Associate of Science in Software Development

Course Name	Upon completion of this program, the student will be able to:	PLO1 -Describe the concept of Software Development, its basic principles, and rules.	PLO2 - Describe some of the most used digital languages in industry, their strengths, and applications.	PLO3 - Explain data structure and system design techniques for solving problems in different environments and contexts.	PLO4 - Apply project management methodologies and skills of web development projects in a variety of organizational environments.	PLO5 - Utilize foundational general education knowledge and skills, including those involved in mathematics, humanities, natural sciences, and communication, in software development and design projects.
FSDI 101: Introductory HTML & CSS						
Define the basic HTML components such as Structure, Text, Lists, and Links.	X = See key below	WE, RQ and FE				
	IRM	I				
Explain CSS aspects such as Color, Text, Boxes, as well as HTML 5 layout and practical information.	X = See key below	P, WE and FE				
	IRM	I				
FSDI 102: Intermediate HTML & CSS						
Demonstrate skill proficiency in aspects of HTML such as Loops, Images, Tables, Forms, Markup, Video, and Audio	X = See key below	WE, RQ and FE				
	IRM	R				
Describe CSS aspects such as List, Tables, Forms, Images, and HTML 5 Layout.	X = See key below	P and FE				
	IRM	R				
FSDI 103: Programming Fundamentals						
Explain the concept of variables.	X = See key below	P and FE				
	IRM	I				
Apply conditional statements and loops.	X = See key below	P and FE				
	IRM	I				
Develop programming functions that meet defined specifications	X = See key below	P, QR and FE				
	IRM	I				
FSDI 104: JavaScript Fundamentals						
Apply the Document Object Model.	X = See key below	P, WE and FE				
	IRM	I				
Describe JavaScript functions, as well as Object Literal and Constructor.	X = See key below	P, RQ and FE				
	IRM	I				
FSDI 105: jQuery Fundamentals						
Explain the basic aspects of JavaScript such as Advanced JavaScript Objects, Document Object Model, and Events.	X = See key below	P, RQ and FE	P, RQ and FE			
	IRM	I	I			
Apply fundamental aspects of jQuery such as Query Selector and Functions.	X = See key below	P, RQ and FE	P, RQ and FE			
	IRM	I	I			
FSDI 106: JavaScript and jQuery Solutions						
Describe JavaScript Events and Functions.	X = See key below	P, RQ and FE	P, RQ and FE			
	IRM	R	I			
Demonstrate proficiency in aspects of jQuery and Ajax, such as Server connection (GET, POST) and JSON.	X = See key below	P, RQ and FE	P, RQ and FE			
	IRM	R	I			
FSDI 107: Introductory React						
Produce a single page application using React.	X = See key below	FE and P	FE and P			
	IRM	R	I			
Modify components using React.	X = See key below	P, RQ and FE	P, RQ and FE			
	IRM	R	I			
Illustrate communication between React components.	X = See key below	P, RQ and FE	P, RQ and FE			
	IRM	R	I			
FSDI 108: Introductory Python						
Demonstrate skill proficiency in Python variables, loops, lists, Exception handling, as well as if, for, and functions.	X = See key below	FE, RQ, and P	FE, RQ, and P			
	IRM	R	I			
Explain file management functions such as read, write, and delete.	X = See key below	FE, RQ, and P	FE, RQ, and P			
	IRM	R	I			

FSDI 109: Intermediate React

Apply State Management techniques such as Context API, Store, Actions, and Reducers.	X = See key below	FE, RQ, and P	FE, RQ, and P			
	IRM	R	R			
Describe API endpoint communication with React.	X = See key below	FE, RQ, and P	FE, RQ, and P			
	IRM	R	R			

FSDI 110: Introductory Web API with ASP.net/Flask

Demonstrate skill proficiency in basic aspects of Flask such as RESTful API, Template Rendering, and Database Storage.	X = See key below	FE, RQ, and P	FE, RQ, and P			
	IRM	R	I			
Illiustrate how to serve a React project from a Flask server and connect React with a RESTful API.	X = See key below	FE, RQ, and P	FE, RQ, and P			
	IRM	R	I			

