MSCD 650 PL/SQL PROGRAMMING SYLLABUS

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MSCD 650 PL/SQL PROGRAMMING SYLLABUS

Course Description

In this course you will learn to create PL/SQL blocks of application code that can be shared. You will also learn to write PL/SQL procedures, functions and packages. Working in the SQL*Plus environments, you will create and manage PL/SQL program units and database triggers. You will also explore some of the Oracle-supplied packages. Hands-on practice will prepare you to develop complex applications.

Pre-requisites

MSCD 600 and MSCD 610

Terminal Course Objectives

At the end of the course, students are expected to competently:

1. Develop PL/SQL blocks of code and interact with the Oracle Server
2. Code decisions and repetitive actions in PL/SQL
3. Handle PL/SQL errors
4. Work with PL/SQL composite datatypes
5. Write subprograms – Procedures
6. Write subprograms – Functions
7. Write subprograms – Packages
8. Write database triggers
Materials of Instruction

Required Text(s)


The Role of the Facilitator

A good facilitator, like a successful orchestra conductor, is responsible for unifying the efforts of many performers (students) into successful performances. A good orchestral performance is the result of endless hours of practice, feedback from the conductor about poor performances, hints on how to do better, proper musical arrangements and an endless variety of other details. It isn’t enough that the orchestra leader lecture on what should be done. In the MSCIT courses, it is essential that the facilitator select, sequence and direct those activities that will insure that the very best is brought out of everyone.

Within the MSCIT program, the facilitator selects and directs activities that will help learners achieve educational objectives for a given course. In the MSCIS program it is expected facilitators facilitate learning activities and limit their lecturing.

We know that MSCIT students have valuable experiences related to the subject matter. We want to encourage that you share your experiences so that the whole class can benefit. However, if you have a strong background in the subject area, please make your contributions positive ones, not destructive, judgmental, or negative.

Course Emphasis on Fundamental Skills

This course emphasizes the development of fundamental database skills by the individual student. Each student is expected to master the use of the PL/SQL language.

Each student will have their own Oracle account on the Oracle system in the Regis Virtual Lab. Each student should plan to use their Oracle account to practice/validate their PL/SQL statements.

During the class labs, students are encouraged to work together to learn how to use the Oracle tools. Throughout the class, the more experienced students are expected to take time to help those classmates who have less experience with SQL and database applications.
Notes Regarding Assignments and Course Work Load

Graduate courses are designed for adults who have the necessary maturity to be self-directed learners in an accelerated format. The seminar and workshop activities of this program are designed to facilitate the participants' understanding and application of the materials presented in each assignment. It is absolutely imperative that participants make a strong commitment to complete assignments before each workshop session. Participants who fail to make this commitment cannot possibly expect to complete the program successfully. It is ESSENTIAL that students complete the assignments for Workshop One prior to Workshop One. These are not optional requirements and cannot be skipped.

PL/SQL Practice Assignments

The PL/SQL language seems "simple", but again practice is essential to mastering this important tool. To reinforce the student's reading and class discussion, the student will be expected to complete the hands on assignments in the text.

Course Requirements and Grading Criteria

The actual weight of each requirement will be determined by the facilitator and announced in Workshop One. The facilitator may delete, modify, or add activities as he or she deems necessary in terms of time availability, the background of students, and progress of the class.

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>WEIGHT</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Class Participation</td>
<td>10%</td>
<td>One - Eight</td>
</tr>
<tr>
<td>Review Questions</td>
<td>20%</td>
<td>One - Seven</td>
</tr>
<tr>
<td>Lab Assignments</td>
<td>35%</td>
<td>One - Seven</td>
</tr>
<tr>
<td>Final Exam</td>
<td>35%</td>
<td>Eight</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td></td>
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MSCD 650
# Course Outline

<table>
<thead>
<tr>
<th>Workshop</th>
<th>Text Reading</th>
<th>Topics</th>
<th>Deliverables</th>
</tr>
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</table>
| 1        | Course Module Chapter 1 | Course Orientation Introduction to PL/SQL | Review Questions 1-15 p. 18  
Hands-on Assignments: 1-1, 1-2, 1-3, and 1-4 |
| 2        | Chapters 2 & 3         | Handling Data in PL/SQL Blocks PL/SQL Processing | Review Questions 1-15 p. 72  
Hands-on Assignments: 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, and 2-8.  
Review Questions 1-15 p. 126  
Hands-on Assignments: 3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, and 3-8. |
| 3        | Chapter 4              | Creating Procedures                 | Review Questions 1-15 p. 170  
Hands-on Assignments: 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, and 4-9. |
| 4        | Chapter 5              | Creating Functions                  | Review Questions 1-15 p. 204  
Hands-on Assignments: 5-1, 5-2, 5-3, 5-4, 5-5, 5-6, 5-7, and 5-8. |

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MSCD 650
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Chapters/Topics</th>
<th>Materials</th>
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<tbody>
<tr>
<td>5</td>
<td>Chapters 6 &amp; 7</td>
<td>PL/SQL Packages, Program Unit Dependencies, Review Questions 1-15 p. 247, Hands-on Assignments: 6-1, 6-2, 6-3, 6-4, 6-5, 6-6, 6-7, and 6-8.</td>
</tr>
<tr>
<td>6</td>
<td>Chapter 8</td>
<td>Database Triggers, Review Questions 1-20 p. 323, Hands-on Assignments: 8-1, 8-2, 8-3, 8-4, 8-5, 8-6, 8-7, and 8-8.</td>
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<tr>
<td>8</td>
<td>Chapters 1-11</td>
<td>Introduction to XML, Final Exam, Final Exam</td>
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### Grading Scale

