Subject Description Form

Subject Code	**SFT342DD**
Subject Title	**3D Design and Virtual Fitting**
Credit Value	**3**
Level	**3**
Pre-requisite/ Co-requisite/ Exclusion	Pre-requisite: SFT207DD Digital Product Creation Exclusion: ITC441FC Advanced 3D Pattern on Sportswear
Objectives	The subject provides the advance knowledge of application of 3D CAD on pattern design for sportwear and active wear. It trains the use of 3D CAD techniques in virtual garment fitting. It also explores 3D CAD technique and support in all stages of the apparel product development process, including pattern design and garment styling, tech pack preparation and 3D prototype.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) understand the theory and make use of the learnt knowledge to select a variety of CAD systems for solving different problems related to Sportswear and activewear; (b) examine the calibration of physical fabric properties to material visualization by 3D CAD; (c) apply 3D fitting by motion and complex poses simulation; (d) digitize manufacturing process; likes technical specification, pattern design, marker; and (e) demonstrate the ability of using 3D CAD technology to generate a real-time 3D prototype.
Subject Synopsis/ Indicative Syllabus	(I) **Overview the sportswear & active wear design and** development General introduction to product development workflow Functions of style and pattern design by CAD (II) **Fabric digitization** Calibration and identification of fabric properties (III) **3D fitting** Critical motion and complex poses analysis (IV) **Development work by digitalization** Tech pack preparation Specification generation (V) **3D prototyping** 3D rendering Material visualization including materials, seams, style details, accessories and trims

<table>
<tr><td>Teaching/Learning Methodology</td><td>Studio sessions will be used to deliver teaching in this subject with more interactive teaching and learning, and problem solving. Hands-on experience of CAD and demonstrations of pattern design techniques will also be provided.

Online learning materials and self-learning exercises with step-by-step instructions will also be incorporated via LEARN@PolyU to enhance students' understanding of apparel construction.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="6">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td><td></td></tr>
<tr><td>1. In-class exercises</td><td>40%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>2. Projects</td><td>60%</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td>✓</td><td></td></tr>
<tr><td>Total</td><td>100%</td><td colspan="6"></td></tr>
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Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Students will be expected to understand basic techniques of clothing CAD pattern design in this subject. Such techniques will be acquired through extensive hands-on practice and exercises. Therefore, the course will be assessed by in-class exercises. Students will also be expected to communicate effectively and think critically by applying clothing CAD to support their future career, and such knowledge integration will be achieved through project work. In-class exercises and projects will be appropriate methods to assess students' proficiency in achieving the intended learning outcomes.

"The materials submitted for this assessment must be the student's own work. The submitted work may not be accepted for the purpose of assessment if its authenticity is questionable. Submitting GenAI-generated materials as students' own work or part of their work is an act of academic dishonesty. Students who are found committing academic dishonesty will face disciplinary actions."</td></tr>
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Student Study Effort Expected	Class contact:	
	• Studio	38 Hrs.
	Other student study effort:	
	• Self-study/Preparation	20 Hrs.
	• Project	50 Hrs.
	• Total student study effort	108 Hrs.

Reading List and References

Books

Ashdown, S. (Ed.). (2007). Sizing in clothing. Elsevier.

Black, C. (2008), Modaris and Iamino for Apparel Design. Fairchild Books, US.

Gupta, D., & Zakaria, N. (Eds.). (2014). Anthropometry, apparel sizing and design. Elsevier.

Hayes, S. G., & Venkatraman, P. (Eds.). (2016). Materials and technology for sportswear and performance apparel. Boca Raton: CRC Press.

Nugent, L. (2009), Computerized Patternmaking for Apparel Production. Fairchild Books, US.

Matthews, J. L. (2011), Fitting and Pattern Alteration: A Multi-method Approach. Fairchild, New York.

Song, G. (Ed.). (2011). Improving comfort in clothing. Elsevier.

Stott, M. (2012). Pattern cutting for clothing using CAD: How to use Lectra Modaris pattern cutting software. Elsevier

Pascal, V., & Nadia, M. T. (2000). Virtual Clothing. Theory and Practice.

User Manual

V-Stitcher PDS, Lotta

Websites

BROWZWEAR, http://www.browzwear.com/