Studiengang: *Program:*	**Master of Science Maschinenbau** *Master of Science in Mechanical Engineering*			FACH HOCHSCHULE LÜBECK University of Applied Sciences
1 Modul: *Module:*	**Product Development in Production** *Produktentwicklung im Umfeld der Produktion*			**English** *Englisch*
	Semester *Semester*	**Dauer** *Duration*	**Status** *Status*	**Turnus** *Regular cycle*
	2. Semester	1 Semester	compulsory	annually
	Kreditpunkte *Credits*	**Aufwand** *Workload*	**Kontaktzeit** *Contact-hours*	**Selbststudium** *Student's efforts*
	5 ECTS	150h	4 SWS = 60h lecture/	30h preparation 15h evaluation 30h exam. preparation

2 Beschreibung
Description

Research & Development is strongly connected with production and vice versa. Especially in highly automated and sophisticated manufacturing processes there is an important need for strong cooperation between both front ends of the product development process R&D and manufacturing/production.
To generate better understanding the design process must be connected to the manufacturing methods right from the very first beginning. After Design freeze and successful prototyping production starts using production equipment for the first time.
This phase called "pilot or zero series" ends by reaching full capacity of production (peak production). Nevertheless, this is the moment production optimization starts. From development's point of view the work seems to be done but there is great potential of improving the product or eliminating failures by checking the production chain under series condition.
The optimization potential depends on several influences like tools, material, purchased parts, numerical machine programming, optimization of cycle times and automatic handling, integration of in-situ measurement, integrations of customer means, etc. The lecture wants to sensitize for the whole potential how production can improve a product after SOP (start of production). Including the departments involved and doing a good job of information and cost management ensure success.

3 Lernziele
Learning Outcomes

The student should understand:
- The strong interrelationship between R&D and manufacturing.
- The needs of manufacturing improvement after SOP.
- The dynamic product change influenced by cooperation between different departments from purchase to sales/marketing and engineering.
- The complex process to start production within the required cost and time limits.
- The management of the continuous improving of a change process in production using established tools.

4 Schlüsselqualifikationen
Key qualifications

Sozialkompetenz *Social Competence*	Methodenkompetenz *Competence in Methods*	Selbstkompetenz / Personenkompetenz *Self-Competence Personal Competence*	Interkulturelle Kompetenz *Intercultural Competence*	Medienkompetenz *Media-Competence*
	X	X		

5 Lehrveranstaltung/ -methoden
Course type and methods

Lecture
- Seminar-like teaching
- Exercises and examples (case studies)

6 Vorbedingungen / Vorkenntnisse
Prerequisites

- Basic courses in design and production engineering on Bachelor of Science level

7 Arbeitsmittel / Literatur
Required material / Literature

- Course packs and / or recommended literature in class

Detailinformationen

8 Inhalte

Course topics

- Innovation and technology management
- Product Lifecycle management
- Product development from the idea to customer benefit
- The advantage of platform development
- Easy change from R&D prototype to production series
- Requirements and influences for systematic production optimization processes (cycle time, inventory, automation)
- Dynamic change management depending on changing boundary conditions (market)
- Quality management (permanent improvement, internal proposal management, etc)

9 Prüfungsform

Assessment

Written examination at the end of the term: 2 hours.

10 Voraussetzung für die Vergabe von Kreditpunkten

Requirements for granting of credits

- Successful passing of exam

11 Weiterführende Veranstaltungen

Related courses

Lectures of profile DESIGN

12 Zuordnung

Classification

Mathematik & Naturwissenschaft *Mathematics & Natural Sciences*	Ingenieur-wissenschaften *Engineering Science*	Ingenieur-anwendungen *Engineering Application*	Entwicklung & Konstruktion *Design*	Werkstoffe *Material*	Wirtschaft, Management, Sprachen *General Education*	Anderes *Other*
	X	X	X	X		

13 Modulbeauftragter / Lehrpersonen

Responsible person / Lecturers

Prof. Dr. J. Blechschmidt/ Prof. Dr. J. Blechschmidt + Prof. Dr. A. Rosenthal