New Jersey Institute of Technology  
College of Computing Sciences  

**IS 684-852: Business Process Innovation**  
**Course Syllabus**

Instructor: Dr. Lin Lin  
*Office: 5600A Guttenberg Information Technology Center*  
*Phone: (973) 596-5212*  
*e-Mail: llin@njit.edu*

**Description**

Enterprise business processes are the **end-to-end** collections of work activities that create and deliver value to customers. Examples of business processes are order fulfillment, new product development, and logistics.

This course introduces students to the key concepts and approaches of business process innovation (BPI) such as **incremental improvement**, **process automation**, and **process redesign**. BPI initiatives take place across three levels – the enterprise level, the process level, and the application infrastructure level. The focus of this course is on both understanding and designing business processes within these three levels of concern.

This course has both a theoretical and a practical component. Students will learn theoretical process models such as the Business Process Modeling Notation (BPMN) and use them to design process innovations to achieve efficiency, effectiveness, compliance, and agility objectives. They will also discuss the ways in which information technology can be used to manage, transform, and improve business processes. In the meanwhile, students will also gain hands-on experience with the software SAP, current market leader of ERP and BP systems. By going through several business processes using SAP for a global company, the students could reinforce their theoretical learning and link the models to actual business practices.

At the end of this course, the student should be able to:

**Theory:**
1. Describe and analyze **business work activities**
2. Map business processes using the **business process modeling notation** (BPMN)
3. Identify **process problems**
4. Apply **key business metrics** to analyze and track process performance
5. Explain how IT innovations can enable **agile business processes**
6. Specify **best practice** tactics for improving process efficiency and effectiveness
7. Analyze and critique proposed business process innovations

**Practice:**
1. Be able to navigate the **SAP** system with ease
2. Go through **Procurement**, **Fulfilment** and **Production** processes using SAP
3. Be able to link the theoretical discussions on business process to the hands-on SAP practice
4. Use the **INNOV8** simulation game to understand how business process management could impact the business eco-system
Prerequisites
None, but prior modeling knowledge and a management or business course are suggested. Modeling knowledge could be gained in IS 663 or CS 673. Students with only a technical background should be prepared to invest additional time to understand management and organization concepts.

Required Texts:

Schedule of Readings
The weekly schedule of readings, topics, and assignments will be in Moodle. Below is a list of readings. More readings not on this list might be added to Moodle as we go through the semester.


**Assignments (Individual and Team)**

There will be several individual and team assignments over the semester. Details on each assignment will be posted in Moodle.

For some weeks, each team will be assigned one paper to read. Teams are expected to develop a 5 – 7 page Powerpoint Slide set to summarize the assignment paper. The presentations should be posted to the weekly presentation forum. During class, teams will be randomly chosen to present their findings.

There are three modeling homework assignments in this course. Modeling Assignments will be done in teams. The first homework uses the language action notations of the Commitment Management Protocol (CMP) and Actor Transaction Diagrams (ATD) to identify communication and commitment breakdowns in a simple situation. The second and third assignments use the Business Process Model and Notation (BPMN). The student will apply this notation to a set of simple processes.

There will be 6 SAP labs. Students’ presence and active participation in the SAP labs are expected, and their performances in the lab will be graded.

**Final Project (In teams)**

**Objective:** To demonstrate the ability to propose a business process improvement initiative and make a business case for such initiative.

**Summary:** The project involves choosing an organizational context, representing one or more of its business processes, diagnosing how it could be transformed into a better process, providing recommendations for doing that, and developing the business case for the process improvement initiative.

The final team project will be in the form of a real-life situation where teams will propose a business process improvement initiative in an organizational context and present the business case for such to management. The project will include a written report in a prescribed format and a presentation to class. Additional details will be provided in Moodle as the semester proceeds.
Late Assignments Policy
Unexcused late submission of homework receives a 20% penalty. This means that you start with 8 out of 10 points as the maximum. Assignments submitted after graded assignments are returned or reviewed in class receive no credit.

