

Software Development KSAs for Curriculum Alignment

9. Software Verification and Validation						
	KSA Description	Knowledge, Skill, or Ability?	Bloom's Taxonomy Level?	Cross-cutting KSAs	Course Number/Name	Learning Outcome
a	Distinguish among the different types and levels of testing (unit, integration, systems, and acceptance).	Knowledge	1			
b	Describe techniques for identifying significant test cases for integration, regression and system testing.	Knowledge	2			
c	Create and document a set of tests for a medium-size code segment.	Skill	3			
d	Describe how to create and recognize impactful regression tests and automate them.	Knowledge	3			
e	Conduct an inspection or review of software source code for common pitfalls or application of coding standards on a medium sized software project.	Ability	3			
f	Understanding of quality assurance processes, tools, and quality assurance team role in development.	Knowledge	2			
g	Build robust code using exception handling mechanisms.	Skill	3			
h	Describe secure coding and defensive coding practices.	Knowledge	2			
i	Rewrite a simple program to remove common vulnerabilities, such as buffer overflows, integer overflows and race conditions.	Ability	3			
j	Apply a defined coding standard in a small software project.	Skill	3			
k	Adhere to the defined coding standard in the project for new code.	Skill	2			
l	Write a software component that performs some non-trivial task and is resilient to common input and run-time errors.	Ability	5			
m	Be able to give or receive effective peer code reviews of a single commit or function.	Skill	3			