Course: SENG 582 – Enterprise Architecture Frameworks

Semester: SPRING 2019

Course Format
And Credit hours: 1 hr Student Briefs/Discussion, 2 hr Lecture/Research and Project Presentations
3 hours Course Credit

Prerequisites: SENG 520 or consent

Instructor: Dale G. Dzielski, Dale.Dzielski@mail.wvu.edu, office: 304-293-9135 (use sparingly)
Communication Plan: Please use the eCampus Course Message feature to communicate with anyone in the class and myself. All course material and assignments will be provided using the eCampus features.

Schedule: Mondays 6:00 to 7:20 pm, Video lectures anytime throughout the week.

Location: WVU eCampus, https://ecampus.wvu.edu/

Office Hours: Upon Request

Course Objectives: The objectives of this course are to evaluate enterprise architecture frameworks on the scene today including TOGAF, Zackman Framework, DoDAF, FEAF, Gartner Enterprise Architecture Framework, etc., research where they came from, why they are needed, and how they are to be utilized to assist the enterprise in achieving its planning of current and future business and IT operations, and apply this knowledge to develop a real business architecture solution.

Expected Learning Outcomes: Upon successful completion of SENG 691P, students will be able to:

1. Identify enterprise architecture frameworks being utilized by government and business today for planning and designing of advanced systems.
2. Describe where enterprise architecture practices have come from, why they are needed, and how they are to be utilized to assist the enterprise in achieving its planning of current and future business and IT operations.
3. Utilize and synthesize internet research in enterprise architecture frameworks and report on findings.
4. Apply a selected enterprise architecture framework to real life software engineering problem in an enterprise.

Required Textbooks:


Enterprise Architecture Body of Knowledge (EABOK™): built by the ea community, Chief Editor Dr. Duane Hybertson, URL: http://www2.mitre.org/public/eabok/eabok.html, Copyright 2018, The MITRE Corporation.
Dzielski

WVU Software Engineering
Enterprise Architecture Frameworks


Recommended Textbooks:


Required reading assigned from various Internet sources provided by the instructor to include the body of knowledge from Enterprise Architecture Framework and Business Process Management areas.

Technology Needed:
Students must have technology compatible with the standard requirements of the current platform with eCampus access, https://ecampus.wvu.edu/, and Windows Media Player. Student assignments are primarily required to be turned in using Microsoft Office 2010 Product Suite therefore reasonable proficiency in this product is required.

Materials Needed: Students must have a current University email account and WVUID with password.

Grades:

<table>
<thead>
<tr>
<th>Task</th>
<th>Points for Total Grade</th>
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<tbody>
<tr>
<td>Assignments</td>
<td></td>
</tr>
<tr>
<td>- Research Briefs (6 x 20)</td>
<td>120</td>
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<tr>
<td>- Case Studies (3 x 30)</td>
<td>90</td>
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<tr>
<td>- Research Paper Presentation</td>
<td>40</td>
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<tr>
<td>Research Paper</td>
<td>250</td>
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<tr>
<td>Team Project</td>
<td>250</td>
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<tr>
<td>Final Exam</td>
<td>250</td>
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<tr>
<td>Total Class Points</td>
<td>1,000</td>
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Grading Scale:
1000 – 900 A
890 – 800 B
790 – 700 C
690 – 600 D
590 – 0 F

Grading Policy:
A late assignment equals no assignment; however, brief presentations may be made up. Late research paper assignments and project deliverables will not be graded and count as a zero for the portion of the paper or project that is late. Exam grading appeals must be in writing on the day the exam is returned. There are no make-up exams except by prior arrangement with the instructor.

