Information Systems 1

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J.C. Penney

The company J.C. Penney sells shirts through a network of local warehouses.

Formerly, it replenished sold items by stocking:

- Each warehouse stocks shirts for up to 3 month.
- Warehouses are supplied from regional storehouses that stock shirts for up to 6 months.

J.C. Penney

Nowadays, replenishing works completely different:

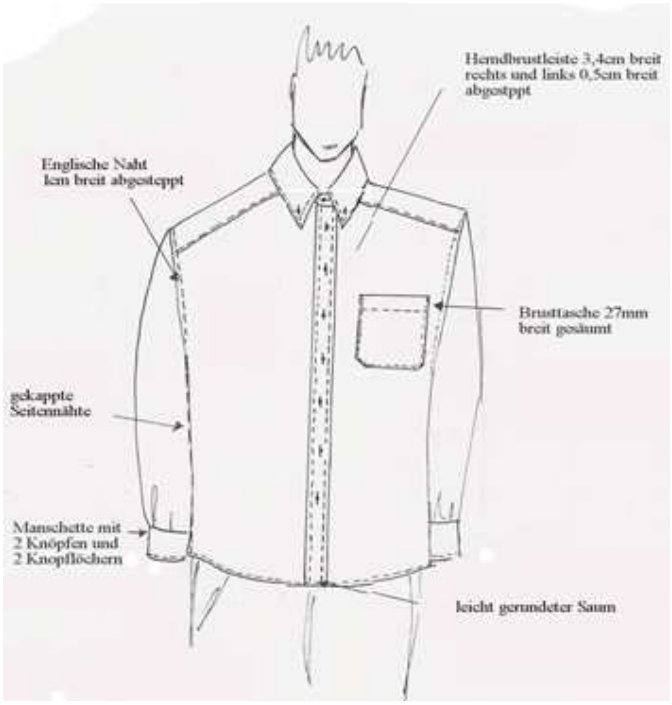
- At checkout each transaction is reported electronically to TAL Apparel Ltd. in Hongkong.
- TAL produces a new shirt like the one just bought and ships it directly to the local warehouse.
- TAL's application system uses the demand on different shirts in the past to predict the number of shirts needed in each store.
- TAL assigns article numbers and bar codes for easy identification of different shirts.
- TAL offers information about which shirts have been sent, when, and where they are right now.

J.C. Penney

The new method for replenishing has side effects, e.g., for development and testing of new shirts:

- TAL produces a lot of variants (colors, sizes, shapes, etc.) and sents them directly to the warehouses.
- Penney can base their choices for new shirts on sales figures of the test shirts.

