STEVENS INSTITUTE of TECHNOLOGY
THE INNOVATION UNIVERSITY

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Center for Business Process Innovation

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Syllabus

BT 416 – Business Process Management

Semester Spring 2011	Day of Week/Time Section A: Tuesday 9:00AM - 10:40AM Thursday 1:00PM - 1:50PM Section B: Tuesday 1:00PM - 2:40PM Thursday 2:00PM - 2:50PM
Dr. Michael zur Muehlen Stevens Institute of Technology Howe School of Technology Management Babbio 639	Office Hours: By appointment Class Website: http://howe.stevens.edu/BPM

Catalog Description

The course addresses the methods and techniques required to analyze, design, implement, automate, and evaluate business processes. Structured along the phases of the Business Process Management (BPM) life cycle, students learn to analyze organizational performance from a process perspective, redesign processes using value-focused techniques, design workflows and implement them in BPM systems, simulate new process designs, and create process analytics applications using dashboards. The course leads students from process discovery through conceptual and technical process design through the implementation and management of workflows to the structure of process-aware information systems. Upon completion of this course students will be able to assess the efficiency and effectiveness of an organization from a process perspective, conduct process improvement projects, and determine the role of technology in supporting corporate processes.

Overview

Business Process Management (BPM) is the set of concepts, methods, and tools that help organizations define, implement, measure and improve their end-to-end processes. BPM is a combination of mature organizational transformation concepts (Business Process Reengineering, Lean Six Sigma, Total Quality Management) and supporting technologies such as workflow management, process analytics, process mining, and service-oriented systems. BPM technology helps organizations become more efficient by coordinating activities, automatically allocating tasks to process participants and integrating services and applications into the process. Demand for BPM is fueled by opportunities related to ongoing performance improvement, process outsourcing/off-shoring and the interest in process standards such as ITIL and SCOR. Global analysts such as the Gartner Group have identified the improvement of business processes as the number one priority of CIOs for a number of years.

The course addresses the needs of public and private organizations with BPM initiatives. It covers topics relevant for students that plan to become business or systems analysts that participate in

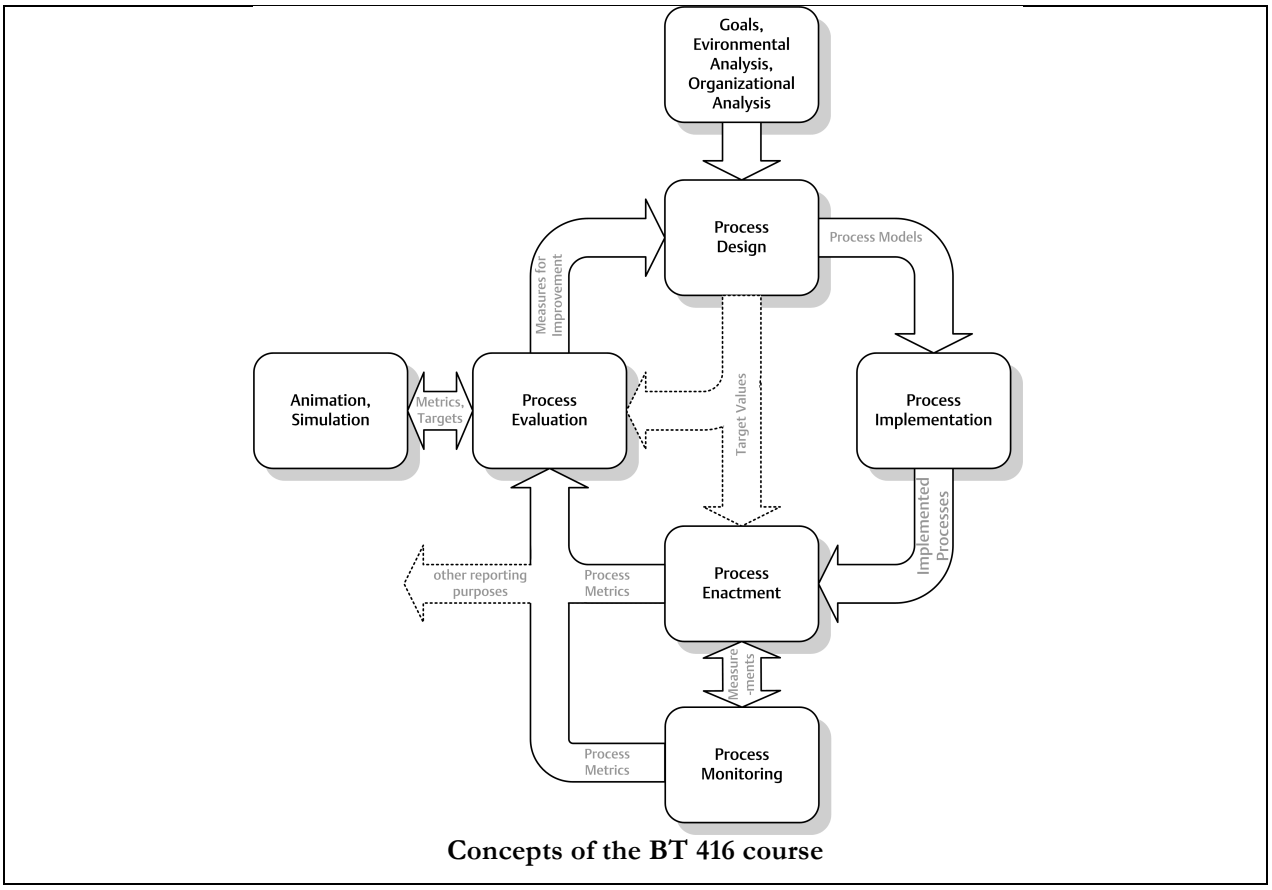
BPM projects, but covers concepts that are useful for functional/line of business positions as well. The course is also suitable for students interested in joining IT organizations with BPM tool offerings and provides business-level education for future sales-force personnel, technical staff, and consultants. The course makes use of real-world case studies to illustrate specific aspects of process mapping, automation, and evaluation, and to test student comprehension of the material.