FSDI 111: Intermediate Python and Flask

Describe micro-services with templates for graphical frontends in web applications.	X = See key below	FE, RQ, and P	FE, RQ, and P			
	IRM	R	R			
Explain how to connect applications to databases to allow users to create, read, update and delete persistent records.	X = See key below	FE, RQ, and P	FE, RQ, and P			
	IRM	R	R			

FSDI 112: Introductory Django

Explain installation and configuration in Django.	X = See key below	WE, RQ and FE	WE, RQ and FE			
	IRM	R	I			
Execute a MVC web application with Django, including templates and views.	X = See key below	WE, RQ, P and FE	WE, RQ, P and FE			
	IRM	R	I			

FSDI 113: Intermediate Django

Imlement class based views in Django rest framework.	X = See key below	WE, RQ and FE	WE, RQ and FE			
	IRM	R	R			
Produce a database connection and authentication via Django rest framework.	X = See key below	RQ, P and FE	RQ, P and FE			
	IRM	R	R			

FSDI 114: Algorithms and Data Structures

Demonstrate skill proficiency in data organization, management, and storage formats that enable efficient access and modification.	X = See key below		WE, RQ and FE	WE, RQ and FE		
	IRM		R	I		
Apply algorithms to solve problems.	X = See key below	RQ, P and FE	RQ, P and FE	RQ, P and FE		
	IRM	R	R	I		

FSDI 115: User Experience and Responsive Design

Implement UX Design Fundamentals, Principles, Techniques, and Usability Testing	X = See key below		WE, RQ and FE	WE, RQ and FE		
	IRM		R	I		
Execute Responsive Design functions such as Flexbox basics and media query basics.	X = See key below	RQ, P and FE		RQ, P and FE	RQ, P and FE	
	IRM	R		I	I	

FSDI 116: Software Development Methodology Fundamentals

Explain Scrum in Agile Methodologies.	X = See key below	WE, RQ and FE	WE, RQ and FE	WE, RQ and FE		
	IRM	R	R	I		
Perfrom Test-Driven Methodology including Unit and Acceptance Testing, as well as Refactoring.	X = See key below		RQ, P and FE	RQ, P and FE	RQ, P and FE	
	IRM		R	I	I	

FSDI 117: Agile Architecture and Software Project Management

Apply various aspects of Agile Architecture such as Architectural Styles, Architectural Techniques, SOLID Principles, and Design Patterns.	X = See key below	RQ, P and FE		RQ, P and FE	RQ, P and FE	
	IRM	R		R	R	
Implement Software Project Management effort and cost estimations.	X = See key below	WE, RQ and FE	WE, RQ and FE		WE, RQ and FE	
	IRM	R	R			

FSDI 118: Capstone I: User Experience

Produce a final capstone project proposal inlcluding Responsive Design and Grid Basics.	X = See key below	RQ, P and FE		RQ, P and FE	RQ, P and FE	
	IRM	R		R	R	
Apply the basic aspects of UX Design such as Design Principles and Techniques, Usability Testing, User Testing Surveys and Interviews, Information Architecture, Cognitive Walkthrough, System Usability Scale	X = See key below	RQ, P and FE	RQ, P and FE	RQ, P and FE	RQ, P and FE	