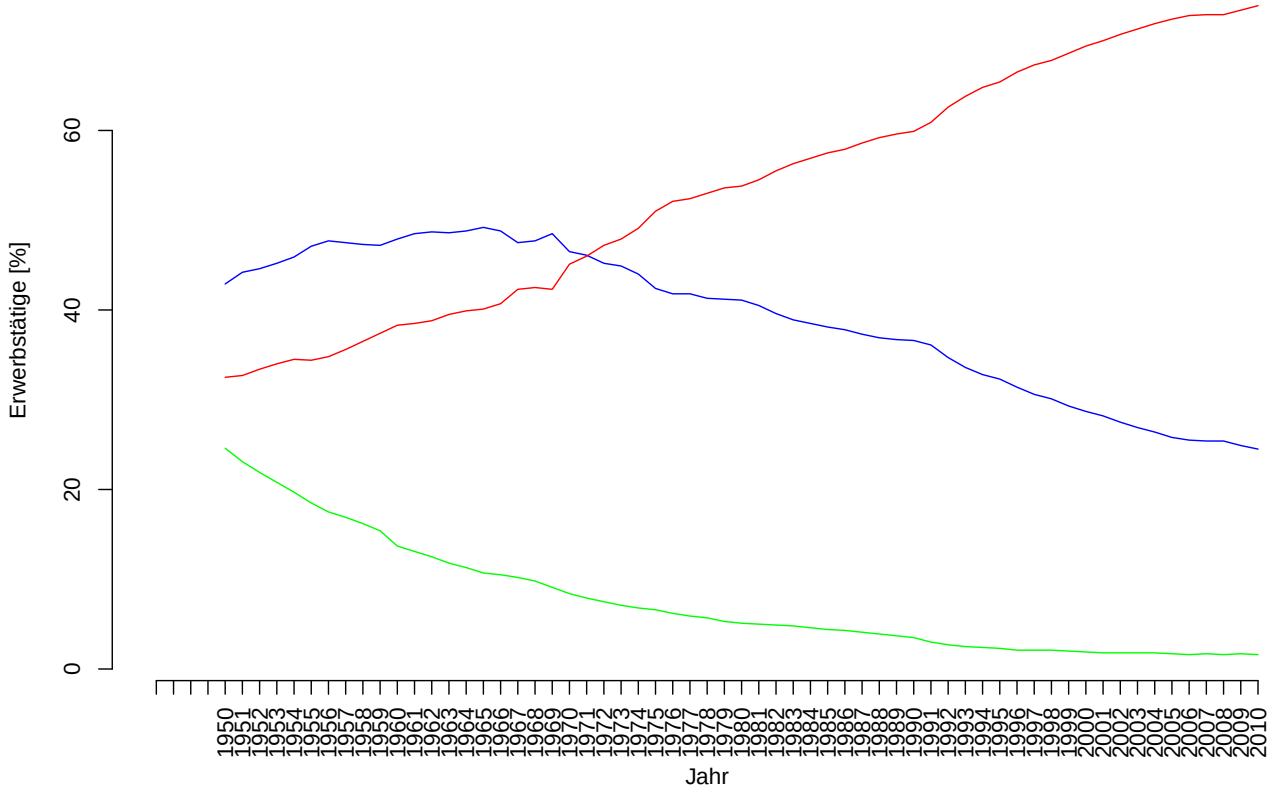
[LLS06]



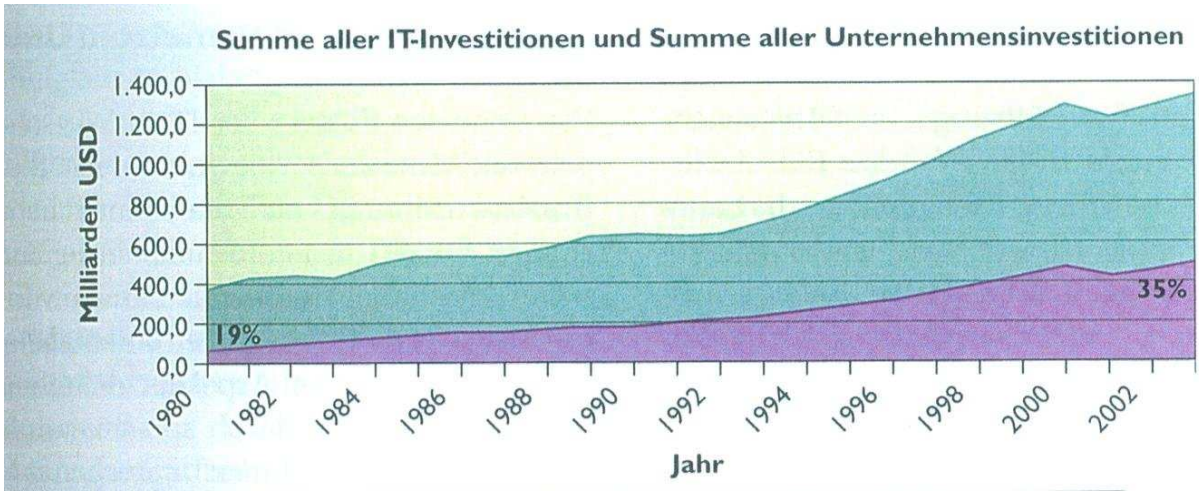
Information Technology in Business (1/2)