Every attempt will be made to grade projects, assignments, and case studies within seven days of the due date. Other grades will be graded within the same length of time the student had been given to complete the assignment, e.g. case studies are given two weeks for the student to complete; therefore, the instructor will attempt to provide the grade within two weeks after the case study had been turned into the instructor.
# Module Objectives and Learning Outcomes

<table>
<thead>
<tr>
<th>#</th>
<th>Module</th>
<th>Course Level Objective:</th>
<th>Module Level Objective (MLO):</th>
<th>Related Assignments</th>
</tr>
</thead>
</table>
| 1 | Architecture Basics & Terminology | 2. Describe where enterprise architecture practices have come from, why they are needed, and how they are to be utilized to assist the enterprise in achieving its planning of current and future business and IT operations. | 1. Define key architecture concepts and terminology presented in the course.  
2. Prepare and present research in architecture framework areas.  
3. Discuss other learner’s research in enterprise architecture frameworks topics. | Start Here in eCampus (MLO 1-2)  
Discussion Board – Introduction (MLO 3)  
Research Brief 1 (MLO 1-2)  
Discussion Board Research Brief 1 (MLO 3)  
Research Brief 2 (MLO 1-2)  
Discussion Board Research Brief 2 (MLO 3) |
| 2 | Architecture Frameworks       | 1. Identify enterprise architecture frameworks used by government and business today for planning and designing of advanced systems. | 1. Find and report on architecture methods and techniques.  
2. Study current cases and report on how architecture is handled in each case.  
3. Discuss architecture methods and practices across industry. | Research Paper Title and Synopsis (MLO 1)  
Research Brief 3 (MLO 1-2)  
Discussion Board Research Brief 3 (MLO 3) |
| 3 | Standards & Guidelines        | 1. Identify enterprise architecture frameworks used by government and business today for planning and designing of advanced systems. | 1. Find and report on standards and processes.  
2. Study and Summarize current standards and/or process case studies in industry and report on how enterprise architecture is handled in each case.  
3. Collaborate on architecture frameworks and practices across industry. | Research Annotated Outline and Bibliography (MLO 1-2)  
Case Study 1 (MLO 2)  
Discussion Board Case Study 1 (MLO 3)  
Research Brief 4 (MLO 1)  
Discussion Board Research Brief 4 (MLO 3) |
| 4 | Architecture Research         | 3. Utilize and synthesize internet research in enterprise architecture frameworks and report on findings.         | 1. Develop a research paper on a selected architecture topic.  
2. Present a summary of the research findings on a selected architecture framework or business process topic.  
3. Collaborate on research findings from learners. | Architecture Framework Research Paper (MLO 1)  
Research Brief 5 (MLO 2)  
Discussion Board Research Brief 5 (MLO 3)  
Research Paper Presentation (MLO 2) |
| 5 | BPM and Enterprise            | 3. Utilize and synthesize internet                                                                          | 1. Utilize and report on business process management topics. | Case Study 2 (MLO 1-3)  

| Architecture Research | 2. **Synthesize** current standards and/or business process cases in industry.  
3. **Report** on how business process is handled in each case.  
4. **Discuss** business process practices across industry. | Continue Research Papers (MLO 1-3) |
|------------------------|--------------------------------------------------------------------------------------------------|----------------------------------|
| 6 Applied Enterprise Architecture Practices | 1. **Identify** enterprise architecture frameworks being utilized by government and business today for planning and designing of advanced systems.  
(MLO 4-5)  
4. **Apply** a selected enterprise architecture framework to real world software engineering problem in an enterprise. (MLO 1-3) | **Research Brief 6** (MLO5)  
Discussion Board Research Brief 6 (MLO5)  
Team Project Deliverable 1 Report (MLO 1-3)  
Architecture Project Deliverable 2 Report & PPT (MLO 1-3)  
Architecture Project Deliverable 3 & 4 Report & PPT (MLO 1-3)  
Case Study 3 (MLO 5)  
Final Exam (MLO4) |

**Research Briefs:**
Research briefs will be required every other week and each research brief will be worth 20 points, 10 points for the report and a 5 minute briefing in class, and 10 points for discussion board posting. There will be 6 briefs each worth the same amount with the total worth 120 points of the final grade. Utilize the references, links provided in class, or other Internet sites, library materials, periodicals, etc. For example, it can be on architecture framework standards, tools, application of architectures in industry or government, etc. Submit to eCampus by 6 PM the day before class. At the beginning of each class we will take a few minutes to discuss the briefs.

