Course Handbook Industrial Engineering Master

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Qualifikation Goals of Study Programme

Industrial Engineering Master - mandatory courses (overview)

Module name (EN)	Code	Semester	Hours per semester week / Teaching method	ECTS	Module coordinator

(0 modules)

Industrial Engineering Master - optional courses (overview)

Module name (EN)	Code	Semester	Hours per semester week / Teaching method	ECTS	Module coordinator
"Engineering Visions" and Intercultural Experience Intensive Program	WIM22-WPM-I-700	3	3PA+1S	4	Prof. Dr. Frank Kneip
Green Economy	WIM22-WPM-W-400	1	4VF	6	Prof. Dr. Thomas Korne
Web-Based Knowledge Management	WIM22-WPM-I-701	1	4V	6	Prof. Dr. Stefan Georg

(3 modules)

Industrial Engineering Master - mandatory courses

Industrial Engineering Master - optional courses

"Engineering Visions" and Intercultural Experience Intensive Program

Module name (EN): "Engineering Visions" and Intercultural Experience Intensive Program

Degree programme: Industrial Engineering, Master, ASPO 01.04.2022

Module code: WIM22-WPM-I-700

Hours per semester week / Teaching method: 3PA+1S (4 hours per week)

ECTS credits: 4

Semester: 3

Mandatory course: no

Language of instruction:
English

Assessment:
Project

[*updated 18.12.2018*]

Applicability / Curricular relevance:
WIMAScWPF-Ing14 Industrial Engineering, Master, ASPO 01.10.2014, semester 3, optional course, general subject
WIM22-WPM-I-700 Industrial Engineering, Master, ASPO 01.04.2022, semester 3, optional course, general subject

Workload:
60 class hours (= 45 clock hours) over a 15-week period.
The total student study time is 120 hours (equivalent to 4 ECTS credits).
There are therefore 75 hours available for class preparation and follow-up work and exam preparation.

Recommended prerequisites (modules):
None.

Recommended as prerequisite for:

Module coordinator:
Prof. Dr. Frank Kneip

Lecturer: Prof. Dr. Frank Kneip

[*updated 09.02.2022*]

Learning outcomes:

[*still undocumented*]

Module content:

[*still undocumented*]

Recommended or required reading:

[*still undocumented*]

Green Economy

Module name (EN): Green Economy

Degree programme: Industrial Engineering, Master, ASPO 01.04.2022

Module code: WIM22-WPM-W-400

Hours per semester week / Teaching method: 4VF (4 hours per week)

ECTS credits: 6

Semester: 1

Mandatory course: no

Language of instruction:
German

Assessment:
Written exam and written composition

[*updated 21.06.2021*]

Applicability / Curricular relevance:
MAMS555 Marketing Science, Master, ASPO 01.04.2016, optional course, general subject
MARPF-555 Accounting and Finance, Master, ASPO 01.04.2016, optional course, general subject
MASCM-555 Supply Chain Management, Master, ASPO 01.04.2017, optional course, general subject
WIMAScWPF-W21 Industrial Engineering, Master, ASPO 01.10.2014, optional course, general subject
WIM22-WPM-W-400 Industrial Engineering, Master, ASPO 01.04.2022, semester 1, optional course, general subject

Workload:
60 class hours (= 45 clock hours) over a 15-week period.
The total student study time is 180 hours (equivalent to 6 ECTS credits).
There are therefore 135 hours available for class preparation and follow-up work and exam preparation.

Recommended prerequisites (modules):
None.

Recommended as prerequisite for:

Module coordinator:
Prof. Dr. Thomas Korne

Lecturer: Prof. Dr. Thomas Korne

[*updated 09.02.2022*]

Learning outcomes:
After successfully completing this module, students will be able to:

- explain the driving forces behind the green transformation of the economy,
- assess products, services and business models with regard to the need for change and the opportunities offered by the green transformation,
- list the causes of major global, national, and regional environmental problems and assess their specific risks,
- derive basic environmental economic arguments and apply them to concrete environmental problems,
- classify current climate policy goals and challenges and transfer them to a corporate level of action,
- assess the sustainability requirements of financial markets and their stakeholders with regard to future investments and business models,
- apply basic tools for evaluating, analyzing and designing resource- and climate-friendly processes, services and products,
- identify and document the green transformation requirements for a concept, product, service, or business model,
- analyze and address a complex green transformation issue taken from the business world (Transformation Plan, Green Business Model Canvas),
- define a coherent division of labor within the framework of a project and to make an independent contribution to the overall success of the project,
- prepare the data from their work in a results-oriented manner, present it freely and explain it in detail when asked,
- document their findings in a structured manner in a short written report.

[*updated 21.06.2021*]

Module content:
- Green Business Model Canvas
- Sustainable innovation management
- Sustainability indicators (national, international, target matrix)
- Environmental problems and their causes / Planetary bounderies
- Goals of a green economy (global Sustainable Development Goals/SDGs, national sustainability indicators).
- Environmental economic approaches, concepts and instruments
- Climate crisis and climate protection as driving forces of a green economy: from the Paris Climate Agreement to the EU Green Deal and the carbon footprint for companies
Circular economy as a driver of the green economy,- basics of analysis methods (LCA, maturity models), examples of tools and implementation.
- The green economy and its funding: Criteria, concepts and institutes
- Technology and innovation management in the context of a green economy
- Opportunities and approaches for green products, services and business models in the context of a green transformation
- Independent creation of a green business model or a green transformation project in the form of project work using the knowledge and skills acquired in the lecture.

