSIO	ecture, sarticipation ormal: content: corms of a Vritten e rerequisi Module explication formation ording fodule coroccording fodule corof. Dr	seminar in smoon requirement None Strength Stren	ts: e e e e e e e e e e e e e e e e e e e	(1091) on g study pr	and Fin	nes)	nents 1 (10	093)			
12 Language: German	LL Professional Pr	ecture, sarticipation ormal: content: corms of a Vritten e rerequisi Module ecoplication portance coording fodule corting fodule corting the rinfo iterature	seminar in smoon requirement  None Strength  S	ts: e e e e e e e e e e e e e e e e e e e	(1091) on g study pr	and Fin	nes)	nents 1 (10	093)			

Flui	d Machine	ry							STMA	A
Iden	tification	Workload:	Credits:	Study	y semest	ter:	Frequenc	ey of the	Duration:	
113		150 h	5 4t		th or 6th semester				1 sem	ester
1 Course:			Planned group s	izes	Scope		time / c	contact classroom	Self-stu	dy
	Lecture		60 students		2 SCH		teaching 30 h		45	h
	Seminar l	lessons	30 students		1	SCH	15	h	22.5	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		1	SCH	15	h	22.5	h
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h
2	_	outcomes/competer				1				
	Systema The fluid machine founded Independ Commun	tic competence d and thermodes s are to be recommended own judgement dently recogni- nicative complents are able	lynamic as well a cognised with cerents are derived. ise the interface p	s mecha tainty, a	anical e are desc s or the	ngineeringineeringingingingingingingingingingingingingi	ng proble valuated a ion of the	ems occurri and solved discipline	and from t	his, well
3	thermal : Laws of energy b Design a Rotor, h pumps/v Operatin Profile d for a pip Plant cha diagram Theory of	w, turbomachiflow machine similarity, flow alances and construction ousing, bearing tentilators are behaviour a design of pumple network systematic cutof nozzle and of formachine the systematic cutof nozzle and of flow machine the systematic cutoff nozzle and of flow machine similarity, flow machine the systematic cutoff nozzle and of flow machine similarity, flow machine similarity	ps, turbines and c tem rve – Bernoulli's	orners, channel, lindustri oration b ompress	al fans behavio	of reaction guide van our, differ lection of	on, Euler's nes, hydro rence bety f pumps/	s turbine modynamic is ween axial blowers	and radial	itation,
4		teaching:	d teaching and p	actical a	COllege					
4	Lecture,		d teaching and pr	ractical	course					

	Content:	Modules:					
		1048 Dynamics;					
		1087 Physics;					
		1152 Mathematics 2;					
		1158 Mathematics 3;					
		1267 Thermodynamics 1					
6	Forms of assessm	ent:					
	Written examina	ation					
7	Prerequisite for th	ne award of credit points:					
	Module examin	ation pass					
8	Application of the	e module (in the following study programmes)					
	Mechanical Eng	gineering B.Eng.					
9	Importance of the	grade for the final grade:					
	according to BR	RPO					
10	Module coordinat	or:					
	Prof. DrIng. Ji	irgen Hermeler					
11	Other information	1:					
	Literature will b	be announced at the beginning of the course.					
12	Language:						
	German						

