

ABET Self-Study Report

for the

Packaging Engineering Technology

at

Indiana State University

Terre Haute, Indiana

June 30, 2015

CONFIDENTIAL

The information supplied in this Self-Study Report is for the confidential use of ABET and its authorized agents, and will not be disclosed without authorization of the institution concerned, except for summary data not identifiable to a specific institution.

Program Self-Study Report for ETAC of ABET Accreditation or Reaccreditation

BACKGROUND INFORMATION

A. Contact Information

List name, mailing address, telephone number, fax number, and e-mail address for the primary pre-visit contact person for the program.

Randell Peters, PhD, CSTM AETM Dept. Chair 650 Cherry St John T Myers Bldg Rm TC201C Terre Haute, IN 47809

Ph. 812-237-4962 Cell. 765-592-1227 Fax. 812-237-4527
randy.peters@indstate.edu

B. Program History

This is an initial ETAC of ABET accreditation for the Packaging Engineering Technology program.

This particular degree has been modified over the years since its beginning as an option in the Industrial Technology degree program in 1965. By 1975 the Packaging Technology program was created replacing the packaging option within the Industrial Technology program. The initial name of Packaging Technology remained unchanged until 2008 when the name was changed to Packaging. In 2010 the name was changed once more to Packaging Engineering Technology reflecting the change to a more engineering technology content.

The packaging program was initially accredited by the National Association of Industrial Technology (NAIT) in 1974 and continues without lapse to be accredited by the same association now known as the Association of Technology, Management, and Applied Engineering (ATMAE).

The program has seen stable enrollment for the past 6 years as indicated in the table below. Now housed in the Applied Engineering and Technology Management Department with seven other similar programs, the curriculum was modified effective fall 2015.

APPLIED ENGINEERING & TECHNOLOGY MANAGEMENT	Fa14	Sp14	Fa13	Sp13	Fa12	Sp12	Fa11	Sp11	Fa10	Sp10	Fa09	Sp09
Advanced Manufacturing Management (BS)	6	7	7	8	7	4	3	2	3	7	8	12
Automotive Engineering Technology (BS)	48	38	44	41	50	40	49	41	43	48	50	53
Civil Engineering Technology	63	35	33	9	2							
Engineering Technology	19	14	16	7	8							
Mechanical Engineering Technology (BS)	275	244	246	200	173	152	153	133	126	96	97	76
Packaging Engineering Technology (BS)	24	21	26	24	23	22	24	21	24	27	24	26
Technology & Engineering Education (BS)	9	14	17	21	23	18	21	18	20	16	18	15
Technology Management (BS)	56	50	58	48	56	53	50	60	60	64	61	48

Overview of the changes for programs in the AETM Department impacting the Packaging Engineering Technology program

The following is a summary of the changes for six of the nine programs in the AETM department. That list of a minimum of 29 credits includes:

- MATH 131 or the combination of MATH 123 and MATH 129 (additional 3 if MATH 115 is needed) 4 or 6 credits
- PHYS 105/L 4 □ CHEM 105/L (or ENVI 170/L for CVET) 4
- ECT 160 – Electronic Fundamentals 3
- MET 103 – Intro to Technical Graphics 3
- MET 130 – Intro to Engineering Technology 2
- MET 329 – Fluid Power Technology 3
- MET 405 – Economic Analysis 3
- TMGT 361 – Quality Systems and Tools 3

With regard to MATH, we are now requiring the culminating MATH requirement to be MATH 131 or the combination of MATH 123 and MATH 129 (formerly known as MATH 301). Since these are STEM related degree programs, and since students can test into MATH 123 or MATH 131 without taking other courses, we feel that requiring students to take MATH 115 is not necessary for every student. Should a student not have the appropriate placement, they will have to take the appropriate math courses to be ready for MATH 123 or MATH 131. It should be pointed out that we are looking at two paths. MATH 131 is calculus with trigonometry. Our programs require a level of proficiency with trigonometry that is included in MATH 123 and not in MATH 129. Our students require MATH 129 or MATH 131 to satisfy the ABET standards for math above the level of college algebra and trigonometry. This combination works for all six majors. As a result of these common course changes, TMGT 351, TMGT 131, TMGT 430, and MET 430 will no longer be required courses.

1. The Packaging Engineering Technology program is simply incorporating the core described above.

C. Options

There are no options, tracks, or concentrations in the current program

D. Program Delivery Modes

Describe the delivery modes used by this program, e.g., days, evenings, weekends, cooperative education, traditional lecture/laboratory, off-campus, distance education, web-based, etc.

Generally, all PET major courses are offered during days on campus. Courses with multiple sections may include evening class meeting times. The classes are a mix of lecture/in-class activity based classes or a mix lecture/lab/in-class activity based classes. Blackboard is used as a supplemental tool in all courses.

E. Program Locations

The Packaging Engineering Technology program is offered primarily in face-to-face format on campus. Some packaging specific courses are offered online in a distance version as needed. There are no other program locations.

All major courses are delivered in the Myers Technology Center and the Technology Annex facilities. Mathematics, science, and Foundational Studies courses are offered at a number of locations on the ISU Terre Haute campus.

F. Public Disclosure

The PET program educational objectives, student outcomes, annual enrollment and graduation data can be found:

1. On the ISU 2015-2016 Undergraduate Catalog, in the section detailing the AETM Department and all its majors, on-line at:
http://catalog.indstate.edu/preview_entity.php?catoid=24&ent_oid=1249&returnto=618

G. Deficiencies, Weaknesses or Concerns from Previous Evaluation(s) and the Actions Taken to Address Them This is an initial accreditation.

GENERAL CRITERIA

CRITERION 1. STUDENTS

A. Student Admissions

The AETM department adheres to the general admissions policy of the university which is located in the catalog provided to the visiting team.

B. Evaluating Student Performance

To earn a bachelor's degree in packaging engineering technology, students must complete the subjects in the curriculum, have minimum GPA of 2.0/4.0 in all work attempted at ISU. Other requirements include a minimum of 45 hours of 300/400 level courses, and 30 hours of residency, etc.

Program faculty share ideas and information regarding the grading of coursework. Rubrics are encouraged and often used for grading work.

Pre-requisites for PET program courses are strictly enforced. Passing the pre-requisite is necessary for an adviser to approve student's course registration for the following semester. An 'F' grade in courses that are pre-requisites for other courses in the curriculum requires the failed course to be repeated.

Students are prevented from automatically registering for classes if they do not have the proper pre-requisites. However, to allow for advance registration, students are allowed to register for courses in the upcoming semester if they are enrolled in the pre-requisite course. At the conclusion of the semester, after final grades are available to students, the Dean's office runs a report of missing pre-requisites of students and provides the data to the AETM Department chair for review. These students are typically notified of the need for the pre-requisite course and are encouraged to work with their adviser to determine an alternate course of action.

Rules regarding class attendance, load, grades, and appeals are located in the undergraduate catalog provided to the visiting team.

C. Transfer Students and Transfer Courses

TRANSFER CREDIT AND GENERAL EDUCATION CORE

Transfer students must meet graduation requirements as stated in the graduation section of this Catalog. The academic dean of the college of the student's intended major determines the transferability and applicability of transfer credit hours. The transfer credit will be re-evaluated if a transfer student changes his or her degree program.

Only transfer credit hours earned in college-level courses (typically numbered 100 or higher) from regionally accredited colleges or universities will be considered for acceptance. Transfer courses in which a grade of C or higher was earned will be assigned credit. Courses with a grade of C- or below will not be assigned credit. Successful completion of the Statewide Transfer General Education Core (STGEC) at an Indiana public institution of higher education transfers as a block of 30 credit hours towards completion of Foundation Studies requirements at Indiana State University.

MILITARY CREDIT

Credit will be granted by Indiana State University according to the guidelines of the American Council of Education (ACE). The Office of Registration and Records works with the academic departments to determine how credits transfer. If ACE guidelines are in conflict with Indiana State University policies, the latter takes precedence.

Students who have successfully completed college-level studies or DSST (Dantes) Subject Standardized Tests while in the military may be eligible to receive credit if their official military transcript indicates attainment of college-level equivalency. Credit for military training and experience is granted based on official transcripts and/or discharge forms (DD214). Service members (from all branches except the Air Force) using veterans benefits must submit an official Joint Services Transcript. All service members qualify for 2-8 credits, based on completion of basic training and length of service as indicated on the DD214. Two credits are awarded for physical education with completion of basic training. Additional elective credit is granted for service time as follows:

- 2 credits for 12-15 months service.
- 3 credits for 16-17 months service.
- 4 credits for 18-19 months service.
- 5 credits for 20-21 months service.
- 6 credits for 22 months of service or more.

A maximum of 63 credits may be granted based on a combination of military service, training, and education. Credit from the Community College of the Air Force is applied per Indiana State University's standard transfer guidelines for regionally accredited institutions. A maximum of 90 credits may be applied from CCAF and other regionally accredited colleges and universities. Contact the [Office of Registration and Records](#) for more information.

D. Advising and Career Guidance

Academic advising is an integral part of the educational process in the individual program and the College of Technology. The primary purpose of advising is to assist students in the development of meaningful educational plans compatible with the attainment of their life goals.

Advisor and Student Role: Academic advising is an interactive process in which both students and advisors share the responsibility. Academic advisors should foster a good

working relationship with students, and adapt to their experiences and changing needs to assure the effectiveness of advising. By having faculty members serving in university and college level academic affairs committees, the program is able to enhance understanding, affirming, and respecting the individual differences within the University community to assure quality advising. The department and program expect advisors to develop the knowledge, experience, and interest for successfully communicating with students in a genuine, sincere, accurate, and confidential manner. Students are expected to understand University and program requirements and accept the responsibility for fulfilling them. Together advisors and students are expected to maintain a professional and mutually respectful relationship as they review students' progress toward the attainment of educational objectives.

Advising Units: Advising in the major starts from the freshman year and will continue through the senior year. Students have a variety of advising resources provided by units at the college and department level. Non-transfer freshmen are co-advised by the University College and the respective program advisors. Upon completion of 30 credits, students matriculate from the University College co-advising program, then receiving all academic and career advising from program and department faculty. As a student progresses through the academic program, each advising unit will play a different role, depending on the status and concern of the student. Key advisement personnel include:

1. Associate Dean's office. The Associate Dean is the chief administrator in the College of Technology for undergraduate academics. This office oversees and adds consistency to advising and curriculum issues across the College of Technology. Support staff work in this office, available to help students with advising, scheduling and registration, serving as a backup when department faculty are not available.
2. The College of Technology central records coordinator. This role is to assist the Associate Dean in organizing and coordinating the review of degree requirements at the time of graduation, review and ensure proper course transfer documentation, coordinate requests for course substitutions and oversee the academic records of students in the College of Technology.
3. Academic advisor. When a student declares a major, he/she is assigned an academic advisor who is a full-time member of the faculty. The student will retain this advisor as long as he/she feels advising has been productive, thereby enabling the development of a closer, more interactive relationship between the two parties. Students may request a change in their assigned advisor at any time by contacting the department chair. The role of the faculty advisor is to provide general guidance regarding curriculum and career paths. Each faculty advisor has a crucial role in monitoring and advising students and in catching academic problems before they become serious.

Advising Tools: Student progress is tracked by advisors with Degree Works™ (implemented fall 2013) academic advising and tracking tool, named MySAM by the university. Students also have full access to the tool. This software application holds academic records including progress toward the degree, course grades, remaining coursework to be completed, class registration tools, what-if functions for degree major or minor additions or changes and a note area for academic advisor notes and recommendations. Prior to Degree Works/MySAM the Degree Audit

Reporting System (DARS) software package was used. Students who entered the program before fall 2012 are still using the DARS tool. The upgrade to Degree Works has been well received, giving students and advisors additional and more flexible academic review tools. For a printout example from the MySam, see Figure 1.1, 1.2, and 1.3.

Class History

Student View AB12706d as of 06/11/2015 at 04:41

Student	[REDACTED]	Level	Undergraduate	4 Year Guarantee	Not Reported
ID	[REDACTED]	Degree	Bachelor of Science	Honors	N/A
Classification	Junior 1	College	College of Technology	Sport	N/A
Advisors	Schafer, Marion D Hayden, Michael A McLeod, Alister	Major	Packaging Engineering Tech	Distance Learner	N/A
Overall GPA	3.791	Minors	Advanced Mfg Management Lean Six Sigma	Concentration	N/A
Alternate PIN	323854	Graduation Application Status	Packaging Engineering Tech:Sought	Academic Standing	Good Standing
Citizenship	Citizen	Gender	F	Holds	A/R Transcript/Diploma Hold
Transfer Hours	4	ISU Earned Hours	69	GPA Hours	69
Veteran	N/A	Seeking Multiple Degrees	N/A	GPA Quality Points	261.6
Transfer Institution/Degree	University of Southern Indiana	Previous ISU Degree	N/A	Adm. Term	Fall 2013

Degree Progress

Requirements	85%
---------------------	-----

<input type="checkbox"/>	Bachelor of Science	Catalog Year: 2013-2014	Credits Required: 120
		GPA: 3.791	Credits Applied: 94
<input type="checkbox"/>	Minimum 120 Credits to Graduate	Still Needed:	120 Credits are required to graduate. You currently have 94, you still need at least 26 more.
<input type="checkbox"/>	Minimum 45 Credits in 300-400 Level Courses	Still Needed:	You currently have 39, you still need 6 more.
<input checked="" type="checkbox"/>	Minimum 3 Residency Credits in 300-400 Level Courses		
<input checked="" type="checkbox"/>	Minimum 30 Residency Credits Requirement		
<input checked="" type="checkbox"/>	Minimum 2.0 Cumulative GPA Met		
<input type="checkbox"/>	Foundational Studies Requirements	Still Needed:	See Foundational Studies section
<input type="checkbox"/>	Major Requirements	Still Needed:	See Packaging Engineering Technology Major section
<input type="checkbox"/>	Minor Requirements	Still Needed:	See Advanced Manufacturing Management Minor section See Lean Six Sigma Minor section
<input type="checkbox"/>	Foundational Studies	Catalog Year: 2013-2014	GPA: 7.193
	You are highly encouraged to review your major area for any Foundational Studies courses that may be required for your major. To Learn More About This Requirement by CLICKING THIS LINK IMPORTANT NOTE: All students must complete at least one UPPER DIVISION INTEGRATIVE ELECTIVES(UDIE) course at ISU. (It may be completed online.) The second UDIE may also be fulfilled by completing a minor, certificate, or second major; completing a content specific education major; or completing applicable study abroad course work. Contact your advisor or the Study Abroad Office for more information.		
<input checked="" type="checkbox"/>	FRESHMAN COMPOSITION		
<input checked="" type="checkbox"/>	Freshman Writing I & II	ENG 101 ENG 105	Freshman Writing I Freshman Writing II A- 3 Fall 2013 A 3 Spring 2014
<input type="checkbox"/>	JUNIOR COMPOSITION		
	ENG 105 (or another specified course) is a required prerequisite for Junior Composition and must be completed even if it is waived for Foundational Studies purposes. International students may be required to complete ESL 103A and/or ESL 103B in addition to ENG 105.		
<input checked="" type="checkbox"/>	Junior Composition Prerequisite	ENG 105	Freshman Writing II A 3 Spring 2014
<input type="checkbox"/>	Select 1 Junior Composition Class	HRD 340	Writing for the Workplace RG (3) Fall 2015
<input checked="" type="checkbox"/>	COMMUNICATION		
<input checked="" type="checkbox"/>	Select 1 Communication Class	COMM 101	Intro Sp Commun B 3 Fall 2013
<input checked="" type="checkbox"/>	QUANTITATIVE LITERACY & MATHEMATICS		
<input checked="" type="checkbox"/>	Quantitative Literacy/Mathematics	MATH 241	Princ Statistics A+ 3 Sum 1 2014
<input type="checkbox"/>	NON-NATIVE LANGUAGE		
<input type="checkbox"/>	Select 2 Classes in a Non-Native Language	Still Needed:	2 Classes in ARBC 101 or 102* or CHIN 101 or 102* or FREN 100.196 or 202.499 or GERM 100.198 or 200.499 or GRK 100.499 or ITAL 100.499 or JAPN 100.499 or LLL 101 or 102 or PORT 101 or 102* or LAT 101.202 or RUSS 100.499 or SPAN 100.196 or 200.499 <u>Except</u> FREN 201L or 202L or GERM 201L or 202L or JAPN 201L* or 202L* or SPAN 201L or 202L.
<input checked="" type="checkbox"/>	HEALTH & WELLNESS		
	Students who have completed U.S. Military Basic Training may request credit for this requirement by submitting an official Military transcript or DD-214 form.		
<input checked="" type="checkbox"/>	Personal Health Science & Wellness	AHS 111	Personal Hth Sci & Wellness A- 3 Spring 2014
<input checked="" type="checkbox"/>	SCIENCE & LABORATORY		
		CHEM 100	ELEMENTS EVERYDAY CHEM CR 3 Fall 2011

https://dw-app-002.indstate.edu/IRISLink.cgi

Figure 1.1: MySam Example pg. 1

6/24/2015

Ellician Degree Works

<input checked="" type="checkbox"/>	Chemistry and Society & Lab	CHEM 100L	Satisfied by TRANSFERRED - Transfer Hours - University of Southern Indiana ELEMENTS EVERYDAY CHEM	CR	1	Fall 2011
<input checked="" type="checkbox"/>	SOCIAL & BEHAVIORAL SCIENCE		Satisfied by TRANSFERRED - Transfer Hours - University of Southern Indiana			
<input checked="" type="checkbox"/>	Select 1 Social & Behavioral Class	PSY 101	Gen Psychology	A-	3	Fall 2014
<input checked="" type="checkbox"/>	LITERARY STUDIES					
<input checked="" type="checkbox"/>	Select 1 Literary Studies Class	ENG 239	Literature & Human Experience	A	3	Fall 2014
<input type="checkbox"/>	FINE & PERFORMING ARTS	COMM 240	Intro To Film	RG	(3)	Fall 2015
<input type="checkbox"/>	HISTORICAL STUDIES					
<input type="checkbox"/>	Select 1 Class from the Following	HIST 113	Top America to 1865	RG	(3)	Fall 2015
<input checked="" type="checkbox"/>	GLOBAL PERSPECTIVES & CULTURAL DIVERSITY					
<input checked="" type="checkbox"/>	Select 1 Global Persp/Cult/ Diversity Class	AFRI 113	Foundn/ Afrn Am Stud	A+	3	Spring 2014
<input type="checkbox"/>	ETHICS & SOCIAL RESPONSIBILITY					
<input type="checkbox"/>	Select 1 Ethics/Social Responsibility Class	Skill Needed:	1 Class in AFRI 323 or ATTR 413 or BUS 204 or CMT 475 or CNST 101 or CRIM 100 or ECON 103 or ENV 440 or 452 or GNDR 200 or HIST 334 or MUS 416* or PHIL 190 or 201 or 303 or PKG 381 or PSCI 107 or GNDR 200			
<input type="checkbox"/>	UPPER DIVISION INTEGRATIVE ELECTIVES					
<input type="checkbox"/>	UDIE Category 1: Select 1 Class	AET 330	Survey Motorsports	RG	(3)	Fall 2015
<input checked="" type="checkbox"/>	UDIE Category 2: Waived Pending Completion of Minor, 2nd major, #tc.					

IMPORTANT NOTE: The second UDIE is waived with COMPLETION of one of the following: a minor, a second major, a certificate, Or an education degree outside of the College of Education. Service members stationed outside of the U.S. on active duty military service also qualify. Students who do not COMPLETE this are required to complete a second UDIE course.

Packaging Engineering Technology Major Catalog Year: 2013-2014
GPA: 3.827

<input type="checkbox"/>	MAJOR REQUIRED COURSES					
<input checked="" type="checkbox"/>	Introduction to Packaging Design	PKG 180	Intro Packaging Design	A-	3	Fall 2013
<input checked="" type="checkbox"/>	Packaging Materials & Testing I & II	PKG 280 PKG 380	Packaging Materials & Testing I Pkg Materials & Testing II	A A+	3 3	Fall 2014 Spring 2015
<input type="checkbox"/>	Env Issues in Packaging: FS in Ethics/Social Resp	Skill Needed:	1 Class in PKG 381			
<input type="checkbox"/>	Package Development and Analysis	Skill Needed:	1 Class in PKG 482*			
<input type="checkbox"/>	Distribution Packaging Design, Analysis, Testing	Skill Needed:	1 Class in PKG 484*			
<input checked="" type="checkbox"/>	Packaging Machinery Systems	PKG 486	Packaging Machinery Systems	A+	3	Spring 2015
<input type="checkbox"/>	Packaging Industry Projects	Skill Needed:	1 Class in PKG 489*			
<input checked="" type="checkbox"/>	Select 1 Course from the Following	MFG 370	Fundn/nt Manufact Processes	A	3	Fall 2014
<input checked="" type="checkbox"/>	Introduction to Technical Graphics with CAD	MET 103	Intro Technical Graphics CAD	A	3	Fall 2013
<input checked="" type="checkbox"/>	Introduction to Manufacturing Technology	UNIV 101	Learn Univ Community	A	2	Fall 2013
Exception By: Warden, Marilyn S On: 09/04/2013						
<input type="checkbox"/>	Professional Internship	TMGT 351	Professional Internship	RG	(3)	Sum 1 2015
<input type="checkbox"/>	Workplace Law for the Technica Manager	Skill Needed:	1 Class in TMGT 429			
<input type="checkbox"/>	Senior Seminar	Skill Needed:	1 Class in TMGT 430			
<input type="checkbox"/>	Production Planning & Control	TMGT 471	Prod Plan & Control I	RG	(3)	Fall 2015
<input checked="" type="checkbox"/>	Quality Systems & Tools	TMGT 361	Quality Systems & Tools	A-	3	Fall 2014
<input type="checkbox"/>	Industrial Organization & Functions	Skill Needed:	1 Class in TMGT 478			
<input type="checkbox"/>	Industrial Supervision	Skill Needed:	1 Class in TMGT 482			
<input checked="" type="checkbox"/>	Principles of Statistics	MATH 241	Princ Statistics	A+	3	Sum 1 2014
<input checked="" type="checkbox"/>	General Physics I & Lab	PHYS 105 PHYS 105L	General Physics I Gen Phys I Lab	B- A	3 1	Spring 2014 Spring 2014
<input checked="" type="checkbox"/>	College Algebra or Graphic Analysis	MATH 115	College Algebra	A	3	Fall 2013
<input checked="" type="checkbox"/>	Chemistry and Society and Lab	CHEM 100 Satisfied by CHEM 100L Satisfied by	ELEMENTS EVERYDAY CHEM TRANSFERRED - Transfer Hours - University of Southern Indiana ELEMENTS EVERYDAY CHEM TRANSFERRED - Transfer Hours - University of Southern Indiana	CR CR	3 1	Fall 2011 Fall 2011

Also Allow : Univ 101 approved sub for Tmgt 131 in major - Ath.

Advanced Manufacturing Management Minor Catalog Year: 2013-2014
GPA: 4.000

<input type="checkbox"/>	MINOR REQUIRED COURSES					
<input checked="" type="checkbox"/>	Select 2 Classes from the Following	MFG 370	Fundn/nt Manufact Processes	A	3	Fall 2014

<https://dw-app-002.indstate.edu/IRISLink.cgi>

2/4

Figure 1.2: MySam Example pg. 2

6/24/2015

Ellician Degree Works

- Introduction to Technical Graphics with CAD
- Introduction to Manufacturing Technology
- Exception By: Warden, Marilyn S On: 10/28/2014**
- Industrial Organization & Functions
- Select 2 Classes from the Following

MFG 371	Manufact Process Material	A+	3	Spring 2014
MET 103	Intro Technical Graphics CAD	A	3	Fall 2013
UNIV 101	Learn Univ Community	A	2	Fall 2013

Also Allow : Univ 101 approved sub for Tmgt 131 in minor

Skill Needed:		1 Class in Tmgt 478		
TMGT 374	Lean Manufacturing Systems	A+	3	Spring 2015
TMGT 471	Prod Plan & Control I	RG	(3)	Fall 2015

Catalog Year: 2013-2014
GPA: 3.805

Lean Six Sigma Minor

Minimum 2.0 GPA requirement for all Minor classes

MINOR REQUIRED COURSES

- Principles of Statistics
- Quality Systems and Tools
- Lean Manufacturing Systems
- Lean Six Sigma
- Quality and Process Control
- Process Analysis and Improvement
- Production Planning and Control

MATH 241	Princ Statistics	A+	3	Sum 1 2014
TMGT 361	Quality Systems & Tools	A-	3	Fall 2014
TMGT 374	Lean Manufacturing Systems	A+	3	Spring 2015
TMGT 461	Lean Six Sigma	B+	3	Spring 2015
TMGT 463	Quality & Process Control	A	3	Spring 2015
TMGT 469	Process Analysis & Improvement	RG	(3)	Fall 2015
TMGT 471	Prod Plan & Control I	RG	(3)	Fall 2015

Free Electives

SFTY 212	Std Int Safety Mgt	A-	
Insufficient/Dropped, Withdrawn, Repeated Courses			
TMGT 471	Prod Plan & Control I	DR	
In-Progress/Registered/Planned Courses			
AET 330	Survey Materials	RG	
COMM 240	Bus To Fin	RG	
HIST 113	Top America 2001	RG	
HRD 340	Writing for the Workplace	RG	
TMGT 354	Processual Planning	RG	
TMGT 469	Process Analysis & Improvement	RG	
TMGT 471	Prod Plan & Control I	RG	

Credits Applied:	9	Classes Applied:	1
	1		16/2014
Credits Applied:	3	Classes Applied:	1
	3		16/2015
Credits Applied:	21	Classes Applied:	7
	1		16/2015
	1		16/2015
	1		16/2015
	1		16/2015
	1		16/2015
	1		16/2015
	1		16/2015

Exceptions

Type	Description	Date	Who	Block	Enforced
Also Allow	Univ 101 approved sub for Tmgt 131 in major - Adv	09/04/2013	Warden, Marilyn S	RA000017	Yes
Also Allow	Univ 101 approved sub for Tmgt 131 in minor	10/28/2014	Warden, Marilyn S	RA000002	Yes

Notes

Student came in for priority registration advising meeting. Student would like to minor in Adv. Manufacturing Technology. Course plan for Summer Session I 2014: online courses-MATH 241-301, HIST 202-301; ADV PIN summer I 2014: 499405.--Course plan for Fall term 2014: PKG 280, MFG 370, PSY 101 (PS 565), SPAN 101 (FS NLA), ENG 239 (FS PPA), ADV PIN for fall term 2014: 331774. C.Haas 03.26.2014.
Student-Advice. Student still needs to take courses in a non-native language. Student has concerns about her MATH 115 class, 2013 fall term. Wondering if she can drop her class, and take it later and not disrupt the sequence of her major course trajectory. C.Haas 9.04.2013.

Entered by	Date
Haas, Colleen M	03/26/2014
Haas, Colleen M	09/04/2013

Test Scores
ACT Composite: 17
ACT English: 13
ACT Mathematics: 17
ACT Reading: 21
ACT Science Reasoning: 18
ACT Subscore Alg/Geometry: 11
ACT Subscore Arts/Literature: 11
ACT Subscore Elem Algebra: 09
ACT Subscore Plane Geom/Trig: 06
ACT Subscore Rhetorical Skills: 07
ACT Subscore Social Studies: 11
ACT Subscore Usage & Mech: 06
ACT Sum of Standard Score: 065
Maple Part A: 17
Maple Part B: 05
Maple TA: 22

<https://dw-app-302.indstate.edu/IRISLink.cgi>

3/4

Figure 1.3: MySam Example pg. 3

Additional advising tools include the degree maps and departmental suggested four-year plan. The degree map is a guide sheet that lets students know what courses they should take in which semester, see Figure 1.4. The departmental four-year plan, shown in Figure 1.5, mimic's the degree map and includes information on pre-requisites and spring or fall only courses.



Packaging Engineering Technology
College of Technology
Degree Path – 2015-2016

Fall 1	Credits	Success Marker
TMGT 131	2	
PKG 180 or PKG 280	3	Whichever is offered
ENG 101	3	
MATH 115 or MET 215	3	
FS COMM	3	
Total Hours	14	
Notes: This program has the following GPA requirements: 2.00 overall GPA.		

Spring 1	Credits	Success Marker
ENG 105	3	
CHEM 100	3	
CHEM 100L	1	
PKG 380 or FS LS	3	
FS SBS	3	
FS HLTH	3	
Total Hours	16	

Fall 2	Credits	Success Marker
PKG 180 or PKG 280	3	
PHYS 105	3	
PHYS 105L	1	
FS NNL	3	
FS FPA	3	
MAJR MINEL	2	
Total Hours	15	

Spring 2	Credits	Success Marker
MATH 241	3	
MET 103	3	
FS NNL	3	
FS HIST	3	
PKG 380 or FS LS	3	
Total Hours	15	

Fall 3	Credits	Success Marker
PKG 381	3	
PKG 482 or PKG 486	3	Critical Course
FS JRCMP	3	
MFG 370 or MFG 371 or MFG 372	3	
MAJR MINEL	3	
Total Hours	15	

Spring 3	Credits	Success Marker
TMGT 351	3	
PKG 484 or PKG 489	3	Critical Course
TMGT 361	3	
FS GPCD	3	
FS UDIE	3	
Total Hours	15	

Fall 4	Credits	Success Marker
PKG 482 or PKG 486	3	Critical Course
TMGT 430	1	
TMGT 471	3	
TMGT 478	3	
TMGT 492	3	
MAJR MINEL	3	
Total Hours	16	

Spring 4	Credits	Success Marker
PKG 484 or PKG 489	3	Critical Course
TMGT 429	3	
FS UDIE	3	
MAJR MINEL	3	
MAJR MINEL	2	
Total Hours	14	

Indiana State University's priority date for filing the FAFSA is March 1. Students entering in Fall 2013 or later must earn 30 credit hours each academic year in order to maximize financial aid from the state of Indiana. Details about how to apply for financial aid, eligibility criteria, and awarding rules are available online at <http://www.indstate.edu/finaid/apply.htm>. Students may view their specific financial aid file by logging into the MyISU Student Portal, at <https://isuportal.indstate.edu>.

Program Description & Career Resources: Packaging Engineering Technology - <http://www.indstate.edu/academics/majors/packaging.htm>



Figure 1.4: Degree Map

BS in PET: Sample 8-semester roll-out*					
Total hours = 120 with NNL 1, NNL 2, ENG 101 and 105					
Fall 1	Credits	Success Marker	Spring 1	Credits	Success Marker
MET 103	3		NNL 2	3	
MET 130	2	Critical now	Health and Wellness	3	
ECT 160	3	Critical by Spring 2	FPA	3	
NNL 1	3		COMM 101	3	
ENG 101	3		ENG 105	3	
Maple 21 or Appropriate MATH*			Maple 21 or Appropriate MATH*		
Total	14		Total	15	
Fall 2	Credits	Success Marker	Spring 2	Credits	Success Marker
PHYS 105 & 105L	4	Critical by Spring 2	CHEM 105 & 105L	4	Critical by Fall 3
PKG 180	3	By Fall 3 – Fall Only – 2 yr roll	PKG 380 (PKG 280)	3	By Sp 3 – Spr Only – 2 yr roll
PKG 280	3	By Fall 3 – Fall Only – 2 yr roll			
MATH 123* or MATH 131 spring	3 or 0	123 – Critical now 131 – Critical Sp2	MATH 131 (4)* or MATH 129 (3)	4	Critical by now
LS	3		HS	3	
Free Elective as needed	3		Free Elective as needed	1	
Total	16		Total	15	
Fall 3	Credits	Success Marker	Spring 3	Credits	Success Marker
PKG 482 (PKG 380)	3	By Fall 4 – Fall Only – 2 yr roll	PKG 486 (PKG 380)	3	By Sp 4 – Spr Only – 2 yr roll
PKG 494 (PKG 380)	3	By Fall 4 – Fall Only – 2 yr roll	PKG 489 (380, 482, 484)	3	By Sp4 – Spr Only – 2 yr roll
MET 329	3		MET 351	3	
Junior Composition	3		MET 405	3	
SBS	3		GPCD	3	
Total	15		Total	15	
Fall 4	Credits	Success Marker	Spring 4	Credits	Success Marker
TMGT 361	3	Fall Only	TMGT 471	3	
TMGT 478	3		TMGT 492	3	
MFG 225, 370, 371, or 376	3		Free Elective as needed	3	
Free Elective as needed	3		ESR	3	
UDIE 1	3		UDIE 2	3	
Total	15		Total	15	
*MATH 115 equivalency is expected by semester 3					
120 Total Credits					

Figure 1.5: Department Four Year Plan

General Advising Policy: It is recommended that students to arrange advisement meeting with their advisor at least once per semester to review their academic progress and discuss plans for subsequent semesters during the first two years of study. The advisor will evaluate the student's up-to-date information in MySAM (Degree Works) (ISU previously used DARS) and grades from the previous semester to see student data to help with advising. The meeting is to take place prior to registering for classes each semester. A PIN number which changes each semester for each student is used to control the registration permission process. The advisor issues the PIN number upon meeting with the student for advising. The approval is also indispensable when students decide to add or drop courses from their schedule.

New Student Orientation: All new first-time, full-time freshmen, transfer, and international students are required to attend New Student Orientation coordinated by the Office of New Student Transition Programs to register for their first semester of coursework. Any freshman who fails to attend this program will not be allowed to register for classes before attending the orientation program and completing a consultation with Student Financial Aid. During this orientation program the freshmen will have the first experience of academic advising. Incoming freshmen will meet with University College staff and advisors, College of Technology staff including the Associate Dean and have a one-on-one session with an academic advisor to introduce important advising tools such as the university catalog, program guide sheet, and the Degree Works™ (MySAM) academic report. Advisors will assist in developing a first semester schedule, based on their ACT/SAT score and placement results. Additionally students learn to search, add or drop courses online.

Mentoring: It has been part of the department's culture for faculty to have an "open-door" policy for student visits. The primary role of mentoring encompasses general non-curriculum related guidance to student concerns on transition to college, employment perspective, and professional development, etc. Although there is no structured system for these activities, our department prides itself in creating an informal and comfortable social atmosphere in which students can routinely communicate with faculty outside classrooms.

E. Work in Lieu of Courses

ADVANCED AND PRIOR LEARNING CREDIT

Indiana State University offers opportunities for students to earn credit toward a degree for knowledge they have already acquired. Through these opportunities, students can earn up to 63 credit hours towards the baccalaureate degree and 25 percent of an undergraduate certificate. Students should discuss the applicability of the options below with their advisor:

- Advanced Placement (AP) Examinations
- College-Level Examination Program (CLEP)
- Dantes Standardized Subject Tests (DSST)
- Departmental Exams/Assessment of Prior Learning
- Dual Credit

- Excelsior College Examinations
- International Baccalaureate (IB)
- Non-Native (Foreign) Language Placement Exam

Credit earned this way counts toward graduation requirements, but does not count towards resident credit. Students cannot receive credit of this type for courses for which they have already received credit. Additional information about all of these programs can be found on the [University Testing website](#).

F. Graduation Requirements

A Bachelor of Science in Packaging Engineering Technology (PET) is awarded upon completion of the following requirements.

Students completing the prescribed undergraduate curricula and otherwise meeting all University and departmental requirements for graduation will receive diplomas admitting them to the baccalaureate degree and full alumni standing.

Course requirements completed may be those in effect at the time of matriculation or at graduation, but not a combination of both. Usually, students should expect to follow the curricular patterns and University regulations provided in the Undergraduate Catalog current with their matriculation. The dean of the college may determine which of the courses taken by the student more than seven years prior to graduation may be applicable to a baccalaureate degree.

