Tata Kelola Pendidikan Tinggi di Jerman selama Pandemi

Hendro Wicaksono
Jacobs University Bremen

Agenda

1. Tugas dan Peran Dosen di Jerman
2. Penyusunan Kurikulum Berkualitas
3. Proses Belajar Daring
4. Penjaminan Mutu Pembelajaran

Tugas dan Peran Dosen di Jerman

Tipe perguruan tinggi di Jerman

Sumber: campusgermany.de

Tipe perguruan tinggi lain

- Berufsakademie (BA)/ University of Cooperative Education: **dual system**
- Pädagogische Hochschule (pendidikan guru)
- Musisch-künstlerische Hochschule (perguruan tinggi kesenian)
- Theologische Hochschule (perguruan tinggi ilmu agama)
- Fachhochschulen für öffentliche Verwaltung (FHöV) and DHV Speyer (perguruan tinggi ilmu administrasi publik)

Hubungan timbal balik antara industri dan perguruan tinggi

- Rekrutmen tenaga pengajar (sains terapan)
- Kontrak dan pendanaan riset
- Dosen tamu
- Akreditasi

- Kerja praktek
- Transfer hasil riset
- Konsultasi
- Pasokan tenaga kerja

Perbedaan dosen di Indonesia dan Jerman

Kualifikasi	S2 atau S3	++ S3 ++
Linearitas vs. transdisiplin	Linearitas penting	Transdisiplin adalah kekuatan
Penentu perekrutan	Pengambil kebijakan	Pengguna: sejawat, industri, mahasiswa, ...
Otoritas	Sesuai kebijakan pemerintah/ pengambil kebijakan	<i>Freedom of teaching and research</i>
Akses sumber daya	Dikelola oleh „home base“, seperti program studi, fakultas	Sebagai pengelola
Beban mengajar	12 SKS?	9/10 SWS (Uni), 18 SWS (FH/UAS)
Evaluasi kinerja	Terstandardisasi nasional	Berdasarkan kesepakatan dengan memperhatikan kelebihan dan kekurangan
Mobilitas karir akademis-industri	Hampir tidak memungkinkan	Memungkinkan

Penyusunan Kurikulum Berkualitas

Proses penyusunan kurikulum sebuah program studi

Tahap umum penetapan kurikulum dan deskripsi modul/mata kuliah

Contoh Kurikulum

JACOBS
UNIVERSITY

Contoh Konsep Pendidikan Level Universitas

Tujuan Utama	Karakteristik yang ingin dicapai	Instrumen yang dipilih
Kualitas akademis	Pengajaran yang berkualitas	<ul style="list-style-type: none"> Aturan integritas akademik Prosedur seleksi profesor/dosen <i>Onboarding</i> untuk dosen Format belajar-mengajar Sistem <i>Choice-Core-Career (CCC)</i> <i>Academic advising</i>
	Kelayakan untuk studi	
Pengembangan kepribadian	Kompetensi diri	<ul style="list-style-type: none"> <i>Interdisciplinarity</i> <i>World track</i> <i>Campus life</i> Format belajar mengajar Komunitas
	Komperensi sosial	
Internasionalitas	Keragaman budaya	<ul style="list-style-type: none"> Kelas internasional Mobilitas internasional Kampus internasional Intercultural training and conseling
	Kompetensi antarbudaya (intercultural competence)	
Kualifikasi untuk dunia kerja	Kompetensi profesional	<ul style="list-style-type: none"> Sistem CCC Triangle World track Proyek dalam mata kuliah Proyek dengan industri Kerja praktek <i>Career service center</i>
	Kompetensi antar bidang	

Komponen dalam sebuah kurikulum

1. Deskripsi umum program studi dan kelebihanannya dibanding program-program lain
2. Qualification aims dan Intended Learning Outcomes (ILO) program studi
3. Pilihan karir
4. Persyaratan masuk
5. Struktur kurikulum: 3C, Major-Minor, Kerja Praktik, Spesialisais, dll.
6. Deskripsi modul/ mata kuliah
7. Matrix ILO

Dikomunikasikan ke mahasiswa sebelum masuk

Contoh deskripsi kelebihan program studi

- Acquire a most versatile skill set of combined management and engineering skills
- Benefit from individual career services to plan and start your personal career at a leading company or organization
- Benefit from our employability focus approach with access to top internships and study abroad options
- Enjoy high academic standards, favorable student-to-teacher ratios and approachable faculty
- Live and learn on an international campus with talents from more than 100 nations

Konsep 3C Jacobs University

Contoh Schematic Study Plan

BSc Degree in Industrial Engineering and Management (180 CP)

