Mappings – PEOs to SOs

Program Education Objectives (PEOs) or "Unit Goals":

1. Graduates will be competent professionals, able to:
   a) Employ a pallet of multiple hardware platforms and software development environments, integrated with the appropriate theoretical constructs, to develop practical solutions to technological problems, (b) Deploy those solutions, and (c) Provide for their maintenance and administration.
2. Graduates will be able to effectively integrate research methods, appropriate theory, mathematics, and computational technology to analyze and solve problems encountered in the development of technological solutions.
3. Graduates will be able to assimilate new methodologies and advances in computer technology in an ever-evolving discipline.
4. Graduates will be effective in the elicitation of requirements for a software specification, and the written and oral communication of results to technical and non-technical colleagues and clients.
5. Graduates will be able to work independently and in collaboration with colleagues.
6. Graduates will be able to integrate the ethical standards of the profession and their professional knowledge and skills to contribute to society.

Student Outcomes (SOs) or "Measureable Outcomes":

The nine student outcomes, encompassing all the ABET outcomes for Computer Science, are listed below:

[a] An ability to apply knowledge of computing and mathematics appropriate to the discipline
[b] An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
[c] An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
[d] An ability to function effectively on teams to accomplish a common goal
[e] An understanding of professional, ethical, legal, security and social issues and responsibilities
[f] An ability to communicate effectively with a range of audiences
[g] An ability to analyze the local and global impact of computing on individuals, organizations, and society
[h] Recognition of the need for and an ability to engage in continuing professional development
[i] An ability to use current techniques, skills, and tools necessary for computing practice.
[j] An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
[k] An ability to apply design and development principles in the construction of software systems of varying complexity.

	PEO1	PEO2	PEO3	PEO4	PEO5	PEO6
SO[a]	X	X	X			
SO[b]	X	X		X	X	
SO[c]		X		X		
SO[d]				X	X	
SO[e]						X
SO[f]				X		
SO[g]	X			X		
SO[h]		X				
SO[i]	X		X			
SO[j]	X	X	X			
SO[k]		X		X		

Table [1] Program Educational Objectives and Student Outcomes

Mappings – Courses to SOs

Course	a	b	c	d	e	f	g	h	i	j	k
161	x	x	x						x		
257	x										
280	x	x	x						x		
285			x	x	x	x			x		
290	x	x	x						x		
294	x		x			x		x	x		
315			x	x	x	x	x	x	x		
329			x		x						
375	x	x	x					x	x		
383	x	x	x	x	x	x			x		
390	x	x	x						x		
391	x	x	x						x		
401		x	x					x	x		
409	x	x	x			x		x	x	x	x
411	x	x	x	x		x		x	x	x	x
415		x	x					x	x		x
420			x	x	x	x	x		x		
431	x	x	x						x	x	x
439	x	x	x	x	x	x				x	
441	x	x	x	x				x	x	x	
447	x	x	x	x				x	x		
470	x	x	x	x				x	x	x	
479	x								x	x	
482	x				x	x	x	x			

Table [2] Course – Student Outcome Mapping

Specific Performance Indicators for each SO

(These are Measured by the Corresponding Rubric)

Student Outcomes	Performance Indicators
[a]	● Students understand the foundations of math, logic, and statistics. ● Students can apply this knowledge to algorithm development. ● Students can apply this knowledge to data analysis.
[b]	● Students are able to formulate and decompose a problem into appropriate components. ● Students are able to solicit and formulate software and hardware requirements specifications. ● Students are able to estimate resources required for the proposed solution.
[c]	● Ability to Conceptualize ● Ability to Develop ● Ability to Validate
[d]	● Organization and Responsibilities ● Interaction ● Productivity
[e]	● Students will demonstrate understanding of intellectual property issues. ● Students will demonstrate working knowledge of a code of ethics. ● Students value fairness in making judgments involving discrimination between people and groups. ● Students appreciate the need for proper etiquette and proactive social behavior in professional situations.
[f]	● Preparing Documents and Presentation Materials ● Presentation Delivery
[g]	● Students will demonstrate understanding of various ways in which computing technology impacts individuals, organizations, and society. ● Students will demonstrate ability to analyze and reason about the impact of advances in computer technology ● Students will demonstrate an understanding of the responsibilities of a computing technology professional with respect to individuals and society
[h]	● Students will demonstrate recognition of the need for continuing professional development ● Students will demonstrate familiarity with means for continuing professional development ● Students will demonstrate ability to independently identify and assimilate new information ● Students will demonstrate an ability to criticize and evaluate the quality of new information
[i]	● Ability to do task-specific research to learn new techniques, skills, and tools. ● Students will demonstrate competence with multiple current platforms for computing and development. ● Students will demonstrate competence with a selected set of tools (defined in cooperation with advisory board)*
[j]	● Students demonstrate an ability to apply mathematical foundations in the modeling and design of computer-based systems ● Students demonstrate an ability to apply algorithmic principles in the modeling and design of computer-based systems ● Students demonstrate an ability to apply computer science theory in the modeling and design of computer-based systems ● Students demonstrated an understanding of tradeoffs involved in design choices.
[k]	• An ability to apply design and development principles in the construction of software systems of small-scale complexity. • An ability to apply design and development principles in the construction of software systems of medium-scale complexity. • An ability to apply design and development principles in the construction of software systems of large-scale complexity.

