Fachhochschule
Dortmund

Amtliche Mitteilungen
Verkündungsblatt
23. Jahrgang, Nr. 18, 25.06.2002

FH Dortmund Communication
Official Announcement
Nr. 40 20th Year, 14 July 1999

1. Regulations for Degree Courses (StO) in Vehicle and Transport Engineering,
with specialisation in Vehicle Construction,
and Vehicle Electronics
at the Dortmund University of Applied Sciences
8th July 1999

2. Regulations for Work Experience Semester (PraxO)
at Dortmund University of Applied Sciences
8th July 1999

FH Dortmund Communication
Official Announcement
No. 40 20th Year. 14 July 1999

1. Regulations for Degree Courses (StO) in Vehicle and Transport Engineering, with specialisation in Vehicle Construction, and Vehicle Electronics at the Dortmund University of Applied Sciences 8th July 1999

2. Regulations for Work Experience Semester (PraxO) at Dortmund University of Applied Sciences 8th July 1999

Whilst every effort has been made to ensure the above information is an accurate record of regulations for degree courses in vehicle and transport engineering, the university accepts no legal liability for their content, and reserves the right to make alterations and amendments as required.

Regulations for Degree Courses (StO) in Vehicle and Transport Engineering, with specialisation in Vehicle Construction, and Vehicle Electronics at the Dortmund University of Applied Sciences

8th July 1999

Dortmund University of Applied Sciences has issued the following regulations for degree courses in compliance with § 2, paragraph 4, and § 56, paragraph 1, clause 1 of the Polytechnic Act (Fachhochschulgesetz) for the state of North Rhine-Westphalia in the version dated 3rd 1993 August (GV. NW. S. 564), last amended 1st July 1997 (GV. NW. S. 13).

Contents: Page

§ 1
Area of applicability

These degree course regulations are based on the degree examination regulations (DPO) for courses of study in vehicle and traffic engineering in the faculty of engineering at Dortmund University of Applied Sciences (6th April 1998, ABI NRW. No. 9/98, S 764), and determine the aim, content and course of study of said degree courses at Dortmund University of Applied Sciences.

§ 2
Study aim and graduation, and functional terms

(1) Students studying degree courses in vehicle and transport engineering receive basic scientific knowledge and practical-orientated training, instruction as to the appropriate engineering techniques to apply when analysing technical processes, and practical problem solving, with special emphasis on the following fields, and consideration of specified extra-curricular material:

- Technical circuitry and constructional development of components and systems for vehicle and transport engineering.
- Use of computers in the construction, planning and manufacture of vehicle and transport engineering products.
- Co-ordination of development projects according to commercial, quality and project management guidelines.
- Simulation, construction testing and EMC technical evaluation of components and systems in vehicle electronics.
- Controller and processor technology, sensor technology, network theory, transport process control techniques and systems.
- Vehicle engineering, construction, combustion engines, chassis technology, drive technology, body work construction and rail vehicles.
- Design, simulation and manufacture of vehicle components and systems, and system integration.

The course is designed to develop the creative and organisational skills of the student, and impart the necessary technical knowledge, skills and techniques, such that they are able to apply their scientific knowledge within the context of a changing business environment.

A work experience placement, or a study semester abroad, constitutes a fundamental part of the course and is intended to develop the student's personal communication and social skills.

(2) The final degree examination constitutes professionally-recognised completion of the course. The final degree examination is intended to indicate that the student has assimilated the required fundamental specialist knowledge, and is capable of working independently, based on scientific knowledge and methodology.

(3) Successful students are awarded a degree, designated Diplom-Ingenieur/-in (graduate engineer) with the addendum "Fachhochschule" – abrev. "Dipl.-Ing. (FH).

§3
Conditions for study

(1) Proof of the following have to be presented when registering for a degree course:
1. Advanced technical school certificate or general (certificate of secondary education) high school certificate, or subject-related high school certificate, or matriculation recognised by the appropriate state authority.
2. Practical experience (basic and specialist practical work experience)

(2) Advanced technical school certificate is indicated by:
- final examination certificate of general secondary education (Arbitur, ~ A-levels, Highers),
- technical college certificate (Facharbitur, ~technical A-levels),
- certificate indicating completion of two years study at a higher commercial school,
- transfer certificate from 13 class/grade of general secondary school education,
- other, equivalent advanced technical school certificate.

(3) Acceptance of the appropriate practical experience depends on the mode of qualification for the degree, according to Paragraph 1, No.1., and are itemised according to the following:

Qualification	Practical Experience
Technical college certificate. Subjects studied – electronic or mechanical engineering.	No further practical experience
Technical school leaving certificate – other than subjects indicated above (Facharbitur) Final examination certificate of general secondary education (Arbitur); Other, equivalent matriculation certificates from a polytechnic/ advanced technical school or equivalent institution.	3 months subject-related practical work experience (proof of which submitted latest at the beginning of the 4 semester)
Leaving certificate of two years study at a higher commercial school and 12 months supervised practical work experience or completed apprenticeship Transfer certificate from 13 class/grade of general secondary school education. and 12 months supervised practical work experience or completed apprenticeship Other equivalent matriculation certificates from a polytechnic/ advanced technical school or equivalent institution.	3 months basic work experience (prior to commencing course) and 3 months subject-related practical work experience (proof of which submitted latest at the beginning of the 4 semester)

If the supervised practical work experience or professional training/apprenticeship required for qualification corresponds with proposed degree course (e.g., electronic or mechanical engineering), then the basic and/or subject-related practical work experience requirements are not applicable.

