Gallatin College Annual Assessment Reports

Each Workforce Program Director at Gallatin College has reviewed a third of their Program Outcomes annually starting in Fall 2014. Though they have tracked this differently, each program used the spreadsheets below that link each outcome with a sample assessment showing how and where the outcome is met within the program. Because there are multiple assignments linked with each outcome in each program only sample assignments are included below, but additional samples may be reviewed upon request.

1. Associate of Applied Science (AAS) in Aviation

Aviation Program Outcomes:

1. Apply knowledge in aviation to adapt to emerging aviation trends.
2. Conduct themselves professionally and ethically.
3. Understand and analyze the role of aviation safety and human factors to the aviation industry.
4. Describe meteorology as it relates to aviation.
5. Independently fly and safely operate airplanes for which they are rated.
6. Demonstrate an understanding and the appropriate application of aeronautical principles, design characteristics, and operational limitations, for a variety of aircraft as it relates to the student's career goals.
7. Communicate effectively using both written and verbal skills.
8. Demonstrate proficiency in math computation for aviation and modern society.
9. Demonstrate effective skills in the use of computers and aviation related technology

Assessment Schedule:

	Year					
Outcome	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**	**2019-2020**
1	**x**			**X**		
2	**x**			**X**		
3	**x**			**x**		
4		**X**			**X**	
5		**X**			**X**	
6		**X**			**X**	
7			**x**			**x**
8			**x**			**x**
9			**X**			**X**

Aviation Program Outcome Assessment

Student assessment in the aviation program must take a multi-pronged approach. This approach is needed as there are two sets of standards that aviation students must meet. Those set by the Federal Aviation Administration (FAA), and the much higher standard demanded by employers and the aviation industry. As the director of the Gallatin College Aviation Program, it is my policy that the training standard for this program meet those demanded by employers and the aviation industry and assess aviation students to that higher standard. In this section I have provided examples of student assessment showing that the aviation curriculum meets the standards set by the FAA as well as evidence of student learning meeting the standard set forth for the GC aviation program. I have removed any personal student information which may have appeared on the included documents.

1. What Was Done

Based on our assessment plan, we assessed learning outcomes 7, 8, 9 this year:

7. Communicate effectively using both written and verbal skills.
8. Demonstrate proficiency in math computation for aviation and modern society.
9. Demonstrate effective skills in the use of computers and aviation related technology

NOTE: Since almost all Aviation students take COMX 115 Interpersonal Communication, we partnered with the AA/AS Gen. Ed. program assessment for communication assessment (see results below).

2016-2017 Outcomes Reviewed:

Aviation – AAS Degree		Program Outcomes		
Course	**Cr**	**7**	**8**	**9**
AVFT 121 – Private Pilot – Fundamentals	5	D	D	I
AVFT 122 – Private Pilot – Flight	2			I
AVFT 130 – Meteorology for Aviation	3		I	I
CAPP 120 – Intro to Computers	3	I	I	I
AVFT 141 – Advanced Navigation Systems	3			M
AVFT 143 – Instrument Ground	3			D
AVFT 142 – Instrument Flight	2			D
AVFT 150 – Aviation Operations	3	D		
AVFT 171 – Aircraft Systems for Pilots	3			
AVFT 245 – Commercial Ground	3	D	D	M
AVFT 250 – Commercial Flight 1 Single Engine	2			M
AVFT 252 – Commercial Flight 1 Multi Engine	2			M
AVFT 260 – Aviation Safety	3	D		D
AVFT 251 – Commercial Flight 2 Single Engine	2			
AVFT 261 – Flight Instructor Theory	4	M	M	M
AVFT 262 – Advanced Aircraft Theory	3	M	D	M
AVFT 263 – Aviation Regulations and Prof. Conduct	3	M		

Performance Thresholds:

I: Introductory Level		D: Developing Level		M: Mastery Level	
Knowledge	**Comprehension**	**Application**	**Analysis**	**Synthesis**	**Evaluation**
Defines	Comprehends	Applies	Analyzes	Categorizes	Concludes
Describes	Distinguishes	Computes	Compares	Composes	Critiques
Identifies	Interprets	Demonstrates	Contrasts	Creates	Defends
Knows	Summarizes	Prepares	Distinguishes	Devises	Evaluates
Lists		Solves		Designs	Interprets
Recognizes				Modifies	Justifies

2. What Data Were Collected

OUTCOME 7: Communication

Written communication: COMX 115

In the fall 2016 semester there were 22 students enrolled in COMX 115 Interpersonal Communications. During the semester, the instructor randomly selected 20% of her class essays, resulting in a sample of 4 writing assignments.

AVFT 143 – Instrument Ground Student research paper (sample assessments as separate document)

This paper is a great tool to assess writing and critical thinking skills. One of the requirements for this assignment is to provide a reflection on two preselected questions that provide an opportunity for students offer their own thoughts and opinions and not just the dry facts of the incident.

AVFT 121 – Chapter 4 "Runway Incursion" assignment (sample assessments as separate document)

Assignment objective is to create awareness of the potential danger of runway incursion and for students to begin to focus on runway incursion avoidance.

AVFT 121 – Chapter 8 Weight and Balance Charts (sample assessments as separate document)

Use BZN airport and AF/D legend to introduce and thoroughly review AF/D use. Cover Table and Chart performance graphs.

One minute paper: This type of formative assessment is a simple and valuable exercise to gauge the effectiveness of a particular day's lesson plan. This assessment also functions as a quick method for student feedback that can help to reveal areas of weakness in a specific lesson for individual students.

Oral communication: COMX 115 Student Presentations

The instructor also assessed 4 student presentations at the end of the semester.

Course Enrollment: 22
Number of Course Sections: 1
Instructor: Janet Heiss Arms, General Education Director and Instructor

Federal Aviation Administration – FAA (summary document in separate folder)

The FAA knowledge test measures mastery of the aeronautical knowledge areas listed in Title 14 of the Code of Federal Regulations (14 CFR) part 61. I have provided examples of the first time success rates for the FAA knowledge exam. An assessment of student first attempt pass rates identifies if FAA required subject areas are successfully covered in classroom. Below is a description of the specific areas of operation (AOA) that students are required to demonstrate mastery of knowledge. Documents included correlate to the description below and demonstrate how a student is evaluated based on the FAA's Airmen Certification Standards (ACS). FAA personnel have access to these student progress reports allowing them the ability to verify our student training and curriculum is meeting the standard set forth by the FAA.

Stage / Stage Name:	1 / **Ground Stage 1**
Stage Description:	The student will be introduced to pilot training, aviation opportunities, human factors in aviation, and become familiar with aerodynamic principals as well as the flight environment. The student will also obtain a basic knowledge of safety of flight, airports, aeronautical charts, airspace, radio communications, and air traffic control services, including the use of radar. In addition, the student will learn radio procedures and the common sources of flight information.
Stage Completion Standards:	This stage is complete when the student can demonstrate understanding during oral quizzing by instructor at completion of lesson. Instructor reviews incorrect responses to ensure student understanding prior to progression.
Scoring System:	S- Satisfactory, U – Unsatisfactory, I - Incomplete

OUTCOME 8: Math in Aviation (see matrix attached listing assignments and assessments that meet outcome 8)

AVFT 261 – Flight Instructor Theory: VFR Nav Logs, Flight Plan Procedures

Understand and apply pilotage, dead reckoning, VOR, ADF and GPS for VFR navigation. Plan, create and carry out a complete VFR flight plan and understand the flight planning process.

OUTCOME 9: Computers and Technology in Aviation (see matrix attached listing assignments and assessments from the following courses that meet outcome 9)

AVFT 141 – Advanced Navigation Systems
AVFT 250 – Commercial Flight 1 Single Engine
AVFT 252 – Commercial Flight 1 Multi Engine
AVFT 261 – Flight Instructor Theory
AVFT 262 – Advanced Aircraft Theory

3. What Was Learned

OUTCOME 7

Written communication results:

Criteria	Above Expectations	Meets Expectations	Below Expectations
Claim	25%	75%	0%
Support	25%	75%	0%
Alternative Perspective	50%	50%	0%
Language	25%	50%	25%
Mechanics	25%	50%	25%
Overall	30%	60%	10%

Our “meets expectations” numbers are strong in almost every category (all but “language”, which was defined as using language that clarifies and enhances meaning), averaging 60% for the five criteria.

Oral communication results:

Criteria	Above Expectations	Meets Expectations	Below Expectations
Central Message	50%	25%	25%
Content Development	50%	25%	25%
Organization	25%	50%	25%
Support	50%	50%	0%
Language	25%	50%	25%
Visual or Sensory Aids	25%	50%	25%
Delivery	25%	50%	25%
Timing	50%	50%	0%

Half of the sample presentations score in the “Meets Expectations” column, and 25% in the “Below Expectations” column regarding “language”. This, paired with the “organization” category, led us to conclude that giving an oral presentation is not something our students inherently know how to do.

OUTCOME 8: Math in Aviation

Based on random selections from numerous assignments across the program (see attached .pdf), the math outcomes are being met thoroughly within the program and no changes are being made with this outcome.

OUTCOME 9: Computers and Technology in Aviation

After assessing student work in the listed Aviation courses above and the CAPP 120 course, we have decided to move the CAPP 120 from required to an elective course because fewer students are needing “Intro to Computers” at this level. It will remain an option for students entering the program with lower computer skills, but only as an elective.

Starting this past year, the Aviation has moved to a digital record logs and FAA manuals in the cockpit. This is a major shift for the program as it streamlines processes for students and CFI’s, but also reflects current practices in industry. This update will impact all flight courses within the program.

4. **How We Responded**

OUTCOME 7: Communication

Because the results were similar to the COLS 101US assessment of Written communication (see AA/AS Assessment Report), we intend to implement the same changes to the sample writing assignment for COMX 115:

- A class session set aside to show students examples of high-quality essays from past semesters,
- A peer-review session in class paired with the writing rubric before the final draft is due, or a Writing Center-led class session,
- Requiring instructors to thoroughly explain the expectations for the assignment in conjunction with an explanation of the rubric for the assignment.

