

Appendix 2

Module handbook

IT Management (M.Sc.) - International



**Module descriptions for the Master's degree course in
IT Management (M.Sc.) - International
Version 1.0 as of Feb 2016**

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Module handbook

This module handbook contains descriptions of the modules used in the Master's course IT Management (M.Sc.) - International. The course by the Department of Industrial Engineering and Technology Management will be available from July 2016 onwards. The General Regulations for Examinations at the Wilhelm Büchner University apply to this course with its modular structure. This module handbook is updated regularly. The following table illustrates the structure of the course as well as the available modules with their respective ECTS credit points (CP) points.

Field/Modules	CP	Type of examination	In semester
Fundamentals	24		
Quant. Methods & Financial Mathematics	6	B	1
Internat. Project Management & Management	6	B	1
Organizational Development	6	K	1
Elective 1	6	K	1
Core Area	36		
International Management & Intercultural Communication	6	B	2
Management of IT Projects and Quality	6	K	2
Collaboration Engineering	6	K	2
Strategic Information Management	6	K	1
IT Innovation Management	6	K	2
IT Service Management	6	B	2
Specialization	12		
Elective 1	6	B/K	3
Elective 2	6	B/K	3
Scientific Application and Project Studies	48		
Business Research Methods	6	B	3
Specialization Compulsory Elective	6	B	3
Project Work	6	B	3
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1. Introduction

The estimated time that a student has to spend at a regular university to complete a course and the examinations is measured in credit points. In Germany it is assumed that students at a regular university spend up to 30 hours to achieve one credit point. These students usually start their course straight after leaving school without or with little prior professional experience.

As a rule, students at the Wilhelm Büchner University have several years of professional experience in addition to their first professional education. They also remain active in their profession whilst studying and this strengthens the links between professional work and studying. We estimate that our students require considerably less time to gain one credit point during their part-time studies. Experience shows that the required time can be reduced by up to 50%. As a rule, one can estimate that students with relevant professional experience require 25% to 30% less time for their integrated studies.

The German Qualifications Framework for Lifelong Learning (known by its German abbreviation DQR) forms the basis for the competence model used by the Wilhelm Büchner University. It is a tool for the allocation of qualifications in the German education system. The objectives of the DQR are increased transparency, comprehensibility and improved comparability of the German qualifications system – both national and within the European Union in relation to the European Qualifications Framework (EQR).

The basis for the allocation is the idea that qualification processes should be based on learning outcomes (“outcome orientation”).

Transparent allocations allow comparison between differing national educational objectives in the European Union. Because the focus is on learning outcomes, competences can also be acquired through non-formal and informal learning.

The German Qualifications Framework for Higher Education Qualifications (known as HQR) divides professional competence for level 7 qualifications (Master’s study courses) into two sub-categories:

- Knowledge and Understanding
- Skills

The category Knowledge and Understanding relates to broadening knowledge and consolidating knowledge, while the category Skills relates to instrumental, systemic and communicative competences.

The general competence model is shown in the table¹.

¹ Qualifications Framework for German Higher Education Qualifications, adopted on 21 April 2005 by the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder of the Federal Republic of Germany in consultation with the Federal Ministry of Education and Research and the German Rectors’ Conference.

Knowledge and Understanding

Extending Knowledge:

- Master's graduates have a proven level of knowledge and understanding that normally builds on the Bachelor's level and significantly consolidates or extends this. They are able to define and interpret the special features, limits, terminologies and schools of thought in their field of learning. ('Generalist')

Consolidating Knowledge

- Their knowledge and understanding form the basis for the development and/or application of independent ideas. This may be more practice-oriented or more research-oriented.
- They have a broad, detailed and critical understanding of the latest state of knowledge in one or more special areas. ('Specialist')

Skills

Master's graduates have acquired the following competences:

Instrumental Competences

- They can also apply their knowledge and understanding as well as their problem-solving skills to new and unfamiliar situations that lie in a broad or multidisciplinary context relating to their academic subject.

Systemic Competences

- They can integrate knowledge and handle complexity;
- They can make scientifically-founded decisions and draw conclusions, also on the basis of incomplete or limited information, and in so doing can consider social, scientific and ethical insights that also derive from the application of their knowledge and their decisions;
- They can independently acquire new knowledge and ability;
- They can carry out independent scientific or applied research projects in a largely self-directed and/or autonomous manner.

Communicative Competences

- They can communicate their conclusions, the underlying information and their reasons to specialists and non-specialists both clearly and unambiguously on the basis of the state of research and application;
- They can discuss information, ideas, problems and solutions at a scientific level with specialists and non-specialists;
- They can take on lead responsibility in a team.

The category Knowledge and Understanding relates to extending knowledge and deepening (consolidating) knowledge, while the category Skills relates to instrumental, systemic and communicative competences. This model with its three knowledge and competence categories with their three-level qualitative evaluations is the basis for the allocation of modules to competence profiles.

The following example shows the module *Mathematics for Technology Managers* that focuses primarily on extending and consolidating knowledge acquired on the Bachelor's level.

Practice-oriented problem-solving skills (instrumental competences) are of some relevance, whereas the ability to discuss information, ideas, problems and solutions at a scientific level with specialists and non-specialists is of little relevance.