**RESEARCH BRIEF RUBRIC (Total 20 points x 6 briefs =120 points)**

| Formatting/Grammar | Microsoft Word or comparable application that can be converted easily by MS Word, ½ page to no greater than 1 page, 1” margins, 12 pt Times New Roman, single spaced, double spaced paragraphs, Footnotes used for references – hyperlink only is acceptable, at least two references must be used. No Grammar and Spelling errors. | 5 points for compliance  
0 points for noncompliance |
<table>
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<tbody>
<tr>
<td>Topic Selection/Presentation</td>
<td>Within the scope of</td>
<td>5 points for compliance</td>
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</table>
Architecture Frameworks or Business Process Management
Emerging and innovative ideas or added knowledge to class lectures
Different from previous briefs. Presented brief in class within 5 minutes.

| Discussion Board Posts | 2 sentence overview of your brief posted. 2 comments or questions related to another class member’s brief. | 10 points for compliance 5 points for partial compliance 0 points for noncompliance |

**Case Studies:**
Case Studies will be given approximately every fourth or fifth week and each case study will be worth 30 points, 10 points for the discussion board posts, 5 points for in class discussion, and 15 points for completed questions. There will be 3 case studies each worth the same amount with the total worth 90 point of the final grade. The specific Case Study will be provided in eCampus the day it is assigned. Submit to eCampus by 6 pm, the day it is due. At the beginning of each class we will take a few minutes to discuss the case study.

**CASE STUDY RUBRIC (Total 30 points x 3 case studies = 90 points)**

| Formatting/Grammar | Microsoft Word or comparable application that can be converted easily by MS Word, short answer questions that can be bulleted and directly from case study, include questions prior to each answer, 1” margins, 12 pt Times New Roman, single spaced. No Grammar and Spelling errors. | 5 points for compliance 0 points for noncompliance |
| Case Study Response | Answered correctly all questions. Has rationale behind answers. Shared in class some of your answers. | 15 points for compliance Partial credit per question based upon Case Study 0 points for noncompliance |
| Discussion Board Posts | Initiate a specific discussion on one of the questions. Post 1 comment on 3 different classmates initiated discussion. | 10 points for compliance 5 points for partial compliance 0 points for noncompliance |

**Individual Research Paper:** You are required to select a topic within the architecture framework field of study and approved by the instructor. You will turn in a title and synopsis worth 10 points of your grade, an annotated outline worth 90 points of your grade, the final research paper worth 150 points of your grade. You will provide a brief presentation worth 40 points of your grade before the instructor and other students in eCampus.

**RESEARCH PAPER PRESENTATION RUBRIC (Total 40 points)**

| Formatting/Grammar | Microsoft PowerPoint or comparable application that can be converted easily by MS PowerPoint of your research | 20 points for compliance Partial credit will be given: -5 points grammar/ spelling errors found |
RESEARCH PAPER RUBRIC (Total 250 points)