(4) The 3 month practical work experience should include the following subject-areas:

- manual techniques, working with metal, plastics and other materials (4 weeks),
- machining techniques in non-cutting and cutting shaping, jointing and connection systems technology (4 weeks),
- basic training in electronics: installation, electrical machinery; measurement and automatic control engineering instruments (5 weeks).

The basic practical work experience must be completed before commencing the course of study and proof submitted before registration. Should completion of the full basic practical work experience prior to commencing the course lead to an unreasonable delay in acceptance for the degree course (due to community or national service according to article 12a par. 1 or 2 constitutional law), then the university can exempt the applicant from clause 1, if proof of the aforesaid reasons for the partially completed practical work experience are presented. The condition for such exemption, is that the applicant:

1. has completed approximately half (6 wk.) of the practical work experience before commencing the study and,
2. that proof is presented that during their service commitments they have used their annual holiday entitlement, and additional holiday granted by the service contractor, to undertake basic practical work experience.

The applicant must make good the outstanding time for the basic practical work experience as soon as possible, appropriate proof of which should generally be submitted at the beginning of the second semester of the degree course.

(5) 3 months subject-related practical work experience includes the following, alternative subject-areas:

a) electro-technology practical work experience
- software engineering (properties and programming of micro-processor systems and software documentation)

and

- the drafting and construction of electronic circuitry (circuit design, documentation, measurement, testing, error analysis, communication and automatic control systems)

or

- construction and testing of audio and video, and automatic control system instruments

b) mechanical engineering practical work experience
- tools, jigging and drilling,
- assembly of machinery, instruments and systems,
- quality control (measurement and testing in the laboratory and production),
- construction of assembly plants and organisation of industrial processes.

Proof of the completion of the subject-related practical work experience must be submitted latest at the beginning of the fourth semester of the degree course.

(6) Recognition of practical experience for the basic or subject-related work experience is decided by the appointed authorities of either the faculty of communications technology or mechanical engineering at the Dortmund University of Applied Sciences. The person authorised may decide on the contribution of relevant training and professional experience to the practical work experience.

(7) Applicants without the qualifications outlined in par. 1, No. 1 are entitled, after successful sitting an entrance examination according to the entrance regulations of DUAS, to commence a degree course in vehicle and transport engineering that concurs with that indicated by the exam results, as long as regulations concerning the allocation of places do not indicate otherwise.

§ 4
Start, duration, structure and scope of the degree course

(1) Students can only commence studies in the winter semester.

(2) The regular duration of the course, including all examinations, is 8 semesters. This includes a 20-week period of engineering-based work experience (work experience semester), supervised by the University, or a semester abroad at a foreign university or equivalent institute (semester abroad).

(3) The course is organised around two subject areas
- vehicle electronics,
- vehicle construction.

Both subject areas share a three-semester basic course module and a five-semester main course module.

Both course modules include compulsory, elective and optional subjects, totalling 167 semester week periods (SWP), not including 12 SWPs assigned for non-examined optional components. Further details are listed in **Appendices 1-5.**

§ 5
Structure and content of the degree course

(1) The basic course module introduces the student to vehicle and transport engineering and is the prerequisite foundation for the main course module. It serves to disseminate the basic subject matter and techniques required for a degree in vehicle and transport engineering, and supplementary, allied fields essential to the course.

Compulsory subjects for the basic course module are listed in **Appendix 3.**

The compulsory subjects serve to provide the student with a sound grounding in the skills and techniques essential for understanding the current status of technical development and problems in vehicle and traffic engineering. They serve to lay the foundations of an understanding of descriptive analysis and questions concerning current technical issues in vehicle and traffic engineering.

(2) The main course module prepares the student for the professional world. It should, on one hand, furnish the student with long-term effective qualifications, enabling them to meet the ever-changing challenges of profession practice, and on the other hand, facilitate entry into the profession. To this end, the main module includes intensive concentration on subject-orientated specialisation, and engineering projected work.

The main course module consists of both a compulsory and elective component.

(3) Compulsory subjects for the main course module in vehicle electronics and vehicle construction are listed in **Appendix 3**.

(4) The elective components of the main course module for both specialisation routes are selected from three catalogues. The catalogues are structured according to specialisation-specific, degree course-specific and degree course-related elective subjects, which allow needs-tailored structuring of the degree course.

The catalogues listing elective subjects for the main course module for vehicle electronics and vehicle construction can be found in **Appendix 4** and **Appendix 5** respectively.

For each specialisation, two elective subjects (6 SWP each) are selected from specialisation-specific catalogue 1, and completed by a subject examination class I (FP). One further elective subject of 3 SWPs is selected, which is completed by subject examination class II (LN). Engineering project work, usually lasting 12 SWPs, is completed by a subject examination class I (FP).

For each specialisation, an elective subject of 3 SWPs, completed by subject examination class II (LN), is selected from degree course-specific catalogue (catalogue 2). Two further subjects of 6 and 3 SWP respectively are selected: one from the degree course-specific catalogue (catalogue 2) and one from the degree-course-relevant catalogue (catalogue 3). The 6 SWP subject is completed by subject examination class I (FP) and the 3 SWP subject by subject examination class II (LN).

(5) For both specialisation fields, a work experience semester or semester abroad is integrated into the 6th semester.

