

# **Module Catalogue**

## **Automotive Service Technology and Processes (ASTP)**

**(as of : January 2018)**

UWS = units per week per semester

E = Exam

P = Presentation

MPO = Master Prüfungsordnung

**Ostfalia University of Applied Sciences  
Master Programme Automotive Service Technology and Processes**

**Management**

Semester	Frequency	Duration	Type	ECTS credit points	Workload for the student
1	annually	1 Sem. 9 UWS	obligatory	12	360 h (135 class + 225 self-study)

Preconditions, requirements	Usefulness	Exam type and duration	Teaching methods and learning styles	Person in charge of the module
work experience, knowledge of corporate processes	ASTP	E180	lecture with integrated exercises	Prof. Dr. Mike Hoffmeister

**Qualification objectives**

In 3 connected seminars the students learn about different methods and fields of management and how to apply them:  
 They learn to assess international market opportunities and risks as well as strengths and weaknesses of global companies and how to derive targeted corporate strategies.  
 Students learn about the major instruments of corporate management and how to apply them to different industries. They know the challenges of corporate management and are able to apply different strategic instruments to analyse the internal and external environment.  
 In the Quality Management course they learn about strategic and organisational aspects of quality assurance and customer orientation. They are familiar with the objectives, tasks and measurement parameters of quality assurance and, as seen from examples, their practical applications.

**Teaching contents**

Contents which serve the qualification objectives;

- Introduction to Global Management – The driving forces of globalization;
- Analysis and assessment of the international framework conditions and trends;
- Development of a business strategy;
- Manifestations of global marketing management (segmentation and positioning);
- Contents, particularities and distinctive features of leadership and management;
- Corporate Governance and Leadership;
- Influence of Leadership and Management on human resources policy and organisational design;
- Elaboration of a concept for a comprehensive quality management;
- Quality meetings (analysis and assessment of practical examples);
- Communication quality, knowledge transfer

Literature:

- Hodgetts, Richard; Luthans, Fred; International Management
- David, Fred R.; Strategic Management
- Keegan, Waren J., Schlegelmilch, Bodo B.: Global Marketing Management
- Der Qualitätsmanagement-Berater, TÜV Media, Herrmann J. Thomann  
ISBN 978-3-8249-1198-1
- Handbuch Qualitätsmanagement, Hanser Fachbuch 2007 (ISBN 3446407529)
- ISO 9000 Quality Management Systems, International Organization for Standardization, 2005
- Qualitätsmanagement in der Automobilindustrie, Teil 2, Sicherung der Qualität vor Serieneinsatz, FMEA VDA4\_2d-1996. Verband deutscher Automobilhersteller, Frankfurt am Main, 1996, ISSN 0943-9412

courses		
Instructor	Course title	UWS
Prof. Dr. M. Hoffmeister	International Strategic Management	3
Dipl. Ing. H.Portugall	Quality Management	3
Prof. Dr. M. Hoffmeister / Dipl. Wi.-Ing. T. Ruscheinsky	Business Management	1 2

**Ostfalia University of Applied Sciences  
Master Programme Automotive Service Technology and Processes**

**Werkstatttechnik und Logistik (Workshop Technology and Logistics)**

Semester	Frequency	Duration	Type	ECTS credit points	Workload for the student
1	annually	1 Sem. 6 UWS	obligatory	9	270 h (90 class + 180 self-study)

Preconditions, requirements	Usefulness	Exam type and duration	Teaching methods and learning styles	Person in charge of the module
work experience, knowledge of corporate processes	ASTP	E150	lecture with integrated exercises	Honorarprofessor Dipl. Ing. Norbert Grawunder

**Qualification objectives**

The students learn about the functions and reciprocal effects in workshops and on the different levels of sales organisations and the pertinent companies. They are able to assess the individual processes and control their development within the organisation.

The students are able to identify and measure logistic key figures and find solutions according to the demands and requirements. They are well familiar with spare parts management including the pertinent strategic alignment and practical implementation.

**Teaching contents**

Organisation of trading processes, workshop organisation and equipment, workshop processes, core service processes. Logistic concepts, information systems, TQM, lean production demonstrated by the example of Toyota, spare parts management, version management for control devices.

Literature:

- <http://eur-lex.europa.eu>
- DIN EN ISO 9000:2008
- ISO 9000 Quality Management Systems, International Organization for Standardization, 2005
- Ihme, J. Logistik im Automobilbau - Logistikkomponenten und Logistiksysteme im Fahrzeugbau, Carl Hanser Verlag, München (2006)
- J.D. Power Report ([www.jdpower.com](http://www.jdpower.com))
- A Textbook of Workshop Technology: Manufacturing Processes, R. S. Khurmi and J.K. Gupta
- Just-in-Time Logistics, Kee-hung Lai and, T. C. E. Cheng im Fahrzeugbau, Carl Hanser Verlag, Munich (2006)

**Courses**

Instructor	Course title	UWS
Honorarprofessor Dipl. Ing. Norbert Grawunder	Conceptions of Workshops	2
Dipl.-Ing. K. Kerth	Logistics and Spare Part Management	4

**Ostfalia University of Applied Sciences  
Master Programme Automotive Service Technology and Processes**

**Project Management and Training**

Semester	Frequency	Duration	Type	ECTS credit points	Workload for the student
1	annually	1 Sem. 7 UWS	obligatory	9	270 h (135 class + 135 self-study)

Preconditions, requirements	Usefulness	Type and duration of exam	Teaching methods and learning styles	Person in charge of the module
work experience, knowledge of corporate processes	ASTP	E120+P	lecture with integrated exercises	Prof. Dr. Mike Hoffmeister

**Qualification objectives**

In the overture event students from different countries are sensitised with respect to tolerance, acceptance and understanding for people from other cultures. At the same time the team building process of the intercultural group begins.

The students develop understanding for other cultures and behavioural patterns. They have a basic knowledge of different communication models and are able to apply them to different cultures. They become familiar with the culture concept and cultural dimensions. They acquire the abilities necessary to avoid culture-dependant conflicts, dismantle or decrease culture-related barriers within the framework of their intercultural communication.

The students know the objectives and tasks of a globally oriented training organisation. They know the methods and possible means, they can assess their applicability in different cultural environments and elaborate a training concept.

The students learn about methods, instruments and influencing factors in project management. They are able to plan, coordinate and implement projects taking account of intercultural problems.

**Teaching contents**

Definition and models of communication and the concept of culture, values, patterns and dimensions;  
Verbal and non-verbal communication;  
Aspects, methods and models of intercultural communication;  
Models of conflict management;  
Team building activities and methods;

Strategic alignment of the training scheme in a company which is a global player, deployed systems and techniques, training classes such as technical training, non-technical training, IT training, didactics, teaching methods, learning strategies and cultural environment, practical execution of on training unit;

Introduction to project management and disquisition of project management methods and instruments;  
Indication of interdisciplinary correlations and their influence on project management;  
Introduction to international trends and scenarios and disquisition.

Literature:

- Marketing Management, Philip Kotler
- Hofstede, Gert Jan; Pedersen, Paul; Hofstede, Geert: Exploring Culture

- Jandt, Fred E.: Intercultural Communication
- Cooper, Pamela J; Calloway-Thomas, Carolyn; Simonds, Cheri J.: Intercultural Communication
- Handbook Global Project Management, Cleland & Gareis
- Project Management, Peter Hobbs
- The new knowledge management: complexity, and sustainable innovation, Mark W. McElroy
- Key issues in the new knowledge management, Joseph M. Firestone, Mark W. McElroy
- Knowledge Management/Harvard Business Review, Peter F. Drucker and David A. Garvins
- Lernen, Gehirnforschung und die Schule des Lebens, Manfred Spitzer
- Wissensmanagement Grundlagen, Modelle und Instrumente, Mittelmann

<b>Courses</b>		
<b>Instructor</b>	<b>Course title</b>	<b>UWS</b>
Dipl. Wi.-Ing. F. Harmeling	Technical Project Management Service	2
Dipl. Wi.-Ing. F. Harmeling	Global Service Training	2
Prof. Dr. Mike Hoffmeister / university instructor	Project I, Intercultural Competence / Team Building	4

**Ostfalia University of Applied Sciences  
Master Programme Automotive Service Technology and Processes**

**Technical Product Quality**

Semester	Frequency	Duration	Type	ECTS credit points	Workload for the student
2	annually	1 Sem. 6 UWS	obligatory	9	270 h (90 class + 180 self-study)

Preconditions, requirements	Usefulness	Exam type and duration	Teaching methods and learning styles	Person in charge of the module
Work experience, knowledge of corporate processes	ASTP	E150	lecture with integrated exercises	Honorarprofessor Dipl. Ing. Norbert Grawunder

**Qualification objectives**

In these two courses students learn about the subjects of product liability, product monitoring/quality monitoring and the pertinent processes including the identification and analysis of problems in the market, risk analysis and the definition of appropriate measures as well as their implementation and the subsequent supervision in the market with respect to warranty and customer loyalty enhancement. Upon the successful completion of the courses the students will understand the intercorrelations and interdependencies of automobile manufactureres, the importer, the dealers and customers as well as the pertinent process chains. They know the legal framework conditions with particular respect to guarantee, warranty and courtesy measures. Furthermore they are familiar with the methods and procedures of analysis and sustainable avoidance and elimination of quality problems and are able to implement them.