<table>
<thead>
<tr>
<th>Final Paper Formatting/Grammar</th>
<th>Research Paper Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Microsoft Word or comparable application that can be</strong></td>
<td>Presented clearly and followed slide material. (5 points)</td>
</tr>
<tr>
<td><strong>converted easily by MS Word,</strong></td>
<td><strong>Demonstrated knowledge of topic. (5 points)</strong></td>
</tr>
<tr>
<td><strong>1” margins, 12 pt Times New Roman,</strong></td>
<td><strong>Topic within paper was covered in summary. (5 points)</strong></td>
</tr>
<tr>
<td><strong>double spaced, tab paragraphs,</strong></td>
<td><strong>Questions/Answered session clearly showed signs of topic knowledge. (5 points)</strong></td>
</tr>
<tr>
<td><strong>footnotes at bottom of page.</strong></td>
<td><strong>20 points for compliance</strong></td>
</tr>
<tr>
<td><strong>Title Page:</strong></td>
<td><strong>Partial credit will be given based upon assigned percentages in requirement column.</strong></td>
</tr>
<tr>
<td><strong>Content:</strong></td>
<td><strong>0 points for noncompliance</strong></td>
</tr>
<tr>
<td><strong>No less than 10 pages and no greater than 15 pages,</strong></td>
<td><strong>0 points for noncompliance</strong></td>
</tr>
<tr>
<td><strong>count excluding title and bibliography pages.</strong></td>
<td><strong>10 points for compliance</strong></td>
</tr>
<tr>
<td><strong>Bibliography:</strong></td>
<td><strong>-5 points for each noncompliant area found.</strong></td>
</tr>
<tr>
<td><strong>No less than 5 references [This means separate PRIMARY sources; reuse of a single route URL such as <a href="http://www.wikipedia.org">www.wikipedia.org</a> or <a href="http://www.enterprise-architecture.info">www.enterprise-architecture.info</a> counts only once]</strong></td>
<td><strong>50 points Formatting see above</strong></td>
</tr>
<tr>
<td><strong>You must use the MLA Handbook Eighth Edition.</strong></td>
<td><strong>100 points for compliance</strong></td>
</tr>
<tr>
<td><strong>You may use the free citation builder available from the WVU Library online at <a href="http://www.libraries.wvu.edu/instruction/citationbuilder/">http://www.libraries.wvu.edu/instruction/citationbuilder/</a> to help you build your bibliography.</strong></td>
<td><strong>-5 points for each noncompliant area found.</strong></td>
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**Title Selection and Synopsis**
- Topic must be within the architecture frameworks domain. Synopsis should be one paragraph no longer than ½ page single spaced describing purpose and objectives of research.

**Annotated Outline and Draft Bibliography**
- Outline that is annotated with brief discussion in a few sentences about what will be the intent of content under each heading.
- No less than 5 references [This means separate PRIMARY sources; reuse of a single route URL such as www.wikipedia.org or www.enterprise-architecture.info counts only once]
- Does not have to be complete, can vary from final.

**Final Research Paper**
- Must meet formatting requirements above.
- Organization is easy to follow by reader.
- Some information presented on the topic is new from all other course materials presented in class.
- Rationale provided on topic is logical.
- References are verifiable and represent experts on topic.

-5 points for difficult to read
-5 points for organized well
-5 points for too much information
0 points for noncompliance
**Enterprise Architecture Team Project**: During this course, you are expected to work in a group of 3 or 4 students to develop As-Is and To-Be architecture artifacts covering material presented in this course. The details will be defined by the teams using real world enterprises selected approximately the 4th week of the semester. Additional instructions on specific project deliverables will be provided by the instructor throughout the course. In addition to these deliverables you and your group members will also be required to present the results of your work in a formal oral and PowerPoint presentation, on e-campus before the instructor and students, during the final weeks of the course before finals week. Keep in mind the structure of the project requires everyone to do an equal number of deliverables.

