



Modular concept, with all elements and requirements

Promotion for Sustainability in the Textile and Garment Industry in Asia-FABRIC

Modular concept, with all elements and requirements

-modular handbook examples-



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Germany

**on behalf of giz FABRIC and adelphi consult GmbH
Berlin**

Modular concept, with all elements and requirements

- i. Success Factors
- ii. Training Need and Demand Assessment (next presentation today)
- iii. Curriculum Development Process (flow chart)
- iv. Curriculum Development Team (management set-up)
- v. Formalities within the Curriculum Commission (rules and regulations)
- vi. Formal Approvals of a Curriculum (putting the curriculum into operation)
- vii. External Accreditation

Modular concept, with all elements and requirements

The modular concept prescribes a structure which will be followed by all modules (topics) in the same manner.

This concept contains all the required elements.

Modular = clear structure with "exchangeable modules"

Modules can be combined into a complete study program.

See the example on the right :



Module-Handbook-Page¶

A-Module-Handbook-Page-on-Resource-Management-(as-an-example)-¶

Application of the module ◻	The Module will be applied in the Master study program "Energy and resource efficiency" ◻
Module numbers	M-xyp
Module title	Resource Management
ECTS-Credits ◻	5 ECTS-Credits
Workload and its composition	125 h (100 h self-study, 25 h face-to-face / contact time) ◻
Module aims, trained competencies	This module covers general aspects of resource management but also offers the opportunity to specialize in buildings or industry. It aims to explore management of resources ... Emphasis is placed on: ... ¶ On completion of this module learners will be able to: ¶ <ul style="list-style-type: none"> •→ Classify according to the use of resources, materials and products ¶ •→ Carry out mass- and energy balances ¶ •→ Know and apply methods to increase resource efficiency ◻
Prerequisites	None
Level	Fourth semester
Teaching and learning methods	Face-to-face presence lectures / blended and/or online distance-learning (online lectures, forums, chat and messaging, self-study, exercises, video-podcasts) ◻
Form of module	Compulsory
Frequency of module offers	Every fall semester
Duration of the module	6 months / October to March
Method / duration of examination	Written assignment and exam (90 min) ◻
Calculation of module grade	1/3 written assignment and 2/3 exam ◻
Content	<ol style="list-style-type: none"> 1.→ Terminology and introduction ¶ <ol style="list-style-type: none"> 1.1.→ From resources to materials to products ¶ 1.2.→ Raw material markets, range and limitations, criticality of resources ¶ 2.→ Management of material and water ¶ <ol style="list-style-type: none"> 2.1.→ Balance equations for technical systems: mass and energy ¶ 2.2.→ Material flow cost accounting ¶ 3.→ Resource efficiency of products and processes ¶ <ol style="list-style-type: none"> 3.1.→ Integrated pollution control (IPC) ¶ 3.2.→ Substitution, Eco-design, process optimization, recycling ¶ 4.→ Life cycle assessment (LCA) ¶ <ol style="list-style-type: none"> 4.1.→ Aim and history, Life-Cycle analysis ¶ 4.2.→ Product carbon footprint ¶ 5.→ Research and Future Development ¶ <ol style="list-style-type: none"> 5.1.→ Recent developments for efficient resource management ¶ 5.2.→ Future field of application in industry ◻
Recommended literature	¶ References and study literature communicated at beginning of course. ¶ European Commission (2011): A resource-efficient Europe – Flagship initiative of the Europe 2020 Strategy, Brussels COM (2011) - ¶ UNEP International Resource Panel (2014): E-Book: www.unep.org/resourcepanel ¶ Also see: ¶ www.umberto.de (Software for Material and Energy Accounting), ¶ ◻
Comments	◻

Curriculum Development Process

Curriculum Development Team

TASKS

AKO = Commission

Faculty

Student participation

External Companies



Curriculum PROTOTYPE 1.0

REVIEWS

Finished Curriculum

Approvals

Quality Control (KSL)

Changes

Discussions

Akademic Senate, Government

Curriculum Development Team

Curriculum Development Team

TASKS

AKO = Commission

Faculty

Student participation

External Companies

Setting up the Commission!

