SIQUIJOR STATE COLLEGE
North Poblacion, Larena, Siquijor

BS IN INFORMATION TECHNOLOGY

SIA 302 - Software Integration & Architecture 2
2nd Semester SY: 2023-2024

COURSE SYLLABUS

COURSE INFORMATION	
COURSE CODE	SIA 302
COURSE TITLE	System Integration and Architecture 2
COURSE CREDIT	3 (2 lecture; 1 lab)
CLASS HOURS	90 hours
COURSE PREREQUISITE/ CO-REQUISITE	
COURSE SCHEDULE	
UNIVERSITY VISION, MISSION, QUALITY POLICY, INSTITUTIONAL OUTCOMES AND PROGRAM OUTCOMES	
UNIVERSITY VISION	
UNIVERSITY MISSION	
QUALITY POLICY	
INSTITUTIONAL OUTCOMES	

PROGRAM OUTCOMES

GRADUATE ATTRIBUTES	PROGRAM OUTCOMES	PERFORMANCE INDICATORS
Knowledge for solving computing problems	1. Apply knowledge of computing, science, and mathematics appropriate to the discipline	1. Identify or determine the techniques, tools, methodologies to be used given a particular scenario that involves computing, science, and mathematics 2. Compare different tools, techniques, methodologies as to their pros and cons that will help in decision making
	2. Distinguish best practices and standards and their applications	1. Identify the characteristics that conforms to standards and their best practices 2. Compare and contrast tools and methodologies in terms of best practices, standard and their application
Problem analysis	3. Analyze complex problems, and identify and define the computing requirements appropriate to its solution	1. Analyze complex problems 2. Identify and define the complexity requirements appropriate to its solution
	4. Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems	1. Analyze the user's needs and take them into account in the selection, creation, evaluation and administration of computer-based systems. 2. Identify the user's requirements and take them into account in the selection, creation, evaluation and administration of computer-based systems.
Design, development of solutions	5. Design, implement, and evaluate computer-based systems, processes, components, or programs to meet desired needs and requirements under various constraints	1. Translate specification into a design 2. Design software to meet desired needs under various constraint 3. Design a database to meet desired needs for storing data under various constraints 4. Design networks to meet desired needs for sharing information under various constraints 5. Design a hardware infrastructure to meet desired processing needs under various constraints 6. Implement a network to meet desired needs for sharing information under various constraint 7. Implement database to meet desired needs for storing data under various constraint 8. Implement a software to meet desired needs for task under various constraints

		9. Evaluate software on its functionality and level of satisfying user requirements for task under various constraint 10. Evaluate an existing network for its level of satisfying user requirements for under various constraint
	6. Integrate IT-based solutions into the user environment effectively	1. Implement a network to meet desired needs for sharing information under various constraint 2. Implement database to meet desired needs for storing data under various constraint 3. Implement a software to meet desired needs for task under various constraints 4. Evaluate software on its functionality and level of satisfying user requirements for task under various constraint 5. Evaluate an existing network for its level of satisfying user requirements for under various constraint
Modern Tool Usage	7. Apply knowledge through the use of current techniques, skills, tools and practices necessary for the IT profession	1. Evaluate techniques, methodologies, standards/frameworks and tools for its appropriateness to the IT Infrastructure to be designed and managed considering its advantages and limitations. 2. Select, use and adapt appropriate techniques, methodologies, standards/frameworks and tools the IT Infrastructure to be designed and managed.
Individual and Team Work	8. Function effectively as a member or leader of a development team recognizing the different roles within a team to accomplish a common goal	**Team member:** 1. Independently source necessary knowledge, assistance, skills and resources to complete tasks. 2. Performs tasks effectively to accomplish a common goal **Leader of a team:** 3. Set proper goals and timeline of activities to complete team objectives 4. Allocate task according to team member capabilities 5. Monitor task completion and performance of team member 6. Provide expertise, assistance and support to team members to achieve of team goals 7. Resolve and reduce conflicts within the team
	9. Assist in the creation of an effective IT project plan	1. Perform task in the creation of an effective IT project plan 2. Create an effective IT project plan
Communication	10. Communicate effectively with the computing community and with society at large about complex computing activities through	1. Interview clients to gather background information, situation, existing concerns and issues necessary to frame and achieve common understanding of problems to be addressed by computing solutions 2. Write effective reports and documentations about the results of performing specific computing and professional tasks 3. Write documentations (including design documentations) completely and comprehensively, with appropriate tone, correct grammar and