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<th>Description</th>
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<tr>
<td>A</td>
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<tr>
<td>A-</td>
<td>3.67</td>
<td></td>
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<tr>
<td>B+</td>
<td>3.33</td>
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<tr>
<td>B</td>
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<td>B-</td>
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<tr>
<td>C+</td>
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<td>C</td>
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<td>D-</td>
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</tr>
<tr>
<td>F</td>
<td>0.00</td>
<td>Failure (no credit)</td>
</tr>
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</table>
ASSIGNMENTS TO BE COMPLETED PRIOR TO WORKSHOP ONE

1. Read Chapter 1
WORKSHOP 1

- Course Orientation
- Introduction to PL/SQL

This week identifies what a procedural language is and introduces the concept of application programming. It is important for students to recognize the difference of the SQL and PL/SQL languages with SQL providing a mechanism to interact with a database while PL/SQL will enable the addition of logical processing. Various software tools used to develop PL/SQL code are introduced and SQL*Plus is identified as the tool used throughout this text since it is available in any Oracle installation. Beginning on page 13 of the text, entity relationship diagrams of the two databases used in this course, Brewbean’s and More Movies, are presented along with descriptions of the tables. The Brewbean’s database is the referred to throughout the chapters and used in the hands-on exercises.

Minimum Course Enabling Objectives

Upon completion of this workshop, students are expected to competently:

- Understand what programming and procedural languages provide
- Understand PL/SQL and application programming
- Learn about application models
- Understand how documentation can be used
- Learn about the SQL and PL/SQL tools
- Understand the databases used in the book

Suggested Activities

1. The facilitator and students introduce themselves to each other.
2. The facilitator explains course objectives, grading criteria, assignments, and administrative matters.
3. A student representative is selected.
4. The facilitator discusses the Oracle RDBMS, and the software in the Regis Virtual Lab.
5. The facilitator reviews the Course Schema.
6. The class re-convenes to the computer lab for a hands-on session on how to use Oracle's SQL*Plus tool.
ASSIGNMENTS TO BE COMPLETED PRIOR TO WORKSHOP TWO

Read Chapters 2 & 3.
WORKSHOP 2

- Handling Data in PL/SQL Blocks
- PL/SQL Processing

This week identifies what a procedural language is and introduces the concept of application programming. It is important for students to recognize the difference of the SQL and PL/SQL languages with SQL providing a mechanism to interact with a database while PL/SQL will enable the addition of logical processing. Various software tools used to develop PL/SQL code are introduced and SQL*Plus is identified as the tool used throughout this text since it is available in any Oracle installation. At the end of the chapter, entity relationship diagrams of the two databases used in this book, Brewbean’s and More Movies, are presented along with descriptions of the tables. The Brewbean’s database is the referred to throughout the chapters and used in the hands-on exercises.

This week also introduces logical processing in PL/SQL focusing on two types of structures: conditional processing with IF or CASE statements and using loops to repeat statements. The Brewbean’s challenge of calculating tax costs based on the shipping state will assist students in understanding the need for logical processing statements to perform decision-making within an application. The second important topic in this week is exception handling. The exception area of a PL/SQL block allows developers to programmatically identify when errors occur and direct what the application should do as a result. The ultimate goal will be to avoid end users from seeing oracle error messages and experiencing application lock ups. The emphasis here is to be able to capture an error that occurs in a block rather than the action that will ultimately be taken such as showing an alert box to the user.

Minimum Enabling Objectives

Upon completion of this workshop, students are expected to competently:

- Learn about the PL/SQL block
- Define variables
- Create scalar variables
- Include SQL within PL/SQL
- Execute a PL/SQL block
- Use host or bind variables
- Understand the %TYPE attribute
- Use composite data types
- Process conditional logic with IF statements and loops
- Create collections
- Manipulate data with cursors
- Identify variable scope
- Use control structures to make decisions
- Use looping structures to repeat code
- Work with the GOTO statement
- Manage errors with exception handlers
- Address exception-handling issues, such as RAISE_APPLICATION_ERROR and propagation
- Document code with comments

**Suggested Activities**

1. The student representative makes a report on the Student Representative meeting.

2. The facilitator reviews Lab Assignments.

3. The facilitator leads a review of the topics for the week.

4. Class reconvenes to the lab.

**ASSIGNMENTS TO BE COMPLETED PRIOR TO WORKSHOP THREE**

Read Chapter 4
WORKSHOP 3

- PL/SQL Procedures

This week introduces the construction and use of procedures, which is the first type of program unit addressed in the text. The create statement allows us to create and store a procedure in the database for reuse. Students need to understand the program unit fundamentals of the create statement, parameters, invocation, debugging, error handling flow and transaction scope. All of these concepts will apply to all of the program units addressed in this text: procedures, functions, packages and database triggers. Emphasize the flow of values in and out of procedures via parameters. Each parameter must be assigned a mode of IN, OUT or IN OUT. In addition, debugging techniques are important in testing all types of program units. The DBMS_OUTPUT.PUT_LINE statement is an important debugging tool in the SQL*Plus environment.