Oral communication:

The assessment team agreed that we need to spend time in class (at least an entire 75 minute class) instructing students on how to prepare and deliver an oral presentation. We implemented this in the COLS 101 classes in Fall 2016 with positive results, so will do the same for the COMX 115 class Fall 2017. We also discussed the possibility of recording students' presentations in a future semester and requiring a self reflection.

Based on this assessment and collaboration from other Gallatin College Program Directors during Fall 2016, it was determined we will require COMX 115 Interpersonal Communication for all CAS programs and propose a new communications course for AAS (two-year) degrees, now COMX 222 Professional Communication, which was proposed and built into the schedule Spring 2017 and will be included in next year's assessments.

OUTCOME 9: Computers and Technology in Aviation

CAPP 120 "Intro to Computers" was moved to an elective on the Program Catalogue: http://catalog.montana.edu/undergraduate/gallatin-college/workforce-programs/aviation/

Students purchase iPad's instead of textbooks for some courses and use this to track their hours and reference the FAR.

Additional Aviation Curriculum Changes from Program Outcome Assessment

The Associate of Applied Science in Aviation program is designed to prepare students for numerous career paths within the aviation industry. Currently aviation graduates are prepared for most entry level jobs with the exception of initial employment with FAR part 121 operators (airlines). The program must contain a breadth of curriculum that offers our students training in multiple areas within the aviation industry, which due to economic and regulatory changes, is in a continuous state of flux. The following program and course changes are in response to student, program, employer, and industry needs and help maintain a viable program that fully prepares graduates for entrance into the aviation industry:

- Aviation Program Restructuring to Qualify for Authorization to Certify Graduates for the R-ATP
- 2 + 2 – Aviation plus Business Programs
- Merging of AVFT 121 – Private Pilot Fundamentals and AVFT 123 – Basic Air Navigation
- AVFT 261 – Flight Instructor Theory increase of credit
- Aviation Flight Course Restructuring

2016-2017 Annual Assessment Report for Certificate in Applied Science (CAS) in Bookkeeping

Bookkeeping Program Outcomes:

1. Analyze and process basic financial transactions through the accounting cycle for sole proprietorships, partnerships, and corporations.
2. Prepare and analyze financial statements in accordance with Generally Accepted Accounting Principles (GAAP).
3. Communicate financial information to internal and external users to make business decisions.
4. Demonstrate proficiency in using computer software to perform bookkeeping and business tasks and prepare financial reports.
5. Perform basic office functions using standard and emerging technologies typical in entry-level accounting positions.
6. Prepare and process payroll records and reports in compliance with federal and state requirements.
7. Communicate orally and in writing at a professional level necessary for successful employment in a business environment.
8. Apply critical thinking skills to make decisions that demonstrate awareness of social responsibility as well as legal and ethical standards within the accounting profession.

Assessment Schedule:

	Year					
Outcome	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**	**2019-2020**
1	**x**			**x**		
2	**x**			**x**		
3	**x**			**x**		
4		**x**			**x**	
5		**x**			**x**	
6			**x**			**x**
7			**x**			**x**
8			**x**			**x**

1. What Was Done

Based on our assessment plan, we assessed learning outcomes 6, 7, 8 this year:

6. Prepare and process payroll records and reports in compliance with federal and state requirements.
7. Communicate orally and in writing at a professional level necessary for successful employment in a business environment.
8. Apply critical thinking skills to make decisions that demonstrate awareness of social responsibility as well as legal and ethical standards within the accounting profession.

Bookkeeping – CAS Degree		**Program Outcomes**		
Course	**Cr**	**6**	**7**	**8**
ACTG 101: Accounting Procedures I	4		D	D
ACTG 180: Payroll Accounting	4	M		D
CAPP 120: Intro to Computers	3			I
CAPP 156: Microsoft Excel	3			I
COMX 102: Interpersonal Skills in the Workplace	1		M	D
WRIT 104: Workplace Communications	2		M	D
ACTG 102: Accounting Procedures II	4		D	M
ACTG 205: Computerized Accounting	3	D	D	D
ACTG 122: Accounting & Business Decisions	3		D	M
ACTG 125: QuickBooks	3	M		D
TASK 127: Business Office Procedures	3		M	D

Performance Thresholds:

I: Introductory Level		**D: Developing Level**		**M: Mastery Level**	
Knowledge	**Comprehension**	**Application**	**Analysis**	**Synthesis**	**Evaluation**
Defines	Comprehends	Applies	Analyzes	Categorizes	Concludes
Describes	Distinguishes	Computes	Compares	Composes	Critiques
Identifies	Interprets	Demonstrates	Contrasts	Creates	Defends
Knows	Summarizes	Prepares	Distinguishes	Devises	Evaluates
Lists		Solves		Designs	Interprets
Recognizes				Modifies	Justifies

Sample Assessments [that show how well students meet each learning outcome ("**M**" level)]:

Outcome 6:

1. ACTG 180: Payroll Accounting Exam 1 (summary attached)
2. ACTG 180: Payroll Accounting Final Project (summary attached)
3. ACTG 125: QuickBooks Final Project (summary attached)

Outcome 7:

1. COMX 115: Introduction to Interpersonal Communication (sample writing and oral presentation projects)
2. TASK 127: Business Office Procedures (summary attached)

Outcome 8:

1. ACTG 102: Accounting Procedures II (summary attached)
2. ACTG 122: Accounting & Business Decisions (summary attached)

2. What Data Were Collected

OUTCOME 6: Compliance

1. ACTG 180: Payroll Accounting Exam 1: Summary of Topics Covered in Exam, Analysis of Exam Results and Reflection on Results
2. ACTG 180: Payroll Accounting Final Project: Project Description and Grading Rubric with Results
3. ACTG 125: QuickBooks Final Project: Project Description and Grading Rubric with Results

OUTCOME 7: Communication

Written communication: COMX 115

In the fall 2016 semester there were 22 students enrolled in COMX 115 Interpersonal Communications. During the semester, the instructor randomly selected 20% of her class essays, resulting in a sample of 4 writing assignments.

Oral communication: COMX 115 Student Presentations

The instructor also assessed 4 student presentations at the end of the semester.

Course Enrollment: 22
Number of Course Sections: 1
Instructor: Janet Heiss Arms, General Education Director and Instructor

OUTCOME 8: Critical Thinking

1. ACTG 102: Accounting Procedures II (summary attached)
2. ACTG 122: Accounting & Business Decisions (summary attached)

3. What Was Learned

OUTCOME 6: Compliance

Assessments from the above samplings show students are meeting program outcomes 8 well and therefore no program changes are proposed for these outcomes at this time.

OUTCOME 7

Written communication results:

Criteria	Above Expectations	Meets Expectations	Below Expectations
Claim	25%	75%	0%
Support	25%	75%	0%
Alternative Perspective	50%	50%	0%
Language	25%	50%	25%
Mechanics	25%	50%	25%
Overall	30%	60%	10%

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Support	50%	50%	0%
Language	25%	50%	25%
Visual or Sensory Aids	25%	50%	25%
Delivery	25%	50%	25%
Timing	50%	50%	0%

Half of the sample presentations score in the “Meets Expectations” column, and 25% in the “Below Expectations” column regarding “language”. This, paired with the “organization” category, led us to conclude that giving an oral presentation is not something our students inherently know how to do.

OUTCOME 8: Critical Thinking

Assessments from the above samplings show students are meeting the program outcomes well and therefore no program changes are proposed for these outcomes at this time.

4. How We Responded

OUTCOME 6: Compliance

Assessments from the above samplings show students are meeting program outcomes 8 well and therefore no program changes are proposed for these outcomes at this time.

OUTCOME 7: Communication

Because the results were similar to the COLS 101US assessment of Written communication (see AA/AS Assessment Report), we intend to implement the same changes to the sample writing assignment for COMX 115:

- A class session set aside to show students examples of high-quality essays from past semesters,
- A peer-review session in class paired with the writing rubric before the final draft is due, or a Writing Center-led class session,
- Requiring instructors to thoroughly explain the expectations for the assignment in conjunction with an explanation of the rubric for the assignment.

Oral communication:

The assessment team agreed that we need to spend time in class (at least an entire 75 minute class) instructing students on how to prepare and deliver an oral presentation. We implemented this in the COLS 101 classes in Fall 2016 with positive results, so will do the same for the COMX 115 class Fall 2017. We also discussed the possibility of recording students' presentations in a future semester and requiring a self reflection.

Based on this assessment and collaboration from other Gallatin College Program Directors during Fall 2016, it was determined we will require COMX 115 Interpersonal Communication for all CAS programs.

OUTCOME 8: Critical Thinking

Assessments from the above samplings show students are meeting program outcomes 8 well and therefore no program changes are proposed for these outcomes at this time.

Professional Certificate (PC) in Business Management

Business Management Professional Certificate Outcomes:

1. Objectively evaluate their concepts and plans for moving forward with their business plans.
2. Develop a working knowledge of business fundamentals such as management principles, marketing, product/service development, sales, and basic accountancy.
3. Understand and be capable of building a business infrastructure for business operations, processes and financial decision making.
4. Explore risk and success factors in the marketplace, develop a media strategy.
5. Understand how to access human, financial, and business resources.
6. Create an environment that encourages interaction with other entrepreneurs and professionals.
7. Identify and meet market needs, learn to respond to changes that can impact business.
8. Build an actionable business plan; and be an effective and prepared leader.