[LLS06]

Information Technology in Business (1/2)



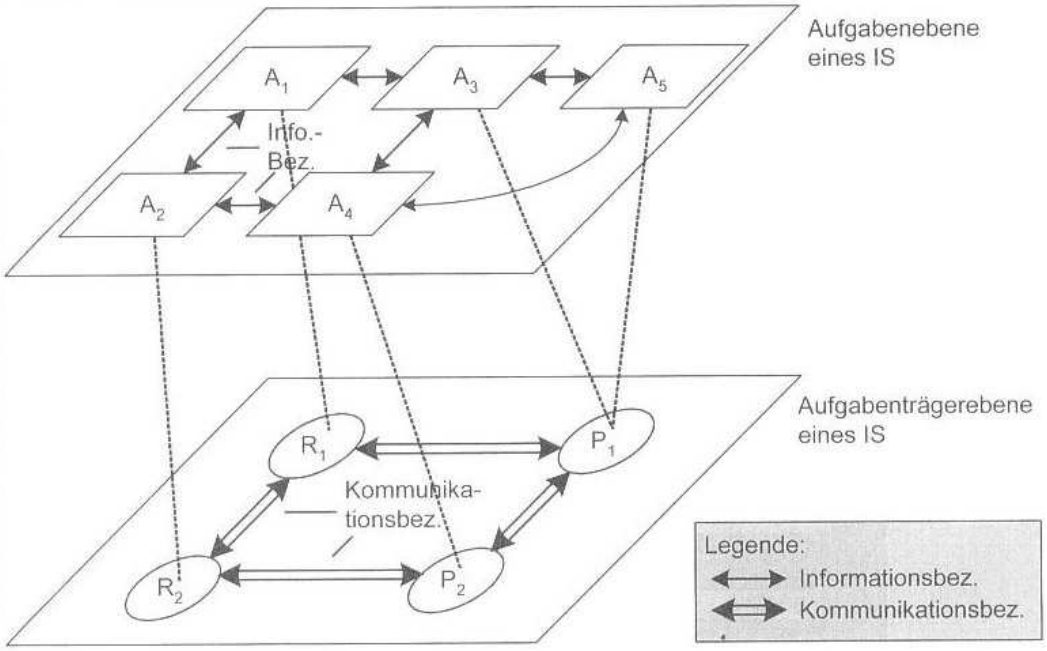
Information Technology in Business (2/2)



[LLS06]

Information Systems

"Unter einem Informationssystem [wird] ein System verstanden, das Informationen verarbeitet, d.h., erfasst, überträgt, transformiert, speichert und bereitstellt"[FS06, p.



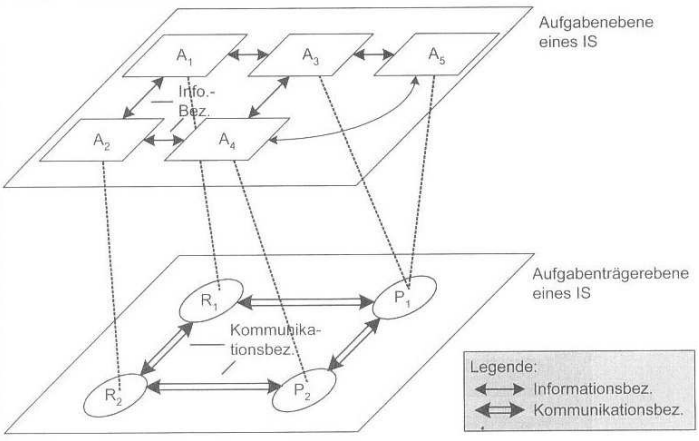
Information Systems

"Unter einem Informationssystem [wird] ein System verstanden, das Informationen verarbeitet, d.h., erfasst, überträgt, transformiert, speichert und bereitstellt" [FS06, p. 1].