Minimum Course Enabling Objectives

Upon completion of this workshop, students are expected to competently:

- Use named program units
- Identify parameters
- Use the CREATE PROCEDURE statement
- Create a procedure in SQL*Plus
- Use the IN OUT parameter mode
- Call procedures from other blocks
- Use the DESCRIBE command with procedures
- Debug procedures using DBMS_OUTPUT
- Identify useful software utilities for PL/SQL
- Use subprograms
- Understand the scope of exception handling and transactions
- Use RAISE_APPLICATION_ERROR for error handling
- Remove procedures

Suggested Activities

1. The facilitator reviews Lab Assignments.
2. The facilitator leads a discussion of the week’s topics.
4. The class re-convenes to the computer lab to do Practice exercises as assigned by facilitator.
ASSIGNMENTS TO BE COMPLETED PRIOR TO WORKSHOP FOUR

Read Chapter 5.
WORKSHOP 4

- PL/SQL Functions

This week introduces the construction and use of functions, which is the second type of program unit addressed in the text. The create statement allows us to create and store a function in the database for reuse. The main difference between procedures and functions are 1) functions use a RETURN statement to return a value and 2) functions can be used in SQL, as well as, PL/SQL statements. Emphasize that functions are typically written with no OUT parameters to allow it to be used in SQL statements. If more then one value needs to be returned then a procedure is usually created instead of a function.

Minimum Course Enabling Objectives

Upon completion of this workshop, students are expected to competently:

- Create a stored function in SQL*Plus
- Use OUT parameters in functions
- Include multiple RETURN statements in a function
- Use a RETURN statement in a procedure
- Use constraints of actual and formal parameters
- Understand and control the passing of parameter values
- Work with function purity levels
- Reference the data dictionary for program units
- Delete program units

Suggested Activities

1. The facilitator reviews Lab Assignments.
2. The facilitator leads a discussion of the week’s topics.
3. The class re-convenes to the computer lab to do Practice exercises as assigned by facilitator.
ASSIGNMENTS TO BE COMPLETED PRIOR TO WORKSHOP FIVE

Read Chapters 6 & 7.
This week introduces packages that are containers that can hold groups of program units. Packages present additional functionality including global constructs, private program units, one time only procedures and overloading. Packages can also ease the granting of user privileges by providing definer-rights capability. In most applications program units are organized into packages to not only gain these benefits but to also group together related program units to ease the maintenance of applications.

This week also introduces the relationships or dependencies amongst program units. Developers are continually making database and program modifications and in doing so must be aware of the invalidation process that can occur involving dependent objects. Dependent objects are program units that call or reference other database objects. If the referenced object is modified the dependent object needs to be recompiled to assure it will still execute properly considering the changes.

Minimum Course Enabling Objectives

Upon completion of this workshop, students are expected to competently:

- Create package specifications
- Create package bodies
- Invoke packaged program units
- Identify public versus private construct scope
- Test global construct value persistence
- Forward declare program units
- Create one time only procedures
- Overload packaged program units
- Manage restrictions on packaged functions used in SQL
- Determine execution privileges
- Identify data dictionary information regarding packages
- Delete or remove packages
- Identify local program unit dependencies
- Determine direct and indirect dependencies
- View data dictionary information concerning dependencies
- Run the dependency tree utility
- Identify the unique nature of package dependencies
- Understand remote object dependency actions
- Use remote dependency invalidation methods
- Avoid recompilation errors
- Grant program unit privileges
**Suggested Activities**

1. The facilitator reviews Lab Assignments.

2. The facilitator leads a discussion of the week's topics.

3. The class re-convenes to the computer lab to do Practice exercises as assigned.

**ASSIGNMENTS TO BE COMPLETED PRIOR TO WORKSHOP SIX**

Read Chapter 8.
WORKSHOP 6

- Database Triggers

This week introduces the development of database triggers that will be executed implicitly by the database system rather than explicitly by program calls. Two main types of triggers exist: DML and system. Triggers are important to a developer to be able to perform activities related to creating necessary audit trails, extending capabilities of performing data validation, accomplishing cascading updates, calculating values from data and providing additional access security.

Minimum Course Enabling Objectives

Upon completion of this workshop, students are expected to competently:

1. Learn about database triggers and syntax
2. Create and test a DML trigger in SQL*Plus
3. Create and test an Instead-Of database trigger
4. Use system triggers
5. Identify when triggers should be used
6. Identify trigger restrictions
7. Use the ALTER TRIGGER statement
8. Delete a trigger
9. Use data dictionary information relevant to triggers

Suggested Activities

1. Review Lab Assignments.
2. Facilitator leads a discussion of this week’s topics.

ASSIGNMENTS TO BE COMPLETED PRIOR TO WORKSHOP SEVEN

Read Chapters 9, 10, & 11.
WORKSHOP 7

- Oracle-Supplied Packages
- Introduction to Dynamic SQL and Object Technology
- Performance Tuning

The Oracle database system contains many Oracle-supplied packages that provide commonly needed functionality. These packages are created just as developers create their own packages. Oracle supplied packages address many processing needs including: generating real time alerts, generating e-mails, enabling data display to the screen, simplifying reading and writing to external files, handling LOBs, providing job scheduling, and submitting DDL statements.