Table [3] Student outcomes and performance indicators

Rubric A

for assessing Student Outcome [a]

"An ability to apply knowledge of computing and mathematics appropriate to the discipline"

Criteria	Good (5 points each)	Average (3 points each)	Below Average (1 pt each)	Score
Students understand the foundations of math, logic, and statistics.	Students are able to: • model and critique complex processes using math expressions, logic, and statistics; • construct formal proofs; • apply models to solve problems.	Students are able to • produce simplified models for processes • understand and reproduce mathematical definitions • apply standardized solution formulas.	• Students are able to recite mathematical definitions but are unable to relate these concepts to typical problems instances. Students are unable to apply standard math techniques or formulas.	
Students can apply this knowledge to algorithm development.	• Students can translate a complex model into code, analyze its complexity and efficiency, and provide formal verification of its correctness.	• Students can implement mathematical algorithms and can correctly code logical expressions.	• Students can implement limited mathematical solutions that operate correctly under normal conditions.	
Students can apply this knowledge to data analysis.	• Students can use statistical concepts to characterize and interpret data and results and apply the conclusions to support algorithm development.	• Students can apply elementary statistics to data sets and draw straightforward conclusions.	• Students can recite definitions of statistical concepts but cannot draw valid conclusions from computed statistics.	
			Total	

Threshold: 70% of the students tested within a two year window should achieve a score of 20 or better.

Rubric B

for assessing Student Outcome [b]

"An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution"

Criteria	Good (5 points each)	Average (3 points each)	Below Average (1 pt each)	Score
Students are able to formulate and decompose a problem into appropriate components.	• Students are able to decompose a problem for efficient implementation, modify the problem definition as new information arrives, and conduct feasibility studies.	• Students are able to cast a problem as a computing problem, adequately decompose the problem into components, and formulate solution strategies.	• Students are able to produce computing formulations only for simple problems that do not require decomposition.	
Students are able to solicit and formulate software and hardware requirements specifications.	• Students are able to develop comprehensive requirements specifications, flexibly integrate new information into them, and estimate behavior of possible solutions.	• Students are able to solicit requirements from users, seek information needed for the solution, and produce a specification document.	• Students are able to develop simple system requirements specifications.	
Students are able to estimate resources required for the proposed solution.	• Students are able to evaluate the space, time, and financial demands of the solution.	• Students are able to map problems components to appropriate languages, platforms, and hardware.	• Students are able to select adequate resources but their choices may not be the most practical or justified.	
			Total	

Threshold: 70% of the students tested within a two year window should achieve a score of 12 or better.

Rubric C

for assessing Student Outcome [c]

"An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs"

Criteria	Good (5 points each)	Average (3 points each)	Below Average (1 pt each)	Score
Ability to Conceptualize	• Able to construct standard design documents to support the approach to a project.	• Able to produce an ad-hoc logical plan and organization of approach.	• Appreciated by project colleagues for contribution, but unable to document role.	
Ability to Develop	• Able to engage in research to find multiple alternatives to well-understood technologies and development methodologies, and use them to produce solutions to a problem.	• Able to apply software engineering principles to produce multiple solutions to a problem, using two or more high level languages.	• Able to produce code in a high-level language to implement a given solution to a problem.	
Ability to Validate	• Able to produce metrics for testing/verification and can identify and minimize sources of experimental uncertainty.	• Able to create a structured set of tests and use them to validate a system's specifications and identify a system's faults.	• Students are able to measure system performance	
			Total	

Threshold: 70% of the students tested within a two year window should achieve a score of 12 or better.

