Subject Description Form

Subject Code	**SFT101FY**
Subject Title	**Introduction to AI and Data Analytics in Fashion**
Credit Value	**2**
Level	**1**
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject aims to introduce the basic concepts and knowledge of artificial intelligence and data analytics (AIDA), and their applications in different sectors of the global fashion industry. Students will also learn the basic techniques of extracting and transforming data that provides actionable insights and business recommendations in marketing, product design and development, research development and innovations. In addition to theoretical knowledge of AIDA, students can gain hands-on experience with data filtering, analysis, data presentation, and AI tasks of image and/or gesture recognition.
Intended Learning Outcomes *(Note 1)*	Upon completion of the subject, students will be able to: a) demonstrate an understanding of the foundational concepts of AIDA; b) acquire basic skills in using AIDA technologies and applications that strengthening students' readiness for the fast-changing technological social contexts; c) articulate examples of how the adoption of AIDA could enhance the global fashion industry; and heighten students' awareness of their responsibilities in shaping technological changes and global sustainable development; and d) demonstrate an awareness of global contemporary ethical issues, and nurture students' personal integrity as responsible global citizens, particularly in the fast technological changing world with AIDA applications in daily life.
Subject Synopsis/ Indicative Syllabus *(Note 2)*	The topics in the course syllabus cover three major areas: **1. Introduction to Artificial Intelligence** • Basic concepts of artificial intelligence • Useful and fascinating AI models and tools • AI tasks in daily life such as AI Generated Content (AIGC) related AGI models, face recognition, image manipulation or inpainting, video games, maps, social media, etc., as well as their challenges and trends **2. Introduction to Data Analytics** • Basic concepts of data collection, cleaning, processing and analytics • Mathematic skills and tools for data analytics, including preparation of data file, clustering, regression, classification, prediction, generation

	of graphical and tabular outputs for data presentation from software packages. **3. AIDA applications and impacts on the global fashion industry** • AIDA applications in fashion business intelligence, such as personalised purchase suggestions, promotion campaign and pricing • AIDA applications in fashion trend, demand forecasting and product development • AIDA technologies in supply chain, production plan and robotics in smart production to improve productivity in shaping technological changes and global sustainable development Responsible AI, Ethics, IP, personal integrity and Privacy Considerations in AIDA in technological social contexts
Teaching/Learning Methodology *(Note 3)*	The subject will implement a variety of methods as its pedagogy to help students achieve the learning outcomes above. Instrumental cases will be adopted to illustrate the usability of the principles in real-life fashion contexts. **1. e-Learning Module (with the content of I.T. Literacy skills)** The e-learning module is developed and delivered by the Department of Computing at PolyU, consisting of readings, exercises and assessments that are designed to introduce students to the basic concept and practice of AIDA. The e-learning module will provide basic foundation concepts about AIDA, as well as their potential global and societal context impacts. A brief understanding about the technology and applications, along with I.T. literacy skills will be provided. Students are required to successfully complete the e-learning module (including video watching, an after-class exercise, and a lab with the AIDA interactive playground) within the first seven weeks of the semester in which they are taking the subject. **2. Lectures and Tutorials** Discipline-specific lectures and tutorials are structured to convey the knowledge and skills specific to this subject. Interactive tutorials will be conducted to encourage discussions and practical exploration of the application cases relevant to AIDA in the fashion contexts. **3. Workshops** Workshop sessions and experiential learning activities are designed to develop students' understanding of the data analytical and presentation skills and solving basic AIDA problems through hands-on practice.

Assessment Methods in Alignment with Intended Learning Outcomes

(Note 4)

Students' performance in this subject will be assessed using a letter- grading system in accordance with the University's convention from grade F (failure) to A+. The relative weighting of the different assessment components are as follows:

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)			
		a	b	c	d
Participation	10%	✓	✓	✓	✓
Laboratory Exercises	30%	✓	✓		
Group Assignment	30%	✓	✓	✓	✓
Reflective paper on a topic	30%	✓	✓	✓	✓
Total	100%				

Assignment and reflective paper are used to assess students' understanding on the concepts, technologies, applications and impact of AIDA. The laboratory exercises are used to assess their ability in using AIDA technologies and applications.

Student Study Effort Expected

Class contact:	
▪ Lectures (2 hours/week for 6 weeks)	12 Hrs.
▪ Tutorials (2 hours/week for 2 weeks)	4 Hrs.
▪ Workshops (2 hours/week for 5 weeks)	10 Hrs.
Other student study effort:	
▪ E-learning Module and Preparation for Workshop Exercises	38 Hrs.
▪ Preparation for Group Assignment and Reflective Paper	16 Hrs.
Total student study effort	80 Hrs.

Reading List and References

Books

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

Bissett, B. (2021). *Automated data analysis using Excel*, 2nd edition. CRC Press.

	McFedries, P. (2019). *Excel data analysis for dummies*. John Wiley & Sons, 4th edition. Wong, W. K. (Ed.). (2017). *Applications of computer vision in fashion and textiles*. Woodhead Publishing. **Paper Articles:** Dubey, A., Bhardwaj, N., Abhinav, K., Kuriakose, S. M., Jain, S., & Arora, V. (2020). AI Assisted Apparel Design. *arXiv preprint arXiv:2007.04950.* Kashilani, D., Damahe, L. B., & Thakur, N. V. (2018, August). An overview of image recognition and retrieval of clothing items. In *2018 International Conference on Research in Intelligent and Computing in Engineering (RICE)* (pp. 1-6). IEEE. Mohammadi, S. O., & Kalhor, A. (2021). Smart Fashion: A Review of AI Applications in the Fashion & Apparel Industry. *arXiv preprint arXiv:2111.00905*.

Note 1: Intended Learning Outcomes
Intended learning outcomes should state what students should be able to do or attain upon subject completion. Subject outcomes are expected to contribute to the attainment of the overall programme outcomes.

Note 2: Subject Synopsis/Indicative Syllabus
The syllabus should adequately address the intended learning outcomes. At the same time, overcrowding of the syllabus should be avoided.

Note 3: Teaching/Learning Methodology
This section should include a brief description of the teaching and learning methods to be employed to facilitate learning, and a justification of how the methods are aligned with the intended learning outcomes of the subject.

Note 4: Assessment Method
This section should include the assessment method(s) to be used and its relative weighting, and indicate which of the subject intended learning outcomes that each method is intended to assess. It should also provide a brief explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes.