SAN DIEGO COMMUNITY COLLEGE DISTRICT
COLLEGE OF CONTINUING EDUCATION
COURSE OUTLINE

SECTION I

SUBJECT AREA AND COURSE NUMBER

CLTX 663

COURSE TITLE

3D DIGITAL PATTERNMAKING

TYPE COURSE

NON-FEE VOCATIONAL

CATALOG COURSE DESCRIPTION

The integration of technology into patternmaking produces precise, efficient product development. This course provides a fundamental exploration of three-dimensional (3D) patternmaking and digital prototyping simulations in a virtual environment using leading industry software. Students create fit accurate, 3D product patterns with realistic simulated textile behavior from product analysis, streamlining and automating manufacturing processes. (FT)

LECTURE/LABORATORY HOURS

72 - 80

ADVISORIES

Completion of CLTX 662 2D Digital Patternmaking with a grade of ‘C’ or better, or equivalent

RECOMMENDED SKILL LEVEL

Knowledge of general math and basic computer skills.

INSTITUTIONAL STUDENT LEARNING OUTCOMES

1. Social Responsibility
   SDCCE students demonstrate interpersonal skills by learning and working cooperatively in a diverse environment.
2. Effective Communication
   SDCCE students demonstrate effective communication skills.

3. Critical Thinking
   SDCCE students critically process information, make decisions, and solve problems independently or cooperatively.
4. Personal and Professional Development
   SDCCE students pursue short term and life-long learning goals, mastering necessary skills and using resource management and self-advocacy skills to cope with changing situations in their lives.
5. Diversity, Equity, Inclusion, Anti-Racism, and Access
   SDCCE students critically and ethically engage with local and global issues using principles of equity, civility, and compassion as they apply their knowledge and skills: exhibiting awareness, appreciation, respect, and advocacy for diverse individuals, groups, and cultures.

COURSE GOALS

1. Gain proficiency in using 3D computer-aided drafting CAD software for patternmaking and fitting modifications.
2. Gain understanding of computer terminology used in CAD patternmaking.
3. Acquire and apply knowledge of and skills in 3D CAD for scalability of sizes and variations for consistency.
4. Develop practical skills for simulating movement and visualizing products in 3D.
5. Learn of 3D software automation processes for preparing technical packages (tech-packs) in product manufacturing.
6. Explore the various career options and diverse patternmaking job opportunities that exist in the industry.
7. Discuss the ecological impact of 3D digital patternmaking and virtual prototyping in cut and sew industries, eliminating over-production of physical samplings.
8. Develop an understanding of the importance of employability skills and the entrepreneurial mindset in the digital transformation of the cut and sew industry workplace.

COURSE OBJECTIVES

1. Produce a variety of 3D digital patterns with fitting modifications.
2. Define terminology for computer-aided drafting and 3D software.
3. Create patterns of different sizes ensuring accuracy of design and style using virtual models and avatars.
4. Apply skills to create virtual rendering simulations.
5. Evaluate prepared tech-pack pattern specifications for manufacturing.
6. Describe different patternmaking career options.
7. Explain how patternmaking in 3D CAD impacts ecology.

8. List the patternmaking skills employers are looking for in a digital patternmaker.

SECTION II

COURSE CONTENT AND SCOPE

1. Introduction to Patternmaking Fundamentals and the Patternmaking for Product Development Certificate Program
    1.1. Clothing and Textiles (CLTX) programs and pathways
        1.1.1. San Diego College of Continuing Education (SDCCE) programs and pathways
        1.1.2. Credit by exam
    1.2. Course learning management system
        1.2.1. Canvas
        1.2.2. Other supporting software used
2. Essential Entrepreneurial and Soft Skills in the Classroom and Work Environments
    2.1. Definition of entrepreneurial and soft skills
    2.2. Examples of entrepreneurial and soft skills
        2.2.1. Communication skills
        2.2.2. Conflict resolution skills
        2.2.3. Problem solving
        2.2.4. Design thinking
        2.2.5. Digital tool skills
3. 3-D Computer Patternmaking Software
    3.1. Methods
        3.1.1. Choice of software
            3.1.1.1. Determine scope of task
    3.2. Techniques
        3.2.1. Determine sewing order
        3.2.2. Use placement points
        3.2.3. Utilize gizmo
        3.2.4. Simulation troubleshooting
4. 3D Computer Patternmaking Foundations
    4.1. User settings
    4.2. Navigation and selection
    4.3. Simulation environment
    4.4. Digital editing techniques
5. 3D Simulation Processes
    5.1. Applying textile parameters
    5.2. Building simulations
    5.3. Running simulations
    5.4. Evaluating simulations
    5.5. Correcting simulations
    5.6. Pattern modifications
6. Post Simulation Processes
    6.1. Review automated tech pack adjustments
7. Documentation/Portfolio of Skills

