

Reflective Practice: The Scholarship of Teaching and Learning

The CEET Initiative on Teaching & Learning Faculty Development Program
Instructional Analysis and Design Process Map
(Scarborough, J.D. 2008-2009)

Use in conjunction with:

[Reflective Practice: The Scholarship of Teaching and Learning](#)
[CEET's Faculty Development Model](#)
[Systematic Instructional Design "Intentional and Reversed"](#)

(Scarborough, 2008-2009)

(Dick & Carey, 1996; Wiggins & McTighe, 2005, 1995;
Deming Quality Cycle, 1950's)

Teaching and Learning Assessment:

To assess your teaching, instructional design and practices, student assessment and learning use these instruments with yourself and your students.

<http://www.niu.edu/CEET/p20/scholarship/vol3/C.9.pdf> (self competency assessment)

<http://www.niu.edu/CEET/p20/scholarship/vol3/C.10.pdf> (self and students)

<http://www.niu.edu/CEET/p20/scholarship/vol3/C.10.a.pdf> (point values for scoring)

Hyperlink Note:

Although we have tested and retested the hyperlinks, some will probably not activate.

The blue underlined words below are [links](#) to instructional information throughout the Portfolio and website. If there is a desire to view additional information on a concept, topic, model, or literature on the subject, control click on the link.

To begin your own Teaching Portfolio:

<http://www.niu.edu/CEET/p20/scholarship/vol3/C8.pdf>

Teaching and Learning Resources:

<http://www.niu.edu/CEET/p20/scholarship/vol1/A8a.pdf>

(Bibliography for literature reviews in Sections A.3, A.4, A.5, A.6, and A.7 of Portfolio)

<http://www.niu.edu/CEET/p20/scholarship/vol1/A8B.pdf> (Professor's Toolbox)

<http://www.niu.edu/CEET/p20/scholarship/vol1/A8c.pdf> (Engineering and Other Resources)

<http://www.niu.edu/CEET/p20/scholarship/vol1/a8d.pdf> (SoTL, Course-Instructional Design, etc.)

Color Legend:

Black: Category A-K: Analysis, design, development task categories

Black: Bibliographic References or Sources (sources for knowledge, practice or skill content)

Green, Brown, Orange: A. ABET, TAC, NAIT, NIU Learning Outcomes or Standards

Red: Instructions for A-K located in each heading column

Black: References to related tools, forms, worksheets, graphics for use in accomplishing tasks; support sub-processes. These can be found in **Vol. III, Section D** of the **Portfolio Site** or provided at workshops.

