CIS 4140E Spring 2010

Implementing IT-Facilitated Business Processes

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Proposed Catalog Description

Implementing IT-Facilitated Business Processes. The three objectives of this course are: to enable students to implement a business process directly from a business process model using a professional business process management software suite (BPMS); to develop and deploy the associated process interfaces, business object model, application software (where required); and to develop the knowledge and skills necessary to initially implement, and then to continuously evaluate, manage and improve the resulting process via the process model.

Motivation

This course offering is currently somewhat unique in that only a handful of universities (mostly, outside the US) currently offer a BPMS implementation course for undergraduate credit. The reasons for this are varied but, rest assured, it is how business applications are and will be developed going forward. Whether one calls this MDE (model-driven execution), EUBA (end-user business applications) or similar, the objective is to create flexible, agile, transparent and manageable business processes that are easy to implement, incrementally improve, and provide responsive (not reflective) business intelligence.

The view of this course is that these concepts are best understood and learned by doing, not reading about them. By implementing "real" business processes; not toy problems and examples. Five years ago, this would have been impossible, as the business process management suites (BPMS's) at that time were quite complex and difficult to use. However, considerable progress has been made since then and we now have several modern examples of BPMS's that are quite tractable for student implementation and use. And, of course, this will only improve as time progresses.

So, if you want to be at the leading edge of how business applications (and their underlying processes) are viewed, defined, justified, implemented, managed, changed and monitored for (continuous) improvement, then this is the course for you. You do not need an understanding of programming, etc. What you do need is a willingness to learn new ideas, install and use (on your own computer) technology with a small footprint but significant capabilities, and perhaps set aside some ideas regarding how to go about defining and implementing IT-enabled business applications for process owners and users.

Course Description

This course continues the theme of business process management systems initiated with CIS 4120. CIS 4120 takes up the challenge of developing "as-is" and "to-be" models of a business process using open-standard business process modeling notation (BPMN), business rule specifications and form interaction, as well as some of the skills necessary to develop these models. This course focuses on the implementation of such models, both conceptually as well as practically, using a professional software platform capable of executing and monitoring the resulting business process model. Using the process intelligence derived from the executing process, operating data and techniques for identifying and then evolving to the next iteration of improvement of the process are addressed.

To accomplish the objective of implementing a business process model, a specific business process modeling suite (BPMS) will be chosen. While there are many candidates for this choice in the market, this course will focus on one that's comprehensive in scope, but comparatively easy to install and use. For purposes of this course description, we'll use BizAgi's BizAgiXpress software as the software platform of choice. While other candidates with similar features that could have been chosen (TIBCO, HandySoft, Ascentn, Appian, IBM WebSphere and WebMethods were evaluated candidates), in the end, however, the combination of comprehensiveness, accessibility and support tipped the scales in (substantial) favor of BizAgiXpress.

Students, formed into teams, will select a business process to implement on the chosen platform. The course will provide an overview of how to map standard business process models, as they would have developed in CIS 4120, into the specific process execution platform. The student is expected to read, experiment with, and eventually produce a working execution of instructor-assigned and student-chosen processes.

Prerequisite: *CIS 4120.*

Course Details

Course	CIS 4140E: *Implementing and Evaluating Business Processes* CRN: 17295
Semester	Spring 2010
Class Sessions	Tuesday 4:30-7:00P Sparks Hall 131
Instructor	Dr. Richard J. Welke Office: RCB 423 (4th Floor CBA building) email: rwelke@gsu.edu; phone: (404) 413-7863 Office hours: by appointment – phone, or an Elluminate Live "private meeting session" virtual conference can be set up

Courseware & readings

Readings – Books: As BPM and BPMS are relatively recent areas, there aren't at present, university-style textbooks for courses in this area. For this course we'll reference two professional books:

(JN) Jeston, John and Johan Neli, **Business Process Management, Second Edition: Practical Guidelines to Successful Implementations**, Butterworth-Heinemann; 2 edition (March 7, 2008) ISBN-13: 978-0750686563

Readings – Reference Guide(s): The BPMS platform selected for use in the course is BizAgiXpress. All materials regarding BizAgi are available from their support documentation website: http://wiki.bizagi.com/en/index.php?title=Main_Page

To take full advantage of BizAgi, you should sign up for (free) access to both their documentation site as well as their support forums.