Competence \ Relevance	+	++	+++
Extending Knowledge			X
Consolidating Knowledge			X
Instrumental Competences		X	
Systemic Competences		X	
Communicative Competences	X		

The individual motivation of learners depends on their performance orientation, interests and intrinsic motivation and reveals itself above all in their self-regulation of the learning process. Interdisciplinary competences, for example the self-regulated learning skills in particular of open learning students, can play a valuable support role in the acquisition of technical and scientific contents. Open learning students arrange their learning environment in collaboration with the university's support services.

Lifelong learning requires a persistent ability to learn as well as enthusiasm for learning. Students in open learning depend on good self-assessment; they must be able to analyze and understand information and need staying power in order to complete such a course and often hold a job at the same time.

These abilities are an elementary requirement for dealing with the challenges of today's information and knowledge society. The employability of Master's graduates is often associated with the combination of specialist knowledge, project management, team spirit, and communication skills. This has great significance in particular for open and online learning students, because in most cases they combine their continuing education with professional development. Optimal learning outcomes can be achieved through integration of learning scenarios in the professional context. The opportunity to use the subjects of home and project work and theses in their professional environment also boosts the employability of open learning students in a particular way. The acquired qualifications and competences can be displayed and applied in the job. This makes supporting of open learning education very interesting for organizations.

2. Fundamentals

2.1 Compulsory Modules

Module title	Quantitative Methods and Financial Mathematics			
Duration	1 semester			
Language	English			
Responsible	Prof. Dr. Guido Walz			
Workload / Credit points	total: 180 h (6 CP) independent reading (40%) self-study and practical work (40%) exams (20%)			
Assessment type	B-Type Examination			
Educational objectives	Students know the quantitative methods as they are used in many business contexts in practice. They understand the basics of probability and random variables as well as the methods of descriptive and inductive statistics. Thus, students are able to use the correct methodology for the given problems throughout the course. They can choose and apply the correct statistical techniques to answer the questions posed by economic problems. Students can apply and assess different methods of investment analysis, and determine application opportunities. In addition, they have a good overview of the elements of cost accounting.			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge		X	
	Instrumental Competences		X	
	Systemic Competences		X	
	Communicative Competences	X		

Content	<ul style="list-style-type: none"> - Random events - Random variables (basics, distributions) - Descriptive statistics - Inductive statistics - Cost accounting as a management tool - Investment - Financing
Prerequisites	None
Bibliography	<ul style="list-style-type: none"> • Baker, R.; Christensen, T.; Cottrell, D. (2010): Advanced Financial Accounting, 9 ed., McGraw-Hill/Irwin • Dowling, E.T. (2011): Introduction to Mathematical Economics, 3rd ed., McGraw-Hill • Horngren, C. T. et al. (2013): Introduction to Management Accounting, 16 ed., Prentice Hall • Lanen, W.; Anderson, S.; Maher, M. (2010): Fundamentals of Cost Accounting, 3 ed., McGraw-Hill/Irwin • Newbold, P., et al. (2012): Statistics for Business and Economics, 8th ed., Prentice Hall • Shim, J. K.; Siegel, J. G. (2009): Modern Cost Management and Analysis, 3 ed., Barron's Educational • Wisniewski, M. (2010): Quantitative Methods for Decision Makers, 5th ed., Financial Times Prentice Hall

Module title	International Project Management and Management Techniques			
Duration	1 semester			
Language	English			
Responsible	Prof. Dr. Sabine Landwehr-Zloch			
Workload / Credit points	total: 180 h (6 CP) independent reading (35%) self-study and practical work (35%) computer work (10%) exams (20%)			
Assessment type	Written examination			
Educational objectives	<p>Students understand modern management techniques and their use to overcome complex practical tasks. They can apply and evaluate special techniques such as for example creativity, planning, and forecast techniques as well as competition analyses, strategy development and organization techniques.</p> <p>Students know the characteristics of international projects and understand their specific challenges.</p> <p>They can identify and apply relevant management tools within the international context.</p>			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge		X	
	Instrumental Competences		X	
	Systemic Competences		X	
	Communicative Competences	X		

Content	<ul style="list-style-type: none"> - Management techniques in strategy formation process - Management techniques in planning process - Characteristics of international projects - Project Management
Prerequisites	None
Bibliography	<ul style="list-style-type: none"> • Abrashoff, D. M. (2015): It's Your Ship: Management Techniques from the Best Damn Ship in the Navy, Grand Central Pub • Armstrong, M. (2006): A Handbook of Management Techniques: The Best-selling Guide to Modern Management Methods, Kogan Page Publisher • Bieck, O. (2014): Back on Track! Successful Management Techniques to Get a Company Out of Debt Pile, Anchor Academic Publishing • Butuner, H. (2016): Case Studies in Strategic Planning, Taylor & Francis Group. • Charette, R. N. (1989): Software Engineering Risk Analysis and Management, McGraw-Hill • Mowles, C. (2015): Managing in Uncertainty: Complexity and the Paradoxes of Everyday Organizational Life, Taylor & Francis Group • Phaal, R.; Probert, D. (2016): Technology Management: Activities and Tools, Palgrave MacMillan • Shanks, G.; Seddon, P. B.; Willcocks, L. (Ed.) (2003): Second-Wave Enterprise Resource Planning Systems: Implementing for Effectiveness, Cambridge University Press • Wisniewski, M. (2015): Quantitative Methods for Decision Makers, Pearson Education Limited