*

"A computer is a machine which manipulates data according to a list of instructions" [English Wikipedia, "Computer", 23.10.2007].

"Ein Computer, auch Rechner genannt, ist ein Apparat, der Informationen mit Hilfe einer programmierbaren Rechenvorschrift verarbeiten kann" [German Wikipedia, "Computer", 23.10.2007].



[FS06]

Application Systems vs. Information Systems

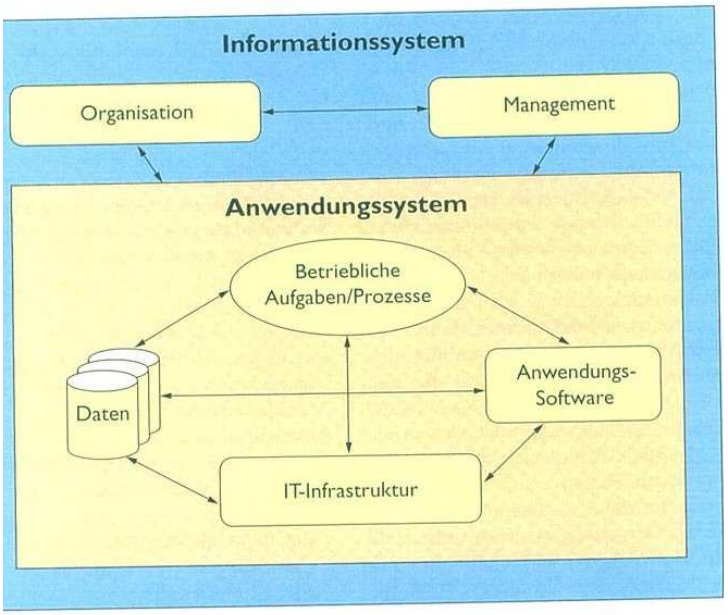
An **Application System** is a set of interoperating

- software programs,
- IT infrastructure and
- data

that supports a specific business domain.

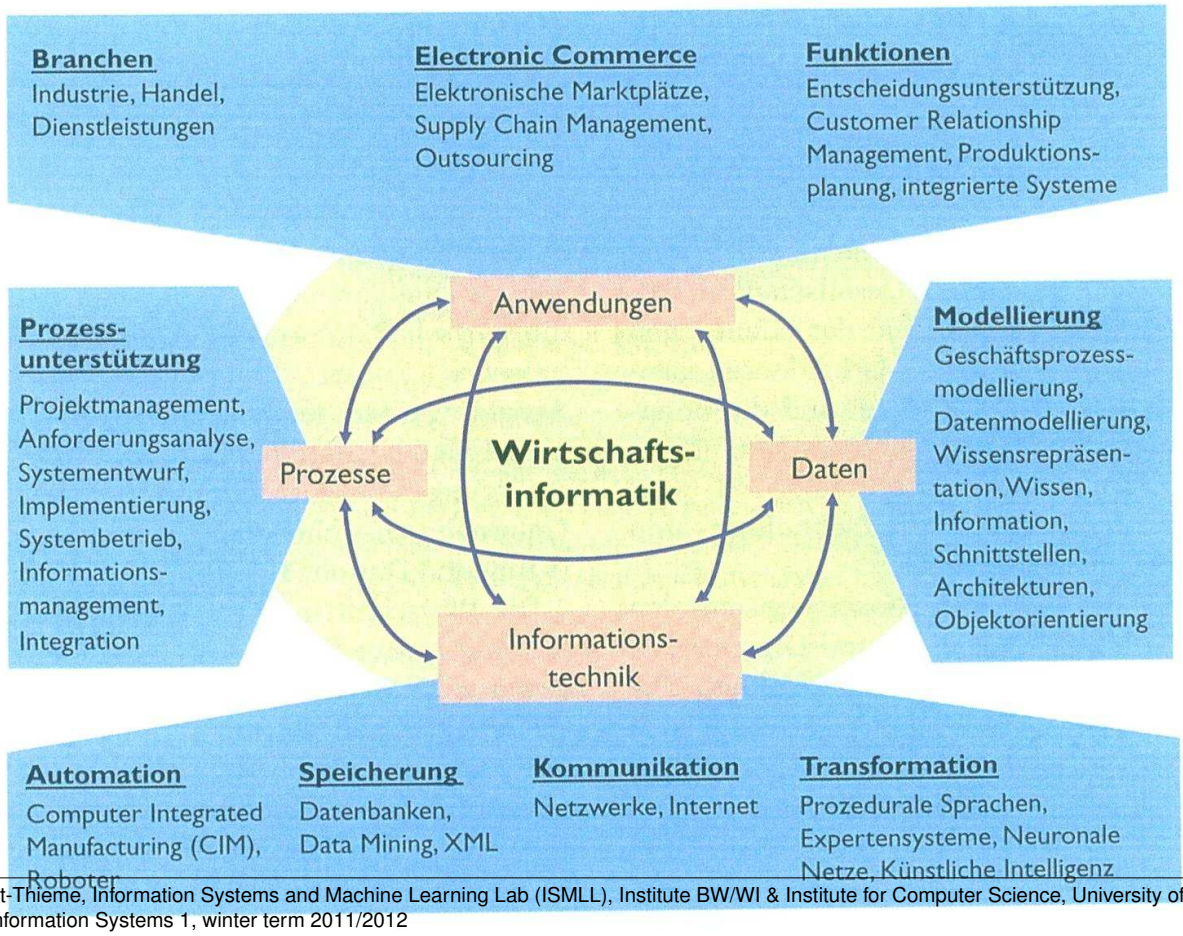
An **Information System** is an application system plus its business context, i.e., the organisation, people, etc. that use the system.