Assessment Schedule:

	Year					
Outcome	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**	**2019-2020**
1	**x**			**x**		
2	**x**			**x**		
3			**x**			**x**
4		**x**			**x**	
5		**x**			**x**	
6			**x**			**x**
7			**x**			**x**
8	**x**			**x**		**x**

Business Management Professional Certificate		Program		
Course	Cr	3	6	7
BGEN 105: Intro. to Business	3	I	I	I
ACTG 101: Accounting Procedures I	4			
BMGT 215: Human Resource Management	3	D		
BMGT 210: Small Business Entrepreneurship	3	M	M	D
BMKT 240: Advertising	3			M
ACTG 122: Accounting & Business Decisions	3	M		
ACTG 125: QuickBooks	2	M		
BMKT 222: Customer Service & Marketing	3			M
BGEN 235: Business Law	3	M		
TASK 127: Business Office Procedures	3	I		
BMKT 112: Applied Sales	3			M

Performance Thresholds:

I: Introductory Level		D: Developing Level		M: Mastery Level	
Knowledge	**Comprehension**	**Application**	**Analysis**	**Synthesis**	**Evaluation**
Defines	Comprehends	Applies	Analyzes	Categorizes	Concludes
Describes	Distinguishes	Computes	Compares	Composes	Critiques
Identifies	Interprets	Demonstrates	Contrasts	Creates	Defends
Knows	Summarizes	Prepares	Distinguishes	Devises	Evaluates
Lists		Solves		Designs	Interprets
Recognizes				Modifies	Justifies

1. What Was Done

Based on our assessment plan, we assessed learning outcomes 3, 6, 7 this year:

2016-2017 **Outcomes Reviewed:**

3. Understand and be capable of building a business infrastructure for business operations, processes and financial decision making.
6. Create an environment that encourages interaction with other entrepreneurs and professionals.
7. Identify and meet market needs, learn to respond to changes that can impact business.

2.What Data Were Collected

Sample Assignments [that show how well students meet each learning outcome ("**M**" level)]:

Outcome 3: Business Plan (BMGT210)
Outcome 6: Exam 1 (ACCT 125)
Outcome 7: Final Project (BMKT 222)

3.What Was Learned

OUTCOME 3

Assessments from the above samplings show students are meeting program outcomes 3 well and therefore no program changes are proposed for these outcomes at this time.

OUTCOME 6

Assessments from the above samplings show students are meeting program outcomes 6 well and therefore no program changes are proposed for these outcomes at this time.

OUTCOME 7

Assessments from the above samplings show students are meeting program outcomes 7 well and therefore no program changes are proposed for these outcomes at this time.

4.How We Responded

As noted above, no curriculum changes resulted from these assessments, but based on a review of other curriculum assessment from the program, the Business Management Advisory Board recommended the following curriculum changes for the program: removing BGEN105 Introduction to Business, addition of BMKT225 Marketing as a required course, making BMKT240 Advertising an elective, switching semesters of BMGT215 Human Resource Management and BMGT210 Small Business Entrepreneurship, and adding other courses as electives. These changes were implemented in Fall 2016 to better meet student needs and align the curriculum with industry requirements.

Certificate of Applied Science (CAS) in CNC Machine Technology

CNC Machine Technology Program Outcomes:

1. Operate computer numerically controlled (CNC) machines, such as lathes, mills, precision measuring tools, and related attachments and accessories.
2. Perform machining functions, such as cutting, drilling, shaping, and finishing products and component parts.
3. Understand and exercise the following skills: CNC terminology, setup, programming, operations, and troubleshooting; Blueprint reading; Machining; Lathe and mill operations; Technical mathematics; Computer literacy; CAD/CAM systems; Shop and safety practices; Equipment capabilities; Regulations and laws
4. Obtain National Institute for Metalworking Standards (NIMS) Skills credentials.
5. Complete Haas V-F Series Milling Machine and GUI control setup.
6. Knowledge and operations of Gibbscam and G-code.

Program Outcome Assessment Schedule:

	Year					
Outcome	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**	**2019-2020**
1	**x**			**X**		
2	**x**			**X**		
3		**X**			**X**	
4		**X**			**X**	
5			**X**			**x**
6			**X**			**X**

1. What Was Done

Based on our assessment plan, we assessed learning outcomes 5 & 6 this year:

5. Complete Haas V-F Series Milling Machine and GUI control setup.
6. Knowledge and operations of Gibbscam and G-code.

2016-2017 Outcomes Reviewed:

CNC Machine Technology - CAS		Program Outcomes	
Course	**Cr**	**5**	**6**
M 111 – Technical Mathematics	3		I
MCH 103 – Intro to Computer Aided Manufacturing	2	I	I
MCH 120 – Blueprint Reading	2		
MCH 130 – Machine Shop	3		
MCH 231 – CNC Turning Operations Level 1	3		I
MCH 234 – CNC Milling Operations Level 1	3	D	I
MCH 232 – CNC Turning Operations Level 2	3		D
MCH 235 – CNC Milling Operations Level 2	3	M	D
MCH 230 – Tooling and Fixtures Used in CNC	2		D
MCH 104 – Intro to Computer Aided Manufacturing	2		D
MCH 122 – Introduction to GibbsCAM	3		D

Performance Thresholds:

I: Introductory Level		D: Developing Level		M: Mastery Level	
Knowledge	**Comprehension**	**Application**	**Analysis**	**Synthesis**	**Evaluation**
Defines	Comprehends	Applies	Analyzes	Categorizes	Concludes
Describes	Distinguishes	Computes	Compares	Composes	Critiques
Identifies	Interprets	Demonstrates	Contrasts	Creates	Defends
Knows	Summarizes	Prepares	Distinguishes	Devises	Evaluates
Lists		Solves		Designs	Interprets
Recognizes				Modifies	Justifies

2. What Data Were Collected

OUTCOME 5: Haas V-F Series Milling Machine and GUI control setup

Attached is a 3dPDF of the Toolsetter body which is a new project that was added this spring. It must be opened in an adobe viewer (not chrome or xOS).

This is the SolidWORKS assembly of three parts that the students make and fit together to with a stock component to make a functional tool. This tests them on their planning and programing skills in addition to their machine setup and operation.In order for them to make this set of parts correctly they have to complete every objective of MCH 235. It is also a typical part to find in our local industry.

OUTCOME 6: Knowledge and operations of Gibbscam and G-code

Attached is a Video of a GibbsCAM render that show several different deburring cycles and their common errors.

This is one of the “snap shot” segments we do in GibbsCAM class. We go through each deburring cycle and compare what works and did not and why. This demo if you look at the near edge between the pink cut out and the step on the end you can see a faint yellow line. That what we want the students to create.

3. What Was Learned

OUTCOME 6: Knowledge and operations of Gibbscam and G-code

Attached is a Video of a GibbsCAM render that show several different deburring cycles and their common errors.

The pink cut out, and the others on the edge are all various errors that can happen. Also, we show how the correct deburring cycle in one place is not in another with the line that cuts across the flat edge. If the setting is right to miss the step it will cut the boss on the other side of the part. Students learn to break the process into different parts and to see how each option effects every other.

4. How We Responded

CNC Machine Program Outcome Assessment

Coming into my third year of teaching the same series of classes. I had expected to see some leveling out of the work load of class development. To enable me to focus more on my goal of fine tuning the organization of my individual classes to improve the efficiency of my delivery. Specifically, by allowing me to create shorter instructional segments in MCH 122. The idea being to do cycles of 5-10 min instruction, 10 minutes of practice, 5-10 instruction, and more practice. But with the transitioning of MCH 122 Intro to CAM (GibbsCAM) to the fall it became almost an entirely different class with distinct student needs that differed from the two classes previously taught. This prevented me from developing very many of these "snapshot classes" but the few I did I was very pleased with. The students seemed to enjoy them more and retained more of the information from "chunking" the concepts this way. This worked very well for the Geometry creation and contouring. But I would like to continue to implement them in more of my classes.

My second goal for this year was to improve my delivery method for the complex operation in MCH 234 and 235. This was accomplished by creating decision matrix flow charts for the actual operations and checklists for the students to work through. Before implementing these flowcharts, students were getting were bogging down on these hard/confusing steps in the process. They were so focused they were not learning the simple things around the hard concept. Using the flowcharts, the students have been able to move through the hard concepts. Practicing them till they have learned the hard concept without getting so frustrated it stalled their learning.

These two changes coupled with the change in curriculum of moving MCH 122 to the Fall and decreasing the lab size. Increased the students learning that they each accomplished as individuals all the projects the previous class had done as groups and one additional project in the same semester. I had expected some of this increase but not but not enough to bring in a full project from MCH 235 to MCH 234.

This year I had committed myself to two primary goals related to curriculum. The first was to complete the NIMS Self-Study packet for accreditation. I while I have compiled much of the information. I have not completed the packet. Most of this was due to the amount of time spent ordering, scheduling delivery, receiving, planning and coordinating electrical work, and reorganizing the shop to receive the new mill and 5th axis. Getting the new mill in and installed took almost 40 hours. Which was more than I had expected mostly in 1 hour or less phone calls, lots of interrupted time. Not to mention the time spent developing parts and curriculum to illustrate how a 5th axis is programed and setup. I should have planned this development as a goal for this year. But it also has enabled me to add some new content to MCH 235 in the form of probing instruction and automated tool setting. We will also in the last couple of weeks of the semester be doing basic 5th axis setup and demonstration.

The pulling together of the materials for NIMS has also been beneficial for me and the program this year. It has shown me places where I need to improve the documentation of students' work. It has also clarified details that are in my head that need to be documented better. In an effort to do this, I have been reworking my class outlines to include more details on how I am teaching not just what I am

teaching. I have also tightened up my project instructions. Previously all our projects have operated on the basis of the professional machining world, here is a print make perfect parts. Now I am including more detail as to how each feature will be measured and graded. This is largely so someone outside of the machining industry can have some understanding of what is being evaluated and how that relates back to the class and program objectives.

I have also had to develop a new project for MCH 235 and change existing projects due to the speed the students moved through the content in the fall semester. In the past 2 years, we have made our micrometer stand parts in groups based on machine availability and student skill. This year they are making the parts as individuals and only the base as a group. The new Project we are adding is a tool setting block. This project I designed from scratch is an assembly consisting of three parts: One a small threaded Lathe part that is challenging to make. The second a moderately complex part with three machined sides that require a high degree of locational precision. The third part that at first seems trivial but is so thin. It introduces a new work holding process. The development and prototyping of this project and its addition to the curriculum has been very time consuming. But I am very with how it has solidified the students' skills and their confidence in the parts they can make.

Setting Z flow chart

"Setting z" is the single most difficult thing the students learn because it is very counterintuitive and has poor feedback as to if you have done it right. It also has the largest consequences if it is set wrong (something will break or get ruined). This decision matrix flow chart shows the steps the students take and when they make a choice what to do next. It does not get into why they make the choices but we talk through that as a class. I have also found once that have followed the process several times they see what the changes are doing which leads to understanding the process.

Associate of Applied Science (AAS) in Design Drafting Technology

Design Drafting Technology Program Outcomes:

Upon program completion, the successful will be able to:

1. Read and Understand Shop Drawings, Construction Drawings and Details
2. Do takeoffs and estimates of materials from printed plans
3. Have a strong understanding of the materials and processes that are a part of home construction and manufacturing.
4. Create Construction Documents and Shop Drawings for Architects, Engineers and Manufacturers
5. Visualize and measure 3D objects and buildings and recreate them in computer-aided design software (CAD)
6. Render objects and buildings for presentation in programs including: Adobe Photoshop, AutoCAD Architecture, and 3DS Max
7. Create a complete set of permit ready residential plans
8. Draw a site plan and thematic maps (including topography) using CAD software and GIS data
9. Prepare and present professionally themselves and their portfolio and projects
10. Use Critical Thinking Techniques to solve problems, especially as related to Design Drafting disciplines
11. Understand computer hardware vocabulary, basic hardware maintenance, software installation and updating, and basics of home and small office networking
12. Assess their skills and talents and present themselves in a way so that they can follow a career path that they will enjoy and benefit from.

Outcome Assessment Schedule:

	Year					
Outcome	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**	**2019-2020**
1	**X**			**X**		
2	**X**			**X**		
3	**X**			**X**		
4	**X**			**X**		
5		**X**			**X**	
6		**X**			**X**	
7		**X**			**X**	
8		**X**			**X**	
9			**X**			**X**
10			**X**			**X**
11			**X**			**X**
12			**X**			**X**

1. What Was Done

Based on our assessment plan, we assessed learning outcomes 9, 10, 11 & 12 this year:

9. Prepare and present professionally themselves and their portfolio and projects.
10. Use Critical Thinking Techniques to solve problems, especially as related to Design Drafting disciplines.
11. Understand computer hardware vocabulary, basic hardware maintenance, software installation and updating, and basics of home and small office networking.
12. Assess their skills and talents and present themselves in a way so that they can follow a career path that they will enjoy and benefit from.

2016-2017 Outcomes Reviewed:

Design Drafting Technology – AAS Degree		Program Outcomes			
Course	**Cr**	**9**	**10**	**11**	**12**
CSTN 148 - Blueprint Codes and Est.	2				
CSTN 173 - Arch Construct and Material	3				
DDSN 112 - Professional Practices	3	D			D
DDSN 113 - Technical Drafting	3		I		
DDSN 118 - CAD 1	4		I	I	I
(DDSN 101 – CAD 1 A)	2		I		I
(DDSN 102 – CAD 1 B)	2		D		D
DDSN 124 - Descriptive Geometry	4		D		I
DDSN 166 - Revit 1	3		D	I	
DDSN 186 - CAD 2	3		D		
DDSN 244 - GIS and Mapping	3		D		
DDSN 245 - Civil Drafting	3		D		
DDSN 255 - Machine Drafting	3		D		I
DDSN 256 - Machine Drafting - 2	3		M		
DDSN 265 - Architectural Drafting	3		M		D
DDSN 266 - Revit 2	3		D		
DDSN 275 - Computer Rendering	3				
DDSN 276 - Presentation & Animation	3				
DDSN 298 - Internship	4	D	D	D	D
DDSN 299 – Capstone: Portfolio	3	M			M
ITS 280 – Computer Repair & Maintenance	3		D	M	I
MFTG 205 – Manufacturing Processes	3	I			D

Performance Thresholds:

I: Introductory Level		D: Developing Level		M: Mastery Level	
Knowledge	**Comprehension**	**Application**	**Analysis**	**Synthesis**	**Evaluation**
Defines	Comprehends	Applies	Analyzes	Categorizes	Concludes
Describes	Distinguishes	Computes	Compares	Composes	Critiques
Identifies	Interprets	Demonstrates	Contrasts	Creates	Defends
Knows	Summarizes	Prepares	Distinguishes	Devises	Evaluates
Lists		Solves		Designs	Interprets
Recognizes				Modifies	Justifies

5. What Data Were Collected

OUTCOME 9: Prepare and present professionally themselves and their portfolio and projects.

OUTCOME 12: Assess their skills and talents and present themselves in a way so that they can follow a career path that they will enjoy and benefit from.

Capstone Portfolio

Portfolios from all graduating students were collected and assessed by the Capstone faculty member and the Design Drafting Program Director.

This project meets both outcomes 9 & 12 as it requires students to present their completed work professionally in a portfolio and present this portfolio to Industry Professionals. These portfolio review sessions are administered by the Capstone instructor and observed by the Program Director as well as Associate Dean. The expectations for this portfolio review have increased this past year with the hiring of the new Design Drafting Program Director and new assignment of the Capstone instructor. The results were stronger student portfolios and positive feedback from industry professionals.

OUTCOME 10: Use Critical Thinking Techniques to solve problems, especially as related to Design Drafting disciplines

Machine Drafting presentation

This project asks students to research and use critical thinking skills to find a solution using skills introduced in the earlier part of the class. Each student is given a problem they need to find a design solution for and present this solution to the class. Like the project listed above, this results in student presentations and large files that are available upon request, but not included in this summary. The projects are assessed using a rubric designed by the Machine Drafting faculty member and Design Drafting Program Director. This project has evolved to include many different applications for Design Drafting depending on the individual student's career interest, hence customizing their portfolio for future employment (further supporting Outcomes 9 & 12).

OUTCOME 11: Understand computer hardware vocabulary, basic hardware maintenance, software installation and updating, and basics of home and small office networking.

Computer Repair & Maintenance

This outcome is met throughout ITS 280, but this year the assessment was measured through the final exam since this covers vocabulary and processes needed to follow for software installation and networking.

6. What Was Learned

The projects listed above work well in meeting the outcomes, so it's been determined that these will continue to be used. The changes below are the results of the previous year's assessment, but was put into place this past year. Next year we will review the program outcomes again, starting at 1-4 with our new Program Directors, so edits will likely occur to the outcomes themselves. The major program changes and course sequencing will be in place starting next fall.

7. How We Responded

This past summer Gallatin College hired a new Program Director for the Design Drafting program. This past fall, the new director has worked to edit the program catalogue requirements and sequence of classes to prepare students for broader job positions within residential and commercial architecture, machining and industrial manufacturing industries – all growing in Gallatin County. Historically this program has catered to residential architecture only, but in response to regional market data, meetings with industry leaders and feedback from program graduates, Gallatin College sees the potential in diversifying the program's curriculum to meet these growing industry needs.

Curriculum changes in this program have included (for 2017-2018 catalogue) increasing the Blueprint Codes & Estimating from 2 to 3 credits to include commercial codes, omitting Descriptive Geometry as a math requirement and using Business Math instead to reflect current industry usage and adding a second Solidworks course (which will require a title and number change through CCN). There are also curriculum changes within the CAD courses to better align with engineering curricula while meeting industry needs.

Interior Design Program Assessment Report 2017

Interior Design Program Outcomes:

1. Understand the theory and history of design and apply design principles and elements to their projects.
2. Communicate in the language of interior design using listening, verbal, and written skills to interact with clients and industry professionals.
3. Communicate graphically according to current architectural and NKBA standards using both hand and computer drafting techniques.
4. Demonstrate research abilities and critical thinking in space planning, selection of finish materials, and application of codes for residential and commercial projects.
5. **Increase their body of knowledge in a wide variety of areas including construction methods, finish materials, color and lighting technologies, residential and commercial codes, sustainability, and professional practice.**
6. **Employ up-to-date industry methods to create presentations and information organization for a wide variety of applications by using hand and/or computer drafting, rendering and modeling programs.**

Performance Thresholds:

I: Introductory Level		D: Developing Level		M: Mastery Level	
Knowledge	**Comprehension**	**Application**	**Analysis**	**Synthesis**	**Evaluation**
Defines	Comprehends	Applies	Analyzes	Categorizes	Concludes
Describes	Distinguishes	Computes	Compares	Composes	Critiques
Identifies	Interprets	Demonstrates	Contrasts	Creates	Defends
Knows	Summarizes	Prepares	Distinguishes	Devises	Evaluates
Lists		Solves		Designs	Interprets
Recognizes				Modifies	Justifies

2016-17 Outcomes Reviewed:

5. Increase their body of knowledge in a wide variety of areas including construction methods, finish materials, color and lighting technologies, residential and commercial codes, sustainability, and professional practice.
6. Employ up-to-date industry methods to create presentations and information organization for a wide variety of applications by using hand and/or computer drafting, rendering and modeling programs.