<p>A. ABET Outcomes ABET/TAC Outcomes NAIT STANDARDS</p> <p>(1)Engineering (A-K), (listed first below- order A-K) (*2-3) Combined A-P: (2) *Engineering Tech. (3) *Industrial Technology (A-P listed & aligned with ENG A-K; not in alphabetical order)</p> <p>(4) NIU Gen. Ed. Goals embedded ABET/NAIT</p> <p>1. Choose ABET/TAC/NAIT (with embedded NIU Gen Ed) Outcomes for course.</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol3/C3B.pdf</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol3/C3C.pdf</p>	<p>B. Course Outcomes Student Learning Outcomes Knowledge Priority & Order</p> <p>Ca. Course Outcomes (COs) Cb. Student Learning Outcomes (SLOs)</p> <p>ID Specific Course Title (here): http://www.niu.edu/CEET/p20/scholarship/vol3/C3B.pdf</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol3/C3C.pdf</p> <p>(1) ID Outcomes. (2) Write specific Student Learning Outcomes below each course outcome</p> <p>(3) ID, Order, Est. % Knowledge Priorities (s.61) (KP)-a-c. a. (BI) (CT)Big Ideas/Core Tasks b. (IK) Important to Know c. (W) Worth being familiar with (Wiggins & McTighe, 2005)</p> <p>(4) Develop Syllabus using template. (4) Syllabus template alternative.</p>	<p>C. Knowledge Analyses (pp. 66-118) 1.Determine and identify: (place / on left a-g).</p> <p>(a) Course Knowledge Sources (Bloom Knowledge Dimension, 1956) (p.41-47)</p> <p>(b) <u>Course Knowledge Sources</u> (Contextual)</p> <p>(c) *Bloom's Cognitive (p.41-47) Dimensions *(Anderson et al, 2001; Bloom, 1956)</p> <p>(d) <u>Prior knowledge (Prerequisites)</u></p> <p>(e) Multiple Intelligences (s.14-22) (Gardner ,1993)</p> <p>(f) <u>Integrated Curriculum Models</u> (Fogerty, 1991)</p> <p>(g) <u>Course Center -Balance</u> (s.46) (Bransford, 1998)</p>	<p>D. Multifaceted & Balanced Assessment Plan –Priorities (MAPP)</p> <p>*Strategies I- XII- excellent MAPP options</p> <p>1a. <u>Identify assessment strategies for each outcome; Strategies may assess multiple outcomes.</u></p> <p>1b. <u>Identify ID, Order, determine % for each Assessment Priority (AP);</u></p> <p>1c. <u>Align KPs in B. and APs in D1b.</u> http://www.niu.edu/CEET/p20/scholarship/vol3/C5C.pdf</p> <p>2. <u>Identify each assessment strategy value (%) towards final student evaluation; should also align with KPs-B.</u> http://www.niu.edu/CEET/p20/scholarship/vol3/C5A.pdf</p> <p>3. <u>Map each Assessment Strategy, Priority, Item back to specific Outcomes.</u> (Kuhs, 2001; Scarborough., 2006)</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol3/C5.pdf</p> <table border="1" data-bbox="1181 705 1609 768"> <tr> <td>Strategies I-XII+ XIII TBD</td> <td>Rubric Value %s</td> </tr> <tr> <td>Rubric #s</td> <td>Rubric Item #s</td> </tr> </table>	Strategies I-XII+ XIII TBD	Rubric Value %s	Rubric #s	Rubric Item #s	<p>E. Bloom Cognitive Dimension (s.66)</p> <p>1. Identify (/) each level of Bloom's Cognitive Dimension achieved by each Student Assessment Strategy and Item.</p> <p>(Anderson & Krathwohl, 2001; Bloom, 1956)</p> <p>Critical Think. (p.88-93)</p>	<p>F. Teaching Models (s.46-76)</p> <p>1. Choose (/) models to achieve outcomes throughout course.</p> <p>2. Make sure models are appropriate for active learning at Bloom's upper Cognitive Dimension.</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol3/C6A.pdf</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol3/C6B.pdf</p> <p>(Johnson, et al.1998; Joyce et al, 2008)</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol3/C6.pdf</p>	<p>G. Teaching Styles (s.43)</p> <p>1. Choose (/) Mosston & Ashworth Styles Or Grasha Styles to be used to achieve learning outcomes.</p> <p>(Grasha or Mosston-Ashworth, 1966)</p>	<p>H. Dale's Cone of Learning (p.109)</p> <p>(1) ID Learning Strategy Activity for each SLO (See Category B)</p> <p>2. ID Activity level by Dale's Cone (s.65) (1964) of Learning (P.I.A)</p> <p>3. ID Bloom's Cognitive Dim. For each Activity.</p> <p>Dale, E. (1964)</p>	<p>I. Student Learning Styles (s.29-42)</p> <p>How Students Learn (pp.66-118)</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol4/D1.pdf http://www.niu.edu/CEET/p20/scholarship/vol4/D1.pdf (s65-76)</p> <p>1. Choose (/) Kolb Or Felder(s.29) 2. Check (/) Learning Styles accommodated during learning. 3. Make sure the whole range of LS is accommodated. (Felder, 1988; Kolb, 1984)</p>	<p>J-K. Reflective Practice (s.1-107) or Action Research Planning The Scholarship of Teaching CASTL Higher Education</p> <p>1? (Y/N) Did students achieve learning outcome and provide acceptable evidence of learning?</p> <p>2R. If not: (a) ID-diagnose problem; (b) Design intervention (c) Choose Research/Eval. Mode (d) ID Research date (e) Perform Research/Eval. Test Intervention; collect data (f) Analyze data (g) Document Results</p> <p>3I. Follow through-Implement Change http://www.niu.edu/CEET/p20/scholarship/vol1/A3.pdf</p> <table border="1" data-bbox="2682 705 3070 768"> <tr> <td>1. Q</td> <td>2. Research Or Evaluate. (a-g)</td> <td>3.I Change</td> </tr> </table>	1. Q	2. Research Or Evaluate. (a-g)	3.I Change
