Appendix H – Curriculum Map (2022-2023)

Revised 24 June 2019.

I: Introductory course
R: Reinforce course
S: Summative course
*: Indicates those courses may contain the content related to the performance criteria, but do not affect the assessment strategies.

Outcome 1	Performance Criteria	COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	Apply UML interaction diagrams and class diagrams to illustrate object models		I	R	R														S	
	Apply important design patterns to OOD								R										S	
	Create useful software architecture documentation				I				R				R		R		R	S	R	
	Develop correct and efficient programs		I	R	R				S						R		R			S
	Debug implemented software in a proficient		I	R	S	S														S

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		COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	manner																			
	Design user interfaces appropriate to a large software system		I	R											R		R		S	
	Develop user-level documentation for software		I	I	S	R		R	R	R	R	R	R	R	R	R	R	R	S	
Outcome 2.1		COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	Be able to develop software to support specific operations on frequently used discrete structures such as lists, trees, and graphs.				S								*				*			
	Be able to use elementary concepts of combinatorics, probability, and statistics to analyze and evaluate the						I		S											

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Outcome 2.2		COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	efficiency of algorithms.																			
	Be able to use concepts of discrete mathematics, automata, and finite state machines to explain the design of computer hardware				I	R	I	S												
	Demonstrate basic understanding of asymptotic notations and time complexity				I		I		S											
	Design efficient algorithms and compare competing designs				I				S										*	

Outcome 2.3		COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	Demonstrate basic understanding of some design approaches such as greedy algorithms, dynamic programming and divide-and-conquer				I				S											
	Demonstrate familiarity with standard searching and sorting algorithms and linear and non-linear structures				I		I		S											
	Demonstrate basic knowledge of equivalences between various types of languages and corresponding accepting devices including Turing Machines.							S												

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	Demonstrate basic knowledge of practical applicability of various types of grammar and of some standard representation forms							S											
	Demonstrate knowledge of limitations of computational capability of computer grammars							S		R									
	Demonstrate basic knowledge of equivalences and normal forms of logical formulas in propositional logic						I	S		R									
	Demonstrate basic understanding and appreciation of the various essential programming languages constructs, paradigms, evaluation									S									

Outcome	Performance Criteria	COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	criteria, and language implementation issues																			
	Demonstrate basic knowledge and skills in programming techniques with the focus on concepts and not on a particular language											S								
Outcome 2.4	Performance Criteria	COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	Knows the main components of an operating system and their purposes and modes of interaction														S					

Outcome	Performance Criteria	COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	Knows the structure of device drivers and the interaction between device drivers and operating systems.												S							
	Outlines the basic issues in memory management design and virtual memory												S							
	Can develop basic system applications based on operating system APIs												S		R		R			
Outcome 2.5	Performance Criteria	COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	Demonstrate the application of Entity-Relational diagrams to model real world problems.																	S		

Outcome	Performance Criteria	COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	Design relations for real world problems including implementation of normal forms, keys, and semantics constraints for each relation.																	S	R	
	Demonstrate competence in implementations of database applications																	S		
Outcome 2.6	Performance Criteria	COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	Employ the socket API to program applications among independent hosts.														S		S			
	Explain common network architectures, the services provided by each layer, and the protocols required for connecting peer														S		S			

		COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	layers.																			
	Evaluate network models through simulation and the use of common performance metrics for networks.														S		S			
Outcome 2.7	Performance Criteria	COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	Understands modern ISA design principles and employs them to evaluate systems					I								S						
	Know how to measure performance for different computer architectures													S						

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Outcome 3	Performance Criteria	COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	Demonstrate knowledge of hardware implementation of numbers and arithmetic operations					I								S						
	Be able to justify why selected research methods were chosen and state the intended outcomes of the study				I									S	S		S			
	Identify steps used in a particular study				I									S	S		S			
	Be able to outline and explain the key features of the adopted method				I									S	S		S			
	Analyze and interpret collected data based on the adopted method method and draw appropriate				I									S	S		S			

Outcome 4	Performance Criteria	COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	conclusions																			
	Demonstrate understanding of evolving computer technology applications	I									S									
	Demonstrate knowledge of positive social impacts including information globalization, E-Commerce, E-learning and new job creation.	I									S				R		R	*		

		COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	Demonstrate knowledge of negative social impacts including internet pornography, privacy violation, health hazards, computer crimes and dehumanization.	I									S				R			S	*	
	Demonstrate basic understanding of intellectual property protection via copyright and patent law and fair use exception for copyrighted software	I									S							*	S	
Outcome 5	Performance Criteria	COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	Know the differences of various philosophical views on ethics such as deontology,										S									

	utilitarianism, egoism, and relativism.																		
S	Understand the ACM code of ethics or a similar professional body's code of ethics and principles underlying those ethics.									R								S	
	Honor the property rights of others including copyrights and patents	I								S			R					*	
	Demonstrate ability for ethical decision making within the computer profession.	I								S					R			*	
	Demonstrate knowledge of factors affecting fair resolution of conflicts of interests.	I								S								*	

Outcome 6	Performance Criteria	COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	Demonstrate the ability to work in heterogeneous environments which are diverse in gender, ethnicity, and academic accomplishment.	I											R					S	S	
	Attend team meetings and contribute towards solution of technical problems during the meetings	I											R					S	S	
	Make appropriate contributions within their skill set to the completion of the project.	I											R					S	S	
	Demonstrate a sense of interdependence with other team members	I											R					S	S	

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Outcome 7	Performance Criteria	COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	Demonstrate the ability to communicate in a given situation	I									S	S								
	Demonstrate the ability to comprehend what is said and to show an appreciation of the importance of listening	I									S	S								
	Communicate clearly at the level of the audience the technical material intrinsic to the discipline of computer science.	I									S	S								
	Demonstrate knowledge of the communication process.	I									S	S								
Outcome 8	Performance Criteria	COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363

Outcome 9	Performance Criteria	COSC 1172	COSC 1336	COSC 1337	COSC 2336	COSC 2372	COSC 2375	COSC 3302	COSC 3304	COSC 3308	COSC 3325	COSC 4272	COSC 4302	COSC 4310	COSC 4333	CPSC 4302	CPSC 4317	CPSC 4340	CPSC 4360	CPSC 4361 4363
	Provide an introduction that grabs the attention of readers.	I									R	R	S						S	
	Organize documents in terms of a few main points or themes	I									R	R	S						S	
	Choose appropriate illustrations, examples, or evidence to support the written documents	I									R	R	S						S	
	Write appropriately for specified readers in terms of technical content.	I									R	R	S						S	
	Write organized, grammatically correct reports.	I									R	R	S						S	

	Be able to search scholarly publications to assist in resolving problems.										S	S	*								*	
	Intend to engage in additional formal education or participate in employer-related training or research projects											S										
	Independent study. Participate in Honors program or in undergraduate research at Lamar. This could be done in the STAIRSTEP Program, Presentations or Posters at Professional Conferences, COOP or Internship position reports.											S										