# Teaching Soft Skills in a Systems Development Capstone Class

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## ABSTRACT

Industry recruiters have been telling the same story for many years about the importance of interpersonal communication skills and teaming within the classroom. The most important attribute new college graduates can bring to the workplace is their ability to communicate effectively in both oral and written format. Unquestionably, industry views the student's ability to communicate, ability to cooperate, and ability to work in diverse environments as very desirable and necessary skills. A more rigorous approach to the teaching of soft skills within the information systems curricula is needed if IS educators are able to adequately prepare the IS student for the future. The soft skills most frequently enumerated by industry are the ability to: 1) demonstrate effective interpersonal relations, 2) demonstrate self-management strategies, 3) work within teams, 4) solve problems creatively and 5) make decisions. The authors have described a Model IS Capstone Systems Development Course addressing soft skills. The course is modeled after the IS 2002 Model Curriculum IS 2002-10 course. The authors propose a course content that emphasizes the soft skills needed by the new IS professional. Course Objectives along with a set of behavioral outcomes are presented. An outline of team presentations is highlighted describing the sequence of the presentations. The authors describe how teams are formed and how the team leaders are chosen. The authors also discuss how both team and individual performance is evaluated. The authors recommend that a capstone class include a set of objectives similar to those presented to better prepare the IS graduates of today and tomorrow for a career that requires much more than technical prowess

**Keywords**: soft skills in IS, interpersonal skills in IS, communication skills in IS, capstone IS course

### 1. Introduction

Industry recruiters have been telling the same story for many years about the importance of interpersonal communication skills and teaming within the classroom. The most important attribute new college graduates can bring to the workplace is their ability to communicate effectively in both oral and written format. Recruiters continue to indicate that they are looking for new graduates who possess qualities within the areas of communication, leadership and teaming.

Some key questions new college graduates are asked:

- "Tell me about the team project that you completed?"
- "How were you able to motivate others on the team to carry out their job?"
- "Tell me about the team you worked with at X-Mart this summer, and what leadership role did you play?"
- "Can you provide an example of how your team resolved an issue? Can you describe an example of how you were able to resolve conflict within the team?"

Industry leaders point out that it is the ultimate joy to find a graduate who is both highly technically competent and who also possesses strong communication traits, leadership prowess, has an ability to work effectively with others, and who possesses a strong work ethic! It is apparent on some campuses that recruiters cannot wait to hire this type of individual, but if it came down to decision between a candidate with highly developed technical qualities versus a candidate with highly developed interpersonal traits, the latter wins out most of the time. Recruiters take the position that they can more easily take the grad with the strong interpersonal and leadership qualities and provide needed technical training more quickly than vice versa.

### 2. New Graduates' Soft Skills Critical to Mission Critical Projects using New Technologies

Industry sees that the student's ability to communicate, ability to cooperate, and ability to work in diverse environments are critical skills. New graduates, because of their technical prowess with new technologies and knowledge of cutting-edge development platforms, are often quickly placed on mission critical project teams. Students, who possess such strengths or weaknesses in the soft skill area are quickly observed by management (Stader 2004). Most would agree that these recruiter attitudes are not new ones, and that they have been around for a long time. Within the IS curriculum, however, it is our observation that we educators continue to fall short in adequately preparing students in the soft skill area. In fact, almost to emphasize this point, there exists a considerable number of recent papers dealing with teams and capstone projects in IS programs (Owen 2001; Schatzberg 2003; Frandsen and Rhodes 2002; Preston and Taylor 2001; Feather-Gannon, et al 2000; Gladfelter 2000; Fendrich 2000; White 2001; Folse, et al 2003; Young, et al 2000; Ewusi-Mensah, et al 2003; Birchak, et al 2002; Jensen and Wee 2000)

### 3. More Formal Instruction Should be Devoted to Soft Skills in the Classroom

A more rigorous approach to the teaching of soft skills within the information systems curricula is needed if IS educators are able to adequately prepare the IS student for the future (O'brien 2004). The IS faculty can no longer assume that students are learning these soft skills in other academic support courses. A typical grad from an IS or CIS program may spend a maximum of two hours altogether during a four year degree program performing mock interviews, stand up presentations, or panel discussions. Most students receive these opportunities in speech class, marketing or e-commerce classes, or a capstone IS class. A college graduate will likely (or should) spend approximately 144 hours per semester per course taken in outside preparation. This assumption is based on the "3 for 1" rule that says a student should invest in class preparation approximately three times the amount of time actually spent in the classroom toward a course. During a typical 40 course undergraduate experience, a student would spend approximately 5760 hours preparing for an undergraduate CIS degree. Seemingly only two of the 5760 hours are spent improving interpersonal skills, leadership talents and oral communication abilities. A review of the literature indicates that this devotes inadequate time to such an important and highly sought after skill set (Howard 2002; Lauckner 2002; McGinnis and Slauson 2001).