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<p>A. Apply knowledge of math, science, engineering</p> <p>B. Apply current knowledge and adapt to emerging applications of math, science, engineering, and technology.</p> <p>NIU Gen Ed Goals- Students:</p> <p><i>a. develop habits of writing, speaking, and reasoning necessary for continued learning.</i></p> <p><i>a.i. communicate clearly in written English, demonstrating ability to comprehend, analyze, and interrogate critically.</i></p> <p><i>a.iii. perform basic computations, display facility with use of formal and quantitative reasoning analysis and problem solving, and interpret mathematical models and statistical information.</i></p>	<p>KP – Order KPs - %</p> <p>1.BI ___ %</p> <p>2. BI ___ % Etc.</p> <p>1. IK ___ %</p> <p>2. IK ___ % Etc.</p> <p>1.W ___ %</p> <p>2.W ___ %</p> <p>ETC.</p> <p>Course Outcome 1 -Student Learning Outcome 1</p> <p>Course Outcome 2 - Student Learning Outcome 1</p> <p>Course Outcome 2 - Student Learning Outcome 2...</p> <p>Course Outcome 2 - Student Learning Outcome 1</p> <p>Course Outcome 2 - Student Learning Outcome 2...</p> <p>Course Outcome 2 - Student Learning Outcome 1</p> <p>ETC.</p> <p>Design & Develop Syllabus</p>	<p>a. Bloom Knowledge Dimension ___ Factual Knowledge ___ Conceptual Knowledge ___ Procedural Knowledge ___ Meta-Cognitive Knowledge</p> <p>b. Knowledge Sources: ___ Text ___ Professor ___ Expert ___ Field Experience ___ Internet ___ Other</p> <p>c. Bloom's Cognitive Dimension ___ Knowledge – Remember ___ Comprehension – Understand ___ Application - Apply ___ Analysis – Analyze ___ Synthesis – Evaluate ___ Evaluate – Create</p> <p>d. Gardner's Multiple Intelligences ___ Verbal-linguistic ___ Logical-mathematical ___ Spatial ___ Musical ___ Bodily-Kinesthetic ___ Intra-personal (team/group) ___ Interpersonal (individual)</p> <p>e. Prior Knowledge Identify briefly by discipline: Math, Science, Technology, Com.,</p> <p>f. Integration Models: ___ Connected ___ Sequenced ___ Nested ___ Shared ___ Webbed ___ Threaded ___ Integrated ___ Networked ___ Immersed</p> <p>g. Course Balance: Course is centered on: ___ a. knowledge ___ b. assessment ___ c. teacher ___ d. learner (student) ___ e. balanced (reflect in syllabus)</p>	<p>I. Portfolios (___ %)</p> <p>II. Field Activities (___ %) ___ a. Interviews - Expert Inquiry ___ b. Tours ___ c. Internships ___ d. Shadowing ___ e. Projects ___ f. Career Plan ___ g. Career ID Study ___ h. Career Preparation Plan</p> <p>III. Graphing (___ %) ___ a. flowcharts ___ b. concept mapping ___ c. others</p> <p>IV. Information Research (___ %) ___ a. Literature Studies ___ b. Case Studies ___ c. Learning Papers ___ d. Internet Studies</p> <p>V. Problem based Tasks (___ %) ___ a. Performance Tasks ___ 1. design problems/tasks ___ 2. technical ___ 3. technological ___ b. Observable Behaviors ___ 1. individual 2. team</p> <p>VI. Technical Research (___ %) ___ a. Experiments ___ b. Quasi-experiments ___ c. Pilots, field-tests ___ d. Evaluation, etc. others TBD</p> <p>VII. "Minute" Papers (___ %)</p> <p>VIII. Critical Reflection ___ a. Journals ___ b. Logs ___ c. Questionnaires</p> <p>VIII. Technical Projects (___ %) Rubric #s</p> <p>IX. Conceptual Projects Rubric #s</p> <p>X. Presentations (___ %) Rubric #s</p> <p>XI. Tests (___ %) Test Item #s ___ a. short answer ___ b. essay ___ c. problem ___ d. selected response ___ 1. multiple choice ___ 2. matching 3. true/false</p> <p>XII. Leadership -Community Service Projects (___ %) Rubric #s</p> <p>XIII. Others TBD (___ %) TBD</p>	<p>(copy each one as needed)</p> <p>___ Knowledge – Remember</p> <p>___ Comprehend - Understand</p> <p>___ Application – Apply</p> <p>___ Analysis – Analyze</p> <p>___ Synthesis – Evaluate</p> <p>___ Evaluate – Create</p> <p>ETC.</p>	<p>Primary Choices: Inquiry PBL (s.51) http://www.niu.edu/CEET/p20/scholarship/vol1/A6.pdf (p.101)</p> <p>Guided Discovery Cooperative Learning... Mini-Lecture</p> <p>___ College CL Johnson et al ___ Cooperative Learning- Informal ___ Cooperative Learning Formal ___ Cooperative Learning Base Group ___ Cooperative Learning Basic Elements</p> <p>Joyce et al ___ Inductive Reasoning ___ Concept Attainment ___ Picture Word ___ Induction ___ Scientific Inquiry ___ Mnemonics ___ Synectics ___ Advance Organizers ___ Structured Inquiry ___ Group Investigation ___ Role Playing ___ Jurisprudential Inquiry ___ Nondirective Teaching ___ Enhancing Self-Esteem ___ Mastery Learning ___ Programmed Schedule ___ Direct Instruction ___ Simulation ___ Lecture</p>	<p>Primary Choices: (Mosston & Ashworth)</p> <p>___ Command ___ Practice ___ Reciprocal ___ Self Check ___ Inclusion ___ Guided ___ Discovery ___ Convergent ___ Discovery ___ Divergent ___ Production ___ Learner ___ Designed ___ Learner ___ Initiated ___ Self Teach</p> <p>(Grasha)</p> <p>___ Expert ___ Formal ___ Authority ___ Personal ___ Model ___ Facilitator ___ Delegator</p>	<p>(copy each one as needed)</p> <p>P Passive I Intermediate A Active</p> <p>___ Knowledge - Remember</p> <p>___ Comprehend - Understand</p> <p>___ Application – Apply</p> <p>___ Analysis – Analyze</p> <p>___ Synthesis – Evaluate</p> <p>___ Evaluate – Create</p> <p>SLO _____ Act.1 _____ P, I, A _____ Bloom _____</p> <p>Act.2 _____ P, I, A _____ Bloom _____</p> <p>Act.3 _____ P, I, A _____ Bloom _____</p> <p>SLO _____ Act.1 _____ P, I, A _____</p>	<p>Primary Choices:</p> <p>Kolb ___ Concrete ___ Experience ___ Reflective ___ Observation ___ Abstract ___ Conceptualization ___ Active ___ Experimentation</p> <p>Felder ___ Sensing ___ Learner ___ Intuitive ___ Learner ___ Visual Learner ___ Verbal Learner ___ Active learner ___ Reflective ___ Learner ___ Sequential ___ Learner ___ Global ___ Learner</p> <p>Gregorc ___ Concrete- ___ Abstract ___ Sequential- ___ Random</p> <p>Other Choices: Dunn & Dunn Riding Myers/Briggs Apter Jackson Honey & Mumford Herrmann Allinson & Hayes Entwistle Vermunt Sternberg</p>	<p>(copy as needed)</p> <p>a. ID-Diagnose Problem: _____</p> <p>b. Design Intervention: _____</p> <p>c. Choose Model: Research or Evaluation: _____</p> <p>d. Id Research Date: _____</p> <p>e. Perform Research OR Perform Eval.</p> <p>f. Analyze Data</p> <p>g. Document Results: _____</p> <p>Research Models ___ Experimental ___ Quasi- ___ Experimental ___ Other Models by (Campbell & Stanley, 1963) ___ Action Research (Nitko, 2006)</p> <p>Evaluation Models ___ Pilot ___ ALPHA ___ Field-test ___ BETA ___ Implementation (See Bibliographies)</p>							

