Program-Level Assessment of Student Learning
Information Technology, B.S.

Program History

The Information Technology (IT) program was implemented in 2004. The IT program was initially reviewed and accredited by the Accreditation Board for Engineering and Technology (ABET) in 2014. The most recent accreditation review was in 2020 with no major program changes made since. The IT program is housed in the Information Systems and Technology (IS&T) Department. There are two emphases in the Bachelor of Science program: 1) Network Administration and Security 2) Computer Forensics and Security.

Options

Once pursuing the Bachelor of Science degree in Information Technology, a student can choose to emphasize in one of two emphases: (1) Computer Forensics and Security or (2) Network Administration and Security. The core of the BS in Information Technology program prepares students to have strong foundation in computer architecture, data communication, information security, networks, and system administration. The Computer Forensics and Security emphasis provides students with a solid foundation for employment by government or corporate sector to work in a computer forensics lab as a forensic analyst or in information security. The Network Administration and Security emphasis prepares students to work as data communication consultants, information security analysts, and network administrators.

Program Educational Objectives

Graduates of UVU's undergraduate program in Information Technology (IT) will be able to do the following:

1. Use theoretical, technical, and organizational knowledge to analyze, design, and implement secure IT solutions.
2. Use problem-solving skills and identify lessons learned.
3. Communicate effectively with various stakeholders.
4. Collaborate and communicate effectively in diverse team environments.
5. Practice their profession in accordance with accepted professional codes of ethics.
6. Consider the broad global and social impact of information technology solutions.
7. Stay current in their profession.

Process for Review of the Program Educational Objectives

The Information Technology program objectives are evaluated and revised at least every four years to meet changing needs. The process is as follows:

1. The Department Chair initiates the review process during a scheduled department meeting.
2. Full-time faculty review the objectives and offer edits, if any. Changes may be based on the following:
    a. Institution mission statement
    b. Core themes and values
    c. Industry trends
    d. ABET program outcomes

3. The department faculty come to a consensus on changes to the program objectives.
4. The Department Chair places the discussion on the agenda for the Department Advisory Board meeting.
5. The Advisory Board members ask questions about intent of the objectives and offer suggestions.
6. The Advisory Board comes to a consensus on changes to the program objectives. The Department Chair ensures the changes align with the UVU mission statement.
7. The Department Administrative Assistant updates the documentation and updates the objectives on the department's web site.

Evaluation of IT Graduates by Program Educational Objectives

Beginning in the Fall of 2015, all IS&T students who are applying for graduation were asked to complete a departmental Graduation Exit Survey. Survey questions were created by the department faculty to evaluate students upon graduation with respect to the Program Educational Objectives. Survey questions needed to map to both Information Systems, and Information Technology program objectives. Because all departmental graduates were asked to complete this survey, other programs offered in the IS&T department also gathered these survey results. The survey is an indirect assessment as students are asked to self-evaluate.

The Graduation Exit Survey questions students answered map to the IT Program Educational Objectives (PEOs) as follows:

- PEO1: Use theoretical, technical, and organizational knowledge to analyze, design, develop, and implement secure IT solutions
    - Survey Q1: Ability to apply technical skills
    - Survey Q2: Ability to analyze real IT problems
    - Survey Q3: Ability to design IT solutions
    - Survey Q4: Ability to create a project plan
    - Survey Q8: Demonstrate skills through capstone projects

- PEO2: Use problem-solving skills and identify lessons learned.
    - Survey Q7: Understanding of IT best practices
    - Survey Q8: Demonstrate skills through capstone projects

- PEO3: Communicate effectively with various stakeholders.
    - Survey Q5: Understanding emerging technologies
    - Survey Q4: Ability to create a project plan
    - Survey Q9: Involved in group projects