### 4. Soft Skills Most Sought After by Industry

The soft skills most frequently enumerated by industry are described as the ability to: 1) demonstrate effective interpersonal relations, 2) demonstrate self-management strategies, 3) work within teams, 4) creatively solve problems and 5) make decisions. The social skills needed to cooperate with others, interact effectively within the work-

place as well as advance to new positions and responsibilities within the company include the individual's abilities to cooperate with others, accept supervision, work within diverse environments, resolve conflict and provide supervision (O'brien 2003). An individual who is able to demonstrate self-management strategies is the person who is able to display responsible personal behaviors, display responsible work behaviors and manage time effectively. The individual who is able to solve problems effectively is the person who recognizes that a problem exists, determines possible causes, identifies possible solutions, implements a solution, evaluates the adequacy of the solution, and works to prevent other problems from occurring. The person who is able to make decisions is the person who *recognizes* when a decision must be made, *identifies* decision-making options, *analyzes* and *evaluates* options, and so forth (www.ed.psu.edu 2004).

An individual who is able to work within teams effectively is the person who understands the difference between *working individually* toward a solution and the dynamics of a *team of individuals with various and sundry opinions and knowledge* about the problem, and to participate as a team member. It is important that the participant be able to develop and maintain *productive group relations* while providing team leadership when appropriate (www.CompanyCollege.com 2004).

## 5. Teaming and Soft Skills in a Capstone CIS Course

The previously discussed soft skill behaviors should be integrated into the IS curriculum through various classroom experiences from the freshman year forward. Large class sizes in lower-level classes makes it very difficult, but we recommend that IS educators identify learning outcomes that include either a short presentation, short panel discussion, or simply in-class Q & A sessions that encourage students to dialog with others. Students must not only be required to work cooperatively with others but with precision toward a common goal.

In the upper-level IS courses, instructors should strive to find even more challenging learning outcomes that involve teaming, leadership, stand-up presentations, interviews or panel discussions. Teaming builds both leadership skills and an ability to listen and follow the leadership of others (US Dept of Labor 2004). Instructors are doing their students a great service when they provide extra credit points for challenging students to get involved in campus student groups or associations that enable students to hone teaming skills. This is a great avenue in helping students cultivate interpersonal talents. In addition, a capstone experience is needed that allows a student to exercise those skills (both technical and interpersonal) in solving a rather robust business problem from planning through implementation as a part of a project team challenged to produce a work plan, feasibility analysis study, project proposal and business model, systems specification and an implementation plan. In the end, the teams will produce functional programs to produce a sub-set solution to the overall system. The subset solution may be in the form of a partial implementation, or the system may be constrained due to timing considerations. Further, as a capstone project it is necessary to have a level of structured complexity that is potentially solvable, something that in the real world might take far more time than is available in an academic semester. While the project is therefore contrived, the pressures to succeed are very real. This is indeed a challenge for a student team, but it is the kind of charge almost immediately given to new hires with the IS function. It is important to challenge students to complete what is probably an inordinately large amount of work through team cooperation, team spirit, leadership and the ability to work through issues toward a common goal.

## 6. A Model IS Capstone Systems Development Course – Addressing the Soft Skills

The Model IS Capstone Systems Development Course to which we refer is described below and many of the skill sets included are modeled from the IS 2002.10, Project Management and Practice course from the *IS 2002 Model Curriculum* (Davis, et.al. 2002). The capstone class has evolved to include additional course requirements related to soft skills, but the course essentially covers the management of the system life cycle: requirements determination, business modeling, design, implementation, system and

database integration, and project tracking and staffing. To cover the additional topics of the IS 2002.10 course the authors prefer to defer metrics and network management to a separate course. This enables the authors to devote more time to the soft skill area.

## 7. *IS 2002 Information Systems Model Curriculum* Supports Soft Skills in IS 2002-10

*The IS 2002 Model Curriculum* includes guiding assumptions about the IS profession. The assumptions include:

1. IS professionals must have a broad business and real world perspective (see Tastle and Dumdum 2000).
2. IS professionals must have strong analytical and critical thinking skills.
3. IS professionals must have strong interpersonal communication and team skills. Students must understand that:
   a) IS requires successful collaboration as well as successful individual efforts.
   b) IS design and management demands excellent communication (oral, written, and listening) skills.
   c) IS requires curiosity, creativity, risk taking, and a tolerance of these abilities in others.

For the purpose of this research, the number 3 bullet above is our point of emphasis as programs attempt to both implement the IS Model Curriculum and provide top-notch graduates for industry.

## 8. Proposed Content for Capstone IS Course that Emphasizes Soft Skills

The proposed content for a capstone IS experience that emphasizes soft skills should be project-driven to emulate a real work setting. A course syllabus (Appendix A) is included as an example of a successful capstone experience. From the course outset the class is divided into project teams. Each team completes all project deliverables as outlined in a case study. A summary of the case study that is used for the course can be acquired from the authors upon request. Once the teams are formed the teacher presents the teams with a case study along with a user request. The process of team formation is also included later in the paper.

**The Course Objectives:**

Students must be able to:

1. Complete a series of class diagrams and "use case" diagrams for an understanding of the object-oriented analysis paradigm and a series of ERDs and DFDs for a deeper understanding of structured analysis.
2. Conduct "mock" data collection interviews (O'brien 2003) based on the semester project narrative.
3. Participate as a team member in a semester project.
4. Complete a feasibility analysis and report. This will also include a payback analysis.
5. Complete the ERD for the semester project's business narrative using the selected CASE tool for the semester.
6. Complete the Decomposition Diagram and Data Flow Diagrams for the business narrative using the selected CASE tool.
7. Compose and present the proposal to perform systems design.
8. Design the business system. The deliverables will include: graphical user interface design, navigation design, database design and program design.
9. Present the System Specification to the class.
10. Develop the code for the program design using an acceptable development platform (VB.Net, VB 6.0, C++, JAVA, COBOL or Oracle Developer, for example).
11. Demonstrate the system functionality as in a presentation format.

**Behavioral Outcomes:**

From the general objectives listed above, and from having participated in two data collection interviews, a proposal presentation, a systems specification presentation, a final functionality demonstration and from having worked in a team environment during the project, the expected behavioral outcomes from the student include:

1. Confidence in speaking before a group.

2. An ability to exercise diplomacy during the interview process by being aware of positive body language (eye contact, smile, facial nod, and hand gesture), positive choice of power words and positive speaking mannerisms.
3. The ability to introduce others properly with sound body language and to convey the purpose of the meeting/interview session succinctly.
4. The ability to ask open-ended, closed-ended and probing questions that enhance effective data gathering while maintaining positive rapport with the user.
5. The ability to work and cooperate effectively with others by learning to appreciate the ideas of others and to respect the opinion of others.
6. The ability to listen more effectively as well as exhibit or reflect these listening skills through proper listening body language and listening gestures.
7. The ability to help organize a project.
8. The ability to resolve conflict with others by negotiation techniques and patience.

## 9. The Data Collection Interview and Team Role Playing

The student teams are required to respond to the user request by conducting two data collection interviews (see course objectives, section 8 above). The first interview is a mock strategic interview session in front of the class…and it is filmed. Two team members play the role of systems analyst while two others play the role of strategic users. A second interview is a tactical interview with mid-level and/or lower-level management to determine a detailed set of systems requirements. The team members reverse their roles. In other words, the analysts become the users, and the users become the analysts. This session is also filmed in the classroom. The videotape may be checked out by student teams to review. This enables students to see themselves as others see them for the purpose of self-improvement. Appendix E illustrates an interview in progress.

## 10. Teams Develop a Systems Proposal and Make Presentation

The team will develop a systems requirements statement and will review the statement with the instructor. The requirements statement is the first real milestone of the semester. With instructor approval, the teams generate a systems proposal report (hard copy format). The teams will also prepare a "PowerPoint" show and present the proposal in class. The proposal is the second major milestone.

The proposal presentation also includes a short coverage of a feasibility analysis and a work plan prior to the formal proposal.

In the past, one author has had teams make two separate presentations [(1) project initiation report, and 2) formal proposal)] in keeping with reality, but to make it all fit within the confines of the semester schedule the feasibility analysis and proposal have been collapsed into one presentation. The instructor reviews each proposal and suggests needed changes. The amended proposals guide the teams to complete their systems specifications. Due to the limited amount of available time, the systems spec will be a part of the final student presentation. The final presentation will also include a functionality demonstration of the required subprogram. More will be said about this in the next section. Appendix E also illustrates a team presentation in progress.

## 11. The Required Deliverables of Each Team

The systems proposal that the student teams are required to present include:

1. Strategic Interview Report
2. Feasibility Analysis Report and Project Work Plan
3. Tactical Interview Report
4. Requirements Statement
5. Business Model (data model and process model OR UML model)
6. General GUI design prototypes

The systems specification that the teams are required to present include:

1. Interface design
2. DBMS design

3. Program design (structure charts, action diagrams, pseudo code or flowcharts)

A functional subprogram must be completed by each team. This subprogram covers an isolated process such as Take Customer Order or Take Customer Rental. Students may develop this process with the development platform of their choosing that is supported by the university labs.

**Team Presentations Outline:**

The following describes the various presentations that student teams are required to perform during the semester.