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<p>C. Design a system, component, process to meet desired needs within realistic constraints (e.g., economic, environmental, social, political, ethical, health, safety, manufacturability, & sustainability).</p> <p>D. Apply creativity in the design of systems, components, or processes appropriate to program educational objectives.</p> <p>NIU Gen Ed Goals - Students:</p> <p><i>c. develop an</i> <i>understanding of the</i> <i>relatedness of various</i> <i>disciplines by integrating</i> <i>knowledge from several</i> <i>disciplines and applying</i> <i>that knowledge to an</i> <i>understanding of</i> <i>important problems and</i> <i>issues.</i></p>	<p>KP – Order KPs - %</p> <p>1. BI ___ %</p> <p>2. BI ___ % Etc.</p> <p>1. IK ___ %</p> <p>2. IK ___ % Etc.</p> <p>1. W ___ %</p> <p>2. W ___ %</p> <p>ETC.</p> <p>ETC.</p> <p>Design & Develop Syllabus</p>	<p>a. Bloom Knowledge Dimension ___ Factual Knowledge ___ Conceptual Knowledge ___ Procedural Knowledge ___ Meta-Cognitive Knowledge</p> <p>b. Knowledge Sources: ___ Text ___ Professor ___ Expert ___ Field Experience ___ Internet ___ Other</p> <p>c. Bloom's Cognitive Dimension ___ Knowledge – Remember ___ Comprehension – Understand ___ Application - Apply ___ Analysis – Analyze ___ Synthesis – Evaluate ___ Evaluate – Create</p> <p>d. Gardner's Multiple Intelligences ___ Verbal-linguistic ___ Logical-mathematical ___ Spatial ___ Musical ___ Bodily-Kinesthetic ___ Intra-personal (team/group) ___ Interpersonal (individual)</p> <p>e. Prior Knowledge Identify briefly by discipline: Math, Science, Technology, Com.,</p> <p>f. Integration Models: ___ Connected ___ Sequenced ___ Nested ___ Shared ___ Webbed ___ Threaded ___ Integrated ___ Networked ___ Immersed</p> <p>g. Course Balance: Course is centered on: ___ a. knowledge ___ b. assessment ___ c. teacher ___ d. learner (student) ___ e. balanced (reflect in syllabus)</p>	<p>I. Portfolios (___ %) II. Field Activities (___ %) _a. Interviews - Expert Inquiry _b. Tours _c. 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Leadership -Community Service Projects (___ %) Rubric #s</p> <p>XIII. Others TBD (___ %) (TBD by Instructor)</p>	<p>(copy each one as needed)</p> <p>___ Knowledge – Remember</p> <p>___ Comprehend - Understand</p> <p>___ Application – Apply</p> <p>___ Analysis – Analyze</p> <p>___ Synthesis – Evaluate</p> <p>___ Evaluate – Create</p> <p>ETC.</p>	<p>Primary Choices:</p> <p>Inquiry PBL (s.51)</p> <p>http://www.niu.edu/CEET /p20/scholarship/vol1/A6. pdf (p.101)</p> <p>Guided Discovery Cooperative Learning... Mini-Lecture</p> <p>Johnson , et al</p> <p>___ Cooperative Learning in College Classrooms. ___ CL - Informal ___ CL - Formal ___ CL – Base Groups ___ Cooperative Learning Basic Elements</p> <p>Joyce et al</p> <p>___ Inductive Reasoning ___ Concept Attainment ___ Picture Word ___ Induction ___ Scientific Inquiry ___ Mnemonics ___ Synecetics ___ Advance Organizers ___ Structured Inquiry ___ Group Investigation ___ Role Playing ___ Jurisprudential Inquiry ___ Nondirective Teaching ___ Enhancing Self-Esteem ___ Mastery Learning ___ Programmed Schedule ___ Direct Instruction ___ Simulation ___ Lecture</p>	<p>Primary Choices:</p> <p>(Mosston & Ashworth)</p> <p>___ Command ___ Practice ___ Reciprocal ___ Self Check ___ Inclusion ___ Guided ___ Discovery ___ Convergent ___ Discovery ___ Divergent ___ Production ___ Learner ___ Designed ___ Learner ___ Initiated ___ Self Teach</p> <p>(Grasha)</p> <p>___ Expert ___ Formal ___ Authority ___ Personal ___ Model ___ Facilitator ___ Delegator</p>	<p>(copy each one as needed)</p> <p>P Passive I Intermediate A Active</p> <p>___ Knowledge - Remember</p> <p>___ Comprehend - Understand</p> <p>___ Application – Apply</p> <p>___ Analysis – Analyze</p> <p>___ Synthesis – Evaluate</p> <p>___ Evaluate – Create</p> <p>SLO _____ Act.1 _____ P, I, A _____ Bloom _____</p> <p>Act.2 _____ P, I, A _____ Bloom _____</p> <p>Act.3 _____ P, I, A _____ Bloom _____</p> <p>SLO _____ Act.1 _____ P, I, A _____</p>	<p>Primary Choices:</p> <p>Kolb ___ Concrete ___ Experience ___ Reflective ___ Observation ___ Abstract ___ Conceptualization ___ Active ___ Experimentation</p> <p>Felder ___ Sensing ___ Learner ___ Intuitive ___ Learner ___ Visual Learner ___ Verbal Learner ___ Active learner ___ Reflective ___ Learner ___ Sequential ___ Learner ___ Global ___ Learner</p> <p>Gregorc ___ Concrete- ___ Abstract ___ Sequential- ___ Random</p> <p>Other Choices: Dunn & Dunn Riding Myers/Briggs Apter Jackson Honey & Mumford Herrmann Allinson & Hayes Entwistle Vermunt Sternberg</p>	<p>(copy as needed)</p> <p>a. ID-Diagnose Problem: _____</p> <p>b. Design Intervention: _____</p> <p>c. Choose Model: Research or Evaluation: _____</p> <p>d. Id Research Date: _____</p> <p>e. Perform Research OR Perform Eval.</p> <p>f. Analyze Data</p> <p>g. Document Results: _____</p> <p>Research Models ___ Experimental ___ Quasi- ___ Experimental ___ Other Models by (Campbell & Stanley, 1963) ___ Action Research (Nitko, 2006)</p> <p>Evaluation Models ___ Pilot ___ ALPHA ___ Field-test ___ BETA ___ Implementation (See Bibliographies)</p>