Module title	Organizational Development			
Duration	1 semester			
Language	English			
Responsible	Prof. Dr. Sabine Landwehr-Zloch			
Workload / Credit points	total: 180 h (6 CP) independent reading (40 %) self-study and practical work (40 %) computer work (10 %) lectures and exams (10 %)			
Assessment type	Written examination			
Educational objectives	Students understand the existence of different personalities and styles. They can analyze complicated human issues at interpersonal or group level. Students will apply analytical skills – both on a strategic and organizational level. Within this context, students can evaluate and choose between gradual and radical approaches to process improvements. The importance of mastering IT from the business perspective is also referred to.			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge		X	
	Instrumental Competences		X	
	Systemic Competences		X	
	Communicative Competences		X	
Content	<ul style="list-style-type: none"> - Managerial Behavior - Managing Organizations - Process Management - Information Management 			
Prerequisites	None			
Bibliography	<ul style="list-style-type: none"> • Balzac, S. (2010): Organizational Development, McGraw-Hill • Coplien, O.; Harrison, J. (2004): Organizational Patterns of Agile Software Development, Prentice Hall • Cummings, T.; Worley, C.G. (2008): Organization Development and Change, South Western Educ. • Hill, C. W.; Jones, G. R. (2012): Strategic Management: An integrated 			

	<p>Approach, 10 ed., Cengage Learning</p> <ul style="list-style-type: none">• Robbins, S.; Judge, T. A. (2012): Organizational Behavior, 15 ed., Pearson• Schein, E. (2010): Organizational Culture and Leadership, Wiley
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2.2 Elective Modules

Module title	Corporate Management			
Duration	1 semester			
Language	English			
Responsible	Prof. Dr. Sabine Landwehr-Zloch			
Workload / Credit points	total: 180 h (6 CP) independent reading (40%) self-study and practical work (40%) computer work (10%) lectures and exams (10%)			
Assessment type	Written examination			
Educational objectives	<p>Students can analyze the structure, the opportunities for development and the leadership concepts of enterprises. They can evaluate an enterprise's internal strengths and weaknesses and relate these to its market position. They are able to draw conclusions that are in accord with the planned strategy. They know the rational planning systems that also incorporate personnel and time planning.</p> <p>They can carry out practical data analysis and determine the information that is to be gained from the data as a basis for management decisions.</p> <p>They understand company-wide planning and have an insight into management information systems and the balanced scorecard. They developed an understanding and problem awareness with regard to functions, duties, processes and systems of management, and the skills to recognize different leadership issues in context.</p>			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge		X	
	Instrumental Competences		X	
	Systemic Competences		X	
	Communicative Competences	X		

Content	<ul style="list-style-type: none"> - Basics of business management - Strategic management / Tools of strategic business management - Controlling - Business planning and simulation calculation
Prerequisites	None
Bibliography	<ul style="list-style-type: none"> • Hill, C. W.; Jones, G. R. (2012): Strategic Management: An integrated Approach, 10 ed., Cengage Learning • Horngren, C. T. et al. (2013): Introduction to Management Accounting, 16 ed., Prentice Hall • Kreitner, R.; Cassidy, C. (2012): Management, 12 ed., Cengage Learning • McFarlin, D.; Sweeney, P. (2010): International Management: Strategic Opportunities & Cultural Challenges, 4 ed. Routledge • Robbins, S.; Judge, T. A. (2012): Organizational Behavior, 15 ed., Pearson • Rothaermel, F. (2012): Strategic Management, McGraw-Hill/Irwin • Vallabhaneni, S. (2008): Corporate Management, Governance, and Ethics Best Practices, Wiley

Module title	Distributed Information Systems			
Duration	1 semester			
Language	English			
Responsible	Dr. Shakib Manouchehri			
Workload / Credit points	total: 180 h (6 CP) independent reading (40%) self-study and practical work (50%) preparation and examination (10%)			
Assessment type	Written examination			
Educational objectives	Students understand and can apply the techniques and protocols of all layers of the ISO/OSI protocol stack to develop distributed software. They understand the operation of network operating systems and know the architecture of the Internet that enables them to manage planning, development and application of distributed information systems.			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge		X	
	Instrumental Competences		X	
	Systemic Competences		X	
	Communicative Competences	X		
Content	Application programming interface of network operating systems Client-server programming based on the transport layer Utilization of remote procedures and methods Anatomy of network file systems Safety & Security in distributed systems			
Prerequisites	Module Quantitative Methods and Financial Mathematics			

Bibliography

- Burd, S. (2010): Systems Architecture, Course Technology
- Coulouris, G., Dollimore, J., Kindberg, T., Blair, G. (2011): Distributed Systems, Financial Times Present
- Godse, A., Godse D. (2014): Computer Architecture, Technical Publications
- Harris, D., Harris, S. (2012): Digital Design and Computer Architecture, Morgan Kaufmann
- Özsu, M., Valduriez, P. (2011): Principles of Distributed Database Systems, Springer
- Tanenbaum, A., Van Steen, M. (2013): Distributed Systems: Principles and Paradigms, Pearson
- Tanenbaum, A., Wetherall, D. (2013): Computer Networks, Prentice Hall International