A complete audit of the transcript is not made until graduation, but the degree audit is always available from the [MyISU Portal](#) to assist students in planning and progress toward their degree.

Each student is responsible for planning his/her own program and for meeting the following degree requirements by the time he/she expects to be graduated:

1. Students must [apply for graduation](#) two semesters before their planned graduation date. Any change in the application, once it is filed, is the responsibility of the student. If requirements are not met, a change in the date of graduation must be made and is the responsibility of the student.
2. Earn a minimum of 120 credits, excluding any duplicate course credits.
3. Students may not graduate with an incomplete on their record when the incomplete was assigned for any semester or term after spring 2007.
4. Complete at least 30 credits enrolled at Indiana State University, of which at least nine must be at the 300-400 level.
5. Complete a minimum of 45 credit hours of course work in 300 and 400-level courses.
6. Complete the Foundational Studies Program (see below for more details).
7. Earn a minimum cumulative grade point average of 2.0. Note: Certain programs require a higher minimum grade point average. Consult the relevant sections of this Catalog for individual degree program information.

G. Transcripts of Recent Graduates

Six transcripts will be provided to the team upon request. These transcripts reflect courses from the previous version of the program listed in table 4.B.1.

CRITERION 2. PROGRAM EDUCATIONAL OBJECTIVES

Mission Statement

University

Indiana State University combines a tradition of strong undergraduate and graduate education with a focus on community and public service. We integrate teaching, research, and creative activity in an engaging, challenging, and supportive learning environment to prepare productive citizens for Indiana and the world.

Vision Statement. Inspired by a shared commitment to improving our communities, Indiana State University will be known nationally for academic, cultural, and research opportunities designed to ensure the success of its people and their work.

I Indiana Integrity:

We demonstrate integrity through honesty, civility, and fairness.

S State Scholarship:

We value high standards for learning, teaching and inquiry.

T Transforming:

We foster personal growth within an environment in which every individual matters.

R Responsibility:

We uphold the responsibility of university citizenship.

E Education:

We provide a well-rounded education that integrates professional preparation and study in the arts and sciences with co-curricular involvement.

E Embrace Diversity:

We embrace the diversity of individuals, ideas, and expressions.

S Stewardship:

We exercise stewardship of our global community.

Values statement. The mission and values statement are published at the following URL:
<http://cms.indstate.edu/about>

College of Technology

CORE VALUES

- The study of technology is an essential part of our cultural heritage and of a university education.
- High quality, state-of-the-art programs and the embracing of future technologies are highly valued.
- The College of Technology faculty value experiential instruction using modern laboratories to develop knowledge and skill.
- The College of Technology is a student-centered academic unit (i.e., high quality teaching and advising as well as meeting individual needs of students is central for all).
- The College of Technology is dedicated to identifying, enhancing, and rewarding faculty and student excellence in scholarship (all forms) and service, and is committed to excellence, in general.

Based upon these core values, the College of Technology commits itself to fulfilling the mission and goals.

MISSION

The College of Technology will provide exemplary undergraduate and graduate programs, generate solutions and knowledge through research, and serve the technology needs of the State, the nation, and the international community.

GOALS

- Be recognized as a global leader in the preparation of future professionals for careers in technology, teachers/trainers for industry and education.
- Continue to increase participation of underrepresented groups in technology careers.
- Develop critical thinking, problem solving, and communication skills through the use of practical experiences.
- Provide the knowledge and skills to prepare people to create, understand, apply, manage, and evaluate technology ethically and responsibly.
- Contribute to the areas of state economic development, technology transfer professional development and community service.
- Extend partnerships with schools, businesses, industry, and other agencies through coop programs, internships, research and development projects to expand access to higher education and better prepare our future workforce.
- Evaluate, refine, and enhance all academic programs to assure a sound basis for lifelong learning and living in a multi-cultural and interdependent world.
- Maintain a concern for future developments; be known for innovativeness; and participate in the search and application of new technologies.

The COT mission statement is also published in university catalog and on-line at <http://technology.indstate.edu/about/values.htm>

Packaging Engineering Technology

Vision

The Packaging Engineering Technology degree program will be a leader in integrating teaching, research, and creative activity in an engaging, challenging, and supportive learning environment preparing productive citizens for Indiana and the world while creating and maintaining a credible presence within the packaging sector of education and industry.

Mission

The mission of the Packaging Engineering Technology (PET) degree program at Indiana State University is to prepare graduates with technical and leadership skills necessary for packaging competitiveness and to enter careers in packaging process and systems design, operations, quality, continuous improvement, lean manufacturing, and sustainability.

Guiding Principles (we will)

- Inculcate high standards for learning, teaching, and inquiry.
- Provide a well-rounded education that integrates professional preparation and study in the arts and sciences with co-curricular involvement.
- Demonstrate integrity through honesty, civility, and fairness.
- Embrace the diversity of individuals, ideas, and expressions.
- Foster personal growth within an environment in which every individual matters.
- Uphold the responsibility of University citizenship.
- Exercise stewardship of our global community

Program Goals

- Develop and maintain student enrollment and retention strategies responsive to Industry.
- Develop and maintain a modern laboratory equipment suite.
- Develop and maintain a curriculum that addresses both student and industry needs.
- Develop and maintain enriching community engagement and outreach programs and activities.
- Develop and maintain clear, consistent, and concise faculty development strategies to ensure world class packaging faculty

Program Description

The packaging engineering technology (PET) degree program awards a Bachelor of Science (BS) degree to successful students through a four-year curriculum.

The PET program prepares graduates with technical and leadership skills necessary for packaging competitiveness and to enter careers in packaging process and systems design, operations, quality, continuous improvement, lean manufacturing, and sustainability.

The Institute of Packaging Professionals (IoPP) is the lead professional society used in addition to ETAC of ABET for developing program criteria, guiding program relevance, and making continuous improvement.

A. Program Educational Objectives

1. Apply disciplinary reasoning, critical thinking, and hands-on skills to identify, analyze and solve problems. (**Technology**).
2. Communicate effectively in both oral and written form to articulate technical knowledge, ideas, and proposals (**Communication**).
3. Consider professional, ethical and social responsibility of engineering technology practices. (**Global Responsibility**).
4. Perform effectively, think independently and work collaboratively in a team environment in a membership or leadership role (**Management &/or Teamwork**).
5. Actively participate in professional development, including continuous self-improvement and lifelong learning (**Lifelong Learning**). The educational objectives are published on the university online catalog:

http://catalog.indstate.edu/preview_entity.php?catoid=24&ent_oid=1249&returnto=618

B. Consistency of the Educational Objectives with the Mission of the Institution

The Indiana State University Mission Statement speaks to “prepare(ing) productive citizens for Indiana and the world.” The College of Technology Mission Statement declares that it will (through degree programs such as this one) “serve the technology needs of the State, the nation, and the international community.”

The program’s educational objectives correlate well with these mission statements. These statements share the common educational values - graduating professionally competent students who can serve both as leaders and competent team members under different circumstances, and understand the impact of their work both to themselves and society as a whole.

Our educational objectives incorporate these values in that:

- Objectives 1 (Technology) and 2 (Communication) reflect the program’s commitment to providing quality undergraduate education in both technical and liberal (ISU foundational) studies.
- Objective 3 (Global Responsibility) fulfills program’s contribution to society and the state of Indiana in particular, by advancing students’ awareness on the social

and environmental implications of their careers.

- Objectives 4 (Managerial &/or Teamwork) address program's emphasis on our students' team-work mentality in professional, community and public service. Objective 5 (Lifelong Learning) represents the program's commitment to our graduates' long-term productivity in their future careers.

C. Program Constituencies

We identify the following stakeholders to be the constituencies with respect to program educational objectives and student outcomes. Each group has special interests in these stated goals:

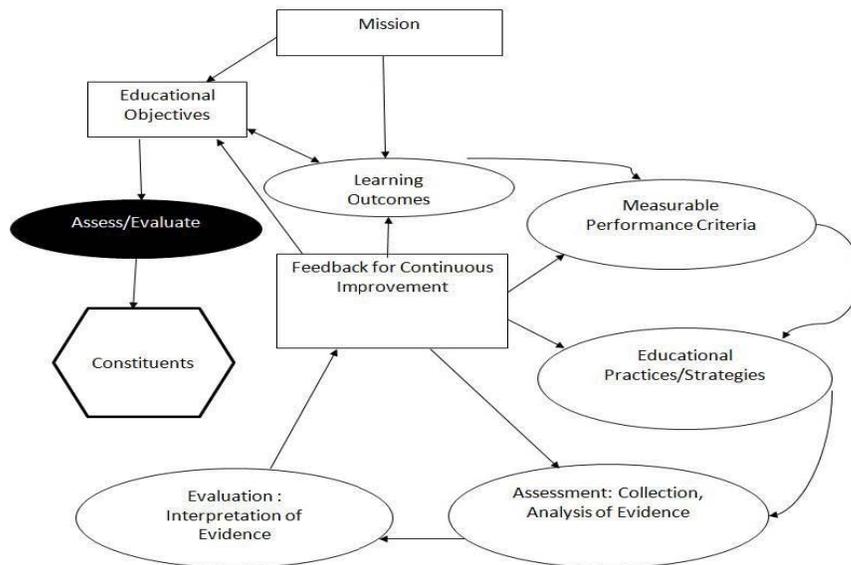
- **Students of program.** The students expect themselves to become technically competent, professionally and socially responsible individuals after earning a bachelor degree from the program.
- **Alumni.** The alumni expect a continued high quality educational program as their career and reputation are associated with the quality of their alma mater.
- **Faculty.** The faculty are expected to fulfill their educational responsibility in leading the students in the learning process, and periodically evaluating and adjusting if necessary the teaching pedagogy pertinent to achieving the educational objectives.
- **Industrial Advisory Board (IAB).** This selective and highly involved group of individuals expect to see the program yield quality graduates that meet industry needs.
- **Employers of graduates.** This group expects to hire fresh employees who are technically competent, productive, self-motivated learners, team members, and have excellent communication skills.

D. Process for Review of the Program Educational Objectives

Reviewing or evaluating the educational objectives involves identifying areas that warrant improving; then develop practical strategies for achieving such improvement, and ultimately implementing and monitoring whether or not these strategies have successfully accomplished their intent. Changing educational objectives is a serious academic issue; it therefore needs to be approached in a prudent and proactive manner. We also understand given the limited resources we have in the program, i.e., active faculty, administrative support and the like, the evaluation should grow gradually in terms of complexity and completeness.

The process for evaluating the educational objectives begins with data collection by the program and individual faculty. The data are then assessed. The program coordinator or department chair leads this effort, and is responsible for reporting the compiled results to the faculty and industrial advisory board. Currently we have a three-year review cycle to assure any change to be implemented is in response to a consistent trend and not an aberration. At the end of the second year, program faculty will identify the components that need to be strengthened, included, or removed from objectives based on the feedback from the three surveys. The key question that needs to be answered in the process is: are the objectives meeting the needs of our constituents? The third year will initiate the revision process if necessary: program faculty will be responsible

for developing a draft with proper language; advisory board’s opinions and suggested modifications will be solicited during annual board meeting. The approval of final language rests in the department faculty hands. The program will publish any changes to the program mission and educational objectives online, in the undergraduate catalog and any other outlets that directly interface with constituencies.



Criterion 3. Student Outcomes

A. Process for the Establishment and Revision of the Student Outcomes

The student outcomes represent the foundation of knowledge and skills for graduates to maintain competence and achieve professional success upon graduation. These

outcomes are developed and approved by department and program faculty. The faculty are responsible for collecting, reviewing, and interpreting information. The outcomes assessment results are discussed at the program faculty meetings, where issues regarding student outcomes are identified and viable strategies are developed. Any changes in the process are also discussed, changes proposed and a change process executed by the faculty.

B. Student Outcomes

The PET program student outcomes exist to fulfill program educational objectives, encompass ABET general criteria and address specific criteria for the packaging

engineering technology program. To this end, the following outcomes have been incorporated that represent the desired capabilities of students upon graduation:

- a. (1.1) An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities
- b. (1.2) An ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies
- c. (1.3) An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes
- d. (1.4) An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives
- e. (4.1) An ability to function effectively as a member or leader on a technical team
- f. (1.5) An ability to identify, analyze, and solve broadly-defined engineering technology problems
- g. (2.1) An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature
- h. (5.1) An understanding of the need for and an ability to engage in self-directed continuing professional development
- i. (3.1) An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity
- j. (3.2) A knowledge of the impact of engineering technology solutions in a societal and global context
- k. (5.2) A commitment to quality, timeliness, and continuous improvement.

The Student outcomes are published in the undergraduate catalog in the AETM Department section.

http://catalog.indstate.edu/preview_entity.php?catoid=24&ent_oid=1249&returnto=618

C. Relationship of Student Outcomes to Program Educational Objectives

The relationship is expounded below as the student outcomes are integrated with the corresponding program educational objectives. The letter designations reflecting ETAC of ABET (*a-k*) general requirements and the four specific outcomes required by the SAE (*l-o*) are also kept to show where each requirement is embedded in which program objective.

- 1. Apply disciplinary reasoning, critical thinking, and hands-on skills to identify, analyze and solve problems. (**Technology**).
 - a. (1.1)An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities
 - b. (1.2) An ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies
 - c. (1.3) An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes

d. (1.4) An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives

f. (1.5) An ability to identify, analyze, and solve broadly-defined engineering technology problems

2. Communicate effectively in both oral and written form to articulate technical knowledge, ideas, and proposals (**Communication**).

g. (2.1) An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature

3. Consider professional, ethical and social responsibility of engineering technology practices. (**Global Responsibility**).

i. (3.1) An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity

j. (3.2) A knowledge of the impact of engineering technology solutions in a societal and global context

4. Perform effectively, think independently and work collaboratively in a team environment in a membership or leadership role (**Management &/or Teamwork**).

e. (4.1) An ability to function effectively as a member or leader on a technical team

5. Actively participate in professional development, including continuous self-improvement and lifelong learning (**Lifelong Learning**).

h. (5.1) An understanding of the need for and an ability to engage in self-directed continuing professional development

k. (5.2) A commitment to quality, timeliness, and continuous improvement

CRITERION 4. CONTINUOUS IMPROVEMENT

A. Student Outcomes

A continual assessment process is used that addresses each of student learning outcomes over a three year period. The data collection which is the start of the assessment process, occurs in the spring of the year noted in the following table and may include the fall and spring classes as appropriate. Not every student learning outcome is assessed every year.

For the Packaging Engineering Technology program, the eleven learning outcomes, which are now comprised of ABET a-k, are assessed in groups of no more than four each year, which allows for all eleven to be addressed on the three year cycle. The following table 4.A.1 depicts the program objective, the learning outcome, the main measure to be

used with the expected level of attainment and identifies the person responsible for maintaining the files. Table 4.A.2 then displays the course mapping to the outcomes. The outcome are labeled and organized to easily identify the program objective and the ABET criteria.

More detailed information follows depicting the status of the assessment including what findings were available at the time of the self-study. This information is from the pre-existing assessment strategies in place over the last few years.

It is worth noting that the assessment plans have changed for all programs in the department to a more consistent grouping of program objectives for every program. The eleven ABET a-k criteria is used throughout the six engineering technology programs in the department with addition learning outcome criteria added to each program as required by the lead organization.

The tables mentioned above reflect the new assessment plans. The exams have been administered in the spring 2015 semester. The data has not yet been received by the department chair. It is anticipated that the data will be received, analyzed and discussed by faculty and advisory committee before the visiting teams arrives.

The following table represents the new assessment plan for the Fall of 2015 with the updated curriculum.

1. Apply disciplinary reasoning, critical thinking, and hands-on skills to identify, analyze and solve problems (Technology).				
Student Learning Outcomes	Assessment Method(s)	Source(s) of Assessment	Target for Student Achievement	Time of Data Collection
(1.1) An Ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities	ATMAE Cert Exam, Exit Survey	PKG 489 for exams and graduating seniors for survey	ATMAE – 70% of students = 70% target competencies // Survey 90% avg 4.0 (LKT 1-5 scale)	Spring 2016 and then every three years
(1.2) An ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies	ATME Cert Exam, Exit Survey	PKG 489 for exams and graduating seniors for survey	ATMAE – 70% of students = 70% target competencies // Survey 90% avg 4.0 (LKT 1-5 scale)	Spring 2017 and then every three years
(1.3) An ability to conduct standard tests and measurements; to conduct, analyze and interpret experiments; and to apply experimental results to improve processes	ATME Cert Exam, Exit Survey	PKG 489 for exams and graduating seniors for survey	ATMAE – 70% of students = 70% target competencies // Survey 90% avg 4.0 (LKT 1-5 scale)	Spring 2017 and then every three years
(1.4) An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program	ATME Cert Exam, Exit Survey	PKG 489 for exams and graduating seniors for survey	ATMAE – 70% of students = 70% target competencies // Survey 90% avg 4.0 (LKT 1-5 scale)	Spring 2015 and then every three years

educational objectives				
(1.5) An ability to identify, analyze, and solve broadly-defined engineering technology problems	ATME Cert Exam, Exit Survey	PKG 489 for exams and graduating seniors for survey	ATMAE – 70% of students = 70% target competencies // Survey 90% avg 4.0 (LKT 1-5 scale)	Spring 2016 and then every three years

The following table represents the new assessment plan and strategies for the Fall of 2015 with the updated curriculum.

2. Communicate effectively in both oral and written form to articulate technical knowledge, ideas, and proposals (Communication)				
Student Learning Outcomes	Assessment Method(s)	Source(s) of Assessment	Target for Student Achievement	Time of Data Collection
(2.1) An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature	Rubric on writing project // rubric on presentation project	PKG 489 projects	70% of students – avg 3.0 (1-4 scale)	Spring 2017 and then every three years
3. Consider professional, ethical and social responsibility of engineering technology practices. (Global Responsibility).				
Student Learning Outcomes	Assessment Method(s)	Source(s) of Assessment	Target for Student Achievement	Time of Data Collection
(3.1) An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity	ATMAE Cert Exam, Exit Survey	PKG 489 for exams and graduating seniors for survey	ATMAE – 70% of students = 70% target competencies // Survey 90% avg 4.0 (LKT 1-5 scale)	Spring 2015 and then every three years
(3.2) A knowledge of the impact of engineering technology solutions in a societal global context	ATMAE Cert Exam, Exit Survey	PKG 489 for exams and graduating seniors for survey	ATMAE – 70% of students = 70% target competencies // Survey 90% avg 4.0 (LKT 1-5 scale)	Spring 2015 and then every three years

4. Perform effectively, think independently and work collaboratively in a team environment in a membership or leadership role (Management &/or Teamwork).				
Student Learning Outcomes	Assessment Method(s)	Source(s) of Assessment	Target for Student Achievement	Time of Data Collection
(4.1) An ability to function effectively as a member or leader on a technical team	ATMAE Cert Exam // Exit Surbey // # of majors in Iopp	PKG 489 for exams // graduating seniors for survey // PKG 486 team project	ATMAE – 70% of students = 70% target competencies // Survey 90% avg 4.0 (LKT 1-5 scale) // 70% score 70% - rubric	Spring 2016 and then every three years
5. Actively participate in professional development, including continuous self-improvement and lifelong learning (Lifelong Learning).				
Student Learning Outcomes	Assessment Method(s)	Source(s) of Assessment	Target for Student Achievement	Time of Data Collection
(5.1) An understanding of the need for and an ability to engage in self-directed continuing professional development.	ATMAE Cert Exam // Exit Surbey // # of majors in Iopp	PKG 489 for exams // graduating seniors for survey // PKG 486 team project	ATMAE – 70% of students = 70% target competencies // Survey 90% avg 4.0 (LKT 1-5 scale) // 70% score 70% - rubric	Spring 2017 and then every three years
(5.2) A commitment to quality, timeliness, and continuous improvement.	ATMAE Cert Exam // Exit Surbey // # of majors in Iopp	PKG 489 for exams // graduating seniors for survey // PKG 486 team project	ATMAE – 70% of students = 70% target competencies // Survey 90% avg 4.0 (LKT 1-5 scale) // 70% score 70% - rubric	Spring 2016 and then every three years

Table 4.A.1 Assessment Plan

				Technical					Communication	Global Responsibility		Management or Team Work
Prefix	Number	Hours	Course Title	An ability to select and apply the knowledge, techniques, skills, & modern tools of the discipline to broadly defined engineering technology activities	An ability to apply a knowledge of mathematics, science, engineering, & technology to engineering technology problems that require the application of principles & applied procedures or methodologies	An ability to conduct standard tests & measurements; to conduct, analyze & interpret experiment & to apply experimental results to improve processes	An ability to design systems components or processes for broadly defined engineering technology problems appropriate to program educational objectives	An ability to identify, analyze, and solve broadly defined engineering technology problems	An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify & use appropriate technical literature	An understanding of & a commitment to address professional & ethical responsibilities including a respect for diversity	A knowledge of the impact of engineering technology solutions in a societal & global context	An ability to function effectively as a member or leader on a technical team
				1.1	1.2	1.3	1.4	1.5	2.1	3.1	3.2	4.1
				a.	b.	c.	d.	f.	g.	i.	j.	e.
Required Packaging Courses												
PKG	180	3	Introduction to Packaging Design	I	I	I	I	I	I	I	I	I
PKG	280	3	Packaging Materials & Testing I	I	I	I	I	I	I	I	I	I
PKG	380	3	Packaging materials & Testing II	P	P	P	P	P	I	I	I	I
PKG	482	3	Package Development & Analysis	P	P	P	P	P	P	P	P	
PKG	484	3	Distribution Packaging Design, Analysis & Testing	P	P	P	P	I	P	I	I	P
PKG	486	3	Packaging Machinery Systems	P	P	P	P	I	P	P	P	P
PKG	489	3	Packaging Industry Projects	R	R	R	R	R	R	R	R	R
Required Mechanical Courses												
MET	103	3	Technology Graphics	I	I	I	I	I	I	I	I	
MET	130	2	Into to Engineering & Tech	I				I		I	I	
MET	329	3	Fluid Power Technology	P	P	P	P	P	P	P	P	P
MET	351	3	Coop. Industrial Practice	R				R		R	R	
MET	405	3	Economic Analysis	R	R	R		R	R	P	P	
Supporting Courses												
ECT	160	3	Electronic Fundamentals	I	I	I	I		I			
TMGT	361	3	Quality Systems & Tools		P	P						
TMGT	471	3	Production Planning & Control I	P	P	P	P	P	P	P	P	P
TMGT	478	3	Industrial Organization & Functions							P	P	R
TMGT	492	3	Industrial Supervision						P	P	P	R
Required 3 Semester Hours (Select One)												
MFG	225	3	Intro to Mat. Proc & Testing	I	P	I		I	P	P	P	

MFG	370		Fund of MFG Processes		P	P			P	P	P	
MFG	370		MFG Processes & Materials		P	P			P	P	P	
MFG	376		Comp Numerical CNTL Sys		P	P			P	P	P	
Composition												
		3	Freshman Composition						I			
		3	Freshman Composition						I			
		3	Junior Composition						P			
Communication												

Table 4.A.2 Curriculum Map to Learning Outcomes

Prefix	Number	Hrs	Course Title	Lifelong Learning	
				An understanding of the need to and an ability to engage in self-directed continuing professional development	A commitment to quality, timeliness, and continual improvement
				5.1	5.2
Required Packaging Courses				h.	k.
	180	3	Introduction to Packaging Design	I	I
PKG	280	3	Packaging Materials & Testing I	I	I
PKG	380	3	Packaging materials & Testing II	I	I
PKG	482	3	Package Development & Analysis	I	
PKG	484	3	Distribution Packaging Design, Analysis & Testing	P	I
PKG	486	3	Packaging Machinery Systems	P	P
PKG	489	3	Packaging Industry Projects	R	P
Required Mechanical Courses					
MET	103	3	Technology Graphics	I	I
MET	130	2	Into to Engineering & Tech	I	I
MET	329	3	Fluid Power Technology		
MET	351	3	Coop. Industrial Practice	R	R
MET	405	3	Economic Analysis		R
Supporting Courses					
ECT	160	3	Electronic Fundamentals		
TMGT	361	3	Quality Systems & Tools	P	P
TMGT	471	3	Production Planning & Control I	P	P
TMGT	478	3	Industrial Organization & Functions	R	R
TMGT	492	3	Industrial Supervision	R	P

Required 3 Semester Hours (Select One)					
MFG	225	3	Intro to Mat. Proc & Testing		
MFG	370		Fund of MFG Processes		
MFG	371		MFG Processes & Materials		
MFG	376		Comp Numerical CNTL Sys		
Composition					
	3		Freshman Composition		
	3		Freshman Composition		
	3		Junior Composition		
Communication					

Previous years Assessment

The following pages are yearly assessment plans that follow an older version of Student Learning Objectives. The new Program objectives and Learning outcomes for this program are now (beginning in 2015) similar to each of the other undergraduate programs in the AETM Department.

Assessment Plan Fall 2014/Spring 2015

Program Objective 1 – Design, Fabricate, and Test Packaging Systems.

SLO 1.1 – Apply Fundamental Design Principles

Measure: ATMAE Certification Exams – sections of the Certified Technical Professional Exam

Details/Description: Students in the spring of 2015 in the PKG 489 course will take the CTP exam. Relevant competencies will be analyzed for achievement of this standard. Target: 70% of the students will achieve at least 70% on the appropriate exam competencies

Implementation Plan (timeline): Spring 2015, 2018

Program Objective 2 – Effective Communication SLO 2.1 – Exhibit good communication skills

Measure: ATMAE Certification Exams – sections of the Certified Technical Professional Exam

Details/Description: Students in the spring of 2015 in the PKG 489 course will take the CTP exam. Relevant competencies will be analyzed for achievement of this standard. Target: 70% of the students will achieve at least 70% on the appropriate exam competencies

Implementation Plan (timeline): Spring 2015, 2018

Program Objective 2 – Effective Communication SLO 2.3 – Deliver formal presentation using appropriate technology

Measure: Created Rubric Details/Description: Students in the spring of 2015 in the PKG 489 course will create a final

project. The project will be graded using a rubric that addresses the level of achievement of this standard. Target: 70% of the students will achieve at least 70% on the rubric

Implementation Plan (timeline): Spring 2015, 2018

Assessment Plan Fall 2013/Spring 2014

Program Objective 1 – Design, Fabricate, and Test Packaging Systems.

SLO 1.3 – Test fabricated package systems

Implementation Plan (timeline): Spring 2014, 2017, 2020

Program Objective 2 – Effective Communication SLO 2.2 – Demonstrate fluency in written communication

Implementation Plan (timeline): Spring 2014, 2017, 2020

**Program Objective 3 – Effective Problem Solving
SLO 3.1 – Use accepted methods to solve problems**

Implementation Plan (timeline): Spring 2014, 2017, 2020

Assessment Plan Fall 2012/Spring 2013

**Program Objective 1 – Design, Fabricate, and Test Packaging Systems.
SLO 1.2 – Create, design, and fabricate package system**

Details/Description: PKG 482

Implementation Plan (timeline): Spring 2013, 2016, 2019

Summary of Findings: Two teams of students learned the steps and procedures for designing and fabricating a package system for a consumer product. The teams went through all stages from product concept to display of the packaged product on a retail shelf, including testing of the package system to determine its effectiveness. Both teams created successful designs and prototypes, successfully tested them, and presented their findings.

Results: Target Achievement: Met

Recommendations: This project was successful, but this may have more meaning to the students in the future to work with a real company on a new product concept.

Reflections/Notes: This project gives students a taste of what a package designer/engineer does in everyday life. Students feel that they have accomplished something meaningful upon completion.

Program Objective 3 – Effective Problem Solving SLO 3.2 – Use management principles to solve problems

Implementation Plan (timeline): Spring 2013, 2016, 2019

Program Objective 3 – Effective Problem Solving SLO 3.3 – Interact with team members to communicate and solve problems

Details/Description: PKG 280

Implementation Plan (timeline): Spring 2013, 2016, 2019

Summary of Findings: Students were required to conduct a variety of lab activities in teams of two to four throughout the semester. There was wide variation in the success of the groups. Since PKG 280 is an introductory class with no prerequisite, many students had no prior experience with this way of doing things, especially our international students. All students made progress toward learning to communicate well in teams throughout the semester, but the overall results were not as good as hoped for.

Results: Target Achievement: Not Met

Recommendations: A lesson on how to communicate in a team should be developed to attempt to strengthen the results for the future.

Reflections/Notes: Teamwork is so pervasive in school and the workplace that it is easy to think that it will come automatically to students, but that is not always the case. It is sometimes necessary to teach basic team communication.

Assessment Plan Fall 2011/Spring 2012

Program Objective 1 – Design, Fabricate, and Test Packaging Systems. SLO 1.1 – Apply Fundamental Design Principles

Details/Description: Pkg 180 is the source of assessment

Implementation Plan (timeline): Spring 2012, 2015, 2018

Summary of Findings: Fundamental design principles were taught to the students in the class. All students were required to utilize these principles to design corrugated boxes and paperboard cartons for specific products. There was a typical distribution of the quality of packages designed and fabricated, but all appeared to properly utilize the fundamental design principles in producing their designs.

Results: Target Achievement: Met

Recommendations: Continue teaching fundamental design principles as part of the Introduction to Packaging Design course. Reflections/Notes: Since this course is an introductory course with no prerequisites, it is important to teach fundamental design principles so that students can be successful in the course.

Action: Reinforce good design principles

Action Details: Fundamental design principles must be taught, then practiced by students so that those principles will be ingrained for future practice.

Implementation Plan (timeline): Good design principles will be emphasized in other packaging courses to ensure the concepts are ingrained. Implementation will begin with the next courses taught.

Key/Responsible Personnel: Instructor

Measures: Good designs will be measured by determining manufacturability and appropriateness of the package designed.

Resource Allocations: No extra resources are needed at this time.

Priority: Medium

Resource Allocation(s) Status: No new resources were allocated for this outcome, but students are being required to utilize the package design software in the packaging lab. Next

Steps/Additional Information: As this continues, it will be possible to determine if there are improved skills in students in the upper level courses as a result of this change.

Program Objective 2 – Effective Communication SLO 2.1 – Exhibit good communication skill

Details/Description: PKG 484

Implementation Plan (timeline): Spring 2012, 2015, 2018

Summary of Findings: All students were required to produce professional written presentations for their final projects. The findings were then presented to the class and guests as formal presentations. There was a range of abilities displayed in these presentations. About 20% were at a professional level. The rest were average to barely acceptable.

Results: Target Achievement: Not Met

Recommendations: The oral presentation skills need enhancement throughout all courses leading up to the senior level so that most students will leave with the proper oral skills to be successful in their careers. The Packaging Engineering Technology program should require more oral presentations in its classes to help students become more comfortable talking in front of people.

Reflections/Notes: It seems that those who speak in a professional manner by the time they are in senior level courses are more outgoing and comfortable in front of people. ISU needs to work harder to bring the less outgoing students out of their shells so they can better develop these oral presentation skills.

Action Details: Good oral communication skills are critical for success in the professional setting. Since these skills are not properly evidenced to an expected degree in Seniorlevel students, this issue needs action.

Implementation Plan (timeline): Increased emphasis on oral communication will be incorporated into packaging courses beginning with the following semester. This will be an ongoing emphasis to ensure better outcomes in the future.

Key/Responsible Personnel: Instructors

Measures: A rubric will be developed and given to students to help them understand what is expected. Instructors will provide more feedback on oral communication.

Resource Allocations: No extra resources are anticipated at this time.

Resource Allocation(s) Status: Students are being required to speak in front of the class more, with critique provided by the instructor. A rubric is being developed to share with students.
Next Steps/Additional Information: Develop the rubric for evaluation of oral communication.

Program Objective 2 – Effective Communication SLO 2.3 – Deliver formal presentation using appropriate technology

Details/Description: PKG 486

Implementation Plan (timeline): Spring 2012, 2015, 2018

Summary of Findings: Students were required to prepare formal documents in the form of a proposal to the Board of Directors of a company for which they put together a proposed packaging line for a specific product. Students were then required to prepare, and deliver a formal presentation including Powerpoint slides. All students completed the documents, Powerpoint slides, and made formal presentations in front of peers and outside professionals. There was a typical range of quality in the presentations. All were of acceptable quality, but none were outstanding.

Results: Target Achievement: Met

Recommendations: Formal presentations with appropriate technology should be integrated into earlier courses so that students can increase their skill levels and comfort with making formal presentations. Reflections/Notes: The skills evaluated here are important for success in industry, so it is important to ensure that all students develop these skills as much as possible before graduation.

Action Details: While students demonstrated ability to make presentations using technology, most did not demonstrate mastery at the level hoped for in Senior level students.

Implementation Plan (timeline): More guidance and feedback will be given to students on their presentation skills, beginning with the Fall 2012 semester.

Key/Responsible Personnel: Instructors Measures: A rubric will be developed and given to students to help guide them in expectations for a good presentation.

Resource Allocation(s) Status: Students are being required to deliver formal presentations using technology as a tool, beginning Fall 2012. Next Steps/Additional Information: Develop a formal rubric to evaluate formal presentations.

B. Continuous Improvement

Describe how the results of evaluation processes for the student outcomes and any other available information have been systematically used as input in the continuous improvement of the program. Describe the results of any changes (whether or not effective) in those cases where re-assessment of the results has been completed. Indicate any significant future program improvement plans based upon recent evaluations. Provide a brief rationale for each of these planned changes.

The continuous improvement process and departmental restructuring has led to several changes in the Packaging Engineering Technology program which culminated in a curriculum change which was formally approved through the curriculum approval process in May 2015. The changes are best understood by reviewing the following table.

OLD			NEW		
SCIENCE AND MATH REQUIRED COURSES			SCIENCE AND MATH REQUIRED COURSES		
COURSE	HRS	TITLE	COURSE	HRS	TITLE
MATH 115	3	or MET 215 (3)			
MATH 241	3	Principles of Stats	MATH 131	4	or MATH 123 and 301
PHYS 105	3	General Physics I	PHYS 105	3	General Physics I
PHYS 105L	1	General Physics I Lab	PHYS 105L	1	General Physics I Lab
CHEM 100	3	General Chemistry I	CHEM 100	3	General Chemistry I
CHEM 100L	1	General Chemistry I Lab	CHEM 100L	1	General Chemistry I Lab
Required:			Required:		
PKG 180	3	Introduction to Packaging Design	PKG 180	3	Introduction to Packaging Design
PKG 280	3	Packaging Materials & Testing I	PKG 280	3	Packaging Materials & Testing I
PKG 380	3	Packaging Materials & Testing II	PKG 380	3	Packaging Materials & Testing II
PKG 381	3	Environmental Issues in Packaging			
PKG 482	3	Packaging Development & Analysis, Distribution Packaging Design	PKG 482	3	Packaging Development & Analysis, Distribution Packaging Design
PKG 484	3	Analysis & Testing	PKG 484	3	Analysis & Testing
PKG 486	3	Packaging Machinery Systems	PKG 486	3	Packaging Machinery Systems
PKG 489	3	Packaging Industry Projects	PKG 489		Packaging Industry Projects
			ECT 160	3	Fund. Of Electronics
MET 103	3	Technical Graphics	MET 103	3	Technical Graphics
TMGT 131	2	Introduction to MFG Technology			
			MET 130	2	Intro to Engr. & Tech

			MET 329	3	Fluid Power Technology
TMGT 351	3	Professional Internship	MET 351	3	Professional Internship
			MET 405	3	Econ Anal Engr & Tech
TMGT 361	3	Quality Sys & Tools	TMGT 361	3	Quality Sys & Tools
TMGT 429	3	Workplace Law & Tech Mgr			
TMGT 430	1	Senior Seminar			
TMGT 471	3	Prod Plan & CNTRL	TMGT 471	3	Prod Plan & CNTRL
TMGT 478	3	Industrial Org & Functions	TMGT 478	3	Industrial Org & Functions
TMGT 492	3	Industrial Supervision	TMGT 492	3	Industrial Supervision
Choose one from the following			Choose one from the following		
			MFG 225	3	Intro to Materials, Processes & Testing
MFG 370	3	Fund of MFG Process	MFG 370		Fund of Mach Tool Proc
MFG 371		MFG Process & Materials	MFG 371		MFG Process & Materials
MFG 372		Plastics Technology			
			MFG 376		Comp Numerical CNTRL Sys
	65	Required in Major		65	Required in Major

Table 4.B.1 Side-by-Side Curriculum Changes

C. Additional Information

Copies of any of the assessment instruments or materials referenced in 4.A. and 4.B must be available for review at the time of the visit. Other information such as minutes from meetings where the assessment results were evaluated and where recommendations for action were made could also be included.

