TASK 1: REVIEW COMPETENCIES & ORDER TEXT BOOKS

The starting point for the preparation for any course is to review the competencies in the domain area. There are two ways by which you can review the competencies. One is through the AAP on the portal. Click on the SEO1, and then the Competencies tab.

This tab will list all the competencies for the course.

You can also find them in Appendix I of this document.

Text books to Order:

by Ian Sommerville (Author)

- **Hardcover**: 864 pages
- **Publisher**: Addison Wesley; 8 edition (May 25, 2006)
- **Language**: English
- **ISBN-10**: 0321313798
- **ISBN-13**: 978-0321313799

**Time to Complete**: 1 hour.
TASK 2: REVIEW ASSESSMENT INFORMATION

IMPORTANT: You and your mentor will decide on the date by which you plan to have taken your assessment by during the AAV call. That information will be recorded on the Planned Completion Date on your AAP. Failure to take the assessment by the planned completion date will result in a NOT PASSED on your transcript and count as one attempt at the assessment.

The 12-competency unit assessment, SEO1, is a WGU Developed Objective Assessment.

Details

Number of Questions: .................................74 Multiple Choice
Time Allowed for the Exam: ......................2 hours
Passing Score: ........................................67 %
Name of the Pre-assessment: .......................PASE* (directions are included in Appendix II.)

<table>
<thead>
<tr>
<th>Software Engineering Assessment (SEO1)</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Applications Analysis Skills</td>
<td>21</td>
</tr>
<tr>
<td>Software Applications Design and Development Skill</td>
<td>21</td>
</tr>
<tr>
<td>Software Applications Support and Maint. Skills</td>
<td>14</td>
</tr>
<tr>
<td>Testing and Implementation of Software Application</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>74</td>
</tr>
</tbody>
</table>

Time to Complete: 1 hour
TASK 3: THE AAV CALL

This is the Academic Activity Verification call, or AAV. Its purpose is to identify the assessment(s) that you will be taking in the current term, the paths that you will follow in pursuing them, and also to schedule the dates for the assessments. Make sure that you are looking at your AAP (Academic Action Plan) during the call. For WJV1, request the following:

1. Information on the Learning Community and discussion forums
2. The pre-assessment for SEO1 – Software Engineering (PASE) (appendix II).

Time to Complete: AAV calls vary. Your first one, the call to establish your first term, will probably take at least a half hour. A safe bet is to schedule an hour for the call.
TASK 4: THE LEARNING COMMUNITY

If you’re reading this, you are inside of the Learning Communities. Communities are the repositories of current information about assessments. Each has a Subject Matter Expert (SME) who ensures the presence and accuracy of content, and answers questions. At a minimum, you will find the following in each Learning Community

- Checklists
- Course of Study (you’re reading it)
- Other documents and links related to the assessment.
- A forum where students can interact with each other.
- Announcements
- Contact information for the SME.

It is important to log into this community frequently because you will be using the Checklists and Roadmap to pace yourself as you prepare for the assessment. The SME will also post schedules for live chats and discussions, web conferencing and conference calls.

**Time to Complete:** Introducing yourself in the forum should take about 30 minutes.
TASK 5: THE PRE-ASSESSMENT

Take the pre-assessment for SEO1 – Software Engineering (PASE) (appendix II).

**Time to Complete:** Approximately **2 hours**, including site registration.
TASK 6: YOUR EXPERIENCE LEVEL

You and your Mentor should agree upon your entry level to the available Learning Resources. Here are some guidelines, but the primary indicator of your level is pre-assessment performance:

- **BEGINNER (NOVICE) – A pre-assessment score of less than 25%.** If you have never worked in IT, or have worked in the field for only a brief period (ask for your Mentor’s evaluation), you are a beginner, even if you have had an introductory course at a conventional institution. You may have spot knowledge but these spots represent a very small subset of what one needs to know to pass the assessment, or make informed choices about careers and advancement.

- **INTERMEDIATE - A pre-assessment score of 25-55%.** If you have a couple of years of IT experience or a formal introductory IT course that was not simply application-based (e.g., Introduction to MIS/CIS from a College of Business), then you are probably at this level. A conversation with your Mentor about your scores will greatly help.

- **ADVANCED – A pre-assessment score of over 55%.** You have several years of experience and a formal introductory course.

Based on the breakdown of the overall score, your Mentor may want to place you in one category despite the fact that your prior academic and work experience indicate another.