3. Core Area

Module title	International Management and Intercultural Communication
Duration	1 semester
Language	English
Responsible	Prof. Ulrich Luenemann
Workload / Credit points	total: 180 h (6 CP) independent reading (40 %) self-study and practical work (40 %) computer work (10 %) exam (10 %)
Assessment type	B-Type Examination
Educational objectives	<p>Students understand the challenges and characteristics of globalization and internationalization as the basis for an international career. They can apply their intercultural competency to work and negotiate appropriately with people from various cultural backgrounds. They understand relevant cultural differences in communication as well as individual and organizational behavior in the world's leading economies (focusing on Chinese and US-American culture among other things). Students understand the importance of internationalization for globalization. They can explain historic and current developments and interpret the basic concepts, such as direct investment, motives for internationalization. They are aware of categorization of international organizations, their opportunities and risks, and key indicators of internationalization.</p> <p>They can analyze strategic decisions of the internationalization process and evaluate various forms of cooperation. They demonstrate awareness of and can apply the key strategies available for managing a business in an international environment. They understand the importance of International Management for small and medium-sized enterprises in Germany with their peculiarities and success factors. They can appreciate the management of human resources in an international context.</p>

Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge		X	
	Instrumental Competences		X	
	Systemic Competences		X	
	Communicative Competences		X	
Content	<ul style="list-style-type: none"> - Strategies and strategic dimensions - Basic terminology and theories of intercultural communication - Methods (Training, Coaching, Mediation, etc.) - Language, meaning, and cultural pragmatics - Cultural patterns 			
	<ul style="list-style-type: none"> - Globalization: the collapse of culture - Negotiating - The power variable 			
Prerequisites	none			

Bibliography	<ul style="list-style-type: none">• Deresky, H. (2013): International Management: Managing Across Borders and Cultures, Text and Cases, 8 ed., Prentice Hall• Lane, H.W.; Maznevski, M. (2014): International Management Behavior: Global and Sustainable Leadership, 7 ed., Wiley• Maxwell, J. C. (2010): Everyone Communicates, Few Connect: What the Most Effective People Do Differently, Nelson• McFarlin, D.; Sweeney, P. (2010): International Management: Strategic Opportunities & Cultural Challenges, 4 ed., Routledge• Mead, R. (2004): International Management: Cross-cultural Dimensions, 3 ed., Blackwell Business• Moll, M. (2012): The Quintessence of Intercultural Business Communication, Springer• Morschett, D.; Schramm-Klein, H., Zentes, J. (2010): Strategic International Management, Springer<ul style="list-style-type: none">• Sycara, K.; Gelfand, M., Abbe, A. (2013): Models for Intercultural Collaborations and Negotiation, Springer
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Module title	Management of IT Projects and Quality			
Duration	1 semester			
Language	English			
Responsible	Dr. Shakib Manouchehri			
Workload / Credit points	total: 180 h (6 CP) independent reading (40 %) self-study and practical work (40 %) computer work (10 %) exam (10 %)			
Assessment type	Written Examination			
Educational objectives	<p>Students know the relevant methods of project management. They can explain and determine the fields of duty in project planning inclusive task and resource planning. They have the ability to perform efficiency analysis and define the efficiency of information systems. They can explain sub functions of organizational project like appointment monitoring and controlling, cost planning and controlling, and project controlling. They are also aware of the contents of project risk management and communication management.</p> <p>Students know and analyze elements of requirement engineering, change management, the tasks of configuration management, and the common models. Students know about the priorities of the main QM Systems (e.g. ISO, Six Sigma) and get an insight into the IT infrastructure Library (ITIL).</p>			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge		X	
	Instrumental Competences		X	
	Systemic Competences		X	
	Communicative Competences		X	

Content	<p>Core disciplines of project management</p> <ul style="list-style-type: none"> - Responsibilities of project planning - Efficiency of information systems - Project organizational sub functions - Project controlling - Project risk management - Communication management - Requirement engineering - Change management - Configuration management - Process models - QM systems (e.g. ISO, Six Sigma) - IT Infrastructure Library (ITIL)
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Prerequisites	none
Bibliography	<ul style="list-style-type: none"> • Appelo, J. (2010): Management 3.0: Leading Agile Developers, Developing Agile Leaders, Addison-Wesley Professional • Berkun, S. (2008): Making Things Happen: Mastering Project Management Theory in Practice, O'Reilly and Associates • Phillips, C (2010): PMP Project Management Professional Lab Manual, McGraw-Hill/Osborne Media • Zandhuis, A. (2013): ISO 21500 Guidance on project management: A Pocket Guide, Van Haren Publishing

Module title	Collaboration Engineering			
Duration	1 semester			
Language	English			
Responsible	Dr. Shakib Manouchehri			
Workload / Credit points	total: 180 h (6 CP) independent reading (40%) self-study and practical work (40%) computer work (10%) lectures and exams (10%)			
Assessment type	Written examination			
Educational objectives	Students are familiar with the concepts of collaboration. They understand the application of IT and the theoretical concepts for moderation, negotiation and the creative process in collaboration. They know patterns of collaboration and they can identify and explain these. Students understand the procedures to plan and measure collaboration quality. They are equipped with the skills to define and model patterns of collaboration. They know how to identify recurring tasks in collaboration and can analyze and model collaborative work practices. They developed the skills to moderate and model collaboration and to support a creative process. They can apply IT tools to support collaboration. Students can independently and actively evaluate practical methods to analyze, design and model collaboration processes			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge			X
	Instrumental Competences		X	
	Systemic Competences		X	
	Communicative Competences	X		

Content	<ul style="list-style-type: none">- Introduction to collaboration- Individual and group goals for collaboration- Patterns of collaboration- Theoretical foundations of collaboration- Collaboration technologies- CSCW and groupware- Social web applications- Web 2.0 and social software- Opportunities in a corporate environment- Moderation and negotiating skills for collaboration- Moderation and facilitation- Goals of moderation, methods, techniques and tools- Harvard negotiation concept- Identifying recurring tasks- Developing collaborative work practices- Framework for collaborative engineering- Thinklets- Collaboration process design
Prerequisites	Compulsory modules of the first course semester