Rubric D

for assessing Student Outcome [d]

"An ability to function effectively on teams to accomplish a common goal"

Criteria	Good (5 points each)	Average (3 points each)	Below Average (1 pt each)	Score
Organization and Responsibilities	• Students recognize team dynamics and work in leadership and non-leadership roles. • Students are able to delegate and accept responsibilities effectively.	• Students can demonstrate the ability to assume a designated role in the group	• Team Roles, leadership roles can be identified	
Interaction	• Students can value alternative perspectives	• Diversity of strengths mutually respected • Sharing and acceptance of ideas	• Dominating individual; limits participation of others. Little contribution to group. Intolerant of other ideas and perspectives	
Productivity	• Students are competent with tools used for team projects. • Students can mentor others	• Students can work with others on teams to solve computer system and software problems • Students can contributes a fair share to the project workload	• Students can routinely present at team meetings or work sessions • Students can share information with others	
			Total	

Threshold: 70% of the students tested within a two year window should achieve a score of 20 or better.

Rubric E

for assessing Student Outcome [e]

"*An understanding of professional, ethical, legal, security and social issues and responsibilities****"***

Criteria	Good (5 points each)	Average (3 points each)	Below Average (1 pt each)	Score
Students will demonstrate understanding of intellectual property issues.	• Students can articulate understanding of multiple points-of-view in an intellectual property issue.	• Students can cite a particular point-of-view relating to an intellectual property issue.	• Students have no more than a personal opinion regarding intellectual property issues.	
Students will demonstrate working knowledge of a code of ethics.	• Students can identify and articulate appropriate elements of a code of ethics in reference to a specific situation.	• Students cite ad-hoc ethical standards or recognize elements of a code of ethics in reference to a situation.	• Students are unable to identify the ethical issues in a situation.	
Students value fairness in making judgments involving discrimination between people and groups.	• Students can recognize biases in decision-making, and can justify an appropriate bias and avoid an inappropriate bias.	• Students can recognize situations where discrimination can arise.	• Students are unable to recognize a situation where discrimination is an issue.	
Students appreciate the need for proper etiquette and proactive social behavior in professional situations.	• Students can suggest remedies for specific situations which create a hostile work environment.	• Students can recognize activities which create a hostile work environment.	• Students cannot recognize activities which create a hostile work environment.	
			Total	

Threshold: 70% of the students tested within a two year window should achieve a score of 15 or better.

Rubric F1

for assessing Student Outcome [f]

"An ability to communicate effectively with a range of audiences"

Criteria	Good (5 points each)	Average (3 points each)	Below Average (1 pt each)	Score
Preparing Documents and Presentation Materials	• Citations provide insightful connections to existing work	• Presentation is free from distracting errors • Citations provide accurate connections to existing work	• Presentation is organized • Citations are inappropriate or incomplete	
Presentation Delivery	• Engaging the audience / motivate • Answers technical and non-technical questions at the appropriate level for each. • Visual aids are original and enhance the presentation	• Students will demonstrate ability to deliver formal oral presentations • Appropriate visual aids are provided • Answers questions	• Visual aids are distracting or non-existent • Inadequate development • No eye contact • Improper tone of voice	
			Total	

Threshold: 70% of the students tested within a two year window should achieve a score of 15 or better.

Rubric F2

for assessing Student Outcome [f]

"An ability to communicate effectively with a range of audiences"

Criteria	Good (5 points each)	Average (3 points each)	Below Average (1 pt each)	Score
Document style and delivery	• Papers accepted • Using advanced tools for visualization, graphing, etc.	• Adequately reporting technical material • Proper format is used for citations • Appropriate document style used	• Able to appropriately document the requirements	
Subject Knowledge	• Insightful connections to existing work are made • Communicates a clear, specific, and full understanding of the topic	• Accurate connections to existing work are made; citations • Communicates adequate understanding of topic	• Citations are inappropriate or incomplete • Communicates little or no understanding of topic	
			Total	

Threshold: 70% of the students tested within a two year window should achieve a score of 18 or better.