**Time to Complete:** Expect about 15 minutes for this discussion.

You may only need to work on individual sections of this assessment. Your mentor/program manager will guide you accordingly:

1) **Software Applications Analysis Skills**
2) **Software Applications Design and Development Skill**
3) **Testing and Implementation of Software Application**
4) **Software Applications Support and Maint. Skills**
**TASK 7: GET A KNOWLEDGENET ACCOUNT**

*KnowledgeNet* is a resource that will remain with you throughout your program of study, although you will have to periodically renew your enrollment. To get an account, go to the Learning Resources tab of your AAP for WJV1 and click the Enroll Now link for *KnowledgeNet*.

You will receive email instructions from KnowledgeNet.

**Time to Complete:** Once you have KnowledgeNet’s instruction email, it should take about a half hour to get set up and do some exploring.
You should see the following once you login to your account:

**SEO1:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>16348</td>
<td>Advanced Testing Methodologies</td>
<td>3</td>
</tr>
<tr>
<td>16347</td>
<td>Basic Testing Methodologies</td>
<td>2.5</td>
</tr>
<tr>
<td>16349</td>
<td>Best Practices in Test Driven Development</td>
<td>2.5</td>
</tr>
<tr>
<td>16345D</td>
<td>Fundamentals of Test-Driven Software Development Curriculum</td>
<td>13</td>
</tr>
<tr>
<td>16346</td>
<td>Programming Methodologies and Strategy</td>
<td>2</td>
</tr>
<tr>
<td>16345</td>
<td>Structured System Analysis</td>
<td>3.5</td>
</tr>
<tr>
<td>14011</td>
<td>Systems Analysis Using the Client Server Model Part 1: Client Server Environment</td>
<td>7</td>
</tr>
<tr>
<td>14012</td>
<td>Systems Analysis Using the Client Server Model Part 2: Object Technology</td>
<td>7</td>
</tr>
<tr>
<td>14013</td>
<td>Systems Analysis Using the Client Server Model Part 3: Client Server Design</td>
<td>7</td>
</tr>
<tr>
<td>14015</td>
<td>Workflow Management Part 2: Workflow Products</td>
<td>7</td>
</tr>
</tbody>
</table>

**Time to Complete:** KnowledgeNet/NetG estimates almost 61 hours to complete these courses, not including time spent with their mentors.
Task 9 – GET A SKILLSOFT ACCOUNT

OBTAIN A SKILLSOFT ACCOUNT

Skillsoft is one of the primary Learning Resource for beginning and intermediate students. To obtain a login account, go to the Learning Resources tab of your AAP for SEO1 and click on the enroll link for Skillsoft.

You will receive instructions via email. Once registered and logged in, here is what you will see:

This is the Skillsoft portal, called Skillport. Skillsoft offers three separate resources to help you prepare for the CIW Associate Exam:

1. Courses
2. On site mentors provided by Skillsoft (these are not WGU Mentors)
3. Prep Tests
Briefly, you will work on the courses and interact with Skillsoft mentors in their chat rooms and via email. When you have completed your studies, you will wrap up your time with Skillsoft using their Prep Tests.

**Time to Complete:** 30 minutes.
These Skillsoft courses should already be included in your Plan and listed as the “SEO1.” If you do not see these courses in your plan, you can add them.

From your Training Plan, you can view all of the courses that you added:

<table>
<thead>
<tr>
<th>Course</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Management Fundamentals</td>
<td>2.5 hours</td>
</tr>
<tr>
<td>Transitioning into a Project Management Role</td>
<td>3.0 hours</td>
</tr>
<tr>
<td>Initiating and Planning a Project</td>
<td>2.0 hours</td>
</tr>
<tr>
<td>Managing a Project</td>
<td>2.5 hours</td>
</tr>
<tr>
<td>Troubleshooting and Closing the Project</td>
<td>2.0 hours</td>
</tr>
<tr>
<td>Introducing User-Centered Design</td>
<td>120 minutes</td>
</tr>
<tr>
<td>Developing an Application Using User-Centered Design</td>
<td>155 minutes</td>
</tr>
<tr>
<td>The Iterative Process in User-Centered Design</td>
<td>135 minutes</td>
</tr>
<tr>
<td>Practical Examples of User-Centered Design</td>
<td>60 minutes</td>
</tr>
</tbody>
</table>

**Time to Complete:** approximately 20 hours, not including time spent with a Skillsoft mentor.
TASK 11: Learning Path – Software Applications Analysis Skills

The suggested learning path for this assessment will have you first complete any computer based training modules through Skillsoft and KnowledgeNet. Once the appropriate training modules are completed, we recommend you read the suggested chapters in the Sommerville text, review power points, and complete all forms of quizzes for each of those chapters. We recommend you complete the exercises from the chapters for additional. Finally, we recommend you review and commit to memory the glossary of terms at the end of this course of study.

