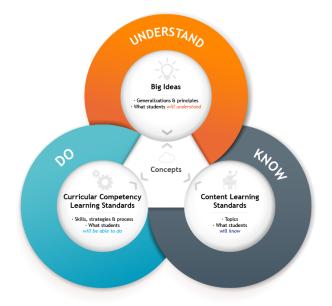# EDCP 471
Lecture Notes
S. Petrina (2018)

Content of Design & Technology

1. See Petrina, *Advanced Teaching Methods* (Chapter 8)
2. Definitions
   a. Content is 'subject matter' but what does that mean?
   b. Content can defined as what students should know and be able to do in a given discipline.
      i. **Content standards**, then, are "statements of what students should know and be able to do" in a given discipline.
   c. Content can also be defined as factual knowledge and demonstrable dispositions and skills.
   d. Reigeluth & Carr-Chellman (2009, p. 24): The nature of what is to be learned, defined comprehensively to include not only knowledge, skills, and understandings, but also higher-order thinking skills, metacognitive skills, attitudes, values, and so forth.
   e. A **content outline** provides "a comprehensive guide to the topics covered" or to be covered. Content outlines provide a scope of the domain or world of content but say little to nothing about what is meaningful, valuable, or worthwhile.

3. Content Standards for technology education (international *Standards for Technological Literacy*):
   a. **The Nature of Technology**
      i. Students will develop an understanding of the characteristics and scope of technology.
      ii. Students will develop an understanding of the core concepts of technology.
      iii. Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.
   b. **Technology and Society**
      i. Students will develop an understanding of the cultural, social, economic, and political effects of technology.
      ii. Students will develop an understanding of the effects of technology on the environment.
      iii. Students will develop an understanding of the role of society in the development and use of technology.
      iv. Students will develop an understanding of the influence of technology on history.
   c. **Design**

   i. Students will develop an understanding of the attributes of design.

   ii. Students will develop an understanding of engineering design.

   iii. Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem-solving.

 d. **Abilities for a Technological World**

   i. Students will develop abilities to apply the design process.

   ii. Students will develop abilities to use and maintain technological products and systems.

   iii. Students will develop abilities to assess the impact of products and systems.

 e. **The Designed World**

   i. Students will develop an understanding of and be able to select and use medical technologies.

   ii. Students will develop an understanding of and be able to select and use agricultural and related biotechnologies.

   iii. Students will develop an understanding of and be able to select and use energy and power technologies.

   iv. Students will develop an understanding of and be able to select and use information and communication technologies.

   v. Students will develop an understanding of and be able to select and use transportation technologies.

   vi. Students will develop an understanding of and be able to select and use manufacturing technologies.

   vii. Students will develop an understanding of and be able to select and use construction technologies.

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