INNOV8 Game
The course will use the INNOV8 game from IBM. Students will play all three levels of the game and discuss their experience in the on-line forum.
Grading

NJIT Academic Policy has grades for graduate courses assigned as follows:

<table>
<thead>
<tr>
<th>GRADE</th>
<th>GPA</th>
<th>SIGNIFICANCE</th>
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<tbody>
<tr>
<td>A</td>
<td>4.0</td>
<td>Excellent</td>
</tr>
<tr>
<td>B+</td>
<td>3.5</td>
<td>Good</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
<td>Acceptable</td>
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<tr>
<td>C+</td>
<td>2.5</td>
<td>Marginal Performance</td>
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<tr>
<td>C</td>
<td>2.0</td>
<td>Minimum Performance</td>
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<tr>
<td>F</td>
<td>0.0</td>
<td>Failure</td>
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Final grades for IS 684 will tentatively be assigned as follows. There may be slight modifications, depending on issues that arise during the semester.

- SAP Labs - 20%
- Reading Assignments - 20%
- Modeling Assignments (3) - 30%
- Group Project and Presentation - 30%
Total: - 100%

Excellent participation demonstrated by preparation for discussion and thoughtful contributions (on-line and in class) will have the effect of raising a final letter grade by one value (e.g. B to B+, or B+ to A). Likewise, poor participation demonstrated by consistent lack of preparation for discussion and little or no thoughtful contributions (on-line and in class) will have the effect of lowering a final letter grade by one value (e.g. A to B+, B to C+).
Miscellaneous:

- A companion website for the text exists at [www.bptrends.com/](http://www.bptrends.com/).

- I will look to place copies of PowerPoint slides that are the basis for lectures in Moodle by the morning before class meetings. Some lectures may be pre-recorded allowing you to view them prior to a class meeting. This would allow for more discussion and team work during class.

- I am generally on campus 4 days per week, but may not be available to meet with students. Please call me to check if I am available to meet with you. If you send me e-mail, please put IS 684 in the SUBJECT LINE so I can filter your e-mails to be read quickly (as opposed to them being ignored as junk e-mail).

Honor Code

Any evidence of cheating in any form, including plagiarism, will be dealt with according to the honor code of NJIT (course failure and suspension or expulsion). Please note: There will be no warnings or chances with regard to cheating. Any discovered case of cheating will be immediately passed to the Dean of Students for further investigation. Cheating is not worth it.

You may not only fail this course but also be suspended from NJIT. The full text of the NJIT Honor Code is available for your review at [http://www.njit.edu/academics/honorcode.php](http://www.njit.edu/academics/honorcode.php).
<table>
<thead>
<tr>
<th>Week</th>
<th>Theoretical Topics</th>
<th>Readings</th>
<th>Hands-On Labs / Assignemnts</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>How Work Gets Done</td>
<td>BPC Chapters 1,3; Alter (1,2,3)</td>
<td>Lab 0: Introduction to SAP</td>
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<tr>
<td>2</td>
<td>Collaboration and Coordination</td>
<td>Denning and Yaholokovsky (7); Denning (6); Goldkuhl (10); Dietz (8)</td>
<td>Lab 1: GBI Basics, Financial Accounting Process</td>
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<tr>
<td>3</td>
<td>Reengineering and Process Change – Part I</td>
<td>Hammer(11); Davenport (5), Grant(9)</td>
<td>Lab 2: Procurement Process</td>
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<td>4</td>
<td>Reengineering and Process Change – Part II Business Process Management – Part I</td>
<td>Carr (4); Houghton (13), BPC – Chapters 4,5</td>
<td>Lab 3: Fulfilment Process</td>
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<tr>
<td>5</td>
<td>Business Process Modeling–Part I</td>
<td>White (17); White (18,19), OMG (20), Owen and Raj(14)</td>
<td>Lab 4: Production Process</td>
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<td>6</td>
<td>Process Level Concerns: Characteristics and Performance</td>
<td>BPC, Chapters 8,9,10; White (18)</td>
<td>Lab 5: Warehouse Management</td>
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<td>8</td>
<td>Performance and Making the Business Case</td>
<td>BPC – Chapters 6, 11</td>
<td>Lab 7.1: Process Integration</td>
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<td>9</td>
<td>Applying Work Systems Theory Project Case Study</td>
<td>Alter (1,2,3)</td>
<td>Lab 7.2: Process Integration(II)</td>
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<td>10</td>
<td>Project Working Week</td>
<td>White (18,19), OMG (20), Owen and Raj(14)</td>
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<td>11</td>
<td>Innovation Types, Final Discussions</td>
<td>BPC, Chap 12,13,14, Repenning(15); Teo(16)</td>
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<tr>
<td>12</td>
<td>Group Project Presentations</td>
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<td>13</td>
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