Flui	d Mechanio	cs							SM	
Iden num	tification ber:	Workload:	Credits:	Study	semest	er:	Frequenc offer	y of the	Duratio	on:
125	2	150 h	5	4th s	emeste	r	Annual (Summer)		1 seme	ester
1	Course:	1	Planned group siz	zes	Scope		Actual contact time / classroom teaching		Self-stud	ly
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar l	lessons	30 students		2	SCH	30	h	45	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		0	SCH	0	h	0	h
		ed self-study	60 students		0	SCH	0	h	0	h
2	The stud		petences:  basic concepts of from the field of r					are able to	analyse ar	nd solve
	Contents:  Basic feature: Concept of fluid, particle and continuum model, mass density, compressibility and coefficient of expansion, surface tension.  Statics: Hydro- and aerostatics.  Dynamics: Velocity field, trajectory and streamlines, mass and volume flow, mass f and Poiseuille flow, substantial derivative, Navier-Stokes equation, continuity e law, Hagen-Poiseuille's law, rotating fluids, flow around bodies.									
	Statics: I Dynamic and Pois	sibility and co Hydro- and ae cs: Velocity fic seuille flow, s	efficient of expan rostatics. eld, trajectory and substantial derivat	stream	ırface t lines, m avier-S	ension. nass and tokes ec	volume fl quation, c	ow, mass i	flow densit	y, Couett
4	compres Statics: I Dynamic and Pois law, Hag	sibility and co Hydro- and ae cs: Velocity fic seuille flow, s gen-Poiseuille	efficient of expan rostatics. eld, trajectory and substantial derivat	stream	ırface t lines, m avier-S	ension. nass and tokes ec	volume fl quation, c	ow, mass i	flow densit	y, Couett
4	compres Statics: I Dynamic and Pois law, Hag	sibility and co Hydro- and ae cs: Velocity fice seuille flow, s gen-Poiseuille	efficient of expan rostatics. eld, trajectory and substantial derivat	stream	ırface t lines, m avier-S	ension. nass and tokes ec	volume fl quation, c	ow, mass i	flow densit	y, Couetto
4	compres Statics: I Dynamic and Pois law, Hag Forms of Lecture,	sibility and co Hydro- and ae cs: Velocity fice seuille flow, s gen-Poiseuille' teaching: seminar	efficient of expan rostatics. eld, trajectory and substantial derivat is law, rotating flu	stream	ırface t lines, m avier-S	ension. nass and tokes ec	volume fl quation, c	ow, mass i	flow densit	y, Couett
	compres Statics: I Dynamic and Pois law, Hag Forms of Lecture,	sibility and co Hydro- and ae cs: Velocity fice seuille flow, s gen-Poiseuille	refficient of expan rostatics. eld, trajectory and substantial derivat s law, rotating flu	stream	ırface t lines, m avier-S	ension. nass and tokes ec	volume fl quation, c	ow, mass i	flow densit	y, Couett
	compres Statics: I Dynamic and Pois law, Hag  Forms of Lecture, Participat	sibility and control of the second of the se	refficient of expan rostatics. eld, trajectory and substantial derivat s law, rotating flu	stream stream sive, Na ids, flo	lines, mavier-S w arou	ension.  nass and tokes econd bodie	volume fl quation, c es.	ow, mass tontinuity	flow densit equation, 1	y, Couett Bernoulli'
	Forms of Lecture, Participat Forms of Forms of Forms of Lecture, Participat Formal:	sibility and co Hydro- and ae cs: Velocity fice seuille flow, s gen-Poiseuille  teaching: seminar tion requiremen None Cont assessment:	refficient of expan rostatics. eld, trajectory and substantial derivat is law, rotating flu	stream stream sive, Na ids, flo	lines, mavier-S w arou	ension.  nass and tokes econd bodie	volume fl quation, c es.	ow, mass tontinuity	flow densit equation, 1	y, Couett Bernoulli'
5	Forms of Lecture, Participat Forms of Written of Prerequis	sibility and co Hydro- and ae es: Velocity fie seuille flow, s gen-Poiseuille  teaching: seminar tion requiremen	refficient of expan rostatics. eld, trajectory and substantial derivates law, rotating flutts: element of the lectures	stream stream sive, Na ids, flo	lines, mavier-S w arou	ension.  nass and tokes econd bodie	volume fl quation, c es.	ow, mass tontinuity	flow densit equation, 1	y, Couett Bernoulli'
5	Forms of Lecture, Participat Formal: Content:  Forms of Myritten of Written of Module	sibility and co Hydro- and ae cs: Velocity fie seuille flow, s gen-Poiseuille  teaching: seminar tion requiremen	refficient of expan rostatics. eld, trajectory and substantial derivates law, rotating flutts: element of the lectures do for credit points:	streamive, Naids, flo	urface t lines, m avier-S w arous	ension.  nass and tokes equal	volume fl quation, c es.	ow, mass tontinuity	flow densit equation, 1	y, Couett Bernoulli'
5	Forms of Lecture, Participat Formal: Content: Forms of Written of Prerequis Module Application	sibility and co Hydro- and ae cs: Velocity fice seuille flow, securities teaching: seminar tion requiremen None Cont assessment: examination ite for the aware examination pon of the modul	refficient of expan rostatics. eld, trajectory and substantial derivates law, rotating flutts: eld of credit points:	streamive, Naids, flo	urface t lines, m avier-S w arous	ension.  nass and tokes equal	volume fl quation, c es.	ow, mass tontinuity	flow densit equation, 1	y, Couett Bernoulli'
5 6 7 8	Forms of Lecture, Participat Formal: Content: Forms of Written of Prerequis Module of Applications.	sibility and co Hydro- and ae cs: Velocity fice seuille flow, securities teaching: seminar tion requiremen None Cont assessment: examination tite for the aware examination p on of the modulical Engineerin	refficient of expansion rostatics. The restatics and the restation of the lectures restation of the lectures restation of the lectures restation of the following and B.Eng.	streamive, Naids, flo	urface t lines, m avier-S w arous	ension.  nass and tokes equal	volume fl quation, c es.	ow, mass tontinuity	flow densit equation, 1	y, Couett Bernoulli'
5 6 7	Forms of Lecture, Participat Formal: Content: Forms of Written of Written of Application Mechani Important according	sibility and co Hydro- and ae cs: Velocity fic seuille flow, s gen-Poiseuille  teaching: seminar tion requiremen	refficient of expan rostatics. eld, trajectory and substantial derivates law, rotating flutts: eld of credit points:	streamive, Naids, flo	urface t lines, m avier-S w arous	ension.  nass and tokes equal	volume fl quation, c es.	ow, mass tontinuity	flow densit equation, 1	y, Couett Bernoulli'
5 6 7 8	Forms of Lecture, Participat Formal: Content: Forms of Written of Written of Application Mechanial accordin Module of Contents	sibility and co Hydro- and ae es: Velocity fie seuille flow, s gen-Poiseuille  teaching: seminar tion requiremen	ts: ent of the lectures d of credit points: eass le (in the following sing B.Eng. for the final grade:	streamive, Naids, flo	urface t lines, m avier-S w arous	ension.  nass and tokes equal	volume fl quation, c es.	ow, mass tontinuity	flow densit equation, 1	y, Couett Bernoulli'
5 6 7 8	Forms of Lecture, Participat Formal: Content: Forms of Written of Prerequis Module of Application Module of Prof. Dr. Other info	sibility and co Hydro- and ae cs: Velocity fie seuille flow, s gen-Poiseuille  teaching: seminar tion requiremen	ts: ent of the lectures d of credit points: eass le (in the following sing B.Eng. for the final grade:	stream: ive, Na ids, flo	ines, mavier-S w arous	and tokes ed and bodie of the second bodie of	volume fl quation, c es.	ow, mass tontinuity	flow densit equation, 1	y, Couett Bernoulli'
5 6 7 8 9	Forms of Lecture, Participat Formal: Content: Forms of Written of Prerequis Module of Application Module of Prof. Dr. Other info	sibility and control of the modulical Engineering to BRPO coordinator:  re will be annoted the solution of the modulical Engineering to BRPO coordinator:  re will be annoted the solution of the modulical Engineering to BRPO coordinator:  re will be annoted the solution of the modulical Engineering to BRPO coordinator:  re will be annoted the solution of the modulical Engineering to BRPO coordinator:  re will be annoted the solution of the modulical Engineering the solution of the solution	ts: ent of the lectures d of credit points: eass le (in the following sing B.Eng. for the final grade:	stream: ive, Na ids, flo	ines, mavier-S w arous	and tokes ed and bodie of the second bodie of	volume fl quation, c es.	ow, mass tontinuity	flow densit equation, 1	y, Couett Bernoulli

Syst	em and M	easurement To	echnology						SUM	
Ident numl	rification per:	Workload:	Credits:	Stud	y semest	er:	Frequency of the offer		Duration:	
1255	5	150 h	5 4th s		semester		Annual (Summer)		1 semester	
1	Course:	1	Planned group s	l group sizes Scope		Actual contact time / classroom teaching		Self-study		
	Lecture		60 students		2	SCH	30	h	45	h
	Seminar	lessons	30 students		1	SCH	15	h	22.5	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		1	SCH	15	h	22.5	h
	Supervis	pervised self-study 60 students			0	SCH	0	h	0	h
	measure if necess and whi	ed system resp sary. They also ch display dev	alculate the beha onses. They can e o know how phys vices are available s of mechanical e	valuate ical mea e and ho	measur asureme ow they	ement en ent signa are oper	rrors and c ls are conv ated. They	arry out co erted, pro also knov	orrection ca cessed and w the most	alculation evaluate
	- Bas Lap free - Me - Con mu - Me	sics of system blace transform quency responsasurement err imponents of ( ltimeters, osci- asuring metho	ors (causes, type analogue) measu	analysis ation of s of erroring cha	(difference characters) ors, normalins (transitions)	ential eq eristic van mal distr nsducer ges, for t	uations an alues by n ibution, en elements,	d their sol neans of st ror propag bridge and	ep respons gation) l amplifier	se,
4		teaching:	,							
			sed teaching and 1	oractica	l course	<u> </u>				
5		tion requiremen								
	Formal: Content:	Non Mat	hematics (differe	ntial eq	uations,	comple	x numbers	s). Physics	(electricit	y)
6		assessment:	or oral examination	on						
7	Prerequis	site for the awar	rd of credit points: pass and course a		ant .					
8	Applicati		ile (in the following			nes)				
9	Importan	ce of the grade	for the final grade:							
10	Module o	oordinator:	Dommo ols							
	Prof. DrIng. Klaus Panreck Other information: Literature will be announced at the beginning									
11		ormation:		ginning	of the co	ourse.				