Note: Novice and Intermediate should complete all computer based training modules in addition to reviewing the text book and related activities. More advanced learners should concentrate on reviewing the textbook activities and materials.

2) Download the glossary of terms: http://www.cs.st-andrews.ac.uk/~ifs/Books/SE7/SampleChapters/glossary.pdf (* it is strongly recommended you learn every term in this glossary.)

<table>
<thead>
<tr>
<th>Computer Based Training Modules</th>
<th>Est. Time to complete</th>
<th>Corresponding Chapter &amp; Activities in Sommerville Text book</th>
<th>Est. Time To complete</th>
</tr>
</thead>
</table>

**Project Management (2 weeks)**

<table>
<thead>
<tr>
<th>Skillsoft Modules</th>
<th>Est. Time To complete</th>
<th>(chapter 5) Project Management</th>
<th>Solutions for selected exercises can be found in Appendix III.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Management Fundamentals</td>
<td>2.5 hours</td>
<td><a href="http://wps.pearsoned.co.uk/ema_uk_he_sommervill_softeng">http://wps.pearsoned.co.uk/ema_uk_he_sommervill_softeng</a> 8/0,11903,3174416,-00.html</td>
<td></td>
</tr>
</tbody>
</table>
| Transitioning into a Project Management Role | 3.0 hours | 1) Read the chapter  
2) Review the lecture notes  
3) Take the quiz  
4) Review the exercises at the end of the chapter. | |
| Initiating and Planning a Project | 2.0 hours |  | |
| Managing a Project | 2.5 hours |  | |
| Trouble-shooting and Closing the | 2.0 hours |  | |

1 week
<table>
<thead>
<tr>
<th>Processes &amp; Requirements (2 weeks)</th>
<th>(4) Software Processes</th>
<th>1 week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><a href="http://wps.pearsoned.co.uk/cma_uk_he_sommervill_softwareeng_8/0.11903.3174397-.00.html">http://wps.pearsoned.co.uk/cma_uk_he_sommervill_softwareeng_8/0.11903.3174397-.00.html</a></td>
<td></td>
</tr>
<tr>
<td>1) Read the chapter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Review the lecture notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Take the quiz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Review the exercises at the end of the chapter.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solutions for selected exercises can be found in Appendix III.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>(7) Requirements Engineering Processes</th>
<th>1 week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><a href="http://wps.pearsoned.co.uk/cma_uk_he_sommervill_softwareeng_8/0.11903.3174446-.00.html">http://wps.pearsoned.co.uk/cma_uk_he_sommervill_softwareeng_8/0.11903.3174446-.00.html</a></td>
<td></td>
</tr>
<tr>
<td>1) Read the chapter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Review the lecture notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Take the quiz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Review the exercises at the end of the chapter.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solutions for selected exercises can be found in Appendix III.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TASK 12: Learning Path – Software Applications Design and Development Skill

The suggested learning path for this assessment will have you first complete any computer based training modules through Skillsoft and KnowledgeNet. Once the appropriate training modules are completed, we recommend you read the suggested chapters in the Sommerville text, review power points, and complete all forms of quizzes for each of those chapters. We recommend you complete the exercises from the chapters for additional. Finally, we recommend you review and commit to memory the glossary of terms at the end of this course of study.

Note: Novice and Intermediate should complete all computer based training modules in addition to reviewing the text book and related activities. More advanced learners should concentrate on reviewing the textbook activities and materials.

2) Download the glossary of terms: http://www.cs.st-andrews.ac.uk/%7Eifs/Books/SE7/SampleChapters/glossary.pdf (* it is strongly recommended you learn every term in this glossary.)