1. Interviews I and II (Both Strategic and Tactical)

As previously discussed, each team performs two interviews in front of the class. The interviews are only excerpts and are limited to approximately 15 minutes each. The teams must be able to do the following:

a) Properly introduce oneself to management.
b) Adequately and succinctly describe the purpose of the interview.
c) Briefly describe the user request.
d) Gain an understanding of the true nature of existing problems of the current business system by using a structured interview technique. This involves asking a combination of closed-ended, open-ended, and probing questions without intimidating the user. The user analyst/user dialog skit requires at least one unusually difficult scenario for the analysts to overcome without intimidating the users.

2. Systems Proposal: Students will present this using "PowerPoint" slides and also submit a hard copy of the proposal to the teacher. An approximate duration is 25 minutes. Typically a team must present only excerpts of the complete proposal because of time constraints. Each student on the team presents a portion of the material.
    a) Feasibility Analysis and Work Plan (Realistically would have been done prior to this presentation but included because of time constraints).
    b) Systems Requirements presented.
    c) Review of business model.
    d) Initial interface prototype

3. Final Project Presentation

Students will present this using presentation slides and also submit a hard copy the system specification to the teacher. A maximum of 25 minutes is given to each team. A team will typically have to present an excerpt of a design rather than the entire design to be able to finish on time. Each student on the team will be required to participate in a given phase of the presentation.

1. Systems specification review of systems design (complete interface design, database design and program design).
2. Final demo of subprogram functionality such as "Take Order" or "Take Rental." The key point is that it must be a central activity within the business system, and must be a significant and non-trivial programming activity.

## 12. The Process of Forming Teams

The process of forming teams is often an arduous process in itself, but needs to be done with care. A poorly formed team can certainly spell disaster and result in the team being unsuccessful. Or, it can be formed with some vigilance to try and balance talent and responsibility. It can be accomplished in a myriad of ways; however, the author describes a technique that he has found to work best for the capstone course described. Realistically, each teacher will have to work with a technique with which they are most comfortable given the amount of time available and the kind and level of class. The steps are listed below:

1. A pool of team leaders is elected by the class at large. If a class requires 5 teams, then 5 leaders are chosen.
2. Each student is asked to submit a professional resume. This resume is to replicate a job resume.
3. The team leaders, with the instructor, will review each student resume.
4. Each team leader will be allowed to select a team member in a round robin process. Once all team leaders have chosen one team member from the resumes remaining then the process starts over with each team leader choosing a

second team member and subsequently a third team member.

One useful item, but usually not incorporated, is that of having the team leaders interview the students, but time constraints typically would prohibit this unless the instructor wished to cut back on other class assignments/deliverables. The authors have given some thought to how this could work. The team leaders may choose to rank students after the student interview on a scale from 5 (highest) to 1 (lowest). In a class of twenty, no more than five may be scored with a five. No more than five from those remaining may receive a four. No more than five of the remaining may receive a three and so forth. Team leaders will assign at least one five, at least one four, at least one three etc. to each team. The teacher educates and encourages the team leaders to evaluate the members so that a diversely talented team is formed. Team leaders should be the *motivator* and *evaluator* personality type, and they are encouraged to try and select at least one with strong *analyzer/synthesizer* traits along with at least one with *organizer* traits. The organizer is often the individual with strong programming ability.

**The Selection Process of a Team Leader**

As an incentive to be a team leader, a team leader's grade evaluation will include a ten percent bonus on the final project grade for performing this leadership position with the team depending upon the quality of leadership and hard work exhibited. Certainly, this is the proverbial "carrot" to entice strong performers to be leaders. On the other hand, to discourage poor performance, a team leader can lose up to a maximum of 5 points as well. In other words, this means that the team leader can actually gain an additional 10% beyond the normal requirements of the class for being an effective leader or lose up to 5% for being a poor leader. Typically the more motivated, high achievers are the ones who volunteer for the leadership roles; therefore, the bonus or penalty rarely scares away the quality leaders. Typically the quality student will volunteer if there is an equitable reward system in place. The team leaders, as a unit, may interview the other students one at a time selecting a synthesizer, an analyzer and an organizer for each of their teams. This does not always work, but the concept is to create a balanced team of talent ranging from the "programmer" type to the "business analyst" leader type.

**Evaluating the Teams and Individuals**

The authors admit that the team evaluation process and the individual performance evaluation is a formidable task for the instructor. Over a period of years teaching the course, the authors offer the following grading technique knowing full well that it is not perfect, and can be improved. Appendix B represents the evaluation document used to evaluate individual performance for data collection interviews. Appendix C represents the evaluation document used to evaluate individual performance on the proposal. Appendix D represents the evaluation document used to evaluate team performance for the proposal. Similar documents are used to evaluate the final presentation as well.

a) Each phase of the project (from the project initiation, analysis, design and implementation) is divided into both team and individual participation). In other words, each student receives a team grade and an individual performance grade for interviews, feasibility analysis and work plan, proposal, and final project presentation. Examples of the team and individual performance evaluation forms are included for the interview phase and the proposal phase.
b) A student will also receive a peer performance evaluation from each member on the team, and a team leader performance evaluation at the end of the semester. Examples of the evaluation forms are included. Appendix F illustrates the peer evaluation documents teams/students used to determine a portion of a mid-term grade on business modeling for performing a ten-minute presentation related to a concept in structured analysis or object-oriented analysis.

