THE UNIVERSITY OF BRITISH COLUMBIA

Faculty *of* Education

UBC

Department of Curriculum and Pedagogy

EDCP 377A (3) **Curriculum and Pedagogy in Design and Technology II**
(3 Credits) (Winter 2016)

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Location: Scarfe Bldg., Room 1106
Time: M from 4:30pm – 7:30pm

COURSE DESCRIPTION

This course complements EDCP 374, again providing 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, Arts and Mathematics (STEAM) education. Technology Education extends to include other domains within ADST, including ICT and Media Arts.

The Curriculum I course (EDCP374) focuses on the development of instructional materials, unit and lesson plans. This Curriculum II course (EDCP377) focuses on lesson planning and practice teaching or microteaching. The main goal is to provide the fundamentals for teaching design, engineering, technology education and information and communication technology. The intention is to help students develop a framework for understanding themselves as a teacher, and technology as a field of study and school curriculum.

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 (Information and Communications Technology) and Media Arts, in ADST.

COURSE OBJECTIVES

This course aims to help teachers:

1. Demonstrate an appreciation for systematic lesson planning.
2. Develop artful and logical approaches to demonstrating and presenting in the classrooms, labs and workshops.

PARTICIPATION AND ASSIGNMENTS

Students will complete the following assignments:

1.	**Participation**: Complete all readings and participate fully in Activities, Lectures and Discussions.	20%
2.	**2X - Microteaching and Lesson Plans:** The intention of this requirement is to help you develop artful and logical approaches to demonstrating and presenting in the classrooms, labs and workshops. This will also provide a tangible way of understanding the importance of small scale planning in curriculum. For each of the microteaching demonstrations that you do, you are required to hand in a lesson plan a week before the demonstration.	40% (20% each assignment)
3.	Design Brief: STEM/STEAM orientation (groups of 2)	40%

ASSIGNMENT SCHEDULE

Due date	Assignment
Oct. 17 and 24	Microteaching experiences x 2
Monday, Dec. 5 (assignment), Monday, Dec. 12 (presentation)	Design Brief: STEM/STEAM orientation (groups of 2)
	NO LATE ASSIGNMENTS ACCEPTED

ASSESSMENT AND MARKS

The course is graded. The standard for a pass within the B.Ed. program is equivalent to a B+ (76%) in UBC's standard marking system.

EDCP Grading Guidelines - July 2008

A level - Good to Excellent Work

A+   (90-100%) A very high level of quality throughout every aspect of the work. It shows the individual (or group) has gone well beyond what has been provided and has extended the usual ways of thinking and/or performing. Outstanding comprehension of subject matter and use of existing literature and research. Consistently integrates critical and creative perspectives in relation to the subject material. The work shows a very high degree of engagement with the topic.

A   (85-89%) Generally a high quality throughout the work. No problems of any significance, and evidence of attention given to each and every detail. Very good comprehension of subject and use of existing literature and research. For the most part, integrates critical and creative perspectives in relation to the subject material. Shows a high degree of engagement with the topic.

A-   (80-84%) Generally a good quality throughout the work. A few problems of minor significance. Good comprehension of subject matter and use of existing literature and research. Work demonstrates an ability to integrate critical and creative perspectives on most occasions. The work demonstrates a reasonable degree of engagement with the topic.

B level - Adequate Work

B+   (76-79%) Some aspects of good quality to the work. Some problems of minor significance. There are examples of integrating critical and creative perspectives in relation to the subject material. A degree of engagement with the topic.

B   (72-75%) Adequate quality. A number of problems of some significance. Difficulty evident in the comprehension of the subject material and use of existing literature and research. Only a few examples of integrating critical and creative perspectives in relation to the subject material. Some engagement with the topic.

B-   (68-71%) Barely adequate work at the graduate level.

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NOTE: For UBC's Faculty of Graduate Studies (FOGS), a final mark below 68% for Doctoral students and below 60% for Masters students is the equivalent of a Failing mark.

C & D level - Seriously Flawed Work

C   *(55-67%)* Serious flaws in understanding of the subject *material*. Minimal integration of critical and creative perspectives in relation to the subject material. Inadequate engagement with the topic. Inadequate work at the graduate level.

D level

D   (50-54%)

F level - Failing Work

F (0-49%)

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 www.universitycounsel.ubc.ca/ policies/policy73.pdf).