	logical writing, presentations, and clear instructions	construction, adapting to documentation standards, to communicate ideas, choices, assumptions, and consequences of decisions 4. Develop effective presentation material that will enhance understanding of ideas being communicated 5. Deliver presentations effectively and efficiently to various audience (computing community, society at large, and users) using English and Filipino as needed, with appropriate tone, correct grammar and construction 6. Choose appropriate language suitable to the audience and respectful to the audience background and culture 7. Provide clear instructions to team members
Computing Professionalism and Social Responsibility	11. Analyze the local and global impact of computing and information technology on individuals, organizations, and society	1. Analyze the local impact of computing and information technology on individuals, organizations, and society 2. Analyze the global impact of computing and information technology on individuals, organizations, and society 3. Make design and implementation decision considering the impact of IT on individuals, organizations, and society 4. Provide /conceptualize solutions to domain where IT is needed 5. Evaluate the impact of this solutions to individuals, organizations, and society
	12. Understand professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology	1. Make decisions considering professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology 2. Assess professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology
Life-Long Learning	13. Recognize the need for and engage in planning self-learning and improving performance as a foundation for continuing professional development	1. Reflect on own abilities and skills to determine necessary development needs to reach level of expectations and aspirations as a computing professional 2. Prepare a personal development plan for continuing professional 3. development 4. Engage independently in developmental activities (like participating in professional organizations, attendance to seminars and training) as a result of recognizing the need to further and continuously develop one's competencies as a computing professional 5. Evaluate achievements and deficiencies against own's personal development plan

COURSE DESCRIPTION

The course focus in the concepts of enterprise architecture and application integration. It describes data, application and technology needed to create business solution to organizations. Principles and major frameworks in EA (Enterprise Architecture) will be introduced as well as the techniques and strategies in designing and planning and managing an enterprise architecture.

COURSE OUTCOMES

COURSE OUTCOMES (CO)	PROGRAM OUTCOMES CODE (PO)
1. Explore the different components and domains in Enterprise Architecture and underlying principles and concepts.	Distinguish best practices and standards and their applications
2. Develop skills in the creation and management of an Enterprise Architecture using various frameworks and methodologies.	Apply knowledge through the use of current techniques, skills, tools and practices necessary for the IT profession
3. Integrate support tools and web service technologies to existing applications to design appropriate business solutions to organizations.	Design, implement, and evaluate computer-based systems, processes, components, or programs to meet desired needs and requirements under various constraints

COURSE LEARNING PLAN

Course Outcome/s	Learning Outcomes	Topics	Hours Lec/Lab	Learning Activities Face-to-Face and Remote Teaching	Learning Materials and Platform	Assessment
	Recall the topics to be covered and relate those topics to the coverage of Operating System Concepts. Recall the policies and guidelines. Express the expected requirements to be delivered.	Course Orientation	1	• Presentation and explanation of the VGMO • Discussion on course policies and requirements	Modules/study guide Web link	
CO1	Understand the underlying concepts, value and risk of an Enterprise Architecture.	The Concept of Enterprise Architecture (EA)	5	Face-to-Face • Lecture/discussion	Modules/study guide Web link	• Learning activity

		• Overview of Enterprise Architecture • Enterprise Structure and Types • Architecture Value, Myths and Risks		Remote Learning • Online class • Online/homework assignment	**References** 4, 8, 10	
CO1	Understand different EA frameworks, methodologies and domains.	Enterprise Architecture Components • Frameworks and Methodology • Layers, Domains and Artifacts	10	Face-to-Face • Lecture/discussion Remote Learning • Online class • Online/homework assignment	Modules/study guide Web link **References** 4, 8, 10	• Learning activity • Quiz
CO1, CO2	Understand terminologies used in EA models and create management plan while applying existing framework and methodologies.	Developing an Enterprise Architecture • Architectural Views and View Points • EA Management Plan and Structure	10	Face-to-Face • Lecture/discussion Remote Learning • Online class • Online/homework assignment	Modules/study guide Web link **References** 4, 9, 11, 12	• Learning activity
CO1, CO2	Understand the role of an EA management plan and the importance of project management. Identify security policies and repository management methods in an Enterprise Architecture.	Using an Enterprise Architecture • Planning and Project Management • Security • Repository Management	10	Face-to-Face • Lecture/discussion Remote Learning • Online class • Online/homework assignment	Modules/study guide Web link **References** 1, 4	• Learning activity • Quiz

	Identify support tools in project management and planning.	• Support Tools • Tools Standardization				
CO1	Understand essential concepts in SOA and its role in business.	Service Oriented Architecture (SOA) • Overview of SOA • Myths and Facts • SOA Model • SOA Evolution	5	Face-to-Face • Lecture/discussion Remote Learning • Online class • Online/homework assignment	Modules/study guide Web link **References** 2, 4, 5	• Learning activity • Quiz
CO3	Understand different web service technologies. Integrate between technologies and existing applications. Evaluate different integrating technologies.	Integrating Technology • XML Technology and Integration • Introduction to Web Service Technologies • XML and databases	15	Face-to-Face • Lecture/discussion Remote Learning • Online class • Demonstration • Online/homework assignment	Modules/study guide Web link **Reference** 3	• Learning activity • Midterm Exam
CO3	Understand application integration and its levels. Identify best practices in application integration. Evaluate the strategies in application integration.	Integrating Applications • Application Integration Concepts • Levels of Application Integration • Legacy Integration • Web Services Integration and Strategies	5	Face-to-Face • Lecture/discussion Remote Learning • Online class • Online/homework assignment	Modules/study guide Web link **Reference** 4, 10	• Learning Activity • Quiz