<table>
<thead>
<tr>
<th>Computer Based Training Modules</th>
<th>Est. Time to complete</th>
<th>Corresponding Chapter &amp; Activities in Sommerville Text book</th>
<th>Est. Time To complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems (3 weeks)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge Net Modules</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16345 Structured System Analysis</td>
<td>3.5 Hours</td>
<td>(chapter 2) Socio-Technical Systems</td>
<td>1 week</td>
</tr>
<tr>
<td>14011 Systems Analysis Using the Client Server Model Part 1: Client Server Environment</td>
<td>7 Hours</td>
<td>AND (chapter 8) System Models</td>
<td>1 week</td>
</tr>
<tr>
<td>14012 Systems Analysis Using the Client Server Model Part 2:</td>
<td>7 Hours</td>
<td><a href="http://wps.pearsoned.co.uk/ema_uk_he_sommervill_soffeng_8/0,11903,3174367,-00.html">http://wps.pearsoned.co.uk/ema_uk_he_sommervill_soffeng_8/0,11903,3174367,-00.html</a></td>
<td></td>
</tr>
</tbody>
</table>

1) Read the chapter
2) Review the lecture notes
3) Take the quiz
4) Review the exercises at the
### Requirement and Design (4 weeks)

<table>
<thead>
<tr>
<th>Skillsoft Modules</th>
<th>Duration</th>
<th>Content</th>
<th>Duration</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introducing User-Centered Design</td>
<td>120 minutes</td>
<td>(chapter 6) Software Requirements AND (chapter 16) User Interface Design AND (chapter 26) Software Cost Estimation</td>
<td>1 week</td>
<td>1 week</td>
</tr>
<tr>
<td>Developing an Application Using User-Centered Design</td>
<td>155 minutes</td>
<td>1) Read the chapter 2) Review the lecture notes 3) Take the quiz 4) Review the exercises at the end of the chapter.</td>
<td>1 week</td>
<td>1 week</td>
</tr>
<tr>
<td>The Iterative Process in User-Centered Design</td>
<td>135 minutes</td>
<td>Solutions for selected exercises can be found in Appendix III.</td>
<td>1 week</td>
<td>1 week</td>
</tr>
<tr>
<td>Practical Examples of User-Centered Design</td>
<td>60 minutes</td>
<td>1) Read the chapter 2) Review the lecture notes 3) Take the quiz 4) Review the exercises at the end of the chapter.</td>
<td>1 week</td>
<td>1 week</td>
</tr>
</tbody>
</table>

7 Hours

end of the chapter.

Solutions for selected exercises can be found in Appendix III.
TASK 13: Learning Path – Testing and Implementation of Software Applications

The suggested learning path for this assessment will have you first complete any computer based training modules through Skillsoft and KnowledgeNet. Once the appropriate training modules are completed, we recommend you read the suggested chapters in the Sommerville text, review power points, and complete all forms of quizzes for each of those chapters. We recommend you complete the exercises from the chapters for additional. Finally, we recommend you review and commit to memory the glossary of terms at the end of this course of study.

Note: Novice and Intermediate should complete all computer based training modules in addition to reviewing the textbook and related activities. More advanced learners should concentrate on reviewing the textbook activities and materials.

1) Go to Ian Sommerville’s Web site and familiarize yourself with the layout and content available.  
2) Download the glossary of terms: http://www.cs.st-andrews.ac.uk/~ifs/Books/SE7/SampleChapters/glossary.pdf  (* it is strongly recommended you learn every term in this glossary.)

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<tr>
<th>Computer Based Training Modules</th>
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<th>Corresponding Chapter &amp; Activities in Sommerville Textbook</th>
<th>Est. Time To complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Net Modules</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 16348 Advanced Testing Methodologies | 3 hours               | (chapter 23) Software Testing  
http://wps.pearsoned.co.uk/ema_uk_he_sommervill_sof twareeng_8/0,11903,3174681,-00.html  | 1 week                |
| 16347 Basic Testing Methodologies | 2.5 hours             | 1) Read the chapter  
2) Review the lecture notes  
3) Take the quiz  
4) Review the exercises at the end of the chapter.  
Solutions for selected exercises can be found in Appendix III. |                       |
| 16349 Best Practices in Test Driven Development | 2.5 hours             |                                                            |                       |
| 16345D Fundamentals of Test-Driven Software Development Curriculum | 13 hours              |                                                            |                       |
| 16346 Programming Methodologies and Strategy | 2 hours               |                                                            |                       |
TASK 14: Learning Path – Application Support and Maintenance Skills

The suggested learning path for this assessment will have you first complete any computer based training modules through Skillsoft and KnowledgeNet. Once the appropriate training modules are completed, we recommend you read the suggested chapters in the Sommerville text, review power points, and complete all forms of quizzes for each of those chapters. We recommend you complete the exercises from the chapters for additional. Finally, we recommend you review and commit to memory the glossary of terms at the end of this course of study.