CRITERION 5. CURRICULUM

A. Program Curriculum

Table 5-1 describes the plan of study for students in the PET major, along with average section enrollments over the two years. All course work in the PET major is delivered in the semester format. There are no options in the program.

Figures 1.4 and 1.5 details the PET major 4 year plan of recommended courses per semester. Figure 1.5 details the pre-requisites for the courses and which courses are offered spring or fall only.

Table 4.A.1 shows how the PET curriculum aligns with the program educational objectives.

Table 4.A.2 details how the PET curriculum aligns with the student outcomes and

corresponding educational objectives. As shown, each major course contributes to the development of learning toward the desired student learning outcomes. Most PET major courses contain a lab component which drives educational achievement toward the upper levels of Bloom's Taxonomy, namely application, analysis and synthesis. The Industrial Advisory Board has made it clear many times that they expect our graduates to be not only technically competent and effective in communication skills, but to be able to perform problem solving at these higher levels.

The PET major courses, along with certain foundational studies courses, have a prerequisite structure. It is important that the learning of fundamentals must be sound before more advanced educational topics can be presented. In PET major course that have prerequisites, some component of review and reinforcement of previous course fundamentals is delivered at the beginning of the course. The prerequisite structure path diagram for PET major courses is detailed in the four-year plan Figure 1.5.

The capstone course for the PET major is PKG 489. The course requires the PET student to conceptualize, design, build, debug, analyze, document and present a technical project that must align to the technology and the defined outcomes for the program.

An internship or cooperative experience is highly encouraged and is a requirement of the PET major. The College of Technology has a staff person assigned to the development of internship opportunities for COT majors. Also the ISU Career Center is fully engaged in developing and overseeing internship opportunities for all majors, including those in PET. A three credit course, MET 351 allows students with internships to gain credit.

All requested materials will be made available to the on-site evaluation team. Most of the material will be referenced to course numbers and titles. Every attempt will be made to assist in the on-site review process.

B. Course Syllabi

The syllabi are displayed in Appendix A.

C. Advisory Committee

Members include Caesar Watkins, Trisha Rochyby, Kerry Crossland. The last meeting was fall 2014. Trisha was appointed to interact with the student IoPP org. There was discussion of moving to ABET accreditation. All members highly approved.

More information on the advisory committees will be made available at the visit.

Table 5-1 Curriculum

Packaging Engineering Technology effective 2015-2016 academic year

Course (Department, Number, title) List all courses in the program by term starting with first term of the first year and ending with the last term of the final year	Indicate whether Course is Required, Elective, or a Selective Elective by an R, an E, or an Se ²	<i>Curricular Area (Credit Hours)</i>				Last Two Terms Course was Offered: year and Semester, or Quarter	Average Section Enrollment for the Last Two Terms the Course was Offered ¹
		Math And Basic Sciences	Discipline Specific Topics	General Education	Other		
MET 103 – Introduction to Technical Graphics w/CAD	R		3			<i>Fall 2014</i> <i>Spring 2015</i>	24
MeT 130 – Introduction to Engineering & Technology	R		2			<i>Fall 2013</i> <i>Fall 2014</i>	35
ECT 160 – Electronic Fundamentals	R		3			<i>Fall 2014</i> <i>Spring 2015</i>	27
Non-native Language (unless already has 2 years of High School credit w/C average); (Category of Foundational Studies)	R			0-3		<i>Fall 2014</i> <i>Spring 2015</i>	30
ENG 101 – Freshman Writing (or ENG 107 or other appropriate placement) (Category of foundational Studies)	R			3		<i>Fall 2014</i> <i>Spring 2015</i>	25
Appropriate Math placement score or course leading to MATH 123 or MATH 131	R	0-3				<i>N/A</i>	<i>N/A</i>
Non-native Language II (category of foundational Studies)	R			0-3		<i>Spring 2014</i> <i>Spring 2015</i>	19
Health Wellness (category of Foundational Studies)	R			3		<i>Fall 2014</i> <i>Spring 2015</i>	40

Fine and Performing Arts (category of Foundational Studies)	R			3		Fall 2014 Spring 2015	40 25-75
Communication (category of Foundational Studies)	R			3		Fall 2014 Spring 2015	25

Course (Department, Number, title) List all courses in the program by term starting with first term of the first year and ending with the last term of the final year	Indicate whether Course is Required, Elective, or a Selective Elective by an R, an E, or an Se ²	Curricular Area (Credit Hours)				Last Two Terms Course was Offered: year and Semester, or Quarter	Average Section Enrollment for the Last Two Terms the Course was Offered ¹
		Math And Basic Sciences	Discipline Specific Topics	General Education	Other		
ENG 105 – Freshman Writing II (or elective depending on placement) (category of Foundational Studies)	R			0-3		Fall 2014 Spring 2015	25
Appropriate Math placement score or course leading to MATH 123 or MATH 131	R	0-3				N/A	N/A
PHYS 105 – General Physics I	R	3				Fall 2014 Spring 2015	60 50-90
PHYS 105L – General Physics I Laboratory	R	1				Fall 2014 Spring 2015	25
PKG 180 – Introduction to Packaging Design	R		3			Spring 2012 Fall 2013	22
PKG 280 – Packaging Materials & Testing I	R		3			Fall 2012 Fall 2014	20
MATH 123 – Analytic Geometry & Trigonometry	R	0-3				Fall 2014 Spring 2015	27
Literary Studies (Category of Foundational Studies)	R			3		Fall 2014 Spring 2015	26
Free Elective as needed	R				1-5	Fall 2014 Spring 2015	N/A

CHEM 105 – General Chemistry I	R	3		3		Fall 2014 Spring 2015	40
CHEM 105L – General Chemistry I Laboratory	R	1				Fall 2014 Spring 2015	23
PKG 380 – Packaging Materials & Testing II	R		3			Spring 2012 Spring 2015	22

Course (Department, Number, title) List all courses in the program by term starting with first term of the first year and ending with the last term of the final year	Indicate whether Course is Required, Elective, or a Selective Elective by an R, an E, or an Se ²	Curricular Area (Credit Hours)				Last Two Terms Course was Offered: year and Semester, or Quarter	Average Section Enrollment for the Last Two Terms the Course was Offered ¹
		Math And Basic Sciences	Discipline Specific Topics	General Education	Other		
MATH 129 – Fundamentals & Applications of Calculus-or- MATH 131 – Calculus	R	3-4				Fall 2014 Spring 2015	28
HIST (category of Foundational Studies)	R			3		Fall 2014 Spring 2015	35
Free Elective as Needed	R				3	Fall 2014 Spring 2015	N/A
PKG 482 – Packaging Development & Analysis	R		3			Fall 2012 Fall 2014	16
PKG 484 – Distribution Packaging Design, Analysis & Testing	R		3			Fall 2011 Spring 2014	15
MET 329 – Fluid Power Technology	R		3			Fall 2014 Spring 2015	25
Junior Composition (category of Foundational Studies)	R			3		Fall 2014 Spring 2015	25
Social & Behavioral Studies (category of Foundational Studies)	R			3		Fall 2014 Spring 2015	40 25-150
PKG 486 – Packaging	R		3			Fall 2013	12

Machinery systems						<i>Spring 2015</i>	
PKG 489 – Packaging Industry Projects	R		3			<i>Spring 2013</i> <i>Spring 2015</i>	14
MET 351 – Cooperative Industrial Practice	R		3			<i>Fall 2014</i> <i>Spring 2015</i>	5
MET 405 – Economic Analysis for Engineering & Technology	R		3			<i>Spring 2015</i> <i>Summer 2015</i>	22

Course (Department, Number, title) List all courses in the program by term starting with first term of the first year and ending with the last term of the final year	Indicate whether Course is Required, Elective, or a Selective Elective by an R, an E, or an Se ²	<i>Curricular Area (Credit Hours)</i>				Last Two Terms Course was Offered: year and Semester, or Quarter	Average Section Enrollment for the Last Two Terms the Course was Offered ¹
		Math And Basic Sciences	Discipline Specific Topics	General Education	Other		
Global Perspectives and Cultural Diversity (category of Foundational Studies)	R			3		<i>Fall 2014</i> <i>Spring 2015</i>	40
MFG 225 – Introduction to Materials, Processes, and Testing – or- MFG 370 – Fundamental of MFG Processes – or- MFG 371 – MFG Processes and Materials – or - MFG 372 – Plastics Technology – or – MFG 376 – Computer Numerical CNTRL Systems	SE			3		<i>Fall 2014</i> <i>Spring 2015</i>	20

TMGT 361 – Quality Systems and Tools	R		3			<i>Spring 2013 Fall 2014</i>	37
TMGT 478 – Industrial Organizations & Functions	R		3			<i>Fall 2014 Spring 2015</i>	20
Free Elective as Needed	E				3	<i>Fall 2014 Spring 2015</i>	N/A
Upper Division Integrative Elective (category of Foundational Studies)	R			3		<i>Fall 2014 Spring 2015</i>	35
TMGT 471 – Production Planning & CNTRL	R		3			<i>Fall 2014 Spring 2015</i>	19
TMGT 492 – Industrial Supervision	R		3			<i>Fall 2014 Spring 2015</i>	22
Free Elective as Needed	E				3	<i>Fall 2014 Spring 2015</i>	N/A
Ethics & Social Responsibility (category of Foundational Studies)	R			3		<i>Fall 2014 Spring 2015</i>	45 35-130

Course (Department, Number, title) List all courses in the program by term starting with first term of the first year and ending with the last term of the final year	Indicate whether Course is Required, Elective, or a Selective Elective by an R, an E, or an Se ²	<i>Curricular Area (Credit Hours)</i>				Last Two Terms Course was Offered: year and Semester, or Quarter	Average Section Enrollment for the Last Two Terms the Course was Offered ¹
		Math And Basic Sciences	Discipline Specific Topics	General Education	Other		
Upper Division Integrated Elective II (category of Foundational Studies)	R			3		<i>Fall 2014 Spring 2015</i>	15
<i>Add rows as needed to show all courses in the curriculum</i>							
OVERALL TOTAL CREDIT HOURS FOR THE DEGREE	120						
PERCENTAGE OF TOTAL		<i>12-14+ CH</i>	<i>56 CH</i>	<i>36-45 CH ~30-</i>	<i>7-19</i>		

		~12%	~17%	37%	CH ~ 6-16%		
--	--	------	------	-----	------------	--	--

1. For courses that include multiple elements (lecture, laboratory, recitation, etc.), indicate the average enrollment in each element.
2. Required courses are required of all students in the program, elective courses are optional for students, and selected electives are courses where students must take one or more courses from a specified group.

Instructional materials and student work verifying compliance with ABET criteria for the categories indicated above will be required during the campus visit.

CRITERION 6. FACULTY

A. Faculty Qualifications

There is currently one faculty member, Marion Schafer, who has the credentials to teach all eight packaging specific courses. The other courses required in the PET program are delivered by other departmental faculty. The stable enrollment in the PET major of approximately 25 students allows for a rollout of courses such that a student can easily graduate in four years and one faculty can deliver the necessary courses with room to teach in other areas. The course enrollment is maintained near 20 students per course as depicted in table 5.1.

The faculty in the AETM department shares diversity in background, race, ethnicity and experience. The regular full-time workload includes teaching, scholarly activities, and service. All tenured faculty members have terminal degrees in fields that relate to the nine BS degree programs delivered in the AETM department.

Likewise, the instructors and adjunct faculty possess a mix of BS and MS degrees that align with the degree programs. The teaching of the faculty as a whole is well received by our students as evidenced by the students' evaluations each semester. Faculty resumes can be found in Appendix B. The credentials for the faculty directly associated with the delivery of the PET program and AETM in general are detailed in Table 6-1.

B. Faculty Workload

Table 6-2 shows the Faculty Workload Summary. The teaching assignments are designed to accommodate individual interests and skills, while maintaining accountability and a reasonable level of balance. This flexibility in the teaching load distribution is possible because our faculty can teach comfortably several of the courses in our curriculum, across multiple majors in our curriculum in some cases.

C. Faculty Size

There is one (1) full-time faculty member (tenured or tenure-track) directly associated with PET program. Marion Schafer is a full professor and serves as the coordinator who represents the program to external entities. Other AETM Department faculty members teach the technical core or elective courses required in the program. All department faculty members share the responsibility of teaching, advising and service pertinent to the program.

The number of full-time faculty is sufficient to accommodate the current level of teaching, student-faculty interaction, service activities, professional development and communications with industrial partners. Table 6.1 shows the rank and educational background of AETM program faculty, where two-page C.V.'s are included in Appendix B.

Each student in the PET major has an assigned advisor, in most cases the assignment is

made to Marion Schafer. Advising is ultimately the responsibility of all department faculty members, thus depending on availability and scheduling, PET majors may meet with other than their assigned advisor.

With extreme growth in the Mechanical Engineering Technology and Civil Engineering Technology programs over the last few years, the size of the faculty has been strained. Many faculty have taken on overloads of courses to provide for the ability to keep up with student needs to graduate in four years.

The overall department faculty FTE allotment for the upcoming 2015-2016 year is 16.5 which include a mix of tenure and tenure-track faculty with multi-year faculty, and course lecturers. The projected needs for upcoming year, as registrations of new students take place, indicates a need for 18.3 FTE of faculty.

In response to this need, and the current numbers of faculty in the department, the Dean and Provost have authorized addition multi-year faculty searches. The department is currently seeking three new full-time faculty for courses throughout the department.

D. Professional Development

The highlights of the professional development activities for the key PET faculty and all other AETM department faculty can be found in the Appendix B in the resumes. PET faculty members provide significant service to the administrative, research, and educational objectives of the university, as well as the community. The PET faculty members are involved in a number of professional development activities, including: organizing and serving as key-note speakers in domestic and international professional conferences, serving as technical society program committee members, serving as peer-reviewers for professional journals, and serving in appointed or elected leaders in professional societies.

E. Authority and Responsibility of Faculty

The PET program faculty has the primary authority and responsibility for developing, revising, and implementing curriculum issues. However the program educational objectives, outcomes, and curriculum have to satisfy the needs of industry, students/parents, college/university administration, accreditation bodies and the State of Indiana Higher Education guidelines. Before proposing a new development or revision, program faculty seek and consider input from the students, graduates, employers, Industry Advisory Board (IAB) members and accreditation bodies. The college dean also advises on program educational objectives, outcomes, and curriculum issues, with an eye to state government and university administration requirements.

Table 6-1. Faculty Qualifications

Packaging Engineering Technology - Entire AETM Department is listed

Faculty Name	Highest Degree Earned – Field and year	Rank ¹	Type of Academic Appointment ²	FT or PT ³	Years of Experience			Professional Registration/Certification	Level of Activity ⁴ H, M, L		
					Govt./Ind. Practice	Teaching	This Institution		Professional Organization	Professional Development	Consulting/summer work in Industry
Todd Alberts	MS – Management – 2007	I	NTT	FT	17	7	7		H	M	L
M. Affan Badar	PhD – Industrial Engineering – 2002	P	T	FT	2	12	12	CSTM	H	H	L
Mark Clauss	MS – Industrial Technology - 1986	O	NTT	FT	22	8	6		L	L	L
Phillip Cochrane	DBA – Business Administration - 2008	ASC	T	FT	22	20	9	CTM	M	H	L
Michael Hayden	PhD – Industrial Education & Technology – 1989	P	T	FT	3	31	19	CMQ/OE, CQE, CSSGB, CMfge/T	H	H	L
Kristina Lawyer	MS – Engineering – 2012	AST	TT	FT	2	2	2		M	H	L
Alister McLeod	PhD – Industrial Technology – 2009	AST	TT	FT	1	6	4		L	M	L
Randell Peters Chair	PhD – Curriculum Instruction/Industrial Tech Ed – 2005	ASC	T	FT	20	13	12	A.S.E. -23 CSTM	L	H	H
Marion Schafer PET Coordinator	PhD – Curriculum Instruction/Industrial Tech Ed -	P	T	FT	18	23	21	CPP, CPLP	M	L	M
A. Mehran Shahhosseini	Deng – Mechanical Engineering – 1999	ASC	T	FT	5	25	6	EIT	L	H	M
James Smallwood	PhD – Curriculum Instruction/Indus Tech Ed - 1988	P	T	FT	5	27	13	CMT BY SME	H	M	H
Michael Williamson	PhD – Engineering Science - 2014	AST	TT	FT	2	2	2	EIT	H	H	L

Instructions: Complete table for each member of the faculty in the program. Add additional rows or use additional sheets if necessary. Updated information is to be provided at the time of visit.

- Code: P = Profession ASC = Associate Profession AST = Assistant Professor I = Instructor A – Adjunct O = Other
- Code: TT = Tenure Track T = Tenured NTT = Non Tenure Track
- At the Institution
- The level of activity, high, medium or low, should reflect an average over the year prior to the visit plus the two previous years.

Table 6-2. Faculty Workload Summary

Packaging Engineering Technology

Faculty Member Name	FT or PT ³	Classes Taught (Course No/Credit Hrs) Term and year ²	Program Activity Distribution ³			% of Time Devoted to the program ⁵
			Teaching	Research	Other ⁴	
Todd Alberts	FT	Fall 2014 – MET 103/3, 130/2 (3), 203/3 (2) Spring 2015 – MET 203/3 (2), 403/3 (2), 409/3 (3)	100	0	0	20
M. Affan Badar	FT	Fall 2014 – MET 612/3 Spring 2015 – MET 405/3 & 505/3	10	10	80 Int ASC Dean	0
Mark Clauss	FT	Fall 2014 – MFG 225/3, 370/3, 371/3 (2) Spring 2015 – MFG 370/3, 371/3 (2)	20	0	80	20
Phillip Cochrane	FT	Fall 2014 – AET 477/3 & 577/3, 493/3, MET 329/3 (2), MET 404/3, 406/3 Spring 2015 – AET 433/3 & 533/3, MET 329/3 (2), MET 333/3	80	20	0	20
Michael Hayden	FT	Fall 2014 – COT 703/3, TMGT 361/3, 429/3 & 529/3, 603/3, 607/3 Spring 2015 – COT 703/3, TMGT 421/3 (2), 461/3 & 561/3, 463/3 & 563/3	80	20	0	10
Kristina Lawyer	FT	Fall 2014 – AET 132/3, AET 436/3, MET 215/3, 406/3, 413/3 & 513/3 (2) Spring 2015 – AET 132/3, 233/3, 239/3, 336/3, 435/3, MET 215/3	100	0	0	0
Alister McLeod	FT	Fall 2014 – TMGT 195/3, TMGT 471 & 571/3 (2), TMGT 478 & 578/3 Spring 2015 – TMGT 471 & 571/3 (2), TMGT 478 & 578/3 (2)	80	20	0	60
Randell Peters Chair	FT	Fall 2014 – AET 330/3 (2) Spring 2015 – AET 330/3, MET 430/1, TMGT 430/1	40	10	0	10
Marion Schafer PET Coordinator	FT	Fall 2014 – PKG 280/3, PKG 381/3, PKG 482/3, PKG 489/3, TMGT 697/3 Spring 2015 – PKG 380/3, PKG 381/3 (2), PKG 489 & 589/3, TMGT 697/3	80	20	50 Int PhD Director	80
A. Mehran Shahhosseini	FT	Fall 2014 – COT710/1, COT711/2, MET 404 & 504/3, MET 408/3, MET 490/3, MET 610/3 Spring 2015 – COT700/0, MET 408/3 (2), MET 633/3	40	10	0	0
James Smallwood	FT	Fall 2014 – MET 351/3 (2), TMGT 351/3, 492/3, 601/3 Spring 2015 – MET 351/3 (2), TMGT 351/3, 492/3,	80	20	0	20

		601/3 Spring 2015 – MET 351/3 (2), PKG 381/3, TMGT 351, 491/3 & 591/3, 492/3				
Michael Williamson	FT	Fall 2014 – CVET 401/3, CVET 410/3, MET 103/3 (2), MET 406/3, PKG 381/3 Spring 2015 – CVET 411/3, CVET 420/3, MET 103/3, MET 304/3 (2), PKG 381/3	100	0		20

1. FT = Full Time Faculty or PT = Part-Time Faculty, at the institution.
2. For the academic year for which the Self-Study Report is being prepared.
3. Program activity distribution should be in percent of effort in the program and should total 100%.
4. Indicate sabbatical leave, etc., under “Other.”
5. Out of the total time employed at the institution

CRITERION 7. FACILITIES

A. *Offices, Classrooms and Laboratories*

1. Offices
 - a. The PET program together with AETM Department is housed in the John T. Myers Technology Center. The College of Technology building infrastructure consists of the Myers Technology Center (TC) and the Technology Annex (TA) building. The TC building was erected in 1997 and has received regular hardware upgrades to incorporate state-of-the-art instructional facilities as well as student work and lounge areas.
 - b. The Department office complex is located on the second floor of the Myers Technology Center. All PET faculty members have offices in Suite TC 201, close to the classrooms, labs, and meeting rooms. The Suite is currently filled to capacity with nine tenure track faculty and one multi-year faculty member. Other office space in the Technology Annex and the Technology Center are being utilized for additional faculty and graduate assistants.
2. Classrooms
 - a. The College of Technology has an auditorium or theater-like classroom that seats 100 students on the first floor of the Myers Technology Building. There is also an atrium to hold large social gatherings. The AETM Department has one meeting/conference room. In the addition, the College of Technology has three meeting rooms and two breakout rooms.
 - b. Some of the AETM department primary classrooms also function as laboratories, which allow students to continue on lab experiments in the same room when the lecture session of the class is delivered. All classrooms are equipped with PCs with network access, educational software required for courses taught in the room, and teaching apparatus including an audiovisual cabinet with master

control, VCR/DVE player, and audio amplifier. Most rooms have installed overhead projectors, and powered projector screens. Each room also has multiple equipment/documentation cabinets to store lab tools and related lab test equipment and materials.

- c. Classroom physical dimensions are sufficient to accommodate up to 30 seats, which is the nominal capacity for class size. The layout is designed to facilitate student interaction and collaboration on labs.
 - d. Room TC113 is the primary teaching for core PET courses. The laboratory has various packaging development and testing equipment along with a seating capacity of 30 students. (Table 7.1 shows the department room numbers and typical course assignment to each.)
3. Laboratories
- a. The lab equipment specific to the PET program is housed in the classroom as listed in the preceding section of this document.
 - b. Other dedicated laboratory facilities in which the PET major may have an elective or minor course includes the metals lab (3600 sq ft), which has been developed to represent modern manual machining welding and foundry lab experiences.

Table 7.1 AETM Department PET program specific Labs and Classrooms

	Lab Specialization	PET Major Courses Taught
TC 113	PET Classroom & Lab	PKG 180, 280, 380, 482, 484, 486, 489
TC 114	SIMCO Lab	TMGT 478
TC 025	Metals Classroom	MFG 225, 370, 371
TC 022 & 023	Metals Lab	MFG 225, 370, 371

B. Computing Resources

ISU maintains approximately 130 technology enhanced classrooms, 6 public labs and 49 discipline specific computer labs. An increasing number of the technology enhanced classrooms serve also distance-learning classrooms. Campus infrastructure currently supports over 100 servers and high performance computing facilities. The campus has become a notebook institution beginning with freshmen in Fall 2007. The campus is served by an extensive fiber optic cable system, and uses a gigabit backbone to deliver data and interactive video connections to every building. Wireless network access is available in all academic areas. High speed connection to both the commercial Internet and Internet2 is provided for faculty and student use.

Figure 7.B.1 lists the university computer resources and their availability.

A number of application, operating system and support software applications are available to students and faculty at no cost. The list detailing this software and its availability can be found at http://prodinteract.indstate.edu/pls/prod/hwzkswdl.P_DisplaySW .

The computers in each classroom receive regular upgrades and maintenance support from the Office of Information Technology (OIT) which serves as the central resource for the computing infrastructure at ISU. One major OIT program currently being implemented in the transition to the Windows 7 operating systems to abate the security issues involved with Windows XP. OIT also support a 24/7 help line and extended hours help desk, when students can faculty can receive lap top or other PC troubleshooting and repair assistance bother with hardware and software issues.

The computers located in the course specific labs are generally available during normal class times, when faculty or staff is available. With the advent of laptop computer for every student, the need for off hour computer labs has been eliminated.

The laptops furnished to students come loaded with a variety of software tools, including the Microsoft Office suite. For the PET major, any required special application software is made available on PCs in the specific classrooms. For unique application software or other computing infrastructure needs, the AETM department and the College of Technology have budget lines for such, as well as the support of OIT in special cases.

Figure 7.B.1 University Computer Resources

Room	Reservable	Student Workstations	Model	Projector	Sound	Microphone	Symposium	Instructor Station	Laptop Capable	Smartboard	Scanner	Lab Printer	Blu-ray/DVD/VCR
DH 326-Communications Lab	Yes	22	Intel iMac	Yes	Yes	No	No	Yes	No	No	No	No	No
FD 123-Trading Lab	Yes	48	Dell Optiplex GX990	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	Blu-ray
FA 112-Public Mac Lab	Yes	23	Intel iMac	Yes	Yes	No	No	Yes	No	No	Yes	No	No
RO A107-Language Lab	Yes	17	Lenovo Thinkcentre M92p	Yes	Yes	No	No	Yes	Yes	No	No	Yes	DVD/VCR
TA 237-Architectural	Yes	24	Dell Precision T3600	Yes	Yes	No	No	Yes	Yes	No	No	Yes	DVD/VCR
TC 005-Aviation	Yes	24	Lenovo Thinkcentre M92p	Yes	Yes	No	No	Yes	No	Yes	No	No	VCR
TC 217-CAD	Yes	25	Dell Precision T3600	Yes	Yes	No	No	Yes	No	No	No	Yes	No
TC 306-Computer Hardware	Yes	12	Dell Optiplex GX260	No	No	No	No	No	No	No	No	No	No
TC 308-Solid State Lab	Yes	12	Dell Optiplex GX270	Yes	Yes	No	No	No	Yes	No	No	No	No
TC 315-PLD Lab	Yes	12	Dell Optiplex GX280	Yes	No	No	No	Yes	No	No	No	No	No
UH 0080-Multimedia Lab	Yes	18	Dell Precision T3400	Yes	Yes	No	No	Yes	Yes	No	No	No	VCR
A-C54-Athletics	No	6	3 Lenovo M93p/3 HP Slim Towers	No	No	No	No	No	No	No	No	No	No
A-C62-Athletics	No	7	Lenovo Thinkcentre M92p	No	No	No	No	No	No	No	No	No	No
A-C63-Kinesiology	No	13	Dell Precision T3400	No	No	No	No	No	No	No	No	No	No
A-C65-Kinesiology	No	13	Lenovo Thinkcentre M93p	Yes	Yes	No	No	Yes	No	No	No	No	No
AEC 130-Academic Enrichment	No	6	Lenovo Thinkcentre M92p	No	No	No	No	No	No	No	No	No	No
FA 208-Art Grad Cluster	No	14	Intel iMac / G5	No	No	No	No	No	No	No	No	Yes	No
FA 212-Art Design Studio	No	34	Intel iMac / G5	Yes	No	No	No	Yes	No	No	Yes	Yes	Yes
FH 130-Photography	No	6	Intel iMac	No	No	No	No	No	No	No	Yes	Yes	Yes
RU 000-Computer science	No	14	Dell Optiplex GX980	No	No	No	No	No	No	No	No	No	No
RU A009-Ivy Tech Math	No	22	Lenovo Thinkcentre M55	No	No	No	No	Yes	No	No	No	No	No
RO A015 Unix CS Lab	No	16	Lenovo Thinkcentre M92p	No	No	No	No	No	No	No	No	No	No
RO A017-Math/CS	No	41	Dell Optiplex GX990	No	No	No	No	No	No	No	No	No	No
S 009-Chemistry	No	14	Dell Optiplex GX980	Yes	No	No	No	No	Yes	No	No	No	Yes
S 013-Chemistry	No	14	Dell Optiplex GX980	Yes	No	No	No	No	Yes	No	No	No	Yes
S 051J-Chemistry Research	No	8	Dell Optiplex GX980/990	No	No	No	No	No	No	No	No	Yes	Yes
S 058-Chemistry	No	14	Dell Optiplex GX980	Yes	No	No	No	No	Yes	No	No	Yes	Yes
S 105-Physics	No	17	Dell Optiplex GX980	Yes	Yes	No	No	Yes	No	No	No	Yes	VCR
S 109-Physics	No	13	Dell Optiplex GX980	No	No	No	No	No	No	No	No	Yes	Yes
S 133-Physics Grad Lab	No	6	Dell Optiplex GX980	No	No	No	No	No	No	No	No	No	No
S 158-Geology	No	14	Dell Precision T3400	Yes	Yes	No	No	Yes	Yes	No	No	Yes	VCR
S 160-Geology	No	10	Dell Precision T3400	No	No	No	No	No	No	No	No	Yes	Yes
S 215-Biology	No	15	Toshiba Satellite L55-A5168 Laptops	Yes	Yes	No	No	No	No	No	No	Yes	Yes
S 236-Biology	No	8	Acer Aspire 5750-6664 Laptops	Yes	Yes	No	No	Yes	No	No	No	Yes	Yes
S 240-Biology	No	15	Toshiba Satellite L55-A5168 Laptops	Yes	No	No	No	Yes	No	No	No	Yes	Yes
S 262-Biology	No	14	Toshiba Satellite L55-A5168 Laptops	Yes	Yes	No	No	Yes	No	No	No	No	No
TA 127-Power Systems	No	6	Lenovo ThinkCentre M92p	No	No	No	No	No	No	No	No	No	No
TA 246-Interior Design	No	19	Dell Precision T3600	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes	DVD/VCR
TC 108-Robotics Lab	No	12	Dell Optiplex GX755/280	No	No	No	No	No	No	No	No	Yes	Yes
TC 113-Packaging Lab	No	7	Dell Precision T3400	No	No	No	No	No	No	No	No	Yes	Yes
TC 114-SIMCO	No	19	Lenovo Thinkstation S30	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes
TC 305-Digital/IT	No	12	Custom Computer Kits	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	DVD/VCR
TC 307-Transistor Lab	No	4	Dell Optiplex GX270	Yes	Yes	No	No	Yes	Yes	No	No	No	No
TC 311-PLC Lab	No	9	Dell Optiplex GX270	No	No	No	No	Yes	No	No	No	No	No
TC 312-Wet Process Lab	No	13	Dell Optiplex GX270/280/HP	No	No	No	No	No	No	No	No	No	No
WC 129-Call Center	No	14	Dell Optiplex GX755/760 Lenovo M92p	No	No	No	No	No	No	No	No	No	No

Reservable: This indicates whether a computer lab is also set up to function as a classroom and does not have any other restrictions that would prevent reservations by others.

Projector: Marks whether or not there is an overhead projector installed in the room for use with an instructor station and/or laptop capable substitution.

Sound: This specifies if there are speakers equipped to an instructor station and/or laptop capable substitution for audio playback from the computer or other equipment hooked up to the instructor station.

Microphone: This specifies if there is a microphone equipped to an instructor station for uses such as recording classes through Tegrity.

Symposium: This is an interactive display monitor that can be manipulated with the attached pen. Good for making on screen notes.

Instructor Station: A computer equipped station, usually in the front of the room, that is connected to other equipment such as projector, speakers, microphones, etc where available.

Laptop Capable: This designation means that a laptop can be hooked up to a monitor, projector, and speakers provided those features are installed in the lab.

Smartboard: Interactive board, illuminated by a projector, that can be manipulated by finger touch or electronic pens.

Scanner: A flatbed scanner which can be used to scan paper documents to the computer for an electronic copy.

Lab Printer: All labs are equipped with the capabilities to print to the student printing system here at ISU. The Lab Printer column designates which labs have a printer set up specifically for those labs.

Blu-ray/DVD/VCR: Indicates if there is a Blu-ray, DVD, or VCR player capable of playing through a projector.

C. Guidance

There exist a number of resources to assist students in the PET major regarding the use of the tools, equipment, computing resources, and laboratories. Incoming freshmen receive seminar information on the availability of computing resources and the OIT help desk, provided as part of new student orientation. The availability, location and policies related to computer use and associated resources is also discussed in the PET major's freshman orientation course, MET 130.

Detailed and specific guidance on the use of packaging specific tools and equipment is provided in each course in the PET major. Many of the PET courses have student lab assistances to supplement the presence of the course instructor during lab exercises. The use of cardboard cutting machines, shaker tables, and various other packaging testing equipment related to the specific PET courses is treated in the lecture component of the course and exercised in the lab component.

D. Maintenance and Upgrading of Facilities

The allocation of general computing resources is managed by the Office of Information Technology. This includes lab PC hardware and general software. The management of application software specific to the AET major is handled by the department. Department budget line items exist for equipment which can include computer software.

Department faculty members as a whole (coordinated by the department chair) manage the specific needs for maintaining and upgrading of program and course tools, equipment and laboratory facilities. A path exists to request specific funds for such activity from the College of Technology and the university. For issues related to computer software, the OIT is also has paths for funding requests.

E. Library Services

The university library has a faculty liaison for the College of Technology who serves as a direct interface between the library and the COT. An annual budget line item is allocated from which the department can request specific books, databases and other library resources. Most ISU library functions, including access to research databases are available on-line to ISU students and faculty.

F. Overall Comments on Facilities

All major courses in the PET program are delivered in the Myers Technology Center and the Technology Annex. The required mathematics, science and foundational studies courses are delivered on the ISU campus. Overall, the quantity of space available to the program, for both teaching and administrative needs, is adequate.

CRITERION 8. INSTITUTIONAL SUPPORT

G. Leadership

The university administration has and continues to encourage growth in enrollment the PET program and the AETM department. Likewise, support exists for accreditation and

the assessment and continuous improvement processes.

Marion Schafer serves as the lead faculty in the program.

H. Program Budget and Financial Support

1. The PET program budget requirements are developed by faculty and the department chair, then reviewed and prioritized in terms of the total department needs by the department faculty as a whole. The annual College of Technology budget available is allocated by the university administration and the Dean of the College of Technology along with department chairs distributes some recurring and most all one-time fund allocations. Each department receives an annual equipment budget. During the past four years this has been supplemented by one-time allocations to the college by the university administration. Additionally the college, via the efforts of the dean and the university foundation, works to procure outside funding from business, industry and alumni donors. These funds often come earmarked to special projects or needs, but some are more general and made available for critical needs in departments and programs.
2. Faculty teaching support is made available from graduate teaching assistants, student workers and tutors. Funding for graduate assistants is made available from the College of Graduate studies. Graduate teaching assistant numbers are included in the department and college FTE budget, thus are limited. An annual student worker budget is allocated to the department. An annual one-time allocation for additional student worker funds is made available at the beginning of each school year.
3. A process exists for requesting one-time or special budget allocations for equipment and facilities. The request originates in the department and required review and approval by the college and the administration. This process/policy also applies to requesting student lab or class fees for individual courses.
4. To date the students in the PET program have been able to achieve the outcomes set forth in the assessment process. As budgets continue to be reduced, new sources of funding by the university, the college and the department must be found if the quality of the PET and all other degree programs is to be maintained. Overall quality is tied to budgets to some degree that is difficult to define. Certainly the past and continuing budget cuts are impacting the potential for increased quality and our ability to maintain current levels.

I. Staffing

The AETM Department has one administrative assistant who has been a staff member at ISU for more than 25 years. The Department typically receives three graduate assistants to aid faculty with teaching and scholarship activities.

The level (numbers) of administrative, instructional, and technical staff continues to see the pressure of budget constraints. Department staffing is controlled by an FTE budget that is assigned by the administration. There is some means for mitigation at the college level, based on the overall college FTE budget allocation.

The university has instituted salary increases for faculty and staff in recent school years toward achieving compensation parity with similar sized institution across the country.

J. Faculty Hiring and Retention

1. Need determination and requests for new faculty positions originates in the department. The granting of permission for faculty hires is awarded by the administration, with input from the college Dean, based on department FTE funding results.
2. As described previously, salary increases have in recent history been granted across the faculty and staff in the university. The retention of new tenure-track faculty is supported by a new faculty orientation program that includes start-up funds for research and travel.

Personnel and Policies

- The promotion and tenure system The ISU policies, guided by AAUP Policy Documents and Reports, for Faculty appointment, promotion, and tenure are outlined in the university Handbook and posted at <http://www.indstate.edu/adminaff/docs/305%20FacultyApptPromotionanTenurePolicies.pdf#305.1> . Following these policies each academic unit (department or college) has a specific set of criteria for promotion and tenure. In the College of Technology, there exists a promotion and tenure document approved by the college faculty, Dean, and university senate. This document is used in reviewing the promotion and tenure within the College of Technology. The document states: “The purpose of promotion is to recognize the achievement in the broad areas of teaching, scholarly activity, service, and academic credentials. At the heart of promotion is the demonstration of increased leadership, ability, and value to the department, College, university, and profession. Tenure confers permanent faculty membership. Tenure is recognition that the faculty member has sustained and will continue a high level of teaching, scholarly activity, and service. Evaluation of faculty provides information to make the following types of decisions: promotion, tenure, faculty self-assessment and continual enhancement, recognition and reward, and salary adjustments. Faculty at the upper ranks (Associate Professor and Professor) should serve as mentors for junior faculty through their accomplishments and example.” For the promotion or promotion and tenure, a faculty member submits his/her dossier to the department along with the university specific form. The document goes through the following stages in sequence: department personnel committee, department chair, college committee, college dean, university vice president for academic affairs, university president, and board of trustees. There exists a promotion and tenure oversight committee at the university level where a faculty member can appeal the decision.
- The process used to determine faculty salaries A faculty position request is initiated by an academic department based on the staffing plan and need. The request is reviewed and approved by the Dean, Provost, and President. This request contains salary information as well trying to adjust the salary of the previous search in the department with the current market. For example in the AETM department, the starting salary of a new assistant professor is in the range of \$70,000. When an offer is made, the candidate can negotiate with the Dean around this figure. Once a faculty member has joined the university, the

salary is increased generally by 1% to 5% annually. At the time of promotion, the university provides a 10% increase in base salary from assistant to associate or associate to professor rank. Sometime at the time of promotion, the Dean (specially, professional college Dean) may recommend an additional increment for market adjustment, which may or may not be approved by the Provost office depending on the university budget.

- Faculty benefits The ISU faculty benefits are posted at <http://www.indstate.edu/humres/staff-benefits/>. The benefits include retirement and health (medical, prescription drug, and dental) plans. Vision plan is optional. Flexible Spending Account, tuition fee waiver, life insurance, disability, and express health benefits are also provided.

K. Support of Faculty Professional Development

Professional development support predominately comes in the format of travel funds. Faculty members are encouraged to make presentations at professional meetings and/or attend professional workshops. The travel funds for the department are very limited. In instances of International travel, limited travel grants are available from the Center for Global Engagement at ISU.

The university's Center for Instructional Research and Technology organizes teaching and faculty workshops aimed at faculty development.

Each tenured/tenure-track faculty member is evaluated in terms of teaching, scholarship, and service. Tenure-track faculty members are evaluated by the department and the college annually. Tenured faculty members are evaluated by department peers every two years.

PROGRAM CRITERIA

Please refer to the information detailed in Criterion 2 and 3 of this report.

APPENDICES

Appendix A – Course Syllabi

Please use the following format for the course syllabi (2 pages maximum in Times New Roman 12 point font)

1. Course number and name
2. Credits and contact hours
3. Instructor's or course coordinator's name
4. Text book, title, author, and year
 - a. other supplemental materials
5. Specific course information
 - a. brief description of the content of the course (catalog description)
 - b. prerequisites or co-requisites
 - c. indicate whether a required, elective, or selected elective (as per Table 5-1) course in the program
6. Specific goals for the course
 - a. specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.
 - b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.
7. Brief list of topics to be covered

PKG 180

Course Title: Introduction to Packaging Design Credits: Three (3) Course Instructor: Marion D. Schafer

Course Description: PKG 180 Introduction to Packaging Design (3 credit hours). This course is an introduction to the profession of packaging with an emphasis on packaging design. Includes a study of materials used in packaging and an introduction to the purposes and requirements of packaging. Laboratory activities include CAD design of package components.

Prerequisites: Working knowledge of a CAD program, or consent of instructor. Course

Objectives:

1. The student will be able to design an appropriate package that will meet the needs for marketing the product while providing protection and convenience.
2. The student will be able to construct appropriate models and prototypes of proposed package solutions.
3. The student will be able to function in a team environment to develop solutions to assigned packaging problems.

Course Requirements: Student grades will be based upon the following criteria:

- | | |
|--|-----|
| 1. Written Examinations and quizzes..... | 20% |
| 2. Lab Design Projects | 60% |
| 3. Participation | 10% |
| 4. Professional Activities | 10% |

ALL ISU POLICIES ON ACADEMIC HONESTY WILL BE ENFORCED IN THIS COURSE. READ AND UNDERSTAND THOSE POLICIES.

Written Examinations: Exams will be given as the units of instruction are completed. If you must miss an exam, you must notify the instructor before the exam begins. **Make-up exams will be administered at the discretion of the instructor and only under appropriate circumstances.**

Quizzes: Quizzes may be given at anytime and will usually be unannounced. Quizzes may cover the reading assignments due for that class period, or other materials, at the discretion of the instructor. **Missed quizzes will not be made up!**

Professional Activities: Professional Points are given for participation in professional activities in the field of packaging. Some examples include: participation in ISU IoPP Chapter meetings and activities, attending Pack Expo, attending Central Indiana IoPP Chapter meetings and tours, performing community service activities relevant to packaging, and other activities approved by the instructor.

Participation: Participation for on-campus students means attending and actively participating in class discussions and projects.

Your attendance in class, whether on campus or on-line, is EXPECTED, just as it would be

in industry on the job (You cannot participate if you are not here)! If you do not attend your job as required you will be fired. This course offers a similar result.

Academic Honesty: The Indiana State University policies on academic honesty will be enforced in this course. It is the responsibility of each student to read and understand those policies. Any case of cheating or plagiarism will be dealt with according to that policy, which can involve an “F” grade or, in extreme cases, expulsion from the university.

Grades will be determined on the following scale, based on the above weighting proportions. A = >97%; A = 93-97%; A- = 90-93%; B+ = 87-90%; B = 83-87%; B- = 80-83%; C+ = 77-80%; C = 73-77%; C- = 70-73%; D+ = 67-70%; D = 63-67%; D- = 60-63%; F = <60%

Special Needs: Any student with a physical or learning disability is invited to make the instructor aware of the circumstances so that reasonable accommodation can be made.

Safety: All students will follow safety rules when in the packaging lab. For example, safety glasses must be worn at all times when operating, or observing operating equipment in the packaging lab. If you are ever unsure about a safety issue, ask the instructor before doing anything with a machine.

Texts and References:

- 1). Fibre Box Handbook, Fibre Box Association

PKG 280

Course Title: Packaging Materials & Testing I

Credits: Three (3)

Course Description:

This course will cover packaging materials, physical properties, and material applications. Specific emphasis is placed upon wood based packaging materials. This course will also incorporate other common packaging materials used within the packaging industry. Laboratory analysis, application of scientific procedures, and use of test instruments are required.

Course Objectives:

Having successfully completed this course, the student will have a detailed understanding of the materials used within the packaging industry. Through discussion, group projects, write-ups and laboratory exercises, the student will demonstrate proficiency in material selection, developing test plans, and conducting standard testing procedures on packages and packaging materials.

Course Requirements:

Student grades will be based upon the following criteria 1). Exams

..... 50% 2).

Homework/Quizzes 20% 3.)

Projects/Papers 20%

4). Participation10%

Written Examinations: Exams (3) will be given as the units of instruction are completed. The major exams will be announced at least one week prior to the examination date. **Missed exams will result a grade of 0, unless the instructor is notified prior to the start of the exam and the circumstance is deemed appropriate.**

Quizzes: Quizzes may be given at anytime and can be unannounced. Quizzes may cover the reading assignments due for that class period, or other materials, at the discretion of the instructor. **Missed quizzes will not be made up!**

Homework: Several homework assignments will be given throughout the semester. **Late homework will not be accepted!**

Attendance: Your attendance in class is **EXPECTED**, just as it would be in industry on the job. (You cannot participate if you are not here!).

Grades:

Grades will be determined on the following scale, based on the above weighting proportions. A = >96%; A- = 92-96%; B+ = 88-92%; B = 84-88%; B- = 80-84%; C+ = 76-80%; C = 72-76%; C- = 68-72%; D+ = 64-68%; D = 60-64%; F = <60%

Texts and Related Articles:

The primary texts for this course are:

- Cartons, Crates and Corrugated Board, Twede and Selke **ISBN 1-932078-42-8**
- Material from the Containerboard Packaging Council and ICPF (International Corrugated Packaging Foundation) (The website is http://www.icpfbox.org/index.cfm?page=Corrugated_Modules The password is c4273s)
- Other materials provided by instructor

PKG 380

Course Syllabus Spring Semester 2015 Course Title: Packaging Materials & Testing II Credits: Three (3)

Course Instructor: Marion D. Schafer Office: TC 201 A Phone Info: 237-3352 (Office), 812-201-3528 (Cell) E-mail: marion.schafer@indstate.edu Office Hours: By appointment or walk-in

Course Description:

An advanced course in packaging materials including a study of physical properties and material applications. Specific emphasis is placed upon plastics, glass, metal, films foils, sheet materials, and cushion materials. Laboratory analysis, application of scientific procedures, and use of test instruments are required.

Course Objectives:

1. The student will be able to identify different materials used in packaging by standard test procedures.
2. The student will be able to identify and describe the primary package types and styles by name and usage.
3. The student will be able to construct a proper package prototype out of supplied materials.
4. The student will be able to operate all materials testing equipment in the packaging lab.
5. The student will demonstrate proficiency in developing a test plan and conducting standard testing procedures on packages and packaging materials.
6. The student will be able to prepare a proper report of lab testing activities.

Prerequisites:

PKG 280, or consent of instructor

ALL ISU POLICIES ON ACADEMIC HONESTY WILL BE ENFORCED IN THIS COURSE. READ AND UNDERSTAND THOSE POLICIES.

Course Requirements:

Student grades will be based upon the following criteria:

- | | |
|-------------------------------------|-----|
| 1. Written Examinations and quizzes | 60% |
| 2. Lab Projects | 20% |
| 3. Professional Points | 10% |
| 4. Participation | 10% |

Written Examinations: Exams will be given as the units of instruction are completed. The major

exams will be announced at least one week prior to the examination date. If you must miss an exam, you must notify the instructor before the exam begins. **Make-up exams will be administered at the discretion of the instructor and only under appropriate circumstances.**

Quizzes: Quizzes may be given at anytime and will usually be unannounced. Quizzes may cover the reading assignments due for that class period, or other materials, at the discretion of the instructor.

Missed quizzes will not be made up!

Professional Points: Professional Points are given for participation in professional activities in the field of packaging. Some examples include: participation in ISU IoPP Chapter meetings and activities, attending Pack Expo, attending Central Indiana IoPP Chapter meetings and tours, performing community service activities relevant to packaging, and other activities approved by the instructor.

Participation: Participation for on-campus students means attending and actively participating in class discussions and projects. Participation for distance students means regularly turning in assignments on time and participating in any online discussions.

Your attendance in class is EXPECTED, just as it would be in industry on the job. (You cannot participate if you are not here)! Attendance will be taken at the beginning of each class. If you miss without calling before class, you will not get points for that day.

Grades will be determined on the following scale, based on the above weighting proportions. A = 96-100%; A- = 92-96%; B+ = 88-92%; B = 84-88%; B- = 80-84%; C+ = 76-80%; C = 72-76%; C- = 68-72%; D+ = 64-68%; D = 60-64%; F = <60%

Special Needs: Any student with a physical or learning disability will be accommodated according to university policies.

Safety: All students will follow safety rules when in the packaging lab. For example, safety glasses must be worn at all times when in the packaging lab. If you are ever unsure about a safety issue, ask the instructor before doing anything with a machine.

Texts and References:

- 1). Understanding Plastics Packaging Technology, Selke 2). Library resources, Company and Internet Sources

PKG 482

Course Title: Packaging Development & Analysis Credits: Three (3)

Course Instructor: Marion D. Schafer Office: TC 201 A Phone Info: 237-3377 (Office), 812-201-3528 (Cell) E-mail: marion.schafer@indstate.edu Office Hours: After class or by appointment

Course Description:

Study and laboratory experiences in package design and construction in relation to constraints and limitations of a variety of products.

Prerequisites:

PKG 380 or consent of instructor

Course Objectives:

1. The student will be able to design an appropriate package that will meet the needs for marketing the product while providing protection and convenience.
2. The student will be able to construct appropriate models and prototypes of proposed package solutions.
3. The student will be able to function in a team environment to develop solutions to assigned packaging problems.
4. A formal paper and presentation will be required from each student covering the major design project.

Course Requirements:

Student grades will be based upon the following criteria:

1. Quizzes, Written Examinations and Daily Assignments
.....30%
2. Design Projects and Assignments
.....50%
3. Professional Activities
.....10%
4. Participation
.....10%

Academic Honesty: The Indiana State University policies on academic honesty will be enforced in this course. It is the responsibility of each student to read and understand those policies. Any case of cheating or plagiarism will be dealt with according to that policy, which can involve an “F” grade or, in extreme cases, expulsion from the university.

Written Examinations: Exams will be given as the units of instruction are completed. The major exams will be announced at least one week prior to the examination date. If you must miss an exam, you must notify the instructor before the exam begins. **Make-up exams will be administered at the discretion of the instructor and only under appropriate circumstances.**

Quizzes: Quizzes may be given at anytime and will usually be unannounced. Quizzes may cover the reading assignments due for that class period, or other materials, at the discretion of the instructor. **Missed quizzes will not be made up!**

Professional Activities: Professional Points are given for participation in professional activities in the field of packaging. Some examples include: participation in ISU IoPP Chapter meetings and activities, attending Pack Expo, attending Central Indiana IoPP Chapter meetings and tours, performing community service activities relevant to packaging, and other activities approved by the instructor.

Participation: Participation for on-campus students means attending and actively participating in class discussions and projects. Participation for distance students means regularly turning in assignments on time and participating in any online discussions.

Your attendance in class, whether on campus or on-line, is EXPECTED, just as it would be in industry on the job (You cannot participate if you are not here)! If you do not attend your job as required you will be fired. This course offers a similar result.

Academic Honesty: The Indiana State University policies on academic honesty will be enforced in this course. It is the responsibility of each student to read and understand those policies. Any case of cheating or plagiarism will be dealt with according to that policy, which can involve an “F” grade or, in extreme cases, expulsion from the university.

Grades will be determined on the following scale, based on the above weighting proportions. A = >96%; A- = 92-96%; B+ = 88-92%; B = 84-88%; B- = 80-84%; C+ = 76-80%; C = 72-76%; C- = 68-72%; D+ = 64-68%; D = 60-64%; F = <60%

Safety: All students will follow safety rules when in the packaging lab. For example, safety glasses must be worn at all times when operating, or observing operating equipment in the packaging lab. If you are ever unsure about a safety issue, ask the instructor before doing anything with a machine.

Texts and References:

- 1). Instructor will supply resources and recommend readings.
- 2). Library resources, Company and Internet Sources

The above schedule is subject to change when and where needed to accommodate the learning of the students, and the needs of the professor. While quizzes and exams are not

reflected above, the professor may choose to insert them at any time if he feels learning will be enhanced.

Final Design Project

Your final will consist of a project designing primary packaging for a given product. This will consist of: 1. A formal paper consisting of a well-documented development path that explains the thought process for developing this package, as well as sketches of all ideas considered, and formal drawings of the final design with explanation of why this design was chosen, 2. All models and prototypes constructed in the development process, 3. A formal oral presentation with Powerpoint that will be given during class time during the week before, or during final exams (All persons giving a formal presentation should dress appropriately).

***"The Sycamore Standard"* Indiana State University**

Students at Indiana State University are expected to accept certain personal responsibilities that constitute the "standard" for behavior in a community of scholars. As a student at Indiana State University: I will practice personal and academic integrity; I will commit my energies to the pursuit of truth, learning, and scholarship; I will foster an environment conducive to the personal and academic accomplishment of all students; I will avoid activities that promote bigotry or intolerance; I will choose associations and define my relationships with others based on respect for individual rights and human dignity; I will conduct my life as a student in a manner that brings honor to me and to the University Community; I will discourage actions or behaviors by others that are contrary to these standards. Adopted by the Indiana State University Student Government Association April 17, 2002.

AMERICAN WITH DISABILITES ACT STATEMENT

“Indiana State University seeks to provide effective services and accommodation for qualified individuals with documented disabilities. If you need an accommodation because of a documented disability, you are required to register with Disability Support Services at the beginning of the semester. Contact the Director of Student Support Services. The telephone number is 237-2301 and the office is located in Gillum Hall, Room 202A. The Director will ensure that you receive all the additional help that Indiana State offers. If you will require assistance during an emergency evacuation, notify your instructor immediately. Look for evacuation procedures posted in your classrooms.”

Laptop Usage

There may be assignments or examinations for which the laptop will be used (in class), and your use of a laptop is generally permitted as long as such usage remains within the bounds of the Code of Student Conduct and it conforms to the provisions of its use as laid out in this syllabus. There may be occasions where laptop usage is forbidden and if that occurs, failure to comply with this direction will be viewed as a violation of the Code of Student Conduct.

Academic Freedom

Teachers are entitled to freedom in the classroom in discussing their subject, but they should be careful not to introduce into their teaching controversial matter which has no relation to their subject.

The preceding comes from the American Association of University Professors statement on academic freedom. Though the entire statement¹ speaks to many issues, it is this portion on the conduct of the course that is most relevant. For the purpose of Foundational Studies courses this means that faculty have the right to conduct their class in a fashion they deem appropriate as long as the material presented meets the learning objectives laid out by the entire faculty. ¹

<http://www.aaup.org/AAUP/pubsres/policydocs/contents/1940statement.htm>

PKG 484

Course Title: Distribution Packaging Credits: Three (3)

Course Instructors: Dr. Marion Schafer E-mail:

Course Description:

This is an advanced course in packaging dynamics that includes the basics of the shock and vibration theory, package design, and cushioning material selection. A focal point of the course is packaging performance through distribution.

Course Objectives:

Having successfully completed this course, the student will have a detailed understanding of the hazards associated with transport packaging. This understanding will lead to procedures to design proper distribution packaging and cushioning materials to protect products through transport.

Topics to be covered include but not limited to:

-Distribution Environment -Distribution hazards -Testing/Procedures -Compression - Vibration theory -Vibration measurement and damage -Shock theory -Shock measurement and damage relationships -Cushioning methods to prevent damage -Returnable Containers

Course Requirements:

Student grades will be based upon the following criteria: 1). Written Examinations 60% 2). Homework 15% 3). Labs 10% 4). Project 10% 4). Participation 5%

Written Examinations: Three exams will be given as the units of instruction are completed. The exams will be announced at least one week prior to the examination date. If you must miss an exam, you must notify the instructor before the exam begins. **Make-up exams will be administered at the discretion of the instructor and only under appropriate circumstances.**

Homework: Homework will be assigned throughout the class.

Late homework will not be accepted!

Labs: There will several labs assigned throughout the class. The labs are designed to enhance the class theory. A short written memo will be required for each lab session.

Project: A project will be assigned incorporating class theory and laboratory exercises. The project will be ongoing and built upon throughout the semester.

Attendance: Your attendance in class is EXPECTED, just as it would be in industry on the job. (You cannot participate if you are not here!)

Grades: Grades will be determined on the following scale, based on the above weighting proportions. A+ = >97%; A = 93-97%; A- = 90-93%; B+ = 87-90%; B = 83-87%; B- = 80-83%; C+ = 77-80%; C = 73-77%; C- = 70-73%; D+ = 67-70%; D = 63-67%; D- = 60-63%; F = <60%

Special Needs: Any student with a physical or learning disability is invited to make the instructors aware of the circumstances so that reasonable accommodations can be made.

Safety: All students must follow safety rules when in the packaging lab/industry tours. For example, safety glasses must be worn at all times during lab time. If you are ever unsure about a safety issue, ask the instructor.

Texts and Related Articles: The primary text for this course is:

1). Protective Packaging for Distribution: Design and Development
ISBN 978-1-60595-001-3

A few chapters are available through Google while you are waiting for your text to arrive.

http://books.google.com/books?id=hqdq7wTtmocC&pg=PA255&lpg=PA255&dq=Packaging+for+Distribution+Dennis+Young&source=bl&ots=9zZIJt7XBD&sig=DCIaVLpc4bFN_Z8aAZkta58hEYs&hl=en#v=twopage&q&f=true

2). Additional course Materials will be provided

PKG 486

Packaging Machinery Systems Credits: Three (3)

Course Instructor: Marion D. Schafer

Course Description:

An advanced study of packaging machines, line operations, controls, maintenance, process analysis, selection, and procurement. Includes analysis and problem solving. Laboratory activity includes development of a packaging line layout for a product.

Prerequisites:

PKG 380, or consent of instructor

Course Objectives:

Given a standard packaging machine:

1. Identify by name in writing the type of drive systems and control devices used.
2. Describe in writing the function and principles of operation.
3. Explain in writing all safety precautions associated with this machine.
4. Write a complete machine specification.

Given a product and its package system:

1. Describe in writing the machine processes utilized.
2. Describe in writing the package materials as related to product and/or machine operations.
3. Select equipment and design the line layout.
4. Analyze the costs associated with each potential layout design.
5. Prepare a proper written and oral report to present the recommended layout design.

Course Requirements:

Student grades will be based upon the following criteria:

- | | |
|--|------|
| 1. Written Examinations and quizzes | 40 % |
| 2. Line Layout Project..... | 40 % |
| 3. Homework Assignments..... | 10 % |
| 4. Professional Points/Participation | 10 % |

ALL ISU POLICIES ON ACADEMIC HONESTY WILL BE ENFORCED IN THIS COURSE. READ AND UNDERSTAND THOSE POLICIES.

Written Examinations: Four major exams will be given as the units of instruction are completed. The major exams will be announced at least one week prior to the examination date. If you must miss an exam, you must notify the instructor before the exam begins.

Make up exams will be administered at the discretion of the instructor and only under appropriate circumstances.

Quizzes: The sum of all quizzes will be counted as equal to one exam. Quizzes may be given at anytime and will usually be unannounced. Quizzes may cover the reading assignments due for that class period, or other materials, at the discretion of the instructor. **Missed quizzes will not be made up!**

Projects: The Line Layout Project will be the culminating experience for the course. The studies throughout the course are designed to give you basic knowledge of different types of packaging machinery, and how those machines interact. The Line Layout Project is designed to allow you to apply that knowledge in a practical way. **This project will not be accepted late**, so please do not wait until the last minute to get started on your project!

Your attendance in class is EXPECTED, just as it would be in industry on the job. (You cannot participate if you are not here)! Attendance will be taken at the beginning of each class. If you miss without calling before class, you will not get points for that day.

Academic Honesty: Academic honesty, in spirit as well as to the letter of the ISU Handbook is expected, and will be enforced according to ISU policy.

Grades will be determined on the following scale, based on the above weighting proportions. A = >97%; A- = 90-95%; A = 90-95%; B+ = 87-90%; B = 83-87%; B- = 80-83%; C+ = 77-80%; C = 73-77%; C- = 70-73%; D+ = 67-70%; D = 63-67%; D- = 60-63%; F = <60%

Special Needs: Any student with a physical or learning disability is invited to make the instructor aware of the circumstances so that reasonable accommodation can be made.

Safety: All students will follow safety rules when in the packaging lab. For example, safety glasses must be worn at all times when in the testing area of the packaging lab. If you are ever unsure about a safety issue, ask the instructor before doing anything with a machine.

Texts and References:

1. Introduction to Packaging Machinery, Davis (available through instructor)
2. Machinery manufacturer's manuals
3. Other resources as needed

PKG 489

Packaging Industry Credits: Three (3)

Course Instructor: Marion D. Schafer, Ph.D.

Course Description: Live industry projects will allow students to gain experience designing, developing, evaluating, and testing packaging systems for real products. Students will work directly with partner companies to come up with optimal packaging systems.

Prerequisites: Senior standing and PKG 380, PKG 482, and PKG 484, or consent of instructor.

Course Objectives:

1. The student will gain an understanding of the organization of the packaging function in industry.
2. The student will gain an understanding of the day-to-day operations of a packaging department.
3. The student will learn how to provide leadership within the job scope of a typical packaging engineer/technologist.
4. The student will learn about project management in industry. Course Requirements: Student grades will be based upon the following criteria:

1. Written Examinations and Quizzes.....20%
2. Lab Projects and Reports.....60%
3. Participation.....10%
4. Professional Activities.....10%

Written Examinations: Exams will be given at midterm and at semester end. The midterm exam will be announced at least one week prior to the examination date. If you must miss an exam, you must notify the instructor before the exam begins. **Make-up exams will be administered at the discretion of the instructor and only under appropriate circumstances.**

Quizzes: Quizzes may be given at anytime and will usually be unannounced. Quizzes may cover the reading assignments due for that class period, or other materials, at the discretion of the instructor. **Missed quizzes will not be made up!**

Professional Points: Professional Points are given for participation in professional activities in the field of packaging. Some examples include: participation in ISU IoPP Chapter meetings and activities, attending Pack Expo, attending Central Indiana IoPP Chapter meetings and tours, performing community service activities relevant to packaging, and other activities approved by the instructor.

Participation: Participation for on-campus students means attending and actively participating in class discussions and projects. Participation for distance students means regularly turning in assignments on time and participating in any online discussions.

Your attendance in class, whether on campus or on-line, is EXPECTED, just as it would be

in industry on the job (You cannot participate if you are not here)! If you do not attend your job as required you will be fired. This course offers a similar result.

Academic Honesty: The Indiana State University policies on academic honesty will be enforced in this course. It is the responsibility of each student to read and understand those policies. Any case of cheating or plagiarism will be dealt with according to that policy, which can involve an “F” grade or, in extreme cases, expulsion from the university.

Grades will be determined on the following scale, based on the above weighting proportions. A = >96%; A- = 92-96%; B+ = 88-92%; B = 84-88%; B- = 80-84%; C+ = 76-80%; C = 72-76%; C- = 68-72%; D+ = 64-68%; D = 60-64%; F = <60%

Safety: All students will follow safety rules when in the packaging lab. For example, safety glasses must be worn at all times when in the packaging lab. If you are ever unsure about a safety issue, ask the instructor before doing anything with a machine.

Texts and References: The following are available in the library.

1. Fundamentals of Packaging Technology
2. Soroka Encyclopedia of Packaging
3. Technology, Wiley Handbook of Package Engineering, Hanlon
4. Library resources, Company and Internet Sources

Topics to be covered include:

Laws and Regulations, Quality Control, Logistics, Specifications, Printing/Graphics, ESD, Moisture Control, RFID & Barcodes, Pharmaceutical/Medical Device Packaging, CAPE load design, CAD Design with ArtiosCAD, Testing, Professionalism

MET 103 Intro to Technical Graphics with CAD

Course credits: 3 credits – 4hrs contact per week – delivery mode: face-to-face

Instructor: Mr. Todd Alberts

Required Textbook: Technical Drawing by Giesecke – 14th Edition, Prentice-Hall, ISBN 13: 978-0-13-509049-7

Required Materials for Lab Drawing:

- Compass
- 30/60/90 Degree Triangle – 6”
- 45/45/90 Degree Triangle – 6”
- 2H & H Pencils (.7mm or .5mm mechanical pencils are preferred)
- 12” Engineering Scales or Rulers (Metric & English Mechanical Scales)
- 1/4” Engineering Paper Pad
- Erasers
- Masking Tape or Tape Dots
- Calculator
- Circle Templates - 1/16” to ≈ 2” (Metric & English)
- Eraser Shield
- Sanding Pad

Course Description: Introduction to technical graphics and drawing standards. Topics will include items such as visualization, sketching, and drawings depicted in multi-view, auxiliary, and pictorial formats in both conventional hand drafting techniques as well as by use of Computer Aided Design. This course also addresses general ANSI Standard Y14.5 as they apply to print reading, dimensioning, and tolerancing of prints.

Objectives: This course is designed to provide students with the knowledge and skills to sketch, visualize, draw, and document multiple technical graphic formats for the communication of various design and manufactured items. All drawings will be completed via ANSI industry specifications in both traditional manual methods as well as with modern state-of-the-art computer software. The course will help prepare students, who (after graduation) can:

1. Apply disciplinary reasoning, critical thinking, and hands-on skills to identify, analyze and solve problems. (**Technology**) [EO1].
2. Communicate effectively in both oral and written form to articulate technical knowledge, ideas, and proposals (**Communication**) [EO2].
3. Perform effectively, think independently and work collaboratively in a team environment in a membership or leadership role (**Management &/or Teamwork**) [EO4].
4. Actively participate in professional development, including continuous self-improvement and
5. Lifelong Learning (**Lifelong Learning**) [EO5]

Outcomes: Upon completion of this course, the students will have:

1. An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities [LO:a]

2. An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives [LO:d] 73 of 158
3. An ability to identify, analyze, and solve broadly-defined engineering technology problems [LO:f]
4. An ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature [LO:g]
5. A commitment to quality, timeliness, and continuous improvement [LO:k]
6. An ability to develop, simulate, and analyze mechanical components/systems using computer-aided design and analysis tools [LO:l]
7. An ability to identify proper manufacturing processes meeting the tolerancing requirements to the solution of manufacturing problems [LO:o]

Brief list of topics to be covered

- 1 Intro to Technical Graphics 5. Pictorial Drawings
- 2 Sketching, Text, and Visualization 6. Auxiliary Views
- 3 Engineering Geometry & Construction 7. Section Views
- 4 Multi-view Drawings 8. Dimensioning & Tolerancing

Grading:

- 1 Tests (Midterm & Final)35%
- 2 Lab Assignments & Chapter Questions 50%
- 3 Project and/or Research Paper10%
- 4 Participation/Attendance5%

Assignments: All assignments are due one week after they are assigned, unless otherwise specified during class. All late assignments will have a penalty deduction of 50% per week if submitted past the due date. Each assignment must be submitted in electronic format (MS Word, Excel, PowerPoint, etc.) with your name, class and section number, date, and assignment description placed at the top of the page. All lab drawings must include your name, class & section number, date, and drawing number.

Class Etiquette: Attendance in both lecture and lab sessions is mandatory unless otherwise specified. Any time you will be absent or significantly delayed, please contact the course instructor via email or phone ASAP. Punctuality is just as important as attendance, so make arrangements to be in class on time. In the CAD Lab, any unauthorized use of internet browsing, text messaging, or email use during class time is prohibited and will be dealt with accordingly.

Criteria for Grading and Evaluating of Work: All material will be graded on the values of workmanship, attention to detail, clarity, accuracy, conformance to industry and ANSI Y14.5 standards, speed, legibility, and neatness. This will be used for drawings, assignments, and tests in both conventional drafting as well as CAD.

MET 130 Intro to Engineering and Technology

Course credits: 2 credits – 2hrs contact per week – delivery mode: face-to-face

Instructor: Todd E. Alberts

Textbook/Workbook: None, but I will distribute several handouts during the semester. Keeping good notes is very important and required in this class!

References: You can find many books about engineering and technology in the ISU or local libraries.

Course Description: This course introduces students into the world of engineering and technology. It explains what this profession is, what important roles it plays, how it is different from other major professions in the society, and the career opportunities for engineering technology students. The course also introduces the basic principles of engineering in terms of problem solving, its methodology, the knowledge and skill involved. As well, additional topics and classroom seminars will be conducted related to the freshman transition and special topics that will aid you in your academic career.

Prerequisites or co-requisites: none

Required course in AET, CVET, ET, MET, MFET, PET, & TMGT Majors

Objectives: This course is designed to allow first semester freshman mechanical engineering technology students an overarching viewpoint and understanding of their field of study, future professional careers aspects, and allow them to garner a full understanding of university academic life. Course study is to include studies in the mechanical engineering technology curriculum and problem solving methodologies that will allow them success in future endeavors.

The course will help prepare students, who (after graduation), can:

- 1 Apply disciplinary reasoning, critical thinking, and hands-on skills to identify, analyze and solve problems. (**Technology**) [EO1].
- 2 Communicate effectively in both oral and written form to articulate technical knowledge, ideas, and proposals (**Communication**) [EO2].
- 3 Consider professional, ethical and social responsibility of engineering technology practices. (**Global Responsibility**) [EO3].
- 4 Perform effectively, think independently and work collaboratively in a team environment in a membership or leadership role (**Management &/or Teamwork**) [EO4].

Outcomes: Upon completion of this course, the students will have:

- 1 An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities [LO:a]
- 2 An ability to function effectively as a member or leader on a technical team [LO:e]
- 3 An ability to identify, analyze, and solve broadly-defined engineering technology problems [LO:f]
- 4 An ability to apply written, oral, and graphical communication in both technical and non-

- technical environments; and an ability to identify and use appropriate technical literature [LO:g]
- 5 An understanding of the need for and an ability to engage in self-directed continuing professional development [LO:h]
 - 6 An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity [LO:i]
 - 7 A knowledge of the impact of engineering technology solutions in a societal and global context [LO:j]
 - 8 A commitment to quality, timeliness, and continuous improvement [LO:k]

Assessment of outcomes:

The course outcomes will be assessed through homework assignments, course projects, quizzes and exams. Every student is required to do a course project that applies an engineering approach to define a problem, develop solutions, plan and implement the solutions. The students are also required to present their projects to the class and instructor in addition to turning in a project report.

Assignments:

All assignments are due on the specified date determined during class. Assignments will not be accepted beyond two weeks past the due date. All late assignments will have a penalty deduction of 25% for each week late. Each assignment must be submitted in electronic format (MS Word, Excel, PPT, AutoCAD, etc.) and/or engineering pad paper with your name, course number and assignment number at the top of each page turned into the instructor as per instructions. All dates of tests will be determined throughout the completion of the course, and testing dates and subject matters will be announced one week prior to assessment. Missed tests will only be allowed to be made up at a later date under instructor's discretion.

Criteria for evaluating the homework/projects:

- (1) Completeness -Show all steps of a problem-solving process -Fulfill all required works (e.g. explanation, specification, analysis, diagrams, CAD drawings)
- (2) Correctness -Every step in the problem solving process must be correctly done (procedure) and only valid procedures are used -Solution values should be correct
- (3) Reasoning/Effectiveness -Logical reasoning and justification of your solution method
- (4) Neatness -All works must be done clearly and cleanly on the required type of paper; and all textual information must be typed or printed clearly.