This week attempts to expose students to other major features available with the Oracle database. Dynamic SQL is important in developing code, which is truly flexible and has gained a great deal of popularity in the business intelligence arena. Object relational design has been increasingly expanding and developers need to be exposed to the object features within Oracle.

This week also attempts to expose students to performance tuning from a developer's perspective. This does NOT address performance tuning from a DBA perspective. Performance tuning is an extensive topic and this chapter simply provides an introduction. It is important for students at this stage to begin thinking about making statements perform efficiently rather than just simply working. The week includes exploring how statements are processed and what tools can assist in tuning.

Minimum Course Enabling Objectives

Upon completion of this workshop, students are expected to competently:

- Use communications packages
- Generate output via packages
- Include large objects in the Oracle database
- Explore dynamic SQL and PL/SQL
- Identify other important built-in packages
- Create dynamic SQL
- Use object technology
- Be aware of tuning concepts and issues
- Explore SQL statement tuning
- Explore PL/SQL statement tuning
**Suggested Activities**

1. The facilitator reviews the course enabling objectives with the class.
2. Facilitator leads a discussion of the week’s topics.
3. Review Lab Assignments
4. Review for final exam.
5. Students submit the course evaluation forms and written comment sheets.

**ASSIGNMENTS TO BE COMPLETED PRIOR TO WORKSHOP EIGHT**

Review all course material in preparation for the final exam.
WORKSHOP 8

- Introduction to XML
- Final Exam

Minimum Course Enabling Objectives (non-graded)

Upon completion of this workshop, students are expected to competently:

1. Describe what defines a “well-formed” XML document.
2. Discuss Ways to exchange data using XML and PL/SQL.

Suggested Activities

1. The facilitator leads a discussion on XML and PL/SQL and XML.
4. The facilitator administers the final exam.
5. Students submit the course evaluation forms and written comment sheets to the student representative.
## APPENDIX A

### Grading Criteria for Written Submissions

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<td><strong>LEARNER:</strong></td>
<td><strong>GRADE:</strong></td>
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<tr>
<td><strong>TOPIC:</strong></td>
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### CRITERIA & Points

<table>
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<th>POINTS</th>
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<tbody>
<tr>
<td><strong>Content:</strong> (Includes audience analysis, definition of terms, logic, clarity).</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Organization:</strong> (Includes introduction, thesis statement, main points supported, transitions, paragraphs, sentences, etc.)</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Style:</strong> (Includes active/passive voice, tone of voice, sentence structure, etc.)</td>
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</tr>
<tr>
<td><strong>Grammar:</strong> (Includes grammar, spelling, punctuation, etc.)</td>
<td>0.5</td>
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### TOTAL POINTS (out of 6)

<table>
<thead>
<tr>
<th>POINTS</th>
<th>COMMENTS:</th>
</tr>
</thead>
</table>

(see Holistic Scoring Guide on next page for explanation of each level)
Holistic Scoring Guide


6: (Outstanding) A paper with a 6 rating completes the task set by the assignment and is excellent in nearly all respects. It is well organized with a clear thesis stated or implied. It is well developed with content that is specific, accurate, interesting, and appropriate. It demonstrates the writer’s ability to produce and synthesize complex ideas. Logical transitions contribute to its fluent style. It is virtually free from errors in mechanics, usage, and sentence structure, and shows evidence of excellent control of language.

5: (Very Good) A paper with a 5 rating shares most of the characteristics of the 6 paper. It may not be as carefully reasoned as the 6 paper, but shows no serious errors in logic. There may be minor weaknesses in paragraphing, but the content is effectively organized into coherent units. The paper is well written and is largely free from errors in mechanics, usage, and sentence structure.

4: (Satisfactory) A paper with a 4 rating is generally competent. It may accomplish the assignment less completely than the 6 or 5 rated paper, but it does come to terms with the basic task of the assignment. Compared to a 5 paper, it may have a weaker thesis and less effective or complete development. It may insufficiently develop minor points, but it does give evidence of the writer’s ability to support key ideas. It is organized well enough to allow the reader to move with relative ease through the discourse. The 4 rated paper may contain some awkward or ineffective sentences and may show some problems with mechanics and usage, but these errors are not serious or frequent enough to consistently distract the reader from the content.

3: (Minimally Satisfactory) A paper with a 3 rating may show difficulty managing the task of the assignment. The thesis may be vague or too obvious to be developed effectively. It may lack adequate support for the thesis. There may be distinct weaknesses in paragraphing and organization, but the total effect is not chaotic. Errors in mechanics, usage, and sentence structure interfere with readability.

2: (Poor) A paper with a 2 rating fails to come to terms with the assignment. The primary task is ignored, misconstrued, badly mishandled, or redefined to accommodate what the writer wants to say or is able to say. There may be a combination of the following defects: serious errors in reasoning, little or no development of ideas, or no clear progression from one part of the essay to the next. The 2 rated paper may have ungrammatical or poorly constructed sentences, and serious, frequent errors in mechanics and usage which impede understanding.

1: (Unacceptable) A paper with a 1 rating is seriously flawed. It is likely to have no clear thesis or central topic. Further, it may display random organization, lack adequate support or specific development, include irrelevant detail, it may fail to fulfill the assignment, or be unduly brief. It may also contain major and repeated errors in mechanics, usage, and sentence structure.