Diu	actics of Te	echnolog	y							EDU/	TD	
Iden num	tification ber:	Worklo	oad:	Credits:	Study	semest	er:	Frequency	of the	Duratio	Duration:	
131	2	150 h		5	6th s	6th semester			Annual (Summer)		1 semester	
1	Course:		P	Planned group sizes		Scope		Actual contact time / classroom teaching		Self-stud	dy	
	Lecture		6	60 students		0	SCH	0	h	0	h	
	Seminar lessons			30 students		4	SCH	60	h	90	h	
	Exercise			0 students		0	SCH	0	h	0	h	
								_				
		or semina		5 students		0	SCH	0	h	0	h	
	Supervised self-study			0 students		0	SCH	0	h	0	h	
2	Learning	outcomes	/competer	nces:								
3	- pl - sy ar - in in - pl - st - se  Contents: - E - D ar - T	an, preparete and target acorporate to the did an, imple ructure select suitand ducation aidactic period electric heories, roblem-se	are, imploe the met group, e the spe dactic community and object comble form and objection inciples cal engine models, olving str	d subsequent in a lea as of examina ves and stand of the vocation deering occup methods and rategies in act	aluate le lia speci features ly reflec rning-artion and lards, fra onal fiel ations) l media tivity-ori	ssons, fic to test of me so of me so of me to a test on a test or a test of so	eaching, echanica eaching nted ma the selection rk curric study (e.	select and l engineer sequence, nner and traction.  cula and tra g. learning	use them a	t didactica	gineerin	
				tion, presenta	tion and	learnii	ng techn	iques.				
		teaching:										
4			omonto									
	Seminar	.:										
5	Participat	tion requir	cilicits.									
	Participat Formal:	tion requir	cincits.									
5	Participat Formal: Content:											
	Participat Formal: Content: Forms of	assessme										
5 6	Participat Formal: Content: Forms of Perform	assessme ance test	nt:	credit nointe								
5	Participat Formal: Content: Forms of Perform. Prerequise	assessme ance test	nt: award of	credit points:								
5 6 7	Participat Formal: Content: Forms of Perform Prerequis Module	assessme ance test ite for the examinat	nt: award of tion pass	_	r childy so	Ograme	nes					
5 6	Participat Formal: Content: Forms of Perform Prerequis Module Applicati	assessme ance test ite for the examination of the	nt: award of tion pass module (i	n the following		-		Eng				
5 6 7 8	Participat Formal: Content: Forms of Perform Prerequis Module Applicati Electrica	assessme ance test ite for the examination of the	nt: award of tion pass module (i	n the following Eng. and Mec	hanical	-		.Eng.				
5 6 7	Participal Formal: Content: Forms of Perform Prerequis Module Applicati Electrica Importan	assessme ance test ite for the examinar on of the all Engine ce of the §	nt: award of tion pass module (i ering B.I	n the following	hanical	-		.Eng.				
5 6 7 8 8	Participal Formal: Content: Forms of Perform Prerequis Module Applicati Electrica Importan accordin	assessme ance test ite for the examinar on of the fall Engine ce of the gray to BRI	nt: award of tion pass module (i ering B.l grade for t	n the following Eng. and Mec	hanical	-		Eng.				
5 6 7 8	Participat Formal: Content: Forms of Perform Prerequis Module Applicati Electrica Importan accordin Module of	assessme ance test ite for the examinar on of the all Engine ce of the §	nt: award of tion pass module (i ering B.I grade for t	n the following Eng. and Med he final grade:	hanical	-		.Eng.				

12	Language:
	German

Tech	nnical Engl	lish							TE	
Ident	ification per:	Workload:	Credits:	Study	semes	ter:	Frequency	y of the	Duratio	on:
1262		150 h	5	4th s	emeste	r	Annual (Summe	r)	1 seme	ester
1	Course:	1	Planned group s	sizes	Scop	e	Actual of time / contents	lassroom	Self-stud	ly
	Lecture		60 students		0	SCH	0	h	0	h
	Seminar	lessons	30 students		4	SCH	60	h	90	h
	Exercise		20 students		0	SCH	0	h	0	h
	Practical	or seminar	15 students		0	SCH	0	h	0	h
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h
3	con con situ and Soc pres Me ana Contents: The and mai trar The gra Forms of Seminar	appetence. The textually relevant ations. They ations. They are writing. It is a competent sentations, teathodological allysis of technical estudents can be students can be shapes; manufacturing a semission). By possess interphs, charts and teaching:	Students demons by possess a sor yant grammar. The formulate issues are: They try of the formulate issues are: They try of the formulate issues are the formulate issues are the formulate is and for describe relevant for the formulation and automation; or disciplinary skill diagrams, writing / individual and ent)	und bas ney comi confide  out and ect work ey use to solving  t engine of the tec rations; energy  lls (prese ng repor	consociated and the consoc	abulary te sponta early an didate of strateg tual task iscipline topic (e. and r electric	of Techn aneously and in detail communications for constant and properties.	ical Engli nd fluently I in Englis ative key ntent acqu its in engir as; proper stics; dat	sh and my in engine sh both in skills in hisition and heering; direction of raprocess	aster the sering job speaking English d critical mensions materials; sing and
5	Participat Formal: Content:	None None	e							
6	Forms of	assessment:	-							
7	Prerequis	ite for the awar	rd of credit points: ctive participation	n nacco	d sema	eter proj	ect and w	itten even	1	
8	Applicati	on of the modu	le (in the following				cci and wi	men exall	1	
9	Importan		ng B.Eng. for the final grade:							
10		g to BRPO coordinator:								
		ornelia Biegle	r-König							
11		re will be anno	ounced at the beg	ginning o	of the c	ourse. T	extbook, a	dditional		
12	Language		•							

denti												
numb	fication er:	Workload:	Credits:	Stuc	ly semes	ter:	Frequenc offer	y of the	Duration	on:		
1265		150 h	5	1st	semeste	r	Annual (Winter)	)	1 sem	ester		
1	Course:		Planned group s	sizes	Scop	e		contact classroom	Self-stu	dy		
	Lecture		60 students		2	SCH	30	h	45	h		
	Seminar le	essons	30 students		1	SCH	15	h	22.5	h		
	Exercise		20 students	20 students		SCH	15	h	22.5	h		
		or seminar	15 students		0	SCH	0	h	0	h		
	Cunamica	d self-study	60 students			SCH	0	h		h		
	Supervise	a sen-study	60 students		0	SCH	0	n	0	n		
2	Learning	outcomes/com	petences:				*	· ·	*	-		
	Systemat Create co machine Commun Present for	nirements.  tic competence  omplex designates  elements  nicative compound construction	ns independently	and in	a team,	select ar	nd dimens	ion the req	uired	eet the		
3	Contents:											
	- Principles of geometry											
	<ul><li>Technical drawing</li><li>Standardisation</li></ul>											
	- Representation of complete constructions in assembly drawings											
	<ul> <li>Representation of workpieces in individual part drawings</li> <li>Fundamentals of component modelling</li> </ul>											
		mentals of co	-	ng								
	- Elastic		iui Ci ID									
	- Screws	8										
1	Forms of	-	i.									
5		seminar, exer										
,	Formal:	Non										
	Content:	Non	e									
5		assessment:						_				
			nation; in each ca	se with	prelim	inary exa	amination	performar	ice			
7		to for 11	d of credit points:									