-Box your final answers if they are analytical solutions. Class Etiquette: Attendance in both lecture and lab sessions is mandatory unless otherwise specified. Any time you will be absent or significantly delayed, please contact the course instructor via email or phone ASAP. Punctuality is just as important as attendance, so make arrangements to be in class on time.

MET 329 – Fluid Power Technology

Course credits: 3 credits – 4hrs contact per week – delivery mode: face-to-face

Instructor: Dr. Phillip Cochrane **Texts:** Fluid Power with Applications 7th ed Anthony Esposito.

Industrial fluid power Volume 1: Basic text on hydraulics, air, & vacuum for industrial and mobile applications.

Fluid Power MET 329 (Study Guide)

Laboratory manual. Student Lab Manual Fluid Power IMT 329

Calculator. An inexpensive yet durable calculator

Lab Garment. Hydraulic oil is messy and stains

Safety glasses. Mandatory

Resources: Student will use a variety of resources for the class. These resources include the text, internet, and various standardization documents. Catalog Description: Fluid Power Technology – 3 hours. Principles of hydraulics, pneumatics, and fluidics involving application and control of fluid power circuits. Course Objectives: This course will broaden the student’s knowledge of hydraulics and pneumatics. Students will be cognizant of the various types and properties of fluid control systems. As part of the course, students will gain insight into the hydraulic and pneumatic components used in mass production, transportation, and construction industries. Prerequisites: **none Required course in AET, CVET, ET, MET, MFET, PET, & TMGT Majors**

Student Learning Outcomes: Upon completion of this course, the students will have:

- a. An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities [LO:a]
- b. An ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies [LO:b]
- c. An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes [LO:c]

Brief list of topics to be covered

Fluid Power with Applications (FA)

Chapters 1 & 2 Introduction to fluid power & Physical properties of Fluid Power

Industrial Fluid Power (IFP) Chapter 1 Fluid Power Principles FA Chapters 2 & 3 Physical Properties of Hydraulic Fluids & Energy and Power in Hydraulic Systems IFP Chapter 1 Fluid Power Principles FA Chapter 4: Frictional Losses in Hydraulic Pipelines

IFP FA Chapter 5 Hydraulic Pumps

IFP Chapter 5 Air and Hydraulic Pumps FA
Chapter 6 Hydraulic Cylinders

IFP Chapter 2 Fluid Power Cylinders FA
Chapter 7 Hydraulic Motors

IFP FA Chapter 8 Hydraulic Valves

IFP Chapter 3 & 4 Control Valves 2 –way and 3-way & Directional Control Valves, 4 way and
5-way FA Chapter 9 Hydraulic Circuit Design and Analyses

IFP Appendix A Design Calculations and Appendix B Fluid Power Design Data FA
Chapters 10 & 11 Hydraulic Conductors and Fittings & ancillary devices

IFP Chapter 6 Other Fluid Power Components FA Chapter
12 Maintenance of Hydraulic Systems

IFP Appendix C Troubleshooting Procedures FA Chapter 13 Pneumatics Air Preparation and
components

IFP Review Chapter 5 Air and Hydraulic Pumps

Begin Laboratory Exercises

MET 351-Professional Internship

Instructor: Dr. Jim Smallwood –

COURSE DESCRIPTION

Coordinated work experience in industry and a comprehensive written report of the experience. Students are required to involve the ISU Career Center in this experience. Course may be taken twice for a maximum of 6 credits.

Outcomes: Upon completion of this course, the students will have:

1. An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities [LO:a]
2. An ability to demonstrate integrated knowledge related to MET discipline[LO:p]

COURSE REQUIREMENTS:

- I. Maintain a daily journal while on the co-op assignment. Journal entries may be short but they must contain enough detail to clearly communicate what was actually done on the job; e.g., "completed fuel injector replacement for time study" -- not "worked in time study." The first half of the journal must be submitted along with the midterm report and the last half of the journal must be submitted with the final report. Summer co-op students are to maintain the journal for the entire summer.
- II. Maintain a weekly record of hours worked in areas or at specific tasks. The weekly work record must be submitted along with the daily journal and the report.
- III. Submit to your professor, a midterm report (see attached format), the daily journal and weekly record for the first half of the co-op period. **(Due dates on second page.)**
- IV. In the last week of the semester, submit to your professor a final report, daily journal, and weekly record for the last half of the co-op period. See the attached outline for the format to be followed for the final report. **(Due dates on second page.)**

Standards for written work:

- A. Daily Journal -- may be handwritten if done neatly.
- B. Midterm Report -- must be typewritten, double spaced, and "easy to read". The report should be three pages in length.
- C. Final Report -- must be typewritten, double spaced and "easy to read". The report should be three pages in length.
- D. Evaluation -- The course grade will be based, in part, on the quality of the written reports submitted. Reports must not have misspelled words, should be well organized, and written in a professional manner. Incomplete grades will be given **ONLY** in cases of extraordinary circumstances. Under no condition will an incomplete grade be given unless the student has prior approval by the professor!
Deduction in grade for late papers.

Please include information in the daily journal and the midterm and final reports about how you and/or the company 1) Apply knowledge of safety principles in the workplace, 2) recognize the importance of lifelong learning and 3) integrate ethics in all dealings.

VI. Dates materials should be received by professor:

DUE DATE

MATERIALS

March 1st (Midterm Materials)

Copy of daily journal (through previous week)
Copy of weekly work record (through previous week) Midterm report

April 25th (Final Materils)

Copy of daily journal (last half of co-op period)
Copy of weekly work record (last half of co-op period) Final report

FORMAT FOR MET 351 MIDTERM REPORT

COVER PAGE Course, co-op experience (1st, 2nd, etc.), professor, date, co-op employer, co-op employer address, dates of co-op enrollment (current semester); your name, phone number(s) at co-op job or residence while on co-op, address while on co-op and home address.

TEXT

Background Information: Company, products, size, location, number of co-op positions, company philosophy or procedures regarding co-op. If this is a second or third co-op experience with this company, this section should be limited to 1/2 page.

Work Assignment: Discuss in detail your internship assignments for the period from the beginning to midterm. If possible, project what you expect to be doing for the remainder of your co-op experience with this company, relate your current assignments to those of your previous co-op(s).

Summary: Relate your own assessment of your success on the job. Note areas in which you feel you can make a greater contribution to the company. Discuss how you plan to alter (or enhance) your approach to effect accomplishment in the areas you noted in which you believe you can be more successful.

FORMAT FOR MET 351 FINAL REPORT

COVER PAGE

Course, co-op experience (1st, 2nd, etc.), professor, date, co-op employer, co-op employer address, dates of co-op enrollment (current semester); your name, phone number(s) at co-op job or residence while on co-op, address while on co-op, and home address.

TEXT Historical and Background Information: Your experience with the company, company philosophy of business, company philosophy regarding co-op, company product(s), size, career opportunities with company. If this is a 2nd or 3rd co-op experience with this company, relate to your overall experience rather than just the current term.

Summary of Experience for This Co-op Period: Review your assignments for the entire work period. Note those areas or specific job assignments which were especially helpful and, in your opinion, excellent learning experiences. Tell about the assignments which were the "most fun" and exciting. Point out areas of work which you disliked or found to be boring.

Reactions and Comments: What would you do differently if you had the opportunity to do this co-op period over? If this is a 2nd or 3rd co-op with this company, reflect upon your total co-op experience and make suggestions that you have for the company which would, in your opinion, improve the experience. State steps the University should take or requirements which should be modified to improve the co-op experience.

Summary: This section is up to you.

Daily Journal (SAMPLE)

DATE

I arrived on the job site at 7:00 a.m. and met with John Jones, Superintendent, to discuss the scheduled concrete placements for the day. Approximately 48 cubic yards of 4000 psi, normal weight, air entrained concrete was placed in two sets of piers located at the DDP unit. The DDP unit is the major construction area at the Johnson Feed Mine. Two sets of five compressive strength cylinders were cast for the placement. All concrete was tested for temperature consistency and air content. M. W. Post is very strict when it comes to concrete placement. An example would be: if water is added to the concrete once it has arrived on site, the drum must turn a minimum of 30 revolutions to ensure entire load has been mixed thoroughly. This is expected of me as an ATEC representative to know the number of turns the drum has completed. This company does a very poor job of placing concrete. They are very slow and very unpredictable. All of the concrete placed today was done with a pump truck. The slump was to be 5 1/2 inches or better before going through the pump. It will more than likely gain an inch through the pump. Approximately 248 cubic yards of the same mix were placed at a footer pad 3 feet thick. Three sets of five compressive strength cylinders were cast for this concrete. All of the same other tests were performed. I departed the site at 7:00 p.m.

DATE

I arrived on site at 7:00 a.m. Field density tests were performed at Water Treatment Plant tanks. Final compaction was achieved. There is one more of the four tanks that still needs to be formed. Approximately 112 cubic yards of 4000 psi, normal weight, air entrained concrete were placed. Two sets of five compressive strength cylinders were cast. The concrete was tested for temperature, consistency, and air content. This was a very exciting pour today. First, the specifications called for 3000 mix. They are pouring a 4000 mix and wetting it down a lot so they can drag it a long way easily. They are using their vibrator to pull the concrete around which is a mistake. Second, one of the form walls blew out because they didn't watch their rate of placement. The top of this column pad is on the concrete line, on the side where the formwork blew out, the bottom is out about 8 inches. One truck got stuck and another broke his drive shaft. I dumped a full wheelbarrow of concrete, about 400 pounds of it, but my tests were made and Memorial Day weekend has arrived.

Weekly Journal (SAMPLE)

Week 1 1/14-1/18

Printing 10 hrs.
Masking negatives 2 hrs.
Masking & making plates 2 hrs.
Cutting 1 hr. Delivering 1 hr.
Cleaned & filed plates 1 hr.
Cleaned press 1 hr. Miscellaneous duties 2 hrs.

Week 2 1/21-1/25

Printing 10 hrs.
Making negatives 2 hrs.
Masking & making plates 2 hrs.
Cutting 1 hr.
Delivering 1 hr.
Cleaned & filed plates 1 hr.
Cleaned press 1 hr.
Miscellaneous duties 2 hrs.

Week 3 1/28-2/1

Collating 8 hrs.
Printing 5 hrs.
Folding 2 hrs.
Making negatives 1 hr.
Delivering 1 hr.
Masking & making plates 1 hr.
Cleaned press 1 hr.
Miscellaneous duties 1 hr.

Week 4 2/4-2/8

Printing 9 hrs.
Masking & making plates 3 hrs.
Making negatives 2 hrs.
Cleaned & filed plates 2 hrs.
Paper inventory 1 hr.
Cleaned press 1 hr.
Miscellaneous duties 1 hr.

Week 5 2/11-2/15

Printed 10 hrs.
Cleaned & filed plates 2 hrs.
Made negatives 2 hrs.
Masking & making plates 2 hrs.
Cleaned press 2 hrs.
Delivering 1 hr.
Miscellaneous duties 1 hr.

Week 6 2/18-2/22

Printed 8 hrs.
Cleaned press 3 hrs.
Making negatives 2 hrs.
Masking & making plates 2 hrs.
Cleaned & filed plates 2 hrs.
Delivering 1 hr.
Miscellaneous duties 1 hr.

MET 405-Economic Analysis for Engineering and Technology

3 Cr Hr

Instructor: Dr. M. Affan Badar

Textbook: D.G. Newnan, J.P. Lavelle, and T.G. Eschenbach, *Engineering Economic Analysis*, 12th edn, Oxford Univ. Press, Inc., New York, NY, 2014, ISBN: 9780199339273. **Materials needed:** Textbook, calculator with math function capability, computer literacy in MS Word & Excel, and internet access.

Catalog Description: This course is designed to provide students with the principles of investment economic analysis, decision-making among alternatives, and replacement analysis. Inflation, depreciation, cost concepts, bond, and income tax considerations are included. *Pre-requisite for MET 405:* MATH 115 or MET 215; junior standing *Pre-requisite for MET 505:* Graduate standing

Objectives: This course aims to provide fundamentals of economic analysis techniques applied in engineering and technology requiring cost estimation, investment analysis, and decision-making, and may involve equipment acquisition, maintenance, and disposal. In addition the course will help students to:

1. Apply disciplinary reasoning, critical thinking, and hands-on skills to identify, analyze and solve problems. (Technology) [EO1].
2. Communicate effectively in both oral and written form to articulate technical knowledge, ideas, and proposals (Communication) [EO2].
3. Consider professional, ethical and social responsibility of engineering technology practices. (Global Responsibility) [EO3].
4. Perform effectively, think independently and work collaboratively in a team environment in a membership or leadership role (Management &/or Teamwork) [EO4].
5. Actively participate in professional development, including continuous self-improvement and lifelong learning (Lifelong Learning) [EO5].

Outcomes: Upon completion of this course, the students will be able to:

1. Have an appropriate mastery of the knowledge, techniques, skills, and modern tools of the MET discipline. [LO:a]
2. Have an ability to function effectively on teams. [LO:e]
3. Have an ability to identify, analyze and solve technical (close-ended analysis and open-ended design) problems. [LO:f]
4. Have an ability to communicate effectively through written reports or oral presentations.[LO:g]
5. An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity [LO:i]
6. Have a commitment to quality, timeliness, and continuous improvement. [LO:k]

Additional outcomes:

1. Use economic analysis concepts: time value of money with reference to interest rate, compounding, cash flow diagrams, and inflation for technology investments.
2. Use financial functions of spreadsheets (Excel).
3. Compare alternatives including replacement pertaining to the technology field.
4. Perform break-even analysis for manufacturing/service industries.
5. Determine economic purchase and production quantities and select between make and buy options.
6. Estimate depreciation of machines.
7. Evaluate after-tax income or profit of technology investments.

Groups: Undergraduate and graduate students are required to make separate groups, 3 members per group, to do group work like project mentioned below. Students will form groups by themselves. For group work, submit only one report per group. However, the cover page must include info on the course, task, group members, date of submission, and a peer-evaluation describing the contribution (specific work and overall effort) of each member in the group.

Project: All students are required to do project in groups. A final project report will be due April 22. The report should include a title page including names of the students, course number, instructor's name, and peer-evaluation. The report should also include a summary, conclusion, and a list of references (if applicable). Cite all the references as necessary in the body (text) of the report. If necessary, presentation on the project may be scheduled during the study week. For distance students, e-submission of the presentation file will be okay.

Undergraduate students' project will involve the application of economic analysis and decision-making in a real-world case. A case will be assigned by the instructor.

Graduate students' project will have two parts: a real-world case as required for the undergraduates and a term paper on an engineering economic topic. An extensive search of the related literature is required for the term paper. The term paper should contain a minimum of 10 references, and the references must be cited in the body of the paper.

Exams: Two exams during the semester and a final exam will be given. Exams to on-campus students will be given during class in TC 114 (see the class time at the beginning of the syllabus). Distance students are required to get the exam proctored. Proctor cannot be relative or personal friend. You can take the exam at work while being proctored by your supervisor or at a testing center for a fee (ISU testing center may be free), or you can arrange at a church, library, etc. Note that it's student's responsibility to find a proctor or proctoring place. You can use a video camera to record yourself in lieu of a proctor and submit the video file with the exam. Distance students may also need to arrange for time-off and internet access to take the exam on specified date and time. Distance students will be allowed to take the exam with the on-campus students to avoid the hassle of finding a proctor.

In exams, if the highest obtained by student(s) falls below the maximum points allowed, then the highest grade will be considered as the maximum allowed. No make-up exam will be given.

Course Contents:

Chapter	Topics
1	Introduction: Economic analysis in E&T and decision making
2	E&T costs, break-even, cost & benefit estimating, Cash flow diagrams
3	Time value of money, simple interest, compound interest, repaying a loan, equivalence, Discrete compounding: single payment compound amount or FW, PW Nominal and effective interest, Continuous compounding,
4	Uniform (equal) series, sinking fund, capital recovery, Uniform (arithmetic) gradient, geometric gradient, MS Excel (Spreadsheets) financial functions
5	Present worth analysis: equal, unequal (LCM or select a period), infinite lives (capitalized cost), Bond, Spreadsheets and PW ---Exam 1 (date/time is given before) ---
6	Annual equivalent analysis: equal, unequal, and infinite lives Loan repayments, Spreadsheets
7	Rate of return analysis: MARR, IRR (limited to cash flows yielding single value) Spreadsheets
8	Incremental analysis
9	Analysis using FW, benefit-cost ratio, payback period, Sensitivity and break-even analysis ---Exam 2 (date/time is given before) -----
10	-(not in Textbook)- Economic order quantity, economic production quantity, make or buy decision
11	Depreciation: SL, SOYD, DB, DB switching to SL, MACRS, UOP Depletion: cost method, % method
12	Income tax rates, interest & taxes, depreciation & taxes, investment tax credit, after-tax cash flows If time permits:
13	Replacement analysis, defender, challenger, sunk cost, outsider viewpoint, economic (minimum cost) life.
14	Inflation, market interest rate, inflation-free (real) interest rate, actual (then-current) dollar, constant (real) dollar, equivalence involving inflation ---Final (date/time is given before; will include topics covered after Exam 1) -----

MFG 370: Fundamental Manufacturing Processes—Machining

Course credits: 3 credits – 4hrs contact per week – delivery mode: face-to-face

Instructor: Mr. Mark J. Clauss

Required Student Materials

- **Textbook:** DeGarmo's Materials and Processes in Manufacturing, J.T. Black and Ronald Kosher, 10th edition
- **Safety Glasses** with side shields - Shop Coat (*optional*)-Calculator (*optional*)

Course Description This course is designed to develop student knowledge of metal machining principles through machine shop experience. The application of metal machining technology in industry is addressed. The focus is on chip making or metal removal type manufacturing processes and methods. Approximately 60% of class time will involve lectures, demonstrations, and other types of classroom activities. The remaining time will be spent in student centered laboratory activities aimed at integrating theory and practice. **Prerequisites or co-requisites:** none

Required course in ET, MET, & MFET majors and selected elective in AET, PET, &

TMGT Majors

Learning Outcomes: Upon completion of this course, the students will have:

1. An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities [LO:a]
2. An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes [LO:c]
3. An ability to identify proper manufacturing processes meeting the tolerancing requirements to the solution of manufacturing problems [LO:o]

Objectives

1. Use appropriate terminology to communicate with persons knowledgeable in the field of machining and metal removal including machinists, machine operators, process engineers, CNC programmers, manufacturing engineers, supervisors, managers, etc.
2. Describe the function of all major machine tool processes.
3. Use appropriate machining parameters to quantify each of the major processes.
4. Make intelligent choices between processes as to their ability to meet specifications, demands on time, and other economic considerations.
5. Safely set up and operate a variety of machine tools, hand tools and measuring tools.
6. Select and sequence machine tool operations required to complete a part beginning with an engineering drawing.
7. Visually inspect an existing part and identify the processes involved in the manufacture of the part.
8. Develop an understanding of industry and its place in our culture.
9. Develop experience in worker cooperation, resource management, laboratory maintenance, and above all, shop safety.

Brief list of topics to be covered

A. Introduction to Machining/Material	B. Basic Machining, Chip Forming Removal Processes
a. Turning	a. Introduction, fundamentals, and terminology
b. Milling	b. types of drills
c. Drilling	c. Machine tools for drilling
d. Sawing	d. Hole finishing operations
e. Broaching	e. counter boring, counter sinking, spot, facing, and trepanning
f. Shaping/planning	
g. Grinding	

C. Variables in Machining - Speeds and Feeds	D. Material Removal Rates and Horsepower Requirements
a. Turning	a. Specific power per material type, other conditions
b. Milling	
c. Drilling	
d. Sawing	

E. Cutting Tools for Machining	F. Measurement and Inspection
a. Cutting tool materials	a. Attribute vs. variable
b. Tool geometry and tool life/failure	b. Standards of measurement
c. Cutting fluids	c. Dimensional vs. geometric tolerancing
	d. Measuring instruments
	e. Measuring methods

G. Turning, Boring and Related Processes	H. Milling and Machining Centers
a. Introduction and fundamentals	a. Introduction and fundamentals of milling
b. Lathe design, terminology, and operations	b. Milling tools and cutters
c. Boring machines	c. Milling machines
d. Screw machines, automatic chucking, CNC	d. Work holding methods
e. Work holding for turning	e. Milling operations

I. Drilling and Related Hole Making Processes	J. Thread Production
a. Introduction, fundamentals, and terminology	a. Introduction, thread basics, and nomenclature
b. Types of drills	b. Producing external threads
c. Machine tools for drilling	c. Producing internal threads
d. Hole finishing operations	
e. Counter boring, counter sinking, spot facing, and trepanning	

K. Abrasive Machining	L. Shaping, Planning, Broaching, Sawing, Filing
a. Introduction to grinding	a. Introduction to each process
b. Abrasives and grinding wheels	b. Cutting tool types
c. Grinding machines and processes	c. Machine types and processes
d. Grinding safety	
e. Honing, super finishing and lapping	

M. Work Holding Devices	N. CNC Machining
a. Principles of work holding	a. Introduction
b. Location and clamping	b. Turning centers
c. Types of jigs and fixtures	c. Machining centers
d. Multiple clamping or chucking	d. Ultra high speed machining centers

O. Non-traditional Machining	P. Gear Manufacturing
a. Electrical discharge machining	a. Theory and nomenclature
b. Ram type and wire type	b. Gear types
c. Chemical	c. Gear manufacturing methods
d. Mechanical	
e. Thermal	

MFG 371: Manufacturing Materials and Processes

Course credits: 3 credits – 4hrs contact per week – delivery mode: face-to-face

Instructor: Mr. Mark J. Clauss

Required Student Materials

- A. **Textbook:** DeGarmo's Materials and Processes in Manufacturing, 11th edition
- B. **Safety glasses,** Instructor-approved
- C. **Calculator** (basic math functions)
- D. **Work gloves** suitable for welding,
- E. Shop coat or apron (*optional*)

Course Description: This course is designed to develop student knowledge of some of the basic properties and characteristics of common metals and processes used in the industry to give metals useable form. The focus is on non-machining or non-chip making type manufacturing methods. Approximately 70% of the class time will *involve* lectures, demonstrations, and other types of classroom activities. The remaining time will be spent in student centered laboratory activities aimed at reinforcing classroom discussions.

Prerequisites or co-requisites: none

Required course in ET, MET, & MFET majors and selected elective in AET, PET, & TMGT Majors

Learning Outcomes: Upon completion of this course, the students will have:

1. An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities [LO:a]
2. An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes [LO:c]
3. An ability to identify proper manufacturing processes meeting the tolerancing requirements to the solution of manufacturing problems [LO:o]

Objectives:

1. Analyze the scope and depth of metalworking as it relates to materials and processes in industry.
2. Evaluate materials and processes in manufacturing.
3. Demonstrate with competence manufacturing processes in the laboratory using modern equipment.
4. Demonstrate safety principles and responsible behavior in the laboratory.
5. Analyze the history of materials and processes in metals manufacturing.
6. Describe the current trends involving materials and processes in manufacturing.
7. Integrate cooperation and resource management skills in the laboratory.

Brief list of topics to be covered

A.	Introduction to Manufacturing Materials	B.	Nature of Metals & Alloys
1.	Physical and mechanical properties and Processes	1.	Metallurgy Defined
2.	Overview of Common Manufacturing	2.	Chemical terminology
3.	Common products manufactured from metal	3.	Atomic structure & bonding
		4.	Deformation of metals, strain hardening
		5.	Cold working, hot working, recrystallization
		6.	Alloy types
C.	Ferrous Metals and Alloys	D.	Nonferrous Metals and Alloys
1.	Manufacture of Iron and Steel	1.	Alloy categories
2.	Elements, carbon content and effects on steel	2.	Physical and mechanical properties
3.	Nomenclature of steel and chemical classification		
4.	Numbering systems and alloying categories		
E.	Properties of Metals	F.	Joining Processes
1.	Physical properties	1.	Introduction to welding processes
2.	Mechanical properties	2.	Welding basics, common concerns
3.	Mechanical testing methods		
G.	Gas Flame Processes	H.	Electric Welding Processes
1.	Oxy-acetylene welding and cutting processes	1.	Shielded metal arc welding
2.	Brazing and soldering processes	2.	Gas metal arc welding
		3.	Gas tungsten arc welding
		4.	Resistance welding
		5.	Related processes
I.	Electric Cutting Processes	J.	Casting Processes
1.	Plasma arc, manual and CNC	1.	Introduction and fundamentals
2.	Carbon arc	2.	Expendable mold casting processes
		3.	Multiple use mold casting processes
		4.	Continuous casting

Laboratory Assignments

- Tensile testing exercise, 4 different material samples to be tested
- Oxy-acetylene flange weld, thin gage material
- Oxy-acetylene bead weld with filler, 1/8-inch material
- Oxy-acetylene butt weld joint with filler, 1/8-inch material □ Oxy-acetylene cutting, 1/4-inch material
- Manual plasma arc cutting, 1/4-inch material
- Shielded metal arc welding, 4 welding electrodes, 1/4-inch material
- Acetylene torch soldering, mild steel
- Resistance spot welding, mild steel

- Gas metal arc welding,.023 wire, thin gage material
- Gas metal arc welding,.035 or .045 wire, 1/4-inch material
- Gas tungsten arc welding, 16 gage aluminum
- Foundry casting,aluminum
- Computer Numerical Control (CNC) plasma cutting, mild steel
- Sheet metal layout, cutting,forming and assembly, 26 gage galvanized steel

TMGT 471

Production Planning and Control

Instructor Dr. Alister McLeod

Text: Hopp WJ, Spearman ML (2008) Factory Physics. 3 Ed. Waveland Press, Inc., Long Grove, IL

ISBN: 978-1-57766-739-1

Course Description

The main goal of any manufacturing organization is the creation of wealth. In an effort to predict, control and extract the maximum amount of efficiencies in these organizations flexible, and cost effective manufacturing systems are required. Modern day manufacturing systems are highly intertwined with social, economic and political systems. This class aims to introduce students to these systems and then explain in detail how manufacturing systems cope in a volatile and global market place.

Course Objectives

1. Be able to explain the historical underpinnings of modern day production/manufacturing systems
2. Be able to solve aggregate planning problems
3. Be able to solve problems associated with control and planning issues using deterministic or stochastic modeling
4. Demonstrate operation scheduling methods in a multi-product manufacturing system

Prerequisites

This course assumes a familiarity with linear equations (which should be covered in MET 215), basic statistics, and rates of change over time.

Grading Scale

Percent	Letter Grade
0.00% -59.99%	F
59.99% -62.99%	D-
62.99% -66.99%	D
66.99% -69.99%	D+
69.99% -72.99%	C-
72.99% -76.99%	C
76.99% -79.99%	C+
79.99% -82.99%	B-
82.99% -86.99%	B
86.99% -89.99%	B+
89.99% -93.99%	A-
93.99% -97.99%	A
97.99% -100%	A+

Technology Requirements I would strongly recommend that you all possess the following:

1. A scientific calculator
2. Internet access
3. Microsoft Word, Excel & PowerPoint

Week Topic Assignment

1	Introduction to class	
2	Historical development of production/manufacturing systems	Chapter 1
	Introduction to Production systems operations	Chapter 1, Home Work
3	The Science of Manufacturing	Chapter 6
	The Science of Manufacturing	Chapter 6
4	The Science of Manufacturing	Home Work 2
	Basic Factory Dynamics (Little's Law)	Chapter 7
5	Basic Factory Dynamics (Little's Law)	Chapter 7
	Basic Factory Dynamics (Little's Law)	Chapter 7, Home Work 3
6	Exam 1	
	Inventory Control	Chapter 2
7	Inventory Control	Chapter 2
	Inventory Control	Chapter 2
8	Inventory Control	Chapter 2 Home Work 4
9	Inventory Control	Chapter 2
	Inventory Control	Chapter 2
	Exam 2	
10	Material Requirements Planning	Chapter 3
	Material Requirements Planning	Chapter 3
11	Material Requirements Planning	Chapter 3
	Material Requirements Planning	Chapter 3
12	Material Requirements Planning	Chapter 3 Home Work 5
	Material Requirements Planning	Chapter 3
13	Material Requirements Planning	Chapter 3
	Material Requirements Planning	Chapter 3
14	Final Project	
15	Final Project & Presentation Final Exam	

TMGT 478

Industrial Organization and Function

Instructor Dr. Alister McLeod

Recommended Text

Product Design for Manufacture and Assembly by Boothroyd, Dewhurst & Knight. ISBN: 9781420089271

Course Description

“The development and organization of industry: study of the major production related functions.” This class offers students the opportunity to take what they have learned throughout their undergraduate technology and general education programs and apply this knowledge in an integrative experience. This class is similar to an industrial experience in that each student will bring to the enterprise various skills, abilities, talents, and knowledge, and all will have to work together to pool their expertise to achieve the final goal of producing a product of high quality, made to specifications, on schedule, and within a budget.

Course Objectives

1. Students will synthesize the knowledge learned throughout the college experience and bring that collective knowledge to bear in a simulated industrial situation.
2. Students will operate within the structure of a simulated manufacturing organization while performing all of the functions necessary to design, produce, package, and deliver a product.
3. Students will research and prepare (individually and with team members) a presentation based on course specific content, following requirements stated.
4. Students will examine and apply the principles of human relations and will apply the principles of project management in teams.
5. Students will work together with other students to create, design, purchase materials, manufacture, package, and deliver a high quality product within a budget, to specifications, and on time.
6. Students will experience the attendance and participation standards imposed by industry.
7. Students will experience and adhere to the safety standards required in a manufacturing setting.

Prerequisites

Senior in your respective Technology Program

Grading Scheme

Activity	Points	Percentage Allocation
Organizational Fitness Exam	100	33.33%
Product Planning Phase 1	40	13.33%
Prototype Development Phase 2	40	13.33%
Product Manufacture Phase 3	50	16.67%

Marketing/Presentation Phase 4	50	16.67%
Attendance/Participation (See classroom conduct)	20	6.67%
Bonus Points (Stock Market)	15	5.00%
Total Points	300	

Grading Scale

Percent	Letter Grade
0.00% -59.99%	F
59.99% -62.99%	D-
62.99% -66.99%	D
66.99% -69.99%	D+
69.99% -72.99%	C-
72.99% -76.99%	C
76.99% -79.99%	C+
79.99% -82.99%	B-
82.99% -86.99%	B
86.99% -89.99%	B+
89.99% -93.99%	A-
93.99% -97.99%	A
97.99% -100%	A+

Tentative Schedule of Events

Week	Topic Assignment
1.	Résumé, Introductions, Team Formation Résumé
2.	Understanding how to utilize the Machinery a. Familiarizing yourselves with the lab machinery
3.	Facility Layout and Organization a. Lean Manufacturing b. Begin work on Bill of Material Chart c. Initial budget for prototype
4.	Component and Part Prep a. Take organization fitness exam b. End of Phase 1
5.	Prototype Product Development a. Complete Bill of Material Chart b. Development of product schematics and the explanation of product function
6.	Formal Product Report Presentation on project progress a. Prototype Creation and documentation b. Present your Product to the Class c. End of Phase 2 All assignments are due
7.	Manufacture of Product/ Exploration of other products that can be made on the same production line

- a. Budget to make 5 of the products approval
- b. Editing of the SIMCO website to advertise product
- 8. Manufacture of Product
 - a. Development of product schematics and the explanation of product function
 - b. Editing of the SIMCO website to advertise product
- 9. Manufacture of Product
 - a. Have Inventory for at least FIVE products on hand
 - b. Be able to demonstrate a product run during class time
- 10. Manufacture of Product & Delivery to customers
 - a. Customer/External Reviewer inspect Product
 - b. End of Phase 3
- 11. Manufacture of Product & Delivery
 - a. Final Product delivery to customers
- 12. Manufacture of Product & Delivery to customers
 - a. Final Product delivery to customers
- 13. Delivery to customers
 - a. Formal Written Report
- 14. FINAL WRAP UP OF THE PROJECT
 - a. Formal PowerPoint presentation
 - b. End of Phase 4
- 15. End of Semester

Notices

Presentation of Assignments

When submitting assignments it is advised that all papers be stapled together. Not doing so will attract a 20% deduction of points for that particular assignment. All projects are expected to be presented in a logical and reader friendly fashion i.e. with a table of contents. Not doing so will attract a 10% deduction of points on your projects.

LATE ASSIGNMENTS WILL NOT BE ACCEPTED!!!!!!!!!!!!!!

TMGT 492

Industrial Supervision

(3 hours);

Instructor: Dr. Jim Smallwood

COURSE DESCRIPTION: The role of supervision functions in industry with emphasis upon principles and practices of human behavior and human relations within the industrial environment.

PREREQUISITES: The student must be senior class level (90+ earned credits).

REQUIRED TEXTBOOK/READING: Robbins, Stephen P., DeCenzo, David A. & Wolter, R., (2013) *Supervision Today*, 7th Edition, Pearson Prentice Hall

COURSE OBJECTIVES: During this course the student should be able to:

1. discuss the nature of the supervisor's job.
2. discuss the basic nature of industrial organizations.
3. perform day to day supervisory activities of industrial management personnel.
4. demonstrate knowledge of styles and techniques in industrial supervision.

COURSE EVALUATION:

Quizzes /Exams	45%
Assignments	30%
Discussion Board Participation	15%
Misc. Activities	10%

GRADING SCALE:

100-98 A+	80-82 B-	63-66 D
93-97 A	77-79 C+	60-62 D-
90-92 A-	73-76 C	59 & below = F
87-89 B+	70-72 C-	
83-86 B	67-69 D+	

DETERMINING COURSE GRADES: Course grades will be determined by dividing the total number of points you receive (earn) in the course by the total number of possible points from all assessments.

OFFICE HOURS: Scheduled office hours will be posted on my office door. Other hours can be made available by appointment. I am willing to meet with you anytime it is convenient for both of us.

POLICY STATEMENTS:

1. ISU policies of student conduct and academic integrity apply to this course and can be found at the Student Conduct and Integrity web site: <http://www.indstate.edu/sci/>

ECT 160

ELECTRONIC FUNDAMENTALS

Instructor: Prof. Oscar A. Rodriguez, EDS.

Course Description

ECT 160 *Electronic Fundamentals* is a three (3) credit hour course which provides an introductory study of electronics. Coverage includes basic principles of electronics, the operation of components, and the fundamental laws of circuit operation. A series of hands-on labs are utilized to reinforce lecture and theory throughout the course. Prerequisite: students must have math proficiency in algebra for this course; and proficiency using a scientific calculator.

Required Text and Course Materials

1. Textbook: Mitchel E. Schultz, Grob's Basic Electronics, McGraw Hill, Eleventh Edition. ISBN: 978-0-07-351085-9
2. Scientific Calculator (*Know how to use it, Instructor will not provide training on calculators*).

Each student is responsible for bringing their own text, calculator, and note taking materials to every class meeting. Students are expected to bring lab materials to every class meeting where a lab has been scheduled (see Class Schedule).

Course Objectives and Methods

This course includes theory, technical information, and laboratory experiences to provide an overview of basic electronics. Activities include: 1) class lectures with PowerPoint; 2) problem solving assignments; 3) lab assignments; 4) video presentations (TBD); and 5) chapter tests. Reading assignments accompany each topic/chapter; and most also have problem exercises. Laboratory activities will be utilized to reinforce electronics theory.