TEXTS

Required:

1. Petrina, S. (2007). *Advanced teaching methods for the technology classroom*. Hershey, PA: Information Science Publishing. Download from https://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. https://www.iteea.org/File.aspx?id=42513&v=2a53e184
4. Applied Design, Skills and Technologies Framework: http://innovativelearningcentre.ca/wp-content/uploads/2014/09/applied-skills.pdf

Recommended:

1. Crawford, M. B. (2009). *Shop Class as Soulcraft: An inquiry into the value of work*. New York, NY: Penguin.

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

COURSE OUTLINE: EDCP 377 – Winter 2016

Week 1-4: Guiding Features in Technology Education Teaching Practice	
Week 1 **Sept. 12**	**Introduction: Coursework expectations** • Assignments • BC's new curriculum, *Standards for the Education, Competence and Professional Conduct of Educators* in BC
Guiding Questions	• What is Technology? What is Design? What is Technology Education? • ADST: Applied Design, Skills and Technologies • STEAM: Science, Technology, Engineering, Art, Math
Activities	• 'Tech in a Bag' Activity https://vimeo.com/47531095 • ADST Activities • Design Activities
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

Week 2: ADST Curriculum: Communicating and Planning for Instruction (Sept. 19)	
Guiding Question	• What are considerations for communication and planning for instruction?
Activities	• ADST Activities • Design Challenge activity (putting on the Student's hat while holding onto the Teacher's hat)
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

Week 3: Organizing Knowledge for Instruction (Sept. 26)	
Guiding Questions	• How do we expand or transition from TE to STEM or STEAM? • Working in groups: 'Design Project and Brief' assignment
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* (Chapters 2 + 7)

Week 4: Instructional Methods and Learning Styles (Oct. 3)	
Guiding Question	• What should a repertoire of design and technology teaching practices include? • Working in groups: 'Design Brief' assignment
Activities	• ADST Activities • Design Activities
Readings	1. Petrina, Advanced teaching methods (Chapter 4: Instructional Methods and Learning Styles)

Field Trip Tuesday Oct. 4	• All Day Field Trip to Delta Schools (meet at location TBA)

Week 5: Thanksgiving Holiday – NO CLASSES (Oct. 10)

Field Trip Tues. Oct. 11	• All Day Field Trip to Surrey Schools (meet at location TBA)

Week 6 & 7: Teaching Practices

Week 6: Microteaching (Oct. 17)	
Readings	Petrina, *Advanced teaching methods* (Chapters 1, 2, 4 + 11)

Activity	Microteaching – presentation in class to be videotaped with peer-review
Assignment Due	***Assignment DUE:** #1 Micro Teaching presentation -- (hand in lesson plan by Wednesday, Oct. 12): 5-minute demonstration of skills using a hand tool, measuring device, hand-held machinery, CADD/CAM, or a computer application. Where possible, use a piece of educational technology to augment your presentation (document camera, overhead projector, Smartboard, chalk or white board, flip chart, etc.)

Field Trip Tues. Oct. 18	• Various schools visit

Week 7: Microteaching (Oct. 24)	
Activity	Microteaching – presentation in class to be videotaped with peer-review
Assignment Due	***Assignment DUE**: Micro-Teaching #2 – (hand in lesson plan by Wednesday, Oct. 19): 5-minute demonstration of skills using a shop electrical equipment (table-saw, pillar drill, etc.)
Oct. 27 & 28	*BCTEA Conference: Kelowna – Thursday, Oct 27: District Rep. meeting; Conference-Friday, Oct. 28*

Week 8 & 9: 2-week Short Practicum Experience (October 31 – November 10, 2016): Teaching Practices

Week 10 – Practicum Reflection & Discussion **Teaching Practices continued; Classroom Management (Nov. 14)**	
Activities	**Monday Nov. 14** Classroom Management – back from Practicum: **debrief the Practicum experience**. Guest Speaker: TBA
Guiding Questions and Activities	**Practicum Experience Sharing** (students present their learning experience with supporting artifacts including anecdotal report with photos or videos, take-away learning, etc.) • What went well, what went badly, what can be done to improve for the long practicum?
Readings	Petrina, *Advanced teaching methods* (Chapter 1: The Concept of Knowledge Media: Past and Future, Chapter 2: Organizing Knowledge for Instruction, Chapter 4: Instructional Methods and Learning Styles, Chapter 11: Classroom Management, Facilities, Design and Safety)

Week 11-14: Assessment and Evaluation	
Week 11 & 12 Nov. 21, 28	• ADST Activities • Design Activities • In-class group work on Design Brief project
Readings	Petrina, *Advanced teaching methods* (Chapter 1: The Concept of Knowledge Media: Past and Future, Chapter 2: Organizing Knowledge for Instruction, Chapter 4: Instructional Methods and Learning Styles, Chapter 11: Classroom Management, Facilities, Design and Safety)

Week 13 Dec. 5	**Assessment and Evaluation**
Assignment Due	*** Design Brief:** STEM/STEAM orientation (groups of 2)
Guiding Question	• How can assessment strategies be used to be a reflective practitioner? • What various kinds of questions do teachers use in your teachable subject(s)?