Rubric G

for assessing Student Outcome [g]

"An ability to analyze the local and global impact of computing on individuals, organizations, and society"

Criteria	Good (5 points each)	Average (3 points each)	Below Average (1 pt each)	Score
Students will demonstrate understanding of various ways in which computing technology impacts individuals, organizations, and society.	• Key concepts, definitions, and facts associated with positive and negative impacts of computer technology are thoroughly identified, defined and described. • Significant facts and supporting details obtained through appropriate research are included and accurately described. • Has little or no factual inaccuracies.	• Key concepts, definitions, and facts associated with positive and negative impacts of computer technology are adequately identified, defined and described. • Adequate attempts at supporting arguments based on facts or research	• Given a scenario, student is not able to identify any key concepts or ways of potential impact of computing on individuals and society. • Supporting arguments are improvised and not based on facts or research.	
Students will demonstrate ability to analyze and reason about the impact of advances in computer technology	• Identifies and logically organizes almost all relevant evidence. • Uses appropriate and comprehensive critical thinking skills and habits of mind to analyze, evaluate and synthesize evidence. • Reaches informed conclusions based on the evidence.	• Identifies and organizes most of the relevant evidence. • Uses partial critical thinking skills and habits of mind to analyze, evaluate and synthesize evidence. • Reaches informed conclusions based on the evidence.	• Identifies some relevant evidence. • Uses unclear, inappropriate or incomplete critical thinking skills and habits of mind to analyze, evaluate and synthesize evidence. • Reaches incomplete or inaccurate conclusions based on the evidence.	
Students will demonstrate an understanding of the responsibilities of a computing technology professional with respect to individuals and society	• Students can recognize and suggest appropriate remedies for activities involving computing technology which affect adversely users of computing technology	• Students can recognize activities involving computing technology which affect adversely users of computing technology, but cannot come up with adequate plans to counter them.	• Students cannot recognize activities involving computing technology which affect adversely users of computing technology.	
				Total

Threshold: 70% of the students tested within a two year window should achieve a score of 18 or better.

Rubric H

for assessing Student Outcome [h]

"Recognition of the need for and an ability to engage in continuing professional development"

Criteria	Good (5 points each)	Average (3 points each)	Below Average (1 pt each)	Score
Students will demonstrate recognition of the need for continuing professional development	• Students are able to identify the competencies and knowledge required by particular application domains	• Students are able to demonstrate knowledge of the history of computing and the rapidly evolving nature of the computing discipline.	• Students know what skill sets are currently desired by employers	
Students will demonstrate familiarity with means for continuing professional development	• Students can use libraries, online repositories, and web tools for effectively and efficiently identifying information pertinent to given target criteria	• Students are familiar with computer-related professional organizations (ACM, IEEE), publications, and conferences. • Students know about various avenues for professional development past the undergraduate college experience.	• Students are not adequately familiar with computer-related professional organizations (ACM, IEEE), their chapters, publications, and conferences. • Students are not adequately familiar with possible certifications	
Students will demonstrate ability to independently identify and assimilate new information	• Able to articulate how new information relates to prior knowledge. • Appropriately categorizes and classifies information. • Analyzes new content by decomposing, comparing and contrasting, recognizing patterns, and interpreting information. • Able to draw reasonable generalizations on observations and research results. • Able to gain in depth mastery of a new development tool without instructor guidance	• Able to access information effectively and efficiently from a variety of sources. • Students demonstrate the ability to research topics using the web, library, and professional publications. • Ability to determine pertinence and to organize logically almost all the results of his/her research. • Able to gain limited working mastery of a new development tool without instructor guidance	• Limited ability to access information from a variety of sources. • Limited ability to determine pertinence and to organize the results of his/her research. • Able to gain working mastery of a new development tool only under instructor guidance.	
Students will demonstrate an ability to criticize and evaluate the quality of new information	• Students demonstrate ability to reflect on their learning process and their own understanding	Students demonstrate ability to reason by • questioning assumptions, • using lateral thinking, and • making inferences.	• Students do not question the authority of information source or are oblivious to it.	
			Total	

Threshold: 70% of the students tested within a two year window should achieve a score of 35 or better.