Note: Novice and Intermediate should complete all computer based training modules in addition to reviewing the text book and related activities. More advanced learners should concentrate on reviewing the textbook activities and materials.

3) Go to Ian Sommerville’s Web site and familiarize yourself with the layout and content available.

4) Download the glossary of terms: http://www.cs.st-andrews.ac.uk/%7Eifs/Books/SE7/SampleChapters/glossary.pdf (* it is strongly recommended you learn every term in this glossary.)

<table>
<thead>
<tr>
<th>Computer Based Training Modules</th>
<th>Est. Time to complete</th>
<th>Corresponding Chapter &amp; Activities in Sommerville Text book</th>
<th>Est. Time To complete</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7 hours</td>
<td>1) Read the chapter 2) Review the lecture notes 3) Take the quiz 4) Review the exercises at the end of the chapter. Solutions for selected exercises can be found in Appendix III.</td>
<td>1 week</td>
</tr>
</tbody>
</table>

Solutions for selected exercises can be found in Appendix III.
TASK 15: RE-TAKE THE PRE-ASSESSMENT

This repeats Task 5. The purpose of the re-take is to ensure you’ve obtained the necessary competencies to take the final assessment.

**Time to Complete:** 2 hours for the pre-assessment.
TASK 16: DISCUSS PRE-ASSESSMENT RESULTS WITH YOUR MENTOR

Are you prepared for the assessment? If you and your Mentor agree that you are, then proceed to the next Task. If not, your Mentor will help you decide what further preparations are necessary, including any additional study resources.

Time to Complete: This discussion could take 30 minutes.
TASK 17: REFER FOR THE SEO1 ASSESSMENT.

Go to the Assessment Referral tab of your AAP and complete the referral form. You must request the assessment date that was agreed to by you and your mentor when doing the AAV. This date is recorded as the Planned Completion Date on your AAP for the SEO1.

**REMEMBER:** The latest possible Required Completion Date (RCD) for proctored (objective) assessments is the last day of the fifth month of the term. The earliest possible RCD for proctored assessments is three weeks from the start of any term to allow for the scheduling process.

Beginning 5/1/2007, students will be charged a $60.00 retake fee for third and subsequent attempts at assessments. The system will post the $60.00 fee to the student’s account. Fees are due with the next term’s tuition. FINANCIAL AID DOES NOT COVER RE-TAKE FEES!

Taking an Assessment Sooner:

If you and your mentor believe that you are ready to take the assessment sooner than what was originally planned, you can make a referral and take an assessment earlier than your planned completion date for the SEO1.

**Time to Complete:** Completing a referral should take less than **15 minutes.**
TASK 18: MARK YOUR CALENDAR, TAKE THE EXAM

An exam date is important, and represents a significant expense to WGU in time, effort, and money. WGU covers costs for two exam attempts with your tuition. You must pay for all attempts after the second attempt out of your own pocket. If you do not show up for an exam, you have used one attempt, and your recorded score is NOT PASSED. There are no exceptions to this policy. **If you cannot keep an exam date, it is treated as a NOT PASSED.** Assessment Scheduling is WGU’s most time-consuming process, and scheduling proctored assessments worldwide is an incredibly complex task.

**Time to Complete:** 1/2 day.
The following competencies are covered on this exam.

**Implementation and Testing of Software**

<table>
<thead>
<tr>
<th>PD Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>p001407</td>
<td>design and conduct a &quot;unit test&quot; on customized software module.</td>
</tr>
<tr>
<td>p001408</td>
<td>design and conduct an &quot;integration test&quot; between customized and/or existing software application(s) module(s).</td>
</tr>
<tr>
<td>p001409</td>
<td>design and conduct a &quot;system test&quot; of entire software application(s).</td>
</tr>
<tr>
<td>p001410</td>
<td>design and conduct a &quot;user acceptance test&quot; of customized software application(s).</td>
</tr>
<tr>
<td>p001411</td>
<td>install pre-packaged software application(s).</td>
</tr>
<tr>
<td>p001412</td>
<td>implement custom software application(s).</td>
</tr>
</tbody>
</table>