Interior Design – AAS Degree		Program Outcomes	
Course	**Cr**	**5**	**6**
IDSN 101 - Intro to Interior Design	3	I	I
IDSN 110 - Hist of Int Dsgn I Ancnt-1900	3	D	I
IDSN 130 - Interior Design Graphics	3	I	I
IDSN 131 - Presentation Drawing	3		M
IDSN 135 - Fundamentals of Space Planning	3	D	D
IDSN 225 - Light/Color/Lighting Systems	3	D	D
CSTN 173 - Arch Construct and Material	3	I	
IDSN 122 - Textiles and Interior Finishes	3	I	D
IDSN 240 - Studio I Residential	4	M	M
IDSN 266 - Kitchen and Bath	4	M	M
IDSN 298 – Internship /Field Study	3-5	D	
IDSN 111 - Hist Int Dsgn II 1900-Contemp	3	D	D
IDSN 250 - Studio II Commercial*	4	M	M
IDSN 255- Environmental Studio	4	M	M
IDSN 275 - Professional Practices*	3	M	M
~~IDSN 292 - Independent Study~~	1-3	M	M
DDSN 118-CAD 1		I	

2016-17 Sample Assignments Assessing Outcomes 5 & 6 (full samples in Appendix)

OUTCOME #5

CSTN 173 Architectural Construction and Materials:

Models using wood frame construction

Quiz 2- Construction terms

IDSN 122 Textiles and Materials

Document your Space, I and II.

IDSN 225 Light Color ad Lighting Systems

Final Project

IDSN 250 Studio II

Quiz 2- commercial codes

IDSN 255 Environmental Studio

In-class quiz

Final Project

OUTCOME #6

IDSN 250 Studio II

Final Project- Retail design

IDSN 266 Kitchen and Bath I

Kitchen expansion project

IDSN 131 Presentation Drawing

Three methods of rendering, Project 3 Final Perspective

IDSN 275 Professional Practices

The Paper Trail

Final test module

The Finial Project

Interior Design Program Outcome Assessment

The Interior Design program works to increase the student body of knowledge using industry methods and project based methodology to promote independent student learning that parallels industry practices. Increasing student exposure to the terminology and methods used in the field, the vital need for code compliance and the increased pressure to be knowledgeable in sustainable building practices leads he program to a variety of exercises and projects that integrate these concepts.

Once these concepts are introduced and students have had a chance to apply them, their communication methods are assessed and most likely evaluated as student portfolios are compiled. As digital methods have increased, integrating these technical skills has been important and a key in future employment and must show in that body of work.

Our students were assess by rubric, visual presentations and critique sessions on these outcomes. In the past we learned that giving the students adequate time to practice newly learned skills, to implement them and to work to master has been a challenge in a two year program. Adding IDSN 150 Tech Lab to allow students guided help with digital methods has freed up instruction time in the classroom from answering digital questions. This has bolstered the output of our classes and improved digital submissions. While this works for digital methods we still need more practices and smaller staged projects in the first year to be able to evaluate, supply feedback and then re-evaluate submissions.

OUTCOME #5: Increase their body of knowledge in a wide variety of areas including construction methods, finish materials, color and lighting technologies, residential and commercial codes, sustainability, and professional practice.

Construction Methods:

CSTN 173 Construction and Materials, Model Construction Project: CSTN 173 requires students to build a wood frame construction model as a final project in this class. Wood framing construction is the most widely used residential construction method, and this model helps students to visualize the terminology learned along with methods of construction. Codes are addressed as students learn about material and structure. Hands on methods often help students who have a hard time looking at text images transfer that information into a real world application. While students are required to estimate, cut and build from small light wood, they are actually thinking of the larger picture of residential construction.

This is a sample quiz from this class that reinforces vocabulary and terminology used in the field. A full sample is in the Appendix.

Quiz 2
Based on in-class lecture and Chin Chapters 4-8
(Building Site, Buildings, and Foundations)

Total Points Possible (50 points)

Student Name: _____ Score: _____

1. Explain the term "span" in terms of a floor system and why it's important. _____

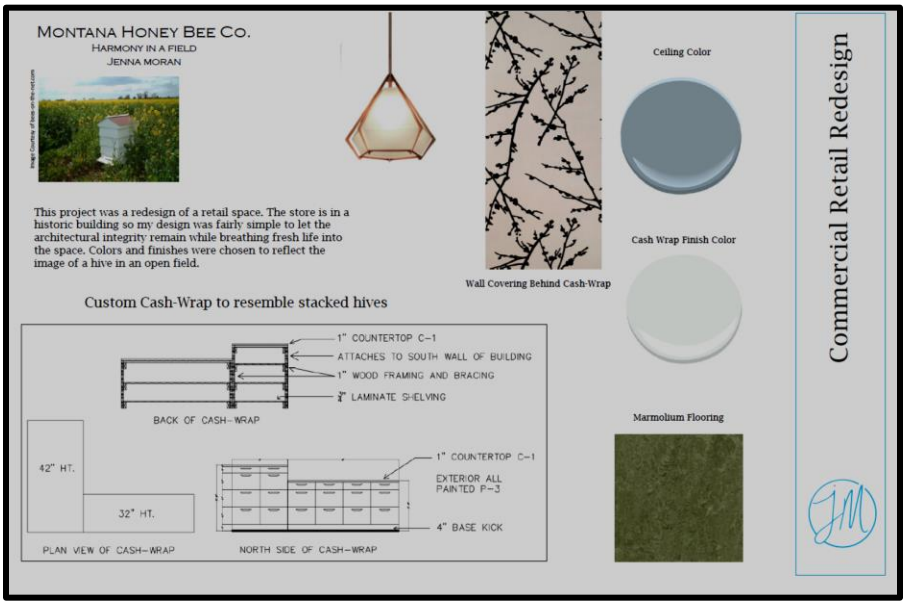
   _____

2. What is subflooring and how does it affect flooring behavior. _____

FINISH MATERIALS

IDSN 122 Textiles and Materials, Document your Space Project:

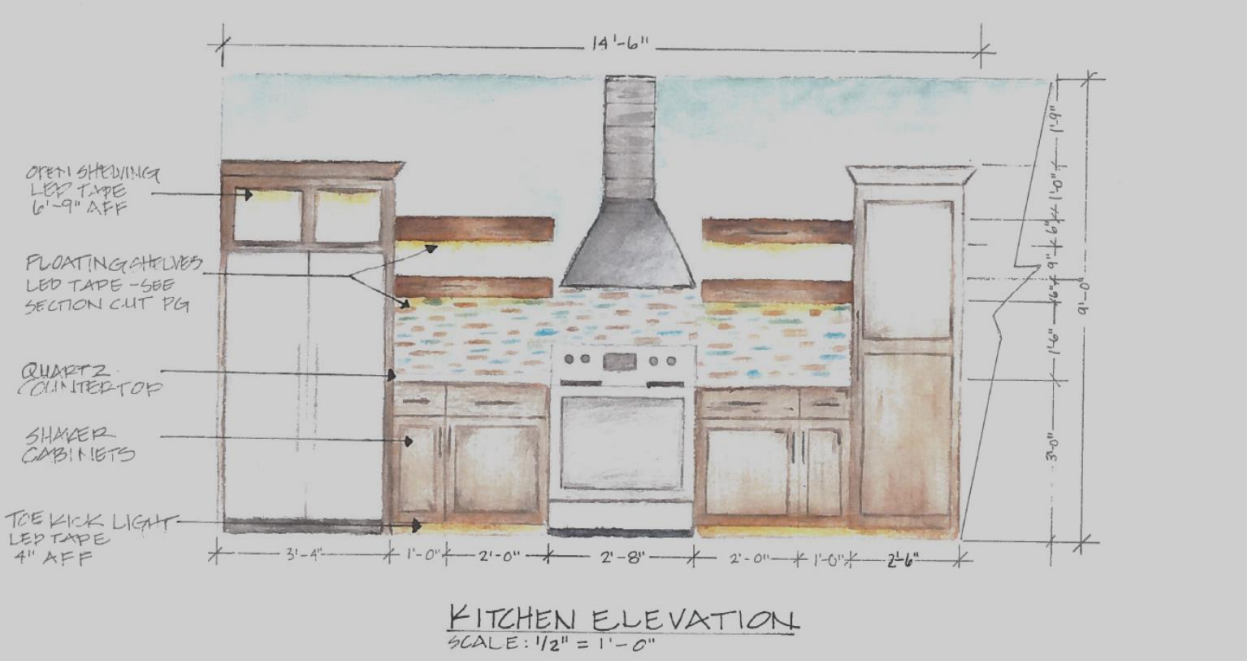
For this project, student reverse engineered existing conditions for a building of their choice (Document your space). Moving forward, they then create a new specification for all the interior finishes, (Document your Space, Final). This allows students to both document an as-built situation and discover and research all the materials used, but also to create a new set of finishes, a schedule and communicate that to a client.



Student Final: Document your Space

COLOR AND LIGHTING TECHNOLOGIES

IDSN 225 Light, Color and Lighting Systems provides students with guided instruction on lighting systems and their documentation in construction documents. Students begin by illustrating the effects of light on the colors of their project. Using watercolors allows students to show artificial light and its effects on the materials they chose. As technology shifts in this rapidly evolving industry it is more important to teach a method rather than a single technology that will be soon out of date that students can use to predict the outcome of their choices.



Creating a specification sheet for lighting types is a critical part of this class:

Lighting specification sheet

Preliminary Selections

Project:	Date of last revision:
MD Beach House	4/21/2017

NOTE: THIS SHEET IS FOR ESTIMATING PURPOSES ONLY AND WILL BE REISSURED WITH CORRECTED INFORMATION AT THE TIME OF ORDERING. PLEASE REQUEST THE FINAL COPY WHEN ORDERING.