## 13. Conclusion

The authors propose that IS programs strive to include soft skill learning experiences within their IS learning outcomes. It is best to try and incorporate some of the learning

outcomes throughout the course structure. The authors recommend including a capstone course at the end that contains significant learning outcomes that address improving interpersonal skills, oral and written communication skills, leadership, conflict resolution and negotiation talents. Students in this capstone course are typically overwhelmed by the challenges with which they are confronted as they progress through the project case study. They typically can be easily frustrated with the monumental task of working with precision within a team environment to define a work plan, stay on track and meet deadlines, show up to meetings on time, stay focused, resolve conflicts of various kinds within the group, delegate responsibility or accept responsibility, generate deliverables, accept criticism and be able to offer stability to others on the team. Teaming can be an emotional experience especially with strict deadlines; therefore, it is important that the instructor hold at least one meeting with each team for at least the proposal phase and the final presentation. Sometimes an instructor can provide suggestions on how to resolve a problem while it is still a small one. The authors caution that the instructor should not resolve the issue because that should be the team's responsibility and a part of the learning experience.

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**Appendix A: Syllabus for Capstone Course**

**Syllabus**
**CIS 4600**
**Advanced Systems Development**
Fall 2004

**Dr. Jack Russell**
**NSU Business Leaders Professor**
**Chair of Computer Information Systems**

**INTRODUCTION**

This course is the capstone experience in information systems. It is to be taken during the CIS student's last semester prior to graduation. A student must have taken an introductory Systems Analysis and Design course prior to signing up for this class. Prior background in systems analysis concepts and basic business modeling, database design and an advanced programming language is assumed.

The focus of this course is on the entire software development process including planning, analysis, design and implementation of a business system. The purpose of the course is to insure that a student participates in all phases of a business system project including the data collection, feasibility analysis, business modeling, GUI and web interface design, data base design, decision tables, program design and program implementation. This course will also concentrate on more advanced concepts of business modeling as well as review what you have previously learned. The purpose of this is to make sure students are competent in business modeling techniques which is one of the most sought after skills by industry.

This course is project-driven and team-oriented. This means that students will work as team participants working with their respective team members. Participants will have an opportunity to exercise the project management techniques and skills acquired in the first SA&D course.

Students will be provided with a semester problem statement that will include a set of deliverables that they are expected to turn in or present for the semester. The student's professor will hopefully offer inspiration and motivation and many necessary skill-sets, but it is the student's responsibility to be a self-starter and be willing to work effectively within a team environment. This is a senior-level capstone class, and students are expected to perform and behave in a professional manner. Your grade will depend on it since a portion of the grade is associated with both individual effort and team performance. An evaluation will be required from each student for each individual on the team. In other words, each member evaluates each person's performance; therefore, everyone must "pull their own weight."

**COURSE CHRONOLOGY**:

1.) The student will complete a series of entity relationship diagrams using various CASE tools.
2.) The student will complete a series of "structured analysis" business process modeling (Decomp and DFD) exercises.
3.) The student will complete a series of "object-oriented analysis" business model using "use case" and class diagramming.
4.) The student will be given a semester project problem statement and will be asked to collect data through surveys and interviews.
5.) The student will become a part of a project team and their initial responsibility will be to perform a feasibility analysis and present the feasibility report to the class. This

feasibility report will consist of two parts: a.) a formal "hard copy" document submitted to the teacher, b) A Power Point slide show delivered in class.
6.) The student will participate with his/her team in modeling the business (ERD, Decomposition Diagram, DFDs).
7.) The teams will design the system. This design will include: GUI/web interface design, navigation design, database design and program design.
8.) The student teams will produce a partial implementation (construction) of the applications using a software development platform. The construction or implementation of the project will completed using any acceptable development platform.

**OBJECTIVES:**

**Students must be able to:**

1. Complete a series of class diagrams and "use case" diagrams for an understanding of the object-oriented analysis paradigm and a series of ERDs and DFDs for a deeper understanding of structured analysis.
2. Conduct "mock" data collection interviews (2) based on the semester project narrative.
3. Participate as a team member in a semester project.
4. Complete a feasibility analysis and report. This will include a payback analysis also.
5. Complete the ERD for the semester project's business narrative using Visible Analyst.
6. Complete the Decomposition Diagram and Data Flow Diagrams for the business narrative using Visible Analyst.
7. Compose and Present the Proposal to Perform Systems Design.
8. Design the business system. The deliverables will include: graphical user interface design, navigation design, database design and program design.
9. Present the System Specification to the class.
10. Develop the code for the program design using an acceptable development platform (VB.Net, VB 6.0, C++, JAVA, COBOL or Oracle Developer as examples.