(6) The work experience semester, of a minimum 20 weeks, introduces the student to the professional world of a graduate engineer by the assignment of clearly defined tasks and practical work in industry, or other professional organisations. Details are outlined in '*Regulations for the Work Experience Semester (PraxO) for Degree Courses in Vehicle and Transport Engineering with Specialisation in Vehicle Electronics and Vehicle Manufacturing*....', found in **Appendix 6**.

(7) Alternative to the work experience semester, students can opt for a semester abroad at a foreign university or polytechnic (semester abroad). To be recognised as such, proof of the semester abroad of 16 SWPs and 2 course-relevant study subjects must be provided. The student suggests, in agreement with the member of the faculty responsible, a suitable university or institute. The student is responsible for their application and enrolment at the university/institute and must provide the faculty member responsible with the registration documents for the foreign university for

checking and acceptance in good time before the starting the semester abroad. The student must also provide proof of the activities and courses undertaken during the semester at the foreign university, as scripts of lecture contents and the examinations taken. The scope of the study course and examination results must be comprehensible and credible.

(8) To supplement the compulsory and elective subjects, an optional module is offered, outlined annually in the general scientific knowledge lecture programme (AWL). The AWL programme is intended to enhance recognition and awareness of relevant, extra-curricular subjects, and to nurture self-reliance in students.

§ 6
Teaching, training and education modalities

(1) Degree courses (degree course) include compulsory, elective and optional subjects, presented via the following training and educational modalities:
- lecturers (V),
- interactive lectures (SV),
- workshops/practice sessions (Ü),
- seminar (S),
- laboratory and/or programming work (P),
- engineering project work (IA),
- excursions.

a) Lectures:
Lectures are designed as the forum for the integrated presentation of teaching material, and the detailed examination of techniques and factual information.

b) Interactive lectures
This modality is an interactive forum between the lecturer and students, working through subject-specific and systematic knowledge with respect to its validity and applicability. Requiring active student engagement, subject systematic teaching material applied to practical case studies is used to intensify student comprehension and understanding of the material presented.

c) Practice sessions
Teaching material and associated material are systematically worked up and applied to practical cases studies. Under supervision, students, either singly or in groups, work up solutions to problems set in the sessions.

d) Seminars
These are used to work up specific technical knowledge and facts, as well as processing complex problems, as presentations, essays and discussions.

e) Laboratory work
This provides a forum for students to acquire, supplement and deepen both their knowledge and skills by working through practical experimental tasks.

f) Programming work
This provides a forum for students to acquire, supplement and deepen both their knowledge and skills by working through practical programming tasks. A part of this work is set as homework.

g) Engineering project work
The subject 'engineering project work' trains students to work scientifically and independently, fostering the development of their individual problem-solving skills. This modality entails working on larger tasks or real-life projects, either individually or in a group. Work is either undertaken as laboratory and homework, under regular supervision by the teaching staff. Should projects be undertaken externally, in other words in another institution, this is subject to prior agreement about content and scope between the institution and the supervisor.

Project-related teaching modalities from the elective subjects are intended to support the project work.

h) Excursion
This serves to support practice-related visual instruction outside the university.

(2) The teaching modalities are chosen to reflect the intended course content according to didactic principles. Their content and timing is so organised and integrated as to equip students as soon as possible with the ability to learn and work on their own. In addition to the dissemination of subject and specialist competence, the teaching modalities deployed are intended to support appropriate scientific and practice-orientated attitudes and behaviour in the student.

(3) All teaching modalities can also be supplemented or supported by tutorials. Tutorials serve in particular as a forum for using material learned elsewhere. Working together in small groups, techniques are studied and applied in order to develop students' individual skills, including oral and written presentations and the application of acquired knowledge to real-life practical problems.

(4) As stipulated by the degree course examination regulations, the student is required to furnish proof of attendance for those teaching modalities which entail significant active participation.
Proof of attendance is accepted as valid if the student
1. has not been absent on more than two occasions from the respective teaching modality and
2. his or her adequate engagement, either written or oral, has been documented.

(5) Scientific self-study is an integral part of the degree course, and is included in all phases of the training, particularly to support critical, methodical and creative thinking, with the ultimate aim of equipping the student with the ability to solve complex tasks independently. Study counselling and advice (§ 8 par. 2) also deals with problems concerning self-study. In this context, the contents and scope of

supervised teaching modalities is so structured as to enable the student to both prepare and re-work the material presented.

§ 7
Degree course plan and guide

(1) As the basis of these degree course regulations, study and examination schedules have been produced for both specialisation in vehicle electronic and vehicle construction, and are appended as **Appendices 1 and 1a, 2 and 2a.** These appendices recommend the correct structuring of the study course and contain:
- descriptions of the compulsory and elective subjects for each degree course specialisation,
- the number of semester week periods and teaching modalities for each subject, arranged by semester,
- the size of the degree course and the type of examinations set for each subject,
- information of when each subject is usually completed by an examination.

(2) The organisation of teaching modalities for examinable subjects is given in the directory of teaching events (lecture schedule), as well as in **Appendices 1a** and **2a**.

(3) A description of the exam contents is found in the degree course guide for vehicle and transport engineering, which is, in effect, valid as an appendix to the degree course regulations.