<p>A. ABET Outcomes ABET/TAC Outcomes NAIT STANDARDS</p> <p>(1)Engineering (A-K), (listed first below- order A-K) (*2-3) Combined A-P: (2) *Engineering Tech. (3) *Industrial Technology (A-P listed & aligned with ENG A-K; not in alphabetical order)</p> <p>(4) NIU Gen. Ed. Goals embedded ABET/NAIT</p> <p>1. Choose ABET/TAC/NAIT (with embedded NIU Gen Ed) Outcomes for course.</p> <p>http://www.niu.edu/CEET/p20/sc holarship/vol3/C3B.pdf</p> <p>http://www.niu.edu/CEET/p20/sc holarship/vol3/C3C.pdf</p>	<p>B. Course Outcomes Student Learning Outcomes Knowledge Priority & Order</p> <p>Ca. Course Outcomes (COs) Cb. Student Learning Outcomes (SLOs) ID Specific Course Title (here): http://www.niu.edu/CEET/p20/scholarship/vol3/C 3B.pdf</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol3/C 3C.pdf</p> <p>(1) ID Outcomes. (2) Write specific Student Learning Outcomes below each course outcome</p> <p>(3) ID, Order, Est. % Knowledge Priorities (p.61) (KP)-a-c. a. (BI) (CT)Big Ideas/Core Tasks b. (IK) Important to Know c. (W) Worth being familiar with (Wiggins & McTighe, 2005)</p> <p>(4) Develop Syllabus using template. (4) Syllabus template alternative.</p>	<p>C. Knowledge Analyses (pp. 66-118)</p> <p>1. Determine and identify: (place ✓ on left a-g).</p> <p>(a) Course Knowledge Sources (Bloom Knowledge Dimension, 1956) (s.42-43)</p> <p>(b) Course Knowledge Sources - (Contextual)</p> <p>(c) *Bloom's Cognitive (s.42-43) Dimensions * (Anderson et al, 2001; Bloom, 1956)</p> <p>(d) Prior knowledge (Prerequisites)</p> <p>(e) Multiple Intelligences (s.14-22) (Gardner ,1993)</p> <p>(f) Integrated Curriculum Models (Fogerty, 1991)</p> <p>(g) Course Center -Balance (s.46) (Bransford, 1998)</p>	<p>D. Multifaceted & Balanced Assessment Plan –Priorities (MAPP)</p> <p>*Strategies I- XII- excellent MAPP options</p> <p>1a. ✓Identify assessment strategies for each outcome; Strategies may assess multiple outcomes.</p> <p>1b. ✓ ID, Order, determine % for each Assessment Priority (AP);</p> <p>1c. ✓Align KPs in B. and APs in D1b. http://www.niu.edu/CEET/p20/scholarshi p/vol3/C5C.pdf</p> <p>2. ✓Identify each assessment strategy value (%) towards final student evaluation; should also align with KPs-B http://www.niu.edu/CEET/p20/scholarshi p/vol3/C5A.pdf</p> <p>3. Map each Assessment Strategy, Priority, Item back to specific Outcomes. (Kuhs, 2001; Scarborough, 2006) http://www.niu.edu/CEET/p20/schol arship/vol3/C5.pdf</p> <p>Strategies I-XII+ XIII TBD Value %s</p>	<p>E. Bloom Cognitive Dimension (p.66)</p> <p>1. Identify (✓) each level of Bloom's Cognitive Dimension achieved by each Student Assessment Strategy and Item.</p> <p>(Anderson & Krathwohl, 2001; Bloom, 1956)</p> <p>Critical Think. <p>(p.88-93)</p> </p>	<p>F. Teaching Models (s.46-76)</p> <p>1. Choose (✓) models to achieve outcomes throughout course.</p> <p>2. Make sure models are appropriate for active learning at Bloom's upper Cognitive Dimension.</p> <p>http://www.niu.edu/CEET/p2 0/scholarship/vol3/C6A.pdf</p> <p>http://www.niu.edu/CEET/p2 0/scholarship/vol3/C6B.pdf</p> <p>(Johnson, et al.1998; Joyce et al, 2008)</p> <p>http://www.niu.edu/CEET/p2 0/scholarship/vol3/C6.pdf</p>	<p>G. Teaching Styles (s.43)</p> <p>1. Choose (✓) Mosston & Ashworth Styles Or Grasha Styles to be used to achieve learning outcomes.</p> <p>(Grasha or Mosston- Ashworth, 1966)</p>	<p>H. Dale's Cone of Learning (p.109)</p> <p>(1) ID Learning Strategy Activity for each SLO (See Category B)</p> <p>2. ID Activity level by Dale's Cone (s.69) (1964) of Learning (P.L.A)</p> <p>Dale, E. (1964)</p> <p>3. ID Bloom's Cbg. Dim. For each Activity.</p>	<p>I. Student Learning Styles (s.29-42)</p> <p>How Students Learn (pp.66-118)</p> <p>http://www.niu.edu/C EET/p20/scholarship/v ol4/D1.pdfhttp://www. niu.edu/CEET/p20/sch olarship/vol4/D1.pdf (s65-76)</p> <p>1. Choose (✓) Kolb Or Felder(s.29) Learning Styles accommodated during learning. 3. Make sure the whole range of LS is accommodated. (Felder, 1988; Kolb, 1984)</p>	<p>J-K. Reflective Practice or Action Research Planning The Scholarship of Teaching CASTL Higher Education 1? (Y/N) Did students achieve learning outcome and provide acceptable evidence of learning? 2R. If not: (a) ID-diagnose problem; (b) Design intervention (c) Choose Research/Eval. Mode (d) ID Research date (e) Perform Research/Eval. Test Intervention; collect data (f) Analyze data (g) Document Results 3I. Follow through-Implement Change http://www.niu.edu/CEET/p20/scholarshi p/vol1/A3.pdf</p> <p>1. Q</p> <p>2. Research Or Evaluate. (a-g)</p> <p>3.I Change</p>
<p>E. Identify, formulate, and solve engineering problems.</p> <p>F. Identify, analyze, and solve technical problems.</p> <p>Gen Ed Goals - Students:</p> <p><i>b. develop an ability to</i> <i>use modes of inquiry</i> <i>across a variety of</i> <i>disciplines in the</i> <i>humanities and the</i> <i>arts, the physical</i> <i>sciences and</i> <i>mathematics, and</i> <i>social sciences.</i></p> <p><i>b.iv. demonstrate an</i> <i>ability to use scientific</i> <i>methods and theories</i> <i>to understand the</i> <i>phenomena studied in</i> <i>the natural and social</i> <i>sciences.</i></p>	<p>KP – Order KPs - %</p> <p>1. BI ___ %</p> <p>2. BI ___ % Etc.</p> <p>1. IK ___ %</p> <p>2. IK ___ % Etc.</p> <p>1.W ___ %</p> <p>2.W ___ %</p> <p>ETC.</p> <p>Course Outcome 1 -Student Learning Outcome 1</p> <p>- Student Learning Outcome 2...