THE UNIVERSITY OF BRITISH COLUMBIA

Faculty *of* Education

Department of Curriculum and Pedagogy

EDCP 374A (3) **Curriculum and Pedagogy in Design and Technology I**
(3 Credits) (Winter 2016)

Instructor: Theresa Magee
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Time: M, W from 10:30am - 12 noon
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Location: Scarfe Bldg., Room 1106

COURSE DESCRIPTION

This course provides an effective encounter between the "what to teach" and "how to teach." The course focuses on curriculum, learning, and teaching in the new Applied Design, Skills, and Technologies (ADST) cluster in British Columbia. Technology Education in ADST has traditionally been called Design and Technology (D&T) Education and commonly represents the T and E in Science, Technology, Engineering, and Mathematics (STEM) education. Technology Education extends to include other domains within ADST, including ICT and Media Arts. The main goal is to provide the fundamentals for designing curriculum and teaching ADST. One intention is to help students develop a framework for understanding themselves as a teacher, and technology as a field of study and school curriculum. A second major intention will be in providing students with an understanding of what teaching technology entails, in terms of cultural-historical, ecological-natural, existential-spiritual, ethical-personal, socio-political, and technical-empirical dimensions. A third major intention is in preparing students for their extended practicum experience leading up to their eventual role as a classroom teacher.

Purpose of the Course

The purpose of this course is to prepare teacher candidates with the knowledge, attitudes, and skills to enhance learning in the context of teaching technology education, including ICT and Media Arts, in ADST.

COURSE OBJECTIVES

This course aims to help teachers:

1. State the philosophical basis and principles of design, technology, and engineering education, which include ICT and media arts in ADST.
1. Provide a rationale for implementing the study of technology (or design or engineering) at all levels – elementary, middle school, high school, and adult.
2. Develop ADST, D&T, ICT, Media Arts, and STEM curriculum and instructional strategies. Evaluate appropriate materials and develop a resource file for use in an ADST, D&T, ICT, Media Arts, and STEM course.
3. Using professional graphic design approaches, design curriculum materials that incorporate a variety of instructional media, including video.
4. Evaluate technology curriculum and recommend appropriate revisions based on findings.
5. Demonstrate an appreciation for systematic curriculum and instructional planning.

PARTICIPATION & ASSIGNMENTS

Students will complete the following assignments:

1. Participation: Complete all readings and participate fully in activities, lectures and discussions.
2. Practicum Unit Plan: To be completed after the two-week practicum as it will be a unit that may be taught during the 10-week extended practicum.
3. Information, Procedure, and Safety sheets: Produce one set of Information, Procedure, and Safety sheets for the practicum a s part of the new ADST curriculum and Unit Plan proposed.

ASSIGNMENT SCHEDULE

Due date	Assignment
Wed, October 12	#1 – Information, Procedure, and Safety Sheets
Mon, December 5	#2 - Practicum Unit Plan (based on B/AA Course Proposal and ADST Curriculum formats) (include Procedure, Safety & Information Sheets from assignment #1)
Mon, December 5	All assignments must be completed.
	NO LATE ASSIGNMENTS ACCEPTED

ASSESSMENT AND MARKS

The course is graded according to the pass/fail system. Regarding pass/fail evaluation, achieving a pass is contingent on a high standard of performance. The standard for a pass within the B.Ed. program is equivalent to a B+ (76%) in UBC's standard marking system.

General Assessment Guidelines

PASS	From average to outstanding in all aspects of course. Average to excellent coverage of requirements for assignments. The assignments are coherent and comprehensive. Average to great examples are used to supplement ideas. Communication, demonstrations and presentations are of a high standard— the assignments look professional and are clean (nearly free of typos, few desk-top publishing problems, etc.). The formats followed adhere to the formats provided.
FAIL	An inadequate and incomplete performance. Patchy coverage of criteria with omissions in certain areas. No attempt at meeting requirements. Little attempt at being comprehensive. Minimal effort following formats. Poor communication, demonstrations and presentations.

POLICIES

Policies regarding attendance and missed or late assignments follows those recommended by the University and the Faculty of Education.