§ 8
Study counselling

(1) The Study Advice Centre for FH-region Dortmund is provides general study counselling and advice, as does the University of Applied Sciences in Dortmund. This includes questions of the suitability of a course, in particular, questions of teaching, study options, contents and structure and conditions of the course. Furthermore, it also includes advice on study-related personal difficulties, and psychological counselling.

(2) Study counselling is responsible for faculties of mechanical engineering and communications technology. It offers support for the student, especially in question concerning study structure and techniques.

(3) Study counselling offers advice on the following
- the start of the degree course,
- changing course or institute,
- specialisation in the main course module,
- failure at examinations,
- taking a breaking in the course,
- abandonment of the degree course.

§ 9
Date of effectiveness and publication

(1) These degree course regulations take effect from 1 September 1997.

(2) These degree course regulations apply to all students who started the first semester of their degree course study in vehicle and transport engineering in the winter semester of 1997/1998 at the Dortmund University of Applied Sciences.

Students changing degree course in later subject semesters in the same field have claim to the same course offers available to those commencing their first study semester in winter 97/98.

(3) These regulations for study are published as an official communication of the Dortmund University of Applied Sciences .

Issued on the basis of the decisions of the executive committee for degree courses in vehicle and transport engineering in the faculties of mechanical and communications engineering from 27.04.1999 and 23.06.1999, and the Senate of the Dortmund University for Applied Sciences from 02.07.1999.

Dortmund, 8 July 1999
Rector of the Dortmund University of Applied Sciences

Prof. Dr. Kottmann

Regulations for Study (StO) for Degree Course in Vehicle and Transport Engineering

Appendices 1-6

Appendix 1 Degree course schedule for vehicle electronics
Appendix 1a Examination schedule for specialisation in vehicle electronics
Appendix 2 Degree course schedule for vehicle construction
Appendix 2a Examination schedule for vehicle construction
Appendix 3 Compulsory subjects for degree courses in vehicle electronics and vehicle construction
Appendix 4 Elective subjects for degree course in vehicle electronics
Appendix 5 Elective subjects for degree course in vehicle construction
Appendix 6 Regulations for work experience semester

For greater clarity, each degree course has its own schedule overview **(Appendices 1 & 2).**

The organisation and timing of subject examination classes I and II for each degree course are shown in **Appendices 1a & 2a**.

The main course module elective subjects are listed in **Appendices 4 & 5**.

Non-examined optional subjects (AWL) should comprise a minimum of 12 SWPs.

Fachhochschule Dortmund

Degree Courses in Vehicle and Transport Engineering

Specialisation in vehicle electronics

Appendix 1

6. Semester: work experience semester abroad
8. Semester: degree dissertation

Degree Schedule

					Distribution of Periods																											
					Semester 1				Semester 2				Semester 3				Semester 4				Semester 5				Semester 6				Semester 7				Semester 8			
	No.	Subject	Abbrev.	SWP	V	SV	Ü	P	V	SV	Ü	P	V	SV	Ü	P	V	SV	Ü	P	V	SV	Ü	P	V	SV	Ü	P	V	SV	Ü	P	V	SV	Ü	P
Basic Course Module / Compulsory periods	F1	Basics of software development	GSE	6		4		2																										
	F2	Mathematics	MA	12	4		2		4		2																								
	F3	Thermodynamics	TD	4					2		2																								
	F4	Basics of electronic engineering	GET	12	4		2		4		2																								
	F5	Basics of vehicle electronic engineering	GFZ	2										2																					
	F6	Electric drive systems	EA	4									2		2																				
	F7	Engineering mechanics	TM	10	2		2		2		1		2		1																				
	F8	Construction elements (CAD)	KE	8	1		1		1		1			2		2																			
	F9	General materials science	AWK	4									2		2																				
	F10	Technical English	TE	6		2				2				2																					
	F11	Basics of practical work	GP	4								2				2																			
		Total in Basic Course Module			11	6	7	2	13	2	8	2	6	6	5	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		SWP in Basic Course Module		**72**	26				25				21				0				0				0				0							
Main Course Module / Compulsory periods	F12	Electronic vehicle systems	FZA	4														2		2															
	F13	Materials and semi-conductors	WFB	4													2		2																
	F14	Quality and project management	QPM	3													2		1																
	F15	Applied economics	BWL	5																	3		2												
	F16	Automatic control engineering	SRT	6													2		1		2		1												
	F17	Component elements and circuitry	FZT	6													2		1		2		1												
	F18	Electomagnetic fields and their compliance	FZK	6													2		1		2		1												
	F19	Controller and processor technology	VM	6													2		1		2		1												
	F20	Subject-specific practicals for vehilce electronics	FP	2																				2											
	F21	Work experience seminar	PS	2																						2									
		Total in Main Course Module (compulsory subjects)			0	0	0	0	0	0	0	0	0	0	0	0	12	2	7	2	11	0	6	2	0	0	0	0	0	0	0	0	0	0	0	0
		SWP in main Course Module (compulsory subjects)		**44**	0				0				0				23				19				2				0							
Main Course Module / Wahlstunden	F22	Elective subject 1	WPF1	3																		2		1											
	F23	Elective subject 2	WPF2	3																		2		1											
	F24	Elective subject 3	WPF3	6																										4		2				
	F25	Elective subject 4	WPF4	6																										4		2				
	F26	Elective subject 5	WPF5	6																														4		2
	F27	Elective subject 6	WPF6	3																														2		1
	F28	Eingineering project work	IA	12																												12				
		Total in Main Course Module (Elective subjects)			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	2	0	0	0	0	0	8	0	16	0	6	0	3
		SWP in Main Course Module (Elective subjects)		**39**	0				0				0				0				6				0				24				9			
		Total No. of Periods in Degree Course *		**155**	26				25				21				23				25				2				24				9			

12 SWP non examined optional subjects

Appendix 1 a

Examinations schedule for specialisation in vehicle electronics

Subject examination class I (FP), subject examination class II (LN), Certificate of Attendance (TN) for Basic and Main Course Modules. Timing of examinations.