</p> <p>Course Outcome 2 - Student Learning Outcome 1</p> <p>-Student Learning Outcome 2...</p> <p>Course Outcome 2 - Student Learning Outcome 1</p> <p>-Student Learning Outcome 2...</p> <p>Course Outcome 2 - Student Learning Outcome 1</p> <p>ETC.</p> <p>Design & Develop Syllabus</p>	<p>a. Bloom Knowledge Dimension ___ Factual Knowledge ___ Conceptual Knowledge ___ Procedural Knowledge ___ Meta-Cognitive Knowledge</p> <p>b. Knowledge Sources: ___ Text ___ Professor ___ Expert ___ Field Experience ___ Internet ___ Other</p> <p>c. Bloom's Cognitive Dimension ___ Knowledge – Remember ___ Comprehension – Understand ___ Application - Apply ___ Analysis – Analyze ___ Synthesis – Evaluate ___ Evaluate – Create</p> <p>d. Gardner's Multiple Intelligences ___ Verbal-linguistic ___ Logical-mathematical ___ Spatial ___ Musical ___ Bodily-Kinesthetic ___ Intra-personal (team/group) ___ Interpersonal (individual)</p> <p>e. Prior Knowledge Identify briefly by discipline: Math, Science, Technology, Com.,</p> <p>f. Integration Models: ___ Connected ___ Sequenced ___ Nested ___ Shared ___ Webbed ___ Threaded ___ Integrated ___ Networked ___ Immersed</p> <p>g. Course Balance: Course is centered on: ___ a. knowledge ___ b. assessment ___ c. teacher ___ d. learner (student) ___ e. balanced (reflect in syllabus)</p>	<p>I. Portfolios (___ %) II. Field Activities (___ %) _a. Interviews - Expert Inquiry _b. Tours _c. Internships _d. Shadowing _e. Projects _f. Career Plan _g. Career ID Study _h. Career Preparation Plan</p> <p>III. Graphing (___ %) _a. flowcharts _b. concept mapping _c. others</p> <p>IV. Information Research (___ %) _a. Literature Studies _b. Case Studies _c. Learning Papers _d. Internet Studies</p> <p>V. Problem based Tasks (___ %) _a. Performance Tasks _1. design problems/tasks _2. technical _3. technological _b. Observable Behaviors _1. individual _2. team</p> <p>VI. Technical Research(___ %) _a. Experiments _b. Quasi-experiments _c. Pilots, field-tests _d. Evaluation, etc. others TBD</p> <p>VII. "Minute" Papers (___ %) VIII. Critical Reflection _a. Journals _b. Logs _c. Questionnaires</p> <p>VIII. Technical Projects(___ %) Rubric #s</p> <p>IX. Conceptual Projects Rubric #s</p> <p>X. Presentations (___ %) Rubric #s</p> <p>XI. Tests (___ %) _a. short answer _b. essay _c. problem _d. selected response _1. multiple choice _2. matching _3. true/false</p> <p>XII. Leadership -Community Service Projects (___ %) Rubric #s</p> <p>XIII. Others TBD (___ %) (TBD by Instructor)</p>	<p>(copy each one as needed)</p> <p>___ Knowledge – Remember</p> <p>___ Comprehend - Understand</p> <p>___ Application – Apply</p> <p>___ Analysis – Analyze</p> <p>___ Synthesis – Evaluate</p> <p>___ Evaluate – Create</p> <p>ETC.</p>	<p>Primary Choices:</p> <p>Inquiry PBL (s.51)</p> <p>http://www.niu.edu/CEET /p20/scholarship/vol1/A6. pdf (p.101)</p> <p>Guided Discovery Cooperative Learning... Mini-Lecture</p> <p>Johnson , et al ___ Cooperative Learning in College Classrooms. ___ CL - Informal ___ CL - Formal ___ CL – Base Groups ___ Cooperative Learning Basic Elements</p> <p>Joyce et al ___ Inductive Reasoning ___ Concept Attainment ___ Picture Word ___ Induction ___ Scientific Inquiry ___ Mnemonics ___ Synectics ___ Advance Organizers ___ Structured Inquiry ___ Group Investigation ___ Role Playing ___ Jurisprudential Inquiry ___ Nondirective Teaching ___ Enhancing Self-Esteem ___ Mastery Learning ___ Programmed Schedule ___ Direct Instruction ___ Simulation ___ Lecture</p>	<p>Primary Choices:</p> <p>(Mosston & Ashworth)</p> <p>___ Command ___ Practice ___ Reciprocal ___ Self Check ___ Inclusion ___ Guided ___ Discovery ___ Convergent ___ Divergent ___ Production ___ Learner ___ Designed ___ Learner ___ Initiated ___ Self Teach</p> <p>(Grasha)</p> <p>___ Expert ___ Formal ___ Authority ___ Personal ___ Model ___ Facilitator ___ Delegator</p>	<p>(copy each one as needed)</p> <p>P Passive I Intermediate A Active</p> <p>___ Knowledge - Remember</p> <p>___ Comprehend - Understand</p> <p>___ Application – Apply</p> <p>___ Analysis – Analyze</p> <p>___ Synthesis – Evaluate</p> <p>___ Evaluate – Create</p> <p>SLO _____ Act.1 _____ P, I, A _____ Bloom _____</p> <p>Act.2 _____ P, I, A _____ Bloom _____</p> <p>Act.3 _____ P, I, A _____ Bloom _____</p> <p>SLO _____ Act.1 _____ P, I, A _____</p>	<p>Primary Choices:</p> <p>Kolb ___ Concrete ___ Experience ___ Reflective ___ Observation ___ Abstract ___ Conceptualization ___ Active ___ Experimentation</p> <p>Felder ___ Sensing ___ Learner ___ Intuitive ___ Learner ___ Visual Learner ___ Verbal Learner ___ Active learner ___ Reflective ___ Learner ___ Sequential ___ Learner ___ Global ___ Learner</p> <p>Gregorc ___ Concrete- ___ Abstract ___ Sequential- ___ Random</p> <p>Other Choices: Dunn & Dunn Riding Myers/Briggs Apter Jackson Honey & Mumford Herrmann Allinson & Hayes Entwistle Vermunt Sternberg</p>	<p>(copy as needed)</p> <p>a. ID-Diagnose Problem: _____</p> <p>b. Design Intervention: _____</p> <p>c. Choose Model: Research or Evaluation: _____</p> <p>d. Id Research Date: _____</p> <p>e. Perform Research OR Perform Eval.</p> <p>f. Analyze Data</p> <p>g. Document Results: _____</p> <p>Research Models ___ Experimental ___ Quasi- Experimental ___ Other Models by (Campbell & Stanley, 1963) ___ Action Research (Nitko, 2006)</p> <p>Evaluation Models ___ Pilot ___ ALPHA ___ Field-test ___ BETA ___ Implementation (See Bibliographies)</p>