[*updated 21.06.2021*]

Teaching methods/Media:
Lecture, discussions, case studies, project, presentations

[*updated 21.06.2021*]

Recommended or required reading:

- Boston Consulting Group/Prognos (2018): Klimapfade für Deutschland, Studie im Auftrag des Bundesverbands der Deutschen Industrie (BDI), Januar
- Bundesregierung: Deutsche Nachhaltigkeitsstrategie, Aktualisierung 2018
- Feess, Eberhard/Seeliger, Andreas (2013): Umweltökonomie und Umweltpolitik, München: Vahlen
- Intergovernmental Panel on Climate Change/IPCC (2014): Summary for Policymakers. In: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change
- Lacy, P., Long, J., Spindler, W. (2020): The circular economy handbook: realizing the circular advantage, London: Palgrave Macmillan
- McKinnon, A. et al (2015): Green Logistics: Improving the environmental sustainability of logistics, 3rd edition, London: Kogan Page
- Osterwalder A., Pigneuer, Y. (2010): Business model generation: a handbook for visionaries, game changers, and challengers, Hoboken, NJ: Wiley
- Rockström, Johan et. al. (2009): Planetary boundaries: exploring the safe operating space for humanity, in: Ecology and Society 14(2) (32), 58
- Schön, S. et al (2020): Transdisziplinäres Innovationsmanagement: Nachhaltigkeitsprojekte wirksam umsetzen, Bielefeld: wbv
- Statistisches Bundesamt/destatis (2018): Nachhaltige Entwicklung in Deutschland, Indikatorenbericht 2018, Wiesbaden

[*updated 21.06.2021*]

Web-Based Knowledge Management

Module name (EN): Web-Based Knowledge Management

Degree programme: Industrial Engineering, Master, ASPO 01.04.2022

Module code: WIM22-WPM-I-701

Hours per semester week / Teaching method: 4V (4 hours per week)

ECTS credits: 6

Semester: 1

Mandatory course: no

Language of instruction:
German

Assessment:
Project (creation of a website)

[*updated 13.09.2018*]

Applicability / Curricular relevance:
MAMS-520 Marketing Science, Master, ASPO 01.04.2016, optional course
MARPF-520 Accounting and Finance, Master, ASPO 01.04.2016, optional course
MASCM-520 Supply Chain Management, Master, ASPO 01.04.2016, optional course
MASCM-520 Supply Chain Management, Master, ASPO 01.04.2017, optional course
WIMAScWPF-FÜ8 Industrial Engineering, Master, ASPO 01.10.2014, semester 3, optional course, general subject
WIM22-WPM-I-701 Industrial Engineering, Master, ASPO 01.04.2022, semester 1, optional course, general subject

Workload:
60 class hours (= 45 clock hours) over a 15-week period.
The total student study time is 180 hours (equivalent to 6 ECTS credits).
There are therefore 135 hours available for class preparation and follow-up work and exam preparation.

Recommended prerequisites (modules):
None.

Recommended as prerequisite for:

Module coordinator:
Prof. Dr. Stefan Georg

Lecturer: Prof. Dr. Stefan Georg

[*updated 16.02.2022*]

Learning outcomes:
After successfully completing this module, students will be able to describe the structure of a knowledge management system.
In addition, they will be able to name the design elements of knowledge management and put them into practice.
Students will be familiar with the tasks of a content management system for creating websites.
They will be able to actively use the content management system Joomla.
Students will be able to add templates, plug-ins and modules to Joomla and use the system to create a knowledge management-based website.

[*updated 13.09.2018*]

Module content:
1. Principles of Knowledge Management
1.1 Basic understanding of knowledge management
1.2 Introducing knowledge management in companies
1.3 Terms and basic concepts

2. Content Management Systems (CMS)
2.1 Principles of content management systems
2.2 The CMS "Joomla!"
2.3 Joomla! extensions

3. Planning a knowledge management-based website
3.1 Developing a suitable website theme
3.2 The basic structure of a website
3.3 Developing knowledge-based content
3.4 Implementing the website

[*updated 13.09.2018*]

Teaching methods/Media:
Course content will be conveyed in a lecture.
Group project work: lectures will be held regularly with individual group work outside the lecture and ongoing assistance/support for the project groups.

[*updated 13.09.2018*]

Recommended or required reading:
- Altmeyer, D./Georg, S.: Die Bedeutung von Wissensmanagement für Unternehmen, 1. Auflage 2002
- Hanke, J.K.: Content Management mit Joomla! 2.5 für Kids, 1. Auflage 2012
- Jardin, D.: Joomla! 2.5: Professionelle Webentwicklung, 1. Auflage 2012
- North, K.: Wissensorientierte Unternehmensführung: Wertschöpfung durch Wissen, 5. Auflage 2011
- Probst, J./Raub, S./Romhardt, K.: Wissen managen. Wie Unternehmen ihre wertvollste Ressource nutzbar machen,
6. Auflage 2010
- Schüppel, J.: Wissensmanagement _ Organisatorisches Lernen im Spannungsfeld von Wissens- und Lernbarrieren,
1. Auflage 1999

[*updated 13.09.2018*]