No.	Subject	Abbrev.	Examination type		
			no.	typ	Sem.
	Basic Course module				
F1	Basics of software development	GSE	1	LN	
F2	Mathematics	MA	2	FP	2
F3	Thermodynamics	TD	3	LN	
F4	Basic electronic engineering	GET	4	FP	2
F5	Basic vehicle electronic engineering	GFZ		TN	
F6	Electric drive systems	EA	5	LN	
F7	Engineering mechanics	TM	6	FP	3
F8	Construction elements (CAD)	KE	7	FP	3
F9	General materials science	AWK		TN	
F10	Technical English	TE	8	LN	
F11	Basics of practical work	GP		TN	
	Main Course Module Compulsory Subjects				
F12	Electronic vehicle systems	EFZ	9	FP	4
F13	Materials and semi-conductors	WUH	10	FP	4
F14	Quality and project management	QPM	11	LN	
F15	Applied economics	BWL	12	LN	
F16	Automatic control engineering	SRT	13	FP	5
F17	Component elements and circuitry	BUS	14	FP	5
F18	Electromagnetic fields and their compliance	EFV	15	FP	5
F19	Controller and processor technology	CPT	16	FP	5
F20	Subject-specific practical for vehicle electronics	FP	17	LN	
F21	Work experience seminar	PS		TN	
	Main Course Module Elective Subjects				
F22	Elective subject 1	WPF1	18	LN	
F23	Elective subject 2	WPF2	19	LN	
F24	Elective subject 3	WPF3	20	FP	7
F25	Elective subject 4	WPF4	21	FP	7
F26	Elective subject 5	WPF5	22	FP	8
F27	Elective subject 6	WPF6	23	LN	
F28	Engineering project work	IA	24	FP	7

Fachhochschule Dortmund

Degree Courses in Vehicle and Transport Engineering

Specialisation in vehicle construction

Appendix 2

6. Semester: work experience semester abroad

8. Semester: degree dissertation

Degree Schedule

		No.	Subject	Abbrev.	SWP	Distribution of Periods																													
						Semester 1				Semester 2				Semester 3				Semester 4				Semester 5				Semester 6				Semester 7				Semester 8			
						V	SV	Ü	P	V	SV	Ü	P	V	SV	Ü	P	V	SV	Ü	P	V	SV	Ü	P	V	SV	Ü	P	V	SV	Ü	P	V	SV	Ü	P
Basic Course Module	Compulsory periods	F1	Basics of software development	GSE	6		4		2																										
		F2	Mathematics	MA	12	4		2		4		2																								
		F3	Thermodynamics	TD	4					2		2																								
		F4	Basics of electronic engineering	GET	12	4		2		4		2																								
		F5	Basics of vehicle electronic engineering	GFZ	2										2																					
		F6	Electric drive systems	EA	4									2		2																				
		F7	Engineering mechanics	TM	10	2		2		2		1		2		1																				
		F8	Construction elements (CAD)	KE	8	1		1		1		1			2		2																			
		F9	General materials science	AWK	4									2		2																				
		F10	Technical English	TE	6		2				2				2																					
		F11	Basics of practical work	GP	4								2				2																			
			Total in Basic Course Module			11	6	7	2	13	2	8	2	6	6	5	4																			
			SWP in Basic Course Module		**72**	26				25				21																						
Main Course Module		F12	Applied vehicle electronics	FZA	4														2		2															
		F13	Vehicle construction materials	WFB	4													2		2																
		F14	Quality and project management	QPM	3													2		1																
		F15	Applied economics	BWL	5																	3		2												
		F16	Automatic control engineering	SRT	6													2		1		2		1												
		F17	Vehicle technology	FZT	6													2		1		2		1												
		F18	Vehicle construction	FZK	6													2		1		2		1												
		F19	Combustion engines	VM	6													2		1		2		1												
		F20	Subject-specific practicals for vehilce construction	FP	2																				2											
		F21	Work experience seminar	PS	2																						2									
			Total in Main Course Module (compulsory subjects)															12	2	7	2	11		6	2											
			SWP in Main Course Module (compulsory subjects)		**44**													23				19				2										
	Wahlstunden	F22	Elective subject 1	WPF1	3																		2		1										
		F23	Elective subject 2	WPF2	3																		2		1										
		F24	Elective subject 3	WPF3	6																									4		2				
		F25	Elective subject 4	WPF4	6																									4		2				
		F26	Elective subject 5	WPF5	6																													4		2
		F27	Elective subject 6	WPF6	3																													2		1
		F28	Eingineering project work	IA	12																											12				
			Total in Main Course Module (Elective subjects)																				4		2					8		16		6		3
			SWP in Main Course Module (Elective subjects)		**39**																	6							24				9			
			Total No. of Periods in Degree Course *		**155**	26				25				21				23				25				2				24				9			

12 SWP non examined optional subjects

Appendix 2a

Examinations schedule for specialisation in vehicle construction

Subject examination class I (FP), subject examination class II (LN), Certificate of Attendance (TN) for Basic and Main Course Modules. Timing of examinations.