**ENTERPRISE ARCHITECTURE TEAM PROJECT (Total 250 points)**

<table>
<thead>
<tr>
<th>Deliverable</th>
<th>Description</th>
<th>Points</th>
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<tbody>
<tr>
<td>Team Formation and Customer Selection</td>
<td>Think about an organization you can bring to the team to help in selecting your team’s organization for the project. Provide the name of the customer selected.</td>
<td>20 points</td>
</tr>
</tbody>
</table>
| Discussion Board | Team discussion regarding formation and customer selection to include:  
- What organizations are considered?  
- Who makes the arrangements?  
- Division of Labor?  
- Uniformity of Presentation both of Slides and Reports.  
Each member of the team provides at least 2 posts to the discussion. Note: You can use off resources, email, and phone to continue project work but must use eCampus for the two initial planning posts. | 30 points for compliance, 0 points for noncompliance |
| Deliverable 1 – EA Framework Selection and Customization | Team Member 1 Presents PowerPoint slide with team name, assignments, business overview, frameworks considered, reason for framework selected.  
15 Minutes to present with 5 minutes discussion.  
Provide a Project Report that discusses:  
Project Name  
Team responsibilities and assignments (summary from discussion board posts above)  
Name of organization selected (what they do)  
Current organization environment, how managed now  
Architecture Framework Selection process used (serious considerations)  
Rationale for selecting the framework used. | 50 points in compliance, 20 points for PowerPoint Slide, 10 points for Presentation, 20 points for SOP Report |
| Deliverable 2 – Enterprise Architecture Business View | Team Member 2 provides:  
PowerPoint Briefing – EA Business View:  
The Perspective is as a training tool to the organizations personnel.  
15 Minutes to Present with 5 minutes discussion.  
EA Business View Report:  
Must be in the format the team determines best to communicate to management. To include:  
Organizational chart type diagram for enterprise, Activity Model such as UML diagrams for two processes that relate/connect – have touch points. | 50 points in compliance, 20 points for PowerPoint Slide, 10 points for Presentation, 20 points for SOP Report |
| Deliverable 3 – Enterprise Architecture System View | Team Member 3 provides:  
PowerPoint Briefing – Requirement:  
Address System View based upon framework selected. Discuss different diagrams, any findings or thoughts from documenting As-Is such as ideas to move to To-Be. | 50 points in compliance, 20 points for PowerPoint Slide, 10 points for Presentation |
15 Minutes to present with 5 minutes of Q/A discussion.  
EA System View Report – Requirements:  
Discuss System Views based upon framework used, discussion on different diagrams, any findings or thoughts from documenting As-Is environment.  

20 points for SOP Report

6

Deliverable 4 – Enterprise Architecture Technical View

Team Member 4 provides:  
PowerPoint Briefing – Requirement:  
Slides presenting Technical Architecture based upon framework used, discussion on diagrams, any findings or thought from documenting As-Is such as ideas to move to To-Be.  
15 Minutes to Present with 5 minutes discussion.  
EA Technical View Report – Requirements:  
Includes technical baseline description based on deliverables 2 & 3 and technical principles, technical views (models) for two processes in deliverable 2 & 3.  

50 points in compliance.  
20 points for PowerPoint Slide  
10 points for Presentation  
20 points for SOP Report

Final Exam: The test is designed to gauge the student’s understanding of topics covered in assigned reading, lectures, and homework assignments. The final will be comprehensive. The primary focus will be on all the course materials including that presented by the class. The ‘take home’ exam will be in essay format and you will be given one week to complete the final exam. No outside sources will be allowed, only the materials found in the course folders. Final Exam Rubric will be provided on the exam and discussed in class during the review.

Academic Integrity: Students who practice academic dishonesty, such as cheating or plagiarism, will be penalized. Severe penalties will follow from the discovery of any representation of another individual’s work (in any form) as your own (i.e., copying any portion of written assignments or exams). Check the MLA Handbook for Writers of Research Papers Eighth Edition (ISBN: 978-8900720211) for proper citation of others’ work to avoid plagiarism in written assignments. Penalties range from a grade of “zero” on the assignment in question to an “unforgivable F” in the course.

If you have not already done so please go to the website https://lib.wvu.edu/plagiarism and take the exam. Complete the Tutorial & Take the Test. Please e-mail the test results to the Software Engineering Program Coordinator, Dale.Dzielski@mail.wvu.edu. Please refer to the New Student Orientation Manual for Online Courses at https://online.wvu.edu/sites/default/files/Images/Students/docs/NewStudentOrientationManual.pdf. The document provides information on eCampus, Mix, STAR, Help Desk, refund policy, WVU Bookstore and important phone numbers.

Attendance Policy: Students are expected to attend every class. Archives are made available to review if missed due to personal or work related absence that should be communicated with instructor when possible. Consistent with WVU guidelines, students absent from regularly scheduled examinations because of authorized University activities will have the opportunity to take them at an alternate time. Make-up exams for absences due to any other reason will be at the discretion of the instructor.

Inclusivity Statement: “West Virginia University community is committed to creating and fostering a positive learning and working environment based upon open communication, mutual respect, and inclusion.

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangement with Disability Services (293-6700). For more information on West Virginia University's Diversity, Equity, and Inclusion initiatives, please see http://diversity.wvu.edu.