- Attendance policy: If you must miss a class, notify the TEO and your instructor immediately. The nature of the Teacher Education Program is participatory. Teacher candidates who miss a significant amount of class time (i.e., more than 15% of course hours) are normally required to repeat the course. Teacher candidates are not able to proceed to practicum until all prior courses are successfully completed. See http://teach.educ.ubc.ca/students/policies-and-guides/
- Academic Honesty and Standards, and Academic Freedom: Please refer to *UBC Calendar* Policies and Regulations (Selected): http://www.students.ubc.ca/calendar

- Academic Accommodation for Students with Disabilities: Students with a disability who wish to have an academic accommodation should contact the Disability Resource Centre without delay (see UBC Policy #73, http://www.universitycounsel.ubc.ca/files/2010/08/policy73.pdf.

TEXTS

Required:

1. Petrina, s. (2007). *Advanced Teaching Methods for the Technology Classroom*. Hershey, PA: Information Science Publishing. Download from http://blogs.ubc.ca/dandt/files/2014/07/petrina2007.pdf
2. BC Ministry of Education documents: all ADST curriculum documents for Technology Education, ICT, and Media Arts. Download from BC Ministry https://curriculum.gov.bc.ca/curriculum
3. ITEA. (2000). *Standards for technological literacy.* Reston, VA: author. Download from http://blogs.ubc.ca/dandt/files/2014/08/techlitstandards.pdf

Recommended:

1. Braundy, M. (2012). *Men & women and tools: Bridging the divide*. Halifax, NS: Fernwood. http://fernwoodpublishing.ca/book/men-women-and-tools
2. de Vries, M. J. (2005). *Teaching about technology: An introduction to the philosophy of technology for non-philosophers*. Dordrecht, The Netherlands: Kluwer. http://www.tower.com/books/preview/isbn/1402034091
3. Crawford, Matthew B. *Shop Class as Soulcraft: An Inquiry Into the Value of Work* (The Penguin Press, 2009)

When possible, handouts are available online for download. However, a photocopying fee will be charged for any hardcopy handouts.

COURSE OUTLINE

Week 1: Overview (Sept. 7)	
Topic	Curriculum & Pedagogy
	• program orientation • coursework expectations • assignment BC's new curriculum, Standards for the Education, Competence and Professional Conduct of Educators in BC
Guiding Questions	• What are the expectations for teacher candidates` learning process in this course? • What is important for teacher candidates to know? For their students to know? • What is your passion for teaching applied design, skills and technology education? • What's new in ADST? https://curriculum.gov.bc.ca/curriculum/applied-design-skills-and-technologies/whats-new
Activity	Self-portrait: 'who am I, where have I been, where am I going?' (present for Sept. 12)

Readings	1. BC's new curriculum: https://curriculum.gov.bc.ca 2. https://curriculum.gov.bc.ca/curriculum 3. http://www.bcteacherregulation.ca/Standards/StandardsDevelopment.aspx 4. https://www.bcteacherregulation.ca/documents/AboutUs/Standards/edu_stds.pdf 5. Petrina, S. (2007). *Advanced teaching methods for the technology classroom*. Hershey, PA: Information Science Publishing, Download from https://ubc.academia.edu/StephenPetrina/Textbooks Chapter 7: Justifying Technology Studies; Chapter 3: Feelings, Values, Ethics and Skills

Week 2: ADST Curriculum (Sept. 12 and 14)	
Topic	ADST: The New Curriculum

Guiding Questions	• A = What do we mean by Applied? What is applied? Minds on? Hearts on? Hands on? What about theory?
	• D = What do we mean by Design?
	• S = What do we mean by Skills? Cognitive Skills? Emotional Skills? Motor Skills?
	• T = What do we mean by Technologies? Which technologies are most important?
	• What is a big idea?
	  ○ What are the big ideas of Technology Education, ICT, and Media Arts?
	• What is a Core Competency?
	  ○ What are the core competencies of Technology Education, ICT, and Media Arts?
	• What is a Learning Standard?
	  ○ What are the learning standards for Technology Education, ICT, and Media Arts?
	• What are the Goals and Rationales for ADST in Technology Education, ICT, and Media Arts?