	Mechanical Engineering B.Eng.
9	Importance of the grade for the final grade:
	according to BRPO
10	Module coordinator:
	Prof. DrIng. Inge Wickenkamp
11	Other information:
	Literature will be announced at the beginning of the course.
12	Language:
	German

Ther	rmodynami	cs 1								TD1	
Ident	ification per:	Workload:		Credits:	Study	semest	er:	Frequenc	y of the	Duratio	on:
1267		150 h		5	2nd, seme	4th or o	6th	Annual (Summe	r)	1 Sen	nester
1	Course:	I	Pla	anned group siz	es	Scope	e	Actual of time / conteaching	lassroom	Self-stud	dy
	Lecture		60	students		2	SCH	30	h	45	h
	Seminar l	essons		30 students		2	SCH	30	h	45	h
	Exercise		20	students		0	SCH	0	h	0	h
		or seminar	-	students		0	SCH	0	h	0	h
	Supervise	d self-study	60	students		0	SCH	0	h	0	h
2	Learning	outcomes/comp	eten	ces:			1				
3	Contents:  - Basicalo - 1st l - Ideachar - 2nd - Circand - Reachar	situations.  sicative compose a communicative a communication of the second of the sec	o receitence etenocative and with blessedyna et al. Te de codyna e	as system, eq. process varia amics: stationa / caloric equal gases amics: Meanimple reversibly rms: Work, per f state in the tytables	f thermesent a quilibrial bles wary / mation cong, enter e comperforme	um, state ork and ork and oving of state ropy parative ance, d	ate variad heat closed sy of idea	ables, cha ystems, stall gases, s	nges, processionary flopecific he	mentativel n nature.	rmal and ses y, simple
4	Forms of	teaching:									
4	Loculte		te.								
			·								
5	Participati										
	Participati Formal:	None									
5	Participati Formal: Content:	None None									
	Participation Formal: Content: Forms of	None None assessment:	)	al avamination							
5	Participation Formal: Content: Forms of Written 6	None None assessment: examination o	r ora	al examination							
5	Participation Formal: Content: Forms of Written of Prerequisi	None None assessment: examination of the for the award	r ora								
5	Participati Formal: Content: Forms of Written & Prerequisi Module &	None assessment: examination of the for the award examination p	r ora			Ograma	nas)				

9	Importance of the grade for the final grade:
	according to BRPO
10	Module coordinator:
	Prof. Dr. Peter Charles
11	Other information:
	Literature will be announced at the beginning of the course. Renewable Energies study
	programme: Possible elective subject
12	Language:
	German

Supervise  Supervise  Supervise  Learning Instrume They are confiden Systema: It should in techni Commun They hav experts a  Contents:  - Mix - Hur - Circ - Des - Ope plar - Mea - Eva - Rigi - Left - Opt - Gas	Workload:							TD2		
1 Course:  Lecture Seminar I  Exercise Practical of Supervises  2 Learning Instrume They are confiden Systeman It should in techni Commun They have experts as  3 Contents:  - Mix - Hur - Circ - Des - Ope plar - Mea - Eva - Rig - Left - Opt - Gas  4 Forms of Lecture as	Workload.	Credits:	Study	semes	ter:	Frequenc	y of the	Durat	ion:	
Lecture Seminar l  Exercise Practical of Supervises  2 Learning Instrume They are confiden Systemal It should in technic Commun They have experts as  3 Contents:  - Mix - Hur - Circ - Des - Ope plar - Mea - Eva - Rig - Left - Opt - Gas  4 Forms of Lecture as	150 h	5	3rd o	or 5th s	emester	Annual (Winter)	•	1 sem	nester	
Exercise Practical of Supervises  2 Learning Instrume They are confiden Systema: It should in techni Commun They have experts as  3 Contents: - Mix - Hur - Circ - Des - Ope plar - Mea - Eva - Rig - Left - Opt - Gas  4 Forms of Lecture as		Planned group s	Planned group sizes			time / c	contact classroom	Self-stu	Self-study	
Exercise Practical of Supervises  2 Learning Instrume They are confiden Systema: It should in techni Commun They have experts as  3 Contents:  - Mix - Hur - Circ - Des - Ope plar - Mea - Eva - Rig - Left - Opt - Gas  4 Forms of Lecture as		60 students		2	2 SCH		teaching 30 h		h	
Practical of Supervise 2  Learning Instrume They are confiden Systema: It should in techni Commun They have experts as a second of the confident of the confide	lessons	30 students	30 students		SCH	30	h	45	h	
Supervise  Supervise  Learning Instrume They are confiden Systema It should in techni Commun They have experts a  Contents:  Mix  Hur  Circ  Des  Ope plar  Mea  Eva  Rig  Left  Opt  Gass		20 students	20 students		SCH	0	h	0	h	
2 Learning Instrume They are confiden Systema It should in techni Commun They hav experts a  3 Contents:  - Mix - Hur - Circ - Des - Ope plar - Mea - Eva - Rig - Left - Opt - Gas  4 Forms of Lecture a	or seminar	15 students		0	SCH	0	h	0	h	
Instrume They are confiden Systema It should in techni Commun They have experts a  3 Contents:  - Mix - Hur - Circ - Des - Ope plar - Mea - Eva - Rig - Left - Opt - Gas  4 Forms of Lecture a	ed self-study	60 students		0	SCH	0	h	0	h	
They are confiden Systema: It should in techni Commun They have experts as a solution of the commun They have experts as a solution of the confidence of the	g outcomes/con	_		ļ	1	<u> </u>			l l	
Lecture a	extures and mid air: State cular process sign of large erating and pants easures to increasures to increasures to increasure aluation of the pht-hand circultimisation of		state che vith irreand power and cesses and vapours	anges, versibi wer pla availal efficie	represer lities nts bility requested and of community many of comm	ntation in quirements ombustion	the h,x dias of combinences (Clausius)	gram	and pow	
	f teaching:									
5 Participat	and seminar									
Formal:	uon requireme									
Content:	-	1187								
E	Nor Mo	dules:								
Written 6	Nor Mo		es 1	_						

