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	/先端ファイブロ科学専攻 ：/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	65109918		
科目番号 /Course Number	65160219		
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	バーチャル製品開発論：Virtual Product Development		
担当教員名 / Instructor(s)	/佐久間　淳/Felix Kunzelmann：SAKUMA Atsushi/Felix Kunzelmann		
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	Empower students to perform product development independently using virtual product development methods and tools.
英	Empower students to perform product development independently using virtual product development methods and tools.

学習の到達目標 Learning Objectives	
日	Empower students to perform product development
英	Empower students to perform product development

学習目標の達成度の評価基準 / Fulfillment of Course Goals（JABEE 関連科目のみ）	
日	
英	

授業計画項目 Course Plan			
No.		項目 Topics	内容 Content
1	日	Industrial Product Development	Understand the basics of industrial product development
	英	Industrial Product Development	Understand the basics of industrial product development
2	日	Virtual Product Development	Understand the basics of virtual product development

	英	Virtual Product Development	Understand the basics of virtual product development
3	日	Product models	Understand product modeling
	英	Product models	Understand product modeling
4	日	Virtual Product Development Tools	Understand virtual product development tools
	英	Virtual Product Development Tools	Understand virtual product development tools
5	日	Digital Mock-Up	Understand virtual mockups
	英	Digital Mock-Up	Digital Mock-Up
6	日	CAE(1)	Understanding Finite Elements Method (FEM)
	英	CAE(1)	Understanding Finite Elements Method (FEM)
7	日	CAE(2)	Understanding Computational Fluid Dynamics(CFD)
	英	CAE(2)	Understanding Computational Fluid Dynamics(CFD)
8	日	CAE(3)	Understanding Multi-Body Simulation(MBS)
	英	CAE(3)	Understanding Multi-Body Simulation(MBS)
9	日	Virtual Reality	Understand VR
	英	Virtual Reality	Understand VR
10	日	Product technical documentation	Understand how to prepare product technical documentation.
	英	Product technical documentation	Understand how to prepare product technical documentation.
11	日	Rapid prototyping	Understand the techniques for quickly manufacturing prototypes and samples
	英	Rapid prototyping	Understand the techniques for quickly manufacturing prototypes and samples
12	日	Numerical Control/Measure Control	Understand the control and measurement methods that uses numerical information to command the actions to be performed.
	英	Numerical Control/Measure Control	Understand the control and measurement methods that uses numerical information to command the actions to be performed.
13	日	Planning of manufacturing and control	Understand the basics and development methods of manufacturing and management planning
	英	Planning of manufacturing and control	Understand the basics and development methods of manufacturing and management planning
14	日	Product data management	Understand the basics and development methods of product data management
	英	Product data management	Understand the basics and development methods of product data management
15	日	Concepts of team work on product development	Understand the concepts of team work on product development
	英	Concepts of team work on product development	Understand the concepts of team work on product development

履修条件 Prerequisite(s)	
日	
英	

授業時間外学習（予習・復習等） Required study time, Preparation and review	
日	Not in particular
英	Not in particular

教科書／参考書 Textbooks/Reference Books	
日	Documents will be distributed when necessary.
英	Documents will be distributed when necessary.

成績評価の方法及び基準 Grading Policy	
日	End-of-term evaluation by test (100%)
英	End-of-term evaluation by test (100%)

留意事項等 Point to consider	
日	Teaching language is English.Intensive course. Understand research ethics.
英	Teaching language is English.Intensive course. Understand research ethics.