Category 1 may also be used for the paper that is obviously "off-topic," regardless of the writing quality. In this case, the paper does not deal with the topic assigned and, therefore, does not fulfill the assignment.
# APPENDIX B

## Evaluation of Oral Presentations

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<tr>
<th>CONTENT</th>
<th>PRESENTATION</th>
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<td><strong>Introduction:</strong></td>
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<tr>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>• Interesting opening gained attention</td>
<td>• Clear (no um’s, ah’s, you know’s)</td>
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<tr>
<td>• Main topics identified</td>
<td>• Appropriate vocabulary and grammar</td>
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<tr>
<td>• Transition into presentation</td>
<td>• Mental images included</td>
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<td><strong>Body:</strong></td>
<td><strong>Body Language:</strong></td>
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<tr>
<td>1 2 3 4 5 6</td>
<td>1 2 3 4 5 6</td>
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<tr>
<td>• Main points emphasized</td>
<td>• Gestures (natural, used for emphasis)</td>
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<td>• Main points supported</td>
<td>• Appropriate stance and movement</td>
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<td>• Knowledge demonstrated</td>
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<td>• Effectively organized</td>
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<td>• Sufficient data about problem presented</td>
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<td>• Data properly analyzed</td>
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<td><strong>Conclusions:</strong></td>
<td><strong>Dynamics:</strong></td>
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<td>1 2 3 4 5 6</td>
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<tr>
<td>• Major points summarized</td>
<td>• Comfortable pace</td>
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<tr>
<td>• Call to action</td>
<td>• Self confidence—able to think on feet</td>
</tr>
<tr>
<td><strong>Overall:</strong></td>
<td><strong>Setup properly</strong></td>
</tr>
<tr>
<td>1 2 3 4 5 6</td>
<td><strong>Controlled nervousness/anxiety</strong></td>
</tr>
<tr>
<td>• Toward audience’s viewpoint</td>
<td><strong>Handouts/Visual Aids:</strong></td>
</tr>
<tr>
<td>• Appropriate transitions</td>
<td>1 2 3 4 5 6</td>
</tr>
<tr>
<td>• Effective documents/handouts,</td>
<td>• Content appropriate to subject</td>
</tr>
<tr>
<td>• Handled objections correctly</td>
<td>• Clarity and organization</td>
</tr>
<tr>
<td>• Setup properly</td>
<td>• Readability and appearance</td>
</tr>
<tr>
<td><strong>Comments:</strong></td>
<td><strong>Sufficient and effective</strong></td>
</tr>
<tr>
<td>• Integrated with presentation</td>
<td><strong>Integrated with presentation</strong></td>
</tr>
</tbody>
</table>
# Group Presentation Checklist

<table>
<thead>
<tr>
<th>TEAM:</th>
<th>GRADE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOPIC:</td>
<td>DATE:</td>
</tr>
</tbody>
</table>

- What was the purpose of the presentation and was it accomplished?
- Overall effectiveness of the group?
- Overall effectiveness of handouts/visuals?
- Presentation well organized?
- Presentation well balanced between team?
- Presentation techniques of high caliber?
- Suggestions for improvements?
Guidelines for Using Sources in Academic Writing: 
How to Avoid Plagiarism

Using Sources

When writing for graduate courses you may freely make use of other people's ideas and information from a variety of sources if you give full credit to the sources of the ideas and information.

"Your sources may include published information, books, periodicals, brochures, other reports, and the like. They may include correspondence, interviews, lectures, and similar sources as well."[2]

There are two important reasons for accurately citing the sources of any borrowed ideas or information. The first, most obvious, reason is academic honesty; it is surely dishonest to present someone else's ideas as if they were your own and it is likewise unfair to the originator of those ideas not to give credit where credit is due. The second reason for accurately citing your sources is that doing so gives credibility to your writing.

"Explaining where you got your material...gives readers a chance to judge its reliability and accuracy and also makes it possible for them to look up more about the subject if they want to."[1]

There are two ways in which you may include information from sources in your writing:

"...you may either quote directly or paraphrase, that is, restate the information in your own words. The choice should be made on a case-by-case basis. You should paraphrase when you can convey information more efficiently or effectively than it is conveyed in the original. You should quote directly when the wording is distinctive or when using the source's own words will add credibility to the information you are presenting."[1]

When quoting or paraphrasing you must "cite your source" by giving full information about where the information was found. This information will usually include author, title, date, publisher and page number.

"You must always cite the source when information or an idea belongs to a specific person or group; however, if information or an idea is your own observation or is common knowledge, accepted as true by most people, you do not need to cite your source."[1]

Plagiarism

Plagiarism is the use of someone else's idea, as a quote or paraphrase, without giving full credit to the source. It is an academic offense with serious consequences. It is unethical, unwise and also unnecessary.

"There is certainly no need to plagiarize, since you are allowed to use sources, provided that you acknowledge them. In fact, there is no advantage in it either; papers based on expert sources, and fairly acknowledged, is what is wanted... They are exactly what instructors are looking for."[3]
List of Works Cited


APPENDIX D

Software Piracy

It is illegal and unethical to make unauthorized copies of copyrighted software. It may be tempting to copy or accept free copies of software, but remember that software companies often spend years developing their programs and deserve compensation for their efforts.