	Module examination pass
8	Application of the module (in the following study programmes)
	Mechanical Engineering B.Eng.
9	Importance of the grade for the final grade:
	according to BRPO
10	Module coordinator:
	Prof. Dr. Peter Charles
11	Other information:
	Literature will be announced at the beginning of the course.
12	Language:
	German

Exer Prac Supe 2 Lear Stuc 3 Cont 4 Forn Lect 5 Parti	se:  are nar less cise cise cical or s rvised s ning out ents: can des acq are lear	seminar self-study teomes/comp n describe tesign them us quire skills for able to des rn how to in	Credits:  5  Planned group s  60 students  30 students  15 students  60 students  60 students  etences:  the most import sing engineering for the selection ign selected fast ntegrate fastener ect the shaft-hub tently used shaft	ant faste g methoc of suita teners, c	ls. ble faste arry out assem tion tha	SCH	teaching 30 15 15 0 0 use them	contact lassroom g h h h h h h h h h h h h h h correctly cons and venine.	erifications	h h h h h allate an
1271  Lect Sem Exer Prac Supe 2 Lear Stuc  4 Forn Lect 5 Parti	se:  nar less  cise ical or s  rvised s  ning out ents:  can des acq are	sons seminar self-study tcomes/comp n describe tsign them us quire skills fa able to des rn how to in	Planned group s  60 students 30 students 15 students 60 students etences: the most importsing engineering for the selection ign selected fast ntegrate fastener ect the shaft-hub	ant fastog method of suita teners, ces into an oconnec	Scope 2 1 1 0 0 0 ening eds. ble faste arry out in assemtion that	SCH	Annual (Summer Leaching 30 15 15 0 0 use them	contact lassroom g h h h h h h h h h h h h h h h h h h	Self-stude 45 22.5 22.5 0 0	h h h h h h allate an
Lect Sem Exer Prac Supe 2 Lear Stuc 4 Forn Lect 5 Parti	rvised s rical or s rvised s rouse acq are lear	seminar self-study teomes/comp n describe tesign them us quire skills for able to des rn how to in	60 students 30 students 20 students 15 students 60 students etences: the most importating engineering for the selection ign selected fast integrate fastener ect the shaft-hub	ant fasto g method of suita teners, c es into an	2 1 1 0 0 ening e ls. ble faste arry out	SCH	time / c teaching 30 15 15 0 0 use them	h h h h h h h correctly ons and venine.	45 22.5 22.5 0 0	h h h h h h
Exer Prac Supe 2 Lear Stuck St	nar less cise cise rvised s rvised s ning out ents: can des acq are	seminar self-study teomes/comp n describe tesign them us quire skills for able to des rn how to in	30 students 20 students 15 students 60 students etences: the most imports sing engineering for the selection ign selected fast ntegrate fastener ect the shaft-hub	of suita eners, c s into an	1 1 0 0 0 ening eds. ble faste arry out in assemtion that	SCH	30 15 15 0 0 use then calculating or mach	h h h h h h h h correctly ons and venine.	22.5 22.5 0 0 and calcularifications	h h h h h h sulate an
Exer Prac Supe 2 Lear Stuck St	nar less cise cise rvised s rvised s ning out ents: can des acq are	seminar self-study teomes/comp n describe tesign them us quire skills for able to des rn how to in	30 students 20 students 15 students 60 students etences: the most imports sing engineering for the selection ign selected fast ntegrate fastener ect the shaft-hub	of suita eners, c s into an	1 1 0 0 0 ening eds. ble faste arry out in assemtion that	SCH	15 15 0 0 use then calculati	h h h h on correctly	22.5 22.5 0 0 and calcularifications	h h h h h h sulate an
Prac Supe  2 Lear Stuc  3 Cont  4 Forn Lecc  5 Parti	rvised s rvised s ning out ents: can des acq are	teelf-study	15 students 60 students etences: the most importsing engineering for the selection ign selected fast ntegrate fastener ect the shaft-hub	of suita eners, c s into an	0 0 ening eds. ble fastearry out assemtion that	SCH SCH lements, eners. t strength bly group t makes	0 0 use then calculati	h h correctly	0 0 and calcuerifications	h h
Super Studies	rvised s ning out ents: can des acq are	teelf-study	do students  detences:  the most importations engineering for the selection ign selected fast integrate fastener ect the shaft-hub	of suita eners, c s into an	ening eds. ble fastearry out	lements, eners. t strength bly group t makes	use them	h correctly	and calcuerifications	h late an
2 Lear Stuces 3 Contact A Forn Lect 5 Partitions and the second s	ents: can des acq are	tecomes/comp n describe to sign them us quire skills to able to des rn how to in	he most importsing engineering for the selection ign selected fast ntegrate fastener ect the shaft-hub	of suita eners, c s into an	ening eds. ble fastearry out	lements, eners. t strength bly group t makes	use then a calculati p or mach	ons and vo	and calcu	ulate an
Stuce  Stuce  Graph of the state of the stat	ents: can des acq are lea	n describe to sign them us quire skills to able to describe to select the sable to select to select the select to se	the most importa sing engineering for the selection ign selected fast integrate fastener ect the shaft-hub	of suita eners, c s into an	ls. ble faste arry out assem tion tha	eners. t strength bly grou t makes s	n calculati p or mach	ons and venine.	erifications	S.
Lect 5 Parti	ents: Base Boo	n calculate t	ponent modellin	nections	and car	rry out st	rength ve	rifications		auon an
Lect 5 Parti	Sha Me Scr	rew connect	nections ining methods							
5 Parti	is of tea ure, sei	ching: minar, exerc	cise							
	aimati -	requirement	ts:							
Forn		None								
Cont			es (1248), Streng	gth of M	aterials	(1091)				
Wri	nal: ent:		ation; in each ca	ase with	prelimi	nary exa	mination	performar	nce	
	ent: es of ass ten or o	for the exper	d of credit points: ass with prelimin	nary exa	aminatio	on				
	ent: as of ass ten or o			g study p						

9	Importance of the grade for the final grade:
	according to BRPO
10	Module coordinator:
	Prof. DrIng. Michael Fahrig
11	Other information:
	Literature will be announced at the beginning of the course.
12	Language:
	German

Disp	lacement N	Machines								VMA	
Ident numb	ification per:	Workload: Cred		Credits:	Credits: Study semester:		er:	Frequency	of the	Duration:	
1132	2	150 h		5	4th o	r 6th se	mester	Annual (Summer	)	1 semester	
1	Course:		Pl	Planned group sizes		Scope		Actual contact time / classroom teaching		Self-study	
	Lecture			students	2	SCH	30	h	45	h	
	Seminar lessons		30	30 students		1	SCH	15	h	22.5	h
	Exercise		20	20 students		0	SCH	0	h	0	h
	Practical or seminar		15	students	tudents		SCH	15	h	22.5	h
	Supervised self-study		60	60 students		0	SCH	0	h	0	h
2	T:	outoomos/oomr	٠.			l	l			-1	

2 Learning outcomes/competences:

Instrumental competence:

Application of the acquired basic knowledge using the example of piston machines and centrifuges with regard to mechanics, thermodynamics and design theory

Systematic competence:

Independent recognition of the interrelationships, introduced by the comprehension of executed piston machines and centrifuges. The mechanical and technical problems that occur should be safely identified, described, evaluated and solved. From this, scientifically sound judgements about the mode of action are to be derived and substantiated in further new applications, and interface problems identified.

