

Rubric for ISC 1xxx - Computational Thinking

Quantitative/Logical Thinking Competency

Students will demonstrate the ability to:

Competency 1 - Use math/logic models to address real-world problems. (C1)	Analyze the computational approach to common real-world questions by identifying relevant data and processes to be represented, choosing an appropriate model based on reasonable assumptions, and applying standard algorithms whose results can be interpreted, plotted and used to support an argument.	Subscore: -----
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	High Achievement 4	Milestones		Baseline 1
		3	2	
Interpretation (C1)	Student is able to clearly evaluate the role and value of computer algorithms in science and society; able to draw logical inferences from graphs/schematics describing algorithms and plots/tables of output from programs.	Student is able to evaluate the role and value of computer algorithms in science and society; able to draw some logical inferences from graphs/schematics describing algorithms and plots/tables of output from programs.	Student is able to evaluate the role and value of computer algorithms in science and society; able to draw some logical inferences from either graphs/schematics describing algorithms or plots/tables of output from programs.	Student is able to evaluate the role and value of computer algorithms in science and society; unable to draw logical inferences from graphs/schematics describing algorithms or plots/tables of output from programs.
Representation (C1)	Student is able to correctly assess problem information and formulate problem into a specific model from a group of given models; able to explain their reasoning.	Student is able to correctly assess most problem information and usually able to formulate problem into a specific model from a group of given models; able to explain their reasoning in most scenarios.	Student is able to correctly assess some problem information and sometimes able to formulate problem into a specific model from a group of given models; sometimes able to explain their reasoning.	Student is able to correctly assess some problem information but unable to formulate problem into a specific model from a group of given models.
Application/Analysis (C1)	Student is able to apply appropriate computational principles to formulate structure of algorithms for simplified problems of interest to science and society; able to analyze logical, mathematical and computational aspects of the structure.	Student is able to apply appropriate computational principles to formulate structure of algorithms for some simplified problems of interest to science and society; able to analyze logical and computational aspects of the structure.	Student is able to apply given computational principles to formulate structure of algorithms for some simplified problems of interest to science and society; able to analyze some computational aspects of the structure.	Student is able to apply given computational principles to formulate structure of algorithms for some simplified problems of interest to science and society; unable to analyze logical, mathematical or computational aspects of the structure.
Assumptions/Critical Thinking (C1)	Student is able to clearly explain the assumptions made in designing computer algorithms and assess the ramifications of these assumptions.	Student is able to clearly explain some assumptions made in designing computer algorithms and clearly assess most ramifications of these assumptions.	Student is able to explain some assumptions made in designing computer algorithms and assess a few ramifications of these assumptions.	Student is able to assess a few ramifications of given assumptions used when designing computer algorithms.
Communication (C1)	Student is able to communicate all required assignments in a clear, concise manner; able to provide reasoning and quantitative data to support conclusions.	Student is able to communicate most required assignments in a clear, concise manner; able to provide reasoning and quantitative data to support most conclusions.	Student is able to communicate some of the required assignments in a clear, concise manner; occasionally able to provide quantitative data to support conclusions.	Student is able to communicate some of the required assignments in a clear, concise manner; unable to provide reasoning or quantitative data to support conclusions.