The student successfully completing ECT 160 will know, or be able to do, the following:

- Define the fundamental electrical/electronic quantities including: charge, voltage (DC and AC), current, conductance, resistance, power, frequency, wavelength, period, magnetism, inductance, capacitance, reactance, and impedance; and know the unit of measure associated with each.
- Understand the operating principles of, and identify basic electronic components including: insulators, conductors, DC and AC power sources, resistors, potentiometers, fuses, switches, inductors, transformers, capacitors, diodes, transistors, and (if time permits) integrated circuits.
- Know, and be able to apply the fundamental laws, theories, and formulas of electronics to mathematically analyze circuits prior to construction, and accurately predict circuit operation, including: Ohm's Law, Kirchhoff's Laws, the power law, the law of electrostatic charges, etc.
- Read and understand at a basic level, schematic diagrams for electronic circuits.

- Build basic electronic circuits from schematic diagrams using a ‘breadboard’ and common electronic components.
- Be able to perform basic circuit analysis to determine: current flow, voltage drop, power dissipation, and/or resistance for the circuits, or any part of the circuit.
- Have a fundamental knowledge of the setup and usage of common electronic test equipment such as the digital multimeter, DC power supply, AC function generator, and oscilloscope.
- Have a fundamental knowledge of the operating principles of discrete semiconductor electronic devices, including: diodes and transistors.
- If time permits, be exposed to the operating principles of integrated circuits used in digital computer circuits and their use in computer technology.

Lab Policy

The purpose of laboratory experiments is to provide each student with practical, hands-on experiences in working with electronic components, and to prove that theory can be applied to actual circuits. As there is often not enough lab equipment to permit every student to perform labs individually, students may be asked to work in groups of two or three. ECT and CET majors will be given first priority to perform labs individually, whenever possible, as this course provides basic circuit building and analysis skills these students will need for practically all of the remaining courses in their electronics program.

Students are individually responsible for bringing laboratory components on lab days indicated in the Course Schedule, even if you share a lab kit with a classmate. Laboratory Report sheets will be available on the course web site prior to each lab. **No** food or drinks are allowed in the classroom during laboratory activities.

Evaluation Method

Homework Assignments

Laboratory Assignments Exam 1

Exam 2

Exam 3

Final Exam

There will be extra credit offered during this course – do your best work the first time. There will be no make-up exams, except in *extreme* circumstances, at the Instructor’s discretion (see below). There will be no opportunity to make up labs, except at the discretion of the Instructor or Lab Assistant.

60%

Outcomes Assessment Scale

Grades are based on a point system. Each test/assignment is worth a given number of points and your final grade will be calculated by dividing total points earned by total points possible; then converted to a letter grade based on the scale below:

If you are very close to the next higher grade, the Instructor *may* take into consideration attendance, class participation, the timeliness, neatness, and completeness of the problem-solving assignments, and/or other factors.

90-100%	85-89%	80-84%	75-79%	70-74%	65-69%	60-64%	< 60%
A	B+	B	C+	C	D+	D	F

MATH 123

Analytic Geometry and Trigonometry

Text: Analytic Geometry 7th Edition by Fuller and Tarwater
ISBN-10: 0201134845 **ISBN-13:** 9870201134841

Instructor: Charles Roberts **Office:** Root Hall A-126 **Telephone:** 237-2134
Office Hours: MWF 10:00-10:50 am and by appointment

Catalog Description: Two and three dimensional analytic geometry using rectangular, polar, cylindrical, and spherical coordinates. The study of lines, planes, conic sections, and vectors and applications. Topics in trigonometry including right angle trigonometry, general triangles, and applications.

Prerequisites: A grade of C or better in MA 115 or appropriate placement examination score.

Ten sections of material on trigonometry will be available to you on blackboard. You may access this material as follows:

1. Go to the Indiana State web site: <http://indstate.edu/>
2. Click on the "Blackboard" link
3. Enter your Username and Password. Then click on "Login"
4. The first time you open Blackboard, you will see the "Welcome" screen Just click on "I'll do it later"
5. In the "My courses" list, click on the name of this course
6. Inside the course, click on the "Content" button.
7. Choose a file you wish to read or download.

In trigonometry there will be an

HOUR EXAM OVER SECTIONS 6.1 AND 6.2

HOUR EXAM OVER SECTIONS 6.3 AND 6.4

HOUR EXAM OVER SECTIONS 7.1, 7.3, 7.4 AND 7.5

HOUR EXAM OVER SECTIONS 8.1 AND 8.2

Material from chapters 1, 2, 3, 4, 7, 8, 9, and 10 of the Analytic Geometry text will be covered.

There will be an

HOUR EXAM OVER CHAPTERS 1 AND 2

HOURLY EXAM OVER CHAPTERS 3 AND 4

HOURLY EXAM OVER CHAPTER 7

FINAL EXAM OVER CHAPTERS 8, 9 AND 10

All exams are in class, closed book, and closed notes. You may use a calculator of your choice; but you may not use a computer (laptop), ipad, or cell phone.

The final exam is on Wednesday, May 6, from 8:00 to 9:50am.

93%-100%	A
88%-92.9%	A-
84%-87.9%	B+
80%-83.9%	B
76%-79.9%	B-
72%-75.9%	C+
68%-71.9%	C
64%-67.9%	C-
60%-63.9%	D+
56%-59.9%	D
52%-55.9%	D-

Percent to Grade Table

Less than 52% F

Grade Calculation During the Semester: At any time during the semester, your grade is determined from the Percent to Grade Table below by calculating the total number of points you have received on the in-class exams divided by the total number of points on the exams expressed as a percent. For example, if you scored 37 points out of a possible 50 points on the first in-class exam and you scored 45 points out of a possible 55 points on the second in-class exam, then your percent is $[(37+45)/(50+55)] \times 100\% = 78.09\%$ and your grade after two in-class exams is B-.

No make-up exam will be given for any in-class exam after that exam has been returned to the class.

MATH 301 – to be MATH 129

Fundamentals and Applications of Calculus

Instructor: Henjin Chi

Course Introduction

Catalog Description: Inequalities, polynomial functions, logs, and exponentials. Differential and integral calculus and applications. For students in social sciences, business, and other applied areas.

The purpose of the course is to introduce you to basic ideas in calculus and how to apply calculus to areas such as business, social science, and technology. I have structured the course around modules. Each module will build on previous modules and your previous mathematics coursework. You will need to complete a module prior to beginning the subsequent module.

Modules will be subdivided into lessons.

Prerequisites Appropriate placement exam score, MATH 115, MATH 201, or equivalent.

Learning Objectives

By the end of this course, you will be able to:

- Interpret a function from an algebraic, numerical, graphical, and verbal perspective.
- Evaluate and interpret limits of functions from their graphs and/or equations.
- Analyze and apply the notions of continuity and differentiability to algebraic, exponential, and logarithmic functions.
- Compute and analyze definite and indefinite integrals.
- Solve applied problems with derivatives.
- Solve applied problems with integrals.

Textbooks

Required Text: Calculus for Business, Economics, Life Sciences & Social Sciences 13/e by Raymond Barnett , Michael Ziegler and Karl Byleen. Boston, Pearson (ISBN 978-0-321-86983-8)

Course Policies

1. My goal is for you to excel in this class and to develop the skills necessary to succeed in your chosen career. However, you have the major responsibility for doing well. Achievement of course standards requires you to know what you need to do to improve your performance. You are expected to carefully read assignments and the feedback returned to you, to note evaluation comments made to the entire class regarding assignments returned. You cannot meet the objectives of this course by being a passive learner. As the semester progresses, you should be able to implement several ideas to improve your performance. Also, you are expected to ask questions and or/schedule individual appointments to clarify evaluations or other aspects of the course not clear to you.

2. Time-management is crucial in this courses. Typical 3-credit-hour courses meet 2.5 hours every week, and you are expected to spend 2-3 times that on activities outside the classroom. Therefore, in general you should spend a total of 7.5-10 hours per week.
3. Turn in all work on time. Work turned in after the posted due date and time is considered late. Late work on assignments will be penalized 20% for each day late. Late work on quizzes and exams will not be accepted unless you are experiencing extraordinary situation and notify instructor immediately.
4. Be courteous and respectful to your classmates and to me. Please refer to the ISU Code of Student Conduct.
 - a. Maintain a formal, respectful, civil, professional tone with all course communications, including but not limited to blog posts, discussion boards, and emails. Avoid derogatory language, obscenity, and hate speech.

Conferences and Individual Help I will be available via Office Hour and/or individual appointments. After class discussion is encouraged.

You are also strongly encouraged to take advantage of ISU's Math & Writing Center. The Math & Writing Center offers face-to-face and online one-on-one mathematics tutoring assistance for all Indiana State students. Current hours of operation and additional services can be found at their website: <http://libguides.indstate.edu/writing>.

Attendance and Communication Policy

Attending class is required. There will be 5% of your final grade as Bonus added to your final grade for those students that have perfect attendance. If you miss more than four classes, you will be getting F grade automatically. All excused absence must contact instructor ahead of time and get permission. In case of emergency, contact instructor ASAP by email or phone call to the office.

Grades The following scale will be used to determine your course grade:

A+	97-100%	C	73-76%
A	93-96%	C-	70-72%
A-	90-92%	D+	67-69%
B+	87-89%	D	63-66%
B	83-86%	D-	60-62%
B-	80-82%	F	59% or below
C+	77-79%		

The work you do this semester will be weighted as follows:

MATH 131

Calculus I

Date: January 13, 2015 Updates/corrections will be dated and emailed to the student.

(1) General Course and Instructor Information.

(2) Attendance and Absence(s).

(3) Homework.

(4) Quizzes.

(5) Exams.

(6) Grading and End Of Semester.

(7) Email.

(8) Miscellaneous; Important Dates.

(9) Detailed List Of Topics Covered.

(1) General Course and Instructor Information.

Instructor: Dr. Robert A. Johnson

Textbook: Calculus, Larson & Edwards; 10th edition; available at ISU Campus Bookstore

Prerequisites: Algebra I, Algebra II, Geometry, Trigonometry (high school curriculum)

Calculators: Bring a scientific calculator to each class. Cell phones and laptops are not allowed.

Office: Root Hall A-118 x2144 robert.johnson@indstate.edu

Office Hours: 8:00 – 8:55 MWF

Academic Honesty: Read the ISU Code Of Student Conduct at <https://web.indstate.edu/sjp/docs/code.pdf>.

Visitors: Only students officially registered for the course may attend any regularly scheduled meet- ing of the class. No other individuals may be in the classroom while the class is meeting.

(2) Attendance and Absence(s).

It is essential, and a university requirement, that you attend each of the 58+1 meetings of this class. Good attendance is considered to be four or fewer absences during the semester. If you miss more than four classes, the conditions marked with asterisks will not be applied to your work.

When you miss a class, you are required to have an arrangement with another student in the class to obtain

(1) Lecture notes, (2) homework assignments, and (3) handouts, so that you can be **fully prepared** for the next class. This is essential to your success in the course. Do not return to class unprepared.

(3) Homework.

Homework is regularly assigned, and homework questions are answered at the next class meeting.

Approach each assigned homework problem as follows.

1. Try to solve the problem "cold." Check the book's answer and compare your solution to the detailed solution given at <http://www.CalcChat.com> . If you are stuck on the problem, then:
2. Look through the day's class notes and the relevant textbook material. Class lectures, your notes, and the textbook will contain examples that closely resemble most assigned homework problems.

Treat these examples as homework problems and solve them first. If you can't readily work out an example from the lecture, how can you solve a similar problem in the homework?

(4) Quizzes.

Numerous in-class quizzes are given during the term. Make-up quizzes are not offered. *To compensate for unavoidable absences, the two lowest quiz marks are dropped.* Each quiz counts from 1.2% to 1.8% in the final average.

(5) Exams --- Must Be Taken At Indicated Time

Exam I (midterm) – **Friday, March 13**

Exam II (all-topics final) – **Wednesday, May 6, 8:00 a.m.**

If the class average on an exam is lower than expected, the scores will be renormalized. The exams carry the weight not assigned to quizzes, with the second exam more heavily weighted than the first exam. The final exam is not returned, but kept on file for six weeks after the exam date, then discarded.

(6) Grading and End Of Semester.

The final average is converted to a grade level according to the following table:

99.00 – 100.00	A +	88.00 – 90.99	B +	77.00 – 79.99	C +	66.00 – 68.49	D +	00.00 – 59.99	F
93.50 – 98.99	A	82.50 – 87.99	B	71.00 – 76.99	C	62.00 – 65.99	D		
91.00 – 93.49	A –	80.00 – 82.49	B –	68.50 – 70.99	C –	60.00 – 61.99	D –		

Students whose work substantially improves over the term may have their final grade moved up one or two levels, depending on the amount of improvement.

Detailed grading records are kept on file for six **weeks after** the date of the final exam. Students with concerns about a grade must speak with the instructor in person during this time period.

(7) Email.

If you email me about something covered in the syllabus, I save time and refer you to the syllabus. Do not rely on email for matters of any importance. Ten to twenty percent of emails students claim to send me I never receive. Email is not secure and not reliable. In fact, the university expressly forbids faculty from discussing confidential student information (test scores, grades, etc.) by email.

(8) Miscellaneous; Important Dates.

Quizzes and Exams: There are two good reasons to save your quizzes and Exam I:

1. The quizzes and Exam I provide you with a thorough overview of the course material and an excellent body of work to study for the final exam.
2. You may calculate your course average T at any time: Find the average score of the quizzes you have taken. Multiply that average by 10 and call that Q. Before Exam I, Q is T. After Exam I, calculate T as the average of Q and Exam I. See item 6 to convert T to a letter grade.
 - **Tutoring:** Help with algebra, trig and calculus from the Peer Assistant and staff tutors is available at the
 - Tutoring Center in Cunningham Library. Contact the Center for hours.

(9) Detailed List Of Topics Covered.

The semester is 15 weeks in length. Below is a description of topics covered in the course. Topics may be dropped or expanded due to time factors.

1. a. inequalities, interval notation, the domain and range of a function
b. review of functions, graphs and trigonometry occurs throughout the course
2. limits:
 - a. techniques for evaluating limits, such as tables, algebra, graphs, trigonometric identities
 - b. two-sided and one-sided limits, infinite and non-existent limits
3. continuity of a function
4. lines, slope, tangent lines, motivation and definition of the derivative
5. techniques for evaluating derivatives, including the power rule, the coefficient rule, the sum/difference rule and the product rule
6. the quotient rule, the derivatives of the trigonometric functions, the chain rule
7. higher order derivatives and derivative notations
8. derivative as a rate of change; applications: velocity, acceleration
9. implicit differentiation
10. related rates
11. Rolle's Theorem, Mean Value Theorem
12. graphing and analysis of functions using the derivative --- includes maximum and minimum values of functions, monotonicity, asymptotic behavior, concavity, points of inflection, accurate graphs; the first and second derivative tests
13. limits at infinity
14. use of derivatives to solve optimization problems
15. Newton's method for approximating roots of functions
16. antiderivatives, the indefinite integral
17. u-substitution
18. definite integrals, the definite integral as area or net area
19. approximating sums, including Riemann sums, the trapezoidal rule and Simpson's rule
20. Fundamental Theorem of Calculus, differentiation of integrals
21. differentiation and integration related to logarithms, the natural logarithm

CHEM 105

Instructor: L. Rosenhein

Introduction

Welcome to this first-semester, introductory course in general chemistry. The only prerequisite is an adequate knowledge of algebra, which is defined for this course as: a math SAT of at least 510 or an ACT score of at least 21; *or* a Maple TA score of at least 12; *or* completion of Math 035 (or 99) or a higher numbered math course, not including 102. Most people in this course have had some high school chemistry, however, and that is certainly an advantage. While we start "at the beginning," there is a lot of material to cover and the pace may seem fast.

Students who feel that their background is deficient in some way should find that the resources for remedying this are available; but this will require extra work. Because of the differences in the types of students who enroll in this course, it is difficult to state how much work outside of class is necessary, but six hours per week would, I think, be an *average* number; you might need more or less. The best results are obtained when studying is done on a regular (daily or at least every-otherday) basis. If you use this studying time effectively, you can do well in chemistry.

Please note: Enrollment in General Chemistry II, CHEM 106, will require a grade of C or better in 105.

Chemistry is often called the "central science," because it is used in so many disciplines. It is important in understanding biology, materials science, energy production, and the environment, to give a few examples. Chemical principles themselves are based on the laws of physics. We'll find that many properties of matter can be understood on the basis of relatively simple concepts.. We stress problem-solving in this course, partly because chemistry is often an applied science, and also because it can enhance your understanding of the principles. This can be satisfying, and even enjoyable, once you attain sufficient mastery of the subject.

Materials

- *Text:* Zumdahl and Zumdahl, *Chemistry*, 9th ed. The same text will be used next semester in Chem 106. The Bookstore now sells the text as an *unbound* version, which lowers the cost to you and may be more convenient.
- *Electronic homework:* At the ISU bookstore, new copies of the textbook should come packaged with access to OWL, an on-line tutorial and homework system which we will use, and includes access to a web version of the text which may be convenient as you are using OWL. If you have bought a copy of the text elsewhere, you will need to obtain OWL directly from the publisher:
 - <http://www.cengagebrain.com/shop/isbn/978-1-285-18545-3>
 - (This link is specific for the OWL version we are using.)
- *Calculator:* doesn't have to be fancy, but should be capable of displaying powers of 10 and should have log functions and square root. In Chemistry 106 you will need a yx function. For tests, you must have your own calculator—no sharing allowed. **Only** calculators—not PDAs, cellphones, etc—will be allowed in exams.

- You must be concurrently enrolled in CHEM 105L, which is a separate course, and have the manual, goggles, lock, etc. that are required there (by the second lab period). The lab **DOES** meet during the first week.

Preparatory Chemistry

Beginning this fall, we are offering a preparatory chemistry course, CHEM 101 (3 credit hours; MWF 12:00—12:50), for students who feel they don't have the science or science-math background to do well in Chemistry 105. The purpose of this course is to give students who need it a background that will help them when they take CHEM 105 in a later semester. Although the course begins its classes on Aug. 20, you may switch into this course up to Sept. 19. You will need to drop both CHEM 105 and CHEM 105L; there is no lab with CHEM 101. We recommend: (1) making a decision as to whether you will be better off starting with CHEM 101 as early as possible in the semester, and (2) discussing whether to make this change with both me and your advisor first.

Attendance

I expect attendance in class every day. I do not formally take roll but I know who is usually there and who is not. It should be noted that students who regularly miss classes tend to get low grades. Take my word for it—don't learn it the hard way. If you do miss a class for whatever reason, it is your responsibility to find out what happened and to catch up. By the way, the word *attend* has a meaning beyond presence: it means listening with an active mind.

We meet on Monday, Wednesday and Friday for regular lectures, and also on Tuesday at 9:30 am in room S-12 for problem-solving workshops. Attendance at the workshops is **required**; they are intended to be done in groups and cannot be made up later.

Syllabus

We will cover material in this course corresponding to chapters 1-9 of the text with certain (relatively minor) additions and deletions along the way. Detailed syllabi will be provided for the lectures from exam to exam; these contain daily lecture topics, reading, and problem assignments, as well as the dates of quizzes and exams and homework due dates.

Workshops

On Tuesdays, we will have group problem-solving sessions. Worksheets will be handed out at that time, so the only way to prepare is to keep up with the material. The questions may deal with recently-covered material, or might look ahead to develop topics that are to come. I may also put some questions of a review nature on them, since I expect you to retain what you have learned in this course! Each group will turn in one copy of the completed worksheet and will get a group grade. Then each group member will be given a short quiz, as a check for individual learning. Your score will be a combination of the group and individual scores.

Office hours

Use me! I have two scheduled office hours on Monday at 10:00 am and Thursday at 11:00 am, and you are also welcome to make appointments for other times, or to just catch me at in my office if I'm free. You are also welcome to contact me by e-mail.

Recommended study procedure

- Read relevant sections of text—before lecture, if possible. Give particular attention to the worked-out examples in the text. As a guide to what to focus on when you read, I invite you to refer to the "Roadmaps" I have given for each lecture in the web syllabus. Just click on the date of each lecture and you will be taken to the roadmap.
- Do relevant OWL assignments. Make sure you are not just doing rote work to get points. You should always ask yourself whether you really understand the solution method.
- Remember that besides the assignments for credit, there are usually additional questions you may use for practice.
- Complete the homework assignment of problems from the end of the chapter. (Answers to questions whose numbers are in color are given in the back of the text, starting p. A39.)

We will have quizzes about once a week.

- You should analyze any mistakes you made on quizzes so that you will be sure not to make them again on the hour exams, which count much more.
- I hope we will have a Supplemental Instructor who will give some help sessions. Make use of this. The times will be announced.
- There is also a Chemistry-Physics Help Center in room S-115, whose *tentative* hours are (check the course web site for any changes): 9:00—11:50 daily 3:00—4:50 MTWR
- If you wish to see exams I gave in previous semesters, you can follow the Exams link in the web home page.
- Also, get enough sleep! There is good scientific evidence showing that sleep is linked to long-term learning.

Grading

There are several components:

- *Homework*: OWL is divided into sections, which are assigned by lecture. As you complete these, the scores will be available to me. See separate handout for more details. (10%)
- *Workshops*: Group assignments and quizzes (15%).
- *Quizzes*: There will be short weekly quizzes (10%).
- *Exams*: There will be four, in-class, hour exams (48%). (The first exam will be on Sept. 12 and I anticipate others on Oct. 10, Oct. 31, and Nov. 21.)
- *Final Exam*: There will be a comprehensive final exam on Wed., Dec. 10 at 1:00 pm (17%).

The final letter grade will be determined as indicated by the percentages with each component, but individual factors such as increasing or decreasing grades throughout the semester may also be taken into account for people near borderlines. The following scale indicates how I interpret numerical exam grades in general

I use the following grading scale:

	B+ 77 – 82	C+ 60 – 67	D+ 47—50	
A 85 – 100	B 70 – 77	C 55 – 60	D 40—47	F < 40
A-82—85	B-67 – 70	C-50 – 55	D-< 40	

While not set in stone, I try to stay very close to the exam grade scale when assigning final grades.

Missed tests

If quizzes or exams are missed for a *legitimate* reason, you should report to me as soon as you are able. It may be possible to make up a quiz. However, **no** late or make-up exams will be given (this will be handled on an individual basis; plan to have written verification).

Dropping the course

The last day to drop a course is Oct. 28.

It is to your advantage to make a decision earlier than that, however, so that you either make a commitment to this course or are able to put your full efforts into your other courses. Note that if you drop the lecture, you *must* drop the lab as well.

. . . [?] experiment before attempting the pre-lab. Pre-labs will be worth one point (in addition to the 15 for a typical lab report). Especially poor prelab efforts will result in deduction of this point. Repeated deficiencies may result in even greater deductions.

Laboratory results are to be recorded directly as they are obtained in your report sheets, in the appropriate space for the data. Mistakes may be corrected by crossing out a number with a single line and rewriting. (Calculations and calculated results may be done in pencil.)

Take some care to record data to the appropriate number of significant figures, that is, as many as the equipment allows. To record fewer is a mistake since you lose accuracy.

Each student works independently, except for certain experiments using computer-assisted data collection, which will be done in pairs. The data you report must be your own; anything else is considered cheating and will be graded accordingly.

For the write-up

In general, the written report need be no more than what is specifically asked for in the report section. A **sample** calculation should be shown—clearly—for any numerical result. In writing up the lab, I expect that you will re-read the lab where necessary, following directions and performing calculations as described in the lab. Be sure to understand the purpose of the calculations as you do them. Penalties for incorrect calculations are high—you are wasting your time doing an experiment if you interpret it wrongly! Express answers to the proper number of significant figures--this also affects the grade. (See Zumdahl, pp. 15-18. Re-read once a week if necessary!)

Remember above all that the primary function of any report is to *communicate*; that is,

someone else must be able to understand what you did and how you obtained your results.

While it is perfectly fine to get help if you need it in writing up a lab, the work for calculations and questions must be principally your own.

Labs are due the week following their completion, at the **start** of the lab period. Credit lost for late labs depends on the lateness, but is significant in any case. Late labs will be accepted only up until the time of the corresponding lab exam, but will not be accepted at all during the last week of class.

Separate pages of lab reports should be stapled.

Labs submitted in which the write-up is of below acceptable quality will be returned ungraded for further work. These may be re-submitted but will have the lateness penalty.

Ask me for help with anything you have trouble with!

Purpose: The following are some of the things we hope you will learn by taking this course: carrying out of basic chemical laboratory techniques; safe handling of chemicals; illustration and enhancement of your understanding of chemical principles from lecture; application of the scientific method and treatment of data. . . and hopefully, that chemistry can be fun to do! You must also be enrolled in Chemistry 105. You cannot expect to do all right in this course if you are failing or not attending the lecture. If you drop the lecture, you must drop this course as well.

Required Materials

Manual: *General Chemistry I, Tenth Ed* ; wraparound goggles, lock.

Web site

Eventually I will have a website for posting a syllabus and grades here:
<http://carbon.indstate.edu/rosenhein/105L/fall14/home.htm> Expectations
and

Guidelines for Success

In class Attendance is required. Labs missed for a legitimate reason must be made up: check with me first, as soon as you are able. (*I will expect a valid, written excuse*). Course grades decrease one notch for every lab not done. No more than two labs may be made up. You are still responsible for turning in the lab report that was due as soon as possible.

Safety rules must be followed. Goggles are worn at all times.

Read the experiment before class, and prepare any questions you may have about it. When there is a prelab it should be completed and turned in at the start of the lab period. Read the

Exams The purpose of the lab m

mid-term and final is to make sure you really understand what the experiments we do are trying to teach you. The best way to do well on the exams is to come well-prepared for the labs; to ask questions where there are things you don't understand; to give the lab reports your full attention; and to make sure you understand the reason anything was marked wrong on the reports.

For the exams, you do not need to memorize lab procedures, but I would recommend reviewing the labs you have done and reminding yourself of the reasons for various procedures. The exams will consist of some short answer questions, and calculations. Numerical problems will be very similar to calculations done in the lab reports. You should make sure you can do any of these calculations. Also make sure you are able to answer the types of questions at the end of the lab reports.

Check-out

Once you are assigned a drawer, you are responsible for its contents until you check out. You will start with a full set of equipment and will be expected to return the same, replacing anything that is broken or lost.

If you drop the course or withdraw from the university, you must still check out your drawer or you will be billed a \$10 check-out fee. Check out under these circumstances must be done during a meeting of the class, preferably as soon as possible. I will not check out people at other times.

CHEM 105L

General Chemistry I

Laboratory:

Fall Semester 2014

Laboratory Schedule: Thursday 2:00- 4:50 pm

Prelab Location: S018

Lab Location: Section 005; S-013: Section 006; S017

Staff: Instructor: Prof. Stephen F. Wolf

Office: Science Building, Room 051K

Office Phone: 812.237.2236

Office Hours: MWF 10-12, or by appointment

Email: wolf@indstate.edu

Course Description: Chemistry 105L is the first semester laboratory course for Chemistry 105.

Prerequisites: Successful completion of, or current enrollment in Chemistry 105.

Course Credit: 1 credit
hour

**Course Material and
Equipment:**

- Lab Manual: General Chemistry Laboratory I, 10th edition, Chemistry 105L.
- Calculator: You will need a calculator with the capacity for square roots, logarithms (\log and \ln) exponentiation, and exponents (e^x , 10^x , y^x) for lab reports and exams.
- Safety glasses
- Lock

Always come to lab prepared with your lab manual, calculator, pens and/or pencils. All writing in the lab book must be legible and should be in ink. Mistakes should be corrected by crossing out the error with a single line and rewriting. Calculations may be done in pencil.

Prelab and Lab Reports: Prelabs reports are due at the *beginning of class* on the day that the Experiment is scheduled and *will not be accepted late*. Prelab reports will count for 20% of your Lab Report grade. Lab reports are due at the *beginning of class* on the scheduled due date, typically one week after the Experiment has been completed. Reports *up to three days* late will be accepted for partial credit. However, these late reports will not be accepted *unless* there are extenuating circumstances.

Attendance: Attendance is required. Students who are in good health are expected to attend all scheduled laboratory sessions. However, if you are ill and potentially contagious, please do not attend laboratory. You will be given opportunities to make up material missed due to legitimate illness. If you know ahead of time that you will not be able to attend a laboratory, please inform me before the absence occurs and as soon as possible. In cases of last minute emergencies, please inform me as soon as you are reasonably able. You must attend all of the Prelab discussion prior to working in the Lab. These discussions begin promptly at the beginning of the scheduled class time. Students who miss the Prelab discussion will not be allowed to begin the experiment until they demonstrate a thorough understanding of the background and procedure for the Experiment by means of a written or oral Quiz.

Missed Labs: Laboratories can be made up only when there is a legitimate reason for missing the lab and with consent of the instructor. Laboratories missed for legitimate reasons must be made up during one of the Chemistry 105L sections offered later in the week (although you will need the instructor's preapproval). If this occurs your Lab Report will still be due the day of your next scheduled laboratory. No more than two labs may be made up during the semester unless there are extenuating circumstances.

Success in Chemistry 105L: Success in Chemistry 105L will require a significant effort on your behalf. *Most of this effort is simply preparation.* Depending on how much Chemistry you have previously taken, you may need to spend as much 2 or more hours of work *in preparation* for each laboratory. There are several steps that you can take to help insure your successful completion of Chemistry 105L.

- Read the assigned experiment prior to the laboratory session.
- Complete the prelab by at least the day before the scheduled experiment. If you have any questions about the material I have office hours the morning before lab (although I will **not** be available the two hours before lab).
- Complete the lab report as soon as possible after the laboratory while it is still fresh in your mind.
- Utilize the Department's Chemistry Help Center in S115.
- Ask questions!

If you have any questions, please do not hesitate to ask me before, during, or after laboratories. Please feel free to stop by my office during office hours or schedule an appointment if you prefer.

Safety: Always follow the Laboratory Safety Rules specified in your General Chemistry Laboratory Manual. Eye protection must be worn at all times. Appropriate clothing is required to work in the lab. All chemical spills need to be cleaned up immediately. Before leaving the laboratory at the end of each session, be sure to return all equipment and chemicals to their proper place and clean your bench top.

Grading: Your laboratory grade will be based 50% on Lab Reports and 50% mid term/final exams. Your final letter grade will be based on the total percentage of points obtained from these sources of credit as follows:

This letter grade assignment scale *may be* modified at the end of the semester on a percentile basis

at the instructor's discretion. This correction is *typically* based on the 98th percentile grade for the class with a maximum of a 4% correction. The letter grade assignment scale listed above represents therefore, upper-limits for the final grade assignment scale. A final grade of "A+" can only be earned if your final percent score exceeds 96%.

*Missing **three** or more scheduled lab periods or failure to hand in **three** or more lab reports may result in a failing grade. Lab reports will only be accepted if you have performed the actual lab work.*

Laboratory Experiment Schedule

Date	Experiment	Report Due
Aug 21	Laboratory Check-in and Safety	
Sep 04	Exp 2: Recovery of Pure Metals from an Alloy	Exp 1
Sep 11	Exp 2: continued	
Sep 18	Exp 3: A Cycle of Reactions Involving Copper	Exp 2
Sep 25	Exp 4: Atomic Theory of Matter	Exp 3
Oct 02	Exp 5: Preparation of Potassium Trisoxalatoferrate(III) Trihydrate	Exp 4
Oct 09	Mid Term Exam	
Oct 16	Exp 6: Analysis of Trisoxalatoferrate(III) for Oxalate Content	Exp 5
Oct 23	Exp 12: Some Chemical Reactions	Exp 6
Oct 30	Exp 7-8: Simple Gas Laws and Determination of the Molar Mass of a Volatile Liquid	Exp 12
Nov 06	Exp 9: Molar Volume of Nitrogen	Exp 7-8
Nov 13	Exp 13: Thermochemistry	Exp 9
Nov 20	Exp 13: continued	
Nov 27	Fall Break	
Dec 04	Final Exam	Exp 13

Physics 105

INDIANA STATE UNIVERSITY Department of Chemistry and Physics Fall 2014

INSTRUCTOR: Dr. Valentina French

OFFICE: S-165F

OFFICE PHONE: (812) 237-2272

OFFICE HOURS: MW 3:15 – 4:15 p.m., TuF 12:00 – 12:50 p.m., and by appointment

EMAIL: Valentina.French@indstate.edu

CLASS TIME: MWF 11:00 – 11:50 a.m.

LOCATION: S- 138 **CREDIT:** 3 semester hours

TEXT: D.C. Giancoli: Physics-Principles with Applications, volume I with Mastering Physics, 7th edition, publisher: Pearson (ISBN: 9780321928894)

LABORATORY: Concurrent enrollment in 105L is part of the course requirement (unless PHYS 105L has already been successfully completed)

You will need a Mastering Physics access code in order to do online homework. If you have a textbook without a code you can purchase an access code at the following web address: <http://www.masteringphysics.com> Please be sure that you purchase a registration code for

Giancoli: Physics-Principles with Applications, 7th edition.

The course ID is: **PHYSICS105FRENCHFALL2014**

Purpose and objectives: This course constitutes the first semester of General Physics, an algebra-based introductory Physics course. Proficiency in college algebra is an essential requirement for this course (successful completion of MATH 115 or MET 215 is required).

Each student needs to bring a scientific calculator to class every day.

The course will feature lectures, discussions, demonstrations, and problem solving. The objectives of this class are threefold: **1)** to help students develop a conceptual understanding of physical principles, **2)** to develop knowledge of how these principles fit together to describe the physical world, and **3)** to develop deductive reasoning skills and to test the understanding of the physical principles and concepts through problem solving.

In the study of physics you will learn that concepts build upon one-another, and are related to each other like the links of a chain. It is therefore vital that you keep up with the material and not fall behind, because just as one weak link spoils a chain, so will superficially-learned concepts undermine your understanding of later course material.

Class Participation: It will be very important for you to participate in class discussions so that I can gauge your understanding of the concepts that we have covered. This is especially critical in view of the nature of physics knowledge as a system of interrelated concepts. It is an unfortunate but common occurrence for students to come to me on the eve of an exam and express their lack of understanding of concepts or problem-solving skills that were covered in class long ago. This admission is often accompanied by considerable hand wringing and expressions of despair. Had they contributed to class discussions and asked a few choice questions in a timely manner, their problems would have been resolved much earlier and they would have been in a position to face

the exam with much greater confidence. **It is also very important that you read and study the relevant chapters in the textbook.**

Grading will be based on the following:

1. EXAMS: 300 points

Two one-hour exams worth 100 points each.

The first exam will be during the week of September 15th, and the second during the week of October 20th (the exact dates will be announced in class). ***Please note that Tuesday, October 28 is the last day to drop a class. Final exam: 100 points.*** The final exam will be on Friday, December 12th, at 10:00 a.m., according to the University Final Exam Schedule.

Review sessions will be scheduled before each exam.

2. HOMEWORK: 130 points There will be homework assignments for each chapter covered. .

The homework will be done online at the following address: <http://www.masteringphysics.com>

The course ID is: **PHYSICS105FRENCHFALL2014**

To access the homework you need to use the access code packaged with your textbook or purchase an access code online at the above address. The homework is graded online and you have access to your scores at all times. Each homework set will have a due date. Late homework will be penalized by 10% per day. While I cannot give out solutions to the homework assignments before the due date, students are invited to discuss questions about the homework in class.

The number of homework assignments is open, but at the end of the semester the total homework points will be scaled to 130 points.