Required readings – Papers and reference materials. These will be made available on the course uLearn (GSU's WebCT/Vista) site in specified folders, or via the BizAgi web site, and/or handed out in class. This includes supporting user and reference manuals for the software tools we'll use, teaching notes developed by the instructor and articles related to specific topics that are otherwise available via the web, for free, or from GSU's electronic reference library. To the extent possible, they'll be referenced in the course syllabus. However, as additional readings or "new and improved" versions become available, these will be notified by email at your @student.gsu.edu email accounts.

Software. As noted, we'll be using BizAgiXpress v9 from BizAgi (at the time of this writing it's version 9; an updated version is expected at the end of 2009 in time for this course). This is the most complete, student-friendly BPMS platform I've come across. We will use it under academic license from BizAgi. While there are different ways to do this, the best and simplest way is for each of you to download it onto your own computer (you'll each sign a EULA). The BizAgi software currently is approved to run on either WinXP or WinVista. However, students report they also have it running on Win7. There is a separate Process Modeler from BizAgi (similar to the TIBCO modeler, but easier to use) that is free-to-download and use, and its results can be directly imported into BizAgiXpress.

You are encouraged to download the trial (30-day) version of BizAgiXpress from the BizAgi website, install it, and try it on your own prior to the start of class. It will also install .NET framework if you don't already have it. You should also let it install SQLExpress (from MS), even if you already have SQL Server installed (this simplifies things a bit).

Course Learning Objectives

The overall course learning objectives are stated in the course description. More specific learning objectives, related to those three overall objectives are:

1. Successfully model, deploy and implement a business process on a professional business process management suite (BPMS) software platform.
    a. Be able to map a generic BPMN-notated business process model to the constraints of a specific implementation model
    b. Develop the additional specifications needed to fully describe and deploy the process
    c. Understand when, where and how to use simple external data and web services to provide extended functionality
    d. Surface and deploy basic business rules processing
2. Design and deploy a useful and usable user and manager interface to the business process.
    a. Further develop and apply user-interface design best practices
    b. Design, extend and deploy the user and process management portals for the delivery of business process tasks, content and management

3. Develop the skills necessary to continuously evaluate and improve business processes at both the design/transformational level and the on-going, real-time adaptation of a running process. Do this by knowing how to:
    a. Select relevant event data from a running business process
    b. Develop report, display and alert mechanisms drawn from data available from the BPMS and associate this with methods to adapt the process
    c. Generalize and evaluate broader process design alternatives using discrete-event process simulation models and simulators.
4. Develop a deeper understanding and methods for handling process implementation challenges.

Pedagogical Approach: Problem-based Learning (PBL)

Problem based learning gives you opportunities to examine and try out what you already know; discover what you need to learn; develop your people skills for achieving higher performance in teams; improve your writing and speaking abilities, to state and defend with sound arguments and evidence your own ideas; and to become more flexible in your approach to problems that surprise and dismay others. Despite the work and effort it requires, PBL is never dull and can be fun.

Instead of instructors giving answers and then testing to see if students have memorized them they present problems to tackle before teaching begins. Beginning with a problem puts students in the driver's seat. They can use and explore what they already know, their hunches, and their wildest ideas to try for a solution. In the process they can develop an inventory of what they know and what they need to know. Once students get a sense of what they need to know they can set off to question instructors or classmates, plunder the library, surf the net, or seek out experts to satisfy their curiosity.

In PBL, the student isn't expected to simply memorize knowledge. They are expected to apply knowledge to real situations. This shows that they have an understanding of what is being taught, instead of just the ability to restate facts. So before students learn new information, instructors present them with a problem. They select and pose the problem so students will discover that they need to learn new knowledge and skills. Often this involves failures as students discover that what they already know won't work. It involves a lot of talking – stating ideas, defending propositions, and criticizing. Students have to unlearn to acquire new knowledge so they can solve the problem.