**Software Analysis Skills**

<table>
<thead>
<tr>
<th>PD Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>p001398</td>
<td>audit current customer practices (including both paper and electronic) which may be amenable to software application(s).</td>
</tr>
<tr>
<td>p001399</td>
<td>conduct a needs assessment, with costs, of customer requirements for software application(s).</td>
</tr>
<tr>
<td>p001400</td>
<td>match current customer practices and requirements with new software application(s) capabilities.</td>
</tr>
<tr>
<td>p001401</td>
<td>identify various analytical methodologies available for documenting customer requirements (decision trees, flow charts, Warnier-Orr methodology).</td>
</tr>
<tr>
<td>p001403</td>
<td>identify the best alternative and determine the scope of a software application(s) project.</td>
</tr>
</tbody>
</table>

**Software Design and Development Skills**

<table>
<thead>
<tr>
<th>PD Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>p001404</td>
<td>based on the results of gap analysis, use an appropriate methodology to design and develop customized software application(s) to satisfy missing requirements.</td>
</tr>
<tr>
<td>p001405</td>
<td>validate customized software interface with users.</td>
</tr>
</tbody>
</table>
p001406  design program specifications for new customized software application(s).

Software Support and Maintenance Skills

<table>
<thead>
<tr>
<th>PD Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>p001413</td>
<td>perform a post-implementation review of software application(s).</td>
</tr>
<tr>
<td>p001414</td>
<td>monitor the performance of software application(s).</td>
</tr>
<tr>
<td>p001415</td>
<td>gather and evaluate feedback from users regarding software application(s).</td>
</tr>
<tr>
<td>p001416</td>
<td>determine upgrade needs for software application(s).</td>
</tr>
<tr>
<td>p001417</td>
<td>recommend new features or enhancements to existing software application(s).</td>
</tr>
<tr>
<td>p001418</td>
<td>write a system evaluation report based on a post-implementation review of software application(s).</td>
</tr>
</tbody>
</table>
You have been referred for the Software Engineering Pre-Assessment. This assessment is designed to be taken over the Internet from your home or office. The sole purpose of the assessment is to help you and your mentor design your studies toward your goal of graduation. When you complete this assessment, we will be able to pull your score from the assessment site. We will then notify your mentor to review the results.

This pre-assessment is a 25 item objective assessment. You will have two hours to complete the assessment. The questions are similar in style and context to those on the domain assessments, which you will be taking in the future. There is no penalty for guessing, but you should consider the value of guessing when the data will be used to guide your academic planning.

It is recommended that you do not use outside resources (books, help from others, etc.) while you complete this assessment. This procedure will ensure that your evaluation is the best possible measure of your current abilities. Please finish the assessment in one sitting. If the online process is interrupted once you begin taking the assessment, your final score can be adversely affected. Additionally, the system will close down if there is a period of inactivity of 30 minutes or more, potentially causing a loss of the work you have completed.

Instructions for taking the Software Engineering Pre-Assessment are as follows:

1. In either Netscape or Internet Explorer type in the following URL (address): http://share0.prime.prometric.com
2. Click on the link for “First-Time Registration”.
3. At the screen titled “Step 1: Select a Test Provider or Program” click on the pull down menu and select “Western Governors University” (not “WGU Chauncey”).
4. Click on the “Submit” button.
5. Click on the link for “Secure Sign-In”.
6. At the screen titled “Sign-In Information” enter your username and password. This will be the same username and password you have utilized for previous Prometric system assessments.
7. Click on the “Sign In” button.
8. Note that the mandatory fields are indicated by the “required” symbol.
9. It is also required that you enter your WGU student number in the “Other Information” section at the bottom of the sign-in page. This is your WGU identification number assigned when you were admitted to the university (not your social security number). Your student number is required on all assessments or projects in order to correctly identify your work for grading and enter your scores into your student records.
10. Click on the “Submit” button.
11. The next screen will be a welcome page indicating your name. Click on the “Continue” button.
12. Click on the “Take Test” button.
13. At the screen titled “Step 1: Select a Test Sponsor (or submit keycode)” enter the keycode for this assessment in the box titled “Private Tests”. The keycode (case sensitive) is: xmj326kat
14. You do not need to enter any information into the boxes titled “Public Tests” or “Eligibility Tests” before you proceed to the next step.
15. Click the “Submit” button.
16. At the screen titled “Step 3: Confirm Test Selection” the name of the assessment will appear. Make sure you are taking the correct assessment.
17. Click the “Take this Test!” button.
18. On this screen, you will view general information about the assessment. You can now follow the links to start the assessment.
19. Be advised that you should not use the browser buttons (Netscape or Internet Explorer) to advance from question to question. This can cause you to be closed out of the program. Use only the buttons within the Prometric application.
20. While you are taking the assessment, you have the option to view a recap of the questions you have answered by clicking the “Summarize” button on the top right side of the screen. You can also mark the questions you would like to review by clicking the “Mark Item for Review” button directly below the “Summarize” button.
21. When you have completed the assessment, you will see a screen titled “Confirm End of Test”. Click on the “Yes” or “No” button.
22. A screen will appear titled “Feedback”. Particularly helpful will be comments regarding the content or structure of the test questions. This step is optional.
23. A screen will appear titled “Test Results”. You will see a notice that your test has been submitted for scoring. Click where indicated.
24. Click “Sign Off”.
25. Click “Yes” to exit the Prometric Prime on-line test driver.