3. QUIZZES: 100 points

There will be a number of unannounced quizzes. Each quiz is worth 10 points. Each quiz will cover material discussed since the previous quiz. At the end of the semester, the lowest two quiz scores will be dropped. Because of that, **no make-up quizzes will be given.**

MAKE-UP EXAMS: In order to make up a missed exam you must present documented evidence that the reason for missing the exam was serious and beyond your control. **Sleeping-in and vacation travel are NOT acceptable reasons.**

FINAL GRADE is indicated by the following scale: 99-100% = **A+**; 93-98% = **A**; 90-92% = **A-**; 87-89% = **B+**; 83-86% = **B**; 80-82% = **B-**; 77-79% = **C+**; 73-76% = **C**; 70-72% = **C-**; 67-69% = **D+**; 63-66% = **D**; 60-62% = **D-**.

In addition to the regular classes, there will be a **Physics Help Center** in room S 115. The Help Center will open on Monday, August 25th, and the hours will be posted on the door. Please take advantage of this valuable resource.

Code of Student Conduct: All students are expected to comply with ISU Code of Student Conduct, which can be found online at the following address:

<http://www.indstate.edu/sci/docs/CodeConduct.pdf>

COURSE OUTLINE:

Week 1: Ch. 1 Introduction, Measurements (sections 1-8)

Week 2-3: Ch. 2 Kinematics in one-dimension (sections 1-8)

Week 4-5: Ch. 3 Vectors, Projectile Motion (sections 1-6) **Exam 1**

Week 6-7: Ch. 4 Newton's Laws of Motion (sections 1-8)

Week 8-9: Ch. 5 Circular Motion, Gravitation (sections 1-3, 5-7)

Week 10: Ch. 6 Work and Energy (sections 1-4) **Exam 2**

Week 11: Ch. 6 Work and Energy (sections 5-10)

Week 12: Ch. 7 Linear Momentum (sections 1-6)

Week 13-14: Ch. 8 Rotational Motion (sections 1-8)

November 24-28 Thanksgiving Break

Week 15: Ch. 9 Static Equilibrium (sections 1-4)

Physics 105L

INDIANA STATE UNIVERSITY DEPARTMENT OF CHEMISTRY & PHYSICS Fall 2014

INSTRUCTOR: Dr. Valentina A. French

OFFICE: S-165F

OFFICE PHONE: (812) 237-2272

E-MAIL: Valentina.French@indstate.edu

OFFICE HOURS: MW 3:15 - 4:15 p.m., TuF 12:00 – 12:50 p.m., and by appointment

CREDIT: 1 semester credit hour

LABORATORY TEXT: Physics 105 Laboratory Manual; Indiana State University Department of Chemistry & Physics, 2014.

LABORATORY TIME AND LOCATION: Tu 2:00 - 3:50 p.m., S-105

Purpose and objectives: Physics 105 and its laboratory component, Physics 105L constitute the first semester of General Physics, an algebra-based introductory Physics course. The laboratory component is designed to complement the classroom lectures by giving hands-on experience for the concepts covered in the lectures.

Laboratory Work

You will perform one laboratory experiment/exercise each week and work in groups of two. Every student is required to write a report on each lab experiment/exercise performed (one report per group is also acceptable, provided both group members make equal contributions to the report).

*Only students who were present at the lab session and performed the lab experiment/exercise may submit a report. The report is due at the following lab session. No late reports will be accepted. Detailed instructions on writing the lab reports are given for each experiment in the report directions file on Blackboard. The reports will be graded and returned to you at the following lab session. The grading will be done on a zero to 50-point scale. *15% of your grade will be based on individual participation during the lab experiment/exercise. Failure to write and submit a report will result in a score of 7.5 points (i.e., 15% of the 50 points possible for the report), if your participation during the lab exercise was satisfactory.**

Note: all comments and essay answers to questions in the lab report need to be typed. Failure to do so will result in zero credit for those questions. Only calculations, equations and diagrams may be written by hand.

Students are expected to prepare for each lab by reading that day's lab exercise from the lab manual before coming to the lab. There will be a quiz at the beginning of each lab session. Each quiz is worth 10 points. The questions on the quiz will cover the exercise that you will perform that day as well as the previous lab report that is due that day. A maximum of ten minutes will be allocated to the quiz. Being late to the lab will result in missing the quiz. There will be no exceptions to this rule.

There will be no make-up labs. At the end of the semester the lowest lab and quiz scores will be dropped. Total course points: **720 points** Lab reports: 600 points (12 labs, 50 points each) Quizzes: 120 points (12 quizzes, 10 points each) The letter grades will be assigned according to the following scale: 99-100% = **A+**; 93-98% = **A**; 90-92% = **A-**; 87-89% = **B+**; 83-86% = **B**; 80-82% = **B-**; 77-79% = **C+**; 73-76% = **C**; 70-72% = **C-**; 67-69% = **D+**; 63-66% = **D**; 60-62% = **D-**.

Code of Student Conduct: All students are expected to comply with ISU Code of Student Conduct, which can be found online at the following address:

<http://www.indstate.edu/sci/docs/CodeConduct.pdf>

Physics 105 Lab Schedule

Date	Lab title
8/26	Experiment 1: Introduction to the Physics Laboratory
9/2	Experiment 2: Data Collection and Analysis
9/9	Experiment 3: Motion Studies
9/16	Experiment 4: Vector Addition of Forces
9/23	Experiment 5: Projectile Motion
9/30	Experiment 6: Atwood's Machine
10/7	Experiment 7: Friction
10/14	Experiment 8: Hooke's Law
10/21	Experiment 9: Centripetal Force
10/28	Experiment 10: The Pendulum
11/4	Experiment 11: Conservation of Mechanical Energy
11/11	Experiment 12: Momentum and Collisions
11/18	Experiment 13: Torque
11/25	Thanksgiving Break
12/2	Study week – no labs

Appendix B – Faculty Vitae

Alberts , Todd E.

Education – degree, discipline, institution, year

- Indiana State University (ISU), Terre Haute, IN. MS Industrial Technology, 2007.
- ISU, BS Mechanical Technology, 2005.
- Ivy Tech State College, Terre Haute, IN. AS Computer Aided Design & Manufacturing (1998)

Academic experience – institution, rank, title (chair, coordinator, etc. if appropriate), when (ex. 1990-1995), full time or part time

- Indiana State University (ISU), Terre Haute, IN. Instructor, Mechanical Engineering Technology, 2007 – Present.

Non-academic experience – company or entity, title, brief description of position, when (ex. 1993-1999), full time or part time

- Pfizer Pharmaceuticals, Terre Haute, IN 47802 . Project Engineer - Facilities Engineering Dept, 2002 – 2003.
- Jones Tool and Machine Inc., Terre Haute, IN. Project Engineer / Coordinator, 1998 – 2002.
- Alcoa Inc., Closure Systems International Division, Crawfordsville, IN. Sr. Mechanical Designer, 1993 – 1997.
- Machine Tool Service Inc., Terre Haute, IN. Mechanical Designer/Drafter, 1988 – 1993.

Certifications or professional registrations

- Pursuing professional status as Certified Manufacturing Technologist (SME)

Current membership in professional organizations

- American Society of Mechanical Engineers
- American Society for Engineering Education
- American Design Drafting Association
- Association of Technology Management and Applied Engineering

Honors and awards

- Faculty Advisor for ISU American Society of Mechanical Engineers (ASME) Student Chapter – voted Student Organization of the Year 2014-15.

Service activities (within and outside of the institution)

- MET Faculty member assigned for all program recruiting activities which have resulted in program enrollment growth over previous 6 years from 67 to 244 students in the MET program.
- Faculty Advisor for ISU American Society of Mechanical Engineers (ASME) Student Chapter
- MET faculty responsible for student recruiting events, admissions, transfer, and student orientation, industry relations for internships and potential student positions upon graduation.

Briefly list the most important publications and presentations from the past five years – title, co-authors if any, where published and/or presented, date of publication or presentation

- T. E. Alberts and P. Polastri. (2013) Developing A Globalized and Sustainable Mindset in 21st Century Engineering Students. *Proceedings of the World Congress of Engineering Education WCEE 2013*
- M. Affan Badar, Sree Akkineni, A. Mehran Shahhosseini, Todd E. Alberts; Effect of globalization on U.S. manufacturing in terms of trade balance. *International Journal of Agile Manufacturing*, 12(1), 13-17.

Briefly list the most recent professional development activities.

Presentations – Invited Guest Speaker

- T. Alberts, “*Engineering Technology in AETM Department*”, Indiana State University LEAP Career Exploration Night, Terre Haute, IN, July 23, 2014
- T. Alberts, “*Passport to College Success*”, Indiana State University Fall Welcome Speaker Series, Terre Haute, IN, August 18, 2014
- T. Alberts, “*Experiences from Successful Advisors*”, Indiana State University, Faculty Center for Teaching Excellence Speaker Series, Terre Haute, IN, September 25, 2014
- T. Alberts, “*Passport to College Success*”, Indiana State University Fall Welcome Speaker Series, Terre Haute, IN, August 19, 2013
- T. Alberts, “*How is That Made?*”, Indiana State University LEAP Career Exploration Night, Terre Haute, IN, July 24, 2013

Additional Engineering Related Career Training

- Pursuing professional status as Certified Manufacturing Technologist (SME)
- Geometric Dimensioning & Tolerancing Y14.5
- Engineering Ergonomic
- Root Cause Analysis
- Failure Modes Effects Analysis (FMEA)

Badar, M. Affan

Education - degree, discipline, institution, year

- University of Oklahoma, Tula OK. Ph.D. Industrial Engineering, 2002.
- King Fahd University of Petroleum & Minerals, Saudi Arabia. M.S. Mechanical Engineering, 1993.
- Aligarh Muslim University (AMU), India. M.Sc. Industrial Engineering, 1990.
- AMU. B.Sc. (Honors) Mechanical Engineering, 1988.

Academic experience–institution, rank, title (chair, coordinator, etc. if appropriate), full time or part time

- Indiana State University, Terre Haute, IN.
- Professor, Applied Engineering & Technology Management (AETM), 2012–Present.
- Associate Professor, 2008–2012. Assistant Professor, 2002–2008.
- Interim Associate Dean, College of Technology, 2014–2015.
- Department Chairperson, AETM, 2010–2014.
- Purdue School of Engineering & Technology, IUPUI, Indianapolis, IN.

- Associate Faculty, Mechanical Engineering and Logistics Systems Management & Engineering, 2006–2009.

Non-academic experience—company or entity, title, brief description of position, when, full time or part time

- York International. Manufacturing Engineering Intern, 1999-2000.
- Weatherford Artificial Lift Systems. Design Engineer, 1998-1999.

Certifications or professional registrations

- ABET Program Evaluator, 2010-Present.
- ATMAE Certified Senior Technology Manager (CSTM), 2009

Current membership in professional organizations

- American Society of Mechanical Engineers (ASME)
- Association of Technology, Management, and Applied Engineering (ATMAE)
- Institute of International Education (IIE)
- SME (formerly Society of Manufacturing Engineers)

Honors and awards

- Alpha Pi Mu (IE Honor Society),
- Epsilon Pi Tau (ITEEA Honor Society). Received EPT Warner Professional Practice Award for Region 3, 2015

Service activities (within and outside of the institution)

- ABET Program Evaluator (PEV), since 2010 (Note: ABET has harmonized the accreditation criteria and procedures across the four commissions)
- Programs evaluated and visited: Southern Poly SU, Oct 2014; Bogor Agricultural U (Indonesia), Oct 2012; Missouri Southern SU, Sep 2011; U of Dayton, Oct 2010

Prepared an AACSB eligibility application for a school of management in India, Mar 2015

- VP, Manufacturing Division, ATMAE, 2014-16; 2012-14
- Operations Mgmt Committee (Board of Governors), Jahangirabad Inst. of Tech (India), since Dec 2014
- Review panelist, ASEE/Dept of Defense (DoD) SMART Scholarship Evaluation Panel, Feb 2014
- Editor-in-Chief, Sciknow J. of Manufact & Design Sc, since 2014
- Editor, SAGE/Hindawi journal, Advances in Mechanical Engineering, since Feb 2013

Briefly list the most important publications and presentations from the past five years—title, co-authors if any, where published and/or presented, date of publication or presentation

- M.A. Badar, 2014, “Student solar power,” Chap 4 vignette in *Engr Econ Analy*, e12, D.G. Newnan, J.P. Lavelle, and T.G. Eschenbach, Oxford Univ Press, New York, NY
- M.A. Badar, 2014, “Lean Manufacturing Cell,” Chap 16 in *Handbook of Industrial and Systems Engineering*, e2, A.B. Badiru (ed.), pp. 291-297, CRC Press, Taylor & Francis Group, Boca Raton, FL, (Ch 18 in e1, 2006)
- M. Al-Odeh, A. McLeod, and M.A. Badar, “Value stream mapping: Recreating an industrial environment in an educational setting,” *IAJC Technology Interface Int. J.* (accepted). Also in

Proceed. of the 2014 IAJC/ISAM Joint Int. Conf., ISBN: 978-160643-379-9, paper #028 (Sep 25-27, 2014).

- M.E. Odigie (student), J.A. Cantrell (student), and M.A. Badar, “Roller-type thrust bearing reliability analysis with Minitab,” *NED Univ. J. of Research – App Sc*, XI, 4, 1-14 (2014).
- M. Al-Odeh (student), C. Bell (student), and M.A. Badar, “Data integration to extend product data management systems to predict product lifecycle,” *Al-Falah Global Sci-Tech*, 6, 1, 1-11 (2014).

Briefly list the most recent professional development activities.

- M.A. Badar (Keynote speaker), Impact of ISO 9001 certification on US firms financial performance, Int. Conf. on Advancements in Mech. Eng’g (ICAME 2014), Al-Falah U., Faridabad (India), Aug 8, 2014.
- E.K. Aba and M.A. Badar, “Financial impact of ISO 9000 and ISO 14000 certifications,” ATMAE 2014 Conf., Management track, Nov 19-22, St. Louis, MO.
- E.K. Aba (student) and M.A. Badar, “Impact of ISO 9001 certification on United States companies’ financial performance,” ATMAE 2013 Conf., Management track, Nov 20-23, New Orleans, LA.
- P. Cochrane and M.A. Badar, “Customize laboratory using microcontroller for new Automotive Technology Education,” ATMAE 2013 Conf., Teaching Innovations track, Nov 20-23, New Orleans, LA.

Clauss, Mark J.

Education

Indiana State University, Terre Haute, IN Master of Science—May, 1986 Major: Industrial Technology Education G.P.A.-3.45

Indiana State University, Terre Haute, IN Bachelor of Science—December, 1983 Major: Industrial Technology Education G.P.A. Overall-3.00, G.P.A. Major-3.58

John Adams High School, South Bend, IN, Diploma May, 1979

Academic Experience

Mechanical Technologist and Lab Instructor, College of Technology, Indiana State University, April 30, 2010 to present

Mechanical Technologist, School of Technology, Indiana State University, February 1, 1988 to April, 2010

Adjunct Faculty Member: Department of Manufacturing and Construction Technology, Indiana State University January, 1987-May, 1987

Director of Training: Gunite Division of Kelsey Hayes Co., Elkhart, IN, May, 1984-January, 1985, May, 1985-August, 1985

Graduate Assistant: Dept. of Industrial Technology Education, Indiana State University, January, 1985-May, 1985

Supervised Teaching: September 8-December 17, 1982, John Adams High School, South Bend, IN

Part Time Employment: Laboratory Assistant, Dept. of Manufacturing and Construction Technology, Indiana State University, 1979-1983

Summer Employment: Service Technician, Outboard Motors, Thorpe's Marine Inc., South Bend, IN Summers 1980, 1981, 1982, 1983

Professional Memberships

Society of Manufacturing Engineers Member,

Honors and Awards

Indiana Industrial Education Association, Scholarship, 1979-1980

Indiana Industrial Education Association, First Place Prize in Materials and Processes, 1978
Conference, French Lick, IN

Mechanix Illustrated Monthly Golden Hammer Award, runner-up 1978

National Honor Society

Honors Assembly, Outstanding Achievement in Industrial Arts, John Adams High School, 1979

Chester Taylor Scholarship Award—Epsilon Pi Tau, 1986

Cochrane, Phillip

Education – degree, discipline, institution, year

- University of Phoenix, D.B.A. [Doctor of Business Administration], 2008. Dissertation: African American Entrepreneurship in the Underground Economy.
- Fuller Theological Seminary , M.A. Theology, 1993.
- University of Montana ,M.B.A. Business Administration, 1990.
- Western Michigan University (WMU), B.S.E., Mechanical, 1980.
- WMU, B.S. Automotive Engineering Technology, 1979.
- SUNY – Morrisville, A.A.S., Automotive Technology, 1972.

Academic experience – institution, rank, title (chair, coordinator, etc. if appropriate), when, full time or part time

- Indiana State University
 - Associate Professor, Applied Engineering & Technology Management department (Automotive Engineering Technology and Mechanical Engineering Technology), 2006-Present.
 - Coordinator for Bachelor of Engineering Technology Program, 2013-Present.
- Morrisville State College
 - Program Director for 4-year Automotive Programs, 2001-2006. Prepare budgets. Coordinate with faculty. Develop four-year curriculum programs. Develop courseware. Oversee articulation agreements. Teach upper-level courses.
- Dayton Public Schools
 - Mathematics Instructor/Department Chair, 1995-2001.
- Central State University (CSU)
 - Adjunct business faculty, 1996-1997.

Non-academic experience – company or entity, title, brief description of position, when, full time or part time.

- United States Air Force
- Project Manager / Engineer / Technician, 1972-1994. Directed personnel changes and conducted interviews. Wrote recommendations for hiring and retention. Authored quarterly appraisals and award recommendations. Integrated the activities of 100 project personnel. Developed project plans and budgets. Developed alternatives and proactive strategies. Met cost, performance and delivery milestones. Managed subcontractors.

Certifications or professional registrations

- Certified Technology Manager (2014)
- Licensed Pilot (1981)

Current membership in professional organizations

- Society of Automotive Engineers (SAE)
- American Society of Engineering Educators (ASEE)
- Aircraft Owners and Pilots Association

Honors and awards**Service activities (within and outside of the institution)****Briefly list the most important publications and presentations from the past five years – title, co-authors if any, where published and/or presented, date of publication or presentation**

- Cochrane, P. (2012) *Incorporating experiential learning and community engagement within an OL learning environment*. Presentation, 2012 ATMAE conference, Nashville, TN.
- Cochrane, P., Eversole, B. (2012) *Student laboratory team performance as related to team size*. Journal of Technology management and applied Engineering. 28(4) Ann Arbor, MI.
- Cochrane, P. (2011) *Motorsports laboratories for technology and entrepreneurial education*. Presentation, ASEE CEIC 2011. San Antonio, TX.
- McClure, M.R., Shahhosseini, A.M., Alberts, T., & Cochrane, P. (2011) *Effects of joint preparation angle of single-vee butt-welds on the tensile strength of ASTM A36 carbon steel*. IMECE2001-63757. Proceedings ASME IMECE2001, Denver. CO.

Briefly list the most recent professional development activities.

- Cochrane, P. (2014). *Computer-based automotive scan tools*. Proceedings, from the 2014 ATMAE conference, "Technology—Tomorrow's Gateway," St. Louis, MO.
- Cochrane, P. (2014) *Tangents as a normal way of teaching*. Proceedings from the 2014 ATMAE conference, "Technology—Tomorrow's Gateway," St. Louis, MO.
- Cochrane, P., Badar, M.A., & Lin, Y. (2013) *Customize laboratory using microcontroller for new automotive technology education*. Presentation, 2013 ATMAE conference, "Developing the Future Workforce," New Orleans, LA.

Hayden, Michael A.**Education – degree, discipline, institution, year**

- Iowa State University. Ph.D. Industrial Education and Technology, 1989. Dissertation: The development and validation of a test of industrial technological literacy.
- Eastern Illinois University. M.S. Technology Education, 1984.
- Eastern Illinois University. B.S. Career Occupations, 1983. Obtained 6-12 Industrial Arts

teaching certificate and vocational certification.

- Danville Area Community College, Danville, IL. A.A.S. Machine Tool Technology., 1981.

Academic experience – institution, rank, title (chair, coordinator, etc. if appropriate), when, full time or part time

- Indiana State University, Terre Haute, IN. Professor (tenured), Department of Applied Engineering & Technology Management, Graduate faculty, 1996-Present.
- Mississippi State University. Associate Professor (tenured), Department of Technology and Education, Graduate faculty, 1991-1996.
- University of Southern Colorado, Assistant Professor, Department of Industrial Technology, 1989-1991. Iowa State University: Teaching Assistant, Department of Industrial Education and Technology, 1986-1989.
- Danville Area Community College, Danville, IL, Instructor. 1985-1986.
- Vermilion Occupation Technical Education Center, Danville, IL, Instructor, 1984-1985.

Non-academic experience – company or entity, title, brief description of position, when, full time or part time

- Berkeley-Davis Inc., Danville, IL. Summer 1985: Drafter. Performed design and detail drafting related to automated welding machines.
- Bohn Heat Transfer, Danville, IL. Aug. 1981-Apr. 1982: Drafter - refrigeration and air conditioning equipment drawings, including electrical.
- ESCO, Danville, IL. Oct. 1978-May 1980: Machine Operator.
- Famaco. Tilton, IL. Sep.-Oct. 1978: Machine operator.

Certifications or professional registrations

- Certified Manufacturing Engineer (CMfgE) with the focus area of Management by the Society of Manufacturing Engineers (SME).
- Certified Manufacturing Technologist (CMfgT) by SME.
- Certified Quality Engineer (CQE) by the American Society for Quality (ASQ).
- Certified Manager of Quality/Organizational Excellence (CQM) by ASQ.
- Certified Six Sigma Green Belt (CSSGB) by ASQ.
- Teaching certificate, Illinois, type 9 (6-12).

Current membership in professional organizations

- American Society for Quality (ASQ)
- American Society for Engineering Education (ASEE)
- Associate of Technology, Manufacturing, and Applied Engineering (ATMAE)
- Epsilon Pi Tau (EPT) Honor Society (Laureate member)
- SAE International (formerly Society of Automotive Engineers)

Honors and awards

- EPT Laureate Citation. Awarded October 1998. Epsilon Pi Tau is the International Honorary for Professions in Technology.

- NAIT Outstanding Regional Director Award. Awarded October 2007 by the National Association of Industrial Technology.

Service activities (within and outside of the institution)

- Coordinator of the Minor and Certificate programs in Lean Six Sigma. 2011 to present.
- M.S. Technology Management Coordinator. 1996-1997, 2009-Present.
- 2012-2014: Chair of the Wabash Valley ASQ chapter. Have been Chair and Vice Chair several times; have been an officer since 2005.
- 2012-2014: Secretary of the SME Wabash Valley chapter. Have been Chair and Vice Chair several times; have been an officer since 2005.

Briefly list the most important publications and presentations from the past five years – title, co-authors if any, where published and/or presented, date of publication or presentation

- Aba, E. K., & Hayden M.A. (2013). Variation and its relationships to quality. Quality Progress, ASQ.

Briefly list the most recent professional development activities.

- Peters, R. & Hayden, M. (2014). Marketing Students to Industry: Much more than a Field Trip. ATMAE Annual Convention. St. Louis, MO.*
- Peters, R. & Hayden, M. (2014). Closing the Loop: Assessment Plans Utilizing Certification Exams Provide Efficient Results for Curriculum Validation or Change. ATMAE Annual Convention. St. Louis, MO.*
- McLeod, A. & Hayden, M. (2013). Pedagogical Underpinnings of Material Science in Engineering Technology. ATMAE Annual Convention. New Orleans, LA.*
- Peters, R. & Hayden, M. (2013). Coordinating Multiple Program Assessments: The Use of ATMAE Certification Exams in College-Wide Program Assessment. ATMAE Annual Convention. New Orleans, LA.*

Lawyer, Kristina

Education – degree, discipline, institution, year

- Michigan Technological University (MTU), Houghton, MI. Ph.D. Mechanical Engineering, 2015 (expected). Dissertation: Incorporation of Higher Carbon Number Alcohols in Gasoline Blends for Application in Spark-Ignition Engines. National Science Foundation IGERT Fellowship.
- MTU. M.S. Mechanical Engineering, May 2012. Topic: The effects of service learning in sustainability engineering education
- Rose-Hulman Institute of Technology (RHIT), Terre Haute, IN. B.S. Mechanical Engineering, 2008.

Academic experience – institution, rank, title (chair, coordinator, etc. if appropriate), when, full time or part time

- Indiana State University (ISU), Terre Haute, IN. Instructor, Applied Engineering. & Technology Management dept, Aug 2013-Present. (Automotive Engineering Technology and Mechanical Engineering Technology classes.)
- Argonne National Laboratory, Argonne, IL. Research Appointee, Jan-Jly 2013.
- (Working in the Center for Transportation Research within the Energy Systems Division)
- ISU, Adjunct faculty, Applied Engineering. & Technology Management dept, Jan-Apr 2012. (Distance learning section of Applied Statics.)
- MTU (Advanced Internal Combustion Engines research team) and Argonne National Laboratory (Energy Systems Division). Contractor, Oct 2011-Dec 2012.
- MTU (Civil and Environmental Engineering Dept). Graduate Research Assistant, Aug 2009-Dec 2010.
- MTU Engineering Learning Center. Head Coach, Aug 2009-Oct 2011. '09 to October '11

Non-academic experience – company or entity, title, brief description of position, when (ex. 1993-1999), full time or part time

- Peerless Pump, Indianapolis, IN. Summer Engineering Intern, May 2008-Aug 2008. Updated component drawings and optimized manufacturing processes.
- McKinney Corporation, Lafayette, IN. Summer Intern, June 2007-Aug 2007. Managed shop activities, assisted in fabrication of chassis and parts, conducted experiments to resolve part failure, and developed a database to aid in the chassis-building process.
- RHIT ChallengeX, Terre Haute, IN. Engine & Emissions Team Leader, Overall Team Leader, May 2006-May 2008. Supervised engine and emissions research, collected engine data, operated dynamometer and open ECU, presented technical information to sponsors, utilized model-based calibration for engine modeling, designed and built new sway bar for senior design project, managed team operations.
- MTU. Summer Youth Programs, Mar 2011-Aug 2011. Developed and taught Motorsports course to middle school and high school students, and Engineering the Human Body course to high school students.
- MTU. EcoCAR Hybrid Vehicle Design Competition, Aug 2008-May 2009. Advised team on technical and leadership issues, taught MATLAB/Simulink classes, and attended workshops.

Certifications or professional registrations

Current membership in professional organizations

- American Society for Engineering Education (ASEE)
- American Society of Mechanical Engineers (ASME)
- SAE International (formerly Society of Automotive Engineers)

- Society of Women Engineers (SWE)

Honors and awards

- Recognized as having a positive influence on freshman students by the Indiana State University College of Technology in the fall of 2014
- Recipient of the *2012 Graduate Mechanical Engineering Woman of Promise Award* from the MTU Presidential Council of Alumnae
- Recipient of a National Science Foundation IGERT Fellowship

Service activities (within and outside of the institution)

- Advisor for student organizations:
 - Team Sycamore Racing (TSR)
 - Society of Automotive Engineers (SAE) □ [ISU] Sycamores Billiards Club

Briefly list the most important publications and presentations from the past five years – title, co-authors if any, where published and/or presented, date of publication or presentation

- McCormick, M., Lawyer, K., Wiggins, J., et al. (2014). Sustainable Engineering Assessment using Rubric-Based Analysis of Challenge Question Responses. *ASCE's Journal of Professional Issues in Engineering Education and Practice*.
- Wallner, T., Ickes, A., Lawyer, K. (2013). Meeting RFS2 targets with an E10/E15-like fuel – experimental and analytical assessment of higher alcohols in multi-component blends with gasoline. *SAE International Journal of Fuels and Lubricants*.
- Wallner, T., Ickes, A., Lawyer, K. (2013). Assessment of Combustion Characteristics of Higher Alcohols in a Direct Injection Spark Ignition Engine. *ASME ICEF Conference*, 19180.
- Lawyer, K., Ickes, A., Wallner, T. (2013). Blend Ratio Optimization of Fuels Containing Gasoline Blendstock, Ethanol, and Higher Alcohols (C3-C6): Part I – Methodology and Scenario Definition. *SAE World Congress*, 2013-01-1144.
- Lawyer, K., Ickes, A., Wallner, T. (2013). Blend Ratio Optimization of Fuels Containing Gasoline Blendstock, Ethanol, and Higher Alcohols (C3-C6): Part II – Optimum Blend Properties and Target Value Effects. *SAE World Congress*, 2013-01-1126.

Briefly list the most recent professional development activities.

McLeod, Alister

Education – degree, discipline, institution, year

- Purdue University, West Lafayette, IN. Ph.D. Industrial Technology, 2009
- Purdue, M.S. Industrial/Electrical Technology, 2005
- North Carolina Agricultural & Technical State University (NCATSU). B.S. Electronics Engineering Technology, 2003

Academic experience – institution, rank, title (chair, coordinator, etc. if appropriate), when (ex. 1990-1995), full time or part time

- Indiana State University, Terre Haute, IN. Assistant Professor, Aug 2011-Present
- South Carolina State University, Department of Electronic Engineering Technology. Adjunct Professor, Aug 2010 – July 2011
- Aiken Technical College, Department of Electronic Engineering Technology. Instructor, Jun 2010 – July 2011 □ American Public University System, Department of Transportation and Logistics Management. Adjunct Professor, May 2010 – July 2011
- Purdue, Department of Industrial Technology. Graduate Lecturer, Aug 2006 - Dec 2009
- Purdue, Department of Mechanical Engineering Technology. Research Assistant, Jan 2004 -May 2004 □ Purdue, Department of Electrical Engineering Technology. Teaching Assistant, Aug 2003 -May 2004 □ NCATSU, Student Support Services. Academic Tutor, Aug 2001 -May 2003

Non-academic experience – company or entity, title, brief description of position, when (ex. 1993-1999), full time or part time

- M4Sciences, Production Systems. Research Process Engineer, Oct 2008-May 2009.
- Alcoa Minerals of Jamaica, Industrial Relations Department. Intern, Summer 2001.

Certifications or professional registrations

- Certification for using Collaborative Tools to Deliver Online Lessons, American Public University, August 2010
- Certification for Project Lead the Way Digital Electronics, University of South Carolina, July 2010
- Education Certificate for participation in the Photovoltaic Power Systems: Solar and the National Electric Code, State of South Carolina, July 2010
- Certification for the S7- 1200 PLC, Siemens Industry Inc., June 2010

Current membership in professional organizations

- American Society for Engineering Education (ASEE)
- American Society of Transportation and Logistics (AST&L)
- Council of Supply Chain Management Professionals (CSCMP)

- Society of Manufacturing Engineers (SME) □ Surface Mount Technology Association (SMTA)

Honors and awards

- Purdue University, Outstanding Teaching Award, Spring 2008
- NCATSU School of Technology, Outstanding Student, Spring 2003

Service activities (within and outside of the institution)

Reviewer, Technology Interface Journal (2009). Reviewer, Conference Proceeding, ASEE 2009 Annual Conference and Exposition

Briefly list the most important publications and presentations from the past five years – title, co-authors if any, where published and/or presented, date of publication or presentation

Briefly list the most recent professional development activities.

Peters, Randell W.

Education/Degrees

Ph.D., Curriculum & Instruction/Industrial Technology Education, Indiana State University, 2005
 M.S., Industrial Technology Education, Indiana State University, 2003
 B.S., Industrial Vocational Technology Technical Area, Indiana State University, 2001

Academic Experience

Indiana State University, Terre Haute, IN, August 2003 to present, full-time
 AETM Department Chair – August 2015 – present
 Interim AETM Department Chair – August 2014 – August 2015
 1st Sabbatical – Spring 2014 semester
 Faculty Fellow – Assessment and Accreditation – January 2013 – January 2014
 Tenured/Promoted – Associate Professor of Automotive Engineering Technology – August, 2010
 Tenure-track – Assistant Professor, Coordinator, Automotive Technology Management Program, Since August, 2004
 Instructor, Automotive Technology Management Program, 2003 – 2004
IVY Tech State College, Indianapolis, IN, 2002 – 2003, full-time
 Instructor, Automotive Service Technology Program

Non-Academic Experience

Managing Partner, PJ Promotions LLC, dba Crossroads Dragway, Terre Haute, IN, NHRA Member - 1/8 mile Drag Racing facility, March 2009 – Present.

- Responsible for maintenance of all aspects of the facility, sponsor relations, publications, articles, flyers, website content, hiring, and training employees

Automotive Technician, Jacks and Jacks Motors, Rockville, IN, Dec 2001- Aug 2002

Body Shop Manager, Mike's Motor Co. Inc., Clinton, Indiana, Jan 2001- Dec 2001
Chrysler Systems Coordinator, Mike's Motor Co. Inc., Clinton, IN, Jan 2001 – Dec 2001
Fixed Operations Director, Mike's Motor Co. Inc., Clinton, Indiana, Sep 2000 – Dec 2001
Automotive Technician, Jacks and Jacks Motors, Rockville, IN, Oct 1994-Sep 2000
Automotive Driveability Technician, Hubler Chevrolet, Indianapolis, IN, Mar 1989-Jul 1994
Aviation Maintenance Administration, US Navy, Apr 1984-Apr 1989

Certifications

Certified - Bronze Level SFI Technical Inspector for National Hot Rod Association – since 2009
Certified Senior Technology Manager/Industrial Technologist, by ATMAE – Since 2004
Certified – National Institute for Automotive Service Excellence – 21 specific areas – since 1988

Professional Memberships

American Society of Mechanical Engineers, member, since 2013 American Society for Engineering Education, member, since 2005 Society of Automotive Engineers, member grade, since 2003 National Association of Industrial Technology now the Association of Technology,
Management and Applied Engineering, since 2003

Honors/Awards

ISU Distinguished Service Award – 2013
Outstanding Industrial Technology Professor Award from the National Association of Industrial Technology - 2008

Service Activities

President, University Division, Association of Technology, Management, and Applied Engineering (ATMAE), November 2009 – November 2011
Accreditation Team Member for NAIT/ATMAE, serving as visiting team member 2005 – 2007 and as visiting team chair in 2010, 2011, 2013 – 2015.
ISU Curriculum Academic Affairs Committee: Member, 2006 – 2011, Associate Chair, 2007 – 2009, Chair, 2009 – 2011, Member Spring 2013

Significant Publications Presentations in the last 5 years

Hayden, M.A., Peters, R.W. (under review). “Material Topics in Engineering and Technical Programs.” Peters, R.W., Hayden, M. (under review,). “Analysis of Reaction Times in E.T. Bracket Racing.”
Peters, R.W., Hayden, M.A. (2014, November). Marketing Students to Industry: Much More than a Field Trip. Association of Technology, Management, and Applied Engineering Conference, St. Louis, MO.
Peters, R.W., Hayden, M.A. (2014, November). Closing the Loop: Assessment Plans Utilizing Certification Exams Provide Efficient Results for Curriculum Validation or Change. Association of Technology, Management, and Applied Engineering Conference, St. Louis, MO.
Young, J.A., Bodey, K.J., Harder, J.T., and Peters, R.W. (2013, December). “An

Examination of Personality Traits of Motorsports Management Students,” ICHPER-SD Journal of Research.

Hayden, M.A. & Peters, R.W. (2013, November). Coordinating Multiple Program Assessment: The use of ATMAE Certification Exams in College-Wide Program Assessment. Association of Technology, Management, and Applied Engineering Conference, New Orleans, LA.

Peters, R.W. (2013, November). Developing Tomorrows Workforce through Blending Engineering Technology with Gen Ed: The Story Behind the Survey of Motorsports. Association of Technology, Management, and Applied Engineering Conference, New Orleans, LA.

