

2025 年度シラバス

科目分類/Subject Categories			
学部等/Faculty	/大学院工芸科学研究科（博士前期課程）： /Graduate School of Science and Technology (Master's Programs)	今年度開講/Availability	/有：/Available
学域等/Field	/独立専攻：/Fibro/BBM	年次/Year	/1～2年次：/1st through 2nd Year
課程等/Program	/先端ファイブ科学専攻：/Master's Program of Advanced Fibro-Science	学期/Semester	/春学期：/Spring term
分類/Category	/授業科目：/Courses	曜日時限/Day & Period	/集中：/Intensive

科目情報/Course Information				
時間割番号 /Timetable Number	65109914			
科目番号 /Course Number	65160218			
単位数/Credits	2			
授業形態 /Course Type	講義：Lecture			
クラス/Class				
授業科目名 /Course Title	産業情報システム論：Industrial Information Systems			
担当教員名 / Instructor(s)	/山下 直之/(Zbigniew Stempien)：YAMASHITA Naoyuki/Zbigniew Stempien			
その他/Other	インターンシップ実施科目 Internship	国際科学技術コース提供科目 IGP	PBL 実施科目 Project Based Learning	DX 活用科目 ICT Usage in Learning
	実務経験のある教員による科目 Practical Teacher			
科目ナンバリング /Numbering Code	M_AF6121			

授業の目的・概要 Objectives and Outline of the Course	
日	The purpose of this course is to deepen the knowledge on automated and integrated industrial information systems in textiles. This includes systems and models for data acquisition as well as data processing and interpretation.
英	The purpose of this course is to deepen the knowledge on automated and integrated industrial information systems in textiles. This includes systems and models for data acquisition as well as data processing and interpretation.

学習の到達目標 Learning Objectives	
日	Have an advanced understanding of signals, systems, sensors, Industrial Control Systems, 1 Networks, IoT, Industry 4.0, Have the insight to further extend the knowledge in the field of automation and Integrated 1 Industrial Information Syst Use statistical techniques in an effective and efficient way.
英	Have an advanced understanding of signals, systems, sensors, Industrial Control Systems, 1 Networks, IoT, Industry 4.0, artificial intelligence in the context of textile processes Have the insight to further extend the knowledge in the field of automation and Integrated 1 Industrial Information Systems. Use statistical techniques in an effective and efficient way.

学習目標の達成度の評価基準 / Fulfillment of Course Goals (JABEE 関連科目のみ)	
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授業計画項目 Course Plan			
No.		項目 Topics	内容 Content
1	日	Introduction	Position of the course is explained.
	英	Introduction	Position of the course is explained.
2	日	Signals	Learn the signals for automation
	英	Signals	Learn the signals for automation
3	日	Systems	Learn the systems for automation
	英	Systems	Learn the systems for automation
4	日	Sensors	Learn the type of sensors and how they work
	英	Sensors	Learn the type of sensors and how they work
5	日	Industrial Control Systems-I	Learn Supervisory Control and Data Acquisition (SCADA) systems
	英	Industrial Control Systems-I	Industrial Control Systems-I
6	日	Industrial Control Systems-II	Learn Distributed Control Systems (DCS)
	英	Industrial Control Systems-II	Learn Distributed Control Systems (DCS)
7	日	PLC's	Learn Programmable Logic Controller
	英	PLC's	Learn Programmable Logic Controller
8	日	Computer Integrated Manufacturing-I	Learn how CIM is related to automated manufacturing processes
	英	Computer Integrated Manufacturing-I	Learn how CIM is related to automated manufacturing processes
9	日	Computer Integrated Manufacturing-II	Learn how CIM relies on closed-loop control processes, based on real-time input from sensors
	英	Computer Integrated Manufacturing-II	Learn how CIM relies on closed-loop control processes, based on real-time input from sensors
10	日	Computer Networks	Learn the process of automating the configuring, managing, testing, deploying, and operating of physical and virtual devices within a network
	英	Computer Networks	Learn the process of automating the configuring, managing, testing, deploying, and operating of physical and virtual devices within a network
11	日	Internet and Internet of Things	Learn what is IoT and how it works for automation
	英	Internet and Internet of Things	Learn what is IoT and how it works for automation
12	日	Industry 4.0	Learn the smart manufacturing, the realization of the digital transformation of the field
	英	Industry 4.0	Learn the smart manufacturing, the realization of the digital transformation of the field
13	日	Statistical techniques	Learn the statistics and how to use it for the data processing.
	英	Statistical techniques	Learn the statistics and how to use it for the data processing.
14	日	Artificial intelligence	Learn what is the artificial intelligence and how to apply to the industry.
	英	Artificial intelligence	Learn what is the artificial intelligence and how to apply to the industry.
15	日	Textronics	Learn textile - Based Wearable Electronics
	英	Textronics	Learn textile - Based Wearable Electronics

履修条件 Prerequisite(s)	
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授業時間外学習（予習・復習等） Required study time, Preparation and review	
日	BSc level in mathematics, physics, electricity, general process engineering, textile technology and computer programming.
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教科書／参考書 Textbooks/Reference Books	
日	
英	

成績評価の方法及び基準 Grading Policy	
日	written closed-book exam
英	written closed-book exam

留意事項等 Point to consider	
日	Lectures and tutorial in computer lab. Although lectures will be primarily provided on campus, they may be supported by online activities in case of unforeseen conditions.
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