**COURSE MATERIALS:**

No specific textbook is required for this course although many suggested references may be needed. The following texts and/or readings are suggested.

1. *Systems Analysis and Design,* 2nd Edition, Dennis & Wixom, Wiley Publishing, 2003.
2. Materials listed within the CIS 4600 class on Blackboard. You are to print out all these materials and put them in a ring binder for access during class.

**COURSE REQUIREMENTS**

1. The student should attend class regularly unless excused by the professor. A student with NO ABSENSES will be awarded TWO EXTRA semester points. In other words, if your semester average is 88 then your final semester average is 90 instead.

2. The various assignments are due at the beginning of each class; therefore, it is not wise to miss class simply because you failed to complete an ssignment.

**GRADING:**

| | | |
|---|---|---|
| Mid-Term Exam (Business Modeling) | 15% | |
| Final Exam | 10% | |
| Business Modeling Assignments | 15% | |
| Pier Evaluation Score | 10% | |
| **Semester Project: Total = 50% of Final Grade** | | |
| Interviews: | | 5% |
| Feasibility Study& Proposal (includes business model) * | | 15% |
| GUI Design | | 5% |
| Program Design | | 5% |
| Functional Program Code and functionality | | 10% |
| Final Presentation and Final Project Report * | | 10% |

* ½ of the points for hard copy and ½ of the points for stand-up presentation.

**Total** **100%**

Students will receive both a TEAM grade and an INDIVIDUAL grade on the (1) Interview, (2) the proposal to perform design and (3) team presentation of system. These components will be weighted evenly (50-50) between group and individual performance.

ACADEMIC DISHONESTY

Academic Dishonesty will not be tolerated. Students guilty of academic dishonesty will be reported to the College Dean and recommended for dismissal from the course and/or college.
Assignments or exams brought into question related to academic dishonesty will be scored as zero. A student caught cheating on an exam will be given a zero for that exam. Any home work assignment copied from someone else will be graded as zero. When the teacher is unable to distinguish from original and copied work then the teacher will award all students involved a letter grade of zero for that work. It is incumbent upon students to disassociate themselves from perilous situations that could bring into question their integrity.

Plagiarism:

Copying another student's homework, computer program, business model, web site, database and so forth is considered plagiarism. Students are expected to always do their own assignments themselves. The overused expression, "we worked on it together" is not acceptable. If you work with another student on homework it is your responsibility to insure that the work that you do is a "signature" of your own work and no one else's work. When a teacher grades an assignment and can detect obvious elements of cheating or copying then the assignment, project, or exam will be labeled "plagiarism." It is your responsibility to not be involved in plagiarism. Students guilty of plagiarism can be recommended for class dismissal. Severe cases of plagiarism can result in dismissal from the university.

Software Theft:

A student guilty of software theft will be recommended to the dean for removal from my class and from the College of Business. Software theft is defined as any act connected

**Rules and Policies for Student Teams in CIS 4600 Adv. Sys. Dev.**

1. An ideal team size is 4 with a project leader constituting one of the four members. Sometimes a team may consist of 3 members in the case of an odd number of students or a student as an extenuating circumstance.
2. A project leader may be identified for the duration of the project or a project leader position may be rotated among participants. A singular project leader may be rewarded a maximum of 10 additional points on the project. The rewarding points will be a sliding scale based upon performance between a 1 and 5. The chart below describes how this works. Each team member except the leader will provide an over-all evaluation of the team leader ranging between a 1 and a 5.

**Team members will score leader according to the scale below.**

| | |
|---|---|
| Excellent | 5 |
| Good | 4 |
| Fair | 3 |
| Poor | 2 |
| Very Poor | 1 |
| | |

**Award Bonus Points for being Team Leader According to the average team rating shown below.**

| **Average Rating** | **Bonus Project Points** |
|---|---|
| 5 points | 10 |
| > 4.4 and <5 | 8 |
| >4.0 and < 4.5 | 7 |
| < 4.0 and > 3.5 | 0 |
| > 3.0 and < 3.6 | - 2 |
| < 3.0 | -5 |

3. How is a team formed?
   a. The entire class submits names of students with team leader traits, or submits their own name (volunteer).
   b. Based on class size, the number of teams is identified assuming 4 member teams.
   c. Students are chosen by the team leaders in a rotational manner from a class list. This is not done in class in front of class mates. Each team leader gets to choose one member before the rotation continues on to the next round. This continues until all students are selected on to a respective team.
   d. If a leader is not sure what talent(s) a given student possesses the leader may request to interview the student before making a decision.