Notwithstanding the above, there are opportunities to receive software free or at low cost. Some publishers permit copying of educational software that comes with certain texts. Shareware programs are available at very low cost. Many software publishers circulate demonstration disks. Within Regis University Computer Labs, there are copies of selected demonstration disks.

Before you make a copy or accept a copy of software, insure that it is legal to do so.
APPENDIX E

Value-Centered Education in a Jesuit Educational Setting
by Eugene Wright

Introduction

The philosophy and mission of Jesuit higher Education originates in the Spiritual Exercises of St. Ignatius of Loyola. Though the Exercises are not a treatise on educational principles, Jesuit educational philosophy reflects these precepts.

The following is a presentation of my perspective on value-centered Jesuit educational principles, and how these concepts relate to teaching within a computer science curriculum. Though the Computer Science and Information Systems schedule of studies is not a religious program, Jesuit educational standards clearly influence the curriculum.

A Progressive Journey

The Spiritual Exercises are a set of structured activities that further spiritual growth. Together they provide an organized way to mature personal values.

This emphasis on a structured pattern for growth is reflected in the organization of the computer science curriculum. As with form in the Spiritual Exercises, the computer science studies also provide an establishment approach to learning. The prerequisite and core courses set a foundation for everything that follows. Only as one takes electives does it become clear how central the core classes are to one’s academic success. Such an approach values the need for progressive learning that leads one through the complexities of computer science studies.

Because of this orderly approach, a student has a thorough overview of computer science and computer information systems. With this perspective, a person can move ahead with additional learning knowing that they are on solid academic and professional ground.

Personal Empowerment

Jesuit education seeks to empower a person. It is not enough just to learn information. One must extend beyond knowledge and make it work for yourself and others. Each class needs to help a student to know more, reach farther, and move beyond where there are now.

This can be accomplished through project groups. Within the computer industry, project groups are central to accomplishing work. Still, this focus proceeds beyond the practical concern of getting work done. It travels back to the Jesuit emphasis on community. As with the Exercises, it is a structure for self-correcting and self-initiated learning within a group-learning environment.
You can teach people how to learn, but you cannot make anyone continue to learn. Value-centered education teaches an open, cooperative, and supportive attitude to learning.

Dignity of People

Another fundamental precept of Jesuit philosophy is the dignity of people. This is a life affirming principle that as Christ’s creation we are of immense value.

With this as a foundation, Jesuit education provides a person-centered model. With the teachers as guides or facilitators, each class can be a cooperative learning experience. A value-centered education teaches people how to learn not just what to learn.

It is essential that facilitators provide an open learning environment. With respect and encouragement students will be able to successfully manage the uncertainties of learning, one assignment, one project, and one course at a time.

Ethical Management of Information

Whether computer science studies are theologically sound is not an issue. Computers and the information they manage require neither redemption, nor reconciliation. They are tools, extensions of our abilities. There is no morality in their existence, only in their use.

Ethical management of information is important. Such a focus is needed in a computer science curriculum. Perhaps the ethics of information management, and the technology needed to insure privacy, and accuracy could provide the basis for additional courses. This emphasis would be appropriate within the context of Jesuit educational philosophy of being people for others.
Holistic Approach

There is a holistic approach in the Jesuit educational outlook. The intent is to maintain balance and integration with academic integrity. No patience is permitted with an education of cultural transmission. Every discipline informs the other. A unique combination of intelligence, and feeling, wrapped in imagination, enlightened with spirituality, and transcended with mystical direction is the heart of Jesuit higher education. Yet, there is no other worldliness here, or spiritual elitism.

Computer science is a disciple outside the experience of Jesuit beginnings, but not of value-centered education. To live in our world takes a perspective of integration. The effects of computer development are pervasive in our society. We cannot disconnect values from technology. There is no line of demarcation between the sacred and the secular.

We are learners. Theological science and the computer sciences inform each other. Our complex tools are another way to address difficult problems, and manage their solutions.

Discernment

A primary tenant of Jesuit thought is discerning the will of God. To find God’s will is to find God. This is a goal of the Spiritual Exercises. The Exercises provide sound reasons and choices for determining the will of Christ.

Computer science and information systems provide new developing tools to express the will of Christ. What we do for and with others in the context of service reveals our understanding of Christ’s will. Computer science provides means for expressing this commitment. Whether it is technology that heals, such as medical tools, or technology that reveals, such as a hypertext search engine, these are methods for discerning and expressing the ever-revealing presence of God.

Living for Others

Another principle tenant of the Jesuit worldview is living for others, or the servant-leader. Faith is action oriented. It is not a life of passive contemplation, but of prayer in action. Service for others is a means of providing God glory. To accomplish this takes carefully prepared leaders. A firm focus on education supports such leadership.

The preparation is not just one of the mind, but of the heart. Spiritual maturity is essential. You cannot work the will God, if you have not discovered any.

Though computer science and information systems studies are not designed to produce apostolic technicians, the emphasis on careful preparation and a
concern for people is pivotal. Though many people prefer to deal with technology rather then people, a value-centered program emphases the opposite. Technology is for people, not the reverse. Data is not just about things. It is also about meeting peoples needs. Something information departments would do well to note for there students.