Year 3	Bachelor Thesis / Seminar (m, 15 CP)			Specialization (me, 3 x 5 CP)		
	Internship/Start-Up (m, 30 CP)					
Year 2	CORE International Strategic Management (m, 7.5 CP)	CORE* Process Modelling & Simulation (m, 5 CP)	CORE Lean Supply Management (m, 5 CP)	CORE Production & Technology Management (m, 5 CP)	Methods/Skills Appl. Statistics with R (m, 5 CP)	Language (me, 2.5 CP)
	CORE Applied Project Management (m, 7.5 CP)	CORE* Production Planning & Control (m, 5 CP)	CORE* Product & Production System Design (m, 5 CP)	CORE Operations Research (m, 5 CP)	Methods/Skills Programming in Python (m, 5 CP)	Language (me, 2.5 CP)
Year 1	CHOICE* General Logistics (m, 7.5 CP)	CHOICE Introduction to Finance and Accounting (m, 7.5 CP)	CHOICE Own Selection (me, 7.5 CP)		Methods/Skills Finite Mathematics (m, 5 CP)	Language (me, 2.5 CP)
	CHOICE* General Industrial Engineering (m, 7.5 CP)	CHOICE Introduction to International Business (m, 7.5 CP)	CHOICE Own Selection (me, 7.5 CP)		Methods/Skills Applied Calculus (m, 5 CP)	Language (me, 2.5 CP)
Area	CHOICE / CORE 90 CP				JACOBS TRACK 30 CP	

Industry 4.0 Technologies

Contoh Schematic Study Plan

B.Sc. Degree in Computer Science at Jacobs University (180 CP)

Contoh Schematic Study Plan

B.A. International Relations: Politics and History (180 CP)					
Year 3	Bachelor Thesis / Seminar (m, 15 CP)				Big Questions (me, 5 CP)
	Study Abroad Option (22.5 CP)				Big Questions (me, 2.5 CP)
	Specialization (me, 3 x 5 CP)				Community Impact Project (m, 5 CP)
Year 2	Internship/Start-Up (m, 15 CP)				
	CORE* Understanding International Political Economy (me, 7.5 CP)	CORE History of Globalization (me, 5 CP)	CORE International Law (me, 5 CP)	CORE International Resource Politics (me, 5 CP)	Methods/Skills Data Collection and Empirical Research Methodologies (m, 5 CP)
	CORE* Advanced International Relations Theory (me, 7.5 CP)	CORE Empires and Nation States (me, 5 CP)	CORE Regional Integration (me, 5 CP)	CORE Diplomacy and Foreign Policy (me, 5 CP)	Language (me, 2.5 CP)
	CORE* Advanced International Relations Theory (me, 7.5 CP)	CORE Empires and Nation States (me, 5 CP)	CORE Regional Integration (me, 5 CP)	CORE Diplomacy and Foreign Policy (me, 5 CP)	Language (me, 2.5 CP)
Year 1	CHOICE* Introduction to Modern European History (m, 7.5 CP)	CHOICE Own Selection (me, 7.5 CP)	CHOICE Own Selection (me, 7.5 CP)	Methods/Skills Data Collection and Empirical Research Methodologies (m, 5 CP)	Language (me, 2.5 CP)
	CHOICE* Introduction to International Relations Theory (m, 7.5 CP)	CHOICE Own Selection (me, 7.5 CP)	CHOICE Own Selection (me, 7.5 CP)	Methods/Skills Qualitative Research Methods (m, 5 CP)	Language (me, 2.5 CP)
Year 1	CHOICE* Introduction to Modern European History (m, 7.5 CP)	CHOICE Own Selection (me, 7.5 CP)	CHOICE Own Selection (me, 7.5 CP)	Methods/Skills Applied Statistics with R Applied Statistics with SPSS (me, 5 CP)	Language (me, 2.5 CP)
	CHOICE* Introduction to International Relations Theory (m, 7.5 CP)	CHOICE Own Selection (me, 7.5 CP)	CHOICE Own Selection (me, 7.5 CP)	Methods/Skills Academic Writing and Academic Skills (m, 5 CP)	Language (me, 2.5 CP)
Area	CHOICE / CORE 90 CP				JACOBS TRACK 45 CP