LIGHTING: Kitchen

KEY:	MFR:	Style or ITEM #:	SIZE	COLOR	ITEM DESCRIPTION:	LOCATION AND NOTES:
F1	Juno	IC104AL-27K-F-U	4" Can	White	Sloped Ceiling Recessed	Recessed Ceiling & Pantry
F2	Juno	619W-WH	6" Can	White	Sloped Eyeball Baffle	Ceiling above Floating Shelves
F9	F9	Dana Lite by Juno	Rope/Tape Cuttable every 6" or 12"	NA	Flex Connect Lighting	Toe Kick, open shelving, & Floating Shelves. *See elevation and section
P1	Hinkley	4937PL	4.5"x8.3" 2lbs	PL ANQ Nickel	Gatsby Clear Pendant	Above Island *See Lamp Below
L2	Philips	168336	120V	Clear	Decoflame Duramax	Hinkley Gatsby

LIGHTING: Dining Room

COMMERCIAL CODES

IDSN 250 Studio II Students take on two large projects on in this class. The first is an office building remodel and the second is a retail space remodel. Students learn about ADA code, egress and exiting, and human space. As they are working on this project, they are taking weekly quizzes on text book information, including commercial codes and requirements.

ISDN 250/Studio II/ Quiz #2

This quiz is worth ***10 possible points***.

Please explain what the following acronyms or phrases stand for:

1. IBC: _____
2. Give one example of some type of information, for an office design, that building codes would give us:

   _____
3. Give one example of an ADA guideline for office design: _____

   _____
4. True or false: Baby changing stations are only required in womens' restrooms: _____

SUSTAINABILITY

IDSN 255 Environmental Studio- this class touches on the complex world of sustainability teaching that there are many platforms and methods to use to assess environmental concerns. Watching videos outside of class and having a discussion opens the discussion to global concerns.

Five point questions- This in-class quiz encouraged students to discuss a video and earn in-class points by answering in a group discussion:

TED talk Bhutan: The country isn't just carbon neutral, its carbon negative

- *What is the difference between these two statements?*
  - *One is a balance same use as production, the other produces a surplus.*
- *What does the government provide for its population?*
  - *Healthcare*
  - *Education through college*
- *What happened when they first told the world countries that they were remaining carbon neutral in 2009?*
  - *Nobody listened, countries just fought.*
- *What happened in COP 21 held in 2015?*
  - *The countries had come around to understand that change had to happen.*
- *What is the 'Life for Bhutan" funding mechanism?*
  - *Multiparty, single closing: crowd sourcing and nobody pays until the full amount has been pledged.*

IDSN 255 Final Project: Students had to create a concept, use sustainable materials and methods, and design a business that was built up from a sustainable concept. This project took a mixed use building and converted it into two living units (corporate apartments), and incorporated a commercial kitchen that would be used for production and client education. Codes, space planning concepts, and sustainable methods were to be used. For the student example, '*Press to Porch'* was a company that created juices without heat pasteurizing, retaining the vitamins.
See LW_IDSN 255 Final LEED checklist, Final Specs, and Final for the complete project. Also included is the rubric for grading.

OUTCOME #6: Employ up-to-date industry methods to create presentations and information organization for a wide variety of applications by using hand and/or computer drafting, rendering and modeling programs.

IDSN 250 Studio II Commercial deals almost entirely with outcome #6. The syllabus in the appendix show the outcomes covered and the method and means that students employ for graphic communication, Sketchup, CAD, Photoshop, InDesign and Revit. All students are required to render their concepts in a digital method. Following are a few student samples:

Student Rendering, Pot and Kettle

Student Rendering

IDSN 266 Kitchen and Bath I

This class requires students to use both CAD, and a digital rendering method to product their finished projects. In this project student take an image from a magazine, then create a floorplan, and rending of the full space extrapolating what else might be in that bathroom. Students must use correct graphic methods in their drafting and all associated notation. (See full examples of this in IDSN 275_Eidson Portfolio in appendix.)

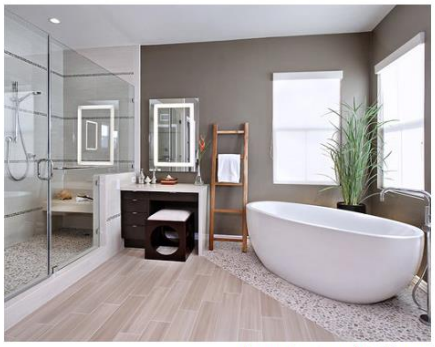
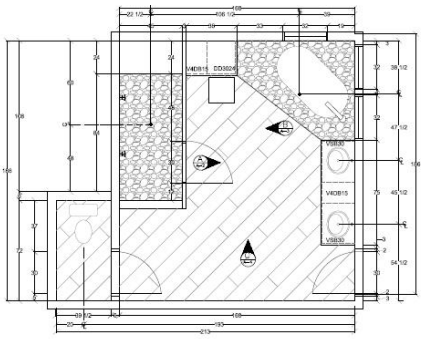
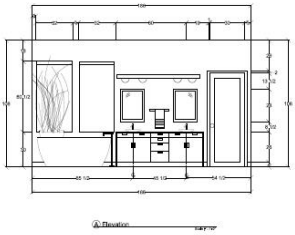
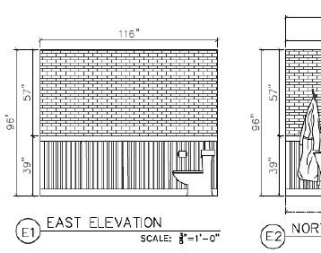
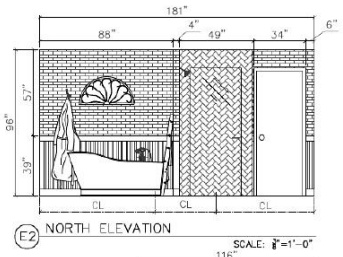


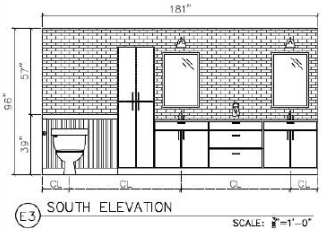
Image Courtesy of Jeri Koegel

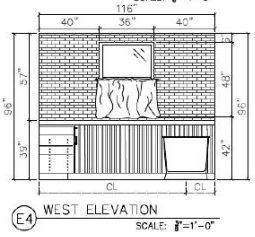


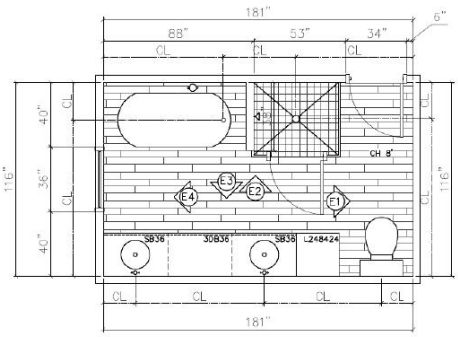












Inspiration Image

RESIDENTIAL

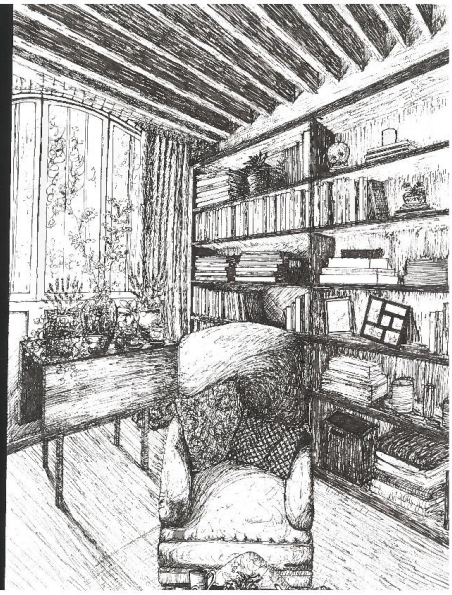
Cottage bathroom :

Plan and elevations based off of inspiration image. Not to scale.

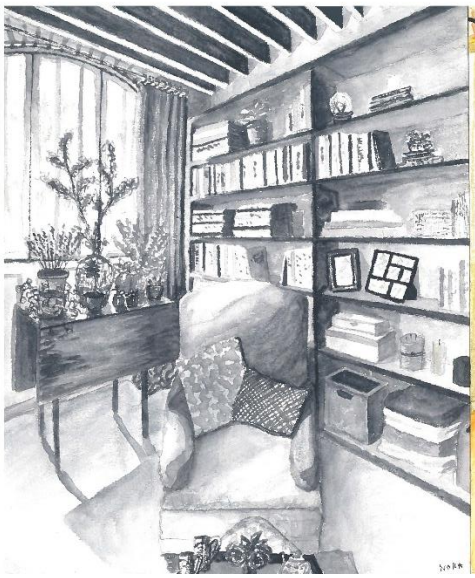
IDSN 131 Presentation Drawing

In this free-hand class students work to create a drawing from a photograph. Using the estimated two point grid method the create a grid of the space, filling in the furniture and accessories of the space maintaining the perspective created through the use of a horizon line and viewpoints. They alter the viewpoints in this final project to expose more of the room and add features than visible in the original photo, (pictured below). The students use pen and ink as line, then watercolors as value and finally watercolors to create a color version.

Original Photo



Pen and Ink Rendering



Value study watercolors

Full color, watercolors

IDSN 275 PROFESSIONAL PRACTICES-

The Paper Trail- this module tasks students with information organization and understanding the need for organized, clear paperwork in ordering and following up on a job. Students must understand the terms and methods in the legal documents that transfer ownership of thousands of dollars of goods daily.

Following is the Paper Trail exam question which tests students on the complex ordering system for fabric and a sofa. A student sample follows in the Appendix, IDSN 275 Professional Practices Paper Trail.