4. A project leader must hold at least one schedule meeting per week during the semester with a length of 1-2 hours depending on the topics discussed and worked on. The team may need to schedule more than one meeting per week as the work load may vary between deliverables. Attendance must be kept. Absences must be noted. If a member cannot attend then the member needs to include a note explaining why he or she missed the meeting. A log sheet can be found on Blackboard.

5. A team member may be asked to be moved to another team or to work on the project by himself/herself with just cause.

6. A team member or team leader may recommend that a given member be removed from the team with just cause. A majority vote of the team is required to remove a team member. If a member is voted off a given team the team must notify the team member in question as well as the teacher. A team member may request to be interviewed by another team leader, and may continue working on a project with a second team. A team member who is removed (or fired) from a team may also elect to work on the project by himself/herself, but he or she must complete the entire project to receive a passing letter grade. A team member who is removed from a second team (i.e., kicked off the second team) will have to submit an entirely new project. It cannot be a copy of the team's project, but must be a new system.

7. Team meetings must be scheduled during periods when all students are free both class and work schedules; therefore, the team leader must work with the team members on appropriate meeting times. Team members must be willing to compromise and meet the other members half way because every member has a personal schedule. When a student signs up for this class then it is assumed that the member will be able to arrange times to work with the assigned team.

**Appendix B: Interview Evaluation Sheet**

**INTERVIEW EVALUATION SHEET**

**NAME: _____ TEAM: _____ SEMESTER:_____**

**1 = Very Poor, 2= Poor, 3=Average, 4=Good, 5=Excellent**

| | | | | | |
|---|---|---|---|---|---|
| Appearance | 1 | 2 | 3 | 4 | 5 |
| Professional Attire | 1 | 2 | 3 | 4 | 5 |
| Grooming | 1 | 2 | 3 | 4 | 5 |
| Body Language | 1 | 2 | 3 | 4 | 5 |
| Introduction | 1 | 2 | 3 | 4 | 5 |
| Enunciation and tone | 1 | 2 | 3 | 4 | 5 |
| Vocabulary | 1 | 2 | 3 | 4 | 5 |
| Group presence | 1 | 2 | 3 | 4 | 5 |
| Asked or responded to questions well | 1 | 2 | 3 | 4 | 5 |
| Organized | 1 | 2 | 3 | 4 | 5 |
| Good eye contact | 1 | 2 | 3 | 4 | 5 |
| Attentive | 1 | 2 | 3 | 4 | 5 |
| Friendly | 1 | 2 | 3 | 4 | 5 |
| Asked appropriate questions or provided Answers appropriately and correctly | 1 | 2 | 3 | 4 | 5 |

Things you did well:_____
_____
_____

Could improve on: _____
_____
_____

**Appendix C: Individual Evaluation Sheet of Proposal to Design System**

**Evaluation of Proposal to Design System**

**1 = Very Poor, 2 = Poor, 3 = Fair, 4 = Good, 5 = Excellent**

**Individual Evaluation**

:

**Student Member _____ Team # _____**

| Category | Very Poor | Poor | Fair | Good | Excellent |
|---|---|---|---|---|---|
| Professional Attire | **1** | **2** | **3** | **4** | **5** |
| Grooming | **1** | **2** | **3** | **4** | **5** |
| Speech/Diction/Enunciation | **1** | **2** | **3** | **4** | **5** |
| Body Language | **1** | **2** | **3** | **4** | **5** |
| Eye Contact | **1** | **2** | **3** | **4** | **5** |
| Positive gestures and smile | **1** | **2** | **3** | **4** | **5** |
| Negative mannerisms (subtract from total) | **-4** | **-3** | **-2** | **-1** | **-0** |
| Introduction of members | **1** | **2** | **3** | **4** | **5** |
| Team member presentation | **1** | **2** | **3** | **4** | **5** |
| How compelling was the sell? | **1** | **2** | **3** | **4** | **5** |
| How organized was the team member? | **1** | **2** | **3** | **4** | **5** |
| How compelling was the individual at marketing the proposal? | **1** | **2** | **3** | **4** | **5** |
| Feasibility Analysis | | | | | |
| | | | | | |
| | | | | | |

**Total** ☐

**Appendix D:**

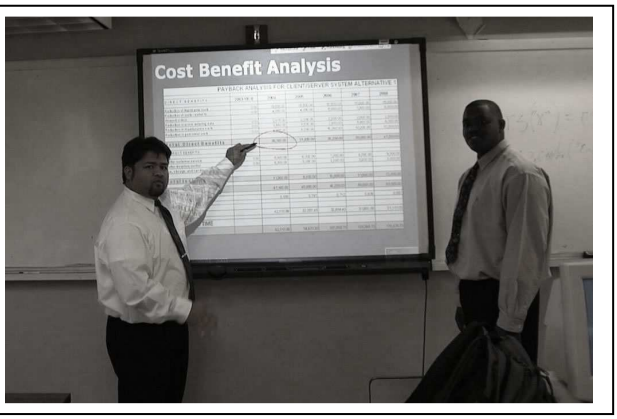
**Team Evaluation of Proposal Presentation**