Bibliography	<ul style="list-style-type: none">• Briggs, R.O.; de Vreede, G.J. (2009): ThinkLets: Building blocks for concerted collaboration. University of Nebraska, Omaha.• Clawson, V. K., Bostrom, R. P., & Anson, R. (1993). The role of the facilitator in computer-supported meetings. <i>Small Group Research</i>, 24, 547–565.• Fisher, R.; Ury, W.; Patton, B. (2012). <i>Getting to Yes: Negotiating Agreement Without Giving In</i>. Third Edition. Random House, London.• Hogan, C. (2005): <i>Understanding Facilitation: Theory & Principles</i>. Kogan Page Limited, London.• Kilgour, D.; Eden, C. (2010): <i>Handbook of Group Decision and Negotiation</i>. Springer, Heidelberg/London.• Kolschoten, G. L. (2007). Theoretical foundations for collaboration engineering.• Kolschoten, G.L.; de Vreede, G.-J. (2009): A design approach for collaboration processes: A multimethod design science study in collaboration engineering. <i>Journal of Management Information Systems</i>, 26, 225–256.• Nunamaker, J.F.; Romano, N.C.; Briggs, R.O. (2014): <i>Collaboration Systems: Concepts, Value, and Use</i>. Armonk, New York; London, England: M.E. Sharpe.• Tabaka, J. (2006): <i>Collaboration Explained: Facilitation Skills for Software Project Leaders</i>, Addison-Wesley Professional
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Module title	Strategic Information Management			
Duration	1 semester			
Language	English			
Responsible	Dr. Shakib Manouchehri			
Workload / Credit points	total: 180 h (6 CP) independent reading (40 %) self-study and practical work (40 %) computer work (10 %) exam (10 %)			
Assessment type	Written examination			
Educational objectives	Students know the importance of strategic information management for today's globally acting companies. Students understand the relationship between corporate strategy and information management. They can analyze different phases of implementing information management within a company. They can evaluate strategies from corporate strategies and define and critically reflect measures to track the success of information management.			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge		X	
	Instrumental Competences		X	
	Systemic Competences		X	
	Communicative Competences		X	

Content	<ul style="list-style-type: none">- Principles of information management- Organizational aspects of information management- Implementation of information management- Methods of strategic information management- IT and information strategy- Components of information system strategy- Approaches to information system planning- Enterprise 2.0
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Prerequisites	none
Bibliography	<ul style="list-style-type: none">• Ladley, John (2010): Making EIM Enterprise Information Management Work for Business. Morgan Kaufmann.• Laudon, Kenneth C.; Laudon, Jane P. (2015): Management Information Systems: Managing the Digital Firm. 14th Edition. Pearson.• McKnight, William (2013): Information Management: Strategies for Gaining a Competitive Advantage with Data (The Savvy Manager's Guides) 1st Edition. Morgan Kaufmann.• Rothaermel, Frank (2014): Strategic Management: Concepts. McGraw-Hill/Irwin.• Wigand, Rolf; Picot, Arnold; Reichwald, Ralf (1997): Information, Organization and Management: Expanding Markets and Corporate Boundaries. Wiley.

Module title	IT Innovation Management			
Duration	1 semester			
Language	English			
Responsible	Dr. Shakib Manouchehri/Prof. Dr. Dirk Ostermayer			
Workload / Credit points	total: 180 h (6 CP) independent reading (40 %) self-study and practical work (40 %) computer work (10 %) exam (10 %)			
Assessment type	Written examination			
Educational objectives	The goal of innovations is to reinforce the competitiveness by creating something new. IT innovations are innovations in and by IT. Students know the character of IT innovations. They can identify relevant aspects of IT innovation management such as systematical planning, controlling, and monitoring of IT innovations. They are able to analyze the influence of IT innovations on the corporate success. They can evaluate the functions of IT for an active role in business.			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge		X	
	Instrumental Competences		X	
	Systemic Competences		X	
	Communicative Competences		X	
Content	Basics of innovation management - Innovation process - Success factors of innovation Elements of IT innovation management - Organizational integration - IT innovation management and core processes			

Prerequisites	none
Bibliography	<ul style="list-style-type: none">• Mann, A.; Watt, G., Matthews, P. (2013). The innovative CIO – How IT Leaders Can Drive Business Transformation. New York: CAPress/Apress.• Anthony, S. D. (2012). The Little Black Book of Innovation: How It Works, How to Do It. Boston: Harvard Business Review Press.• Brem, A.; Viardot, E. (2013). Evolution of Innovation Management: Trends in an International Context. Basingstoke: Palgrave Macmillan• Merrill, P. (2015). Innovation Never Stops: Innovation Generation – The Culture, Process, and Strategy. Milwaukee: American Society for Quality, Quality Press• Carlson, C.; Wilmot, W. (2006). Innovation – The Five Disciplines for Creating What Customers Want. New York.

