The Integration of Academic and Technical Skills in K-12 and Community College Classrooms:

**Contextualized Teaching and Learning as a Key Strategy**

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Contextualized Teaching and Learning (CTL)

CTL is a group of instructional strategies designed to link the learning of basic skills, and academic or occupational content by focusing teaching and learning directly on concrete applications in a specific context that is of interest to the student.
Contextualized Teaching and Learning (CTL)

Many people learn better and faster, and retain information longer, when they are taught concepts in context.

- Makes it relevant
- Engages and motivates hard-to-reach students
- Increases learner confidence & enthusiasm
- Enhances interest in long-term goals & education

Center for Student Success, Research & Planning Group. 
*Basic Skills as a Foundation for Student Success in CA Community Colleges*, p. 58.
Different ways to accomplish CTL

- Infused academic courses
- Infused career technical courses
- Linked courses or learning communities
- Team teaching of integrated academic and occupational courses

D. Perin. *Academic-Occupational Integration as a Reform Strategy for the Community College: Classroom Perspectives*. Teachers College Record, vol. 103 2010

A Key Element is Faculty Collaboration

Form Team that becomes a “Faculty Learning Community”

Meet Regularly / On-going Communication

Adequate time/resource for front end development

Synchronize syllabi – progression of skills

Joint Projects

Spend time in each other’s classes
“that is the greatest idea ever – the fact that all our courses are integrated”
community of practice
faculty:  2, 4, 6, 8, 10...
support:  2, 4, 8, 16, 32...
students:  25, 50, 75...
thematic
content
process
two years in...

**FALL '12**
- ENGLISH 100
- MATH 402
- COLLEGE 1
- DESIGN TECH 100

**SPRING '13**
- ENGLISH 1A
- MATH 125
- SPEECH 10
- DESIGN TECH 101

**SUMMER '13**
- MATH 135
- ANTHRO 10

**FALL '13**
- ENGLISH 1B
- MATH
- GE
- ENGINEERING 8A

College Readiness Certificate
Sample Contextualized Assignments

**Problem Statement:**
Design series of interlocking pieces containing a letter based on a designed font to play a physical version of words with friends. Dimensions of pieces have to be determined through fractional precision and laser cut.

- Measure and draw to 1/16th of an inch accuracy
- Add, subtract and divide with mixed numbers
- Calculate perimeter and area of rectangle

**Math Outcomes**

**Design Outcomes**
- Design of font based on common concept
- Sketching using proportions
- Develop spatial reasoning

**English Outcomes**
- Conduct research
- Summary Report explaining strategy of calculating measurements
- Presentation of font

**Technology Outcomes**
- Generate Computer-Aided Design Graphics
- Operate a laser cutter in the production of pieces
Design Studio

Math Outcomes
- Measure and draw to tenth of cm accuracy
- Solve proportion equations (operations with decimals)
- Apply proportion equations in determining Architectural scales

Design Outcomes
- Apply human scale to produce an architectural design for a studio space.
- Sketching of furniture based on scaled model
- Apply material efficiency strategies to minimize waste.

English Outcomes
- Conduct research of designers, equipment and industry
- Summary Report explaining strategy of calculating measurements
- Presentation of studio and calculations

Technology Outcomes
- Operate a laser cutter in the production of model
- Generate movie fly-through and design graphics for presentation.
- Generate Computer-Aided Design Model and flat pattern
Problem: Create a flat pattern package for a specific object for a specific purpose.

Outcomes: Students will:
- Research folding, flat packaging, origami, applications to define design problem
- Select an interesting, meaningful, object to package
- Write description, analysis + evaluation of the object to label the package
  - selection criteria - interest, meaning, challenge
  - physical qualities - dimensions, weight, materiality, challenges
  - conceptual idea - nesting, revealing, pattern generation
- Develop performance criteria and test for the package for:
  - Shipping - mail the package to yourself - cost, time factors
  - Gift - present the gift to recipient - cost, time, sequence
  - Display - develop modular display system design - space, effect
- Design prototype package using sketching, measuring, cutting, folding on chipboard
- Apply fundamental Graphic Design concepts and principles to develop labeling
- Execute CAD drawing - cut + crease lines, engraved image + text, slots, tabs
- Cut and assemble finished prototype with product inside
- Make an animated movie showing each step in design process using still images with scripted narration of design process
Integrating Literature and Filmmaking

A Five Minute Sample
High or Superior Angle
Eye Level or Neutral Angle
Low or Inferior Angle