Introduction to Course

This course leads students through the phases of the Business Process Management lifecycle, which consists of the stages *goal setting, process design, process implementation, process enactment and measurement,* and *process evaluation*. In addition to the operational phases of the lifecycle, the course discusses governance, risk management, and innovation topics as they relate to Business Process Management.

Each of the phases is described in detail to encompass the principal activities, methods, tools and techniques applied in the respective phase. Students will learn to identify appropriate supporting technologies for the different phases of the life cycle, assess the role of standards, and gauge the organizational impact of process change management activities.
The modules – and the areas of focus for the course - are:

- Module 1: Business Process Analysis and Design
- Module 2: Technology Support for Business Processes: Workflows & BPMS
- Module 3: Managing Processes; Metrics and Dashboards
- Module 4: Process Innovation
- Module 5: Governing BPM Efforts; Process Management Maturity



Concepts of the BT 416 course

Relationship of Course to Rest of Curriculum

The Business Process Management course expands and enhances the current offerings of the Business & Technology program by focusing on a change management area that is predominantly populated by Information Systems professionals. It builds on the analysis techniques that are mentioned in BT 201 – Diagnosing and Measuring Customer Satisfaction – and complements the content of BT 414 – eBusiness Technologies.

The course leverages the existing research program around BPM in the Howe School and uses partnerships with academics and industry to incorporate new research findings and technology into the curriculum. Students are exposed to, and work with, state-of-the-art BPM software offerings from vendors such as IBM, TIBCO, SunGard, BizAgi, and Signavio.

Learning Goals

The learning goals of this course are ordered according to Bloom's Taxonomy:

1. Knowledge: Students will be conversant in the terms used to describe, analyze, and improve Business Processes in organizations.
2. Comprehension: Students will be able to understand BPMN process models.
3. Application: Students will be able to model processes in BPMN for subsequent implementation in Business Process Management Systems.
4. Analysis: Students will be able to identify weaknesses in a given process design and suggest improvements that will benefit organizational performance.
5. Synthesis: Students will be able to redesign a given process using improvement patterns and outside best practices.
6. Evaluation: Students will be able to develop an implementation and integration strategy for processes that leverages organizational and technical capabilities of an organization.
7. Students will improve their ability to communicate in group and presentation settings.

Stage	Example	Techniques	Typical Questions
Evaluation	Informed choice between modeling techniques, tools and methodologies	Debate successful and unsuccessful case studies and propose alternative approaches (role play)	Which tool/method/technique is appropriate for our organization?
Synthesis	Generate new process design by applying outside process improvement patterns	Discuss commonalities, underlying truth of multiple methods, techniques	How can we improve/redesign/ substitute this process?
Analysis	Be able to create process architecture for an organization	Provide organizational examples and domain context for techniques	What are the weaknesses in this process?
Application	Be able to model BPMN diagram	Teach procedure models, methodologies	How can we represent this process?
Comprehension	Be able to read BPMN diagram	Teach vocabulary of modeling techniques	What does this process do?
Knowledge	Recall the definition of "Activity"	Teach Facts, Definitions, Creation of controlled vocabulary	What is a process?