REVIEWS

Curriculum PROTOTYPE 1.0

Finished Curriculum

Approvals

Quality Control (KSL)

Changes

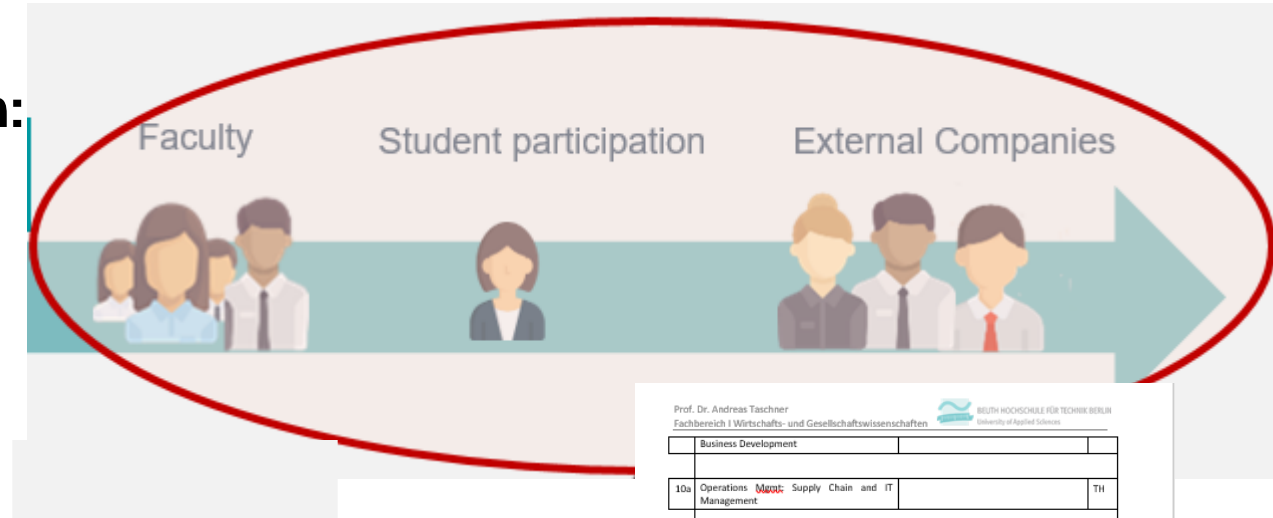
Discussions

Akademic Senate, Government

Set-up / Constitution of a Curriculum Commission

The Constitution of a Curriculum Commission:

- Head of the commission
- Faculty / university employees / Laboratory or assisting Staff
- Students—often in parity with the professors/university employees—laboratory or assisting staff
- External Partner (often with no right to vote)
- Other Guests



power to vote for individual members.

Prof. Dr. Andreas Taschner
 Fachbereich I Wirtschafts- und Gesellschaftswissenschaften
 BEUTH HOCHSCHULE FÜR TECHNIK BERLIN
 University of Applied Sciences

	Business Development		
10a	Operations Manag. Supply Chain and IT Management		TH
10b	Operations Manag. Quality Management		TH
11	Integrated Business Plan Praxischarakter, konkrete Case Study		FS
12	HR and People Management Management and Leadership, Professional Decision Making, Verantwortlicher: Schindler Recruiting, people development, diversity, intercultural issues, etc.		FS

- Die Module 2a und 2b sowie 10a und 10b stellen jeweils Wahlpflichtfächer dar, alle anderen Module sind Pflichtfächer.
 Aktuelle Einteilung der Modulverantwortung:
 BB = Berthold ~~Berold~~
 SE = Susanna ~~Eichmann~~
 AT = Andreas Taschner
 DP = Dieter Pumpe
 FS = Florian Schindler
 TV = Tina Völker (~~Besac~~)
 HS = Hans Schmitz
 TH = Tobias ~~Happel~~

Team Members

Curriculum Development Team

Market / Demand Study
Need Assessment

Curriculum
Development
Team

TASKS

AKO =
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REVIEWS

Curriculum
PROTOTYPE 1.0

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Curriculum Development Team

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iterative (agile) process.

REVIEWS

Curriculum PROTOTYPE 1.0

Finished Curriculum

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Discussions

Akademic Senate, Government

Formalities within the Curriculum Commission

Formalities within the Curriculum Commission:

The set-up has to be defined by the university:

General rules on how to assemble a commission for curriculum development.

Definition of the members of the commission.

The Protocols of the Curriculum Commission have to be kept and shared with a wider faculty group.

New people can be invited to different commission meetings.

