

# FY2011 DEPARTMENTAL ANNUAL REPORT OF CONTINUOUS IMPROVEMENT

Due June 30, 2011 Draft

## Department of Technology Studies Fort Hays State University

### I. DEPARTMENTAL OVERVIEW

The Department of Technology Studies is one of three departments in the College of Education and Technology, working with the Advanced Education Programs and Teacher Education departments. There are only two Technology Education programs available to students in Kansas: Fort Hays State University and Pittsburg State University. There has been historically, and currently remains, an extreme shortage of Industrial Arts/Technology teachers not only in Kansas, but nationwide as there are no longer any Universities in Colorado and only one in Nebraska that has Technology Education teacher preparation programs. .

The department has seven full time tenure/tenure track faculty members, an office manager and four work-study students. All faculty are highly qualified with education and/or experience. Four faculty have Doctorate degrees and 3 have Master degrees. Presently one faculty member, Kenny Rigler, is working toward his Doctorate.

The Department provides three undergraduate programs to meet the needs of students. Technology Education is for those interested in pursuing a teaching career and Industrial Technology provides a program of study for those interested in careers in business and industry. The Technology Leadership degree is designed to provide a BS degree path for individuals who have obtained an Associate of Applied Science degree from an accredited community or technical college and want to continue their education toward a Bachelor degree without losing their applied hours. With the reorganization in the College of Education and Technology, the department does not officially have a graduate program as those programs were moved to the Department of Advanced Education Programs. The department also works with community and technical colleges in providing course work for their students and faculty.

FHSU in partnership with NCKTC, Beloit, provide the Kansas Welding Center for NCTKC students. This allows students to become certified welders in a one year program. The department also provides a 2+2 program for student in Manufacturing Technology.

The department does; however, continue to support and take a leadership role in the Master of Instructional Technology and Master of Education programs providing a specialization concentration in Technology. The department continues to provide the MLS coordination for Advanced Education Programs and works with the Teacher Education department in helping with advising of their students.

The department provides specialized courses for a number of departments such as Art, Geosciences, Agriculture, Physics, Pre-engineering, Gerontology, Information Networking and Telecommunications, and Interdisciplinary Studies. The department is responsible for providing instructional technology classes for all FHSU students who are pursuing a teaching license at both the elementary and secondary levels.

The department supports the University's mission of distance education by providing an undergraduate program in Technology Leadership and courses for the Masters Degree in Instructional Technology, Masters of Liberal Studies and Masters in Education for the College of Education and Technology through on-line classes.

#### **A. Departmental Mission and Vision Statements**

The Department of Technology Studies' **mission** is "to provide students instruction in Communication Systems; Power, Energy and Transportation Systems; and Production Systems so that they may become technologically literate". The department strengthens the mission of the University and of the College of Education and Technology by providing a program that supports the liberal arts concept in developing analytical skills, problem-solving abilities, writing and communication skills, along with application of knowledge. The department prepares professionals for schools, business and industry in a global technological society. This preparation is based on knowledge acquired through broad based technology courses leading to technology specialization.

Graduates of the department will be versatile, adaptable, and flexible, thereby employable in a variety of businesses, industries, or public schools. Employment possibilities include teaching careers at all levels of education, construction and manufacturing industries, architectural firms, automotive companies and distribution centers, as safety specialists, quality control and industrial trainers. Graduates are problem-solvers and will have the technological skills to utilize their knowledge for an ever-changing, technological society in the 21<sup>st</sup> century.

The Department has established four **core values** for its program.

- Develop in Learners multiple skills and the capacity to think critically and problem solve.
- Develop in Learners the responsibility for their learning and future success.

- Develop in Learners success through innovation and application of established and emerging technologies.
- Develop in Learners the ability to manipulate materials, processes, and systems of instructional and industrial technology.

## **B. Departmental Goals, Objectives, and Strategic Priorities**

- Review program standards and national trends and change the name of the Department to include Engineering. The direction that appears to be best suited for this department is Engineering Technology.
- Develop a career and technical pathway for those students currently enrolling in one or two year technical programs which will allow them to move seamlessly into our four year program and be able to build upon their past education.
- Provide an opportunity for students to develop an understanding of technology and its contribution to a liberal arts education.
- Provide learning experiences for those students desiring to become teachers of technology at all levels of education.
- Provide learning experiences for those students pursuing careers in business, industry, and/or agriculture.
- Provide a Technology Leadership BS degree program for those who have completed an AAS degree.
- Pursue options for a new energy specialization.

To meet these goals the department has committed itself to the following objectives, which will provide a quality program that will help students understand the role of the sciences, humanities, and technologies in society.