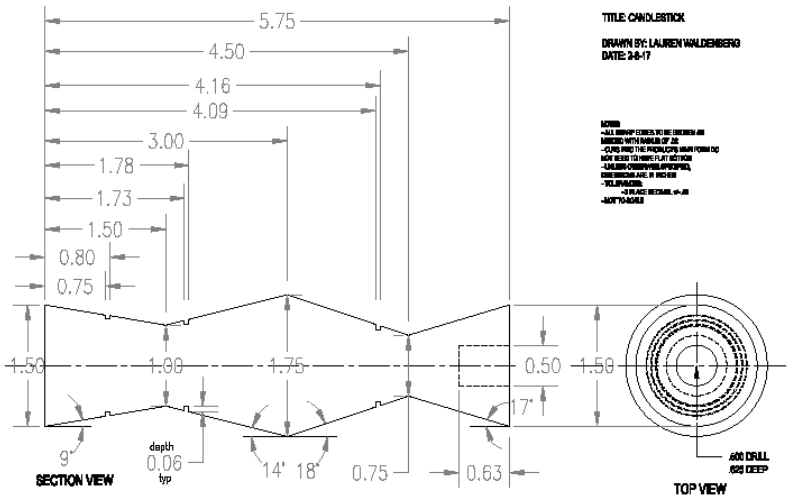
From the Final:

Paperwork trail 25 points

Using the supplied paperwork please order the following:

- Using the ordering paperwork, order qty. (3) Jasper Model 360-3-B bench seats. Do not upholster the arms. Finish all three in Cordovan Oak, no laminate. Upholster all three in the same Kravet fabric 30299, color: Orange.
- Use your own fictitious design company as the ordering firm.
- Ship finished Bench to:
  ABC Receivers
  4556 West 53rd
  New York, New York
  89717

The Finial Project pairs students in the interior design program with students in the CnC machining program. Designers create a digital CAD plan including an isometric view of their design and submit it for fabrication. This project requires students to digitally communicate and then follow up to make sure that any questions are answered in a timely manner. When the finished product is late, students learn the correct process by which to request updates and understand timing.



See drawing in Appendix, IDSN 275 Student Finial.

Certificate in Applied Science (CAS) in Health Information Coding

Health Information Coding Program Outcomes:

1. Graduate skilled entry level medical coders who can abstract patient information and combine it with universally recognized coding systems to assign and sequence diagnostic codes (ICD9, ICD10, HCPCS).
2. Graduate skilled entry level medical coders who can abstract patient information and combine it with universally recognized coding systems to assign and sequence procedural codes (CPT).
3. Code complete case studies using a computerized encoder program.
4. Perform billing and reimbursement procedures.
5. Pass the national coding exam.

Assessment Schedule:

	Year					
Outcome	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**	**2019-2020**
1	**x**			**x**		
2	**x**			**x**		
3		**x**			**x**	
4		**x**			**x**	
5			**x**			**x**

Performance Thresholds:

I: Introductory Level		**D: Developing Level**		**M: Mastery Level**	
Knowledge	**Comprehension**	**Application**	**Analysis**	**Synthesis**	**Evaluation**
Defines	Comprehends	Applies	Analyzes	Categorizes	Concludes
Describes	Distinguishes	Computes	Compares	Composes	Critiques
Identifies	Interprets	Demonstrates	Contrasts	Creates	Defends
Knows	Summarizes	Prepares	Distinguishes	Devises	Evaluates
Lists		Solves		Designs	Interprets
Recognizes				Modifies	Justifies

1. What Was Done

Based on our assessment plan, we assessed learning outcome 5 this year**: Pass the national coding exam.**

2016-2017 Outcome Reviewed:

Health Information Coding – CAS Degree		Program Outcomes
Course	**Cr**	**5**
AH 140 - Pharmacology	2	M
AHMS 144 - Medical Terminology	3	M
BIOH 112 - Human Form & Function I	3	M
BIOH 113 - Human Form and Function II	3	M
AHMS 160 - Beginning Procedural Coding	4	M
AHMS 162 - Beginning Diagnostic Coding	4	M
AHMS 156 - Medical Billing Fundamentals	3	M
AHMS 158 - Legal and Regulatory Aspects of Healthcare	2	M
AHMS 100 - Math Applications Health	3	M
AHMS 250 - Advanced Medical Coding	4	M
AHMS 298A Professional Practice Experience	1	M

8. What Data Were Collected

The final exam for AHMS 160 and 162

2-3 competencies from each of the following classes:
AHMS156, AHMS158, AHMS250

Printout from the computerized coding case studies showing competency.

The CCA(AHIMA) scores for the previous year's graduating class.

9. What Was Learned

Feedback from students graduating from the Coding program and currently entering the job market are finding that the national exam we are preparing students for is not always the standard for employers and therefore we are working with industry partners and our NTT faculty who also work as medical coders to determine what exam(s) will best prepare students for employment with as many employers as possible in the Gallatin Valley. Previously, the Health Information Coding advisory board members recommended the CCA, but this seems to no longer be the requirement for local medical centers who prefer CPC and CCS. This has been a major focus for us this spring – first hearing from NTT faculty working as coders, then students, circling back to our industry partners and finally reviewing hiring listings to determine which exam(s) we will prepare students for.

10. How We Responded

This summer we will review results from students' performance on the national CCA exam and monitor their hiring successes and specific industry placement. We will also interview them after the exam to determine their preparedness for the exam. We met with NTT faculty this summer to assess what exam(s) should be required and in turn, what material covered in class. We will likely use the CCPA exam going forward, but we will review this decision with our advisory board and industry partners. The Coding Program Director will work with the NTT adjust material covered in the classes to prepare for this exam. One of our NTT in Coding is going to test this fall to be a CCPA tester, which means she can administer the test directly to our students at the end of the school year (rather than off site later in the summer as it is now). We see this as a major benefit for our students as they will be trained by a tester and get the most current and accurate information possible. We also strategized new teaching deliveries to better prepare and engage students like having them practice more coding scenarios. We will also offer "Practicode" in lieu of VLab for the online teaching modules. Our Program Director will also work this summer to plan on adding an "Exam Prep" class to the Coding Program (similar to what we currently offer in Medical Assisting). This may include a required 8 hours of observation in a clinic to watch coders on the job (currently this happens in other classes, though as shorter visits). Results from this work this summer will be documented in next year's program assessment.

Certificate in Applied Science (CAS) in Medical Assisting

Medical Assisting Program Outcomes:

1. Graduate skilled entry level medical assistants who are cross-trained to work in all areas of a physician's office or other ambulatory care setting. This includes competency in:
    a. the front office
    b. the clinical area assisting with patients
    c. the laboratory performing CLIA waived tests.
2. Participate in a 200 hour externship experience in a designated health care setting.
3. Pass the national medical assisting exam.

Assessment Schedule:

	Year					
Outcome	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**	**2019-2020**
1a	**x**			**x**		
1b	**x**			**x**		
1c		**x**			**x**	
2		**x**			**x**	
3			**x**			**x**

Performance Thresholds:

I: Introductory Level		**D: Developing Level**		**M: Mastery Level**	
Knowledge	**Comprehension**	**Application**	**Analysis**	**Synthesis**	**Evaluation**
Defines	Comprehends	Applies	Analyzes	Categorizes	Concludes
Describes	Distinguishes	Computes	Compares	Composes	Critiques
Identifies	Interprets	Demonstrates	Contrasts	Creates	Defends
Knows	Summarizes	Prepares	Distinguishes	Devises	Evaluates
Lists		Solves		Designs	Interprets
Recognizes				Modifies	Justifies

1. What Was Done

Based on our assessment plan, we assessed learning outcome 3 this year**: Pass the national medical assisting exam.**

2016-2017 Outcomes Reviewed:

Medical Assistant – CAS Degree		Program Outcomes
Course	**Cr**	**3**
AH 140 - Pharmacology	2	M
AHMS 144 - Medical Terminology	3	M
BIOH 112 - Human Form & Function I	3	M
AHMA 201 - MA Clinical Procedures I	4	M
AHMA 203 - MA Clinical Procedures II	4	M
AHMA 280 - Med Assisting Exam Prep	1	M
AHMS 100 - Math Applications Health	3	M
AHMS 158 - Legal and Regulatory Aspects of Healthcare	2	M
AHMS 220 - Medical Office Procedures	3	M
BIOH 113 - Human Form and Function II	3	M
AHMA 298 - Medical Assisting Externship	4	M

11. What Data Were Collected

2-3 competencies from each of the following courses to show skill acquisition.

AH140, BIOH112, BIOH113, AHMA 201, AHMA 203, AHMS 158, and AHMS 220

The final in AHMS 144 and AHMS 100

The scores of the mock national exam for AHMA280.

The RMA (AMT) scores for the previous year's graduating class.

12. What Was Learned

Students continue to perform well on the RMA exam, so there will be little change to curriculum based on our assessments of the classes and exams listed above. We did, however, reflect on how students are increasingly struggling with professionalism. Though not an outcome assessment from this past year, it will relate to our outcomes reviewed next year. For this reason, we are planning some changes for our orientations as well as curricula across the program to ensure professionalism is built in and consistently assessed. Results of this will be included in next year's assessment report.

13. How We Responded

Each course in the medical assisting curriculum was cross matched with the content in published study guides for the RMA (AMT) national exam. The details, down to vocabulary terms, were noted if it was present in the study guides and not already a part of the courses content. Terms, diseases, medical background, and vocabulary terms were inserted into the appropriate courses weekly objectives. One goal is to pass the RMA(AMT) exam while the second goal is to acquire the content knowledge that is applicable in the current workforce setting.

