Subject Description Form

Subject Code	**SFT305AF**
Subject Title	**AIDA in Fashion Innovation**
Credit Value	**3**
Level	**3**
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	The subject provides the knowledge to analyse fashion innovation and technology problems quantitatively, develops practical skills in solving quantitative problems with up-to-date software packages, and also analyses the role and application of artificial intelligence, digital processing and robotic technology in smart production and intelligent evaluation of fashion and textiles, as well as cultivates abilities in data processing and troubleshooting in fashion technology research.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) apply the appropriate approaches to collect, present, analyse and interpret the production and evaluation data generated in fashion innovation and technology; (b) competently use popular software packages to prepare the data file of experimental results for conducting fashion technology research, and generate appropriate output for analysis; (c) analyse the role and application of artificial intelligence, digital data processing and robotics in smart production and intelligent evaluation of fashion and textiles; (d) leverage appropriate programming language to apply intelligent algorithms for intelligent quality evaluation of fashion and textiles; (e) develop critical and creative thinking in identifying and solving quantitative problems in the fashion technology research.
Subject Synopsis/ Indicative Syllabus	**(I)** **Planning and Conducting Fashion Technology Research** Types of production and evaluation data generated in fashion innovation and technology. Collection and presentation methods for data obtained in fashion technology research. Application of comparing group means, linear regression, correlation, and statistical quality control in quantitative analysis of production and evaluation data – practical examples and interpretation of applications in fashion innovation and technology. Grouping of data into

	clusters using cluster analysis – practical examples and interpretation of applications in fashion technology research. Search for hidden dimensions using factor analysis – practical examples and interpretation of applications in fashion technology research. Preparation of the data file for fashion technology research, as well as generation and interpretation of appropriate output of software packages, e.g. SPSS.
	(II) **Analysing Smart Production and Intelligent Evaluation in Fashion Innovation and Technology** Artificial intelligence, digital processing, industrial robotics and their applications in smart production and intelligent evaluation – practical examples and interpretation of applications in fashion innovation and technology. Intelligent algorithms in Industry 4.0 and 5.0. Smart automation in fashion and textiles: types of sensing information, digital data processing, human-machine interaction, machine programming, AI algorithms and numerical control. Analysis and implementation of artificial intelligence and digital processing in intelligent quality evaluation of fashion and textiles with appropriate programming language, e.g. Python.
Teaching/Learning Methodology	Lectures will focus on the introduction and explanation of key concepts and applications of analytics, artificial intelligence, digital data processing and robotics in fashion innovation and technology. Studio classes will provide students with the opportunity to strengthen their understanding of knowledge taught in lectures, and more importantly, to gain hands-on operation of popular software packages and programming language for quantitative analysis of fashion technology problems and intelligent quality evaluation of fashion and textiles. Activities will include student discussions of problem sets and case studies. A variety of assessment tools will be used such as assignment, studio report, written test and final examination.

	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)				
			a	b	c	d	e
Assessment Methods in Alignment with Intended Learning Outcomes	**Continuous Assessment**	**50%**	✓	✓	✓	✓	✓
	1. *Assignment/ exercise*	*30%*	✓	✓	✓	✓	✓
	2. *Report/test*	*20%*	✓	✓	✓	✓	✓
	Examination	**50%**	✓	✓	✓	✓	✓
	Total	100%					

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Coursework and final examination will be important in assessing the intended learning outcomes. Coursework may include assignment, exercise, studio report and term test. The final examination will assess the overall understanding of the subject contents.

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.

Student Study Effort Expected	Class contact:	
	• Lecture	26 Hrs.
	• Studio	12 Hrs.
	Other student study effort:	
	• Self-study	67 Hrs.
	Total student study effort	105 Hrs.

| Reading List and References | **<u>Books</u>**
Hair, J. F. (2019), *Multivariate Data Analysis*. Pearson Education Limited.

Everitt, B., Brian E. (2011), *Cluster Analysis*. Chichester, West Sussex, U.K.: Wiley.

Rhinehart, R., Robert M. (2022), *Applied Engineering Statistics*. Boca Raton, FL: CRC Press.

Anand N., Akshi K. (2020), *A Roadmap to Industry 4.0: Smart Production, Sharp Business and Sustainable Development*. Cham: Springer.

Alexiei D., Foaad H., Kluver C. (2020), *Artificial Intelligence in Industry 4.0*. Cham: Springer International Publishing.

Elangovan, U. (2022), *Industry 5.0: The Future of The Industrial Economy*. Boca Raton, FL: CRC Press.

Kravets, A. G. (2020), *Robotics*. Cham: Springer International Publishing.

Justin, H. (2020), *Artificial Intelligence*. NSW: Spinney Press

Luce, L. (2018), *Artificial Intelligence for Fashion: How AI Is Revolutionizing the Fashion Industry*. Berkeley, CA: Apress L. P

Hu J. (2011), *Computer Technology for Textiles and Apparel*. Woodhead Publishing Limited.

Darren, G., Paul, M. (2020), *IBM SPSS Statistics 26 Step by Step: a Simple Guide and Reference*. London: Routledge.

Aldrich, J. O. (2019), *Using IBM SPSS Statistics: An Interactive Hands-on Approach*. California: SAGE Publications.

Teoh, T., Zheng R. (2022), *Artificial Intelligence with Python*. Springer.

Sarma, V., Vimal, K., Swati, S. (2022), *Python Programming: A Practical Approach*. FL: CRC Press. |