- Develop their ability to communicate effectively through oral and written means;
- Develop fundamental knowledge about the evolution of technology and its effect on people, the environment and culture;
- Develop an ability to design, use and control communication, production, power, energy and transportation systems;
- Develop basic technical competencies for the safe and efficient application of information, energy, tools, materials, machines, and processes in a technological society;
- Develop advanced technical competencies needed to teach communication, production, power, energy and transportation systems; and develop advanced technical competencies needed for a career in communication systems, production systems, or power, energy and transportation systems;
- Design, implement and evaluate instruction using appropriate methodologies which focus on problem-solving and decision-making skills involving humans, material, capital, energy, processes and technological systems, and;
- Develop strategies for the integration of technological concepts to other school disciplines.

The department established the Strategic Priorities for the 2010-2011 academic year which supports the University's and College's goals, these goals will continue for several years.

**Departmental Strategic Priority TECS: #1** Determine the direction of the department that meets the needs of the students and business and industry. Consider a possible name change to Engineering Technology.

**Departmental Strategic Priority: TECS: #2.** Increase recruitment in Eastern Colorado and Southern Nebraska.

**Departmental Strategic Priority: TECS: #3.** Work with Tech authority on providing quality post secondary programs and instructors for Career and Technology.

**Departmental Strategic Priority TECS: #4.** Develop a Construction Management program and an Alternative Energy program.

**Departmental Strategic Priority TECS: #5.** Review curriculum to determine if additional service learning components could be implemented.

**Departmental Strategic Priority TECS: #6.** Support the mobile computing initiative by continuing to expose students to new programs and applications of the computers in industry.

### C. Department Productivity and Distinctive Accomplishments

The Department of Technology Studies had a successful year overall. The department implemented an aggressive recruiting program in Eastern Colorado, Southern Nebraska, and Kansas . Recruitment will continue in Colorado as they no longer have a Technology teacher preparation program and there is a need to recruit students from that area, but also to develop a means by which FHSU can provide classes for the teachers in the area for recertification and professional development. Nebraska currently has only one Technology Education teacher preparation program left in the state, which is creating a tremendous shortage of qualified teachers in this essential field. Fort Hays State University will be able to recruit students from these areas into our quality program in both industry and teaching.

The department was involved in the following activities:

1. Successfully had all technology Teacher Education programs approved by the Kansas State Board of Education with no areas for improvement sited. Program was reviewed by professionals from Pittsburg University and local Technology teachers in the state.

2. TECA students were able to once again gain Regional, National and International recognition by attending and participating in Technology Competitions. The team attended the Colorado Technology Education Association Conference in Denver this year. At this conference, FHSU students performed exceptionally well competing in six different Technology competitions. Of those, FHSU received 1<sup>st</sup> place in Manufacturing, 1<sup>st</sup> in Live Communication, 1<sup>st</sup> in Transportation, 1<sup>st</sup> in Technical Presentations, and 2<sup>nd</sup> place in Problem Solving and in Technology Challenge.
3. TECA students attended the International Technology conference (ITEEA) in Minneapolis, Minnesota. They were not as successful as in some years past but did manage to receive a 2<sup>nd</sup> place in the Technical Presentation and the Manufacturing competitions, 3<sup>rd</sup> place finish in Transportation, and 4<sup>th</sup> place in Problem Solving and Live Communication. This is still a young team learning to work together; already they are showing improvement.
4. Provided the Technology Education Conference, designed to bring technology teachers from all across the state to campus for the purpose of providing leadership in the discipline and to provide opportunities to discuss issues of common interest. This event has been hosted by the department for 30 years.
5. Continued to update our Kansas, Colorado and Nebraska databases. The department sends regular announcements about our events and classes. A number of schools from these Border States have expressed an interest in our mailings and we reach 174 schools in Colorado, and 214 in Nebraska. This information is being used for student recruitment. Updated the database for Kansas and now are able to continually keep the technology teachers informed of events that affect them in teaching and provide guidance in developing programs and being able to qualify for funding.
6. Continued working with The Kansas Post Secondary Career and Technical Education authority reviewing programs to help meet the needs of Kansas workforce. Formed a joint partnership with North Central Kansas Technical College in providing a Welding Center for Western Kansas. The first year the program was started with 8 students and currently there are 21 who enrolled for fall 2010.
7. Partnered with NCKTC in developing a transfer program for NCKTC students who after completing the one year welding program could take 18 hours of our manufacturing classes and then transfer them to NCKTC and obtain their AAS degree. NCKTC in partnership with FHSU developed a new program which was approved by the KBOR in Welding Engineering. This program will allow students to seamlessly transfer to FHSU and pursue the Industrial Technology BS degree

8. Promoted growth in the Technology Leadership BS degree program by finalizing new partnerships with community and technical colleges. New partnerships were formed with 13 new Technical and Community colleges
9. Presented Service Learning opportunities for students: Toys for Tots; electric car races; light construction, instructional technology and Habitat for Humanity.
10. Provided In-service technology training for area high school teachers.
11. Hosted the annual Western Kansas Technology Fair for middle and high school students. This was our 52<sup>nd</sup> year anniversary.
12. Hosted the annual Technology Day for high school seniors – a recruiting day which provided hands on experience in the department.
13. Faculty served as consultants for industries and schools. Faculty are currently members of 16secondary school advisory boards. This is a requirement for VE2 funding.
14. With the Career and Technical movement in Kansas, secondary schools are pursuing VE 2 funding and as such need to have articulation agreements with post secondary schools. FHSU has developed alignments with 19 schools all across the state.