Communicative competence:

Work on tasks in interdisciplinary teamwork.

# 3 Contents:

Expansion of the theoretically treated basic knowledge of fluid mechanics and thermodynamics as applied to reciprocating machines and centrifuges. Overview, comparative processes, properties and characteristic values of the real processes, characteristic diagrams of the machines and interaction with the machines to be driven or driving units, constructive structure with justification of executed constructions, here with reference to similar problems in general. Mechanical engineering, special features of compressors and reciprocating machines.

Basics of mechanical separation technology:

- Mixtures of substances
- Rheological material properties
- Sedimentation, Stokes' sinking rate
- Residual moisture, concentration determination

Design of centrifuges – decanters and separators

Process engineering of centrifuges – clarifiers, separators, ...

Vibration technology

Laws of similarity

Bearing construction and shaft sealing

Fluid mechanics

	7	,
4	Forms of teaching	;
	Lecture, semina	r-based teaching and practical course
5	Participation requ	irements:
	Formal:	None
	Content:	Modules:
		1087 Physics;
		1152 Mathematics 2;
		1267 Thermodynamics 1;
6	Forms of assessm	ent:
	Written examina	ation or oral examination
7	Prerequisite for th	e award of credit points:
	Module examina	ation pass
8	Application of the	e module (in the following study programmes)
	Mechanical Eng	rineering B.Eng.
9	Importance of the	grade for the final grade:
	according to BR	PO
10	Module coordinat	or:
	Prof. Dr. Peter C	Charles
11	Other information	:
	Literature will b	e announced at the beginning of the course.
12	Language:	
	German	

Foll	ow-up Proj	ject							VPR			
Iden num	tification ber:	Workload:	Credits:	Stud	y semest	ter:	Frequenc offer	y of the	Durati	ion:		
127	4	150 h	5	5th	semeste	r	Annual (Winter)		1 semester			
1	Course:	1	Planned group s	izes	Scop	e		lassroom	Self-stu	ıdy		
	Lecture		60 students		1 SCH		teaching 30 h		30	30 h		
	Seminar	lessons	30 students		0	SCH	0	h	0	h		
	Exercise		20 students		0	SCH	0	h	0	h		
	Practical or seminar		15 students		3	SCH	30	h	60	h		
	Supervised self-study		60 students		0	SCH	0	h	0	h		
2	The stud	ific question a persons respo	to work on a task and breaking these nsible for the resp results and final re	e questi pective :	ons dov subtask	vn into s s. They o	subtasks. T define the	They form scope and	a working the expec	group and ted result		
3	- Cre - Doo - Pre - Wo	ject managemate schedule cumentation to sentation tech	echniques		roup (s	tart phas	se: definit	ion of the	task, pro	oject wor		
4		teaching:										
		practicals										
5		tion requiremen										
	Formal:	Non										
6	Content:	Non assessment:	е									
6	Project v											
7			rd of credit points:									
,	•	examination 1	•									
8			le (in the following	study p	rogramn	nes)						
-	~ ~	ical Engineeri		. J I								
9	Importan		for the final grade:									
10		coordinator:										
10		Ing. Christo	ph Jaroschek									
	Other inf											
11		ormanon.										
11	Literatur		ounced at the beg	inning	of the c	ourse.						
11	Literatus Language	re will be ann	ounced at the beg	inning	of the c	ourse.						

Elec	tive Modu	le							WM	
Iden num	tification ber:	Workload:	Credits: Study s			er:	Frequency of the offer		Duration:	
9010	5	150 h	5		4th/5th/6th semester		each semester		1 semester	
1	Course:	1	Planned group	sizes	Scope		Actual contact time / classroom teaching		Self-study	
	Lecture		60 students			SCH		h		h
	Seminar l	lessons	30 students			SCH		h		h
	Exercise		20 students			SCH		h		h
		or seminar	15 students		0	SCH	0	h	0	h
		ed self-study	60 students			SCH		h		h
2	Learning	outcomes/comp	petences:							
3	Contents:	:								
4	Forms of	teaching:								
5	Participation requirements:									
	Formal:									
	Content:									
6	Forms of	assessment:								
7	Prerequis	ite for the awar	d of credit points:							
8	Applicati	on of the modul	le (in the followin	g study p	rogramn	nes)				
		ical Engineeri								
9	Importan	ce of the grade	for the final grade	:						
10		coordinator:								
		Ing. Bruno H	lüsgen							
11	Other info	ormation:								
12	Language									
	German									

Mat	erial and C	omponent Te	sting						WBP	
Identification Workload: number:		Workload:	Credits:			er:	Frequency of the offer		Duration:	
1278		150 h 5		3rd o	or 5th se	emester	Annual (Winter)		1 sem	ester
1	Course:	1	Planned group siz		zes Scope		Actual contact time / classroom teaching		Self-study	
Lecture Seminar Exercise			60 students		2 SCI		30	h	45	h
		lessons	30 students			SCH	0	h	0	h
			20 students		0	SCH	0	h	0	h
		or seminar	15 students		2	SCH	30	h	45	h
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h
2	Learning	outcomes/com	petences:							
this purpose, students acquire knowledge about different tes addition, they can assess the transferability of material paramete testing. The students are able to apply suitable test procedu component failures and material characteristics. They can system analyse a sub-problem.						lures for t	he analyt	ical exam	ination (	
3	- Leg spe - Infl cha - Tec and - Ma - Me - Bas - Me - Des	cortance of magal regulations cifications uence of spectracteristic value chnological, the electromagnet terial identifications for the incices of damage	termal, rheological etic material and detice attention, chromatog investigation of a paralysis ment/test gauge sments	e, special, optic compon raphy, raphy, v	men ge al, acousent test	require ometry, astic and ing, ectrosco	ments, spetest method radiation-	cifications d and test	s and func	tional
4	Forms of	teaching:								
		, exercises, pr								
5		tion requiremen								
	Formal:	Non								
	Content:	Non	e							
	Į .									
6	Forms of assessment:									
6	Written	examination,	combination exar	ninatio	ı or ora	l examir	nation			
6 7	Written Prerequis	examination, of the awar	d of credit points:	ninatio	n or ora	l examir	nation			
	Written Prerequis Module	examination, dite for the awar examination p	d of credit points:				nation			