The Protocols of the Curriculum Commission

Prof. Dr. Andreas Taschner
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 BEUTH HOCHSCHULE FÜR TECHNIK BERLIN
 University of Applied Sciences

Ausbildungskommission "Renewable Energy Management"
Endgültige Modulliste

Die AKO hat in ihrer Sitzung vom 20. April 2010 die folgende endgültige Modulliste verabschiedet:

Nr.	Modulname (Arbeitsstitel)	Bemerkungen	
1	RE & EE Systems and Concepts	Überblick über die Technologien	BB
The course module will be an introduction and overview on relevant Renewable Energy and Energy Efficient technologies: photovoltaics, solar thermal, concentrating solar power (CSP), wind energy, hydro energy, geothermal, biogas, solid biomass, biofuels and energy efficiency in the built environment and in industry and commerce. Starting with definitions of technical terms the course then introduces the most important physical and electro-technical fundamentals and explains common concepts and applications for heat and electricity generation and energy efficiency. Each technology and the relevant components will be explained, as well as complete systems.			
2a	Advanced Renewable Energy Technologies	Vertiefung in Richtung RE	BB
This module focuses on the integration of renewables into the grid (electricity generation), their use within rural electrification and for heating (hot water for residential, space heating, process heating) or cooling. The relevant aspects of economic viability, spatial planning, system design, approval, commissioning, operation and maintenance for different technologies will be explained. Relevant technology-specific questions like grid integration or integration into existing heating or cooling systems will be addressed.			
2b	Energy Management & Energy Efficiency	Vertiefung in Richtung EE	BB
This module focuses on the integration of energy efficient management, products and applications in industry, and commerce and buildings. The course covers the economics of energy efficient technologies as well as project management issues. The course will impart an understanding of the project management processes to implement energy efficiency projects and develop an understanding of different stakeholders like investors, financing institutions, project developers. The training focuses also on cost effectiveness of different EE measures, legal frameworks and standards.			
3	Leadership, Communication and Negotiation Skills	"Soft skills" oriented	FS
Verantwortlicher? A. Duck? Novak? Uux?			
4	Project Management		DP
Die Studierenden kennen die wichtigsten Methoden des Projektmanagements. Sie sind in der Lage, ein Projekt aufgabengerecht zu strukturieren und die daraus abgeleiteten Methoden einzusetzen. Die Durchführung kann auch auf die Durchführung eines konkreten Projektes der jeweiligen Fachrichtung ausgeweitet werden.			

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 BEUTH HOCHSCHULE FÜR TECHNIK BERLIN
 University of Applied Sciences

Business Development		
10a	Operations Management: Supply Chain and IT	TH
10b	Operations Management: Quality Management	TH
11	Integrated Business Plan Einkaufscharakter, konkrete Case Study	FS
12	HR and People Management Management and Leadership, Professional Decision Making, Verantwortlicher: Schindler Recruiting, people development, diversity, intercultural issues, etc.	FS

Die Module 2a und 2b sowie 10a und 10b stellen jeweils Wahlpflichtfächer dar, alle anderen Module sind Pflichtfächer.
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 BB = Berthold Bredt
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 DP = Dieter Pumpe
 FS = Florian Schindler
 TV = Tina Völker (Bevac)
 HS = Hans Schmitz
 TH = Tobias Uppel

Modular concept

The module handbook gives an overview of all the different topics covered in a study program.

Within the discussions of the curriculum development commission, the module handbook will be developed in an iterative, participatory process.

Last but not least, the module handbook is one of the most important components for the quality control and accreditation process.

Module Handbook Page

A-Module-Handbook-Page-on-Resource-Management-(as-an-example)-

Application of the module	The Module will be applied in the Master study program "Energy and resource efficiency"
Module numbers	M-xyx
Module title	Resource Management
ECTS-Credits	5 ECTS-Credits
Workload and its composition	125 h (100 h self-study, 25 h face-to-face / contact time)
Module aims, trained competencies	This module covers general aspects of resource management but also offers the opportunity to specialize in buildings or industry. It aims to explore management of resources: ... Emphasis is placed on: ... On completion of this module learners will be able to: <ul style="list-style-type: none"> •→ Classify according to the use of resources, materials and products •→ Carry out mass- and energy balances •→ Know and apply methods to increase resource efficiency
Prerequisites	None
Level	Fourth semester
Teaching and learning methods	Face-to-face: presence lectures / blended and/or online distance learning (online lectures, forums, chat and messaging, self-study, exercises, video-podcasts)
Form of module	Compulsory
Frequency of module offer	Every fall semester
Duration of the module	6 months / October to March
Method / duration of examination	Written assignment and exam (90 min)
Calculation of module grade	1/3 written assignment and 2/3 exam
Content	<ol style="list-style-type: none"> 1.→ Terminology and introduction <ol style="list-style-type: none"> 1.1.→ From resources to materials to products 1.2.→ Raw material markets, range and limitations, criticality of resources 2.→ Management of material and water <ol style="list-style-type: none"> 2.1.→ Balance equations for technical systems: mass and energy 2.2.→ Material flow cost accounting 3.→ Resource efficiency of products and processes <ol style="list-style-type: none"> 3.1.→ Integrated pollution control (IPC) 3.2.→ Substitution, Eco-design, process optimization, recycling 4.→ Life cycle assessment (LCA) <ol style="list-style-type: none"> 4.1.→ Aim and history, Life-Cycle analysis 4.2.→ Product carbon footprint 5.→ Research and Future Development <ol style="list-style-type: none"> 5.1.→ Recent developments for efficient resource management 5.2.→ Future field of application in industry
Recommended literature	References and study literature communicated at beginning of course. European Commission (2011): A resource-efficient Europe – Flagship initiative of the Europe 2020 Strategy, Brussels COM (2011) UNEP International Resource Panel (2014): E-Book: www.unep.org/resourcepanel Also see: www.umberto.de (Software for Material and Energy Accounting)
Comments	