Contoh Schematic Study Plan

BSc Biochemistry and Cell Biology (180 CP)					Big Questions (me, 5 CP)	Big Questions (me, 2.5 CP)	
Year 3	Bachelor Thesis / Seminar (m, 15 CP)						
	Study Abroad Option (22.5 CP)				Community Impact Project (m, 5 CP)	Big Questions (me, 2.5 CP)	
	Specialization (me, 3 x 5 CP)						
Year 2	Internship/Start-Up (m, 15 CP)						
	CORE* Infection and Immunity (me, 7.5 CP)	CORE Advanced Biochemistry II (m, 5 CP)	CORE Advanced Biochemistry Lab (m, 5 CP)	CORE Advanced Cell Biology II (m, 5 CP)	Methods/Skills Plant Metabolites and Natural Products (m, 5 CP)	Language (me, 2.5 CP)	
	CORE* Microbiology (me, 7.5 CP)	CORE Advanced Biochemistry I (m, 5 CP)	CORE Advanced Cell Biology I (m, 5 CP)	CORE Advanced Cell Biology Lab (m, 5 CP)	Methods/Skills Programming in Python Analytical Methods (me, 5 CP)	Language (me, 2.5 CP)	
	CHOICE* General Cell Biology (m, 7.5 CP)	CHOICE General Organic Chemistry (m, 7.5 CP)	CHOICE Own Selection (me, 7.5 CP)		Methods/Skills Physics for the Natural Sciences (m, 5 CP)	Language (me, 2.5 CP)	
Year 1	CHOICE* General Biochemistry (m, 7.5 CP)	CHOICE General and Inorganic Chemistry (m, 7.5 CP)	CHOICE Own Selection (me, 7.5 CP)		Methods/Skills Mathematical Concepts for the Sciences (m, 5 CP)	Language (me, 2.5 CP)	
	CHOICE / CORE 90 CP				JACOBS TRACK 45 CP		

Contoh Schematic Study Plan

* Choose freely from a portfolio of offered modules in the respective area.

m = mandatory

me = mandatory elective

Contoh Schematic Study Plan

m = mandatory

me = mandatory elective

* Choose from a portfolio of offered modules in the respective area.

**Students can replace the capstone project and two of the indicated elective career modules with an internship.

Komponen dalam sebuah kurikulum

1. Deskripsi umum program studi dan kelebihanannya dibanding program-program lain
2. Qualification aims dan Intended Learning Outcomes (ILO) program studi
3. Pilihan karir
4. Persyaratan masuk
5. Struktur kurikulum: 3C, Major-Minor, Kerja Praktik, Spesialisais, dll.
6. Deskripsi modul/ mata kuliah
7. Matrix ILO

Dikomunikasikan ke mahasiswa sebelum masuk

Contoh Deskripsi Modul/ Mata Kuliah

Module Name			Module Code	Level (type)	CP
Industry 4.0 and Blockchain Technologies			CA-S-IEM-801	Year 3 (Specialization)	5
Module Components					
Number	Name			Type	CP
CA-IEM-801-A	Industry 4.0 Technologies			Lecture	2.5
CA-IEM-801-B	Blockchain Applications in Industrial Engineering			Seminar	2.5
Module Coordinator Prof. Dr.-Ing. Hendro Wicaksono		Program Affiliation • Industrial Engineering & Management (IEM)		Mandatory Status Mandatory/elective for IEM	
Entry Requirements			Frequency	Forms of Learning and Teaching	
Pre-requisites	Co-requisites	Knowledge, Abilities, or Skills	Annually (Spring)	<ul style="list-style-type: none">• Lecture (17.5 hours)• Seminar (17.5 hours)• Private Study and Project Work (90 hours)	
☒ Production and Technology Management	☒ None	☒ None	Duration 1 semester	Workload 125 hours	
Recommendations for Preparation Learn or practice basic functions in SQL database.					
Content and Educational Aims In the "Industry 4.0 Technologies" module component, industry 4.0, a concept coined by the German Federal Government that refers to the fourth industrial revolution, will be introduced. Industry 4.0 is characterized by the interlinking of industrial production with modern information and communication technologies, such as the internet of things, big data, and augmented/virtual/mixed reality. This module aims to provide exposure to a range of information and communication technologies currently applied to support production and logistics processes. Afterwards, the core Industry 4.0 technologies and their technical, business, and ethical impacts will be introduced. The students will work on a group case study project to analyze the applications and impacts of industry 4.0-related technologies in different sectors, such as manufacturing, logistics, agriculture, and construction. In the "Blockchain Applications in Industrial Engineering" module component, students will learn and experience the blockchain approach. The potential of blockchain technology for the field of industrial engineering will be discussed and different blockchain applications in this field will be presented. This module covers private blockchains (i.e., applications in industrial engineering) and public blockchains (e.g., token-based blockchains and cryptocurrencies). During the module, a project will be carried out covering the design, development, and implementation of a blockchain simulation. With the support of the lecturer, the students create a simulation on a pen-and-paper basis. The simulation follows the game-based learning principle so that the students experience the concept of the blockchain approach and its application.					

