DEPARTMENT OF TECHNOLOGY

PROGRAM ASSESSMENT PLAN

B.S. DEGREE IN INDUSTRIAL TECHNOLOGY: COMPUTER SYSTEMS TECHNOLOGY SEQUENCE

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SEPTEMBER 2018

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Appendices

Department of Technology
Program Assessment Plan
B.S. Degree: Computer Systems Technology

This Computer Systems Technology degree Program Assessment Plan includes a description of learning outcomes, assessment measures, feedback and continuous improvement mechanisms, and record keeping procedures that guide the Computer Systems Technology program in continuous improvement. There are two components to the Computer Systems Technology program assessment: (1) Learning Outcomes Assessment and (2) Program Goals and Plan of Work. Annual assessment data is posted on the Department of Technology website: www.tec.illinoisstate.edu.

Learning Outcomes Assessment

The learning outcomes report, completed is each year, is an aggregate summary of student progress toward meeting identified learning outcomes. The resulting data is reported in a dashboard format (see following page for an example of learning outcomes dashboard), which includes assessment data and a plan for improvement, as necessary. The learning outcomes for the program are reviewed each year for validation by the Computer Systems Technology program advisory board. Multiple data points are used to assess learning outcomes, as follows:

1. An **Employer Survey** seeks data on how well graduates performed in terms of intended learning outcomes. These surveys are conducted on a three-year cycle. (*Appendix A* presents an example of the employer follow-up survey).

2. The **Senior Exit Survey** solicits both quantitative and qualitative feedback about the extent to which learning outcomes were achieved. An example of the Senior Exit Survey is presented in *Appendix B.*

3. The University Assessment Services conducts the annual **Alumni Survey** and supplies this assessment data to the department. This survey includes questions on the intended learning outcomes for the program, shown in *Appendix C.*

4. The Computer Systems Technology program faculty review specific **major course projects or tests** to assess learning outcomes.

Assessment data on learning outcomes receives oversight in the following ways. Specific learning outcome assessment data initially go to the Program Coordinator who is responsible for (a) documenting and reporting the results, (b) evaluating if the results conform to performance indicators, and (c) deciding, in conjunction with program faculty and advisory committee as appropriate, whatever corrective action needs to be taken. Corrective actions are documented in the learning outcomes assessment dashboard and filed on the Faculty Server. An annual assessment calendar is used to coordinate assessment and feedback events (See *Appendix E).*

Industrial Technology: Computer Systems Technology Learning Outcomes

1. Apply the fundamental concepts of digital/analog signals and electronics to computer systems, networking, and media.

2. Use specifications and applications of computer components, network devices, and media in network administration.

3. Configure network operating systems and manageable network devices.

4. Design database interfaces and utilize basic programming techniques for business applications.

5. Use project management techniques to develop solutions, and address business issues to meet client needs

	Direct Measurements	Indirect Measurements			
Computer Systems Technology Learning Outcomes. The graduate will be able to:	*Performance Criteria Evaluation	Employer Survey 2013, 2014, 2016, 2017 (employers n=, alumni n=11)	Senior Survey (n=17, Fall 2016/Spring 2017) (1.0 - 5.0 scale)	Alum Survey	**Planned Curricular Actions for Improvement (2017-2018)**
1. Apply the fundamental concepts of digital/analog signals and electronics to computer systems, networking, and media	(a) 85%	10=Meets Expectations; 0=Below Expectations	4.0	N/A	No action at this time. Objective and self-report measures all positive.
2. Use specifications and applications of computer components, network devices, and media in network administration	(b) 79%	10=Meets Expectations; 0=Below Expectations	4.6	N/A	No action at this time. Objective and self-report measures all positive.
3. Configure network operating systems and manageable network devices	(c) 86%	10=Meets Expectations; 0=Below Expectations	4.5	N/A	No action at this time. Objective and self-report measures all positive.
4. Design database interfaces and utilize basic programming techniques for business applications.	(d) 86%	9=Meets Expectations; 1=N/A 0=Below Expectations	4.1	N/A	No action at this time. Objective and self-report measures all positive.
5. Use project management techniques to develop solutions, and address business issues to meet client needs.	(b) 75%	10=Meets Expectations; 0=Below Expectations	3.9	N/A	No action at this time. Objective and self-report measures all positive.

***Performance Benchmarks**	**Action benchmark for Survey Data < 3.5/5.0 scale**	**Action benchmark for Employer Data < 75% "meets expectations" or above**
Direct Measurement: Performance criteria: Overall average of each related project (a) Design, build, and code a real-life application like a digital clock and integrated timer with LED display (TEC 244);	5 – well above average 4 – above average 3 – average 2 – below average 1 – well below average	

(b) Network Design team project documenting and presenting topology, network devices, wired and wireless configuration, security, data capacity, and pricing including justification; posed by and evaluated by a team of external senior network managers in industry (TEC 390); (c) Configure Windows server operating systems with multiple roles and several other specifications (TEC 245); (d) Develop end-to-end Java application that involves database design, middle-tier logic, and user interface.	

Program Goals and Plan of Work

The Computer Systems Technology *Program Goals and Plan of Work*, consists of (a) the program mission, (b) program goals, (c) goal alignment with department, college, and university goals, (d) strategies for attaining goals, (e) an annual plan of work, and (f) a report assessing accomplishments (See an example of the *Program Goals and Plan of Work* document on the following page). An assessment of the *Program Goals and Plan of Work* is submitted to the Department of Technology Chair annually at the beginning of the academic year, after developing a plan of work, and to report on work completed from the previous academic year. Follow-up on the assessment of program outcomes data flows first to the Chairperson or Assistant Chairperson who is responsible for documenting and reporting the results in the Department of Technology Annual Assessment Report. As appropriate, results may be further disseminated to the faculty at large, and/or Advisory Committees for further action aimed at program improvement.

Industrial Technology: Computer Systems Technology Program Goals

1. Provide students with high quality educational experiences by featuring a modern, up-to-date curriculum that will develop technical knowledge and skills, and an understanding of project management while fostering attitudes necessary for successful professional roles in computer systems technology.
2. Recruit and graduate a diverse group of individuals to support the computer technology businesses in Illinois and throughout the United States.
3. Provide opportunities for students to interface with businesses either developing or utilizing computer-related technology and services.
4. Provide service to the computing field through applied research, consulting, and participation in professional organizations.

Computer Systems Technology Program Goals & Plan of Work Report (2016-2017)

The mission of the program is to support the workforce needs of the businesses developing or utilizing computer-related technology while enhancing critical thinking and professional skillsets of students.

CST Goals	*Goal Alignment*	*Strategies*	*Plan of Work for 2016-2017 (September 2016)*	*Report on POW 2016-2017 (September 2017)*
1. Provide students with high quality educational experiences by featuring a modern, up-to-date curriculum that will develop technical knowledge and skills, and an understanding of project management while fostering attitudes necessary for successful professional roles in computer systems technology.	*Education Illinois* Goal #2 CAST Strategic Plan Goal #1 TEC Department Goal #1	a. Maintain strong business and industry input to program curricula and facilities decision making. b. Maintain high quality curriculum and instruction. c. Maintain a high quality teaching laboratory to deliver program courses.	a. Program faculty meet regularly to review and update curriculum and teaching/learning facilities. b. Convene a CST Advisory Board Meeting in spring of each academic year. c. Conduct survey of graduating students, alums, and employers of graduates of the program to seek their feedback for program update. d. Conduct CST Program Review, per ISU requirements.	a. Faculty continue to meet regularly to discuss curriculum and lab/facility needs. TEC 378 is now a permanent course. Other curriculum changes initiated last fall have been approved. b. The CST Advisory Board Meeting was held in spring 2017. c. Conducted a survey of graduating students, alums, and employers of graduates of the program to seek their feedback for program update. The outcomes of these surveys and discussed during program faculty meetings and Advisory Board meeting. d. CST program review was completed and the program was re-accredited in Spring 2017.
2. Recruit and graduate a diverse group of individuals to support the computer technology businesses in	ISU *Education Illinois* Goal #2, 3 CAST Strategic Plan Goal #1, 6	a. Maintain sustainable enrollment in the CST program at ISU. b. Promote the program to diverse	a. Continue to participate actively in Dept. Showcase and other recruiting events that bring high-school students, teachers, and counselors to campus. b. Establish communication with high school and community college instructors with the goal of recruiting transfer students.	a. Participated in Department Showcase and other recruiting events. b. Continued communication with high schools and two-year programs including tours of CST facilities and interaction of prospective students with CST faculty and current students.

Illinois and throughout the United States.	TEC Department Goal #1	audiences of potential students. c. Promote scholarships to existing and potential students.	c. Participate in recruiting events within ISU to facilitate internal transfers. d. Promote CST program to business and industry through alums of the program for support—probably to subsidize student membership in professional organizations	c. CST faculty meet with internal students and provide tour of CST labs to facilitate internal transfers. d. Promotion of CST program to Advisory Board and visiting companies. Advisory Board members and other business & industry professionals speak to students about employment opportunities.
3. Provide opportunities for students to interface with businesses either developing or utilizing computer-related technology and services.	ISU *Education Illinois* Goal #1, 2 CAST Strategic Plan Goal #1, 6 TEC Department Goal #3	a. Facilitate events that promote student interaction with businesses. b. Forge relationships with computing-related personnel in businesses.	a. Faculty invite business professionals into the classroom. b. Faculty visit with businesses who are hiring computer-related majors during ISU career events. a. Faculty encourage students to attend ISU career events. .	a. Several companies annually visit and speak to TEC 390 students b. Keeping updated with area businesses as well as through contacts on the Advisory Board c. Regular emails from CST faculty to promote internship / career fairs and other internship/job postings from the industry
4. Provide service to the computing field through applied research, consulting, and participation in professional organizations.	ISU *Education Illinois* Goal #2 CAST Strategic Plan Goal # 3, 4 TEC Department Goal #2	a. Tenured or tenure-track faculty will engage in applied research. b. Tenured or tenure-track faculty members will maintain participation and leadership in relevant professional organizations. c. Promote student participation in professional organizations and community service activities.	a. Tenured or tenure-track faculty continue to present and publish applied research. b. Tenured or tenure-track faculty maintain membership in and serve in leadership roles in relevant professional organizations. c. Tenured or tenure-track faculty continue to promote student membership and involvement in relevant professional organizations.	a. See DFSC portfolio for CST faculty. b. See DFSC portfolio for CST faculty. c. IEEE student chapter remains active.

Appendix A: Example of Employer Survey

Computer Systems Technology Employer Survey

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ISU Computer Systems Technology Employer Survey

As part of our continuous quality improvement process and accreditation requirements, we would like to know your perceptions of how well prepared our graduates are to apply Computer Systems knowledge, skills, and attitudes on the job.

If you are not the appropriate person to complete this survey, would you please forward to the individual in your firm who supervises or is knowledgable about the performance of the ISU graduate.

This brief survey has two parts: (a) ratings of 5 individual competencies that graduates should demonstrate, and (b) an open ended section for your comments and suggestions. **Please complete a separate survey for each ISU Computer Systems graduate who has worked for your firm for five (5) years or less.** All responses are completely confidential. Anticipated time to complete the survey is less than 10 minutes.

Thank you very much for your feedback on the quality of our Computer Systems graduates. Your input is very important to our program success!

1. How long has the (or was the) ISU Computer Systems graduate been employed by your firm?
   - ○ Less than 1 year
   - ○ 2 years
   - ○ 3 years
   - ○ 4 years
   - ○ 5 years
   - ○ Do not employ ISU grads with 5 or less years of employment. (END SURVEY)

Instructions for questions 2 to 22:

In the left-hand column is a listing of competencies (knowledge, skills, and attitudes) that should be demonstrated by graduates of the Computer Systems program in the Department of Technology at Illinois State University (ISU). For each of the competencies, please indicate the level of preparation as:

Excellent - Good - Neutral - Fair - Poor - Not Applicable.

2. Apply the fundamental concepts of digital/analog signals and electronics to computer systems, networking, and media.

	Excellent	Good	Neutral	Fair	Poor	Not Applicable
Electronics Concepts	○	○	○	○	○	○

3. Use specifications and applications of computer components, network devices, and media in network administration.

	Excellent	Good	Neutral	Fair	Poor	Not Applicable
Network Administration	○	○	○	○	○	○

4. Configure network operating systems and manageable network devices.

	Excellent	Good	Neutral	Fair	Poor	Not Applicable
Network Operating Systems	○	○	○	○	○	○

5. Design database interfaces and utilize basic programming techniques for business applications.

	Excellent	Good	Neutral	Fair	Poor	Not Applicable
Databases	○	○	○	○	○	○

6. Use project management techniques to develop solutions, and address business issues to meet client needs.

	Excellent	Good	Neutral	Fair	Poor	Not Applicable
Project Management	○	○	○	○	○	○

7. Additional comments, clarifications or suggestions for the ISU Computer Systems program:

Appendix B: Example of Senior Exit Survey

Department of Technology Senior Survey (RE)

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Department of Technology Senior Exit Survey

As part of our continuous quality improvement process, we would like to know your perception of how well we have performed as a department and as an academic degree program.

This brief survey has two parts: (a) ratings of general perceptions about the department and its quality, and (b) ratings on how well you achieved the intended learning outcomes for your major. Anticipated time to complete the survey is about 15 minutes.

Thank you very much for your feedback on the quality of the Department of Technology and its programs of study!

Instructions for questions 1 to 17:

This section includes ratings of your perception about the Department of Technology and its quality.

1. Faculty were helpful when I needed assistance.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Faculty	○	○	○	○	○

2. Overall, the quality of instruction was excellent in TEC courses.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Quality	○	○	○	○	○

3. I was treated fairly in my dealings with faculty.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Fairness	○	○	○	○	○

4. Faculty were experts in their subject matter areas.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Expertise	○	○	○	○	○

5. The department's computer resources met my needs.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Computers	○	○	○	○	○

6. Overall, I was satisfied with the quality of laboratory equipment.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Lab Equipment	○	○	○	○	○

7. Lab hours provided access to equipment to complete assignments.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Lab Access	○	○	○	○	○

8. I was able to get my into TEC courses in a timely manner.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Course Schedule	○	○	○	○	○

9. TEC Advisement Office responded to my inquiries in a timely manner.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Timely Advisement	○	○	○	○	○

10. My TEC advisor was knowledgeable of my academic plan.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Advisement Expertise	○	○	○	○	○

11. My internship was a valuable part of my education.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Did not participate in an internship
Internship	○	○	○	○	○	○

12. TEC department student organizations were a valuable part of my education.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Did not participate in student organization
TEC Student Organizations	○	○	○	○	○	○

13. My TEC major greatly expanded my career options.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Career Options	○	○	○	○	○

14. The content of my TEC courses was state-of-the-art.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Course Content	○	○	○	○	○

15. Overall, I greatly increased my knowledge and skills as a result of my TEC major.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Personal Skills	○	○	○	○	○

16. I would recommend TEC to a good friend or family member.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Recommendation	○	○	○	○	○

17. Would you care to share any additional comments about your experiences with the Dept of Technology?

Instructions for questions 18 to 22:

Please indicate how well the Computer Systems program prepared you to perform each of the following.

18. I am able to apply the fundamental concepts of digital/analog signals and electronics to computer systems, networking, and media.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Electronics Concepts	○	○	○	○	○

19. I am able to use specifications and applications of computer components, network devices, and media in network administration.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Network Administration	○	○	○	○	○

20. I am able to configure network operating systems and manageable network devices.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Network Operating Systems	○	○	○	○	○

21. I am able to design database interfaces and utilize basic programming techniques for business applications.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Databases	○	○	○	○	○

22. I am able to use project management techniques to develop solutions, and address business issues to meet client needs.*

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Project Management	○	○	○	○	○

23. Please provide any feedback about the instruction and your learning related to Industrial Computer Systems.

The remaining questions focus on various issues including your employment search and status.

24. Who or what influenced you in deciding to pursue the TEC program at ISU?*

Influences

25. At what stage are you in finding a position in your major field?

	Accepted an offer	Have tentative offer	Interviewing	Have not started searching
Job Search	○	○	○	○

26. If you are actively searching for a job or have landed a position, what has been most helpful so far: (you may answer more than one)

	ISU Career Services	ISU Career Fairs	eRecruiting	TEC Faculty Employer	My Own Searches (Websites, personal contacts, etc.)

	Services	Fairs		Contacts	contacts, etc.)
Help in job search	☐	☐	☐	☐	☐

27. If you have secured a permanent position, please provide the name of the employer:

Name of employer

Appendix C: Example of Alumni Learning Outcomes Survey

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1. Please indicate how well the ICS sequence prepared you to perform each skill.

	Well above average	Above average	Average	Below average	Well below average	N/A
Apply the fundamental concepts of digital/analog signals and electronics to computer systems, networking, and media.	○	○	○	○	○	○
Use specifications and applications of computer components, network devices, and media in network administration.	○	○	○	○	○	○
Configure network operating systems and manageable network devices.	○	○	○	○	○	○
Design database interfaces and utilize basic programming techniques for business applications.	○	○	○	○	○	○
Use project management techniques to develop solutions, and address business issues to meet client needs.	○	○	○	○	○	○

Appendix D: Annual Assessment & Reporting Calendar

Date	Activity	Accountable
As appropriate by course schedule	IDEA student ratings of instruction (November and April).	Secretary
As appropriate	Share assessment data with program and/or program advisory committees	Program Coordinator
As appropriate	Faculty Retreat - Review annual assessment data and establish improvement priorities.	Chair
April	Conduct TEC Senior Student Exit Survey in each capstone course.	Advisor
April	Organize follow-up survey of employers (minimum 3-year cycle)	Asst Chair & Secretary
April	Mail pre-survey letter to alumni.	Secretary
June	TEC Senior Student Exit Survey results and Employer Survey results distributed to faculty.	Advisor, Asst. Chair
July 30	Alumni data distributed to coordinators	Asst. Chair
August	Coordinators meeting to discuss new assessment data and review assessment process	Asst. Chair
September/October	Organize and conduct scheduled Peer Teaching Observations.	Asst. Chair
November 15	Program Coordinators submit the annual *Learning Outcomes Report*	Program Coordinator
November 15	Program Coordinators submit the annual *Program Goals Report and Plan of Work*	Program Coordinator
December 30	Submit annual TEC Assessment Report to the University Assessment Services (UAS)	Asst. Chair
December 30	Department of Technology Annual Report and Consolidated Annual Budget Report	Chair