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**Modulbezeichnung:** **Integrated Production Systems (Lean Management) (IPS)** **5 ECTS**  
 (Integrated Production Systems (Lean Management))

Modulverantwortliche/r: Jörg Franke  
 Lehrende: Jörg Franke

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Startsemester: WS 2021/2022	Dauer: 1 Semester	Turnus: halbjährlich (WS+SS)
Präsenzzeit: 60 Std.	Eigenstudium: 90 Std.	Sprache: Englisch

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**Lehrveranstaltungen:**

Lecture, Course at the Virtual University of Bavaria (vhb). For participation a registration at the vhb is necessary!  
 Integrated Production Systems (vhb) (WS 2021/2022, Vorlesung, 4 SWS, Jörg Franke)

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**Es wird empfohlen, folgende Module zu absolvieren, bevor dieses Modul belegt wird:**

BWL für Ingenieure  
 Produktionstechnik I + II

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**Inhalt:**

- Concepts and Success Factors of Holistic Production Systems
- Production organization in the course of time
- The Lean Production Principle (Toyota Production System)
- The 7 Types of Waste (Muda) in Lean Production
- Visual management as a control and management instrument
- Demand smoothing as the basis for stable processes
- Process synchronization as the basis for capacity utilization
- Kanban for autonomous material control according to the pull principle
- Empowerment and group work
- Lean Automation - "Autonomation"
- Fail-safe operation through Poka Yoke
- Total Productive Maintenance
- Value stream analysis and value stream design
- Workplace optimization (lean manufacturing cells, U-Shape, Cardboard Engineering)
- OEE analyses to increase the degree of utilization
- Quick Setup (SMED)
- Implementation and management of the continuous improvement process (CIP, Kaizen)
- Overview of quality management systems (e.g. Six Sigma, TQM, EFQM, ISO9000/TS16949) and analysis tools for process analysis and improvement (DMAIC, Taguchi, Ishikawa)
- administrative waste
- Specific design of the TPS (e.g. for flexible small-batch production) and adapted implementation of selected international corporations

**Lernziele und Kompetenzen:**

After successfully attending the course, students should be able to

- Understand the importance of holistic production systems;
- Understand and evaluate Lean Principles in their context;
- to evaluate, select and optimise the necessary methods and tools;
- To be able to carry out simple projects for the optimisation of production and logistics on the basis of what has been learned in a team.

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**Verwendbarkeit des Moduls / Einpassung in den Musterstudienplan:**

Das Modul ist im Kontext der folgenden Studienfächer/Vertiefungsrichtungen verwendbar:

**[1] International Production Engineering and Management (Bachelor of Science)**

(Po-Vers. 2022w | TechFak | International Production Engineering and Management (Bachelor of Science) | Gesamtkonto | International Elective Modules | Integrated Production Systems)

**[2] International Production Engineering and Management (Bachelor of Science)**

### **Studien-/Prüfungsleistungen:**

Integrated Production Systems (Prüfungsnummer: 71231)

(englische Bezeichnung: Integrated Production Systems)

Prüfungsleistung, Klausur, Dauer (in Minuten): 90

Anteil an der Berechnung der Modulnote: 100% Prüfungssprache: Englisch

Erstablingung: WS 2021/2022, 1. Wdh.: SS 2022

1. Prüfer: Jörg Franke

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### **Organisatorisches:**

Only the following aids are allowed during the test:

- non-programmable calculator
- indelible pens
- highlighter
- ruler, triangle ruler, compass
- name stamp

No other aids are permitted (this applies in particular to smartwatches, mobile telephones or other electronic devices).