No.	Subject	Abbrev.	Examination type		
			no.	typ	sem
	Basic Course module				
F1	Basics of software development	GSE	1	LN	
F2	Mathematics	MA	2	FP	2
F3	Thermodynamics	TD	3	LN	
F4	Basic electronic engineering	GET	4	FP	2
F5	Basic vehicle electronic engineering	GFZ		TN	
F6	Electric drive systems	EA	5	LN	
F7	Engineering mechanics	TM	6	FP	3
F8	Construction elements (CAD)	KE	7	FP	3
F9	General materials science	AWK		TN	
F10	Technical English	TE	8	LN	
F11	Basics of practical work	GP		TN	
	Main Course Module Compulsory Subjects				
F12	Applied vehicle electronics	FZA	9	FP	4
F13	Vehicle construction materials	WFB	10	FP	4
F14	Quality and project management	QPM	11	LN	
F15	Applied economics	BWL	12	LN	
F16	Automatic control engineering	SRT	13	FP	5
F17	Vehicle technology	FZT	14	FP	5
F18	Vehicle construction	FZK	15	FP	5
F19	Combustion engines	VM	16	FP	5
F20	Subject-specific practical for vehicle construction	FP	17	LN	
F21	Work experience seminar	PS		TN	
	Main Course Module Elective Subjects				
F22	Elective subject 1	WPF1	18	LN	
F23	Elective subject 2	WPF2	19	LN	
F24	Elective subject 3	WPF3	20	FP	7
F25	Elective subject 4	WPF4	21	FP	7
F26	Elective subject 5	WPF5	22	FP	8
F27	Elective subject 6	WPF6	23	LN	
F28	Engineering project work	IA	24	FP	7

Appendix 3

Compulsory subjects for degree courses in vehicle and transport engineering

1. Basic Course Module

Basics of software development
Mathematics
Basic electronics
Basic vehicle electronics
Electric drive systems
Engineering mechanics
Construction elements (CAD)
General materials science
Technical English
Basics of practical work

2.1 Main Course Module – Vehicle Electronics

Electronic vehicle systems
Materials and semi-conductors
Quality and project management
Applied economics
Automatic control engineering
Component elements and circuitry
Electromagnetic fields and their compliance
Controller and processor technology
Subject-specific practical for vehicle electronics
Work experience seminar

2.2 Main Course Module - Vehicle Construction

Applied vehicle electronics
Vehicle construction materials
Quality and project management
Applied economics
Automatic control engineering
Vehicle technology
Vehicle construction
Combustion engines
Subject-specific practical for vehicle construction
Work experience seminar

Appendix 4

Elective subjects for vehicle electronic

1. Specialisation-specific elective subjects (catalogue 1)

Engineering-related work
Data communication and bus systems
Monolithic circuit integration
Network theory
Computer-supported development
Multimedia systems
Selected topics from semi-conductor physics and technology
Sensor techniques / technology
Sensor techniques / applications
Computer graphics
Information systems
Selected topics from high frequency technology
Selected topics from radio technology
Selected topics from circuit development
Selected topics from electronics
Special field signal processing
Selected topics of circuit integration
Traffic control techniques and systems
Traffic theory

2. Course-specific elective subjects (catalogue 2)

Energy and safety technology
Modelling and simulation
Planning and project planning
Applied mathematics
Vehicle technology
Vehicle construction
Combustion motors
Vibration technology
Drive technology
Manufacturing techniques
Flow mechanics
Rail vehicles
Gearing systems
Wheel technology
Bodywork construction/superstructure
Light weight constructions (new materials)
Vehicle acoustics
Air-conditioning and cooling systems

3. Course-relevant elective subjects (catalogue 3)

Working techniques / reports
Communication skills
Management methods
Industrial legal protection / patent systems
Employment law / contract law
Media / media law
Data protection
Technology assessment methods
Selected economic reports

Language according to offer

Appendix 5

Elective subjects for specialisation in vehicle construction

1. Specialisation-specific elective subjects (catalogue 1)

Engineering project work
Flow mechanics
Rail vehicles
Gear systems
Bodywork construction / superstructure
Light weight constructions (new materials)
Vehicle acoustics
Combustion materials / drive materials
Air-conditioning
Cooling systems
Manufacturing techniques
Vibration technology
Energy technology
Safety technology

2. Course-specific elective subjects (catalogue 2)

Modelling and simulation
Planning and project planning
Applied mathematics
Data communication and bus systems
Component elements and circuit
Controller and processor technology
Computer-supported development
Electromagnetic fields and their compliance
Sensor techniques / technology
Sensor techniques / application
Information systems
Monolithic circuit integration
Network theory
Multimedia systems
Computer graphics
Selected topics from high frequency technology
Selected topics from radio technology
Selected topics from circuit development
Selected topics from electronics
Selected topics from circuit integration
Traffic control techniques and systems
Traffic theory
CAD in circuit development

3. Course-relevant elective subjects (catalogue 3)

Working techniques/reports
Communication skills
Management methods
Industrial legal protection / patent systems
Employment law / contract law
Media / media law
Data protection
Technology assessment methods
Selected economic reports

Language according to offer

Appendix 6

Regulations for the Work Experience Semester (PraxO)
for
Degree Courses in Vehicle and Transport Engineering
with
Specialisation in Vehicle Electronics and Vehicle Manufacturing
at the
Dortmund University of Applied Sciences

8th July 1999

Dortmund University of Applied Sciences has issued the following regulations for the work experience semester as a part of the Degree Course Regulations in compliance with § 2 paragraph 4 and § 56 paragraph 1, clause 1 of the Polytechnics Act (Fachhochschulgesetz) for the state of North-Rhine Westphalia in the version dated 3rd August 1993 (GV. NW. S. 564), last amended 1st July 1997 (GV. NW. S. 213).

