Writing Learning Outcomes (distributed by VPAA to AASC)

Teaching is ultimately about learning- to teach is not enough, we must ensure learning occurs. Learning is the shared goal between the student and the teacher.

How do we know if learning occurs? Only through evidence, what we can see and measure. We cannot accept simply thinking the student understands, nor can we guess that the student has learned.

We know if learning occurs through measuring or assessing the learning outcomes. This is what we see, what we observe, physical outward evidence that is a translation of what the student thinks internally to what we can observe and measure outwardly.

Internal vs. External—Think about a conversation with another person, do you know what they are recalling in their memory as they are preparing to respond to your question? No- because recalling is internal. Once they speak and share that they are reminded of a past experience you now know they recalled something. Think about a walk through a flower garden, you recognize some flowers, but there are other flowers you do not recognize and cannot name. This is recognition and again it is internal until you outwardly share that you recognize the flower.

External words are observable actions that can be acted out, seen, and measured. Think about giving a child a choice of cookies, to select a type of cookie is an external action when the child picks a cookie up.

Avoid internal words such as recall, recognize, value, understand, appreciate, observe, relate—avoid internal words and focus on external words.

What is a learning outcome? This is the objective (what the student will learn) translated to the external behavior (observable, measurable) given conditions (context or subject matter content) at a level of proficiency (how well, accuracy level, within specs, or timeframes)

How does a learning outcome inform the teacher and the student? This is a key concept. The observation (assessment) informs both the teacher and the student whether the learning outcome was achieved and whether changes or

additional practice is needed. Learning outcomes are expectations not hopes!

Writing learning outcomes starts with thinking about how to apply what a learning outcome is (see above). As you think about how to write a learning outcome it may be easier to think backward from assessment to outcome. What is the external, observable, measurable behavior that the student will do to verify learning occurred?

Hints: RED FLAGS
- Avoid words such as recall, recognize, value, understand, appreciate, observe, relate
- Avoid phrases such as acquire an understanding of…, become familiar with…, function effectively in…
- Avoid teaching and learning behaviors as they are not outcomes, ex. practice, read, research, study

Rule of thumb: Should have 2-4 outcomes per credit

Good examples:

Interpret the basic elements of a _____ drawing.

Organize a maintenance and troubleshooting plan for _____

Locate and identify _____ and explain their relationship with _____

Analyze _____ performance monitoring to determine _____

Compare and contrast the features of _____

Explain how _____ (size, materials, or location, etc.) of _____ relate to function.

Extract _____ performance data and create possible correction plans

List and explain the _____ system and their effects on _____

Debug and troubleshoot _____ application problems

Identify preferred processes to complete _____ repairs.

Install _____ to create a functioning _____

Analyze and select appropriate _____ to create _____

Explain the legal, ethical, and professional issues in _____

Implement _____ in _____ or to process/validate/integrate _____

Demonstrate proper inspection and operation of equipment used for _____

Describe the types of tests that are performed on _____ to determine ____

Build/Construct/Fabricate various projects using prints and _____ tools

Demonstrate techniques to build _____ on mockups.

Describe and practice the use of _____ equipment and _____ skills/procedures.

Explain technicians expectations including: customer relations, customer safety, quality assurance, and work orders.

Demonstrate ethical conduct, respectful communication, and proper interaction essential when working with customers from diverse populations.

Compare the types, purpose, and composition of various materials and demonstrate the installation technique.

Examples of course description language:

Time will be spent in the lab developing skills using the _____ and _____ processes.

Written and demonstration tests will be done in accordance with the (insert the appropriate organization, ex. NATEF, AWS, etc.) industry standard curriculum and codebooks.

Students will develop a good working knowledge of _____ and _____ concepts using _____, _____, _____ and _____ in conjunction with _____.

Students will develop the skill needed to _____ that will _____.

Students will be introduced to _____ and _____ and functions of _____ and their relationship to _____.

Students will perform _____ techniques and follow _____ processes in _____ and utilize software to record data.

This course combines lecture and laboratory practice to introduce students to the knowledge and skills required in _____. The course introduces students to the equipment, _____ processes, and provides instruction on the _____ and _____ techniques.

Students will practice these concepts while gaining knowledge of the various _____ methods and techniques.

Laboratory practice is provided on simulators, models, and mock-ups.

This courses provides advanced skill development in design, installation, and maintenance of _____ systems.

Students will develop the skills sought by employers and necessary to be current with industry standards.

Students will learn best practices as identified by industry standards.