Module title	IT Service Management			
Duration	1 semester			
Language	English			
Responsible	Dr. Shakib Manouchehri			
Workload / Credit points	total: 180 h (6 CP) independent reading (35%) self-study and practical work (35 %) computer work (10 %) exam (20 %)			
Assessment type	B-Type examination			
Educational objectives	IT service management characterizes the entirety of measures and methods, which are required for optimal support of business processes by IT organizations. Students can explain elements of customer- and service-orientation in information technology. They can analyze business services as a visible part of IT services, for customers. They can identify and apply measures for continuous increase of efficiency, quality and economy in IT organizations. They understand the connection between process management and IT service management and how to use the methods.			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge		X	
	Instrumental Competences		X	
	Systemic Competences		X	
	Communicative Competences		X	

Content	<ul style="list-style-type: none"> - Services and IT services - Service engineering and service management - Service modeling and service design - Organization of IT service management - Customer- and service-orientation of information technology - Measures of efficiency, quality and economy - Information Technology Infrastructure Library (ITIL)
Prerequisites	none
Bibliography	<ul style="list-style-type: none"> • Cannon, D.; Wheeldon, D.: Service Operation (ITIL v3). The Stationery Office Ltd., 2007 • Chesbrough, H; Spohrer, J.: A research manifesto for services science. In: Communications of the ACM 49(7): 35–40, 200 • Fitzsimmons, J. A.; Fitzsimmons, M. J.: Service Management – Operations, Strategy, Information Technology. New York, McGraw-Hill, 2011 • Iqbal, M.; Nieves, M.: Service Strategy (ITIL v3). TSO, 2007 • Lacy, S.; Macfarlane, I.: Service Transition (ITIL v3). The Stationery Office Ltd., 2007 • Lloyd, V.; Rudd, C.: Service Design (ITIL v3). The Stationery Office Ltd., 2007 • Lovelock, C. H.; Wirtz, J.: Services marketing: people, technology, strategy. Boston: Prentice Hall, 2011 • Maglio, P.; Kieliszewski, C. A.; Spohrer, J. C. (Editor): Handbook of Service Science (Service Science: Research and Innovations in the Service Economy), Springer, 2010. • OGC: The Official Introduction to the ITIL 3 Service Lifecycle. The Stationery Office Ltd., 2007 • Spalding, G.; Case, G.: Continual Service Improvement (ITIL v3). The Stationery Office Ltd., 2007

4. Specialization

Module title	IT Security Management			
Duration	1 semester			
Language	English			
Responsible	Dr. Shakib Manouchehri			
Workload / Credit points	total: 180 h (6 CP) independent reading (40%) self-study and practical work (40%) computer work (10%) preparation and examinations (10%)			
Assessment type	B-Type Examination			
Educational objectives	IT security clearly goes further than the provision of software and hardware for virus protection. Students know the needs for an enterprise's continual and cost-effective IT security. They can manage the current IT risks, define necessary organizational measures and support their realization in an advisory capacity. They can create an emergency plan and establish an enterprise security policy. They know the essential legal framework and the influence of corporate policy. They have the required technical and methodical skills to be able to work as an IT security manager with managerial responsibility. The focus is on the management aspects of the subject rather than the technology.			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge			X
	Instrumental Competences			X
	Systemic Competences		X	
	Communicative Competences	X		
Content	<ul style="list-style-type: none"> - Significance of information security - Risk and security - Security organizations - Methodical basics of management 			

	<ul style="list-style-type: none"> - Defining security and recognizing and assessing risks - Reporting - Business Continuity Management - Emergency management - Incident handling - Computer forensics
Prerequisites	Modules Distributed Information Systems
Bibliography	<ul style="list-style-type: none"> • Ackermann, T. (2013): IT Security Risk Management, Springer • Ackermann, T. (2012): IT Security Risk Management: Perceived IT Security Risks in the Context of Cloud Computing, Springer Gabler • Bishop, M. (2003). Computer Security. Boston et al.: Art and Science. • Casey, E. (Ed.) (2011): Digital Evidence and Computer Crime - Forensic Science, Computers and the Internet. 3rd ed., Burlington, MA: Academic Press. • Gollmann, D. (2006): Computer Security. 2nd ed., Chichester: John Wiley & Sons. • Jorang, A., Carlsson, B. (2012): Secure IT Systems, Springer • Kim, K., Chung, K. (2012): IT Convergence and Security, Springer • Partida, A. (2012): IT Security Management (Lecture Notes in Electrical Engineering), Springer • Peltier, T.R. (2010): Information Security Risk Analysis. 3rd ed., Boca Raton: Auerbach Publications. • Pfleeger, C. P.; Pfleeger, S. L. (2007): Security in Computing. 4th ed., Upper Saddle River, NJ: Prentice Hall. • Pfleeger, C.P.; Pfleeger, S.L. (2012): Analyzing Computer Security: A Threat/Vulnerability/Countermeasure Approach. 2nd ed., Upper Saddle River: Pearson Education. • Slay, J., Koronios A. (2006): IT Security and Risk Management, John Wiley & Sons • Straub, D. W.; Goodman, S.; Baskerville, R. (2008): Information Security: Policy, Processes, and Practices. Armonk, NY: M.E. Sharpe.