Contents overview: **Page:**

§ 1
Legal basis and area of applicability

(1) Regulations for the work experience semester are based on

- § 2 paragraph 4 and § 56 paragraph 1, clause 1 of the Polytechnic Act (Fachhochschulgesetz) for the state of North-Rhine Westphalia in the version dated 3rd August 1993 (GV. NW. p. 564), last amended by law 1st July 1997 (GV. NW p. 213)
- the Examination Regulations for Degree Courses in Vehicle and Transport Engineering at the university, dated 6th April 1998 (ABl. NRW 2 No. 9/98 p. 764)

and serve to regulate the undertaking of profession-based engineering practical work (work experience semester) during degree course in vehicle and transport engineering.

(2) In accordance with § 56 paragraph 2 of the Polytechnic Act (FHG), these regulations form part of the Degree Course Regulations for degree courses in Vehicle and Transport engineering.

§ 2
Aim and content of the work experience

(1) The work experience semester aims to introduce the student to the profession life of a graduate engineer by way of concrete task assignments and engineering-related work in companies or other institutions in the profession. In particular, it is intended to exercise the application of knowledge and skills accrued by the student in their studies thus far, and stimulate reflection and analysis of experience gained during their practical work.

(2) During the work experience, the student is familiarised with engineer work techniques by way of a task assignment applicable to their level of training. The student completes this task assignment, after appropriate introduction, independently, or in a group under technical management. Work in the following fields of work are especially appropriate:

installation, electrical machinery, development and manufacture of equipment for measurement and automatic control engineering, software engineering, design and manufacture of electronic circuits, inspection and failure analysis, communication technology, project work, design, development, manufacturing, assembly, repair and maintenance, business management, time management, sales and marketing, EDP, quality testing and assurance, safety systems, business research, materials development and testing, corrosion protection and surface technology methods.

§ 3
Legal status of the student

The students remain members of the Dortmund University of Applied Sciences during their work experience semester. They are subject to the instructions and rules of the employer (hereafter referred to as the ‘work placement location' ; § 6 paragraph 1).

§ 4
Duration of the work experience

The work experience is usually undertaken during the sixth study semester and consists of a continuous period of at least 20 weeks. It is usually a semester abroad and may only be completed inland in special cases and by application.

§ 5
Permission for the work experience

(1) Permission for the work experience is granted by the examination committee, upon application, to those who have successfully passed their degree pre-examination.

(2) Application deadlines fixed by the examination committee must be complied with.

§ 6
Work placement locations / employment status

(1) The work experience is usually completed abroad at companies in such industries as mechanical engineering, electrical engineering, automobile, automobile suppliers, materials manufacturing and processing, steel construction, electrical, chemical, space, aviation, railway or at TÜV (Safety Standards Authority), DEKRA, car expert and surveyors, and public authorities.

(2) The Dortmund University of Applied Sciences maintains a list of suitable placement locations and work experience positions. The student proposes a placement location in agreement with the Departmental Representative (§ 9 - Fachbereichsbeauftragte). The student completes the application for acceptance by the placement location.

(3) Work experience can be completed inland by way of application in special cases.

§ 7
Agreement with the placement location

(1) Prior to the start of the work experience, the student and the placement location conclude a written agreement which specifically regulates:

- the type and duration of the work,
- the obligations of the placement location to the student,
- the obligations of the student to the placement location,
- the insurance cover for the student,
- the conditions for early termination of the agreement,
- type and scope of remuneration.

(2) The student must submit a copy of the agreement to the Department Representative (Fachbereichsbeauftragter) for checking and acceptance in good time before commencement of the contract.

An example of such is attached as an **appendix** to these regulations.

§ 8
Completion of the work experience

(1) The student is required to prepare a report of their work during the work experience semester. This report must be submitted to the both the supervisor at the placement location and their University supervisor (paragraph 4 and 5).

(2) The work of the student is supplemented by a work experience seminar held at the University. This usually occurs in block form during the lecture period of the current semester. Alternatively, the work experience seminar can be completed as one-day a week during the current semester lecture period. If a regular attendance at work experience seminar is not possible, absence must be made good as soon as possible.

(3) During the work experience, the student may only attend other educational events which do not conflict with attendance at placement location and the work experience seminar. Release by the placement location for the regular participation in education events other than the work experience seminar is not possible. However, the placement location must allow the student to participate in examinations during their work experience period.

(4) The technical supervision is undertaken by a supervisor nominated by the placement location and a supervisor from professors in the faculty of vehicle and transport engineering. Supervisors are nominated by the Department Representative (§9 - Fachbereichs-beauftragter), whereby the student has the right of proposal.

(5) Supervisor should inform themselves about their students' employment. The Department Representative must assist with corrective measures in case of doubt concerning the merits of employment.