Associate of Applied Science (AAS) in Photonics and Laser Technology

Photonics & Laser Technology Program Outcomes:

1. Graduates will obtain the necessary knowledge required to be successful in the optics, laser, and photonics support field. Students will be exposed to laser systems, electronics, optics and electro-optics. In particular, graduates will be prepared for a variety of Photonics based careers in design and manufacturing, materials processing, communications, medical applications, semiconductor fabrication, optical systems, electronics, military applications, sales, and education.
2. Graduates will have a foundation in electronics that includes electronic components and circuitry knowledge base.
3. Graduates will be able to function in a professional manner in their field, and use, maintain and clean equipment and tools required in the field of electronics, optics, lasers, and photonics.
4. Graduates will have knowledge of the following optics intensive components / theory:
    - Nature of Light
    - Geometric Optics
    - Wave Optics
    - Optical Components
    - Optical Devices and Principal of Operation
    - Optical Support and Positioning Equipment
    - Fibers and Fiber Optics (including connectorizing, polishing, and fusion splicing)
    - Physics of Lasers and Laser Operation
    - Operation and Characterization of Advanced Laser Systems such as Solid State Lasers and Fiber Lasers (and others)
    - Optical and Electro-Optical Systems for Precision Measurements and Alignments
    - Systems Integration of complex Photonics based Electro-Optic Systems
    - AC, DC, Digital, and Analog Electronics for support of advanced Photonics Systems
5. Graduates will be able to analyze, configure, test, measure, troubleshoot and assist with problems that arise in a professional optics, lasers, and photonics environment.
6. Graduates will be able to communicate technical ideas, procedures, and results with professionals in written, oral, and graphic format.

Program Outcome Assessment Schedule:

	Year					
Outcome	**2016-2017**	**2017-2018**	**2018-2019**	**2019-2020**	**2021-2022**	**2022-2023**
1	x			X		
2	x			X		
3		X			X	
4		X			X	
5			X			x
6			X			X

1. What Was Done

Based on our assessment plan, we assessed learning outcomes 1 & 2 this year:

1. Graduates will obtain the necessary knowledge required to be successful in the optics, laser, and photonics support field. Students will be exposed to laser systems, electronics, optics and electro-optics. In particular, graduates will be prepared for a variety of Photonics based careers in design and manufacturing, materials processing, communications, medical applications, semiconductor fabrication, optical systems, electronics, military applications, sales, and education.

2. Graduates will have a foundation in electronics that includes electronic components and circuitry knowledge base.

2016-2017 Outcomes Reviewed:

CNC Machine Technology - CAS		**Program Outcomes**	
Course	**Cr**	**1**	**2**
ETEC 101 – AC/DC Electronics with Lab	4	I	D
ETEC 106 – AC Circuit Analysis	3	I	D
PLTT 101 – Fundamentals of Light & Lasers	5	I	D

Performance Thresholds:

I: Introductory Level		**D: Developing Level**		**M: Mastery Level**	
Knowledge	**Comprehension**	**Application**	**Analysis**	**Synthesis**	**Evaluation**
Defines	Comprehends	Applies	Analyzes	Categorizes	Concludes
Describes	Distinguishes	Computes	Compares	Composes	Critiques
Identifies	Interprets	Demonstrates	Contrasts	Creates	Defends
Knows	Summarizes	Prepares	Distinguishes	Devises	Evaluates
Lists		Solves		Designs	Interprets
Recognizes				Modifies	Justifies

2.What Data Were Collected

Student results from the following:

- ETEC101 Exam 6
- ETEC 101 Lab Manual
- ETEC 101 Final Exam
- ETEC 106 Lab Manual
- PLTT 101 Final Exam

3. What Was Learned

This is the first year of the Photonics & Laser Technology program at Gallatin College and therefore only the first year courses were taught. Next year, the second year courses will be added to the assessment plan as well as additional outcomes. These annual assessments will evolve considerably as the program builds.

The assessments from these first year classes show promising results of students' performance and meeting of program outcomes. Initial assessment reveals the outcomes themselves may need to be rewritten to be clearer and more measurable. Outcome 1, in particular is too long and reads more as an overall program goal and should be broken down to individual outcomes. This will be rewritten next year.

The AC/DC course really should be an intro to AC only and not incorporate DC. It will be consider if this can be a title change through the CCN next year.

4. How We Responded

Next year, the second year courses will be added to the assessment plan as well as additional outcomes. These annual assessments will evolve considerably as the program builds.

Outcome 1, will be rewritten next year to read as a measurable outcome more than an overall program goal.

The AC/DC course will pursue a title change through the CCN next year.

Certificate in Applied Science (CAS) in Welding Technology:

1. Meet safety requirements.
2. Produce welds in all positions that meet industry standards using the following process(es):
    a. Shielded Metal Arc Welding (SMAW)
    b. Gas Metal Arc Welding (GMAW)
    c. Flux Cored Arc Welding (FCAW)
3. Make cuts that meet industry standards in the following process(es):
    a. Plasma Arc Cutting (PAC)
    b. Air Carbon Arc Cutting (CAC-C)
4. Understand the use of measuring instruments and their purpose.
5. Understand power sources and current types.
6. Interpret welding blueprints and weld symbols.
7. Utilize basic welding metallurgy.
8. Utilize oral and written communication skills in the workplace, including terminology in the welding industry.

Performance Thresholds

I: Introductory Level		D: Developing Level		M: Mastery Level	
Knowledge	**Comprehension**	**Application**	**Analysis**	**Synthesis**	**Evaluation**
Defines	Comprehends	Applies	Analyzes	Categorizes	Concludes
Describes	Distinguishes	Computes	Compares	Composes	Critiques
Identifies	Interprets	Demonstrates	Contrasts	Creates	Defends
Knows	Summarizes	Prepares	Distinguishes	Devises	Evaluates
Lists		Solves		Designs	Interprets
Recognizes				Modifies	Justifies

Assessment Schedule:

	Year					
Outcome	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**	**2019-2020**
1	**x**			**X**		
2	**x**			**X**		
3	**x**			**x**		
4		**X**			**X**	
5		**X**			**X**	
6			**x**			**x**
7			**X**			**x**
8			**X**			**X**

1. What Was Done

Based on our assessment plan, we assessed learning outcomes 6-8 this year**:**

6. Interpret welding blueprints and weld symbols.
7. Utilize basic welding metallurgy.
8. Utilize oral and written communication skills in the workplace, including terminology in the welding industry.

2016-2017 Outcomes Reviewed: See attached excel spreadsheet to see what classes and meet these outcomes as "D" or "M"

2. What Data Were Collected

- Results of Certifications from WLDG 281 Certification course (Summer 2017)
- Results of Certifications from Spring 2017 (WLDG 185)
- Final Projects in WLDG 155 & 130
- Written communication: COMX 115
    - In the fall 2016 semester there were 22 students enrolled in COMX 115 Interpersonal Communications. During the semester, the instructor randomly selected 20% of her class essays, resulting in a sample of 4 writing assignments.
- Oral communication: COMX 115 Student Presentations
    - The instructor also assessed 4 student presentations at the end of the semester.
    - Course Enrollment: 22
    - Number of Course Sections: 1
    - Instructor: Janet Heiss Arms, General Education Director and Instructor

3. **What Was Learned**

Spring Certifications

This spring graduating welding students completed 471 certifications, which is an average of 19 per student. This is a significantly high achievement for the program as it is a direct measure on the successful completion of the program outcomes listed above.

Summer Certifications

The summer certifications will be tracked as they come in next month.

Written communication results:

Criteria	Above Expectations	Meets Expectations	Below Expectations
Claim	25%	75%	0%
Support	25%	75%	0%
Alternative Perspective	50%	50%	0%
Language	25%	50%	25%
Mechanics	25%	50%	25%
Overall	30%	60%	10%

Our “meets expectations” numbers are strong in almost every category (all but “language”, which was defined as using language that clarifies and enhances meaning), averaging 60% for the five criteria.

Oral communication results:

Criteria	Above Expectations	Meets Expectations	Below Expectations
Central Message	50%	25%	25%
Content Development	50%	25%	25%
Organization	25%	50%	25%
Support	50%	50%	0%
Language	25%	50%	25%
Visual or Sensory Aids	25%	50%	25%
Delivery	25%	50%	25%
Timing	50%	50%	0%

Half of the sample presentations score in the “Meets Expectations” column, and 25% in the “Below Expectations” column regarding “language”. This, paired with the “organization” category, led us to conclude that giving an oral presentation is not something our students inherently know how to do.

4. How We Responded

Because the results were similar to the COLS 101US assessment of Written communication (see AA/AS Assessment Report), we intend to implement the same changes to the sample writing assignment for COMX 115:

- A class session set aside to show students examples of high-quality essays from past semesters,
- A peer-review session in class paired with the writing rubric before the final draft is due, or a Writing Center-led class session,
- Requiring instructors to thoroughly explain the expectations for the assignment in conjunction with an explanation of the rubric for the assignment.

Oral communication:

The assessment team agreed that we need to spend time in class (at least an entire 75 minute class) instructing students on how to prepare and deliver an oral presentation. We implemented this in the COLS 101 classes in Fall 2016 with positive results, so will do the same for the COMX 115 class Fall 2017. We also discussed the possibility of recording students' presentations in a future semester and requiring a self reflection.

Based on this assessment and collaboration from other Gallatin College Program Directors during Fall 2016, it was determined we will require COMX 115 Interpersonal Communication for all CAS programs and propose a new communications course for AAS (two-year) degrees, now COMX 222 Professional Communication, which was proposed and built into the schedule Spring 2017 and will be included in next year's assessments.

Welding Technology Curriculum Changes from Program Outcome Assessment
The Welding Technology Program at Gallatin College, Montana State University has developed and utilizes a curriculum that follows the American Welding Society's SENSE (levels I, II, II), NCCER (levels one, two and three) and is a direct result of regional advisory board input.

In response to the board's recommendation for a realistic fabrication experience, the weld shop has purchased through grants and Perkins monies additional machinery and tooling. The program is presently aligning its outcomes to the needs of the community and utilizing the BOR CCN to appropriately match the course with the outcomes that are actually being taught. An example of this is the inclusion of the WLDG 151 and WLDG 154 into the CAS.

This past year our Welding Program Director lead an effort to align outcomes for all welding courses being taught throughout the state to update them to more current practices and appropriate outcomes language (i.e. measurable). The results of this work will be vetted through the CCN system starting next year – slowly editing existing outcomes that welding faculty across the state agree need to be updated. These updates will be referenced in the Annual Assessment process for the coming years.