Rubric I

for assessing Student Outcome [i]

"An ability to use current techniques, skills, and tools necessary for computing practice"

Criteria	Good (5 points each)	Average (3 points each)	Below Average (1 pt each)	Score
Ability to do task-specific research to learn new techniques, skills, and tools.	• Students are able to research, identify, and learn to use new techniques and tools in non-trivial applications.	• Given specific tasks, students are able to research and successfully identify applicable and appropriate tools. • Students are able to demonstrate understanding of their functionality and reason about suitability	• Students can collect information about relevant techniques and applicable tools but not able to discern functionality and reason about suitability	
Students will demonstrate competence with multiple current platforms for computing and development.	• Students are able to use at least two different hardware platforms for computing. • Students are able to use at least two fundamentally different programming languages for computing. • Students are able to use at least two different software development platforms.	• Students are able to use only one hardware platform or only one programming language or only one tool for software development.	• Students are aware of existing technology, but have limited experience utilizing it	
Students will demonstrate competence with a selected set of tools (defined in cooperation with advisory board)***** **[survey]**	• Students are well-read on the latest technology under development. • Students can use most of the state-of-the-art techniques and tools in the field.	• Students are cognizant of a variety of state-of-the-art techniques and tools in the field, but they can only use a very limited subset of them.	• Students are cognizant of a few developments in techniques and tools in the field, but do not necessarily understand them well.	
			Total	

*****A set of tools, skills, and techniques, considered state-of-the-art in the industry, are determined in cooperation with the advisory board for the purposes of this rubric.

Threshold: 70% of the students tested within a two year window should achieve a score of 25 or better.

Rubric J

for assessing Student Outcome [j]

"*An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices."*

Criteria	**Good (5 points each)**	**Average (3 points each)**	**Below Average (1 pt each)**	**Score**
Students demonstrate an ability to apply mathematical foundations in the modeling and design of computer-based systems	Students are able to: • model and critique complex processes using math expressions, logic, and statistics; • construct formal proofs; • apply models to solve problems.	Students are able to • produce simplified models for processes • understand and reproduce mathematical definitions • apply standardized solution formulas.	• Students are able to recite mathematical definitions but are unable to relate these concepts to typical problems instances. Students are unable to apply standard math techniques or formulas.	
Students demonstrate an ability to apply algorithmic principles in the modeling and design of computer-based systems	• Students can translate a complex model into code, analyze its complexity and efficiency, and provide formal verification of its correctness.	• Students can implement mathematical algorithms and can correctly code logical expressions.	• Students can implement limited mathematical solutions that operate correctly under normal conditions.	
Students demonstrate an ability to apply computer science theory in the modeling and design of computer-based systems	• Students can apply more than one computer science theory in the modeling and design of computer-based systems.	• Students can apply one computer science theory in the modeling and design of computer-based systems.	• Students can recall at least one computer science theory but cannot apply it in the modeling and design of computer-based systems.	
Students demonstrated an understanding of tradeoffs involved in design choices.	• Students demonstrate that they considered more than one design trade off in developing a computer-based system.	• Students demonstrate that they considered one design trade off in developing a computer-based system.	• Students can recall at least one design trade off but cannot apply in developing a computer-based system.	
			Total	

Threshold: 70% of the students tested within a two year window should achieve a score of 15 or better.

Rubric K

for assessing Student Outcome [k]

"*An ability to apply design and development principles in the construction of software systems of varying complexity."*

Criteria	Good (5 points each)	Average (3 points each)	Below Average (1 pt each)	Score
An ability to apply design and development principles in the construction of software systems of small-scale complexity.	• Students can apply more than one design and development principle in the construction of software systems of small-scale complexity.	• Students can one design and development principle in the construction of software systems of small-scale complexity.	• Students recall at least one design and development principle but cannot apply it in the construction of software systems of small-scale complexity.	
An ability to apply design and development principles in the construction of software systems of medium-scale complexity.	• Students can apply more than one design and development principle in the construction of software systems of medium-scale complexity.	• Students can one design and development principle in the construction of software systems of medium-scale complexity.	• Students recall at least one design and development principle but cannot apply it in the construction of software systems of medium-scale complexity.	
An ability to apply design and development principles in the construction of software systems of large-scale complexity.	• Students can apply more than one design and development principle in the construction of software systems of large-scale complexity.	• Students can one design and development principle in the construction of software systems of large-scale complexity.	• Students recall at least one design and development principle but cannot apply it in the construction of software systems of large-scale complexity.	
			Total	

Threshold: 70% of the students tested within a two year window should achieve a score of 12 or better.