PBL is team based. Most of the work on problems and projects is done in teams of three to six students. This requires instructors to design problem scenarios that raise the bar for thinking and searching. It also requires students to become effective managers of time, projects and meetings. Both requirements demand creative efforts to succeed. Research shows team-based PBL to be effective but also fraught with unintended outcomes such as slacking, pressure on ambitious students to do all the work, and divided work so no new learning has to be done. Both students and instructors need to be diligent in spotting and correcting such failures.

A more complete discussion of PBL, extracted from Penn State University's School of Information Science and Technology web site (http://pbl.ist.psu.edu/pbl) is provided as an appendix to this syllabus.

PBL in this Course

We will more fully utilize the PBL concept in this course, than was the case in CIS 4120. The first half of the course will be driven by a set of problem "workshops," a tutorial problem and then an instructor-originated problem scenario. The first three are from BizAgi and are worked examples. Their objective (and mine) is to familiarize you with the various aspects of a BPMS and its specification. Each produces a fully implemented business process. I.e., you design it, and then you can use it (and manage it). Behind the scenes, you're developing the necessary understanding, knowledge and skills needed to develop your own business process. Then you can begin (with my help) to expand upon these basic skills.

Obviously, the specific implementation knowledge is with regard to BizAgi. However, these basics are found, in rather similar forms, in nearly all of the other BPMS's on the market today.

Project & Exams

Course Project (Group of Three). The learning objectives of this course are best (and perhaps only) met by applying it to a real-world situation. Teams of two to three are to be formed by the end of the second class session. There will be two kinds of project contexts possible. The first is to draw from one of the project group members a real-world application from their own company setting. The second is to examine a business process that exists within the College of Business. For the latter, several such possibilities will be developed and contact persons identified by the third week of the course. In either case it is the project group's responsibility to scope the collaborative process and determine the best approach.

The second "project" is an individual effort BPM. All students will be given the same scenario (a more elaborated variant of the scenario used as the "final exam" in CIS 4120). You will each be required to implement this scenario. This will be given following the completion of the three problem examples and due before the last week of class.

Class Schedule (approximate outline – details to be discussed and revisited)

The following scheduled list of topics **is subject to change.**

Wk	Dates	Topic	Outcome	Events and Assignments
1	**Jan. 12**	Course Overview	• Understand course objectives and expectations • Introduction to course BPMS platform	• Initial group selection • Simple BP to implement in BizAgi
2	**Jan. 19**	Discussion of BizAgi BPMS software	• First BPM working implementation	• Start BizAgi Workshop 1 (WS1)
3	Jan. 26	Workshop 1 (at home – no class session)	• ***At-home*** completion of: WS1	• Work on WS1 (home)
4	**Feb. 2**	WS1 discussion and extensions	• BPMS process modeling & modeler • Mapping to the platform process modeler • Discussion of prospective BP's to	• Completed WS1 (Turn in BizAgi .bak file of WS1 solution) • Proposed process implementation project

			model & implement in BizAgi	
5	Feb. 9	Workshop 2 (at home, no class session)	• ***At-home*** investigation of: WS2	• Selection of process to implement
6	**Feb. 16**	WS2 discussion and extensions Forms design and the user interface	• Understand how process models are executed in BiaAgiXpress; know how to develop/modify forms (tabs, multi-sequence, etc.).	• Completed WS2 (Turn in BizAgi .bak file of WS2 solution) •
7	Feb. 23	BizAgi online tutorial (at home, no class session)	• ***At-home*** completion of online course	•
8	**Mar. 2**	Building and using "expressions" in BizAgi	• Continue completion of online course • Apply task-based expressions to accomplish work within a task	• Completed Tutorial (Turn in BizAgi .bak file of Online tutorial solution
NC	Mar. 9	• No classes; spring break		
9	**Mar. 16**	Business rules	• How business rules are used and implemented	• Progress report on external BPMS project
10	**Mar. 23**	Data modeling and usage (BOM, data virtualization, etc.).	• How data is handled and managed in a BPMS (internal, external)	• Short presentations on project
11	**Mar. 30**	Sub-process handling	• Use of embedded and various types of sub-processes in BPMS	•
12	Apr. 6	Final "sprint" on at-home assignment	• At-home wrap-up of instructor assigned scenario to be implemented in BPMS	•
13	**Apr. 13**	Implementation topic 1 (TBD)	•	• Hand-in instructor assigned BPMS scenario
14	**Apr. 20**	Implementation topic 2 (TBD)	•	•
15	**Apr. 27**	Presentations	• Project presentations	•
	May 4	Official exam day	• Turn in all final materials required	• Project Reports are due to me today