CO3	Identify and analyze XML integration best practices	Integrating the Enterprise • XML Integration Best Practices • Best Practices and Strategies • Enterprise Integration	10	Face-to-Face • Lecture/discussion Remote Learning • Online class • Online/homework assignment	Modules/study guide Web link **Reference** 4, 10	• Learning Activity
CO1, CO2	Understand the concepts of MDA. Understand the different languages and supporting tools in MDA.	Model Driven Architecture (MDA) Fundamentals • Terms & Concepts • MDA Approach and Tools • Components of MDA • MDA Models • Mapping, Metamodels and Language	10	Face-to-Face • Lecture/discussion Remote Learning • Online class • Demonstration • Online/homework assignment	Modules/study guide Web link **Reference** 4, 6	• Learning Activity • Quiz
CO1, CO2, CO3	Understand the MDA process and framework.	MDA Process • Building Blocks of MDA Framework • Building and Executing the MDA Process	5	Face-to-Face • Lecture/discussion Remote Learning • Online class • Online/homework assignment	Modules/study guide Web link **Reference** 4, 6	• Learning Activity • Quiz
CO1	Understand futures trends in EA.	Future Trends and Review on Previous Topics	5	Face-to-Face • Lecture/discussion Remote Learning • Online class • Online/homework assignment	Modules/study guide Web link	• Learning Activity • Final Exam

COURSE REFERENCES AND SUPPLEMENTAL READINGS

A. Books and E-books

1. Collier, M. and Shahan, R. (2016). Microsoft Azure Essentials, 2nd Edition. Retrieved from https://www.onlineprogrammingbooks.com/microsoft-azure-essentials-fundamentals-azure-second-edition/
2. Richards, M. (2016). Microservices vs Service-Oriented Architecture. Retrieved from https://cloud.redhat.com/hubfs/pdfs/Microservices_vs_SOA_OpenShift.pdf?hsLang=en
3. Jacobs, S. (2006). Beginning XML with DOM and Ajax. Retrieved from https://freepdf-books.com/download/?file=7072
4. Sparx System and Maguire, S. (2020). Enterprise Architecture. Retrieved from https://www.sparxsystems.com/resources/user-guides/15.1/guidebooks/enterprise-architecture.pdf
5. The Open Group (2007). Service Oriented Architecture (SOA) in the Real World. Retrieved from http://s3.beckshome.com/20070727-SOA-In-The-Real-World.pdf
6. The Fast Guide to Model Driven Architecture (omg.org). https://www.omg.org/mda/mda_files/Cephas_MDA_Fast_Guide.pdf

B. Electronic Sources

7. Baca, M. (2006). Introduction to Metadata. Retrieved from http://www.getty.edu/publications/intrometadata/
8. What is Enterprise Architecture? (visual-paradigm.com). https://www.visual-paradigm.com/guide/enterprise-architecture/what-is-enterprise-architecture/
9. Developing a Standard Enterprise Architecture Practice (Intel). Retrieved from https://www.intel.com/content/dam/doc/white-paper/intel-it-it-leadership-developing-a-standard-enterprise-architecture-practice-paper.pdf
10. Introduction to Enterprise Architecture, part 3 (oracle.com). Retrieved from https://www.oracle.com/technical-resources/articles/enterprise-architecture/introduction-part3.html
11. Developing Architecture Views (opengroup.org). Retrieved from https://pubs.opengroup.org/architecture/togaf8-doc/arch/chap31.html
12. ArchiMate 2.1 Specification - Chapter 8 (opengroup.org). Retrieved from https://pubs.opengroup.org/architecture/archimate2-doc/m/chap08.html#:~:text=Viewpoints%20define%20abstractions%20on%20the%20set%20of%20models,isolation%2C%20and%20to%20relate%20two%20or%20more%20aspects.

ASSESSMENT AND GRADING

Grading Criteria:

Major exam - 40%
Attendance - 10%
Assignments - 10%
Project - 20%
Quiz - - 20%

100%

Semestral Grade = ½ Midterm Grade + ½ Final Grade

COURSE POLICIES AND EXPECTATIONS

Lecture Class Policies (Residential Class)

FACULTY CONTACT INFORMATION	
NAME	Engr. Josephine C. Muñasque, MSIT
DESIGNATION	Instructor I
MOBILE PHONE NUMBER	+639177772482
E-MAIL ADDRESS	jomunasque19@gmail.com
CONSULTATION SCHEDULE	TTH 4:00-5:00 PM
ROOM LOCATION	2ND Floor COT Building

Prepared by:	**Recommended by:**	**Approved:**
Engr. Josephine C. Muñasque, MSIT	Rolito Estrellado, PhD.	Mary Ann M. Temprosa, PhD, CESE
Faculty	Dean, College of Technology	Vice President for Academic Affairs