## II. DEPARTMENTAL PERFORMANCE METRICS

### A. Department Performance Indicators

Key Performance Indicator	FY2007	FY2008	FY2009	FY2010	FY2011
<b>Freshmen</b>	<b>14</b>	<b>17</b>	<b>14</b>	<b>22</b>	<b>15</b>
Technology Studies (BS,233-0839)	14	16	13	22	15
Technology Leadership (BS,233-0840)	0	1	1	0	0
<b>Transfer Students]</b>	<b>16</b>	<b>12</b>	<b>14</b>	<b>12</b>	<b>13</b>
Technology Studies (BS,233-0839)	6	7	4	5	9
Technology Leadership (BS,233-0840)	10	5	10	7	4
<b>Undergraduate (first majors/second majors)</b>	<b>140</b>	<b>114</b>	<b>104</b>	<b>118</b>	<b>125</b>
Technology Studies (BS,233-0839)	100	83	79	90	121
Technology Leadership (BS,233-0840)	40	31	25	28	24
<b>Major Retention</b>	<b>62.31%</b>	<b>52.55%</b>	<b>58.40%</b>	<b>66.02%</b>	<b>61.86%</b>
Technology Studies (BS,233-0839)	63.36%	55.67%	67.07%	66.66%	65.55%
Technology Leadership (BS,233-0840)	59.46%	45.00%	35.48%	64.00%	50.00%
<b>Undergraduate Student Credit Hours</b>	<b>3392</b>	<b>3192</b>	<b>3592</b>	<b>3568</b>	<b>3443</b>
<b>Tenured or Tenure-track Faculty (Headcount)</b>	<b>6</b>	<b>6</b>	<b>7</b>	<b>7</b>	<b>7</b>
<b>Non Tenure-Track Faculty (Headcount)</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Other Faculty (Headcount/Sections Taught)</b>					
Fall 2010					
Martin Kollman TECS 290 VB					
Robert Meistrell TECS 119					<b>28</b>
Maggie Renfrow TECS 290 VC					<b>16</b>
Matt Carroll TECS 290 VD					<b>30</b>
Larry Carver IDS 390 VA					<b>30</b>
					<b>29</b>
Spring 2011					
Martin Kollman TECS 290 VA					
Maggie Renfrow TECS 290 VD					<b>27</b>
Matt Carroll TECS 290 VE					<b>28</b>
Larry Carver IDS 390 VB					<b>25</b>
					<b>33</b>
<b>Undergraduate Degrees</b>	<b>27</b>	<b>28</b>	<b>15</b>	<b>18</b>	<b>24</b>
Technology Studies (BS,233-0839)	18	20	12	13	19
Technology Leadership (BS,233-0840)	9	8	3	5	5
Increase enrollment will occur as we develop relationships with schools and faculty in Colorado and Nebraska.					

Key Performance Indicator	FY2007	FY2008	FY2009	FY2010	FY2011
Enrollment for the BTL program needs to be increased and will do so with updating our web site and in the development of on-line Technology Management courses.					
Number of books, book chapters, and <b>refereed</b> articles published	1	2	2	1	1
Percent of faculty publishing <b>refereed</b> books, chapters, or articles	12.5%	12.5%	25.8%	14.2%	14.2%
Number of <b>non-refereed</b> articles and presentations	34	28	22	14	4
Percent of faculty publishing <b>non-refereed</b> articles or presentations	100%	87.5%	100%	100%	42.8%
Number of scholarly performances and other creative activities	10	12	15	18	10
Percent of faculty in scholarly performances or other creative activities	87.5%	87.5%	85.7%	100%	100%
Total number of external grant applications submitted/percent of faculty submitting [TOTAL NUMBER OF EXTERNAL GRANT APPLICATIONS/PERCENT FUNDED]	1/12.5%	0	0	1	2/14.2%
Total number of funded external grants/percent of faculty funded [DOLLAR AMOUNT OF EXTERNAL GRANT APPLICATIONS, PERCENT OF FACULTY FUNDED]	1/12.5%	0	0	0	1/14.2 RPOS KSDE grant funded for 44,000 over a four year period. One still in review
There was a slight decline in the number of presentations and publications this year due to the chair being gone for family emergencies and two deaths. This covered a period of nine months. Faculty member were assigned extra duties to continue the operation of the department in the Chairs absence. They are all to be commended on an outstanding job.					
[NOTE: Each department MUST report at least two direct measures of student learning outcomes and two indirect measures. Examples of direct measures include: first-time pass rate or average scores on standard exit exam, number of students successfully completing reviewed portfolios. Indirect measures would include student satisfaction, alumni and employer data, or any other perception based data.]					
Direct Outcome 1 Technology students that pass the PPST Test on first attempt		7/87.5%	6/100%	5/100%	6/100%
Direct Outcome 2 Employee satisfaction with Quality interns and program. See attached evaluation of Interns		1/100%	11/100%	6/100%	12/100%



Key Performance Indicator	FY2007	FY2008	FY2009	FY2010	FY2011
Indirect Indicator 1 Success of student placed in selected fields ie, teaching or industry. 100%		100%	99%	100%	100%
Indirect Indicator 2 Technology Students performance at Regional and International Competitions.		See attached listing for results	See attached listing for results	See attached listing for results	See attached listing for results
Dept senior students' Level of Academic Challenge [FHSU LAC SCORE, DEPT LAC SCORE]	54.15 45.80	53.87 56.69	54.65 51.20	55.9 51.01	56.4 51.54%
Dept senior students' Active and Collaborative Learning [FHSU ACL SCORE, DEPT ACL SCORE]	44.61 48.81	45.85 45.09	45.34 39.68	46.1 49.60	43.9 47.37%
Dept senior students' Student-Faculty Interaction [FHSU SFI SCORE, DEPT SFI SCORE, N, %]	44.19 46.67	44.73 46.67	45.34 42.54	41.0 48.15	38.5 35.90%
Dept senior students' Enriching Educational Experiences [FHSU EEE SCORE, DEPT EEE SCORE, N, %]	33.44 33.53	34.09 29.66	34.72 38.53	34.0 37.96	32.9 30.06%
Dept senior students' Supportive Campus Environment [FHSU SCE SCORE, DEPT SCE SCORE, N, %]	59.06 61.81	57.30 47.94	59.57 46.11	60.3 65.05	60.8 56.41%
Number of NSSE participants [NUMBER OF DEPT SR STUDENTS, PERCENT]	8 16%	8 16.7%	7 14.6%	12 41.3%	13 35.1%
Briefly note 2-3 improvements over the last year prompted from the above student learning/engagement indicators.					
[NOTE: Departments may pick up to three key performance indicators they currently measure but are not captured above. These measures could be used to track departmental results on specific yearly goals. Examples might include: number of SRPs attended, number of new freshmen contacted. (These will vary by department based on goals.)]					
Outcome/Indicator 1 [SPECIFIC PERFORMANCE MEASURE 1]					
Outcome/Indicator 2 [SPECIFIC PERFORMANCE MEASURE 2]					
Outcome/Indicator 3 [SPECIFIC PERFORMANCE MEASURE 3]					
Briefly note 2-3 improvements over the last year prompted from the above indicators.					

**C. Department Quality Initiatives and Results**

FY2011 Quality Initiatives	Results
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[NARRATIVE OF FIRST QUALITY INITIATIVE]	[MEASURABLE RESULTS OF THIS GOAL]
[NARRATIVE OF SECOND QUALITY INITIATIVE]	[MEASURABLE RESULTS OF THIS GOAL]

<b>FY2012 Quality Initiatives</b>	<b>Responsible Party, Resources, and Plan</b>
[NARRATIVE OF FIRST QUALITY INITIATIVE]	[RESPONSIBLE PARTY, RESOURCES REQUIRED, SPECIFIC MEASUREMENT, AND IMPLEMENTATION PLAN]
[NARRATIVE OF SECOND QUALITY INITIATIVE]	[RESPONSIBLE PARTY, RESOURCES REQUIRED, SPECIFIC MEASUREMENT, AND IMPLEMENTATION PLAN]

**D. Institutional Quality Results**

<b>FY2011 University Initiatives</b>	<b>Department Activities/Results</b>
Increase access and retention for Hispanic students	[MEASURABLE RESULTS OF THIS GOAL]
Increase the quantity and quality of K-12 teachers educated	[MEASURABLE RESULTS OF THIS GOAL]
Improve undergraduate students' foundational skills	[MEASURABLE RESULTS OF THIS GOAL]
Enhance physical wellness of students, faculty, and staff	[MEASURABLE RESULTS OF THIS GOAL]
Internationalize the campus and curriculum	[MEASURABLE RESULTS OF THIS GOAL]

**III. FY2011 STRATEGY AND OPPORTUNITIES FOR IMPROVEMENT**

**A. Departmental Reflection of Strengths, Needs, Opportunities, and Threats**

[DISCUSSION OF YOUR DEPARTMENT’S STRATEGIC PLANNING PROCESS. RESULTS OF STRATEGIC PLANNING SHOULD BE RECORDED BELOW. DEPARTMENTS ARE NOT EXPECTED TO ENGAGE IN FORMAL STRATEGIC PLANNING ANNUALLY, BUT SOME SYSTEMATIC STRATEGIC PLANNING MODEL SHOULD BE IMPLEMENTED. IF A SWOT ANALYSIS IS USED, PLACE IN SPACES BELOW; IF A DIFFERENT MODEL IS USED, THEN SUBSTITUTE.]

Current Strengths	Current Needs
<p>One of two programs in Kansas that provides Technology Education - teacher education preparation.</p> <p>Specialized curriculum supporting other major programs on campus.</p> <p>Leader in Technology Education in Kansas and surrounding states.</p> <p>Developed strong partnerships with technical and community colleges. Building collaborative programs with technical colleges to provide seamless transfer for students</p> <p>Developed positive relationships with major industries in Kansas, Nebraska and Colorado.</p> <p>Solid support from administration allowing for growth.</p>	<p>Work with Colorado to add in providing workshops and courses for recertification and update in Technology.</p> <p>Develop a quality marketing plan to make them aware of what is available to their students. Develop a positive relationship with PSU in providing a team effort in identifying a clear direction on Career, Technical, and Technology program in Kansas.</p> <p>Change the name to include Engineering in the title, followed by modifying and updating the curriculum to depict this name change.</p>
Future Opportunities	Future Threats
<p>Develop a specialization partnership with community and technical colleges which will allow for a student who has completed a certificate or diploma to transfer the specialization and general education hours toward a technical career specialization. Presently if they have an AAS degree they can transfer in the applied hours towards a Technology Leadership degree; however there</p>	<p>Decline in enrollment due to a major push for an increased skilled workforce at technical and vocational schools.</p> <p>Major changes in how program funding is approved for secondary programs. VE-2 funding is fast becoming the driving force on what is being taught in high schools programs.</p>

<p>are students who have inquired into this program and would like to be able to transfer in applied hours that they received on their one or two year certificate. Faculty are reviewing the possibility of providing a pathway for these students to be able to transfer in about 12 hours of any specialization that we have, and modifying the existing specialization to allow for this.</p> <p>Develop post secondary training and certification to meet the needs of industry as identified by the Governor’s career and technical authority.</p> <p>Develop a Construction Management and Alternative Energy specializations for industry interests.</p>	<p>Increased number of students desiring to take all course work virtually thus reducing the numbers of students here on campus. This program is an applied program and does not lend itself to a completely on-line degree.</p> <p>Technology Education program are expensive by nature. Equipment and material are changing and improving at a rapid pace. With the present economy it will be difficult to keep current curriculums in place.</p>
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**B. Opportunities for Improvement**

[DISCUSSION OF IDENTIFIED OPPORTUNITIES FOR IMPROVEMENT, WHICH MAY REQUIRE RESOURCES. THESE IDENTIFIED OPPORTUNITIES SHOULD ALIGN WITH ACTION PLAN REQUESTS GENERATED FOR UNIVERSITY STRATEGIC PLANNING.]

Opportunity for Improvement	Resources Required	Expected Result and Completion Date
<p>Work with teachers in Colorado to add in professional growth in their profession as there are no longer any programs in Colorado that do this. Develop summer workshops for career and technical education teachers to get them certified in their specialization.</p>	<p>We have the resources necessary to accomplish this initiative. Dependent upon what the Technical Authority deems a priority will determine what workshops are offered first. Industry will help with specialized equipment on a short time frame.</p>	<p>Colorado teachers will be able to not only get recertified but will be able to keep abreast on changes in the technology teaching profession. Post secondary teachers will be able to successfully pass the industries certification test for their specialization. They will be able to obtain the necessary teaching pedagogy to be successful in their classrooms.</p>
<p>Change the name of the</p>	<p>In the first year there will not</p>	<p>The process has been started</p>

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department to include Engineering Technology. Keep in line with National Organization.	be any new resources needed with the exception of review material. Dollars minimal. ITEEA has material for this process.	with review of material and the expectations for an Engineering Technology or similar program.
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## IV. SUPPORTING MATERIALS

### A. Department Degree Program Affinity Diagram(s)

#### *Bachelor of Science Industrial Technology/Technology Education*

#### **Mission**

**Our mission is to prepare technologically literate professionals for educational systems, business, and industry, in a global technological society**

#### **Guiding Principles**

Provide a wide variety of background experiences and knowledge, which allows students the opportunity to understand the technological society for today and tomorrow.

Stimulate curiosity, analytical, and problem solving to encourage ability to incorporate these attributes in decision-making situations.

Ability to learn utilizing a variety of instructional methodologies.

Capable to organize and manage group activities, and prepare written and oral technical materials.

Knowledgeable about mechanical and technical equipment, materials, procedures, and processes.

Competent of being a productive contributor in a global society.

Adaptable and flexible and able to make changes as our industrial society demands.

Knowledgeable about technology and its application.

#### **Learning Objectives**

To provide an opportunity for students to develop an understanding of technology & its contribution to a liberal arts education.

To develop and understand the role of the sciences, humanities & technologies in society.

To develop their ability to communicate effectively through oral & written means.

To develop fundamental knowledge about the evolution of technology & its effect on people, the environment & culture.

To provide educational experiences for those students desiring to become leaders of technology at all levels of education and industry.

To develop an ability to design, use & control communication, manufacturing, construction & power, energy & transportation.

To develop basic technical competencies for the safe & efficient application of information, energy, tools, materials, machines & processes, in technological systems.

To develop advanced technical competencies needed to successfully teach communication, production & power, energy & transportation technologies.

To design, implement & evaluate instruction using appropriate methodologies which focus on problem solving & decision making skills involving humans, material, capital & energy; processes & technological systems.

To develop strategies for the integration of technological concepts to other school disciplines.

### **Organizing Themes**

The program is designed so that students can acquire a Bachelor of Science in Industrial Technology or Technology Education.

Industrial Technology teaches students with the skills and business courses to effectively work and manage in several areas of the industrial arena.

Technology Education provides students the necessary skills and teaching abilities to share their knowledge at an appropriate grade level.

### **Graduate Characteristics**

Graduates of the Technology Leadership, Industrial Technology and Technology Education programs are considered leaders in their field.

- ✔ Are employed in a wide array of businesses and industries as mid-management, supervisors, foremen, quality control, and draftsmen. They are also employed as teachers of all forms of technology
- ✔ Have a wide variety of experiences and knowledge, which allows them the opportunity to understand the technological society for today and tomorrow.
- ✔ Have the ability to organize and manage group activities, and prepare written and oral technical materials.
- ✔ Are adaptable and flexible and able to make changes as our industrial society demands.
- ✔ Are knowledgeable about mechanical and technical equipment, materials, procedures, and process.

## *Bachelor of Science Technology Leadership*

### **Mission**

**The mission of Technology Studies is to prepare technologically literate professionals for educational systems, business, and industry, in a global technological society**

### **Guiding Principles**

Provide the students with the leadership and management skills that are essential in today's workforce. Businesses and industries are looking for individuals who have applied technology skills along with leadership skills to advance with in companies as mid-managers.

Provide a seamless transfer Bachelor of Science degree. Students who have the ability and desire to work in industry and who have successfully obtained an Associated of Applied Science degree can transfer those applied hours directly to the Technology Leadership program without the concern of loss hours.

Individuals who graduated with an AAS degree and who are employed in a career are oftentimes not able to quit that job and return to college to finish their BS degree.

Provide a Workforce Baccalaureate Degree available to all students across Kansas and surrounding states.

### **Learning Objectives**

- ✓ To provide an opportunity for students to develop an understanding of Technology and its contributions to a liberal arts education.
- ✓ To provide educational experiences for students desiring to become leaders of technology in business, industry, or education.
- ✓ To provide educational experiences in the fundamental knowledge about the evolution of environment and culture.
- ✓ To provide educational experiences so students acquire an understanding of the nature of technology and to use this experience as supervisors, managers, and lead individuals in their selected careers.

### **Organizing Themes**

#### **Associate of Applied Science**

The program is designed so that students can acquire a Bachelor of Science in Technology Leadership without a loss of hours obtained in their applied Associate's Degree

Students can transfer up to 64 hours in this program. Twenty-four of those hours should be in approved general education. IF for some reason they do not have 24 hours of general education those hours will be added into their leadership program.

The program is designed to provide students with the same number of general education and upper level courses that are required of all students who graduate with a Bachelor of Science degree.

The classes have been designed so that students can obtain the degree without having to disrupt their family or quit their present jobs. The program is available through the Virtual College and distance education.

The program provides students with two leadership options to meet their individual needs. Option one has the total leadership major of 31 hours prescribed while option two provides some degree of flexibility for students who wish to take additional classes in their applied area of specialization.



## Graduate Characteristics

Graduates of the Technology Leadership, Industrial Technology and Technology Education programs are considered leaders in their field.

- ✔ Are employed in a wide array of businesses and industries as mid-management, supervisors, foremen, quality control, and draftsmen. They are also employed as teachers of all forms of technology
- ✔ Have a wide variety of experiences and knowledge, which allows them the opportunity to understand the technological society for today and tomorrow.
- ✔ Have the ability to organize and manage group activities, and prepare written and oral technical materials.
- ✔ Are adaptable and flexible and able to make changes as our industrial society demands.
- ✔ Are knowledgeable about mechanical and technical equipment, materials, procedures, and process.

**B. Department Staffing Plan**

College of Education and Technology  
Department Staffing Plan and Assignments Department of Technology Studies

There are no changes in our staffing plan from last year in faculty retirements, additions or salaries.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Anticipated Department Needs	Faculty Member	Future Faculty Expertise Needed	Retirement (Birth-date)	Assigned Instructional FTE's	Rank Current Date	Degree Completed	Track	Current Salary In Line	Nat'l Average For Discipline/Rank
Chair Professional Program Development	Fred Ruda	Safety Internship Teacher Education BTL	1944	1.0	Professor	Ed.D	Tenured	102,339	
Power & Energy Computer Tech BTL Virtual	Joe Chretien	Power & Energy Technology Robotics Hydraulics/Pneumatics Industrial Mgmt A+ Comp Maint	1951	1.0	Assistant Professor 1998	M.S.	Tenured	54,494.	
Instructional Tech Plastics Tech Communication Tech	Kenny Rigler	Instructional Tech Communication Tech Plastics Technology	1980	1.0	Instructor 2007	M.S.	Tenure track Second year	43,680.	
Power & Energy Instructional Tech MIT Coordinator	Robert Howell	Power & Energy Technology Practicum MIT Interdisciplinary Teacher Education	1947	1.0	Associate Professor 2005	Ph.D.	Tenured	55,859.	
Construction Tech	Duane Renfrow	Construction Tech Woods Materials Plastics Interdisciplinary	1955	1.0	Associate 1996 Professor	Ed.D	Tenured	61,062	
Comm. Tech CAD Expand area	Kim Stewart	Communication Technology CAD Construction	1959	1.0	Assistant 1997 Professor	M.S.	Tenured	61,796	

		Engineering Graph Manuf Graphics							
Instructional Tech	Rita Hauck	Instructional Tech Multimedia Hypermedia	1946	1.0	Associate Professor	Ph.D.	Tenured	55,477.	

### C. Bibliography of Departmental Scholarly Activity

#### Presentations, Refereed

Hauck, R. (2011, August). *Defining the Learning Marketplace*. Society for Applied Learning Technology, Reston, VA. (Refereed)

Hauck, R. (2011, August). *The Learning Marketplace: A Dynamic International Learning Arena*. Society for Applied Learning Technology, Reston, VA (Refereed)

Rigler, K. (2010, October). *Collaborative learning and content creation within Epsilen*. E-Learn 2010: World Conference on E-Learning in Corporate, Government, Healthcare, & Higher Education, Orlando, FL. (Refereed)

#### Presentations, Non Refereed

Renfrow, D., & Stewart, K. (Nov. 2010) *Production Technology, How we put it to work at Fort Hays State University*. Colorado Technology Education Association Conference, Denver, CO.

#### Publications

Renfrow, D. (Spring, 2011). *Three Faces of Technology Education*. Unpublished manuscript.

#### Research

Chretien, J. Continued involvement in implementation of the Grant “Energizing Middle School Science and Social Studies.”

Howell, R. Editor of Journal of STEM Teacher Education – formerly JITE.

Renfrow, D. Study new techniques, materials, and instruments in the area of wood/construction technology and plastics technology.

Renfrow, D., & Stewart, K. (Fall 2010, Spring 2011). Researched and developed strategies for a Construction Management degree in the Department of Technology Studies.

Rigler, K. Completed 12 hours of Ph.D. coursework from Northcentral University.

Stewart, K. (Fall, 2010). Research to combine AutoCAD-Blocks with Attributes. This process is used in the drafting industry and our students should become accustomed to the process.

### D. Department Program Assessment Results

#### Summer 10/Fall 10/Spring 11

Traits	Above	Average	Below	N/A
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	Average		Average	
Relationship with Others	67%	33%		
Judgment	78%	22%		
Ability to Learn	100%			
Work Habits	78%	22%		
Dependability	78%	22%		
Quality of Work	89%	11%		
Quantity of Work	89%	11%		
Communications: Oral	89%	11%		
Communications: Written	45%	55%		
Leadership Quality	78%	22%		
Care & Proper Use of Equipment	67%	33%		
Safety Habits	78%	22%		
General Attitude	89%	11%		
Reaction to Constructive Criticism	78%	22%		
Contribution to the Organization	89%	11%		

### Summer 10/Fall 10/Spring 11

#### Strengths and weaknesses of interns in relation to the above traits, as presented by industry

- Above average student, always had on safety glasses, early every day, eager to learn, worked very well with others.
- Pleased with work and development – a good self starter.
- Great attitude, willing to help out with whatever was needed, took constructive criticism well and didn't repeat mistakes.
- Communicated well with owner of building project, Housing Authority, and workers. The architect commented that the concrete work for this job was above average.
- Showed an exceptional ability to learn, is dependable.
- Is one of the very few employees you could wish for. Very talented. Always on time and ready to work, took pride in what was done.
- Great job here, worked hard, always to work on time, helped to update a lot of substation drawings. Got along well with all the people and probably even learned a couple of things on how to deal with different personalities.
- With little supervision, was able to digest complex tasks and complete them with good results.
- Took on projects with little instruction – not afraid to meet a job head on. Is good at understanding the system before starting to put it on paper – this really helps efficiency.