Course Session layout

The course will be conducted in the spirit of a combined seminar, lecture and lab. Each of the main topics will be introduced with an overview lecture. After that, we will move to a more interactive format in which each student is expected to contribute and participate in terms of questions, comments, critique, issues raised and problems solved, etc. As the course makes use of several pieces of software time will be spent discussing its use and student's problems with and ways to solve the problems. I may bring in one or more external professionals to contribute to the course, either physically or virtually (web conferencing).

Grading

The final grade will be based on the following components and their weights:

Component	**Weight**
In-class participation	15 %
Assigned scenario implementation	20 %
Project presentation	30%
Written project report	35 %
Total	***100%***

The course grading, as required by the College will be on a +/- grading system. The final grade is determined by computing your total weighted score out of 100, rounding off to the nearest integer value. The final grade will be determined by computing your total weighted score out of 100, rounding off to the nearest integer value.

The percentage grade will be converted to a letter grade where a percent grade is assigned, as follows:

Letter grade	Nominal value	Range conversion	Meaning
A+	99	98-100	As good or better than the instructor's solution.
A	95	93-97	Excellent; hard to improve upon
A-	91	90-92	Very professional
B+	88	87-89	Above normal professional expectations
B	85	83-86	Expected professional performance
B-	81	80-82	Somewhat below what would be professionally expected
C+	78	77-79	A significant flaw or multiple minor flaws, but generally acceptable
C	75	73-76	One or more significant flaws that would require professional rework
C-	71	70-72	Both significant and minor flaws that constitute unacceptable professional work
D	65	60's	Unacceptable as it stands but possibly salvageable with work
F	0	< 60	Reject; well below minimal expectations

Student Behavior

Behavior in class should be professional at all times. People must treat each other with dignity and respect in order for scholarship to thrive. Behaviors that are disruptive to learning will not be tolerated and may be referred to the Office of the Dean of Students for disciplinary action.

Discrimination and Harassment

Discrimination and/or harassment will not be tolerated in the classroom. In most cases, discrimination and/or harassment violates Federal and State laws and/or University Policies and Regulations. Intentional discrimination and/or harassment will be referred to the Affirmative Action Office and dealt with in accordance with the appropriate rules and regulations.

Unintentional discrimination and/or harassment is just as damaging to the offended party. But, it usually results from people not understanding the impact of their remarks or actions on others, or insensitivity to the feelings of others. We must all strive to work together to create a positive learning environment. This means that each individual should be sensitive to the feelings of others, and tolerant of the remarks and actions of others. If you find the remarks and actions of another individual to be offensive, please bring it to their attention. If you believe those remarks and actions constitute intentional discrimination and/or harassment, please bring it to my attention.

University Policy on Disabilities

GSU provides accessibility and reasonable accommodations for persons with disabilities. Students with disabilities are responsible for contacting the Office of Disability Services to assess their needs. Students must identify themselves and their needs to the professor no later than the first day of class.

Official CIS Department Class Policies

1. Prerequisites are strictly enforced. Students failing to complete any of the prerequisites with a grade of "C" or higher will be administratively withdrawn from this course with *loss of tuition fees*. **There are no exceptions, except as granted by the instructor with the approval of the department.**
2. Students are expected to attend all classes and group meetings, except when precluded by emergencies, religious holidays, or bona fide extenuating circumstances.
3. Students who, for non-academic reasons beyond their control, are unable to meet the full requirements of the course should notify the instructor, by email, as soon as this is known and prior to the class meeting.
4. A "W" grade will be assigned if a student withdraws before mid-semester if (and only if) he/she has maintained a passing grade up to the point of withdrawal. Withdrawals after the mid-semester date will result in a grade of "WF". See the GSU catalog or registrar's office for details.
5. Spirited class participation is encouraged and informed discussion in class is expected. This requires completing readings and assignments **before** class.
6. All exams and individual assignments are to be completed by the student alone with **no** help from any other person.