**Group Evaluation Group #_____**

| Category | **Very Poor** | **Poor** | **Fair** | **Good** | **Excellent** |
|---|---|---|---|---|---|
| Overall Professionalism | **1** | **2** | **3** | **4** | **5** |
| Discussion of Data Model | **1** | **2** | **3** | **4** | **5** |
| Discussion of Process Model | **1** | **2** | **3** | **4** | **5** |
| Discussion of Payback Analysis | **1** | **2** | **3** | **4** | **5** |
| Presentation of Interface Design or Prototype | **1** | **2** | **3** | **4** | **5** |
| Conclusion | **1** | **2** | **3** | **4** | **5** |
| Organization and Preparedness | **1** | **2** | **3** | **4** | **5** |
| Presentation of Interface Design or Prototype | **1** | **2** | **3** | **4** | **5** |
| Over-all quality of PowerPoint Presentation | **1** | **2** | **3** | **4** | **5** |
| How compelling was the group as a whole at marketing the proposal? | **1** | **2** | **3** | **4** | **5** |
| How well did the presentation flow? | **1** | **2** | **3** | **4** | **5** |
| Were there ample illustrations and examples to assist the discussion? | **1** | **2** | **3** | **4** | **5** |

Total

Appendix E: Students in Interviews and Presentations



**Appendix F: The Peer Evaluation Forms**

**Peer Evaluation**

**Please be candid with your remarks. You and I will be the only ones to read this evaluation. Not even my department head will ever see this sheet. If you had a team member that failed to adequately participate, please specify how they failed to participate. It is not fair for a non-participant to be rated the same as a participant. Be truthful. Otherwise, the document has no purpose. You also evaluate yourself as Team Member #1.**

Rate your peers on the project: 5 = EXC, 4 = Good, 3=Fair, 2=Poor, 1 = Very Poor

Your name _____ Your team # _____

| Team Member | Overall Rating |
|---|---|
| 1.**Your Name**:_____ | 1 2 3 4 5 |
| 2._____ | 1 2 3 4 5 |
| 3._____ | 1 2 3 4 5 |
| 4. _____ | 1 2 3 4 5 |

Team member 1 Comments: Name:_____ (**Your name)**

Team member 2 Comments: Name:_____

Team member 3 Comments: Name:_____

Team member 4 Comments: Name:_____

This evaluation is confidential, subject to policies and limitations established by the instructor and the university.

Evaluate performance over the full term of the project, not just one isolated instance.

* You will be given a number of performance measures. Evaluate each member, including yourself, as superior, above average, average, not sure, below average, and poor.

* Having made the above evaluation, you are asked to rate each team member's overall performance and contribution to the project team on a scale of 0 to 100. It is unlikely that every team member performed in the same way on the project. Be honest about your appraisal. A person who did excellent should get an excellent score (90-100). A student who performed pretty well may be evaluated 80-89. A fair performer should earn between a 70 -79 and so forth.

**Performance and Contribution Questions:**

List the team members, including yourself, alphabetically:

Team Member 1 - _____

Team Member 2 - _____

Team Member 3 - _____

Team Member 4 - _____

Now, rate each member on a scale from 0 to 100 on each of the following questions:

| Team Member #1 | Team Member #2 | Team Member #3 | Team Member #4 | |
|---|---|---|---|---|
| _____ | _____ | _____ | _____ | 1. This person did his/her fair share of the work. |
| _____ | _____ | _____ | _____ | 2. When required to do so, this person cooperated with other team members. |
| _____ | _____ | _____ | _____ | 3. This person shared responsibility instead of taking charge of every activity himself/herself. |
| _____ | _____ | _____ | _____ | 4. This person is competent in the design and modeling techniques that were taught in this course. |

Respond to the following by ranking the team members from highest to lowest using the values 1,2,3,or 4. Use the number 1 as the highest rank, the number 2 as the second highest, the number 3 as the third highest and 4 as the least. No two team members may get the same rank.

**Rank your team members according to the statements below:**

| **Statement** | **Team Member 1** | **Team Member 2** | **Team Member 3** | **Team Member 4** |
|---|---|---|---|---|
| This person accepted his or her fair share of the team responsibilities when asked to do so. | | | | |
| This person completed his/her assignments on schedule. | | | | |
| This person always submitted his/her best work and effort. | | | | |
| This person completed his/her assignments with little or no assistance. | | | | |
| This person attended team meetings and arrived on time. | | | | |
| This person was well prepared for team meetings. | | | | |
| I would like to work with this person again on future projects. | | | | |