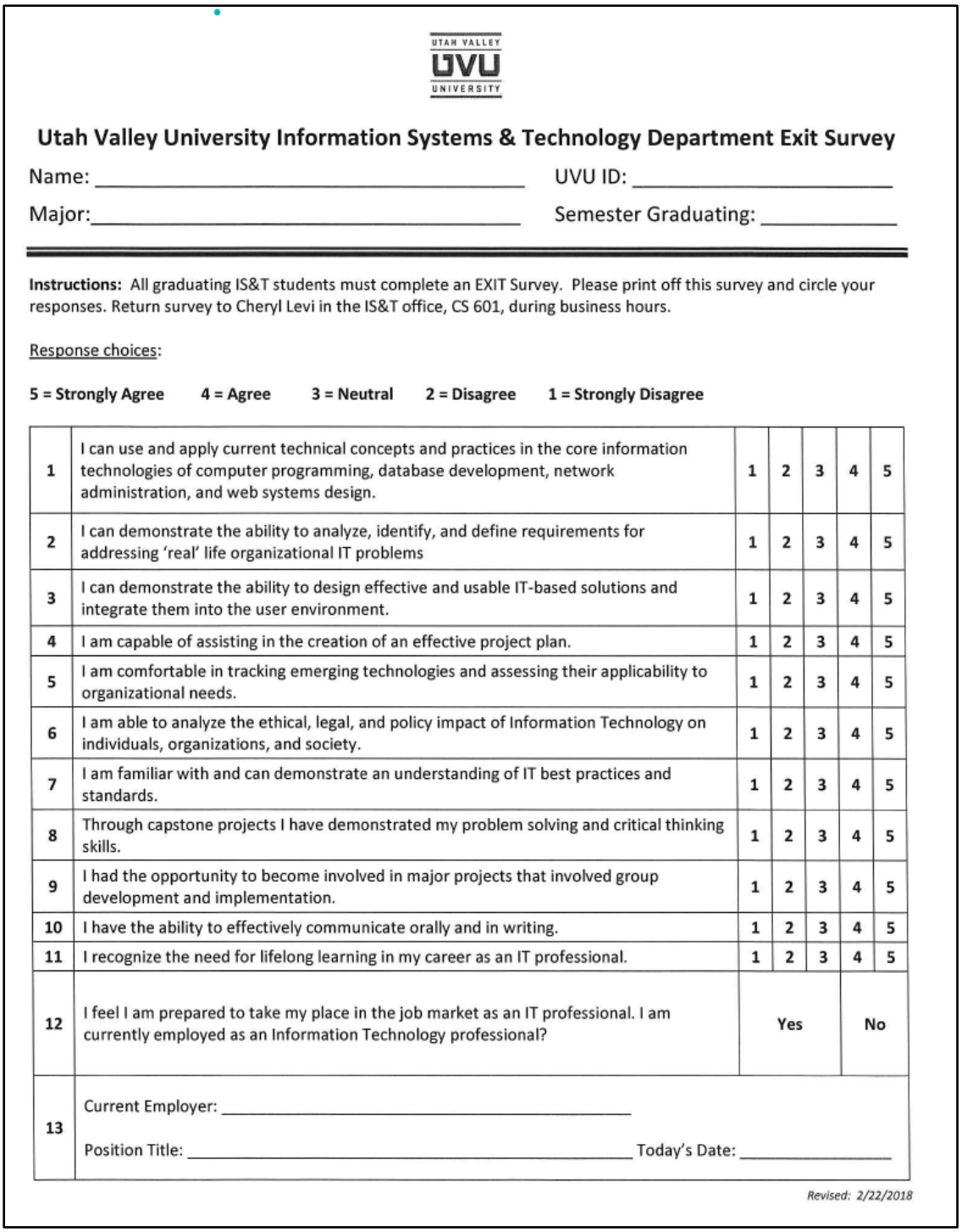
- PEO4: Collaborate and communicate effectively in diverse team environments.
    - Survey Q9: Involved in group projects
    - Survey Q10: Ability to effectively communicate

- PEO5: Practice their profession in accordance with accepted professional codes of ethics.
    - Survey Q6: Ability to analyze legal, ethical, and policy impact

- PEO6: Consider the broad global and social impact of information technology solutions.

- Survey Q6: Ability to analyze legal, ethical, and policy impact

- PEO7: Stay current in their profession.
  - Survey Q11: Recognize need for lifelong learning



UTAH VALLEY UVU UNIVERSITY

Utah Valley University Information Systems & Technology Department Exit Survey

Name: _____ UVU ID: _____

Major:_____ Semester Graduating: _____

Instructions: All graduating IS&T students must complete an EXIT Survey. Please print off this survey and circle your responses. Return survey to Cheryl Levi in the IS&T office, CS 601, during business hours.

Response choices:

5 = Strongly Agree 4 = Agree 3 = Neutral 2 = Disagree 1 = Strongly Disagree

1	I can use and apply current technical concepts and practices in the core information technologies of computer programming, database development, network administration, and web systems design.	1	2	3	4	5
2	I can demonstrate the ability to analyze, identify, and define requirements for addressing 'real' life organizational IT problems	1	2	3	4	5
3	I can demonstrate the ability to design effective and usable IT-based solutions and integrate them into the user environment.	1	2	3	4	5
4	I am capable of assisting in the creation of an effective project plan.	1	2	3	4	5
5	I am comfortable in tracking emerging technologies and assessing their applicability to organizational needs.	1	2	3	4	5
6	I am able to analyze the ethical, legal, and policy impact of Information Technology on individuals, organizations, and society.	1	2	3	4	5
7	I am familiar with and can demonstrate an understanding of IT best practices and standards.	1	2	3	4	5
8	Through capstone projects I have demonstrated my problem solving and critical thinking skills.	1	2	3	4	5
9	I had the opportunity to become involved in major projects that involved group development and implementation.	1	2	3	4	5
10	I have the ability to effectively communicate orally and in writing.	1	2	3	4	5
11	I recognize the need for lifelong learning in my career as an IT professional.	1	2	3	4	5
12	I feel I am prepared to take my place in the job market as an IT professional. I am currently employed as an Information Technology professional?	Yes				No
13	Current Employer: _____ Position Title: _____ Today's Date: _____					

Revised: 2/22/2018

Four-Year Course Offerings Schedule (INFO Prefixes)

Disclaimer: Subject to minimum enrollment requirements, room availability, and instructor availability.

'X' = offered this semester

Prefix	Num.	Course Title	Fall 2019	Spring 2020	Sum 2020	Fall 2021	Spring 2021	Sum 2021	Fall 2022	Spring 2022	Sum 2022	Fall 2023	Spring 2023	Sum 2023
INFO	1000	E-Commerce Techniques for Small Business	On Sufficient Demand											
INFO	1120	Information Systems and Technology Fundamentals	X	X	X	X	X	X	X	X	X	X	X	X
INFO	1200	Computer Programming I for IS/IT	X	X		X	X		X	X		X	X	
INFO	2100	Computer Proficiency for Technology Professionals	On Sufficient Demand											
INFO	2200	Computer Programming II for IS/IT	X	X	X	X	X	X	X	X	X	X	X	X
INFO	2410	Database Fundamentals	X	X	X	X	X	X	X	X	X	X	X	X
INFO	2420	Web Application Design	X	X	X	X	X	X	X	X	X	X	X	X
INFO	281R	Internship	X	X	X	X	X	X	X	X	X	X	X	X
INFO	297R	Independent Study	On Sufficient Demand											
INFO	3120	Management Information Systems	X	X	X	X	X	X	X	X	X	X	X	X
INFO	3130	Introduction to Applied Data Analytics	X	X		X	X		X	X		X	X	
INFO	3300	Web Systems Development	X	X	X	X	X	X	X	X	X	X	X	X
INFO	3330	Client-Side Web Development	X			X			X			X		
INFO	3360	Server-Side Frameworks		X			X			X			X	
INFO	3410	Database Systems and Warehousing	X	X	X	X	X	X	X	X	X	X	X	X
INFO	3430	Systems Analysis and Design	X	X	X	X	X	X	X	X	X	X	X	X
INFO	3700	Health Informatics Fundamentals	X	X		X	X		X	X		X	X	
INFO	3750	Healthcare Information Systems Applications		X			X			X			X	
INFO	405G	Global Ethical and Professional Perspsectives in IS and IT	X	X	X	X	X	X	X	X	X	X	X	X
INFO	4120	Business Intelligence Systems	X	X		X	X		X	X		X	X	
INFO	4130	Data Science and Big Data Analytics	X	X		X	X		X	X		X	X	
INFO	4135	Data Security Analytics	X			X			X			X		
INFO	4300	Enterprise Web Development	On Sufficient Demand											
INFO	4410	Database Administration	X	X		X	X		X	X		X	X	
INFO	4415	Database Security and Auditing		X			X			X			X	
INFO	4420	Mobile Application Development	X			X			X			X		
INFO	4425	Web Application Security		X			X			X			X	
INFO	4430	Systems Design and Implementation	X	X	X	X	X	X	X	X	X	X	X	X
INFO	4440	Enterprise Computing Environments	On Sufficient Demand											
INFO	4550	Senior Project	On Sufficient Demand											
INFO	459R	Current Topics in Information Systems	X	X		X	X		X	X		X	X	
INFO	4700	Healthcare Information Systems Management	X			X			X			X		
INFO	481R	Internship	X	X	X	X	X	X	X	X	X	X	X	X
INFO	489R	Undergraduate Research in Information Systems	On Sufficient Demand											
INFO	497R	Independent Study	On Sufficient Demand											

Four-Year Course Offerings Schedule (IT Prefixes)

Disclaimer: Subject to minimum enrollment requirements, room availability, and instructor availability.						'X' = offered this semester											
Prefix	Num.	Course Title	Fall 2019	Spring 2020	Sum 2020	Fall 2021	Spring 2021	Sum 2021	Fall 2022	Spring 2022	Sum 2022	Fall 2023	Spring 2023	Sum 2023
IT	1200	Scripting for Administrators	On Sufficient Demand											
IT	1510	Introduction to System Administration--Linux/UNIX	X	X	X	X	X	X	X	X	X	X	X	X
IT	1600	Computer Architecture and Systems Software	X	X	X	X	X	X	X	X	X	X	X	X
IT	1700	Cybersecurity Essentials	On Sufficient Demand											
IT	2400	Voice and Data Cabling Fundamentals	X	X	X	X	X	X	X	X	X	X	X	X
IT	2530	Introduction to System Administration--Windows Client	X	X		X	X		X	X		X	X	
IT	2600	Data Communication Fundamentals	X	X	X	X	X	X	X	X	X	X	X	X
IT	2700	Information Security Fundamentals	X	X	X	X	X	X	X	X	X	X	X	X
IT	2800	Computer Forensic Fundamentals	X	X	X	X	X	X	X	X	X	X	X	X
IT	281R	Internship	X	X	X	X	X	X	X	X	X	X	X	X
IT	290R	Current Topics in Information Technology	On Sufficient Demand											
IT	3350	Intellectual Property and Cyber Law	X		X	X		X	X		X	X		X
IT	3400	Data Cabling Signal Characteristics	On Sufficient Demand											
IT	3510	Advanced System Administration--Linux/UNIX	X	X	X	X	X	X	X	X	X	X	X	X
IT	3530	Advanced System Administration--Windows Server	X	X	X	X	X	X	X	X	X	X	X	X
IT	3540	Mac OS and Server Support	X	X	X	X	X	X	X	X	X	X	X	X
IT	3600	Internetworking and Router Management	X	X	X	X	X	X	X	X	X	X	X	X
IT	3650	Information Storage and Management	On Sufficient Demand											
IT	3700	Information Security--Network Defense and Countermeasures	X	X	X	X	X	X	X	X	X	X	X	X
IT	459R	Current Topics in Information Technology	On Sufficient Demand											
IT	4600	Enterprise Network Architectures and Administration	X	X	X	X	X	X	X	X	X	X	X	X
IT	4700	Enterprise Cybersecurity Management	X	X	X	X	X	X	X	X	X	X	X	X
IT	4750	Network Security and Operations Capstone	X	X		X	X		X	X		X	X	
IT	4760	Case Studies in Cyber Security	On Sufficient Demand											
IT	4800	Advanced Mobile Devices Forensics		X			X			X			X	
IT	481R	Internship	X	X	X	X	X	X	X	X	X	X	X	X
IT	4850	Digital Forensics Investigations		X			X			X			X	
IT	489R	Undergraduate Research in Information Technology	On Sufficient Demand											
IT	497R	Independent Study	On Sufficient Demand											

ABET Student Outcomes

The B.S. in Information Technology program uses the following ABET Student Outcomes 1 through 6:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Identify and analyze user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing-based systems.

ABET Student Outcomes and Course Alignment

Student Outcome	Courses in Which Addressed	Courses in Which Assessed
1	IT 1200, IT 1510, IT 1600, IT 1700, IT 2400, IT 2600, IT 2800, IT 3530, IT 3600, IT 3650, IT 3700, IT 4750, IT 4760, INFO 1120, INFO 1200, INFO 2410, INFO 3430	IT 1600, INFO 2410
2	IT 1510, IT 1600, IT 2600, IT 3400, IT 3700, IT 4600, IT 4750, INFO 1120, INFO 1200, INFO 2410, INFO 3430, INFO 4430	INFO 4430
3	IT 1510, IT 1600, IT 2600, IT 3700, IT 4750, IT 4760, IT 4800, INFO 1120, INFO 2410, INFO 3430	INFO 3430
4	IT 1700, IT 2700, IT 3350, IT 3530, IT 3700, IT 4700, IT 4750, IT 4760, IT 4800, INFO 1120, INFO 3430, INFO 405G, COMP 301R	INFO 405G
5	IT 4700, IT 4750, IT 4760, INFO 1120, INFO 2410, INFO 3430, INFO 405G	IT 4700, INFO 3410
6	IT 1200, IT 1510, IT 1600, IT 2530, IT 2600, IT 2700, IT 3510, IT 3530, IT 3540, IT 3650, IT 3700, IT 4600, IT 4750, IT 4760, IT 4850, INFO 1120, INFO 2410	IT 3510, IT 3530, INFO 3430

ABET Student Outcomes and Program Educational Objectives Alignment

Student Outcome	Program Educational Objective
1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.	[1] Use theoretical, technical, and organizational knowledge to analyze, design, and implement secure IT solutions. [2] Use problem-solving skills and identify lessons learned. [6] Consider the broad global and social impact of information technology solutions. [7] Stay current in their profession.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.	[1] Use theoretical, technical, and organizational knowledge to analyze, design, and implement secure IT solutions. [2] Use problem-solving skills and identify lessons learned. [3] Communicate effectively with various stakeholders. [6] Consider the broad global and social impact of information technology solutions. [7] Stay current in their profession.
3. Communicate effectively in a variety of professional contexts.	[3] Communicate effectively with various stakeholders. [4] Collaborate and communicate effectively in diverse team environments.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.	[5] Practice their profession in accordance with accepted professional codes of ethics. [6] Consider the broad global and social impact of information technology solutions. [7] Stay current in their profession.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.	[3] Communicate effectively with various stakeholders. [4] Collaborate and communicate effectively in diverse team environments. [7] Stay current in their profession.
6. Identify and analyze user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing-based systems. [IT]	[1] Use theoretical, technical, and organizational knowledge to analyze, design, and implement secure IT solutions. [2] Use problem-solving skills and identify lessons learned. [3] Communicate effectively with various stakeholders. [6] Consider the broad global and social impact of information technology solutions.

CONTINUOUS IMPROVEMENT

The Information Systems and Technology Department created an ABET Assessment Plan document in 2011. To initiate the process, constituents of the program are consulted to determine what should be assessed, where in the curriculum to perform assessments, and plan for the collection of necessary data. Data about student outcomes is collected in courses and surveys. Data is analyzed and reported to the constituents to generate discussion about improvements. Improvements are added to the curriculum and assessed in another iteration of the assessment cycle.

Data Collection Processes

Each student outcome is mapped to specific courses of the Information Technology program for assessment. The rubric for the student outcome is utilized to develop an assessment instrument. An assessment instrument is associated with a specific course, effectively mapping from a student outcome to a specific course in the curriculum in which the assessment instrument is administered.

A variety of assessment instruments are used to assess student outcomes. Typically, faculty teaching the course designated for assessment administer learning activities that include exams, projects, lab exercises, homework assignments, quizzes, case studies, debates, research papers, and oral presentations. Details about the specific assessment instruments used for a student outcome are included in reports for that student outcome.

Number and Types of Assessment Instruments

Student Outcome #	Types of Assessment Instruments Used
1	Quiz, Individual Project Design and Implementation
2	Team Project Design and Implementation
3	Team Presentations (2)
4	Final Exam, Research Paper
5	Team Presentation, Survey
6	Team Project Plan

Current Schedule for Assessment of Student Outcomes

Student Outcome	2021	2022	2023	2024	2025	2026	2027
1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.		open IT 1600		open INFO 2410	close IT 1600		close INFO 2410
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.	open INFO 4430		close INFO 4430		open INFO 4430		close INFO 4430
3. Communicate effectively in a variety of professional contexts.		open INFO 3430		close INFO 3430			

Student Outcome	2021	2022	2023	2024	2025	2026	2027
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.	open INFO 405G		close INFO 405G		open INFO 405G		close INFO 405G
5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.		open IT 4700	open INFO 3410		close IT 4700	close INFO 3410	
6. Identify and analyze user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing-based systems.	open IT 3510	open INFO 3430	open INFO 3530	close IT 3510	close INFO 3430	close INFO 3530	

Expected Level of Attainment for each Student Outcome
For each student outcome, the expected level of attainment is Satisfactory or Exemplary of each performance indicator or category on the student outcome rubrics.

Student Outcome 1
Course: INFO 2410 Database Fundamentals
Implemented: 2017-2019
Action: Emphasize writing better objectives for project
Result: Improvement from Satisfactory to Exemplary in problem identification criterion

Student Outcome 2
Course: INFO 4430 Systems Design and Implementation
Implemented: 2018-2019
Action: Require a record of three team meetings per week, allow teams to select meeting tools
Result: Improvement of peer evaluation scores and final design criteria, maintained Exemplary level

Student Outcome 3
Course: INFO 3430 Systems Analysis and Design
Implemented: 2017-2020
Action: Require students to give a team presentation to another team prior to the presentation that is assessed.
Result: Assessment to close the cycle was done on writing assignments rather than a presentation. Need to determine why the assessment was modified during the cycle.

Student Outcome 4
Course: INFO 405G Global Ethical and Professional Perspectives in IS and IT
Implemented: 2017-2020
Action: 1) Continue time discussion how to draw conclusions and recommendations. 2) Spend more class time discussion how to articulate variable definitions, score comparisons, and

rankings. 3) Spend more class time discussion the type of information needed for the additional paragraphs for each variable.
Result: Improvement to Exemplary or Satisfactory from Unsatisfactory scores in targeted criteria. Unsatisfactory decreased from 36% to 0%.

Student Outcome 5
Course: INFO 3410 Database Systems and Data Warehousing
Implemented: 2017-2018
Action: 1) Assign and start the project earlier. 2) Add a "check in" component midway through the project. 3) Reduce team sizes.
Result: Improvement from Satisfactory to Exemplary in three criteria.

Student Outcome 6
Course: IT 3510 Advanced System Administration—Linux/UNIX
Implemented: 2017
Action: Additional requirement of two project review meetings with the instructor.
Result: The assessment of this outcome to close the cycle was scheduled for 2019 but did not happen. A report closing the cycle should be ready in time for review by the site visit team.

Rubric for Assessment of Student Outcome 1

Student Outcome 1: Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.			
Performance Indicator	Exemplary	Satisfactory	Unacceptable
Problem identification	Clear and complete identification and articulation of the problem	Adequate identification of the problem; needs a little improvement in clarity or completeness	Insufficient identification of the problem
Stakeholder analysis	The needs of the client and the perspectives of all stakeholders have been carefully weighted	Perspectives of most stakeholders have been considered but not fully addressed	Few, if any stakeholder perspectives are taken into consideration during problem identification
Alternatives evaluation	Thorough and appropriate analysis of alternative solutions	Moderate identification and analysis of alternatives	Little or no evidence exists that student identified and analyzed the alternatives
Software development tools used	Expert use of software development tools	Appropriate but not expert use of software development tools	Inadequate use of software development tools
Proposed solution	Clear objectives of the proposed solution articulated	Some objectives identified	Missing major objectives of the proposed solution

Rubric for Assessment of Student Outcome 2

Student Outcome 2: Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.			
Performance Indicator	Exemplary	Satisfactory	Unacceptable
Understanding the problem and stakeholder needs	Clear articulation of the problem and stakeholder needs for the solution	Adequate problem statement and reflects perspectives of most stakeholders	Insufficient problem statement and lack of stakeholder perspective
Use of computer-aided tools	Computer-aided tools used effectively to develop and analyze designs	Computer-aided tools used with moderate effectiveness to develop designs	Minimal application and use of appropriate tools
Final design	Exceeds desired objectives	Meets desired objectives	Incapable of achieving the desired objectives
Implementation	Solution implemented effectively with very few issues	Solution implemented; some bugs had to be worked out	Solution not implemented or implemented with serious problems
Evaluation of results	Thoroughly evaluates solution in terms of meeting needs; provides accurate recommendations	Moderate evaluation of the solution in terms of meeting needs; provides minimal recommendations	Inadequate evaluation of the solution; missing recommendations based on user feedback
Communication of results	Accurate and concise explanation of project and results	Results explained using terminology related to the problem	Generalized solution

Rubric for Assessment of Student Outcome 3

Student Outcome 3: Communicate effectively in a variety of professional contexts.			
Performance Indicator	Exemplary	Satisfactory	Unacceptable
Professionalism	Professional attire above required dress code, professional tone of language used in writing or speaking	Standard business attire, polite tone of language used in writing or speaking	Jeans, t-shirt, cap, other unprofessional attire, unprofessional language used
Verbal communication	Excellent volume, tone, natural speaking (rate, pitch, smoothness)	Good volume and tone, overall good speaking	Too loud or soft-spoken, choppy delivery, lengthy pauses where unsure
Written communication	Accurate and concise writing meeting formatting standards, correct citations	Some minor grammar, spelling, punctuation, or formatting errors	Major grammar, spelling, punctuation, or formatting errors
Visual aids	Figures and tables support data, are referenced within the paragraphs appropriately, are constructed well	Most figures and tables support data and are referenced in paragraphs but could use minor improvement; overall good construction	Figures and tables do not support data or contain irrelevant data; paragraphs lack references to figures and tables; table and figure construction needs major improvement
Content coverage	Exhibits strong research, supporting data, excellent coverage and balance of topics; problem defined clearly, supporting data, and analysis, and logical conclusions and recommendations	Indicates some investigation into topic with some supporting details; overall good and appropriate depth of coverage; problem defined mostly well, provides adequate conclusions and recommendations	Lacks any real investigation into the topic; too much coverage of insignificant points or not enough coverage of major points; major gaps in analysis; insufficient or missing conclusions and recommendations
Organization	Well-defined introduction and summary, excellent sequence of topics, smooth transitions	Has introduction and summary, sequence of topics, acceptable transitions	Lacks introduction or summary, sequence of topics indicates disorganization

Rubric for Assessment of Student Outcome 4

Student Outcome 4: Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.			
Performance Indicator	Exemplary	Satisfactory	Unacceptable
Recognition of professional responsibilities	Student can identify a relevant professional organization and demonstrate use of a professional code of ethics and participates in professional activities	Student can identify a relevant professional organization and demonstrate use of a professional code of ethics	Student cannot identify a relevant professional organization or demonstrate use of a professional code of ethics
Knowledge of legal and ethical principles	Student can identify, access, and describe at least three applicable laws and identify legal and ethical issues related to information technology	Student can identify and access at least one applicable law or code of ethics related to information technology	Unable to identify or access a law or code of ethics related to information technology
Informed judgements	Student can debate opposing sides of issues using legal and ethical arguments	Student can apply laws and ethics to support decisions	Student cannot support decisions with logical legal or ethical arguments

Rubric for Assessment of Student Outcome 5

Student Outcome 5: Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.			
Performance Indicator	Exemplary	Satisfactory	Unacceptable
Contributions	All members routinely contribute quality and useful ideas and information	Most (not all) members contribute useful ideas and information	Team members do not contribute ideas freely
Collective decision-making	The team evaluates all ideas and uses only the best	Decision-making procedures are established informally, leading to some inconsistently in implementation	No team decision-making process; decisions are made by individuals, and they do not reflect the desires of the team
Meeting attendance	Members attend all meetings, making the project a priority	Most team members attend most meetings. When members must be absent, they contact all other team members	Team members frequently do not attend meetings and do not inform the team
Division of labor	Equal workload is achieved in the team	All team members have tasks; some unequal workload is observed	Serious problems due to unequal workload
Communication with team	Consistent communication; insightful use of real and virtual meetings; meetings are productive	Adequate number of meetings; meetings are mostly productive	Inadequate meetings and communication
Professional conduct	Team members consistently behave in a professional manner (prepared and on time, treat others with courtesy and respect; positive attitude)	Team members usually behave in a professional manner and have positive attitudes most of the time	Team members frequently fail to behave in a professional manner and/or have negative attitudes
Establishing goals	Realistic, prioritized, and measurable goals are agreed upon and documented	Goals are established but some may be too general, unquantifiable, or unrealistic	Clear goals are not formulated or documented

Student Outcome 5: Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.			
Keeping meeting notes	Written notes that summarize attendance, discussions, and actions are distributed within 2 days of meeting	Notes that summarize attendance, discussion, and actions are written and distributed	Minutes are nonexistent or unclear at best

Rubric for Assessment of Student Outcome 6

Student Outcome 6: Identify and analyze user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing-based systems.			
Performance Indicator	Exemplary	Satisfactory	Unacceptable
Solution identification	Student identifies more than one solution that addresses the client's problem but implements the best solution that complements the client's existing infrastructure.	Students correctly identifies a solution that addresses the client's problem.	Student does not identify a solution that addresses the client's problem.
Project completion	Project is completed within constraints and requirements with adequate time for testing and optimization	Project is completed within constraints and requirements	Project is not completed
Quality of solution	System is optimal	System is functional but not optimal	System does not fulfill functional requirements
Integration into user environment	System can be integrated into the user environment without disrupting productivity	System can be integrated into the user environment with minimal disruption to productivity	System would poorly integrate into the user environment and/or create undue disruption to productivity

CURRICULUM

The curriculum for the Information Technology program has been designed by the faculty to produce graduates with both fundamental theoretical knowledge as well as hands-on experience enabling them to be successful in the field. The program includes mathematics appropriate to the discipline and at least 30 semester credit hours of up-to-date coverage of fundamental and advanced computing topics that provide both breadth and depth including: 1) techniques, skills, and tools necessary for computing practice, 2) principles and practices for secure computing, and 3) local and global impacts of computing solutions on individuals, organizations, and society.

The curriculum is based on the framework of the IT 2008 Curriculum Guidelines for Undergraduate Degree Programs in Information Technology (IT 2008) produced by the Association of Computing Machinery (ACM). The curriculum aligns with the program education objectives which in turn map to student outcomes. Following IT 2008, the curriculum for the Information Technology program at Utah Valley University has been divided into seven categories. Courses applicable in the program are categorized as shown in the course lists.

1. **Information Technology Fundamentals:** These courses focus on the fundamental skills and applied practice of Information Technology, introducing the concepts and terminology future courses build will build upon. The breadth of these courses provides a survey of information technology topics. The most common platform technologies are introduced. This category includes both introductory and advanced courses in system administration and system maintenance, system integration, and system architecture.
    - INFO 1120 Information Systems and Technology Fundamentals (3 credits)
    - IT 1510 Introduction to System Administration—Linux/UNIX (3 credits)
    - IT 1600 Computer Architecture and Systems Software (3 credits)
    - IT 2530 Introduction to System Administration—Windows Client (3 credits)
    - SELECTIVE IT 2800 Computer Forensic Fundamentals (3 credits)
    - IT 3510 Advanced System Administration—Linux/UNIX (3 credits)
    - IT 3530 Advanced System Administration—Windows Server (3 credits)
    - ELECTIVE IT 3540 Mac OS and Server Support (3 credits)
    - IT 4800 Advanced Mobile Forensics (3 credits)
    - IT 4850 Digital Forensics Investigations (3 credits)

2. **Programming:** These courses focus on knowledge and skills involved in software development and management through applied programming. A solid understanding of programming enables students to customize information technology solutions and leverage automated tools for increased professional efficiency.
    - INFO 1200 Computer Programming I for IS/IT (3 credits)
    - ELECTIVE INFO 2200 Computer Programming II for IS/IT (3 credits)
    - INFO 2410 Database Fundamentals (3 credits)
    - ELECTIVE IT 1200 Scripting for Administrators (3 credits)
    - ELECTIVE CS 3270 Python Software Development (3 credits)

3. **Networking:** These courses focus heavily on hands-on examples of networking and involve extensive labs to maximize students' understanding of our interconnected world. Hands-on, real-world scenarios are emphasized.
    - IT 2400 Voice and Data Cabling Fundamentals (3 credits)
    - IT 2600 Data Communication Fundamentals (3 credits)
    - IT 3600 Internetworking and Router Management (3 credits)
    - IT 4600 Enterprise Architectures and Management (3 credits)
    - ELECTIVE CS 2600 Computer Networks I (3 credits)

4. **Human Computer Interaction:** These courses investigate the relationship between information technology and business needs, particularly in relation to human-centered computing. System analysis and design are emphasized with user experience design.
    - INFO 3430 Systems Analysis and Design (3 credits)
    - INFO 4430 Systems Design and Implementation (3 credits)
    - ELECTIVE INFO 2420 Web Application Design (3 credits)

5. **Web Systems and Technologies:** The courses within this category cover design and implementation of web and mobile systems and the underlying technology. Students design interactive web applications focusing on usability that ties in directly with the Human Computer Interaction category.
    - INFO 3300 Web Systems Development (3 credits)
    - ELECTIVE INFO 3330 Client-Side Web Development (3 credits)
    - ELECTIVE INFO 3360 Server-Side Web Frameworks (3 credits)
    - INFO 4425 Web Application Security (3 credits)

6. **Information Assurance and Security:** Built on the previous 5 categories, courses in this area focus on information management and emerging threats information systems. These courses explore both hands-on techniques and theoretical principles of information management and information security.
    - ELECTIVE INFO 3410 Database Systems and Warehousing (3 credits)
    - ELECTIVE INFO 4135 Data Security Analytics (3 credits)
    - ELECTIVE INFO 4410 Database Administration (3 credits)
    - ELECTIVE INFO 4415 Database Security and Auditing (3 credits)
    - IT 2700 Information Security Fundamentals (3 credits)
    - IT 3700 Information Security—Network Defense and Countermeasures (3 credits)
    - IT 4700 Enterprise Information Security Management (3 credits)

7. **Professionalism:** The courses in this category explore the skills and knowledge needed for information technology professionals to succeed in both team situations as well as in the global workplace. Courses investigate the ethical and cultural impacts of technology.
    - INFO 405G Global Ethical and Professional Perspectives in IS and IT (3 credits)
    - ELECTIVE IT 3350 Intellectual Property and Cyber Law (3 credits)
    - ELECTIVE IT 481R Internship (1-3 credits)