The students acquire a comprehensive understanding of the considerable contribution of 'product influencing' on the competitiveness in the automotive industry. They learn that by an optimal construction design with respect to repair techniques and procedures the operating costs of a vehicle can be reduced, which increases the automakers' competitiveness. The students are able to create values with their practical knowledge about the respective processes.

**Teaching contents**

- Explanation of the correlations between product monitoring and quality analysis;
- Product liability, warranty, guarantee, courtesy measures;
- Product monitoring, measures taken, behavioural patterns of products after being sold, risk considerations, interdisciplinary and market-specific criteria, product recalls;
- Statistic relevance in connection with quality monitoring;
- Objectives and tasks of 'product influencing', meaning of automobile development according to service demands for customer satisfaction;
- Development and assessment of service-oriented solutions;
- Tasks and elements of maintenance as a specific service process

**literature:**

- Functional Safety, Josef Börcsök, Hüthig Verlag 2006, ISBN 978-3-7785-2986-7
- Functional Safety Systems, Josef Börcsök, Hüthig Verlag 2004, ISBN 978-3-7785-2944-7
- Data security, brake-block for driver informations systems in cars? Stefan Goß, Fisita2008 world congress: The Future of Automobiles and Mobility, Munich
- Das Management der Cost of Ownership, Prof. Dr. Willi Diez, <http://www.ifa-info.de>
- TQM for Technical Groups: Total Quality Principles for Product Development, Kiyoshi Uchimaru

<b>Courses</b>		
<b>Instructor</b>	<b>Course title</b>	<b>UWS</b>
Dipl.-Ing. Manfred Senger	Technical Product Monitoring and Technical Optimization	4
Honorarprofessor Dipl. Ing. Norbert Grawunder	Product Influencing	2



**Ostfalia University of Applied Sciences  
Master Programme Automotive Service Technology and Processes**

**Service Technology and Diagnostics**

Semester	Frequency	Duration	Type	ECTS credit points	Workload for the student
2	annually	1 Sem. 8 UWS	obligatory	12	360 h (120 class + 240 self-study)

Preconditions, requirements	Usefulness	Exam type and duration	Teaching methods and learning styles	Person in charge of the module
	ASTP	E180 + lab report	lecture, exercises, laboratory units	Prof. Dr. Ing. Stefan Goß

**Qualification objectives**

In two different courses the students are made familiar with the different tasks of service technology, methods applied, instruments and influential factors and the tasks of diagnosis with respect to technology, legal requirements, customer satisfaction and local opportunities.

The pertinent processes across regions, companies and countries are shown, and the complex scheme of effects is explained by means of examples. After the successful completion of the course the students will be able to assess, design and implement service technology and the pertinent processes from a holistic view and in the context of corporate strategy and country-specific conditions.

The students know the objectives, tasks, measurement parameters and effects of different diagnosis strategies and methods. They are able to classify and control them in the context of restorability and customer satisfaction.

After the successful completion of this course the students will be able to assess and design the diagnosis and the pertinent processes in a holistic manner and in the framework of the corporate strategy.

**Teaching contents**

- Definition of service technology in the framework of the strategic alignment of a company;
- Service technology processes at the manufacturer, importer and dealership;
- Knowledge management in the global network;
- Diagnosis methods and procedures (knowledge-based diagnosis, model-based diagnosis, adaptive learning procedures, applications / variants and significance);
- Diagnosis objects (entire vehicle, vehicle system, functional entity, exchangeable unit, originator and cause; electric and electronic components, integration of mechanic and hydraulic components);
- Diagnosis processes for construction (onboard, offboard, interfaces, approval processes, worldwide coordination, alternative procedures);
- Draft, design and execution of diagnoses in the framework of laboratory exercises

Literature:

- After The Sale-, How to manage product service for customer satisfaction and profit“ Joseph Patton & William H. Bleuel The Solomon Press, 2000, NY USA ISBN: 0-934623-63-5
- Toyota Talent- Developing your people The Toyota Way, Jeffery Liker, Davic Meier, McGraw-Hill, 2007 ISBN:978-0-07-147745-1
- Service Lifecycle Management-Transforming the After Sales Service, Ed Vol ICFAI

University Press, Hyderabad, 2006 ISBN: 8-13140-078-6

➤ Road vehicles – Diagnostic communication, Christoph Marscholik, Peter Subke, Hüthig Verlag 2008, ISBN 978-3-7785-4048-0

➤ Informationssicherheit in Automobilen, Stefan Goß, Shaker Verlag 2009, ISBN 978-3-8322-8050-5

<b>Courses</b>		
<b>Instructor</b>	<b>Course title</b>	<b>UWS</b>
Prof. Dr. Ing. Stefan Goß	Diagnostic and dedicated processes incl. laboratory units	4
Dipl. Ing. M. Poschmann	Service Technology and dedicated Processes	4

**Ostfalia University of Applied Sciences  
Master Programme Automotive Service Technology and Processes**

**Service Quality**

Semester	Frequency	Duration	Type	ECTS credit points	Workload for the student
2	annually	1 Sem. 6 UWS	obligatory	9	270 h (90 class + 180 self-study)

Preconditions, requirements	Usefulness	Exam type and duration	Teaching methods and learning styles	Person in charge of the module
project management and training	ASTP	E90 + P	lecture with integrated exercises	Prof. Dr. Ing. Kai Wundram

**Qualification objectives**

It is the objective of this course to teach the students the roles of corporate strategy, customer satisfaction and service quality. The students know the objectives, tasks and measurement parameters of service quality and are able to apply various quality tools in simple examples. Furthermore they are familiar with the market research studies customary in the automotive industry, their focus, differences and purposes. The students are able to acquire information about the special topic of repeated repairs, they know the different definitions and how this subject is being analysed in the market and how corrective measures can be found and taken. They are able to assess different international markets to serve as examples with respect to service quality and derive measures to increase service quality. After the successful completion of the course the students should be able to measure, identify and analyse problems in the field of service quality and to find suitable corrective measures. Furthermore the students have a profound knowledge of market research in the automotive industry enabling them to transfer the issues of this field to other subjects.

**Teaching contents**

- Disquisition of the correlations between corporate strategy and customer satisfaction;
- Identification of the driving forces behind customer satisfaction (product, sales and after sales);
- Introduction to the subject 'service quality' (objectives, tasks and measurement parameters);
- Introduction to the quality tool 'after sales' (customer surveys, workshop tests, DIN ISO etc.);
- Disquisition of measuring techniques for service quality (CSS, IACS, JD. Power)
- The aspect of repeated sales (meaning, analyses, tools and measures), corrective tool and troubleshooting process 'after sales';
- Discussion of international examples for the increase of customer satisfaction and service quality;

The students then apply the contents of the past courses and lectures to a real case of the automobile industry in connection with the topic of 'service quality/customer loyalty'. They learn how projects are carried out successfully and presented.

- Analysis methods, planning and presentation techniques;
- The respective projects and the project partners and/or principal are introduced to the students in the first lecture.

Literature:

- J. D. Power Report (www.jdpower.com), DIN ISO 9000
- Handbuch Qualitätsmanagement, Hanser Fachbuch 2007 (ISBN 3446407529)
- IDELSEY, Initiativ for diagnostis of electronic systems in motor vehicles for PTI, 2008, <http://ec.europa.eu/transport>
- ISO 9001:2000 - The Quality Management Process (Best Practice)
- Implementing Service Quality Based on ISO/lex 20000: 3rd ed., Michael Kunas
- David Cleland, Roland Gareis: Global Project Management Handbook - Planning, Organizing and Controlling International Projects, Second Edition

<b>Courses</b>		
<b>Instructor</b>	<b>Course title</b>	<b>UWS</b>
Dipl. Kfm. B. Hammerling	Service Quality and Organization	4
Dipl.-Wi.-Ing. F. Harmeling	Project II (real case within the automobile industry)	2



**Ostfalia University of Applied Sciences  
Master Programme Automotive Service Technology and Processes**

**Vehicle Communication Concepts**

Semester	Frequency	Duration	Type	ECTS credit points	Workload for the student
3	annually	1 Sem. 4 UWS	obligatory	6	180 h (60 class + 120 self-study)

Preconditions, requirements	Usefulness	Exam type and duration	Teaching methods and learning styles	Person in charge of the module
Modul Service Technology and Diagnostics	ASTP	E120 + Lab report	lecture, exercises, laboratory units	Prof. Dr. Dirk Sabbert

**Qualification objectives**

Passenger and utility vehicles are equipped with several driver information systems, the number is increasing. There are pure comfort information systems (Infotainment) and driver assistance systems. The systems use the information from different electronic components in the vehicle, whose data are conveyed via bus systems.