Intended Learning Outcomes

By the end of this module, students will be able to

- explain the motivation, development history, and core technologies of industry 4.0;
- distinguish between the roles of technical and business information systems;
- distinguish and give examples of functions covered by different information systems;
- explain the infrastructure and technologies required for industry 4.0 and the resulting improvements;
- assess the possible business models, environmental, social, and ethical impacts of industry 4.0 applications.
- explain the blockchain approach, including the basic concepts of cryptography and smart contracts;
- discuss the challenges, advantages, and disadvantages of private and public blockchains;
- analyze different consensus algorithms and demonstrate their advantages and disadvantages;
- illustrate different applications of the blockchain approach in the field of Industrial engineering (e.g., production, logistics, and finance);
- design and implement a blockchain simulation;

Indicative Literature

Not specified

Usability and Relationship to other Modules

- Mandatory elective specialization module for 3rd year IEM major students
- Elective for all other undergraduate study programs

Assessment

Type: Project (Group Assessment)

Weight 100%

Scope: All intended learning outcomes of the module.

Proses Belajar Daring

Praktik umum di Jerman

Proses belajar mengajar

(Hall & Kidman 2004)

Proses belajar konvensional

Sumber: KIT

Akibatnya...

Proses belajar kekinian

Dampak Covid-19 di dunia pendidikan di Jerman

- *Physical distancing*: membutuhkan ruangan yang besar
- Kegiatan belajar mengajar harus bertransformasi ke daring dalam waktu singkat
- Bantuan dana pemerintah untuk perguruan tinggi untuk bertransformasi. Bremen: 4 juta Euro, Nordrhein Westfalen: 20 juta Euro
- Inisiatif praktisi pendidikan perguruan tinggi: <https://hochschulforumdigitalisierung.de/>

Gambar: KIT

Solusi teknologi dan organisasi

- Pembentukan *task force* transformasi digital, terdiri atas mahasiswa, dosen, staff IT, staff admin.
- Standardisasi penggunaan software dan internal support:
 - Webinar/kuliah daring: Zoom dan Microsoft Team
 - Ujian daring: LPLUS dan Pruefstern
 - Learning management system: moodle
 - Gamification: kahoot, mentimeter, tool bidang spesifik: Tygron, FreshConnection
- Training dan *knowledge base*
- Regulasi untuk keamanan informasi
- Strategi untuk komunikasi yang efektif

Gambar: Pruefstern

Didaktik pembelajaran online

- Memastikan perlengkapan teknis berfungsi dengan baik
- Menetapkan aturan main di awal
- Pengecekan berkala keefektifan proses belajar-mengajar
- Diversifikasi modus mengajar, setiap 20 menit ganti modus
- Mengalokasikan waktu lebih diluar jadwal mengajar untuk mahasiswa
- Menerapkan metode *blended learning*

Gambar: Jacobs University

Gambar: Jacobs University

Pembelajaran di era digital

Classical learning

Modern learning

Peran teknologi digital

Teknologi digital bukan menggantikan peran guru,
tapi **meningkatkan *experience* dari proses belajar**

Behaviorism

- Quiz online
- Gamification
- VR

Cognitivism

- Penyajian materi
- Alat bantu pemahaman materi ajar: buku, diktat, slides
- Kombinasi format materi

Constructivism

- Mindmap: menyediakan struktur berpikir
- Konteks materi: pengalaman sehari-hari, masalah aktual
- Pelaksanaan proyek dan kerja kelompok
- Flipped classroom

Strategi lain dalam pemanfaatan teknologi digital

Classroom
Face to Face

Online
E-Learning

Hybrid Classroom

Perangkat Hybrid Classroom

Gambar: Amazon

Penjaminan Mutu Pembelajaran

Feedback mahasiswa setiap mata kuliah

- Kualitas materi: struktur materi, pencapaian tujuan pembelajaran, kualitas materi
- Kualitas pengajar: penyampaian materi, bahasa, approachable, fairness
- Beban kerja mahasiswa
- Inspirasi mata kuliah dan pengajar
- Komentar bebas

Student experience survey tahunan

- Survey per program studi
- Kriteria yang survey
 - Kepuasan program studi
 - Kelayakan studi
 - Beban kerja
 - Hubungan dosen-mahasiswa
 - Infrastruktur dan fasilitas
 - Kesetaraan dan diskriminasi
 - Pandangan masa depan
 - Komunitas dan internasionalitas

Round table semesteran

- Per program studi
- Duduk bersama antara koordinator program studi, perwakilan dosen, mahasiswa, perwakilan unit *quality management (QM)*
- Sarana membahas hasil *student experience survey*
- Mahasiswa memberikan feedback langsung
- QM mengkoordinasi *action points*

Gambar: TrojanVision

Terima Kasih

Hendro Wicaksono 🧑

h.wicaksono@jacobs-university.de ✉

<http://indeed.user.jacobs-university.de/> 🌐

<https://www.linkedin.com/in/hendrowicaksono/>