9	Importance of the grade for the final grade:
	according to BRPO
10	Module coordinator:
	Prof. DrIng. Bruno Hüsgen
11	Other information:
	Literature will be announced at the beginning of the course.
12	Language:
	German

Mate	rials Engi	neering							WT	
Identification number:		Workload:	Credits:	Study semester:			Frequency of the offer		Duration:	
1280		150 h	5 1st		semester		Annual (Winter)		1 semester	
-	Course:		Planned group s	izes	Scope	e	Actual time / c teachin	lassroom	Self-stu	dy
Lecture			60 students		2			30 h		h
	Seminar l	essons	30 students		1	SCH	15	h	22.5	h
Ī	Exercise		20 students		0	SCH	0	h	0	h
Ī		or seminar	15 students		1	SCH	15	h	22.5	h
	-	d self-study	60 students		0	SCH	0	h	0	h
	Learning	outcomes/comp	petences:			_		<b>!</b>		
			to apply and eva		iteriai <sub>k</sub>	oaramete	rs for aiii	erem cond	litions of t	ise and
	- gain mate mec	ning the comp erial test and chanical defor	he component de etence to measur to bring about mation in a targe dge gained to selo	re and e changes ted man	in the ner.	materia	l behavio	ur through	n heat trea	
	- gain mate mec - usin	ning the comperial test and chanical deforming the knowled	to bring about to bring about to bring about to mation in a targe alge gained to select	re and e changes ted man	in the ner.	materia	l behavio	ur through	n heat trea	
	- gain mate mec - usin Contents: - Stru - Latt - Def - Allo - Tim	erial test and chanical deforms the knowled acture of metalice defects an ormation and by: State diagrae-temperature	to bring about to bring about to bring about to mation in a targe alge gained to select	re and e changes ted man ect suita material h, tough rbon dia and aust	behaveness, degrams	materia terials fo	1 behavio	ur through	n heat trea	
3	Contents: - Stru - Latt - Defi - Allo - Tim - Infli - Hea	acture of metalice defects and ormation and oy: State diagrate-temperature uence of select treatments:	to bring about to bring about to bring about to bring about to mation in a targe dge gained to seld their effect on fracture: Strength ams and iron-care transformation atted alloying elen Annealing, harde	material h, tough rbon dia and aust ments	behaveness, degrams	materia terials fo iour eformabi	1 behavio	ur through	n heat trea	
	Contents: - Stru - Latt - Defi - Allo - Tim - Infli - Hea - Stee	acture of meta- ice defects and ormation and by: State diagra- e-temperature uence of selec- t treatments: All designations	to bring about to bring about to bring about to mation in a targe dge gained to seld their effect on fracture: Strength rams and iron-care transformation eted alloying elem Annealing, harders	material h, tough rbon dia and aust ments ening &	behaveness, degrams enitisat	materials for terials for the terial terials for the terial terial terials for the terial terials for the terial terials for the terial terials for the terial terial terials for the terial terial terials for the terial t	l behavio	ur throught application	n heat trea	atment
	Contents: - Stru - Latt - Defi - Allo - Tim - Influ - Hea - Stee - Proj	acture of metalice defects and ormation and oy: State diagrae-temperature uence of select treatments: All designations perties and mairon	to bring about to bring about to bring about to mation in a targe dge gained to seld their effect on fracture: Strength rams and iron-care transformation at ted alloying elem Annealing, hardes atterial behaviour	material h, tough rbon dia and aust ments ening &	behaveness, degrams enitisat	materials for terials for the terial terials for the terial terial terials for the terial terials for the terial terials for the terial terials for the terial terial terials for the terial terial terials for the terial t	l behavio	ur throught application	n heat trea	atment
	Contents: - Stru - Latt - Def Allo - Tim - Infl - Hea - Stee - Proj	acture of metalice defects and operation and operature of select treatments: All designations perties and mairon serial selection	to bring about to bring about to bring about to mation in a targe dge gained to seld their effect on fracture: Strength rams and iron-care transformation at ted alloying elem Annealing, hardes atterial behaviour	material h, tough rbon dia and aust nents ening & of select	behaveness, degrams enitisate temperited stee	iour eformabing ing el materia	l behavion different diffe	ur throught application U, ZTA)	n heat trea	atment
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	- gain mate mec - usin mec - Stru - Latt - Defi - Allo - Tim - Influ - Hea - Stee - Proj cast - Mate Basic ex	acture of metalice defects and ormation and oy: State diagrae-temperature uence of select treatments: All designations perties and mairon terial selection periments on teaching: seminar-based	to bring about to bring about to bring about to bring about to mation in a targe dge gained to seld their effect on fracture: Strength ams and iron-care transformation at ted alloying elem Annealing, harde staterial behaviour metallic material deteaching, practical deteaching, practical to bring about the metallic material deteaching, practical deteaching det	material h, tough rbon dia and aust nents of select	behaveness, degrams enitisate temperited stee	iour eformabing ing el materia	l behavion different diffe	ur throught application U, ZTA)	n heat trea	atment
	Contents: - Stru - Latt - Defi - Allo - Tim - Infli - Hea - Stee - Proj cast - Mat  Basic ex	acture of metalice defects and cormation and by: State diagrate-temperature uence of select treatments: All designations perties and mairon periments on the teaching: seminar-baser ion requirements.	to bring about to bring about to bring about to bring about to mation in a targe dge gained to seld their effect on fracture: Strength rams and iron-care transformation at the dalloying elen Annealing, hardes atterial behaviour metallic material deteaching, practits:	material h, tough rbon dia and aust nents of select	behaveness, degrams enitisate temperited stee	iour eformabing ing el materia	l behavion different diffe	ur throught application U, ZTA)	n heat trea	atment
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Written examination or oral examination

7	Prerequisite for the award of credit points:
	Module examination pass
8	Application of the module (in the following study programmes)
	Mechanical Engineering B.Eng.
9	Importance of the grade for the final grade:
	according to BRPO
10	Module coordinator:
	Prof. DrIng. Thomas Kordisch
11	Other information:
	Literature will be announced at the beginning of the course.
12	Language:
	German