Module title	E-Business Management			
Duration	1 semester			
Language	English			
Responsible	Dr.-Ing. Eva Gattnar			
Workload / Credit points	total: 180 h (6 CP) independent reading (40%) self-study and practical work (40%) computer work (10%) preparation and examinations (10%)			
Assessment type	B-Type Examination			
Educational objectives	The students understand typical e-business architectures and the approach to development of an e-commerce strategy. They know the attributes and characteristics of different forms of e-business (B2B, B2C, etc.) and the different areas of use such as e-procurement and e-government. The students are able to develop implementation strategies for e-business and m--business. They know and understand the essential standards, directives and success factors in this area.			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge			X
	Instrumental Competences			X
	Systemic Competences		X	
	Communicative Competences	X		
Content	<ul style="list-style-type: none"> - Models and platforms - Basics of information technology and technologies for e-business - Architecture concepts and business processes in e-business - Integrated information systems - Internet value added chain - Online marketing - Implementation strategies and business models 			

	- e-shops, e-payment, mobile business and mobile commerce, e-procurement, e-contracting, e-distribution, e-CRM, e-community, e-society, e-government
Prerequisites	modules Distributed Information Systems, Software Architecture and Concepts
Bibliography	<ul style="list-style-type: none"> • Bandyopadhyay, K. (2014): Mobile Commerce, Prentice Hall of India Put. Lhd • Chaffey, D. (2009): E-Business and E-Commerce Management: Strategy, Implementation and Practice, Prentice Hall • Chaffey, D. (2014): Digital Business and E-Commerce Management, Pearson Education Limited • Klapdor, S. (2013): Effectiveness of Online Marketing Campaigns, Springer • Koivukoski, U., Räsänen, V. (2005): Managing Mobile Services: Technologies and Business Practices • Martínez-López, F. (2014): Handbook of Strategic e-Business Management, Springer • Pechuán, I., Palacios-Marqués, D., Peris-Ortiz M., Vendrell, E., Ferri-Ramirez C. (2014): Strategies in E-Business, Springer • Schneider, G. (2012): E-Business, Cengage Learning EMEA

Module title	Software Architecture and Concepts			
Duration	1 semester			
Language	English			
Responsible	Dr. Shakib Manouchehri			
Workload / Credit points	total: 180 h (6 CP) independent reading (35%) self-study and practical work (35%) computer work (10%) examinations (20%)			
Assessment type	B-Type Examination			
Educational objectives	Students know the current trends in the area of architecture and software concepts. They can explain the innovation potential and benefit. They can describe and define the fundamental architecture dimensions as well as typical application scenarios.			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge			X
	Instrumental Competences		X	
	Systemic Competences		X	
	Communicative Competences	X		
Content	<ul style="list-style-type: none"> - Theoretical introduction to software architecture - Basics, definitions and terminology - Principles of software development - Modeling methods and frameworks - Service oriented architecture (concept, components and web services) - Cloud computing grid computing - Enterprise Architecture Management 			
Prerequisites	Module Distributed Information Systems			
Bibliography	<ul style="list-style-type: none"> • Bass, L., Clement, P., Kazman, R. (2003): Software Architecture in Practice. 2. Edition, Boston, Addison-Wesley. 			

- Bass, L., Kazman, R., Clements, P. (2012): *Software Architecture in Practice* (SEI Series in Software Engineering). Third Edition, Addison Wesley.
- Bell, M. (2008): *Service-Oriented Modeling: Service Analysis, Design, and Architecture*. Wiley
- Clements, P., Bachmann, F., Bass, L., Garlan, D., Ivers, J., Little, R., Merson, P., Nord, R., Stafford, J. (2010): *Documenting Software Architectures: Views and Beyond*, Second Edition. Addison-Wesley.
- Clements, P., Kazman, R., Klein, M. (2001): *Evaluating Software Architectures: Methods and Case Studies* (SEI Series in Software Engineering), Addison Wesley.
- Gorton, I. (2011): *Essential Software Architecture*, Springer
- Qin, Z., Xing, J., Zheng, X. (2008): *Software Architecture*, Springer
- Rozanski, N.; Woods, E. (2011): *Software Systems Architecture: Working With Stakeholders Using Viewpoints and Perspectives*. 2nd revised edition, Addison Wesley.
- Sommerville, I. (2007): *Software Engineering*, 8. Edition, Harlow, Addison-Wesley
- Taylor, R., Medvidović, N., Dashofy, E. (2009): *Software Architecture: Foundations, Theory and Practice*, John Wiley & Sons
- Vogel, O., Arnold, I., Chughtai, A., Kehrer, T. (2011): *Software W3C* (Edt.) 2004: *Web Services Glossary*. W3C Working Group Note 11 February 2004. <http://www.w3.org/TR/ws-gloss/#webservice>, 2004.

Module title	IT-Controlling			
Duration	1 semester			
Language	English			
Responsible	Prof. Dr. Sabine Landwehr-Zloch/Dr. Shakib Manouchehri			
Workload / Credit points	total: 180 h (6 CP) independent reading (35%) self-study and practical work (35%) computer work (10%) examinations (20%)			
Assessment type	Written examination			
Educational objectives	Students know the elements / typical tasks of IT-Controlling and can evaluate the benefit of IT-Controlling for their company. They can apply short- and long-term instruments to measure and manage performance within IT. They are able to critically reflect the results of their analysis and to formulate action items for a certain company situation.			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge			X
	Instrumental Competences			X
	Systemic Competences		X	
	Communicative Competences		X	
Content	<ul style="list-style-type: none"> - Concept / Typical tasks within IT-Controlling - Long-term instruments of performance management (Balanced Scorecard, Portfolio Management) - Short-term instruments of performance management (Service Level Agreements, Contribution Margin Accounting, Activity-based Costing) - Controlling of IT Projects 			
Prerequisites	Module Quantitative Methods and Financial Mathematics			
Bibliography	<ul style="list-style-type: none"> • Buchta, D., Eul, M. (2009): Strategic IT-Management: Increase value, control performance, reduce costs, 3rd Edition, Gabler. • Curley, M. (2004): Managing Information Technology for Business Value, 			