Detailed Data Collection Table for Rubric A

Student Outcome [a]

Course:		**Semester:**	
Number of Students:		**Number of Students who satisfied all performance indicators:**	
Performance Indicator	1. Foundations of math, logic, statistics		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	2. Application to algorithm development		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	3. Application to data analysis		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			

Detailed Data Collection Table for Rubric B

Student Outcome [b]

Course:		**Semester:**	
Number of Students:		**Number of Students who satisfied all performance indicators:**	
Performance Indicator	1. Students are able to formulate and decompose a problem into appropriate components.		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	2. Students are able to solicit and formulate software and hardware requirements specifications.		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	3. Students are able to estimate resources required for the proposed solution.		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			

Detailed Data Collection Table for Rubric C

Student Outcome [c]

Course:		**Semester:**	
Number of Students:		**Number of Students who satisfied all performance indicators:**	
Performance Indicator	1. Students will demonstrate the ability to conceptualize		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	2. Students will demonstrate the ability to develop		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	3. Students will demonstrate the ability to validate		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			

Detailed Data Collection Table for Rubric D

Student Outcome [d]

Course:		**Semester:**	
Number of Students:		**Number of Students who satisfied all performance indicators:**	
Performance Indicator	1 Organization and Responsibilities		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	2. Interaction		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	3. Productivity		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			

Detailed Data Collection Table for Rubric E

Student Outcome [e]

Course:		**Semester:**	
Number of Students:		**Number of Students who satisfied all performance indicators:**	
Performance Indicator	1 Students will demonstrate understanding of intellectual property issues		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	2. Students will demonstrate working knowledge of a code of ethics		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	3. Students value fairness in making judgments involving discrimination between people and groups		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	4. Students appreciate the need for proper etiquette and proactive social behavior in professional situations		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			

Detailed Data Collection Table for Rubric F1

Student Outcome [f]

Course:		**Semester:**	
Number of Students:		**Number of Students who satisfied all performance indicators:**	
Performance Indicator	1 Preparing Documents and Presentation Materials		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	2. Presentation Delivery		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			

Detailed Data Collection Table for Rubric F2

Student Outcome [f]

Course:		**Semester:**	
Number of Students:		**Number of Students who satisfied all performance indicators:**	
Performance Indicator	1 Document style and delivery		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	2. Subject Knowledge		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			

Detailed Data Collection Table for Rubric G

Student Outcome [g]

Course:		**Semester:**	
Number of Students:		**Number of Students who satisfied all performance indicators:**	
Performance Indicator	1 Students will demonstrate understanding of various ways in which computing technology impacts individuals, organizations, and society.		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	2. Students will demonstrate ability to analyze and reason about the impact of advances in computer technology		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	3. Students will demonstrate an understanding of the responsibilities of a computing technology professional with respect to individuals and society		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			

Detailed Data Collection Table for Rubric H

Student Outcome [h]

Course:		**Semester:**	
Number of Students:		**Number of Students who satisfied all performance indicators:**	
Performance Indicator	1. Students will demonstrate recognition of the need for continuing professional development		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	2. Students will demonstrate familiarity with means for continuing professional development		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	3. Students will demonstrate ability to independently identify and assimilate new information		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	4. Students will demonstrate an ability to criticize and evaluate the quality of new information		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			

Detailed Data Collection Table for Rubric I

Student Outcome [i]

Course:		**Semester:**	
Number of Students:		**Number of Students who satisfied all performance indicators:**	
Performance Indicator	1 Ability to do task-specific research to learn new techniques, skills, and tools.		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	2. Students will demonstrate competence with multiple current platforms for computing and development.		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	3. Students will demonstrate competence with a selected set of tools		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			

Detailed Data Collection Table for Rubric J

Student Outcome [j]

Course:		**Semester:**	
Number of Students:		**Number of Students who satisfied all performance indicators:**	
Performance Indicator	1. Students demonstrate an ability to apply mathematical foundations in the modeling and design of computer-based systems		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	2. Students demonstrate an ability to apply algorithmic principles in the modeling and design of computer-based systems		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	3. Students demonstrate an ability to apply computer science theory in the modeling and design of computer-based systems		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	4. Students demonstrated an understanding of tradeoffs involved in design choices.		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			

Detailed Data Collection Table for Rubric K

Student Outcome [k]

Course:		**Semester:**	
Number of Students:		**Number of Students who satisfied all performance indicators:**	
Performance Indicator	1. An ability to apply design and development principles in the construction of software systems of small-scale complexity.		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	2. An ability to apply design and development principles in the construction of software systems of medium-scale complexity.		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			
Performance Indicator	3.An ability to apply design and development principles in the construction of software systems of large-scale complexity.		
Methods of Assessment and Detailed Performance *copy/paste example questions, assignments, etc in this table*			
Use of Results:			