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Let us look at the components in detail.



Module Handbook Page¶	
A-Module-Handbook-Page-on-Resource-Management-(as-an-example)-¶	
Application of the module-¶	The Module will be applied in the Master study program "Energy and resource efficiency".¶
Module number-¶	M-xy¶
Module title-¶	Resource Management¶
ECTS-Credits-¶	5 ECTS-Credits¶
Workload and its composition-¶	125 h (100 h self-study, 25 h face-to-face / contact time)¶
Module aims, trained competencies-¶	This module covers general aspects of resource management but also offers the opportunity to specialize in buildings or industry. It aims to explore management of resources... Emphasis is placed on... www¶ On completion of this module learners will be able to:¶ <ul style="list-style-type: none"> •→ Classify according to the use of resources, materials and products¶ •→ Carry out mass- and energy balances¶ •→ Know and apply methods to increase resource efficiency.¶
Prerequisites-¶	None¶
Level-¶	Fourth semester¶
Teaching and learning methods-¶	Face-to-face presence lectures / blended and/or online distance learning (online lectures, forums, chat and messaging, self-study, exercises, video-podcasts)¶
Form of module-¶	Compulsory¶
Frequency of module offers-¶	Every fall semester¶
Duration of the module-¶	6 months / October to March¶
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The components:


Module Handbook Page

A Module Handbook Page on Resource Management (as an example)

Application of the module	The Module will be applied in the Master study program " Energy and resource efficiency " or " Sustainable Textile Manufacturing "
Module number	M 01
Module title	Resource Management

The components:

Let us look at the components in detail.



Module Handbook Page¶

A Module Handbook Page on Resource Management (as an example)¶

Application of the module¶	The Module will be applied in the Master study program "Energy and resource efficiency".¶	x
Module number¶	M-xyp	x
Module title¶	Resource Management	x
ECTS-Credits¶	5 ECTS-Credits¶	x
Workload and its composition¶	125-h (100-h self-study, 25-h face-to-face / contact-time)¶	x
Module aims, trained competencies¶	This module covers general aspects of resource management but also offers the opportunity to specialize in buildings or industry. It aims to explore management of resources... Emphasis is placed on:...¶ On completion of this module learners will be able to:¶ •→ Classify according to the use of resources, materials and products¶ •→ Carry out mass- and energy balances¶ •→ Know and apply methods to increase resource efficiency.¶	x
Prerequisites¶	None¶	x
Level¶	Fourth semester¶	x
Teaching and learning methods¶	Face-to-face presence lectures / blended and/or online distance learning (online lectures, forums, chat and messaging, self-study, exercises, video-podcasts)¶	x
Form of module¶	Compulsory¶	x
Frequency of module offers¶	Every fall semester¶	x
Duration of the module¶	6 months / October to March¶	x
Method / duration of examination¶	Written assignment and exam (90 min)¶	x
Calculation of module grades¶	1/3 written assignment and 2/3 exam.¶	x
Content¶	1.→ Terminology and introduction¶ 1.1.→ From resources to materials to products¶ 1.2.→ Raw material markets, range and limitations, criticality of resources¶ 2.→ Management of material and water¶ 2.1.→ Balance equations for technical systems: mass and energy¶ 2.2.→ Material flow cost accounting¶ 3.→ Resource efficiency of products and processes¶	x

Modular concept, with all elements and requirements

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A Module Handbook Page on Resource Management (as an example)