<p>A. ABET Outcomes ABET/TAC Outcomes NAIT STANDARDS</p> <p>(1)Engineering (A-K), (listed first below- order A-K) (*2-3) Combined A-P: (2) *Engineering Tech. (3) *Industrial Technology (A-P listed & aligned with ENG A-K; not in alphabetical order)</p> <p>(4) NIU Gen. Ed. Goals embedded ABET/NAIT</p> <p>1. Choose ABET/TAC/NAIT (with embedded NIU Gen Ed) Outcomes for course.</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol3/C3B.pdf</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol3/C3C.pdf</p>	<p>B. Course Outcomes Student Learning Outcomes Knowledge Priority & Order</p> <p>Ca. Course Outcomes (COs) Cb. Student Learning Outcomes (SLOs) ID Specific Course Title (here): http://www.niu.edu/CEET/p20/scholarship/vol3/C3B.pdf</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol3/C3C.pdf</p> <p>(1) ID Outcomes. (2) Write specific Student Learning Outcomes below each course outcome</p> <p>(3) ID, Order, Est. % Knowledge Priorities (p.61) (KP)-a-c. a. (BI) (CT)Big Ideas/Core Tasks b. (IK) Important to Know c. (W) Worth being familiar with (Wiggins & McTighe, 2005)</p> <p>(4) Develop Syllabus using template. (4) Syllabus template alternative.</p>	<p>C. Knowledge Analyses (pp. 66-118) 1.Determine and identify: (place ✓ on left a-g).</p> <p>(a) Course Knowledge Sources (Bloom Knowledge Dimension, 1956) (s.42-43)</p> <p>(b) Course Knowledge Sources - (Contextual)</p> <p>(c) *Bloom's Cognitive (s.42-43) Dimensions *(Anderson et al, 2001; Bloom, 1956)</p> <p>(d) Prior knowledge (Prerequisites)</p> <p>(e) Multiple Intelligences (s.14-22) (Gardner ,1993)</p> <p>(f) Integrated Curriculum Models (Fogerty, 1991)</p> <p>(g) Course Center -Balance (s.46) (Bransford, 1998)</p>	<p>D. Multifaceted & Balanced Assessment Plan –Priorities (MAPP) *Strategies I- XII- excellent MAPP options</p> <p>1a. ✓Identify assessment strategies for each outcome; Strategies may assess multiple outcomes.</p> <p>1b.✓ ID, Order, determine % for each Assessment Priority (AP);</p> <p>1c. ✓Align KPs in B. and APs in D1b. http://www.niu.edu/CEET/p20/scholarship/vol3/C5C.pdf</p> <p>2. ✓Identify each assessment strategy value (%) towards final student evaluation; should also align with KPs-B. http://www.niu.edu/CEET/p20/scholarship/vol3/C5A.pdf</p> <p>3. Map each Assessment Strategy, Priority, Item back to specific Outcomes. (Kuhs, 2001; Scarborough, 2006) http://www.niu.edu/CEET/p20/scholarship/vol3/C5.pdf</p> <p>Strategies I-XII+ XIII TBD Value %s</p>	<p>E. Bloom Cognitive Dimension (p.66)</p> <p>1. Identify (✓) each level of Bloom's Cognitive Dimension achieved by each Student Assessment Strategy and Item.</p> <p>(Anderson & Krathwohl, 2001; Bloom, 1956)</p> <p>Critical Think. (p.88-93)</p>	<p>F. Teaching Models (s.46-76)</p> <p>1. Choose (✓) models to achieve outcomes throughout course.</p> <p>2. Make sure models are appropriate for active learning at Bloom's upper Cognitive Dimension.</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol3/C6A.pdf</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol3/C6B.pdf</p> <p>(Johnson, et al.1998; Joyce et al, 2008)</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol3/C6.pdf</p>	<p>G. Teaching Styles (s.43)</p> <p>1. Choose (✓) Mosston & Ashworth Styles Or Grasha Styles to be used to achieve learning outcomes.</p> <p>(Grasha or Mosston-Ashworth, 1966)</p>	<p>H. Dale's Cone of Learning (p.109)</p> <p>(1) ID Learning Strategy Activity for each SLO (See Category B)</p> <p>2. ID Activity level by Dale's Cone (s.69) (1964) of Learning (P.L.A)</p> <p>3. ID Bloom's Cbg. Dim. For each Activity.</p> <p>Dale, E. (1964)</p>	<p>I. Student Learning Styles (s.29-42)</p> <p>How Students Learn (pp.66-118)</p> <p>http://www.niu.edu/CEET/p20/scholarship/vol4/D1.pdf http://www.niu.edu/CEET/p20/scholarship/vol4/D1.pdf (s65-76)</p> <p>1. Choose (✓) Kolb Or Felder(s.29)</p> <p>2. Check (✓) Learning Styles accommodated during learning.</p> <p>3. Make sure the whole range of LS is accommodated. (Felder, 1988; Kolb, 1984)</p>	<p>J-K. Reflective Practice or Action Research Planning The Scholarship of Teaching CASTL Higher Education</p> <p>1? (Y/N) Did students achieve learning outcome and provide acceptable evidence of learning?</p> <p>2R. If not:</p> <p>(a) ID-diagnose problem; (b) Design intervention (c) Choose Research/Eval. Mode (d) ID Research date (e) Perform Research/Eval. Test Intervention; collect data (f) Analyze data (g) Document Results</p> <p>3I. Follow through-Implement Change http://www.niu.edu/CEET/p20/scholarship/vol1/A3.pdf</p> <p>1. Q</p> <p>2. Research Or Evaluate. (a-g)</p> <p>3.I Change</p>	
<p>J. Knowledge of contemporary issues.</p> <p>J. Respect diversity and a knowledge of contemporary, professional, societal, and global issues</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>NIU Gen Ed Goals - Students:</p> <p><i>d. develop social responsibility and preparation for citizenship through global awareness, environmental sensitivity, and an appreciation of cultural diversity.</i></p> </div>	<p>KP – Order KPs - %</p> <p>1. BI ___ %</p> <p>2. BI ___ % Etc.</p> <p>1. IK ___ %</p> <p>2. IK ___ % Etc.</p> <p>1.W ___ %</p> <p>2.W ___ %</p> <p>ETC.</p> <p>Course Outcome 1 -Student Learning Outcome 1</p> <p>- Student Learning Outcome 2...</p> <p>Course Outcome 2 - Student Learning Outcome 1</p> <p>-Student Learning Outcome 2...</p> <p>Course Outcome 2 - Student Learning Outcome 1</p> <p>-Student Learning Outcome 2...</p> <p>Course Outcome 2 - Student Learning Outcome 1</p> <p>ETC.</p> <p>Design & Develop Syllabus</p>	<p>a. Bloom Knowledge Dimension ___ Factual Knowledge ___ Conceptual Knowledge ___ Procedural Knowledge ___ Meta-Cognitive Knowledge</p> <p>b. Knowledge Sources: ___ Text ___ Professor ___ Expert ___ Field Experience ___ Internet ___ Other</p> <p>c. Bloom's Cognitive Dimension ___ Knowledge – Remember ___ Comprehension –Understand ___ Application - Apply ___ Analysis – Analyze ___ Synthesis – Evaluate ___ Evaluate – Create</p> <p>d. Gardner's Multiple Intelligences ___ Verbal-linguistic ___ Logical-mathematical ___ Spatial ___ Musical ___ Bodily-Kinesthetic ___ Intra-personal (team/group) ___ Interpersonal (individual)</p> <p>e. Prior Knowledge Identify briefly by discipline: Math, Science, Technology, Com.,</p> <p>f. Integration Models: ___ Connected ___ Sequenced ___ Nested ___ Shared ___ Webbed ___ Threaded ___ Integrated ___ Networked ___ Immersed</p> <p>g. Course Balance: Course is centered on: ___ a. knowledge ___ b. assessment ___ c. teacher ___ d. learner (student) ___ e. balanced (reflect in syllabus)</p>	<p>I. Portfolios (___ %)</p> <p>II. Field Activities (___ %) _a. Interviews - Expert Inquiry _b. Tours _c. Internships _d. Shadowing _e. Projects _f. Career Plan _g. Career ID Study _h. Career Preparation Plan</p> <p>III. Graphing (___ %) _a. flowcharts _b. concept mapping _c. others</p> <p>IV. Information Research (___ %) _a. Literature Studies _b. Case Studies _c. Learning Papers _d. Internet Studies</p> <p>V. Problem based Tasks (___ %) _a. Performance Tasks _1. design problems/tasks _2. technical _3. technological _b. Observable Behaviors _1. individual _2. team</p> <p>VI. Technical Research(___ %) _a. Experiments _b. Quasi-experiments _c. Pilots, field-tests _d. Evaluation, etc. others TBD</p> <p>VII. "Minute" Papers (___ %)</p> <p>VIII. Critical Reflection _a. Journals _b. Logs _c. Questionnaires</p> <p>VIII. 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ID-Diagnose Problem: _____</p> <p>b. Design Intervention: _____</p> <p>c. Choose Model: Research or Evaluation: _____</p> <p>d. Id Research Date: _____</p> <p>e. Perform Research OR Perform Eval.</p> <p>f. Analyze Data</p> <p>g. Document Results: _____</p> <p>Research Models ___ Experimental ___ Quasi- ___ Experimental ___ Other Models by (Campbell & Stanley, 1963) ___ Action Research (Nitko, 2006)</p> <p>Evaluation Models ___ Pilot ___ ALPHA ___ Field-test ___ BETA ___ Implementation (See Bibliographies)</p>	<p>1. Q</p> <p>2. Research Or Evaluate. (a-g)</p> <p>3.I Change</p>