NOTE: If for any reason you get locked out of the system, simply log back on at the web address above and you will be given the option to click on “Resume A Test”. You will then be able to continue the assessment from the point where you stopped. You will not lose the work you have already completed.
Appendix III. Solutions to Selected Exercises

NOT FOR PUBLIC DISTRIBUTION

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These solutions are made available for instructional purposes only. They may only be distributed to students and it is a condition of distribution that they are only distributed by accredited instructors using 'Software Engineering, 8th edition' as a textbook. The solutions may be made available to students on a password-protected intranet but must not be made available on a publicly-accessible WWW server.

Chapter 5 Project management

Solutions provided for Exercises 5.2, 5.3, 5.6, 5.9, 5.10 and 5.11.

5.2 Management activities such as proposal writing, project planning and personnel selection require a set of skills including presentation and communication skills, organisational skills and the ability to communicate with other project team members. Programming skills are distinct from these (indeed, it is a common criticism of programmers that they lack human communication skills) so it does not follow that good programmers can re-orient their abilities to be good managers.

5.3 Project planning can only be based on available information. At the beginning of a project, there are many uncertainties in the available information and some information about the project and the product may not be available. As the project develops, more and more information becomes available and uncertainties are resolved. The project plan therefore must be reviewed and updated regularly to reflect this changing information environment.

5.6 The activity chart and bar chart are shown as Figures 5.1 and 5.2.

5.9 Other possible risks are:

Technology: Communications network saturates before expected transaction limit is reached.
People: Level of skill of available people is lower than expected.
Organisational: Organisational changes mean that the project schedule is accelerated.
Tools: CASE tools cannot handle the volume of data available for large systems.
Requirements: New non-functional requirements are introduced that require changes to the system architecture.
Estimation: The difficult of the software is underestimated.
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Estimation: The difficulty of the software is underestimated.

Figure 5.1 Activity chart
Figure 5.2 Task bar chart
5.10 Fixed price contracts increase the chances of product risks because they remove options from
the development process. Because the contract is fixed-price, the contractor is naturally
reluctant to increase the effort or time expended on the project as this will reduce their profits
on the work. Therefore, if problems arise they will look for ways to reduce the scope of the
product or to reduce the costs of product development (e.g. by reducing the effort devoted to
testing). Both of these factors can lead to products that are not as expected by the customer.

5.11 Issues which might be covered include the problems of finding a balance between family life
and organisational demands, whether or organisations should expect people to behave as
professionals. This perhaps implies working the number of hours required to complete some
job but also implies that engineers should have a degree of autonomy about how they arrange
their working lives (e.g. they may choose to work from home or their own working hours).

Factors which affect this decision might be the financial state of the company, the general
company culture and attitude, the availability of alternative local employment, particular
personal circumstances (e.g. are people single parents, do they have babies which don’t sleep
well, etc.)

Chapter 4 Software processes

Solutions provided for Exercises 4.1, 4.3, 4.7, 4.9, 4.10 and 4.12.

4.1 (a) Anti-lock braking system Safety-critical system so method based on formal
transformations with proofs of equivalence between each stage.
(b) Virtual reality system System whose requirements cannot be predicted in advance so
exploratory programming model is appropriate.
(c) University accounting system System whose requirements should be stable because of
existing system therefore waterfall model is appropriate.
(d) Interactive timetable System with a complex user interface but which must be stable and
reliable. Should be based on throw-away prototyping to find requirements then either
incremental development or waterfall model.