Application systems are **technical systems**, information systems **socio-technical systems**.



[LLS06]

Aspects of Business Information Systems [LLS06]



Software usually not considered to be Part of an Information System

1. **office software**
   — but, companies started to collect all their documents in document warehouses and index them by knowledge bases.

2. **embedded software to operate a machine**
   — but, in many scenarios machines generate some output that may be of further interest and thus should be managed by an information system.

3. **educational software**
   — but, some modern educational software no longer is a monolithic isolated stand-alone piece of software, but connects learners and teachers through an online platform.

4. **entertainment software**

Information Systems Program Contents — GI Recommendation [fI03]

1. **Basics:**
   subdisciplines; relation to business management; law; behavioral sciences; computer industry.

2. **Information and Communication Technology:**
   computer architecture; hardware, software, middleware and development platforms; networks; communication.

3. **Information Management:**
   information as agent of production; information supply; information networks; security; information system architectures.

4. **Business Information Systems / E-Commerce & E-Business:**
   information systems oriented at economics sectors; information systems oriented at processes and functions; integration; electronic market places.

5. **Application System Development:**
   analysis, design, implementation, deployment; web-based systems; choice, customization and deployment of standard software; system integration.

6. **Data and Knowledge:**
   data models and data bases; data warehouse; knowledge representation and engineering.

7. **Disposition and Decision Support:**
   mathematical and statistical models and methods; operations research; artificial intelligence; methods of strategic management.

1. What are Information Systems?

2. Information Systems Program at U Hildesheim

3. Organizational stuff

Overview Bachelor Program

<table>
<tr><td>Grundlagen der Wirtschaftsinformatik (standardisierter Pflichtteil) 28 ECTS</td><td rowspan="2">Grundlagen der Betriebswirtschaft (standardisierter Pflichtteil) 36 ECTS</td><td rowspan="2">Grundlagen der Informatik (standardisierter Pflichtteil) 37 ECTS</td><td>Grundlagen der Methoden (standardisierter Pflichtteil) 24 ECTS</td></tr>
<tr><td>Vertiefung Wirtschaftsinformatik (Auswahl eines Gebietes) 11 ECTS</td><td>Wahlbereich 13 ECTS</td></tr>
<tr><td colspan="3">Seminar BW | Informatik 3 ECTS</td><td></td></tr>
<tr><td colspan="4">Wirtschaftspraktikum 13 ECTS</td></tr>
</table>

Detailed Bachelor Program

	Wirtschaftsinformatik i.e.S.			Betriebswirtschaft			Informatik			Grundlagen			Wahlbereich			
1	V Einführung WI 1	2	3	V Betriebswirtschaft 1	2+2	6	V Einf. i. d. Informatik	3+2	8	V Diskrete Methode	3+2	8				33
				V Externes Rechnungswes	1+1	3	P Programmierpraktikum	3	5							
2	V Einführung WI 2	2+2	6	V Betriebswirtschaft 2	2+2	6	V Algorithmen	3+2	8	V Analytische Methi	3+2	8				31
				V Internes Rechnungswes	1+1	3										
3	V WI 3	2+2	6	V Marketing A	2+2	6	V Datenbanken	3+2	8	V Statistische Methi	3+2	8				28
4	V WI 4	3+2	8	S Informatik | BW (*)		2	3	V Grundlagen des Software Ei	3+2	8						19
								S Informatik | BW (*)	2	3						
	WIRTSCHAFTSPRAKTIKUM															13
5	V aus einem WI-Gebiet	3+2	8	V Produktion A	2+2	6							V Wahlbereich	2+2	6	28
	P Wirtschaftsinformatik	3	5										S Wahlbereich	2	3	
6	S Wirtschaftsinformatik	2	3	V Logistik A	2+2	6							P Wahlbereich	3	4	13
	BACHELORARBEIT															15
		39			37.5			38.5			24			13		180

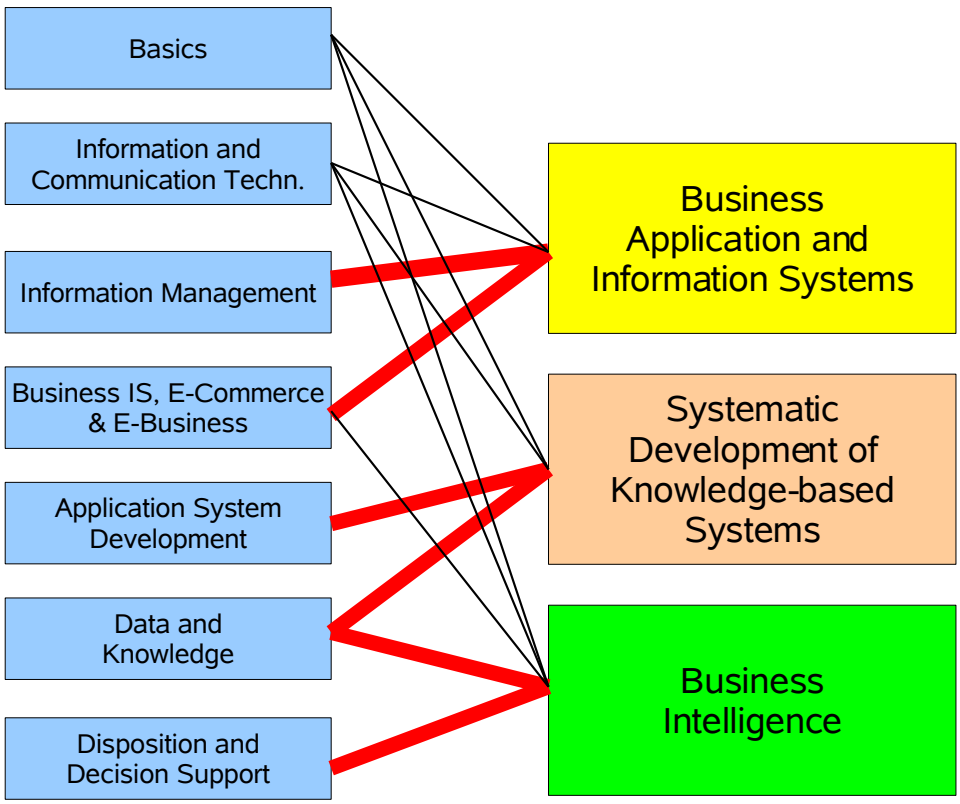
Master Program

Wirtschaftsinformatik		Betriebswirtschaft		Informatik		Methoden
21-32 ECTS		21-32 ECTS		21-32 ECTS		6-17 ECTS
Vertiefungs-gebiet	Neben-gebiet	Vertiefungs-gebiet	Neben-gebiet	Vertiefungs-gebiet	Neben-gebiet	Wahlbereich 10 ECTS

Detailed Master Program

em.	Informatik	Betriebswirtschaft	Wirtschaftsinformatik i.e.S.	Methoden	Wahlbereich
1	V aus einem Info-Gebiet 3+2 8	V aus einem BW-Gebiet 2+2 6	V aus einem Winf-Gebiet 3+2 8	V Methoden-Vorlesı3+2 8	
2	V aus einem Info-Gebiet 3+1 7	V aus einem BW-Gebiet 2+2 6	V aus einem Winf-Gebiet 3+1 7 S Seminar 2 3		V aus dem Wahlbereich 3+1 7
3	V aus einem Info-Gebiet 2+2 6 S aus einem Info-Gebiet 2 3	V aus einem BW-Gebiet 2+2 6 P aus einem BW-Gebiet 4 6	P Praktikum aus einem Winf-G 4 6		S aus dem Wahlbereich 2 3
4	MASTERARBEIT				
	24 mind. 21	24 mind. 21	24 mind. 21	8 mind. 6	10

Information Systems Areas at U Hi



IS Areas at U Hi / Business Application and IS

Business Application and Information Systems

Veranstaltung	Lehrform/SWS	Credits
Requirements Engineering	2 SWS Vorlesung, 2 SWS Übung	6 ECTS
Prozesse und Management des Software Engineering	2 SWS Vorlesung, 2 SWS Übung	6 ECTS
Betriebliche Informationssysteme	2 SWS Vorlesung, 2 SWS Übung	6 ECTS
Betriebliches Informationsmanagement	2 SWS Vorlesung	3 ECTS
Projektplanung und Projektmanagement	2 SWS Vorlesung, 2 SWS Übung	6 ECTS
Data Warehousing	2+2 SWS Vorlesung	6 ECTS
Seminar Betriebliche Informationssysteme	2 SWS Seminar	3 ECTS
Seminar Software Engineering	2 SWS Seminar	3 ECTS
Grundpraktikum Entwicklung von Informationssystemen	3 SWS Praktikum	5 ECTS
Praktikum SAP	4 SWS Praktikum	6 ECTS

IS Areas at U Hi / Systematic Dev. of Knowledge-based Syst.

Systematic Development of Knowledge-based Systems

Veranstaltung	Lehrform/SWS	Credits
Wissensbasierte Systeme	3 SWS Vorlesung, 2 SWS Übung	8 ECTS
Requirements Engineering	2 SWS Vorlesung, 2 SWS Übung	6 ECTS
Prozesse und Management des Software Engineering	2 SWS Vorlesung, 2 SWS Übung	6 ECTS
Verteilte lernende Systeme	3 SWS Vorlesung, 1 SWS Übung	7 ECTS
Seminar Systematische Entwicklung wissensbasierter Systeme	2 SWS Seminar	3 ECTS
Grundpraktikum Entwicklung von Informationssystemen	3 SWS Praktikum	5 ECTS
Praktikum Wissensbasierte Systeme	3 SWS Praktikum	5 ECTS

IS Areas at U Hi / Business Intelligence

Business Intelligence

Veranstaltung	Lehrform/SWS	Credits
Business Intelligence	4 SWS Vorlesung, 2 SWS Übung	9 ECTS
Data Warehousing	2+2 SWS Vorlesung	6 ECTS
Approximations- und Online-Algorithmen	2 SWS Vorlesung, 2 SWS Übung	6 ECTS
Seminar Business Intelligence	2 SWS Seminar	3 ECTS
Praktikum Data Mining	4 SWS Praktikum	6 ECTS
Praktikum Approximations- und Online-Algorithmen	4 SWS Praktikum	6 ECTS

Wahlbereich

Derzeit existieren folgende Wahlbereiche (13 ECTS im Bachelor):

1. jedes Gebiet der Wirtschaftsinformatik i.e.S.,
2. jedes Gebiet der Informatik,
3. jedes Gebiet der Betriebswirtschaft,
4. jedes Gebiet der mathematischen Methoden,
5. Systemadministration und Internet-Technologien,
6. Bildungstechnologie,
7. Personal und Recht,
8. Informationswissenschaft,
9. Psychologie,
10. Technik,
11. Softskills (Wirtschaftsenglisch).

Für Details siehe das Modulhandbuch auf der Studiengangsseite.

Wir empfehlen, mit dem Wahlbereich erst im zweiten Studienjahr zu beginnen.

1. What are Information Systems?
2. Information Systems Program at U Hildesheim
3. Organizational stuff

Exercises and tutorials

- There will be **no exercise sheets and no tutorials** for IS 1.
- There will be exercises and tutorials for IS 2 next summer term.
- Each week we will hand out a chapter of a textbook or a paper for you **to read as additional material** for the lecture.

Exam and credit points

- There will be a **written exam** at end of term (1h, 2 problems).
- There are **no materials** allowed in this exam.
- The course gives 3 ECTS (2+0 SWS).
  - ECTS = European Credit Transfer System
  - 1 ECTS $\approx$ 30h workload (for the students)
  - 90h:

14 weeks	à 1.5 h lecture:	21 h
	à 4 h reading:	56 h
once	16h exam preparation:	16 h
total work load:		93 h

Text books

- Kenneth C. Laudon, Jane P. Laudon, Detlef Schoder (^{2}2009): *Wirtschaftsinformatik — Eine Einführung,* Pearson Studium.
- Otto K. Ferstl, Elmar J. Sinz (^{5}2006): *Grundlagen der Wirtschaftsinformatik*, Oldenbourg.
- Franz Lehner, Stephan Wildner, Michael Scholz (^{2}2008): *Wirtschaftsinformatik — Eine Einführung,* Hanser.

Slides will be available online at the course webpage:

http://www.ismll.uni-hildesheim.de/lehre/wi1-11w

There will be a specific reading (chapter, paper) for each session.

Course Outline

Will be detailed next session.

Summary

- Information Systems are socio-technical systems containing
  - an application system (software, infrastructure, data) and
  - its business context (organisation, management, etc.)
- Information Systems / Wirtschaftsinformatik is a interdisciplinary subject consisting of business administration, computer science and information systems.
- There are 3 specialization areas in IS at U Hildesheim:
  - Business Applications and Information Systems
  - Systematic Development of Knowledge-based Systems
  - Business Intelligence
- Reading for this week:
  Kenneth C. Laudon, Jane P. Laudon, Detlef Schoder (^{6}2006): *Wirtschaftsinformatik — Eine Einführung,* chapter 1.

References

[fI03] Gesellschaft für Informatik. Rahmenempfehlung für die universitätsausbildung in wirtschaftsinformatik. *Informatik Spektrum*, 26/2, 2003.

[FS06] Otto K. Ferstl and Elmar J. Sinz. *Grundlagen der Wirtschaftsinformatik*. Oldenbourg, 5 edition, 2006.

[LLS06] Kenneth C. Laudon, Jane P. Laudon, and Detlef Schoder. *Wirtschaftsinformatik — Eine Einführung*. Pearson Studium, 6 edition, 2006.