   7.1. Portfolio
8. Application of Sustainable Principles in the Context of 3D Pattern Software
   8.1. Impact of 3D patternmaking and virtual sampling on the environment
   8.2. Zero waste and sustainable business practices
9. Career Exploration in Computer Patternmaking
   9.1. Payroll employee
   9.2 Self-employment
   9.3. Freelancing
   9.4. Employment resources
   9.5. Online Marketplaces
   9.6. Social media

APPROPRIATE READINGS

Reading assignments may include, but are not limited to, subject matter textbooks, workbooks, instructor written handouts, industry-related publications, online help pages, articles posted on the internet, information from web sites, online libraries, resource manuals, videos and tutorials. Topics will be related to 3D digital patternmaking and the cut and sew industry.

WRITING ASSIGNMENTS

Appropriate writing assignments may include, but are not limited to:

1. Maintain a portfolio of class notes, samples, and assignments.
2. Written documentation of 3D virtual environment manipulations.

OUTSIDE ASSIGNMENTS

Outside assignments may include, but are not limited to:

1. Independent, further exploration of a class topic.
2. Independent research on patternmaking developments and new trends in the clothing and textile industry.
3. Practical application of digital 3D patternmaking skills on textile products outside of course projects.
4. Practical application of sustainable best practices learned in class.

APPROPRIATE ASSIGNMENTS THAT DEMONSTRATE CRITICAL THINKING

Assignments that demonstrate critical thinking may include, but are not limited to:

1. Student self-evaluation of the completed 3D digital simulation projects using designated rubrics.
2. Applying 3D software tools to modify and/or correct simulations.
3. Prepare files according to the required specifications of the project.

EVALUATION

A student's competency will be based on multiple measures of performance. Assessment will measure the development of independent critical thinking and 3D patternmaking skills. Evaluation of the student's ability will be based on, but not limited to, the following criteria:

1. Completion of the course 3D digital patternmaking and simulation projects.
2. Completion of a 3D digital skills portfolio/workbook demonstrating competence of course content.
3. Completion of class participation requirements.

Upon successful completion of all courses included in the program, a Certificate of Program Completion will be issued.

METHOD OF INSTRUCTION

Methods of instruction may include, but are not limited to:

1. Classroom lectures
2. Demonstrations
3. Laboratory
4. Classroom discussions
5. Project based learning opportunities
6. Work based learning opportunities
7. Web-based resources
8. Field trips
9. Guest speakers
10. Video resources
11. Collaborative learning
12. Individual/small group instruction

This course, or sections of this course, may be offered through distance education.

TEXTS AND SUPPLIES

Digital Flat Pattern: The Apparel Designer's Handbook, Lisa A. Christman, Ph.D, Published by Wild Ginger Software, Inc., current edition
Integrating Draping, Drafting and Drawing, Abling, Bina; Maggio, Kathleen, Bloomsbury, current edition
Computer-Aided Pattern Design and Product Development, Alison Beazley and Terry Bond, Wiley-Blackwell, current edition.

Supplies:
At least a 32GB USB flash drive dedicated to the patternmaking program, access to computer and internet to complete assignments.

PREPARED BY: Kenneth Lord-Imazumi, Shirley Pierson DATE: November 2023

REVISED BY: _____ DATE: _____

Instructors must meet all requirements stated in Policy 3100 (Student Rights, Responsibilities and Administrative Due Process), and the Attendance Policy set forth in the Continuing Education Catalog.

REFERENCES:

San Diego Community College District Policy 3100
California Community Colleges, Title 5, Section 55002
Continuing Education Catalog