Mac	hine Tools								WM		
Identification number:		Workload:	Credits: Stu		tudy semester:		Frequency of the offer		Durat	Duration:	
1282	2	150 h	5	4th o	4th or 6th semester		Annual (Summer)		1 sem	1 semester	
1	Course:		Planned group sizes		Scope		Actual contact time / classroom teaching		Self-stu	ıdy	
	Lecture		60 students		2	SCH	30	h	45	h	
	Seminar l	essons	30 students		2	SCH	30	h	45	h	
	Exercise		20 students		0	SCH	0	h	0	h	
	Practical	or seminar	15 students		0	SCH	0	h	0	h	
	Supervise	ed self-study	60 students		0	SCH	0	h	0	h	
	Subsequ	ently, the pro	rse and enables duction possibili ficant value crea	ties of	mechat	ronic sy					
	Cvaluate	whether signi	meant value crea	non can	i be rea	nzed.					
3	Contents:	_	meant value crea	tion can	i be rea.	inzed.					
3	Contents: Machine An unde	tools, plants,	robots and artification robots and intelli	cial inte	elligenc	e system	guides, o	orrect dri	ve concep	n structure tts, applied	
3	Contents: Machine An unde	e tools, plants, erstanding of echnology, ad	robots and artification	cial inte	elligenc	e system	guides, o	orrect dri	ve concep	n structure ots, applied	
	Contents: Machine An unde control to	e tools, plants, erstanding of echnology, ad	robots and artific stable foundation aptive and intelli	cial inte	elligenc	e system	guides, o	orrect dri	ve concep	n structure ots, applied	
	Contents: Machine An unde control to	e tools, plants, erstanding of echnology, ad teaching:	robots and artification stable foundation aptive and intellication aptive and intellications.	cial inte	elligenc	e system	guides, o	orrect dri	ve concep	n structure ots, applied	
4	Contents: Machine An unde control to	e tools, plants, erstanding of echnology, ad teaching: and seminar to	robots and artificestable foundation laptive and intelliceaching	cial inte	elligenc	e system	guides, o	orrect dri	ve concep	n structure	
4	Contents: Machine An unde control to  Forms of Lecture a Participat Formal: Content:	e tools, plants, erstanding of echnology, ad teaching: and seminar to ion requiremen	robots and artificatable foundation aptive and intellication eaching ts:	cial inte	elligenc	e system	guides, o	orrect dri	ve concep	n structure	
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4 5	Forms of Lecture a Participat Formal: Content: Forms of Written of Prerequise	teaching: and seminar teaching requiremen None assessment: examination o ite for the aware	robots and artificatable foundation aptive and intellication aptive and intellication aptive and intellication aptive and intellication appears to the control of credit points:	cial intens, rigio	elligenc	e system	guides, o	orrect dri	ve concep	n structure	
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5	Forms of Lecture a Participat Formal: Content: Forms of Written of Prerequise Module of Application	teaching: and seminar teaching requiremen  None  None assessment: examination of the module	robots and artificatable foundation aptive and intellication artification artification artification artification artification artification are artification artification artification are artification artific	cial intens, rigio	elligenc d bearin ftware s	e system ngs and systems	guides, o	orrect dri	ve concep	n structure	
4 5 5 6 6 7 8 8	Forms of Lecture a Participat Formal: Content: Forms of Written of Prerequise Module of Application Mechanic	teaching: and seminar teaching ion requirement None assessment: examination of the modulical Engineering	robots and artific stable foundation laptive and intelliceaching tts:  ee  or oral examination of credit points:  bass le (in the following ng B.Eng.	cial intens, rigid gent so	elligenc d bearin ftware s	e system ngs and systems	guides, o	orrect dri	ve concep	n structure	
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4 5 6 7 8 9	Contents: Machine An under control to  Forms of Lecture at Participat Formal: Content: Forms of Written of Prerequist Module of Application Mechani Important accordin Module of Prof. Dr.	teaching: and seminar teaching: and seminar teaching: and seminar teaching in requirement.  None assessment: examination of the aware examination proof the modulical Engineering to BRPO oordinator: -Ing. Dragan	robots and artificatable foundation aptive and intellication aptive and intellication aptive and intellication aptive and intellication appears the control of credit points:	cial intens, rigid gent so	elligenc d bearin ftware s	e system ngs and systems	guides, o	orrect dri	ve concep	n structure	
4 5 6 7 8	Contents: Machine An under control to  Forms of Lecture a Participat Formal: Content: Forms of Written of Prerequise Module of Application Mechani Important accordin Module of Prof. Dr. Other info	teaching: and seminar teaching: assessment: examination of the award examination pon of the modulical Engineering to Grand to BRPO oordinator: aIng. Dragan formation:	robots and artific stable foundation laptive and intellicular and intellicular arching tts:  de e e e e e e e e e e e e e e e e e e	cial intens, rigid gent so	elligenc d bearin ftware s	e system ngs and systems :	guides, o	orrect dri	ve concep	n structure	
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Heat	Transfer								WÜT	1	
Ident numb	ification	Workload:	Credits:	Stud	y semes	ter:	Frequency of the offer		Duration:		
1277		150 h	5	4th	or 6th semester		Annual (Summer)		1 semester		
1	Course:		Planned group s	Planned group sizes		e	Actual contact time / classroom teaching		Self-study		
	Lecture		60 students		2 5	SCH	30 h		45	h	
	Seminar l	essons	30 students		2	SCH	30	h	45	h	
	Exercise		20 students		0	SCH	0	h	0	h	
		or seminar	15 students		0	SCH	0	h	0	h	
	Supervise	d self-study	60 students		0	SCH	0	h	0	h	
2	Learning	outcomes/com	npetences:			1	1				
-	_		lassify heat transf	er issue	s, analy	se proce	esses and	design syst	tems by:		
			lge of the mechani		•	-					
	_	-	kills to apply this				•	nd design c	alculation	ns and	
	thus		11.7		C	C	•	C			
			ences to analyse,						erent desi	gns.	
			applications of he	at trans	fer in a	n argum	entative n	nanner.			
3	Contents:										
		t transfer		_							
	- Stationary, one-dimensional heat conduction: Fourier differential equation, solution for simple										
		lications									
		rmal radiatio		: <b>.</b>		£ 4:	.:				
			efficient: Calculation of the control of the contro		neans o	ı aimen	sioniess ci	naracteristi	ic number	is:	
					m and i	ecalcula	tions				
		_	: Construction types, design and recalculations s in power engineering								
					ugh rih	c					
	<ul><li>Optimised heat transfer surfaces, e.g. through ribs</li><li>Boiling and condensing</li></ul>										
4		teaching:	achishig								
		and seminar	teaching								
5		ion requireme									
	Formal:	Nor	ne								
	Content:	Nor	ne								
6		assessment:									
			or oral examination	on							
7											
-		examination		- =4. 1							
8	Application of the module (in the following study programmes)  Mechanical Engineering B.Eng.										
9			of for the final grade:								
7	_	g to BRPO	7 101 the final grade.								
10		oordinator:									
10		Peter Charle	es								
	1101. D1.	- Cici Chull									
11	Other info	ormation:									
			nounced at the beg	inning	of the c	ourse.					
12	Language	:									
	German										