§ 9
Department representative and work experience secretariat

The Department Committee assigns a professor from one of the departments involved with the general organisation of the work experience. His or her responsibilities include:

- the registration and procurement of work experience placements
- the nomination of supervisors according to § 8 paragraph 4
- the examination and acceptance of the written agreement according to § 7, with respect to type and duration of the student's work
- the organisation of the work experience seminar according to 8 paragraph 2
- the contact management with the placement location.

§ 10
Recognition of the work experience

(1) The work experience is recognised as 'successfully completed' or 'unsuccessfully completed'.

(2) This is determined according to paragraph 1 with consideration to

- the student's practice report,
- a certificate from the placement location about the content, duration and success of the student's practical work,
- the student's regular attendance at the work experience seminar.

This is assessed by the supervisor.

(3) If the student is unable to complete parts of the work experience or to complete such parts in a manner appropriate to the purpose of the work experience for reasons beyond his control then the examination committee can exempt the student from such parts, providing such they do not exceed a quarter of the total content.

(4) The work experience must be repeated without delay should it be assessed as 'unsuccessfully completed'.

(5) The recognised work experience is awarded marks which are indicated on the the degree certificate.

§ 11
Date of effectiveness and publication

(1) These regulations for the work experience come into effect on 1st September 1999.

(2) These regulations are published in the University Communications (FH-Mitteilungen) - official announcement by the Dortmund University of Applied Sciences .

Issued on the basis of the decisions of the executive committee for degree courses in vehicle and transport engineering in the faculties of mechanical and communications engineering from 27.04.1999 and 23.06.1999, and the Senate of the Dortmund University for Applied Sciences from 02.07.1999

Dortmund, 8th July 1999
Rector of Dortmund University of Applied Sciences

Prof. Dr. Kottmann

Appendix

Agreement on the Completion of a Work Experience

The following agreement is concluded

between the company/authority _____

Address _____

_____ Tel.: _____

- hereafter referred to as the 'company' -

and Mr. / Ms. _____

born on: _____ in _____

Address _____

_____ Tel.: _____

- hereafter referred to as the 'student' -

in respect of the completion of a work experience mandatory for the studies at the

Dortmund University of Applied Sciences
Faculties of Mechanical and Communications Engineering
Sonnenstr. 96, 44139 Dortmund, Germany

in the degree course in vehicle and transport engineering.

§ 1
Type and duration of the work

1. The practical work is completed at the above-mentioned company and has a duration of 20 weeks. The first 4 weeks represent a probationary period.
2. The agreement is concluded for the period from _____ to _____ .
3. The task assignment for the student is:
   _____
   _____
4. The work experience is a part of the degree course and the student remains a member of the University.

§ 2
Obligations of the company

The company undertakes:

1. to introduce the student to his tasks,
2. where possible, to nominate a certified engineer as supervisor for the student,
3. to release the student for educational events at the University during the work experience and allow the student to participate in examinations,
4. to notify the University of early termination of the agreement or any non-attendance to practical work by the student,
5. to issue the student with a certificate on the content, duration and success of his practical work at the end of the work experience.

§ 3
Obligations of the student

The student undertakes,

1. to conscientiously complete the work assigned to him/her,
2. to observe the company rules and accident prevention rules and handle electronic and mechanical systems, tools, equipment and materials with due care and attention,
3. to preserve the interests of the company and not to disclose company matters to a third party,
4. to inform the company of any absence without delay; to provide a doctor's certificate no later than the third day in case of illness,
5. to prepare a work experience report and regularly submit this to the supervisor in the company.

§ 4
Termination of the agreement

1. The agreement requires the approval of the University. It becomes invalid if the conditions for permission for the work experience according to the Degree and Examination Regulations have not been fulfilled prior to the agreed start of the work.
2. Each party can withdraw from the agreement at any time during the probationary period.
3. The agreement can be terminated after the probationary period:
   - for an important reason, without giving notice,
   - by the student with a notice period of 4 weeks when they wish to relinquish work in the company for personal reasons.
4. The termination of the agreement must be in writing, include the reasons and with the consent of the University.

§ 5
Insurance Cover

1. The University does not provide insurance cover . The company and student must provide proof of an accident insurance cover.

   (for inland work experience: the student must be insured against accident with the relevant trade association (Berufsgenossenschaft) during the work experience.)

   In the event of accident, the company will provide the University with a copy of the accident notification.
2. The training organisation will arrange the pension and unemployment insurance matters.

3. The student is obligatorily insured according to the provisions of the student health insurance during the work experience.

§ 6
Remuneration

The gross monthly remuneration is Euro _____ .
This remuneration takes into account the reduced working time according to § 2 (3).

§ 7
Holiday, Interruptions

The student is not entitled to a recuperative holiday during the work experience. The company can allow a short release for personal reasons. Interruptions have to made good.

§ 8
Settlement of Disputes

In the event of a dispute arising out of this agreement, attempts should be made to reach an amicable settlement with the involvement of the University before resorting to legal redress.

§ 9
Copies of the Agreement

This agreement is concluded as identical copies signed by the company and the student. The student is responsible for a timely submission of a copy to the University prior to the start of the agreement.

§ 10
Other Agreements

The company nominates the following supervisor:

_____

_____ _____
Place, date Place, date

_____ _____
For the company Student

For the Dortmund University of Applied Sciences :

The agreement is recognised subject to the permission for the work experience semester.

The representative for the course of studies in vehicle and transport engineering:

_____
Date Signature