	<p>Practical Strategies for IT and Business Managers, Intel Press (2004)</p> <ul style="list-style-type: none">• Devaraj, S, Kohli, R. (2002): The IT Payoff: Measuring the Impact of IT Investments on Productivity, Prentice Hall.• Martin, J.W. (2010): Measuring and Improving Performance – Information Technology Applications in Lean Systems, CRC Press.
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5. Scientific Application and Project Studies

Module title	Business Research Methods			
Duration	1 semester			
Language	English			
Responsible	Prof. Dr. Frank Bescherer			
Workload / Credit points	total: 180 h (6 CP) independent reading (40 %) self-study and practical work (40 %) computer work (10 %) lectures and exams (10 %)			
Assessment type	B-Type Examination			
Educational objectives	This module supports students in understanding the research process: It provides a basic understanding of what research is and how it is carried out. It is particularly useful if students have not undertaken any postgraduate research before. Furthermore it considers research methodology and literature review. It explains how to carry out a business-related literature review and then use it to develop a hypothesis or theory about a business issue. Additionally, the module concentrates on statistical techniques for data collection, analysis and drawing conclusions.			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge			X
	Instrumental Competences			X
	Systemic Competences		X	
	Communicative Competences		X	
Content	<ul style="list-style-type: none"> - Research planning - Quantitative research - Qualitative research - Mixed methods research - E-Research: Internet research methods - Writing up business research 			

Prerequisites	None
Bibliography	<ul style="list-style-type: none">• Bryman, A. & Bell, E. (2011): Business Research Methods, Oxford University Press, 3rd edition.

Module title	Specialization Compulsory Elective			
Duration	1 semester			
Language	English			
Responsible	see corresponding elective			
Workload / Credit points	total: 180 h (6 CP) independent reading (35%) self-study and practical work (35%) computer work (10%) presentation (20%)			
Assessment type	B-Type Examination			
Educational objectives	<p>On completion of the module on Business Research Methods students write an advanced specialization paper in one of the available electives. Their mentor will be a senior academic with experience of mentoring Master's students.</p> <p>Students demonstrate with this work that they have the ability to select and deal with a problem related to a required option module within a specified time limit. Students are able to justify and critically reflect their overall concept against critical questions of the mentor.</p>			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge			X
	Consolidating Knowledge			X
	Instrumental Competences			X
	Systemic Competences		X	
	Communicative Competences		X	
Content	<ul style="list-style-type: none"> - Selecting a topic - Advanced specialization paper - Writing of the project report 			
Prerequisites	Compulsory elective module of the first semester			

Bibliography	see required option module; additionally independent literature search relevant to the specialization
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Module title	Project Work			
Duration	1 semester			
Language	English			
Responsible	Prof. Dr. Jürgen Deicke			
Workload / Credit points	total: 180 h (6 CP) project work (60%) documentation (20%) presentation incl. preparation (20%)			
Assessment type	project work and oral examination			
Educational objectives	<p>Key objective is the largely independent completion of a group project that relates to the key competences and specialization.</p> <p>Students can choose from various methods and forms; for example, model or concept development, optimization, investigation, design recommendations, case study work, etc. Great importance is attached to an interdisciplinary approach that incorporates the competences proportionately and to a sufficient degree. Students demonstrate with this project work that they have the ability to deal with a comprehensive problem in a scientific as well as practice-oriented way. With the final presentation students demonstrate that they are able to present contents at a suitable scientific level to a professional audience with the aid of professional presentation techniques. The line of reasoning and the solution must be well structured and students must be able to justify and defend their overall concept against critical questions on the part of the examiners.</p>			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge		X	
	Consolidating Knowledge			X
	Instrumental Competences			X
	Systemic Competences			X
	Communicative Competences			X

Content	<ul style="list-style-type: none">- Selecting a topic- Project work- Writing of the project report- Presentation of results
Prerequisites	participation in the seminar Project Workshop/Project Start
Bibliography	see required option module; additionally, independent literature search relevant to the specialization

Module title	Master's Thesis & Virtual Oral Examination			
Duration	1 semester			
Language	English			
Responsible	Prof. Dr. Jürgen Deicke			
Workload / Credit points	total: 780 h (30 CP) independent reading (25%) scientific work and documentation (65%) presentation and defense (10%)			
Assessment type	The overall result is determined by the grade of the Master's thesis as well as the oral examination.			
Educational objectives	Students write independently a research-based final examination work on the basis of the previously compiled Research Proposal and Literature Review. They have the ability to carry out independent study and research, to gather and evaluate scientific evidence, and to judge and apply the results of scientific research responsibly. The targets, results and approach to the Master's thesis form the basis of the virtual oral examination. Students must be able to justify and defend their overall concept against critical questions on the part of the examiners.			
Competences	Competence \ Relevance	+	++	+++
	Extending Knowledge		X	
	Consolidating Knowledge			X
	Instrumental Competences			X
	Systemic Competences			X
	Communicative Competences			X
Content	<ul style="list-style-type: none"> - Selecting a topic - Master's thesis - Oral examination 			
Prerequisites	<ul style="list-style-type: none"> - See relevant Examination Regulations - Modules Business Research Methods and Research Project, Technology & Innovation Management 			
Bibliography	Depending on previous experience and subject			