(SUS), and Usability Testing planning.	IRM	R	R	R	R	
FSDI 119: Capstone II: Agile Methodology and Architecture						
Impement a final capstone project with Agile Architecture and defined Styles and Techniques.	X = See key below	RQ, P and FE	RQ, P and FE	RQ, P and FE	RQ, P and FE	
	IRM	R	R	R	R	
Prepare software architecture in a final capstone project.	X = See key below	RQ, P and FE	RQ, P and FE	RQ, P and FE	RQ, P and FE	
	IRM	R	R	R	R	
FSDI 120: Capstone III: Project Management						
Implement Software Project Management tecniques for Effort Estimation, Cost Estimation, and Risk Management.	X = See key below	RQ, P and FE	RQ, P and FE	RQ, P and FE	RQ, P and FE	
	IRM	M	M	M	M	
Apply the basic aspects of Test Driven Development in final capstone project.	X = See key below	RQ, P and FE	RQ, P and FE	RQ, P and FE	RQ, P and FE	
	IRM	M	M	M	M	
MATH 201: Algebra 1						
1. Analyze the real number system.	X = See key below					RA
	IRM					I
2. Solve linear equations and linear inequalities.	X = See key below					RA and RQ
	IRM					I
3. Analyze the concept of functions and their graphs.	X = See key below					RA
	IRM					I
4. Solve linear equations.	X = See key below					RA and CS
	IRM					I
5. Demonstrate proficiency in exponents and polynomials.	X = See key below					RQ and FE
	IRM					I
6. Demonstrate how to factor polynomials.	X = See key below					RA
	IRM					I
7. Demonstrate skill proficiency in rational expressions and equations.	X = See key below					RA and RQ
	IRM					I
MATH 202: Algebra 2						
1. Analyze how to analyze, graph and evaluate linear functions as applied to business scenarios.	X = See key below					RA and RQ
	IRM					R
2. Demonstrate skill proficiency in performing algebraic operations on functions and determine inverses.	X = See key below					RQ
	IRM					R
3. Interpret the relationship between the properties and graphs of polynomial functions	X = See key below					RQ
	IRM					R
4. Solve equations involving logarithmic and exponential functions, including application problems.	X = See key below					RQ and FE
	IRM					R
5.Demonstrate how to work with matrices using a graphing calculator.	X = See key below					RQ
	IRM					R
6. Construct systems of equations from application problems and solve them using various techniques.	X = See key below					RA and RQ
	IRM					R
7. Demonstrate skill proficiency in polynomial, rational and radical relationships.	X = See key below					RQ
	IRM					R
8. Examine conic sections and translations.	X = See key below					RQ
	IRM					R
MATH 203: Quantitative Research Methods						
1. Analyze the concept and method of research planning.	X = See key below					RA
	IRM					R
2. Demonstrate skill proficiency in experimental design, instrument development or selection, and sampling techniques.	X = See key below					RQ
	IRM					R
3. Use data collection technique to describe a problem.	X = See key below					RQ
	IRM					R
4. Apply the techniques of data collection.	X = See key below					RQ and CS
	IRM					R

5. Contrast quantitaive and qualitative research methods.	X = See key below					RA and FE
	IRM					R
ARTS 201: Introduction to Art						
1. Demonstrate art history knowledge through a slide identification exam and an image analysis essay.	X = See key below					RQ
	IRM					I
2. Interpret the quality and conceptual success of a work of art in both Eastern and Western traditions.	X = See key below					RA
	IRM					I
3. Interpret various works in the arts and humanities.	X = See key below					RQ
	IRM					I
4. Analyze the creative process and interpretive performance.	X = See key below					RQ and FE
	IRM					I
5. Demonstrate how to anticpate artistic trends.	X = See key below					RQ
	IRM					I
PHIL 201: Introduction to Philosophy and Ethics						
1. Evaluate the importance of personal and organizational ethics and values.	X = See key below					RQ
	IRM					I
2. Identify personal ethical perspectives and styles that form a basis for ethical decision-making.	X = See key below					RQ
	IRM					I
3. Contrast business ethics to social responsibility.	X = See key below					RQ
	IRM					I
4. Identify business ethics principles that are accepted worldwide.	X = See key below					RQ
	IRM					I
5. Examine basic ethical principles in the context of philosophy and a global environment.	X = See key below					RQ
	IRM					I
HIST 201: World History						
1. Analyze the political, social, economic and cultural history of the world's major civilizations from the period covering human origins to the emergence of modernity at the beginning of the sixteenth century.	X = See key below					RA
	IRM					I
2. Evaluate the important influence of diverse societies on shaping our current cultural experiences and worldviews.	X = See key below					RA and RQ
	IRM					I
3. Categorize the major human civilizations and their influence on modern society.	X = See key below					RQ
	IRM					I
4. Interpret the major characteristics of western civilization.	X = See key below					RQ and FE
	IRM					I
POLI 201: Political Science						
1. Example the major political philosophers, ideologies, and significant events of Western civilization.	X = See key below					RA
	IRM					I
2. Evaluate how the major political philosophers made an impact on governmental processes and institutions of the world.	X = See key below					RQ
	IRM					I
3. Evaluate important political philosophical texts.	X = See key below					RQ
	IRM					I
4. Demonstrate an ability to argue, both in conversation and in writing, about political/philosophical questions.	X = See key below					RQ
	IRM					I
5. Apply benchmarking principles to studying political science and political organizations.	X = See key below					RQ and FE
	IRM					I
HLTH 201: Introduction to Public Health						
1. Analyze the ecological approach to public health.	X = See key below					RA and RQ
	IRM					I
2. Examine the global scope of public health, including developing countries.	X = See key below					RQ and FE
	IRM					I
3. Analyze the integrative approaches to global public health that are locally applicable.	X = See key below					RA and FE
	IRM					I
4. Apply the community-centric approach to public health	X = See key below					RA and FE