A Place to Stand

A place to stand is about personal values. Here ethics become the focus. Value-centered education is holistic. Though the holy is not a primary focus of courses, it is important to emphasis that knowledge needs to go beyond information. The application and consequences of that knowledge require consideration. You may not leave the program with an interest in promoting religious values, addressing social injustice, or providing creative means for encouraging spiritual growth, but ethical standards are expected. You supported your project members, and do original work.

World Affirming

Finally, Jesuit value-center education is world affirming. It does not hide from life, but embraces it. Education produces change. There is no need to retreat into the past just because transformations are uncomfortable. Regis represents this willingness to be ever reforming in its educational program by having a Master of Science in Computer Information Systems degree. It is not just good educational business; it is good faith practice. If one is to extend one’s influence, one needs to choose areas that are influential. The application of computer science to our daily living is pervasive. There is no going back to yesterday. Our world is now one of electrons, not tangibles. We are digital people.

The issue is no longer can we handle the information. We can. The current concern is how do we make sense out of the data. We need to wring patterns of meaning out of information so we can make living better, not just busier.
Conclusion

Conclusions mean that something is supposed to be brought to an end. With education, there is none. Learning continues throughout life. There are only milestones. A value-centered educational experience is one of them.

References


APPENDIX F

Course Performance Criteria

In general, the performance criteria or expectation for each letter can be spelled out as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Requirements</th>
</tr>
</thead>
</table>
| A     | 1. Demonstrates accurate and sophisticated understanding of readings and issues. Does more than repeat what the text says or what is said in class. Draws out additional important implications.  
2. Shows a critical stance towards opinions expressed in class or in the readings. The student expresses his or her views articulately and defends them well.  
3. Shows originality of thought in expressing the critical stance, in drawing out implications from the readings and class discussions, and in finding personal meaning in the readings and issues discussed.  
4. Expresses his or her ideas clearly. Papers contain very few grammatical or stylistic weaknesses. |
| B     | 1. Shows all the elements of "A" work, but with less accomplishment. There is still accurate understanding of readings and issues with a demonstrated ability to do more than repeat the text. Shows a critical stance with some effort, though is not always successful to defend that stance. Makes some attempt to find personal meaning with at least hints of originality and creativity of thought. Very clearly expresses thoughts and ideas. |
| C     | 1. Overall, demonstrates an accurate grasp of readings and issues, but with some inaccuracy and without deeper sophistication and the ability to draw out additional implications.  
2. Some attempt to take a critical stance, but with little success. |
| D     | 1. A genuine effort to understand has been made, with some demonstrated understanding of readings and issues, but with serious deficiencies.  
2. General lacking in critical stance or in defense of that stance.  
3. The attempt to find personal meaning is either lacking or greatly hindered by difficulties in understanding. |
Definition of Grades

As they relate to mastery, each of the letter grades has the following meaning:

A  Exceptional or outstanding.
B  Very good.
C  Unsatisfactory or minimum mastery; the minimum of what was expected.
D  Some mastery, but generally inadequate and less than expected.
F  Virtually no demonstrated mastery.
APPENDIX G

Team Member Evaluation Form

Take a few minutes to evaluate each of your team member's performance, including you, on the team project. This evaluation is confidential, subject to the stated policies of your instructor.

<table>
<thead>
<tr>
<th>LEARNER:</th>
<th>TEAM # / NAME:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROJECT:</td>
<td>DATE:</td>
</tr>
</tbody>
</table>

For each team member, including yourself, rate his or her performance and contribution to the team effort on a scale of 0-100, where:

<table>
<thead>
<tr>
<th>Numerical Score Range</th>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>90 to 100</td>
<td>A</td>
<td>Excellent contribution</td>
</tr>
<tr>
<td>80 to 89</td>
<td>B</td>
<td>Above average contribution</td>
</tr>
<tr>
<td>70 to 79</td>
<td>C</td>
<td>Average contribution</td>
</tr>
<tr>
<td>60 to 69</td>
<td>D</td>
<td>Below average contribution</td>
</tr>
<tr>
<td>0 to 59</td>
<td>F</td>
<td>What contribution?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEAM MEMBER</th>
<th>NUMERIC SCORE</th>
</tr>
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<tbody>
<tr>
<td></td>
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</tbody>
</table>

Comments or explanation (optional):

__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
APPENDIX H

Information Sources

There are many good authoritative sources for research that apply to students in the MSCIT program. Here is a selected listing of recommended sources:

The Buzz in IT (Hosted by McGraw-Hill Irwin)
http://www.mhhe.com/it/buzz/cgi-bin/links.pl

The ACM Portal: ACM Digital Library
http://www.acm.org

Aggregate Search Engines: Copernic and Lexibot
http://www.copernic.com
http://www.lexibot.com
APPENDIX I

Mission and Values at Regis University

MSCIT students are challenged in the MSCIT Graduate Program to integrate the mission and values of Regis University into their academic, professional and personal lives.

Regis University . . .

- emphasizes the academic excellence, active participation in the educational process, and the practical application of theory, ethical decision-making, and lifelong learning.
- stresses a humanism of rigorous inquiry, creative imagination, and discerning reflection on the movements of the heart.
- seeks students, faculty, and staff who appreciate the intellectual challenge of freely examining systems, traditions, and beliefs as they consider the question “How ought we to live?”
- focuses on respect for all creation, regard for peoples and cultures, justice and leadership-in-service.
- challenges all to attain the inner freedom to make decisions, which change for the better one's own life and the lives of others.