Pedagogy

- Lecture
- Tutorial, using hands-on student exercises with BPM Tools
- Case Studies
- Guest speakers from industry (if available)
- Student individual assignments (weeks 2 through 8) based on Tutorial material
- Team assignment (week 14)
- Readings from texts and selected relevant articles and publications

Required Text

- Harmon, Paul: Business Process Change. A Guide for Business Managers and BPM and Six Sigma Professionals. 2nd Edition, Morgan Kaufmann, San Francisco, ISBN-10: 0123741521 ISBN-13: 978-0123741523.

Required Readings (will be provided as PDF)

- Air Products and Chemicals Case Study, APQC 2005
- Becker, J., v. Uthmann, C., zur Muehlen, M., and Rosemann, M. "Identifying the Workflow Potential of Business Processes," 32nd Hawaii International Conference on System Sciences (HICSS 1999), IEEE, Wailea (HI), 1999.
- Michael Hammer (1990). Reengineering Work: Don't Automate, Obliterate, Harvard Business Review. July 1
- Hammer, Michael: The Process Audit. Harvard Business Review, April 2007, pp. 111-123.
- Leymann, F., and Roller, D. "Workflow-based applications," IBM Systems Journal (36:1) 1997, pp 102-123.
- Raduescu, C., Tan, H.-M., Jayaganesh, M., Bandara, W., zur Muehlen, M., and Lippe, S. "A Framework of Issues in Large Process Modeling Projects," Proceedings of the 14th European Conference on Information Systems (ECIS 2006), Göteborg, Sweden, 2006.
- WfMC "Terminology and Glossary, 3rd Edition," Workflow Management Coalition, Winchester (UK) 1999.
- zur Muehlen, M. "Organizational Management in Workflow Applications - Issues and Perspectives," Information Technology and Management (5:3) 2004, pp 271-291.
- zur Muehlen, M., and Shapiro, R. "Business Process Analytics," in: vom Brocke, J.; Rosemann, M. (eds.): Handbook on Business Process Management (Vol. 2), Springer Verlag, Berlin et al., 2010.

Software

- IBM Innov8 2.0 BPM Platform (Download provided in eLearn)
- Signavio/Oryx BPM Modeler (Web-based BPM Platform)
- Lombardi Blueprint (Web-based BPM Platform)
- SunGard Infinity Process Platform
- TIBCO Business Studio
- ProM Process Mining Platform

Blogs

- BPTrends.org
- Column2.com
- BPM.com

Additional Readings (Optional References)

- Davis, R.: An Introduction to Business Process Modeling with the ARIS design platform: getting started with BPM, (1st ed.) Springer, New York, 2007.
- Dumas, M.; van der Aalst, W.M.P. and A.H.M. ter Hofstede (eds.): Process-Aware Information Systems. Bridging People and Software Through Process Technology, John Wiley & Sons, Inc., Hoboken, NJ, 2005
- Jeston, John; Nelis, Johan: Business Process Management: Practical Guidelines to Successful Implementations. Butterworth-Heinemann, 2006, pp. 464, ISBN 0750669217

Assignments

Assignments	Due
Individual Assignments	Week 2-8
Team Project	Week 13

Grading

Grading for each deliverable will be done on a scale from 0-100. The final grade will be computed based on the weighting of the deliverables according to the following resolution:

Points (100 scale)	Grade
95-100	A
90-94	A-
85-89	B+
80-84	B
75-79	B-
70-74	C+
65-69	C
60-64	C-
50-59	D
0-49	F

Types of Assignments	Final Grade Weight
Individual Assignments	50
Final Project	30
Reliability and Participation	20
Total Grade	**100**

Ethical Conduct

Stevens Honor System: Enrollment into the undergraduate class of Stevens signifies a student's commitment to the Honor System. It is the responsibility of each student to become acquainted with and to uphold the ideals set forth in the Honor System Constitution. All students are reminded that, as a condition of being admitted to Stevens, they will uphold and adhere to the standards of the Stevens Honor System. Specific student responsibilities include:

- Maintaining honesty and fair play in all aspects of academic life at Stevens
- Writing and signing the pledge, in full, on all submitted academic work
- Reporting any suspected violations to an Honor Board member or to the Dean of Undergraduate Academics
- Cooperating with the Honor Board during investigations and hearings