7. Collaboration within groups is encouraged ***for project work***. However, collaboration between project groups will be considered cheating.
8. Copying work from the Internet without a proper reference is considered plagiarism and subject to disciplinary action as delineated in the GSU Student Handbook.
9. Any non-authorized collaboration will be considered cheating and the student(s) involved will have an Academic Dishonesty charge completed by the instructor and placed on file in the Dean's office and the CIS Department. All instructors regardless of the type of assignment will apply this Academic Dishonesty policy equally to all students. See excerpt from the Student Handbook below on **Academic Honesty**:

   (Abstracted from GSU's *Student Handbook* Student Code of Conduct "Policy on Academic Honesty and Procedures for Resolving Matters of Academic Honesty" - http://www.gsu.edu/~wwwreg/ugcat2000/academic/honesty.htm)

   As members of the academic community, students are expected to recognize and uphold standards of intellectual and academic integrity. The University assumes as a basic and minimum standard of conduct in academic matters that students be honest and that they submit for credit only the products of their own efforts. Both the ideals of scholarship and the need for fairness require that all dishonest work be rejected as a basis for academic credit. They also require that students refrain from any and all forms of dishonorable or unethical conduct related to their academic work.

   Students are expected to discuss with faculty the expectations regarding course assignments and standards of conduct. Here are some examples and definitions that clarify the standards by which academic honesty and academically honorable conduct are judged at GSU.

   Plagiarism. Plagiarism is presenting another person's work as one's own. Plagiarism includes any paraphrasing or summarizing of the works of another person without acknowledgment, including the submitting of another student's work as one's own. Plagiarism frequently involves a failure to acknowledge in the text, notes, or footnotes the quotation of the paragraphs, sentences, or even a few phrases written or spoken by someone else. The submission of research or completed papers or projects by someone else is plagiarism, as is the unacknowledged use of research sources gathered by someone else when that use is specifically forbidden by the faculty member. Failure to indicate the extent and nature of one's reliance on other sources is also a form of plagiarism. Any work, in whole or part, taken from the Internet or other computer based resource without properly referencing the source (for example, the URL) is considered plagiarism. A complete reference is required in order that all parties may locate and view the original source. Finally, there may be forms of plagiarism that are unique to an individual discipline or course, examples of which should be provided in advance by the faculty member. The student is responsible for understanding the legitimate use of sources, the appropriate ways of acknowledging academic, scholarly or creative indebtedness, and the consequences of violating this responsibility.

   Cheating on Examinations. Cheating on examinations involves giving or receiving unauthorized help before, during, or after an examination. Examples of unauthorized help include the use of notes, texts, or "crib sheets" during an examination (unless specifically approved by the faculty member), or sharing information with another student during an examination (unless specifically approved by the faculty member). Other examples include intentionally allowing another student to view one's own examination and collaboration before or after an examination if the faculty member specifically forbids such collaboration.

   Unauthorized Collaboration. Submission for academic credit of a work product, or a part thereof, represented as it's being one's own effort, which has been developed in substantial collaboration with another person or source or with a computer-based resource is a violation of academic honesty. It is also a violation of academic honesty knowingly to provide such assistance. Collaborative work specifically authorized by a faculty member is allowed.

   Falsification. It is a violation of academic honesty to misrepresent material or fabricate information in an academic exercise, assignment or proceeding (e.g., false or misleading citation of sources, the falsification of the results of experiments or of computer data, false or misleading information in an academic context in order to gain an unfair advantage).

   Multiple Submissions. It is a violation of academic honesty to submit substantial portions of the same work for credit more than once without the explicit consent of the faculty member(s) to whom the material is submitted for additional credit. In cases in which there is a natural development of research or knowledge in a sequence of courses, use of prior work may be desirable, even required; however the student is responsible for indicating in writing, as a part of such use, that the current work submitted for credit is cumulative in nature.

CIS 4140 Class Policies

Student Email Accounts and Use

The class instructor makes significant use of email in his communication with students. All email will be addressed to your @student.gsu.edu account. **It is your responsibility to ensure that if you forward this email to another address that this forwarding works and accepts email from the GSU account on an on-going basis.** This is not only the class policy but the University policy as well.