Activities	• ADST Activities • Design Activities
Readings	1. Petrina, *Advanced teaching methods* (Chapter 10: Assessment and Evaluation) 2. http://www.merga.net.au/documents/RP72007.pdf

Week 14 Dec. 12 Activities	**Presentation: Design Brief presentation** Possible 9-10 presentations with a 5-minute turn-around per group of 2 (including questions + evaluation) = approx. 3 hrs. with 15-min. break Wrap-up

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.
1---------------3---------------5
Reveals an attempt to synthesize knowledge through readings, discussion, design and development of unit/lesson plans and rubrics for assessment, etc.
1---------------5.5--------------10

Prepares and plans with innovative and progressive ideas
1--------------3--------------5

Total: x / 20

ASSIGNMENTS

1. **Microteaching and Lesson Plans x2:** The intention of this requirement is to help you develop artful and logical approaches to demonstrating and presenting in the classrooms, labs and workshops. This will also provide a tangible way of understanding the importance of small scale planning in curriculum. For each of the microteaching demonstrations that you do, you are required to hand in a lesson plan on the day that you give the demonstration **(Chapters 1-3).**

   Microteaching involves completing a lesson plan or portion of a lesson plan, teaching the lesson or giving a demonstration (or part) to the class, sharing expertise with colleagues, presenting information using appropriate pedagogical approaches and technologies, reflecting on the lesson, and providing feedback to peers. Microteaching will be recorded (video taped). (Please bring your USB flash drive for documenting and self-evaluation).

   Each lesson plan should adhere to the template of items provided in the book (*Advanced teaching Methods*): Title, Introduction, Objectives (Goals) and Major Message, Lesson Strategy, Instructional Materials, Tools & Materials, Procedure, Assessment, Special Safety, Integration, Social Context (Relevance), New Terms, Questions, Summary. Lesson Plan Length: 1-2 Pages

   DUE: #1 - October 17 (20%) and **#2 – October 24** (20%)

Microteaching Experiences

Low------------Avg------------High
Lesson Planning (comprehensiveness, clarity of objectives, focus)
Goals and Objectives, Comprehensiveness of Information, Assessment, Questioning, Closure
1---------------3--------------5
Effectiveness of Lesson Delivery, Motivational Beginning, Voice, Classroom Presence, Non-Verbal Communication, Pacing
1---------------5--------------10
Visuals, supplementary materials and Quality
1---------------3--------------5
Total: xx / 20

2. **Design Brief:** Create a Design Brief to present a design challenge. **Create a professional design brief**. Choose a topic that: a) is coordinated with your peers; b) is appropriate, appealing, and relevant to students at grades 8-10 or 11-12 levels; c) addresses a design challenge. The Design Brief format should adhere to the format below and have a STEM/STEAM orientation. **(Groups of 2) (40%)**

Name: _____   (Partner): _____   _____   Date: December 2016

Design Brief Title: _____   Total: _____ /40

University of British Columbia
EDCP 377
Design Brief Assessment

The Design Brief must be for a specific grade (e.g., grade 8), must involve a technology challenge, and must be planned for as part of a larger project brief. The design challenge can be either dynamic or static in nature. All information should be provided—The Design Brief must be comprehensive enough to be self-sufficient. Create a progressive design challenge OR redesign/rethink an existing challenge. **(Chapters 5 and 9 in Dr. Petrina's book)**

Design Brief Format: Use format provided
Criteria for marking:
- Content: (Format, Comprehensiveness, Substance, Depth of Knowledge, Graphic layout and Appropriateness)
- Creativity: (Creativity in strategy, Presentation, Coherence)
- Originality

Component / Level	Redo (1-2)	Average (3)	High (4-5)	Total /40
Professional Quality ✓ Presentation of Content ✓ Desk Top Publishing ✓ Images + Text	· Quality is compromised · Materials look unprofessional	· Quality is OK · Attempt to meet Standard	· Extremely professional · High standard of quality for materials	**10**
Format ✓ Title ✓ Background Context ✓ Problem ✓ Constraints ✓ Design Consideration ✓ Sequence ✓ Related Studies ✓ Management Issues ✓ Self-Evaluation ✓ Assessment	· Format is incomplete · Certain aspects are missing	· Format is generally complete · Most aspects of format are OK	· All aspects of format are outstanding · Format is clear and thorough	**10**
Content ✓ Relevance ✓ Comprehensiveness ✓ Progressiveness	· Content is sparse · Content is inappropriate for Grade level	· Content is adequate ✓ Content is conventional	✓ Content is very relevant and thorough · Content is fresh and exciting	**10**
Resources ✓ Applicability ✓ Relevance ✓ Volume	· Few resources · Inappropriate resources	· Resources are somewhat thoughtful ✓ Adequate volume of resources	✓ Resources are extremely thoughtful · Large volume of resources	**5**