Course Schedule

(L)ecture/ (T)utorial Week	*Title*	Description	Assignment Due	Reading
Module 1: Process Analysis and Design				
01/18/11 L1	**Introduction**	*What will you learn?* ▪ Overview of the course ▪ Overview of the Process Management Lifecycle ▪ Introduction to Process Modeling		▪ Harmon Ch. 1
01/20/11 T1	**BPM Game**	*Play a BPM Game*		▪ IBM Innov8 2.0 Installation Guide
01/25/11 L2	**Process Architecture**	*What are the components of a Process Model?* *How can we capture business reality in a model?* ▪ Process Architectures ▪ Core versus Support Processes		▪ Harmon Ch. 4
01/27/11 T2	**Introduction to BPMN**	*Model a Process in BPMN*	Individual Assignment 1	▪ BPMN Primer
02/01/11 L3	**Process Modeling**	*How do process models look in BPMN?* *What is the difference between an analytical and an implementable process model?* *How do computers understand processes?* Components of Process Models From BPMN to XPDL		▪ Harmon Ch. 9
02/03/11 T3	**Advanced BPMN Exercise**	*Enhance your BPMN Model*	Individual Assignment 2	
Module 2: Technology Support for Processes: Workflow & BPMS				
02/08/11 L4	**People-Centric and System-Centric Processes**	*How do we Analyze Human Performance?* *How does BPM help improve Performance?* Value-adding versus Value-preserving Activities		▪ Harmon Ch. 10
02/10/11 T4	**Preparing a Process for Automation**	*Refine a BPMN model with Workflow-specific Activities*	Individual Assignment 3	
02/15/11 L5	**Automating Processes**	*How do we support processes with IS?* *What are the components of a process-aware application?* BPMS and Workflow Systems Components and Architecture		▪ Harmon Ch. 16 ▪ Leymann, Roller (1997)
02/17/11 T5	**Workflow and Data**	*Add Data to your Workflow Model*	Individual Assignment 4	
02/22/11	***No Class – Monday Schedule***			

(L)ecture/ (T)utorial Week	*Title*	Description	Assignment Due	Reading
02/24/11 T6	**Workflow and Decisions**	*Add Decisions to your Workflow Model*	Individual Assignment 5	
03/01/11 L6	**Task and Resource Allocation**	*How do you ensure that the best performer does the job?* Organization models Task allocation strategies Mobile performers External Participants		▪ zur Muehlen (2004) ▪ Reijers (2007)
03/03/11 T7	**Add Conditional Performers**	*Add Conditional Performers to your Workflow Model*	Individual Assignment 6	
03/08/11 L7	**Rules vs. Processes**	*How do we capture decision-making activities?* *How do we deal with unstructured work?* BPMS and BRMS Integrating ECA rules with processes Capturing Unstructured Processes		▪ Harmon Ch. 10
03/10/11 T8	**Introduction to SBVR**	*Model Business Rules using SBVR*	Individual Assignment 7	
03/15/11	***No Class – Spring Break***			
03/17/11				
Module 3: Managing Processes: Metrics & Dashboards				
03/22/11 L8	**Managing the Run-Time**	*How do we ensure efficient processes?* *How do we know how well our processes are performing?* Process Metrics Business Activity Monitoring Business Intelligence Process Dashboards		▪ Harmon Ch. 5, 11
03/24/11 T9	**Designing a BPM Dashboard**	*Develop Metrics for a Business Process*	Individual Assignment 8	
03/29/11 L9	**Process Mining**	*What else can we do with process audit trails?* Predictive Process Simulation Data Mining based on Process Data Integration of Process information into Strategy Maps		▪ zur Muehlen, Shapiro (2010)
03/31/11 T10	**Process Mining Exercise**	*Discover Process Performance from a Log File*		
Module 4: Process Innovation				
04/05/11 L10	**Process Improvement**	*How can we redesign our processes?* Patterns for Process Improvement		▪ Hammer (1990)

(L)ecture/ (T)utorial Week	*Title*	Description	Assignment Due	Reading
04/07/11 T11	**Process Innovation Exercise**	*Improve a given Business Process*		
04/12/11 L11	**Advanced Process Improvement**	*How can we reinvent our processes?* Leveraging Technology to create innovative Processes		▪ USMEPCOM Case Study
04/14/11 T12	**Process Innovation Exercise**	*Create a new Process Design*		
Module 5: BPM Maturity & Governance				
04/19/11 L12	**Case Study: Designing Technology Support for a Process-Oriented Organization**	*How does a BPM project look like in the real world?* Exam feedback Case Study		▪ Air Products Case Study ▪ Harmon Ch. 7
04/21/11 T13	**Case Study Discussion**	*Review a real life Case Study*		▪ HBR Case
04/26/11 L13	**Business Process Management Maturity**	*How do you build sustainable BPM initiatives?* BPM Maturity Models BPM Centers of Excellence Organization Structure of BPM Efforts		▪ Hammer (2007) ▪ Raduescu et al.(2005) ▪ Rosemann, de Bruin, Powers (2007)
04/28/11 T14	**Process Governance**	*Create a BPM Center of Excellence*	Group Assignment	
05/03/11 L14	**Advanced Topics**	*Advanced BPM Concepts*		▪ Will be distributed during the semester

All assignments are due as noted. In fairness to others, late work will be penalized 10% per week overdue.