Classroom Attendance

To buttress the (CIS) departmental policy that attendance is generally expected at all classes, class participation grades will be significantly reduced for *unexcused* absences. Furthermore, students are responsible for receiving all administrative and course announcements given in class—in person or by proxy. If you do not expect to attend a session, please email the instructor along with the reason for your absence.

Class Contribution

Individual contributions to class sessions are *very* important and will be evaluated as a component of the course grade (participation). This component will be based upon your questions asked and answers, discussion of in-class topics, assignments and on-going group project discussions.

Project

Students will contribute one (group) practical project during the course and several group project assignments. The guidelines for the project will be provided in a separate ***CIS 4140 Student Project Handbook*** (download from uLearn).

Instructor Expectations

Expectations Regarding Attendance and Participation

Since this is an advanced course with materials assembled from multiple sources, regular attendance and participation is required, as the class interactions will form a significant part of the course learning experience. In evaluating your class participation in discussions, both the quantity and quality of participation will be taken into account.

Absences will count against your participation score for the course. Students are therefore expected to attend all classes, except when precluded by emergencies, religious holidays, or other extenuating circumstances. If you will be absent from class for any reason, please notify me in advance if possible.

It is reasonable to expect an on-time start for each course session (we're not Delta). This is true in our professional lives and should be true for this class. Classes will begin on time. Material missed due to late arrival should be acquired from classmates or project team members. Exams or other required presentations missed due to late arrival will be graded an F (zero).

Simply showing up for class, important as it may be, **is not** to be equated with participation. Students should make an effort to contribute to *each and every* class. Before coming to class, thorough preparation in terms of readings and assigned problems is essential. Further, students should expect to be *cold called* throughout the course and should prepare accordingly. As a general guideline, the quality of a contribution will be assessed on the following criteria:

Things viewed positively in evaluating participation include:

- Does the contribution represent a solid analysis and some insight into the case or is it just a reiteration of case facts?
- Does the contribution demonstrate an ability to listen to and build from what others have said?
- Does the contribution demonstrate useful ideas, coherently and succinctly expressed
- Does the contributor regard, respect and acknowledge other's contributions If the contributor disagrees with other's positions or analysis does s/he offer constructive disagreement
- Does the contributor demonstrate a good sense of humor'
- Does the contribution move the discussion to an important area or does it just rephrase what has already been said?
- If "cold called," was the student prepared?

Things viewed negatively in evaluating participation include:

- Lack of involvement - silence, detachment or disinterest
- Leading the discussion into unrelated topics
- Spending undue amount of time on minor points
- Long, rambling comments
- Commenting with "authority" but lacking the underlying knowledge to do so
- Being unprepared, or passing on a cold call

I will keep notes regarding each student's participation in class. I will give an indication of how you are doing in this regard at several points during the course.

Expectations for Written Assignments and Presentations

I expect professional looking documents which give proper credit to all sources of intellectual material. Deliverable documents must be:

- Typed, (word processed) spell checked and paginated, with suitable. The norm for layout is 1-1/2 line spacing, 11 pt. New Times Roman (or equivalent) font, with at least ¾" borders on all edges. For longer documents, a header and footer should be used and include the submitters, the date of submission and the page number.
- Have a cover page that clearly indicates the assignment and the name(s) of the submitter(s).
- All citations must be identified in the text (in short form) and in an attached bibliography. Use any standard format as long as it is used consistently.
    - See the Turabian Manual of Style, Chicago Manual of Style, Harvard Manual or other suitable reference guide for writers if you are not familiar with this requirement. Papers that do not properly cite sources will be returned ungraded.

In addition to paper copies of assignments, **electronic (and certifiably virus free) copies should be emailed to me on the day they are due.** Further guidelines regarding software-based assignments will be provided shortly.

- File names should clearly identify you by last name followed by the assignment number. E.g., CIS4140 YourLastName assign#1

Expectations Regarding Software and Electronic Communication

- Please read the statement regarding email (above) and ensure your email forwarding works.
- The student must make reasonable efforts to overcome any problems arising from the use of the prescribed software for this course. As graduate students of CIS, "reasonable" should mean: serious concerted effort.