Most Recent Professional Development Activities Manage/operate a drag racing facility, since 2009, Recertified in SFI Bronze Level Technical Inspector for NHRA, Spring 2015 Recertified in Automotive Service Excellence, 21 categories, Fall 2014 Attended and presented – ATMAE Conference in St. Louis, MO, November 2014 Attended and presented – ATMAE Conference in New Orleans, LA, November 2013 Attended – ATMAE Conference in Nashville, TN, November, 2012

Schafer, Marion D. Schafer

Education – degree, discipline, institution, year

- Indiana State University (ISU), Terre Haute, IN. Ph.D. Curriculum & Instruction,
- ISU, M.S. Industrial Professional Technology. □ ISU, B.S. Packaging Technology.

Academic experience – institution, rank, title (chair, coordinator, etc. if appropriate), when (ex. 1990-1995), full time or part time

- Developed Bachelor of Applied Science in Technology degree for College of Technology. 2013.
- Professor (tenured), Applied Engineering & Technology Management dept, 2011Present. Director, Indiana Packaging R & D Center. Coordinator of B.S. in Packaging Engineering Technology. Associate Professor, 2006-2011. Dept Chairperson, 2002-2006. Assistant Professor, 1997-2002.
- University of Wisconsin—Stout. Assistant Professor, Technology Department, College of Technology, Engineering and Management, 1995-1997.
- ISU, Graduate Fellow, School of Technology, 1994-1995.
- ISU, Instructor of Packaging Technology, 1992-1994.

Non-academic experience – company or entity, title, brief description of position, when (ex. 1993-1999), full time or part time

- Owner MDS Packaging Consultants, 2008-present. Providing consulting services concerning packaging, handling, loading, securement, package

system design, and package system testing.

- Pillsbury Company, January 1974-September 1992. Duties included compounding and packaging of food products, warehousing, receiving and shipping, equipment maintenance, quality lab testing, and training of personnel.

Certifications or professional registrations

- Certified Packaging Laboratory Professional (CPLP), International Safe Transit Association (ISTA), 2007 (lifetime status).
- Certified Packaging Professional (CPP), Institute of Packaging Professionals (IoPP), 2009 (lifetime status).

Current membership in professional organizations

- American Society for Testing and Materials (ASTM)
- Association of Technology, Management, and Applied Engineering (ATMAE)
- Institute of Packaging Professionals (IoPP)
- International Safe Transit Association (ISTA)

Honors and awards

- Epsilon Pi Tau (honorary society), member 1988-present.

Service activities (within and outside of the institution)

- Consulting as Expert in Legal Cases
- Expert opinion on improper loading of large tires on flatbed semi-trailer, 139th District Court, Hidalgo County, Texas. (2013)
- Expert opinion on improper loading and securement of live animal cages, Birmingham, AL. (2013)
- Expert opinion on improper loading of machinery on flatbed semi-trailer. Circuit Court of St. Clair County, AL, Ashville Division. (2010)
- Expert opinion on unit load securement of bagged powders. Tippecanoe Superior Court 2, Lafayette, IN. (2010)
- Other cases from 2005 to Present.
- Schafer, M. D. Project Director. Esko Graphics. Contract proposal to develop corrugated box design templates to coordinate with existing box manufacturing equipment. Total project \$38,000/year in-kind donation of Artios CAD software updates. 2004-2014.

Briefly list the most important publications and presentations from the past five years – title, co-authors if any, where published and/or presented, date of publication or presentation

- Schafer, M.D. and Smallwood, J. (2012) *Sustainable Packaging Alternatives*.

- ATMAE 2012 Conference, Nashville TN.
- Schafer, M.D. and Aba, E.K. (2012) *An Investigation of the Awareness of Recycling Services at Student Family Housing Units*. ATMAE 2012 Conference, Nashville, TN.
 - Scontrino, P. and Schafer, M.D. (2012) *HRD Practitioners as Change Agents within the Sustainability Strategic Domain*. 2012 AHRD conference.
 - Al-Odeh, M. and Schafer, M.D. (2011) *Manufacturing Opportunities in Jordan*. IIE 2011 Conference, Orlando, FL.

Briefly list the most recent professional development activities.

Shahhosseini, A. Mehran

Education – degree, discipline, institution, year

- Lamar University, Beaumont TX. D.Engr. Mechanical Engineering, 1999.
- Isfahan University of Technology, M.S. Materials Engineering, 1991.
- Tehran University, B.S. Metallurgical Engineering, 1988.

Academic experience – institution, rank, title (chair, coordinator, etc. if appropriate), when, full time or part time

- Indiana State University (ISU), Terre Haute, IN. Associate Professor, 2014-Present. Tenure-Track Assistant Professor, August 2009.
- University of Louisville, Louisville, KY. Research Assistant Professor, 2001-2009. Post-Doctorate Research Associate, 2000-2001.

Non-academic experience – company or entity, title, brief description of position, when, full time or part time

- Ford Motor Company, Scientific Research Laboratory, Dearborn, MI. Feb 2001-Nov 2002.
- Arak Machine Manufacturing Plant, Arak, Iran. Senior Research Engineer. Oct 1989-Aug 1994.
- Pars Metal Casting Plant, Tehran, Iran. Co-op Engineer. Jly-Sep 1987.
- Steel Profile Manufacturing Plant, Tehran, Iran. Co-op Engineer. Jly-Sep 1986.

Certifications or professional registrations

- Engineer-in-Training (EIT) Certificate, Texas, 1999

Current membership in professional organizations

- American Society of Mechanical Engineers (ASME)
- Association of Technology, Management, and Applied Engineering (ATMAE)
- SAE International (formerly Society of Automotive Engineers)

Honors and awards

Service activities (within and outside of the institution)

- ISU. Interim Director of the PhD in Technology Management Program, 2014-

- present.
- Reviewed submissions for the following journals:
 - SAE Technical Papers □ International Journal of Heavy Vehicle Systems
 - Reviewed proposal submissions for California Energy Commission, Energy Innovations
- Small Grant (EISG) Program

Briefly list the most important publications and presentations from the past five years – title, co-authors if any, where published and/or presented, date of publication or presentation

- Shahhosseini, A.M., Friesel, E.W., Richardson, B., “General Business Model for Product Modularity,” International Journal of Data Analysis Techniques and Strategies, accepted and will be published in October 2015.
- Friesel, E.W., Shahhosseini, A.M., Richardson, B., “Spectrum of Modularity: Characterizing Degree of System Modularity for Performance and Value Comparison,” International Journal of Product Development, accepted for peer review in October 2014.
- Badar, M.A., Akkineni, S.N., Shahhosseini, A.M., and Alberts, T., “Effect of Globalization on US Manufacturing in Terms of Trade Balance,” International Journal of Agile Manufacturing, Vol. 12, Issue 1, 2012.

Briefly list the most recent professional development activities.

- Shahhosseini, A.M., Ye, H., Maughan, G., and Foster, T., “Implementation of Similarity Flooding Algorithm to Solve Engineering Problems Using Diagnostic Skills Training Technique,” *ASME International Mechanical Engineering Congress & Exposition*, Montreal, Canada, November 14-20, 2014, accepted with honors, presented by Foster, T.
- Shahhosseini, A.M., Foster, T., Maughan, G., and Ye, H., “Implementation of Similarity Flooding Algorithm in Advancing Diagnostic Skills Training in the Undergraduate Technology and Engineering Curriculum,” *New Learning Technologies Conference*, Orlando, FL, March 4-7, 2014, presented.
- Shahhosseini, A.M., Srinivasan, M., “Micro-macro modeling of continuous cast steel to simulate the effect of casting velocity and pouring temperature on copper segregation,” *ASME International Mechanical Engineering Congress & Exposition*, Houston, TX, November 9-15, 2012, presented.
- Friesel, E.W. and Shahhosseini, A.M., “Using modularity and cross-enterprise technologies in large organizations to achieve cost savings and improved performance through innovative system integration,” *ATMAE Conference*, Nashville, Tennessee, November 14-17, 2012, presented by Friesel, E.W.

Smallwood, James E., Jr.

Education: degree, discipline, institution, year

- Indiana State University (ISU), Terre Haute, Indiana, Ph.D. Curriculum and Instruction/Industrial Technology Education, August, 1988. Dissertation: "Curricular Implications for Technology Education Based on Validated Worker Characteristics for Industrial Participative Management as Identified by Selected Industrial Personnel"
- ISU, M.S. Industrial Arts Education, August 1980.
- ISU, B.S. Industrial Arts Education, May 1978.
- University of Evansville, Evansville, Indiana, B.S. Law Enforcement, May 1975.

Academic experience: institution, rank, title (chair, coordinator, etc. if appropriate), time period, full- or part-time

- Indiana State University, Professor of Applied Engineering and Technology Management, August, 2010 – Present. Professor and Chair, Department of Technology Management, 2002 – 2010, formerly Department of Manufacturing and Construction Technology. Tenured Fall 2003. Also Interim Chair, Department of Industrial Technology Education, 2006-07.
- Morehead State University, Professor, Dept. of Industrial Education and Technology: Teaching Area - Robotics, Manufacturing (CAM, CNC), 1988 - 2002. Promoted to Associate Professor Fall, 1992. Tenured Fall 1993. Promoted to Professor Fall 1998.
- Indiana State University, Graduate Fellowship, Dept. of Industrial Technology Education and Dept. of Secondary Education, 1985 - 1988.
- Greater Jasper Consolidated School Corporation, Jasper, Indiana, Industrial Arts Instructor for grades 6-8, 1978 - 1985. Tenured 1983.

Non-academic experience: company or entity, title, brief description of position, time period, full- or part- time

- Design Draftsman, North American Products, Inc., Jasper IN. Design carbide tip cutters, Summers and part-time April 1981 - May 1985.
- Hoosier Energy Rural Cooperative, Inc., Merom Generating Station, Merom IN. Assisted in the development of training materials for power plant operation, 1986.

Certifications or professional registrations

- Certified Manufacturing Technologist, Society of Manufacturing Engineers, 1989. Re-Certified in 1992, 1995, 1998, 2001, 2004, 2007, 2010 and 2013.

Current membership in professional organizations

- Association of Technology, Management and Applied Engineering (ATMAE)
- Society of Manufacturing Engineers (SME)
- Epsilon Pi Tau (honorary), Indiana State University
- Sigma Lambda Chi (honorary), Indiana State University

Honors and awards – past 3 years

- Granted Sabbatical Leave of Absence, Indiana State University, Fall 2015.
- Caleb Mills Distinguished Teaching Award, Indiana State University, Spring 2013.

Service activities (within and outside of the institution) - past 3 years

- Served as editor of The CTE Journal, Spring, 2013-Present.
- Appointed to the Caleb Mills Distinguished Teaching Award Committee, 2013-2015.

- Appointed to the Faculty Employee Benefits Committee, 2013-2015. Served as lead faculty member for the B.S. Technology Management program, Fall, 2010-Summer, 2014.
- Served on ISU Professional Internship Advisory Board, Fall, 2013 - Present.
- Served as an external reviewer for Ball State University for a faculty promotion from Associate to Full Professor, Fall 2013.
- Reviewer of manuscripts for Tech Directions Journal, 2012 - Present.

Briefly list the most important publications and presentations from the past five years – title, co-authors if any, where published and/or presented, date of publication or presentation – past 5 years

- McLeod, A. and Smallwood, J., Robotic Cell Usage in Industry: The Rebirth of a Frontier for Manufacturing Engineering Education, *American Society for Engineering Education, Selected Papers*, AC 2012-4777, June, 2012.
- Al-Odeh, M. and Smallwood, J., Sustainable Supply Chain Management: Literature Review, Trends, and Framework, *International Journal of Computational Engineering & Management (IJCEM)*, Vol. 15 Issue 1, January 2012
- Nickolich, D., Feldhaus, C., Cotton, S., Smallwood, J., & Barrett II, A., Perceived Life Satisfaction of Workplace Specialist I Faculty and Mentors Participating in a First-Year STEM Teacher Training Project. *The Journal of Technology Studies*, Volume XXXVI, Issue 2, Fall, 2010.

Briefly list the most recent professional development activities – past 3 years

- Indiana Association of Career and Technical Education (IACTE) Directors, Nashville, IN., “The Workplace Specialist I Program and STEM Grant,” Co-Presenters: Dr. Ed Lazaros, Dr. Sam Cotton, June, 2015.
- Faculty Center for Teaching Excellence, Indiana State University, “10 for 10: Mornings in May,” May, 2015.
- IACTE Directors, Indianapolis, IN., “The status of the Indiana Education Roundtable STEM Grant,” Co-Presenter: Dr. Charles Feldhaus, October, 2014.
- IACTE, Indianapolis, In., “Revising the Indiana Workplace Specialist I Teacher Training Program,” Co-Presenters: Dr. Charles Feldhaus, Dr. Sam Cotton, Dr. Ed Lazaros, Mr. Bill Kovach, September, 2014.
- Association of Technology, Management and Applied Engineering (ATMAE), New Orleans, LA. “Various techniques for incorporating audio/video lectures into your online and hybrid courses,” Co-Presenter: Dr. Alister McLeod, November, 2013.

Williamson, Michael R.

Education – degree, discipline, institution, year

- Southern Illinois University, Carbondale, IL. Ph.D. Engineering Science, May 2014. Specialty in Transportation Engineering.
- Southern Illinois University, Edwardsville, IL. M.S. Civil Engineering, Aug 2011. Specialty in Transportation Engineering. □ Southern Illinois University, Edwardsville, IL. B.S. Civil Engineering, Dec 2010. Specialty in Transportation Engineering.
- Lake Land College, Mattoon, IL. A.S. Pre Engineering, May 2008.

Academic experience – institution, rank, title (chair, coordinator, etc. if appropriate), when (ex. 1990-1995), full time or part time

- Indiana State University, Terre Haute, IN. Instructor, Civil Engineering, January 2014
 - Present
- Southern Illinois University, Edwardsville, IL. Adjunct Professor, Aug 2014-Present. □ Southern Illinois University, Edwardsville, IL. Graduate Research Assistant ... , Oct 2009
- May 2014.
- Southern Illinois University, Edwardsville, IL. Graduate Teaching Assistant, ... Aug 2011-May 2014.

Non-academic experience – company or entity, title, brief description of position, when (ex. 1993-1999), full time or part time

- Crawford, Bunte, Brammeier (CBB) Traffic and Transportation Engineers, Saint Louis, MO. Intern (part-time), March 2011-March 2012
- City of St. Louis Department of Streets, St. Louis, MO. Intern, Jun 2010-Mar 2011.
- Transportation Institute, Carbondale, IL. Summer Mentoring Program, Summer 2009, 2010, 2011.

Certifications or professional registrations

- Engineer-in-Training (EIT) certification (NCEES).

Current membership in professional organizations

- American Society of Civil Engineers □ Institute of Transportation Engineers

Honors and awards

- AASHTO Research Advisory Committee (RAC) top Sweet 16 High Value Research projects 2015: “Development of a Traffic Incident Management Operational and Training Guide - Phase II”
- Illinois Center for Transportation’s (ICT) “High Impact Project Award”: 2012
- Institute of Transportation Engineers Student Research Poster Competition winner 2011
- Department of Civil Engineering SIUE Outstanding Graduate Student Award 2010-2011
- Institute of Transportation Engineers Student Research Poster Competition winner 2010

Service activities (within and outside of the institution)

- American Society of Civil Engineers (ASCE) Faculty Advisor: ISU Chapter 2014 Present
- Institute of Transportation Engineers (ITE): SIUE Chapter President 2009-2012
- Ancient Free and Accepted Masons: Lodge Officer 2010-2013
- Heart Shrine Club: Parade Chair 2012-2014
- Grand Lodge State of Illinois Ancient Free and Accepted Masons: Planning Committee Member

Briefly list the most important publications and presentations from the past five years – title, co-authors if any, where published and/or presented, date of publication or presentation

- Williamson, Michael, Jalayer, M., Zhou, H. (2014) “A Sensitivity Analysis of Crash

Modification Factors of Access Management Techniques in Highway Safety Manual”. Access Management Theories and Practices (Published by American Society of Civil Engineers).

- **Williamson, Michael, Fries, R., (2014) “Effectiveness of Radar Speed Signs in a University Environment”. Accepted for Publication in the ITE Journal.**
- **Williamson, Michael, (2014) “The Quantitative Impacts of Access Points”. *MOVITE Journal*, Fall Journal.**

Briefly list the most recent professional development activities.

- **Williamson, Michael, Zhou, H., Fries, R.** “Development of Crash Modification Factors for Different Driveway Types Defined In the Highway Safety Manual”. TRB’s 11th National Access Management Conference 2015.
- **Williamson, Michael, Fries, R.** “Long Term Effectiveness of Radar Speed Signs in a University Environment”. *ITE Midwestern District Annual Conference/Spring MOVITE*, Branson, Mo, June 2015.
- **Williamson, Michael,** “Poisson Regression Modeling Approach to Access Management in the Form of Driveway Safety”. 63rd Annual Traffic Engineering and Safety (TES) Conference, Champaign, IL
- **Williamson, Michael,** “The Quantitative Impacts of Access Points”. MOVITE Annual Fall Meeting Lincoln, Nebraska September 17-19, 2014.
- **Williamson, Michael, Jalayer, M., Zhou, H.** “A Sensitivity Analysis of Crash Modification Factors of Access Management Techniques in Highway Safety Manual”. 2nd International Conference on Access Management. (Accepted for publication by ASCE 2014)
- **Williamson, Michael, Fries, R.** “Effectiveness of Radar Speed Signs in a University Environment”. Transport Chicago, Chicago, Illinois, June 2014.
- **Williamson, Michael, Zhou H.,** “A Study of Safety Impacts of Different Types of Driveways and Their Density”. The Ninth International Conference on Traffic & Transportation Studies. (Accepted for publication 2014).

Appendix C – Equipment

- **LAB Model 3000 8’x8’ rotary vibration table**
- **LAB 10,000lb compression table 4’ square platen with 6’ opening**
- **LAB 160lb drop tester □ Kongsberg XL24 automated sample cutting table with 5’x10’ bed □ MTS tensile tester**

Appendix D – Institutional Summary

Programs are requested to provide the following information.

1. The Institution

Indiana State University
200 N Seventh Street
Terre Haute, IN 47809-1902

Chief Executive Officer:
President, Dr. Daniel J. Bradley

Department Chair: Applied Engineering and Technology Management Department
Dr. Randell Peters, Associate Professor

ACCREDITATIONS

HIGHER LEARNING COMMISSION (HLC) OF THE NORTH CENTRAL ASSOCIATION OF COLLEGES AND SCHOOLS (NCA) ACCREDITATION

Indiana State University has been accredited by the [Higher Learning Commission \(HLC\)](#) of the North Central Association of Colleges and Schools (NCA) since 1915. The accreditation process has two primary goals: to ensure the quality of institutions of higher education and to promote continuous improvement.

ISU was last reviewed in 2010. The next comprehensive evaluation will occur in 2020-2021.

To view ISU's Statement of Affiliation Status on the HLC web site, click on the image below.



The Higher Learning Commission 230 South LaSalle Street, Suite 7-500, Chicago, Illinois 60604-1411 Phone: 800.621.7440 / 312.263.0456 . Fax: 312.263.7462 . info@hlcommission.org

Department/Program	Accreditation Agency	Links to Documents	Next Site Visit/Review	Accreditation Contacts
Indiana State University	The Higher Learning Commission of the North Central Association	Documents	2020-2021	
All educator licensure programs and related school programs	Indiana Department of Education and National Council for the Accreditation of Teacher Education	Documents	Fall2019	
College of Arts & Sciences				
Art	National Association of Schools of Art and Design	Documents	2013-2014	Dr. William Granis
Music	National Association of Schools of Music	Documents	2018-2019	Dr. Paul Bro
Psychology, Psy.D. (Clinical Psychology)	American Psychological Association	Documents	2016	Dr. Virgil Sheets
Scott College of Business				
	AACSB International The Association to Advance Collegiate Schools of Business	Documents	2014-15	Dr. Brien Smith
Bayh College of Education				
All Educator licensure programs and related school programs	Indiana Department of Education and National Council for the Accreditation of Teacher Education	Documents	Fall 2019	Dr. Denise Collins
Clinical Mental Health Counseling, M.S. and School Counseling, M.Ed.	Council for Accreditation of Counseling and Related Educational programs (CACREP)	Documents	March 2017	Dr. Tonya Balch
Communication Disorders/Speech-Language Pathology	Council on Academic Accreditation of the American Speech-Lanugage-Hearing Association	Documents	Spring 2017	Dr. Vicki Hammen
Counseling	American	Documents	2015 (accredited)	

Psychology Ph.D.	Psychological Association		inactive)	
School Psychology Ph.D.	American Psychological Association (National Association of School Psychologists in concert with APA for the Ph.D)	Documents	2019	Dr. Leah Nellis
School Psychology Ed.S.	National Association of School Psychologists	Documents	2020	Dr. Carrie Ball
College of Health and Human Services				
Athletic Training B.S.	Commission on Accreditation of Athletic Training Education (CAATE)	Documents	2020-2021	Dr. Marie Pickerill
Athletic Training M.S.	Commission on Accreditation of Athletic Training Education (CAATE)	Documents	2012-2013	Dr. Lindsey Eberman
Dietetics, B.S. and M.S.	Accreditation Council for Education in Nutrition and Dietetics	Documents	2016	Dr. Eliezer Bermudez
Doctor of Nursing Practice	Accreditation Commission for Education in Nursing (ACEN)	Documents	Fall 2017	Dr. Lea Hall
Doctor of Physical Therapy	Commission on Accreditation in Physical Therapy Education (CAPTE)	Documents	Fall 2017	Dr. Howell Tapley
Exercise Science, B.S.	National Strength and Conditioning Association (NSCA)	Documents	May 2014	Dr. John Pommier
Human Development and Family Studies, B.S.	American Association of Family and Consumer Sciences	Documents	2013	Dr. Eliezer Bermudez
Nursing, B.S.	Accreditation Commission for Education in Nursing (ACEN) and Indiana State Board of Nursing (ISBN)	Documents	Spring 2022	Dr. Lea Hall

Nursing, Accelerated Second Degree, B.S.	Accreditation Commission for Education in Nursing (ACEN) and Indiana State Board of Nursing (ISBN)	Documents	Spring 2022	Dr. Lea Hall
Nursing, Continuing Education	American Nurses Credentialing Center (ANCC) of the American Nurses Association	Documents		Dr. Lea Hall
Nursing, M.S.	Accreditation Commission for Education in Nursing (ACEN)	Documents	Fall 2019	Dr. Lea Hall
Occupational Therapy, MSOT	Accreditation Council for Occupational Therapy Education (ACOTE)	Documents	Candidacy Status 2014	Dr. Jeanne Sowers
Physician Assistant Program, MSPAS	Accreditation Review Commission on Education for the Physician Assistant (ARC-PA)	Documents	September 2020	Dr. Russel Coutinho
Social Work, BSW	Council on Social Work Education (CSWE)	Documents	2016	Dr. Paul Duong Tran
Social Work, MSW	Council on Social Work Education (CSWE)	Documents	Candidacy Status	Dr. Paul Duong Tran
Sport Management, B.S	The North American Society for Sport Management	Documents	2014	Dr. John Pommier
College of Technology				
Advanced Manufacturing Management, B.S.	The Association of Technology, Management and Applied Engineering (ATMAE)	Documents	2016	Dr. M. Affan Badar
Automotive Engineering Technology, B.S.	ATMAE	Documents	2016	Dr. M. Affan Badar
Computer Engineering Technology, B.S.	ATMAE Engineering Technology Accreditation Commission of ABET	Documents	2016 2015-16	Dr. Joe Ashby or Dr. Yuetong Lin
Construction Management, B.S.	American Council for Construction	Documents	2018	Dr. Lee Ellingson

	Education			
Electronics Engineering Technology, B.S.	ATMAE	Documents	2016	Dr. Joe Ashby
Occupational Safety Management, M.S.	ATMAE	Documents	2016	Dr. Ernest Sheldon
Interior Architecture Design Program, B.S.	Council for Interior Design Accreditation National Kitchen & Bath Association	Documents	2017 2017	Ms. Mary Sterling
Mechanical Engineering Technology, B.S.	Engineering Technology Accreditation Commission of ABET	Documents	2016	Dr. M. Affan Badar
Packaging Engineering Technology, B.S.	ATMAE	Documents	2016	Dr. M. Affan Badar
Safety Management, B.S.	ATMAE	Documents	2016	Dr, Ernest Sheldon
Technology Mangement, B.S.	ATMAE	Documents	2016	Dr. M. Affan Badar

<http://www.indstate.edu/accreditation/>

2. Type of Control

STATE OF INDIANA AUTHORIZATION

Indiana State University was established in 1865 by the Indiana General Assembly as the Indiana State Normal School. In 1929, it was renamed Indiana State Teachers College, and in 1961 was renamed Indiana State College. Finally, in 1965, the Indiana General Assembly renamed the institution as Indiana State University. The Indiana Commission of Higher Education has approved the programs offered through the Doctoral Level at Indiana State University and reviews all programs and makes recommendations to the Indiana General Assembly and Governor regarding the funding and disposition of those programs.

Indiana State University is an Indiana institution of higher education under the general control of a board of trustees, known and designated as the Indiana State University Board of Trustees. Other state boards, offices and agencies exercise certain statutory controls and have specified duties and responsibilities pertaining to the operation of the University. The Board of Trustees bylaws are located in Section 225 and the Board policies and procedures are located in Section 226 of the Handbook.

Description of the type of managerial control of the institution, e.g., private-non-profit, private-other, denominational, state, federal, public-other, etc

3. Educational Unit

Describe the educational unit in which the program is located including the administrative chain of responsibility from the individual responsible for the program to the chief executive officer of the institution. Include names and titles. An organization chart may be included.

While the faculty plural has primary authority over the curriculum, the responsibility of administering the faculty wishes falls first to the department chair.

The PET Program is housed in the Department of Applied Engineering and Technology Management along with eight other programs.

Department of Applied Engineering and Technology Management

Bachelor of Science degrees in:

1. Automotive Engineering Technology
2. Civil Engineering Technology
3. Engineering Technology with concentrations in Automotive, Mechanical, Electrical, Computer, and Packaging
4. Manufacturing Engineering Technology
5. Mechanical Engineering Technology
6. Packaging Engineering Technology
7. Technology and Engineering Education
8. Technology Management

Master of Science degree in:

9. Technology Management

Following a national search, Randy Peters has been appointed as the new AETM department chair beginning in August 2015.

The AETM Department is one of six units reporting to the Dean of the College of Technology.

Departments within the College of Technology

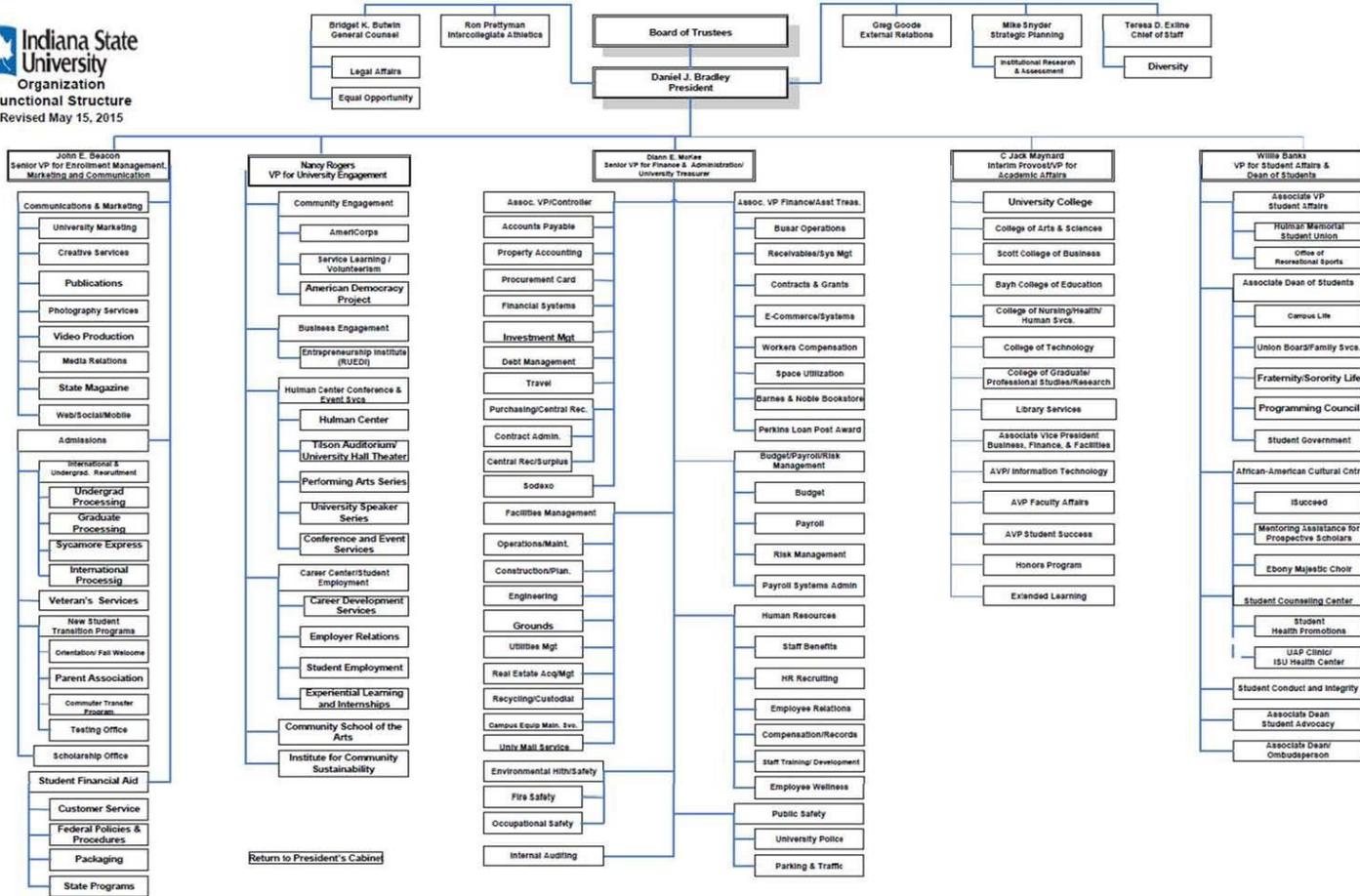
1. AETM
2. Aviation
3. Built
4. ECET – Electronics & Computer Engineering Technology
5. HRDPT – Human Resources Development and Performance Training
6. Air Force/Army ROTC

Robert English is the Dean of the College of Technology

Troy Allen is the Associate Dean focusing on curriculum, assessment and accreditation

Kara Harris is the Associate Dean focusing on undergraduate student services

The College of Technology Dean reports to the Provost and Vice President for Academic Affairs. The Interim Provost is Jack Maynard. The organizational chart on the next page includes completes the administrative structure of the university.



7. Academic Support Units

For supporting courses within the College of Technology

Electronics

Dr. Joe Ashby, Chairperson Department of Electronics and Computer Engineering
Technology College: Technology 2010
Joe.Ashby@indstate.edu

Foundational Studies

Dr. Andrew Payne, Chairperson Department of Built Environment College: Technology
2013
Andrew.Payne@indstate.edu

Dr. Cynthia L. Crowder, Chairperson Department of Human Resource Development and
Performance Technologies College: Technology 2010
Cindy.Crowder@indstate.edu

For supporting courses within Physics and Chemistry

Dr. Eric Glendenning, Chairperson Department of Chemistry and Physics College: Arts and
Sciences 2007
Eric.Glendenning@indstate.edu

For supporting courses within Mathematics

Dr. Elizabeth M. Brown (Arvana Edwards) Department of Mathematics and Computer Science
College: Arts and Sciences 2014
Liz.Brown@indstate.edu

For Foundational Studies courses, students have options to choose a variety of courses meeting the particular foundational studies category requirements. Virtually every one of the units on campus has at least one foundational study course that a student could take.

8. Non-academic Support Units

Ms. Valentine Muyumba, Chairperson Department of Technical Services
College: Library Services 2009
Valentine.Muyumba@indstate.edu

Mr. Stephen A. Patton, Chairperson Department of Library Systems
College: Library Services 2013
Stephen.Patton@indstate.edu

Mr. Bria Bunnett, Chairperson Department of Public Services
College: Library Services 2013
Brian.Bunnett@indstate.edu

Ms. Cinda May, Chairperson
Department of Special Collections
College: Library Services 2008
Cinda.May@indstate.edu

9. Credit Unit

At ISU one semester credit normally represents one class hour or two laboratory contact hours per week for 15 weeks. One academic year normally represents at least 28 weeks of classes, exclusive of final examinations.

Indiana State University's Curriculum Approval Process (CAPs) manual provides the following guidance for course credits.

Federal Credit Hour Definition: A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates not less than:

- (1) one hour of classroom or direct faculty instruction and a minimum of 2 hours of out-of-class student work each week for approximately fifteen weeks for one semester or 16 trimester of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different period of time; or
- (2) at least an equivalent amount of work as required in paragraph (1) of this definition for other activities as established by an institution, including laboratory work, internships, practica, studio work, and other academic work leading toward the award of credit hours

10.Tables

Table D-1. Program Enrollment and Degree Data

Packaging Engineering Technology

enrollment figures (head count) for the current and preceding four academic years and undergraduate and erred during each of those years. The "current" year means the academic year preceding the on-site visit.

	Academic Year		Enrollment Year					Total Undergraduate	Total Graduate	Degrees Awarded			
			1st	2nd	3rd	4 th	5th			Associates	Bachelors	Masters	Doctorates
Current Year	2014-2015	FT		4	9	5	5	23	N/A	N/A	N/A	N/A	N/A
		PT	1	1				2					
1	2013-2014	FT	3	5	9	4		21	N/A	N/A	N/A	N/A	N/A
		PT	1		2	1		4					
2	2012-2013	FT	3	5	6			14	N/A	N/A	N/A	N/A	N/A
		PT	2					2					
3	2011-2012	FT	7	2				9	N/A	N/A	N/A	N/A	N/A
		PT	1					1					
4	2010-2011	FT							N/A	N/A	N/A	N/A	N/A
		PT											

FT=Full Time
PT=Part Time

Table D-2. Personnel

Packaging Engineering Technology

Year¹: Fall 2014

	HEADCOUNT		FTE ²
	FT	PT	
Administrative	.5		.5
Faculty (tenure-track)³	1		1.0
Other faculty (excluding student assistants)	10		2.0
Student Teaching Assistants⁴			1.0
Technicians/Specialists	1		
Office/Clerical Employees	1		
Others⁵			

There is one faculty member to teach seven PET specific courses that roll out once every two years. There is often one lab assistant, student worker assigned to work with packaging courses. There are ten other courses in the program that are taught by AETM department faculty. The PET program receives administrative/office/clerical help from the one department chair and one administrative assistant for the AETM department.

Report data for the program being evaluated.

1. Data on this table should be for the fall term immediately preceding the visit. Updated tables for the fall term when the ABET team is visiting are to be prepared and presented to the team when they arrive.
2. Persons holding joint administrative/faculty positions or other combined assignments should be allocated to each category according to the fraction of the appointment assigned to that category.
3. For faculty members, 1 FTE equals what your institution defines as a full-time load
4. For student teaching assistants, 1 FTE equals 20 hours per week of work (or service). For undergraduate and graduate students, 1 FTE equals 15 semester credit-hours (or 24 quarter credit-hours) per term of institutional course work, meaning all courses — science, humanities and social sciences, etc.
5. Specify any other category considered appropriate, or leave blank.

Signature Attesting to Compliance

By signing below, I attest to the following:

That _____ (*Name of the program(s)*) has conducted an honest assessment of compliance and has provided a complete and accurate disclosure of timely information regarding compliance with ABET's *Criteria for Accrediting Engineering Technology Programs* to include the General Criteria and any applicable Program Criteria, and the *ABET Accreditation Policy and Procedure Manual*.

Dean: Robert E. English

Signature

Date