ECTS-Credits	5 ECTS Credits
Workload and its composition	125 h (100 h self-study, 25 h face to face / contact time)
Module aims, trained competencies	<p>This module covers general aspects of resource management but also offers the opportunity to specialize in buildings or industry. It aims to explore management of resources ... Emphasis is placed on</p> <p>On completion of this module learners will be able to:</p> <ul style="list-style-type: none">• Classify according to the use of resources, materials and products• Carry out mass- and energy balances• Know and apply methods to increase resource efficiency

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Module Handbook Page

A Module Handbook Page on Resource Management (as an example)

Prerequisites	None
Level	Fourth semester
Teaching and learning methods	Face to face presence lectures / blended and or online distance-learning (online lectures, forums, chat and messaging, self-study, exercises, video podcasts)
Form of module	Compulsory

Modular concept, with all elements and requirements





Module Handbook Page

A Module Handbook Page on Resource Management (as an example)

Frequency of module offer	Every fall semester
Duration of the module	6 months / October to March
Method / duration of examination	Written assignment and exam (90 min)
Calculation of module grade	1/3 written assignment and 2/3 exam

Remember this slide: Types of Examinations

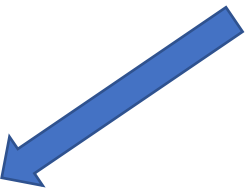
Semester 

- Group Work 
- Written Exam 
- Online Exam 
- Homework 

*under vigilance.

	Module	Einsendeaufgaben	Prüfungsform	Bemerkung
1. Semester				
M01	RE and EE Systems and Concepts	Gruppenarbeit 2/3 (Vorschlag Hr. Breid)	Online Klausur (multiple Choice)	Klausur 1/3 (geändert nach Absprache Hr. Breid)
M02	Energy Policy and Economic Framework	EA	Klausur unter Aufsicht	Klausur 2/3
M03	Accounting	EA	Gruppenarbeit	Gruppe 2/3
2. Semester				
M04a	Advanced Practical Renewable Energy and EE Implementation	Protokoll/Bericht Praktikum 2/3	Klausur unter Aufsicht (multiple Choice) 1/3	Klausur 1/3 (geändert nach Absprache Hr. Breid)
M04b	Quality and Supply Chain Management	EA	Klausur unter Aufsicht	Klausur 2/3
M05	International Business Law	EA	Online-Klausur	Klausur 2/3
M06	Investment and Financing	EA	Gruppenarbeit	Gruppe 2/3
3. Semester				
M07	Project Management	EA	Gruppenarbeit	Gruppe 2/3
M08	Marketing Analysis and Instruments	EA	Klausur unter Aufsicht	Klausur 2/3
M09	HR and People Management	EA	Online-Klausur	Klausur 2/3
4. Semester				
M10	International Management	EA	Klausur unter Aufsicht	Klausur 2/3
M11a	Energy Management and Energy Efficiency	EA	Online-Klausur	Klausur 2/3
M11b	Advanced Renewable Energy Technologies	EA	Online-Klausur	Klausur 2/3
M12	Integrated Business Plan Development	EA	Gruppenarbeit	Gruppe 2/3
5. Semester				
M13	Master Thesis			
M14	Oral Master Examination			

Rating
or
share/ part
of the total result.
= 1/3 plus 2/3



Modular concept, with all elements and requirements

Module Handbook Page

A Module Handbook Page on Resource Management (as an example)

Content

1. Terminology and introduction

1. From resources to materials to products
2. Raw material markets, range and limitations, criticality of resources

2. Management of material and water

1. Balance equations for technical systems: mass and energy
2. Material flow cost accounting

3. Resource efficiency of products and processes

1. Integrated pollution control (IPC)
2. Substitution, Eco design, process optimization, recycling

Modular concept, with all elements and requirements

Module Handbook Page

A Module Handbook Page on Resource Management (as an example)

Content

4. Life cycle assessment (LCA)

1. Aim and history, Life-Cycle analysis
2. Product carbon footprint

5. Research and Future Development

1. Recent developments for efficient resource management
2. Future field of application in industry

Modular concept, with all elements and requirements

Module Handbook Page

A Module Handbook Page on Resource Management (as an example)

Recommended literature

References and study literature communicated at **beginning of course**

European Commission (2011) A resource-efficient Europe – Flagship initiative of the Europe 2020 Strategy. Brussels COM (2011)

UNEP International Resource Panel (2014) E-Book:
www.unep.org/resourcepanel

Also see:

www.umberto.de (Software for Material and Energy Accounting);

Comments

as needed (with reference to the content / didactics)

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