4. Apply the community-centric approach to public health.	IRM					I
5. Interpret the imporatance of health and effective communication in the context of global environmental systems.	X = See key below					RQ and FE
	IRM					I

ESCI 201: Environmental Systems

1. Analyze the increasing impact of human population growth on all natural systems.	X = See key below					RA
	IRM					I
2. Examine how natural systems work, including both biological and physical systems supporting life on planet earth.	X = See key below					RA and RQ
	IRM					I
3. Differentiate the issues surrounding the use and management of natural resources by society.	X = See key below					RA
	IRM					I
4. Distinguish the principles of pollution control, toxicology, and risk dealing with environmental degradation.	X = See key below					RQ
	IRM					I
5. Intepret the economic, social, historical, and legal aspects of environmental issues.	X = See key below					RQ and FE
	IRM					I

ENGL 201: English I: Introduction to Composition

1. Utilize the research process to find timely, reputable, and properly attributed sources.	X = See key below					RA and FE
	IRM					I
2. Apply appropriate use of standard English grammar and punctuation.	X = See key below					RQ and FE
	IRM					I
3. Demonstrate an ability to persuade, inform, and entertain in writing.	X = See key below					RQ and FE
	IRM					I
4. Construct a research-based essay with convincing arguments and appealing information.	X = See key below					RA and FE
	IRM					I
5. Demonstrate constructive criticism in writing.	X = See key below					RQ and FE
	IRM					I

SPCH 201: Speech: Oral Communication

1. Differentiate the communication process and characteristics of this competence.	X = See key below					RA and RQ
	IRM					I
2. Examine effective listening skills by evaluating the role of perception and listening habits in communication.	X = See key below					RQ
	IRM					I
3. Apply nonverbal messages with accuracy and effectiveness	X = See key below					RA and RQ
	IRM					I
4. Analyze the role of communication in interpersonal relationships	X = See key below					RA and RQ
	IRM					I
5. Demonstrate own conflict style & demonstrate effective conflict management	X = See key below					FE and RQ
	IRM					I
6. Practice effective group problem solving and practice role flexibility	X = See key below					RA and RQ
	IRM					I
7. Utilize effective delivery style in informal or formal public speaking situations	X = See key below					RQ
	IRM					I
8. Analyze the need to self-monitor personal communication competence	X = See key below					RA and RQ
	IRM					I
9. Use a variety of communication strategies and responses based on situational context, goals, and human needs.	X = See key below					RA and RQ
	IRM					I
10. Demonstrate knowledge of social media options for interpersonal communication.	X = See key below					FE and RQ
	IRM					I

ENGL 202: English II: Reading and Writing Analytically

1. Analyze the structure of information within the field of English Studies.	X = See key below					RQ and RA
	IRM					R
2. Utilize key literary tools to locate relevant information for scientific writing.	X = See key below					RQ and RA
	IRM					R
3. Apply effective search strategies to access relevant information	X = See key below					RQ

3. Apply effective search strategies to access relevant information.	IRM					R
4. Demonstrate critical thinking while evaluating information.	X = See key below					RA
	IRM					R
5. Constrast expository, analytical, and argumentative essays.	X = See key below					RQ and RA
	IRM					R

X = The assessment which measures the stated program objective/outcome.

KEY	
Projects	P
Researched and Critiqued Articles	RA
Review / Discussion Question Responses	RQ
Case Studies	CS
Web Exercises	WE
Final Exam with Essay Questions	FE
Introduced, Reinforced, Mastered	IRM