The students will be able to review driver assistance systems and infotainment systems from the perspectives of system function, usability and fault behaviour. Furthermore they will be able to understand and apply systems within the car as a holistic system.

They will have the competence to analyse, design, plan and applicate electronic communication systems within vehicles. They will know the most important network concepts, embedded systems and their application within vehicles. Focus ist the capability to connect systems in architectures, know the possibilities and limits and actively accompany development processes in vehicle industrie e.g. as project leader.

**Teaching contents**

In this module students learn about the properties of the different infotainment and driver assistance systems. That will be shown from the view of System functionality, data processing and communication and, last not least, customer view (Human Maschine Inferface).

The customer function and possible operation errors are shown as well as modern error analysis procedures, which are exemplified in practical exercise (laboratory).

Infotainment, driver assistance and telematic systems:

Construction, functionalities, properties, variants and significance;  
Algorithms of data evaluation and processing;

Datenkommunikation:

Low-speed and high-speed bus systems of up to 150 MBit/sec (concept, data objects, running behaviour);  
CAN, LIN, MOST, FlexRay, Ethernet;  
Interbus communication (Bridge, Router, Gateways).

Literature: Gilbert Held: Inter- and intra-vehicle communications, ISBN 978-1-4200-5221-3

<b>Courses</b>		
<b>Instructor</b>	<b>Course title</b>	<b>UWS</b>
Prof. Dr. Dirk Sabbert	Infotainment, Driver Assistance and Telematic Systems	2
Prof. Dr. Dirk Sabbert	Automotive Communication Systems	2

**Ostfalia University of Applied Sciences  
Master Programme Automotive Service Technology and Processes**

**Master Thesis and Colloquium**

Semester	Frequency	Duration	Type	ECTS credit points	Workload for the student
3	-	Cf MPO 16 UWS	obligatory	24	720 h (self-study)

Preconditions, requirements	Usefulness	Exam type and duration	Teaching methods and learning styles	Person in charge of the module
passing of all module exams (cf. MPO)	ASTP	Cf. MPO	independent work	Honorarprofessor Dipl. Ing. Norbert Grawunder

**Qualification objectives**

The students are expected to work on a topic and apply the acquired knowledge, skills and competences which they acquired in the courses in the engineering framework and independently write a research work in the form of a technical report and should be able to present their thesis.

**Teaching contents**

**Course: Master Thesis**

*Practical phase in industry/research:*

The students acquire the theoretical and/or practical and specific knowledge of the respective field of learning.

Within a determined period of 6 months which they spend at a company or research institution they work independently on a profession-related topic. Students apply their knowledge and understanding in new and unfamiliar situations in the practise phase in order to develop solutions to problems or to further develop argumentation by applying their knowledge of theories, principles and methods which they acquired in the courses and with own ideas.

*Master's Thesis:* The Master Thesis documents this work in written form pursuant to the provisions of [1]

**Course: Colloquium**

In the Colloquium the examinee has the chance to prove that s/he is able to independently work on questions in the field of the study programme in an interdisciplinary and problem-related manner on a scientific basis and to discuss them in detail in a conversation on a professional level.

The assessment of the student's thesis is made subject to the Examination Regulations and the provisions of [2].



**Literature:**

- [1] Faculty Automotive Engineering (Editor):“ Guidelines, *“Academic writing and preparation of a thesis“*. Ostfalia University of Applied Sciences, Wolfsburg, Germany, 2011
- [2] Standard Guidelines for Term Papers and Bachelor's and Master's Theses, Wolfsburg, Germany, 2012

Examination Committee of the Faculty of Automotive Engineering (Editor)(Hrsg.):“M0. Procedural Schedule ,Master's Thesis““. Ostfalia University of Applied Sciences, Wolfsburg, Germany, 2010

<b>Courses</b>		
<b>Instructor</b>	<b>Course title</b>	<b>UWS</b>
Professors and instructors of the programme or the Ostfalia cf. MPO	Master Thesis and Colloquium	16