	CoLAB TalentReady IT Pathways Software Development KSAs for Curriculum Alignment				
	6. Software Design				
	KSA Description	**Knowledge, Skill, or Ability?**	**Bloom's Taxonomy Level?**	**Cross-cutting KSAs**	**Notes**
a	Articulate design principles including separation of concerns, information hiding, coupling and cohesion, and encapsulation.	Knowledge	2		
b	Use a design paradigm to design a simple software system, and explain how system design principles have been applied in this design.	Skill	2		
c	Construct models of the design of a simple software system that are appropriate for the paradigm used to design it.	Skill	2		
d	Describe one or more design patterns that could be applicable to the design of a simple software within the context of a single design paradigm.	Knowledge	2		
e	Knowledge of best practices for a particular platform - for instance - iOS, Android, or the Web.	Knowledge	2		
f	Discuss and select an appropriate design paradigm for a simple system for a given scenario.	Skill	3		
g	Create appropriate models for the structure and behavior of software products from their requirements specifications.	Ability	4		
h	Explain the relationships between the requirements for a software product and its design, using appropriate models.	Ability	3		
i	Describe the software architecture for the design of a simple software system.	Skill	3		
j	Identify an appropriate software architecture by differentiating among common software architectures such as 3-tier, pipe-and-filter, message-queue, and client-server for a high-level design.	Skill	3		
k	Investigate the impact of software architecture selection on the design of a simple system.	Skill	4		
l	Apply simple examples of patterns in software design.	Skill	3		
m	Describe a form of refactoring and discuss when it may be applicable.	Knowledge	2		
n	Select suitable components for use in the design of a software product.	Ability	3		
o	Describe pros and cons of building a new component vs adapting an existing component in the design of a software product.	Knowledge	3		
p	Explain the role of objects in middleware systems and the relationship with components.	Skill	4		
q	Refactor an existing software implementation to improve some aspect of its design.	Ability	5		