--John J. Callahan, S.J.

Faculty and students are invited to incorporate conversations and/or projects around the following topics:

1. Researching and presenting papers on the effects of information technology on global economics.
2. Questioning the effects of information technology on the lives of the “haves” and “have-nots.”
3. Examining the ethics and values involved in privacy and information technology.
4. Dedicating a professional project for the benefit of a non-profit or other service oriented organization that cannot afford to purchase the skills you provide.
5. Asking how information technology affects the “common good”.
6. Asking if the work environment for information technology personnel furthers the dignity of work and enhances human dignity.
7. Discussing how information technology is used to further peace and disarmament.
8. Analyzing how information technology can further the cause of social justice.
9. Asking if information technology furthers your faith and intellectual life.

10. Entering into the dialogue about how information technology can be used to address basic questions concerning moral character, “meaning” in life and history, obligations to one another, and social justice.

11. Discussing unethical practices in information technology and how they can be limited or eliminated.

12. Determining how information technology furthers the acceptance of racial and religious diversity.

These are examples of the ways in which we can begin to examine the issues and values that contribute to a better understanding of who we are and how we might use our learning.
APPENDIX J

Minimum Computing Requirements for the Course

Hardware: (minimum requirements)
- Pentium Processor or Equivalent (Mac system) - (minimum 128MB Ram, recommended 256MB Ram)
- Minimum 15" monitor (16 bit color) set to 800 X 600 resolution
- CD-Rom player
- Modem (minimum 56K, strongly recommended Broadband connection)
- Sound card/speakers
- Graphics card
- Other: VHS video player
- It is anticipated that Regis will require all students to have a DVD player in the year 2003.

Software: (minimum requirements)
- Operating System – Windows NT, Windows 2000, or Windows XP
- Microsoft Office 97 or higher (preferred Professional Edition) - Regis prefers using Microsoft Office 2000 and XP software package [link]
- Current Anti-virus software updated monthly (preferred Norton Utilities or McAfee)
- Adobe Acrobat Reader - available at: [link]
- You must have the following version of either Netscape Navigator or Microsoft Internet Explorer:
  1. Netscape: 4.5x, 4.6x and all versions of 4.7 except 4.78 and 4.79 versions. 4.78, 4.79, 6x and 6.2 are not supported
  2. Microsoft Internet Explorer: Version 5.0 to 5.5 Service pack 2. Versions 5.5 Service pack 1 and 6.0 are not supported

AOL Users:
1. Shrink (not close) the AOL Window
2. Open Netscape (preferred) or Internet Explorer
3. Enter the correct URL in the address bar for your course

- Additional: Media Player, RealOne Player or Quick Time
- Internet Connectivity:
  Reliable Internet availability from home via an Internet Service Provider (ISP) is required. Internet access at work may not allow enough time to complete assignments. "Firewalls" may impede access to online courses from work and also from home
- If an employer has a firewall, the student needs to request that special arrangements for the Firewall to be opened to the WebCT port
- Contact techsupport@regis.edu or 800-805-1385 ext.4169 if you require assistance.
- Some courses might have additional requirements. Those will be posted on the web sites for those Programs.

Skills: You should be proficient in using the World Wide Web and e-mail - and you must have an e-mail address. You should have a thorough knowledge of Word Processing: attachments, spell check, copy and paste, etc.
Computer Settings

Make sure the following browser settings are in place:

Internet Explorer:
1. Select Tools, click Internet Options
2. Under the General Tab, at Temporary Internet Files, click "Settings," make sure "Check for newer version of stored pages" is set to "Every visit to the page"
4. On the Security tab, click "Custom Level," scroll down to Cookies, set Allow cookies that are stored on your computer to "Enable," set Allow per-session cookies (not stored) to "Enable"
5. Scroll down to Java, under Java Permissions set it to "High Safety"
6. Click the Advanced tab, scroll down to Java. All of these settings must be checked: Java console enabled (requires restart), Java JIT compiler enabled, Java logging enabled. Click "Apply"
7. If you have saved the URL as a Favorite, delete it
8. Close IE, shut down and restart your computer
9. Go to IE, at the address line type the URL for your course
10. If desired save the address in your Favorites
11. Enter your User Name and Password
12. Under Courses select the course in which you want to enter

Netscape:
1. Under Edit select "Preferences"
2. On the right under History, click "clear History"
3. On the left click the word "Advanced"
4. On the right under Advanced make sure the following are checked, "Automatically load images," "Enable Java," "Enable Java Script," "Enable Java Script for Mail and News," "Enable style sheets"
5. Under Cookies make sure it is set to "Accept all Cookies"
6. On the left click the "+ Advanced," to change to a " - Advanced," click on "Cache"
7. On the right click "Clear Memory Cache" and click "Clear Disk Cache"
8. If you have saved the URL as a Bookmark, delete it
9. Go out of Netscape, restart your computer
10. Go to Netscape, at the address bar type the URL for your course
11. If desired save the address as a Bookmark
12. Enter your User Name and Password
13. Under Courses select the course in which you want to enter

--End of MSCD 600 course module--