

School of Packaging Assessment Progress Report 5/28/15

Due by May 29, 2015 to Kelly Funk, Director of Academic Assessment, Program Review, and Accreditation (funkk@msu.edu)

Assessment of Student Learning: Undergraduate Degree and Certificate Programs (Complete this form for each program)

College: _____ College of Agriculture and Natural Resources _____

Academic Department: _____ School of Packaging _____

Program: _____ Bachelor of Science _____

(Please do not use initials)

Is this a Certificate Program? _____ Yes _____x_____ No

Program Type: _____x_____ On-campus _____ On-line _____ Off-campus

(Choose on-line or off-campus only if a student can complete 50% or more of the program requirements in these ways).

Learning Outcome	Students will be able to analyze marketing needs for packaging
Institutional Outcome*	AT2, IG2
Student Work	Capstone project report (PKG 485) marketing section Performance on internship
Analysis	A 5-point scale rubric is used to evaluate the marketing section of capstone reports. The average class score is computed as a benchmark, and then examples of good, bad and average sections will be reviewed at an end-of-the-year faculty curriculum meeting. Employers will evaluate the performance of interns in analyzing marketing needs for packaging. Midterm and final "work performance evaluations" will be reviewed by internship coordinator and then examples of good, average and poor evaluations will be reviewed at an end-of-the-year faculty curriculum meeting.
Results	The plan has been accepted, and will be implemented next year (2015-16).
Actions	Proposed addition of two new courses, one to

	“introduce” (product packaging course) and another to “practice” (virtual and physical packaging development course). The former will be added in the future when resources become available. See table below.
Effectiveness of Changes	See “Additional Information” below.

Learning Outcomes associated with package design	Students will be able to -design packaging systems to meet a specific product's requirements -evaluate and choose appropriate package design -create innovative packaging design.
Institutional Outcome*	AT1, AT2, AT3, IG1
Student Work	Introduced in materials courses (PKG 221, 322, 323) and practiced in Distribution Packaging Dynamics (PKG 410). Summative: capstone project report (PKG 485) marketing section and performance on internship
Analysis	A 5-point scale rubric is used to evaluate the designs in materials courses and capstone course. The average class score is computed as a benchmark, and then examples of good, bad and average sections will be reviewed at an end-of-the-year faculty curriculum meeting. Employers will evaluate the performance of interns in terms of packaging design. Midterm and final “work performance evaluations” will be reviewed by internship coordinator and then examples of good, average and poor evaluations will be reviewed at an end-of-the-year faculty curriculum meeting.
Results	The plan has been accepted, and will be implemented next year (2015-16).
Actions	Major curriculum review; see “Additional Information” below.
Effectiveness of Changes	See “Additional Information” below.

Learning Outcome	Student will be able to formulate a project plan
Institutional Outcome*	AT3, EC1
Student Work	Introduced in PKG 315 Summative: capstone project report (PKG 485) marketing section and performance on internship
Analysis	A 5-point scale rubric is used to evaluate project plans in materials courses and capstone course. The average class score is computed as a

	benchmark, and then examples of good, bad and average sections will be reviewed at an end-of-the-year faculty curriculum meeting. Employers will evaluate the performance of interns in formulating a project plan. Midterm and final “work performance evaluations” will be reviewed by internship coordinator and then examples of good, average and poor evaluations will be reviewed at an end-of-the-year faculty curriculum meeting.
Results	The plan has been accepted, and will be implemented next year (2015-16).
Actions	Addition of a new course (virtual and physical packaging development course) to “practice”. See table below.
Effectiveness of Changes	See “Additional Information” below.

Learning Outcome	Student will be able to estimate financial implications of packaging decisions
Institutional Outcome*	AT1, AT2, AT3,
Student Work	Introduced in materials and process classes (PKG 221, 322, 323, 432) Summative: capstone project report (PKG 485) marketing section and performance on internship
Analysis	A 5-point scale rubric is used to financial evaluations in materials courses and capstone course. The average class score is computed as a benchmark, and then examples of good, bad and average sections will be reviewed at an end-of-the-year faculty curriculum meeting. Employers will evaluate the performance of interns in estimating financial implications of packaging decisions. Midterm and final “work performance evaluations” will be reviewed by internship coordinator and then examples of good, average and poor evaluations will be reviewed at an end-of-the-year faculty curriculum meeting.
Results	The plan has been accepted, and will be implemented next year (2015-16).
Actions	Modification of one of the courses offered on a regular basis (PKG 315) to “practice”. See table below.
Effectiveness of Changes	See “Additional Information” below.

Learning Outcome	Student will be able to evaluate tradeoffs and create optimized packaging for distribution Student will be able to recommend a test protocol
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	for a packaged product
Institutional Outcome*	AT1, AT2, AT3
Student Work	Practiced in distribution dynamics (PKG 410) Summative: capstone project report (PKG 485) marketing section and performance on internship
Analysis	A 5-point scale rubric is used to evaluate performance in PKG 410 and sections on distribution and testing in the capstone reports. The average class score is computed as a benchmark, and then examples of good, bad and average sections will be reviewed at an end-of-the-year faculty curriculum meeting. Employers will evaluate the performance of interns in evaluating tradeoffs and creating optimized packaging for distribution as well as recommending test protocols. Midterm and final “work performance evaluations” will be reviewed by internship coordinator and then examples of good, average and poor evaluations will be reviewed at an end-of-the-year faculty curriculum meeting.
Results	The plan has been accepted, and will be implemented next year (2015-16).
Actions	Proposed addition of a new course (product packaging course) to “introduce”. The course will be added in the future when resources become available. See table below.
Effectiveness of Changes	The course will be added in the future when resources become available.

Learning Outcome	Student will be able to appraise package for regulatory compliance
Institutional Outcome*	AT1, EC1, EC2
Student Work	Summative: capstone project report (PKG 485) regulation section and performance on internship
Analysis	A 5-point scale rubric is used to regulation section in capstone report. The average class score is computed as a benchmark, and then examples of good, bad and average sections will be reviewed at an end-of-the-year faculty curriculum meeting. Employers will evaluate the performance of interns in regulation. Midterm and final “work performance evaluations” will be reviewed by internship coordinator and then examples of good, average and poor evaluations will be reviewed at an end-of-the-year faculty curriculum meeting.
Results	The plan has been accepted, and will be implemented next year (2015-16).
Actions	Proposed addition of two new courses, one to

	“introduce” (product packaging course) and another “to practice” (virtual and physical packaging development course). The former will be added in the future when resources become available. See table below.
Effectiveness of Changes	See “Additional Information” below.

Learning Outcomes associated with packaging materials	Students will be able to: -apply and interpret material tests. -specify materials and containers (including reading, writing and interpreting) -evaluate sustainability and end of life handling of packaging systems
Institutional Outcome*	AT3, ECO1, EC02
Student Work	Introduced in materials courses (PKG 221, 322, 323). Practiced in decision systems course (PKG 315). Summative: capstone project report (PKG 485) marketing section and performance on internship
Analysis	5-point scale rubrics are used to evaluate performance in materials courses, decision systems course and the material selection, specification and sustainability sections of capstone course. The average class score is computed as a benchmark, and then examples of good, bad and average sections will be reviewed at an end-of-the-year faculty curriculum meeting. Employers will evaluate the performance of interns in applying and interpreting material tests, specifying materials and containers, and evaluating sustainability and end of life handling of packaging systems. Midterm and final “work performance evaluations” will be reviewed by internship coordinator and then examples of good, average and poor evaluations will be reviewed at an end-of-the-year faculty curriculum meeting
Results	The plan has been accepted, and will be implemented next year (2015-16).
Actions	Addition of a new course (virtual and physical packaging development course) to “practice”. Modification of one of the courses offered on a regular basis (PKG 315) to “practice”. See table below.
Effectiveness of Changes	See “Additional Information” below.

Learning Outcome	Students will be able to evaluate machinery needs, acceptable models for use and appraise appropriateness of packaging containers for intended filling operations
Institutional Outcome*	AT1, AT3, AT4
Student Work	Introduced in materials courses (PKG 221, 322, 323) Practiced in process course (PKG 432) Capstone project report (PKG 485) packaging line / machinery section Performance on internship
Analysis	A 5-point scale rubric is used to evaluate performance in the materials and process courses, the packaging line section of capstone reports. The average class score is computed as a benchmark, and then examples of good, bad and average sections will be reviewed at an end-of-the-year faculty curriculum meeting. Employers will evaluate the performance of interns in evaluating machinery needs, acceptable models for use and appraise appropriateness of packaging containers for intended filling operations. Midterm and final "work performance evaluations" will be reviewed by internship coordinator and then examples of good, average and poor evaluations will be reviewed at an end-of-the-year faculty curriculum meeting.
Results	The plan has been accepted, and will be implemented next year (2015-16).
Actions	N/A
Effectiveness of Changes	N/A

Learning Outcome	Students will use a variety of media to communicate effectively with diverse audiences in diverse situations
Institutional Outcome*	EC01, EC02
Student Work	Practiced in Decision Systems (PKG 315) Summative: Capstone project written report (PKG 485) and oral presentations. Performance on internship
Analysis	A 5-point scale rubric is used to evaluate performance in reports and presentations. In the capstone course, midterm presentations are videotaped and students analyze their own performance, final presentations are evaluated by clients and instructor. The average class score is computed as a benchmark, and then examples of

	good, bad and average reports will be reviewed at an end-of-the-year faculty curriculum meeting. Employers will evaluate the performance of interns in presenting results both orally and in writing. Midterm and final “work performance evaluations” will be reviewed by internship coordinator and then examples of good, average and poor evaluations will be reviewed at an end-of-the-year faculty curriculum meeting.
Results	The plan has been accepted, and will be implemented next year (2015-16).
Actions	Addition of a new course (Freshman Seminar and Project (PKG 102)) to “introduce”. See table below.
Effectiveness of Changes	See “Additional Information” below.

Learning Outcome	Students understand professional and ethical responsibility
Institutional Outcome*	EC1, EC2, CU1
Student Work	Capstone course exercise (PKG 485) Performance on internship
Analysis	A 5-point scale rubric is used to evaluate capstone course exercise. The average class score is computed as a benchmark, and then examples of good, bad and average performance will be reviewed at an end-of-the-year faculty curriculum meeting. Employers will evaluate the performance of interns in understanding professional and ethical responsibility. Midterm and final “work performance evaluations” will be reviewed by internship coordinator and then examples of good, average and poor evaluations will be reviewed at an end-of-the-year faculty curriculum meeting.
Results	The plan has been accepted, and will be implemented next year (2015-16).
Actions	Addition of a new course (Freshman Seminar and Project (PKG 102)) to “introduce”. Modification of one of the courses offered on a regular basis (PKG 315) to “practice”. See table below.
Effectiveness of Changes	See “Additional Information” below.

Learning Outcome	Students will be able to apply science, engineering, technology, math, social science, business and humanities/arts to packaging related problems
Institutional Outcome*	AT1, AT2, AT3, IG2
Student Work	Introduced in PKG 221, 322, 323

	Practiced in PKG 410 and 411 Summative: PKG 485
Analysis	A 5-point scale rubric is used to evaluate coursework. The average class score is computed as a benchmark, and then examples of good, bad and average performance will be reviewed at an end-of-the-year faculty curriculum meeting. Employers will evaluate the capability of interns to apply science, engineering, technology, math, social science, business and humanities/arts to packaging related problems. Midterm and final “work performance evaluations” will be reviewed by internship coordinator and then examples of good, average and poor evaluations will be reviewed at an end-of-the-year faculty curriculum meeting.
Results	The plan has been accepted, and will be implemented next year (2015-16).
Actions	N/A
Effectiveness of Changes	N/A

Learning Outcome	Students will be able to solve complex problems for which the solutions are not apparent; think critically, ethically and strategically.
Institutional Outcome*	AT1, AT2, AT3, AT4, EC2, IG1, IG2
Student Work	PKG 485 capstone project and internship
Analysis	A 5-point scale rubric is used to evaluate capstone performance. The average class score is computed as a benchmark, and then examples of good, bad and average performance will be reviewed at an end-of-the-year faculty curriculum meeting. Additionally, the average class score will be compared to previous average class scores (e.g., previous two semesters). Employers will evaluate the capability of interns to solve complex problems. Midterm and final “work performance evaluations” will be reviewed by internship coordinator and then examples of good, average and poor evaluations will be reviewed at an end-of-the-year faculty curriculum meeting.
Results	The plan has been accepted and will be implemented next year.
Actions	Proposed addition of two new courses, one to “introduce” (Freshman Seminar and Project (PKG 102)) and another “to practice” (product packaging course). The latter will be added in the future when resources become available. See table below.

Effectiveness of Changes	See "Additional Information" below.
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Learning Outcome	Students will be able to work in diverse cross-functional teams to achieve common goals and objectives Students will be able to lead and manage projects to successful outcomes
Institutional Outcome*	AT2, AT3, AT4, CU1, CU2, EC02, IG2
Student Work	Teamwork in lab courses (PKG 322, 323, 410, 411, 432), capstone course, and internships.
Analysis	A 5-point scale rubric is used to evaluate team performance. The average class score is computed as a benchmark, and then examples of good, bad and average performance will be reviewed at an end-of-the-year faculty curriculum meeting. Employers will evaluate the teamwork capability and leadership of the interns. Midterm and final "work performance evaluations" will be reviewed by internship coordinator and then examples of good, average and poor evaluations will be reviewed at an end-of-the-year faculty curriculum meeting.
Results	The plan has been accepted and will be implemented next year.
Actions	N/A
Effectiveness of Changes	N/A

Learning Outcome	Students are empowered to tackle a professional career.
Institutional Outcome*	AT2, AT3, EC2, IG1, IG2
Student Work	PKG 315, 485 and Internships
Analysis	Employers evaluate interns, and examples of good, bad and average performance will be reviewed at an end-of-the-year faculty curriculum meeting
Results	The plan has been accepted and will be implemented next year.
Actions	N/A
Effectiveness of Changes	N/A

Learning Outcome	Students will be able to evaluate their learning experiences and apply them to future professional goals
Institutional Outcome*	AT2, AT3, EC2, IG1, IG2
Student Work	PKG 485 and Internships
Analysis	Employers evaluate interns, and examples of good, bad and average performance will be reviewed at

	an end-of-the-year faculty curriculum meeting
Results	The plan has been accepted and will be implemented next year.
Actions	Modification of one of the courses offered on a regular basis (PKG 315) to “introduce”. Addition of a new course (virtual and physical packaging development course) to “practice”. See table below.
Effectiveness of Changes	See “Additional Information” below.

Learning Outcome	Students will be able to apply a global perspective to decision-making
Institutional Outcome*	EC1, EC2, IG2
Student Work	PKG 485 and internship. Also overseas study (optional)
Analysis	This is a major gap
Results	The plan has been accepted and will be implemented next year.
Actions	Addition of two new courses, one to “introduce” (Freshman Seminar and Project (PKG 102)) and another “to practice” (product packaging course). The latter will be added in the future when resources become available. See table below.
Effectiveness of Changes	See “Additional Information” below.

Additional Information (Optional): Use this space to provide any additional information about the assessment processes in your program.

As a result of generating and mapping learning outcomes to courses, a number of gaps were identified, where outcomes are only targeted in the senior courses, and in some cases only in PKG 485 (the capstone course) and optional internship.

This analysis has led to a major curriculum revision to introduce and practice some outcomes in an earlier courses that will result in two new course proposals. PKG 102 (Freshman Seminar and Project) will introduce learning outcomes dealing with innovation, communication and problem-solving. The new PKG 486 is proposed to separate the capstone project from the content in PKG 485 (Packaging Development) related to new product development, ideation, project planning, teamwork, marketing and supply chain analysis, financial evaluation, ethics, patents and regulatory compliance. Additionally, a produce-packaging course is needed to introduce learning outcomes dealing with analysis, development, and evaluation, and to practice learning outcomes dealing with design, problem solving, and application. This course will be added in the future when resources become available.

Major changes have also been proposed to PKG 315 (Packaging Decision Systems) to include economic analysis and sustainability analysis.

In addition, two concentrations have been proposed, Packaging Science and Packaging Management, as well as a Package Engineering program that would be jointly administered in CANR and Engineering.

These curriculum changes were approved by the Voting Faculty in the School of Packaging in April, 2015, and will progress through college and university governance in Fall 2015. Pending adoption, these courses will be added to the assessment program, associated with introduction and practice levels of learning outcomes, along with a rubric for assessment. The capstone project and internship performance will remain the “summative” learning outcome assessments.

In addition, the following assessment tools are being used:

1. Employment status of graduates/alumni: Annual review of statistics, % internships, % employed and salaries
 - a. Over 90% take internships, 90% employed in the first year and average salary is currently over \$55,000.
2. Feedback from Industry Advisory Board and MSU Packaging Alumni Association
 - a. They helped to form our list of learning objectives, and expect to hear of outcome assessment progress
3. Senior exit interviews
 - a. Began in Spring 2015.

Key to the plan is a new annual curriculum meeting in the Spring to review progress. The first will be held in Spring 2016.

While we have not yet measured the effectiveness of changes will be for the student experience, the process of identifying outcomes and mapping the curriculum has been very fruitful in revealing gaps that we can effectively bridge. The Appendix presents a summary.

***Institutional Learning Outcomes**

Below are the institutional level Undergraduate Learning Goals and their associated dimensions. Use the code on the associated with each dimension to complete the template.

Analytical Thinking

AT1: Acquires, analyzes, and evaluates information from multiple sources

AT2: Synthesizes and applies information within and across disciplines

AT3: Identifies and applies, as appropriate, quantitative methods for defining and responding to problems

AT4: Identifies the credibility, use and misuse of scientific, humanistic and artistic methods

Cultural Understanding

CU1: Reflects on experiences with diversity to demonstrate knowledge and sensitivity

CU2: Demonstrates an awareness of how diversity emerges within and across cultures

Effective Citizenship

EC1: Understands the structures of local, national, and global governance systems and acts effectively within those structures in both individual and collaborative ways

EC2: Applies knowledge and abilities to solve societal problems in ethical ways

Effective Communication

ECO1: Identifies how contexts affect communication strategies and practices

ECO2: Engages in effective communication practices in a variety of situations with a variety of media

Integrated Reasoning

IG1: Critically applies liberal arts knowledge in disciplinary contexts and disciplinary knowledge in liberal arts contexts

IG2: Uses a variety of inquiry strategies incorporating multiple views to make value judgments, solve problems, answer questions, and generate new understanding

Attachment: School of Packaging Outcome Assessment Version 4-30-2015

Table 1: Assessment tools for the undergraduate program learning objectives

Method	Previous assessment	Proposed assessment
Employment status of graduates/alumni	Annual review of statistics, % internships, % employed and salaries	Percentage that take internships, percentage employed in the first year, average salary
Internship employer feedback	Midterm and final "work performance evaluations" reviewed by internship coordinator	Employer feedback for the student intern's level of skill in general and technical outcomes. Coordinator will select good, average and poor evaluations to present at end-of-year faculty meeting.
Course-embedded performance	Grades in core courses	Direct assessment of technical outcomes associated with each course to be evaluated in assignments and/or test questions. Instructors will select good, average and poor performance to present at end-of-year faculty meeting.
Capstone course team project performance	Grades on team projects	Rubrics based on general and technical outcomes to be incorporated in team grades. Instructor will select good, average and poor examples to present at end-of-year faculty meeting.
Senior exit survey	Self-evaluation of skills to achieve course learning objectives (suspended in 2012), now none	Select some students for interviews, with high, average and low grades; results reported at end-of-year faculty meeting.
Industry Advisory Board feedback	None, but they helped to develop the objectives	We will present annual summary of outcome assessment and corrective actions to these important stakeholder groups and get their feedback too.
PAA Alumni feedback	None except informal	
Annual Spring curriculum review meeting	none	Document and assess outcomes from core courses, internship employers, exit surveys, PAA and IAB. Plan for improvement next year.

Selected Learning Outcomes and PKG courses in which they are introduced, practiced, and summatively assessed

Learning Outcomes: Students will be able to:	Introduce	Practice	Summative
1. Analyze marketing needs for packaging			485 & internship
2. Design packaging systems to meet a specific product's requirements	221, 322, 323		485 & internship
3. Evaluate and choose appropriate package design	221, 322, 323	411	485 & internship
4. Create innovative packaging design		411	485 & internship
5. Formulate a project plan	315		485 & internship
6. Estimate financial implications of packaging decisions	221, 322, 323, 432		485 & internship
7. Evaluate tradeoffs and create optimized packaging for distribution		410	485 & internship
8. Appraise packages for regulatory compliance			485 & internship
9. Recommend a test protocol for a packaged product		410	485 & internship
10. Apply and interpret material tests	221, 322, 323		485 & internship
11. Specify materials and containers (including reading, writing and interpreting)	221, 322, 323	315	485 & internship
12. Evaluate machinery needs, acceptable models for use and appraise appropriateness of packaging containers for intended filling operations	221, 322, 323	432	485 & internship
13. Evaluate sustainability and end of life handling of packaging systems	221, 322, 323		485 & internship
14. Use a variety of media to communicate effectively with diverse audiences in diverse situations		315	485 & internship
15. Student are empowered to tackle professional career	315	internship	Get a job!
16. Understand professional and ethical responsibility			485 & internship
17. Apply science, engineering, technology, math, social science, business and humanities/arts to packaging related problems	221, 322, 323	410, 411	485 & internship
18. Solve complex problems for which the solutions are not apparent; think critically, ethically and strategically.			485 & internship
19. Work in diverse cross-functional teams to achieve common goals and objectives	Lab teams in 322, 323	410, 411, 432	485 & internship
20. Lead and manage complex projects to successful outcomes	315		485 & internship
21. Apply a global perspective to decision-making			485 & internship
22. Evaluate learning experiences & apply them to future professional goals			485 & internship
Proposed PKG 102 project/seminar course			
Proposed changes to PKG 315			
Proposed product packaging course (this will be offered when resources become available)			
Proposed virtual & physical packaging development course, will also include some of PKG 485 content and Tier II Writing status			