Activities	• ADST Activities • Design Activities
Readings	1. BC's new curriculum: https://curriculum.gov.bc.ca 2. https://curriculum.gov.bc.ca/curriculum 3. https://curriculum.gov.bc.ca/curriculum

Week 3: ADST Curriculum + Teaching (Sept. 19 and 21)	
Topic	C&P: Guiding Features in Technology Education
Guiding Questions	• What's new in ADST? • New Subjects in ADST
Activities	• ADST Activities • Design Activities
Readings	1. Petrina, S. (2007). Advanced teaching methods for the technology classroom. 2. Hershey, PA: Information Science Publishing, Download from https://ubc.academia.edu/StephenPetrina/Textbooks 3. Chapter 7: Justifying Technology Studies; Chapter 3: Feelings, Values, Ethics and Skills

Week 4: Planning, Learning, Curriculum & Pedagogy (Sept. 26 and 28)	
Topic	Communicating and Planning for Instruction Organizing Knowledge for Instruction Instructional Methods and Learning Styles (Sept. 19 and 21)
Guiding Questions	• What are considerations for communication and planning for instruction? • What are some ways to structure and 'teach' lessons to a diverse group of learners? • What environmental and class management strategies can be used to assist diverse learners? • What conditions need to be considered when selecting instructional strategies? How can instructional strategies be undertaken by individual students, partners, or small groups? What is reflective practice? • How can deliberation be used to assess one's teaching the curriculum, and considerations for pedagogical change?
Activities	• ADST Activities • Design Activities
Readings	1. BC's new curriculum: https://curriculum.gov.bc.ca 2. (Core Competencies) https://curriculum.gov.bc.ca/competencies) 3. Petrina, S. (2007). *Advanced teaching methods for the technology classroom*. Hershey, PA: Information Science Publishing, Chapter 1: Communicating and Planning for Instruction; Chapter 8: Technology Content, Process and Standards; Chapter 9: Curriculum and Instructional Design
Field Trip Tuesday, Sept. 27 2:00 – 4:00 pm	Museum of Anthropology (MOA). Class meets in Room 1106 first. • Selected guided tour of the Museum of Anthropology with curators from the museum. • Focus on Indigeneity, history of design, technology, commerce, global thinking, and education.

Week 5: Planning, Learning, Curriculum & Pedagogy (Oct. 3 and 5)	
Topic	Indigeneity, Technology, Ecology, and Ethical Education with 21st Century Teaching and Learning
Guiding Questions	• What is the role of a teacher in a gendered dominant class? • What is Indigeneity? • What is ethical education in a diverse classroom with Indigenous and non-Indigenous students? What is the goal of education? • How do you organize instruction towards making meaning, meaning relevant to you as the teacher and your students?
Activities	• ADST Activities • Design Activities

Readings	1. Petrina, S. (2007). *Advanced teaching methods for the technology classroom*. Hershey, PA: Information Science Publishing. Page 9: Feedback; Page 10: Reflection; Page 88: (Chapter 3-Feelings, Values, Ethics & Skills) Projection and Reflective Practice; Page 108: Research Methods. Chapters 5, 6, 9. 2. YouTube: Ted Burtynski – "Manufactured Landscapes", (4:13) https://www.youtube.com/watch?v=vPU0yFdbD-w 3. Kaetsu, Noboru. (Dir.). (2003/2004). *Children Full of Life* [documentary]. (40:03); Japan Broadcasting Corporation (NHK). Toronto: CBC Educational Sales. http://www.youtube.com/watch?v=1tLB1lU-H0M

Monday, October 10, 2016: UBC Closed to observe Thanksgiving	
Week 6: Unit Planning, Learning, Curriculum & Pedagogy (Oct. 12)	
Topic	Classroom Management, Classroom Climate
Guiding Questions	• What is management? How can you create a good classroom climate? • Why is classroom management important? • How can safety be woven into the fabric of curriculum? • Why are values important? • Whose values are important?
Activities	• ADST Activities • Design Activities
Readings	Petrina, S. (2007). Advanced teaching methods for the technology classroom. Hershey, PA: Information Science Publishing. Chapters 11: Classroom Management, Facilities Design and Safety
Assignment DUE	#1 – Information, Procedure, and Safety Sheets Due on Wednesday, Oct. 12