4.3 The waterfall model is accommodated where there is a low specification risk and no need for
prototyping etc. for risk resolution. The activities in the 2nd quadrant of the spiral model are
skipped. The prototyping model is accommodated when the specification phase is limited and
the prototyping (risk resolution) phase predominates. The activities in the 3rd quadrant of the
spiral model are skipped or reduced in scope.
4.7 Components of a design method are:
   - A defined set of system models
   - Rules that apply to these models
   - Guidelines for design 'good practice'
   - A model of the design process
   - Formats for reports on the design

4.9 Systems must change because as they are installed in an environment the environment adapts to them and this adaptation naturally generates new/different system requirements. Furthermore, the system’s environment is dynamic and constantly generates new requirements as a consequence of changes to the business, business goals and business policies. Unless the system is adapted to reflect these requirements, its facilities will become out-of-step with the facilities needed to support the business and, hence, it will become less useful.

4.10 A classification scheme can be helpful for system procurement because it helps identify gaps in the CASE tool coverage in an organisation. Procurement may be aimed at filling these gaps. Alternatively, a classification scheme may be used to find tools which support a range of activities - these may represent the most cost effective purchases if funds are limited.

4.12 There are obviously different views here and a lot depends on the development of CASE technology in the future. A major difference between the introduction of CASE technology and, for example, the introduction of CAD technology which made draftsmen redundant, is that the routine elements in the design and development of software are relatively minor parts of the whole development process. Therefore, savings are not that large. However, if AI technology develops so that truly intelligent tools can be developed than, obviously, this situation will change.

Chapter 7 Requirements engineering processes

Solutions provided for Exercises 7.1, 7.4, 7.6, and 7.9.

7.1 The stakeholders in a student records system include:
   - University central administration including those responsible for registration, payment of fees, examinations and assessment and graduation.
   - The students whose details are recorded in the system.
   - University departmental administrators who supply information to the system and use information from it.
   - Academic staff who use information from the system.
   - Data protection officers (local and national).
   - Potential employers of students (who may require information from the system).
7.3 You can tackle this problem using a brainstorming approach. Obviously, there are many alternatives to the solutions suggested here. Note the printing conflict is deliberate.

**Viewpoint: Library manager**

Requirement: Access to the LIBSYS system shall be restricted to accredited users of the library.

Requirement: The LIBSYS system shall provide a reporting facility that allows usage reports (who used the system, how often, what libraries were accessed) to be created and printed.

Requirement: The LIBSYS system shall be configured so that only document printing on specific library servers is permitted.

**Viewpoint: Users**

Requirement: The LIBSYS system shall be accessible from any location, including locations away from the university campus.

Requirement: It shall be possible to save LIBSYS queries, recall them and modify them for subsequent use.

Requirement: The LIBSYS system shall allow documents to be printed on user printers.

**Viewpoint: System managers**

Requirement: The restart time of the LIBSYS system after failure shall not exceed 5 minutes.

Requirement: The LIBSYS system shall provide a backup facility for user’s personal workspaces.

Requirement: The LIBSYS system shall be available for a range of platforms including Windows 2000, Windows XP and Mac OS X.

7.4 **Important non-functional attributes for the cataloging services might be:**

- Availability (because the system may be required at any time)
- Security (because the books data base musn’t be corrupted)
- Efficiency (because the system must respond quickly to each transaction)

For the browsing services, usability is also very important as these services should be easy to use without extensive training.
An example of a system where social and political factors influence system requirements is a system to manage the costs of public healthcare. Politicians are anxious both to control costs and to ensure that the best public image of the healthcare system is provided. There is a potential conflict in such a system between administrators who are driven by treatment costs and doctors who are (or should be) driven by treatment effectiveness. The requirements for the system might therefore embed particular policies which are included as a result of organizational factors (e.g. ensure that administrators can vet treatment costs) rather than technical requirements.

Figure 7.2 shows a change process which may be used to maintain consistency between the requirements document and the system. The process should assign a priority to changes so that emergency changes are made but these changes should then be given priority when it comes to making modifications to the system requirements. The changed code should be an input to the final change process but it may be the case that a better way of making the change can be found when more time is available for analysis.

The best way to tackle this problem is to demonstrate by example that the analysis method is inadequate. You should prepare a scenario of system use where social factors are important then try to represent this using the notations proposed in the analysis method. If this is impossible, you have then demonstrated that the standard is incomplete.

However, this does not mean the method should completely discarded. Rather, you should discuss with your manager how the method can be supplemented with additional information to represent e.g. social factors.