#### Recommendations of Interns by industry representatives

- As I always respond, more specific architectural and construction experiences.
- More field work at school.
- More 3D Modeling experience.
- More field experience.
- Start to learn GIS software. If looking to move into civil, municipal or utility field this is a necessary software.
- Quality Assurance fundamentals with Lean Manufacturing basic would help prepare students.

- Use metric system more often. Spend some time on some of AutoDesk's other products.

#### E. Other Departmental Information

##### Technology Studies Department Writing Needs Analysis

This is the same chart and the same information that was submitted for 2010 Annual Report. It is still very current.

Types of Writing	Description	Courses
Reflection Papers	<p>Becoming a professional educator requires utilizing reflection as a tool for self-growth, program assessment, and instructional effectiveness. All education classes require formative reflection papers throughout the coursework</p> <p>Final Reflection: Student teaching candidates complete a summative written reflection during the final week of directed teaching. Final reflections are guided using suggested topics aligned with the COET Conceptual Framework and the KSDE Kansas Performance Assessment. Reflections include evidence of the candidate's professional growth during the directed teaching experience in the areas of methodology and pedagogy of teaching.</p> <p>Students write a one to two page reflection on the class service learning project.</p> <p>Students write about what Technology Education means to them and why they want to become a teacher.</p> <p>Students write about design and problem-solving type concepts related to their projects.</p> <p>Students write a one to two page paper describing the architecture of campus buildings.</p>	<p>TECS 290 Introduction to Instructional Technology/TECS 460 Teaching Technology Education/TECS 277 Early Field Experience</p> <p>TECS 120 Power and Energy/TECS 475 Mechanical &amp; Electrical Systems</p> <p>TECS 460 Teaching Technology Education</p> <p>TECS 310 Manufacturing Graphics</p> <p>TECS 110 Communication Systems</p>

Lesson Planning	All Internships and Apprenticeships (along with their companion methods courses) require lesson plans complete with state standards, objectives, methodologies, integration, adaptations, materials and technology.	TECS 290 Introduction to Instructional Technology/TECS 460 Teaching Technology Education/TECS 495 Training & Instructional Systems
Kansas Performance Assessment Narrative Report (FPA)	The KPA (FPA) is a written account of a multiple lesson teaching unit. Student teaching candidates must demonstrate the ability to meet the Kansas State Department of Education's <u>teaching standards</u> . They provide details about their classroom setting; set learning goals and objectives for a topic they plan to teach; devise and implement an instructional plan, and an assessment plan. They also describe the learning environment in the classroom; and write reflections about their teaching of the unit. These narrative reports are a maximum of 25 pages in length, not including appendices. Seven mandatory criteria are addressed in the narrative report. Reports are graded using a rubric and checklist. These evaluation instruments are aligned with the KSDE KPA rubric and checklist. Criteria addressed are also aligned with the COET Conceptual Framework.	TECS 460 Teaching Technology Education
Research paper	<p>Each student writes a research paper using a minimum of five sources, about the "past, present, and future" of a particular technology.</p> <p>Each student writes a five to six page paper with a minimum of five sources about occupational safety that pertains to their present or future workplace.</p> <p>Students research building materials and organize the information into a document that would allow an appraiser to look at their plans and make an</p>	<p>IDS 390 Technology in Society</p> <p>TECS 490 Occupational Safety, Health &amp; Liability</p> <p>TECS 415 Construction Graphics</p>

	<p>appraisal of their plans.</p> <p>Students write a two page paper on original equipment manufacturing of robots.</p> <p>Students write a five page paper on a plastic process.</p>	<p>TECS 420 Fluid Systems Hydraulics &amp; Pneumatics</p> <p>TECS 240 Plastic Processes</p>
Article Review	<p>Each student writes a two page report on new materials and processes.</p> <p>Each student writes a 15 page document based on one page material product reviews.</p>	<p>TECS 180 Materials and Processes</p> <p>TECS 380 Materials Finishing &amp; Testing</p>
Furniture Plan Portfolio	Each student writes a narrative plus project plans that becomes part of the student's "Furniture Plan Portfolio."	TECS 314 Furniture & Cabinet Construction
Case Studies	Students use critical thinking and writing skills as they respond to case studies on course topics.	TECS 480 Industrial Management
	Students plan, design, and produce an authentic Technology Studies Department Newsletter that is sent to alumni and friends.	TECS 212 Communication Graphics