Weeks 9 & 10: Practicum Experience: October 31 to November 11, 2016

Week 11: Practicum Reflection & Discussion: Teaching Practices continued (Nov. 14 and 16)	
Topic	Practicum Reflection and Discussion
Guiding Questions	• What did I learn from my two-week practicum? What went well, what went badly, how can I improve during my contacts with my school advisor(s) to be prepared and ready to teach in my long practicum?
Activities	TBA Guest Speaker: Continue working on Practicum Unit Plan assignment (due Monday, Dec. 5)

Week 12, 13, : Assessment & Evaluation (Nov. 21, 23, 28, 30, Dec. 5, 7, 12, 14)	
Topic	Assessment & Evaluation Gathering evidence of learning
Guiding Questions	• What are some of the formative and summative assessment strategies that can be used to assess student learning and evaluative course work? • How can teachers use criterion-reference evaluation to assess student's performance which compares established criteria rather than to the performance of other students?

Activities	• ADST Activities • Design Activities
Readings	Petrina, S. (2007). Advanced teaching methods for the technology classroom. Hershey, PA: Information Science Publishing. Chapter 10: Assessment and Evaluation

Week 14: Dec. 5	
Assignment DUE	#2 Practicum Unit Plan Due on Monday, December 5

Week 15: Assessment & Evaluation (Dec. 12 and 14)	
Topic	End of Term / Unit Planning for Long-Term Practicum
Guiding Questions	TBA
Activities Assignment DUE	#2 Practicum Unit Plan **Feedback**

PARTICIPATION & ASSIGNMENTS FOR GRADING

PARTICIPATION

Participation is interdependent with **preparation** for each class, which involves ***reading*** (highlighting, pagination post-its, margin notes, comments & questions, etc.), ***writing*** and ***speaking*** (discussing, corresponding with peers, chat, etc.). ***Activities*** also are expected to be completed and presented on their due dates; presentations and assignments should be polished, creative, and informative.

Participation

Fail----------Pass

Appropriately and accurately articulates key constructs and themes in readings, etc.

F----------P

Reveals an attempt to synthesize knowledge through readings, discussion, design and development of unit/lesson plans and rubrics for assessment, etc.

F----------P

Prepares and plans with innovative and progressive ideas

F----------P

Total: F or P

ASSIGNMENTS

1. **Procedure, Safety and Information Sheets:** Procedure, Safety and Information sheets are standard curriculum documents for teaching in labs and Lab/Workshops. Prepare one set (Procedure + Safety + Information) for a **specific activity** related to your practicum unit plan. Choose an apparatus, software, tool, material, machine or process that you know you will be teaching as part of your practicum unit plan and this document will be included within your unit plan. This is an opportunity for you to demonstrate your expertise in desktop publishing (DTP) and to transfer your design skills to a graphic design medium. Elements and principles of design are crucial **(Chapters 2 and 11).** **Due: Wednesday, October 12**

   *Length: Material for Procedures to use the apparatus, etc; Safety information; Information on the apparatus as for example the machine parts = 1-2 pages for each (include in Practicum Unit Plan)

Procedure, Safety & Information Sheets

Fail ---------- Pass

Accuracy & Comprehensiveness of Information
F----------P

Presentation of Information
F----------P

Graphic design principles and Quality
F----------P

Total: F or P

2. **Practicum Unit Plan:** Develop a Technology Education, ICT, or Media Arts unit plan that conforms to the Ministry's ADST curriculum. For example: CAD or ACE-It Carpentry; Unit in Design: design a Tiny House using Google SketchUp (https://youtu.be/nir6Qk_sSrw) *include information on Tiny House history, design, and manufacturing. Present work to the class. **Due: Monday, December 5**

   Format: Use the format provided in the Ministry's *Board/Authority Authorized Courses: Requirements and Procedures* and ADST curriculum documents (see examples given). Download template from http://www.bced.gov.bc.ca/graduation/board_authority_courses.htm

Practicum Unit Plan

Fail ---------- Pass

Introduction, Synopsis & Rationale (Relevance to Technology Education & Students)
F----------P

Organizational Structure (Comprehensiveness)
F----------P

Unit Topic & Descriptions + Learning Outcomes (Articulation w/ ADST, Creativity, Relevance & Comprehensiveness)
F----------P

Instructional & Assessment Components + Learning Resources (Currency & Relevance)
F----------P

Grammar & Format
F----------P

Total: F or P