

Course Description

UEC Exchange program Japanese University Studies in Science and Technology (JUSST)

Spring Semester, 2026

International Education Center (IEC)
The University of Electro-Communications

UEC JUSST Program Course Description

Japanese University Studies in Science and Technology (JUSST)

International Educational Center (IEC)

The University of Electro-Communications

1-5-1 Chofugaoka, Chofu-shi, 182-8585

Tokyo, Japan

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Contents

Guidance	i
1.1 UEC JUSST Program's Enrollment Requirements	i
1.2 Academic Calendar	ii
1.3 Timetable	iii
1.4 Campus Map	iv
Scientific Research Communication Subjects	1
2.1 Research Presentation	1
2.2 Reading Scientific Research	3
2.3 Japanese Language for JUSST Program Students	5
Informatics, Science and Engineering Subjects	6
3.1 VLSI Low Power Circuit Design	6
3.2 Advanced Communication Engineering and Informatics I (Information and Communi- cation Network)	8
3.3 Introduction to Computational Methods in Science and Engineering	10
3.4 Advanced Environmental Materials Science	12
3.5 Advanced Engineering Science I (Polymer Photonics)	14
3.6 Advanced Theory of Systems Reliability	16
3.7 Topics in Informatics II (Sustainable Supply Chain Management)	18
3.8 Advanced Engineering Science III (Exercises in Advanced Computational Sciences) . .	20
3.9 Advanced Engineering Science II (Photonics and Opto-electronics)	23
3.10 Information and Communications Technologies for SDGs	25
Academic Skills Subjects	27
4.1 UEC Academic Skills I (Computer Literacy)	27
4.2 UEC Academic Skills II (Information literacy and Research)	29
4.3 UEC Academic Skills III (Publishing literacy and Research)	31

JUSST Program Course Requirements

	Subject	1 st Semester	2 nd Semester
CORE SUBJECTS	LAB WORK Research / Project (Required for JUSST student)	[UNDERGRADUATE STUDENTS] <u>Individual Study Project</u> under the supervision of UEC faculty member. Minimum 8 hours/week 5 Credits/one academic year (2 Credits/one semester)	
		[GRADUATE STUDENTS] <u>Independent Research Project</u> under the supervision of UEC Faculty member. Minimum 8 hours/week 6 Credits/one academic year (3 Credits/one semester)	
	Academic Skills I	2 hours/week (2 Credits)	–
	Academic Skills II		
	Academic Skills III	–	2 hours/week (2 Credits)
	Japanese Language	Elementary / Intermediate / Advanced * 4 - 14 hours/week (2 - 7 Credits)	
	Science and Engineering Subjects (ELECTIVE)	[UNDERGRADUATE STUDENTS]	
		Need to pass 3 subjects at minimum **	Need to pass 2 subjects at minimum **
		[GRADUATE STUDENTS] Need to pass 3 subjects at minimum ** in <i>One Academic Year</i>	
		Electronic Experiment Lab. 4 hours/week (2 Credits) Required for all Undergraduate Students Only offered in the FALL Semester	
FREE ELECTIVE	Reading Scientific Research	2 hours/week (2 Credits) Offered in the SPRING Semester only	
	Research Presentation		
	Preparation for Graduate School	2 hours/week (2 Credits) Offered in the FALL Semester only	
	English for Interpersonal Communication		
	Sports Classes	–	2 hours/week (1 Credit)

*) Japanese language classes may be exempted in the 2nd semester.

**) Students are highly recommended to take scientific & Engineering courses, at least one subject more than the minimum requirement in order to ensure your successful completion of JUSST program. (Form D)

***) “Electronic Experiment Lab” is considered as one of the Science and Engineering Subjects.

2026 SPRING SEMESTER CALENDAR

	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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 National holiday

 Entrance examination for UEC graduate school

@ JUSST students Weekly Meeting on every Wed (start at 16:20 in E2-B117)

Time-Table for Spring Semester, 2026

令和8年度春学期（前期） 短期留学プログラム時間割

Day 曜日	Period 授業時間	Subject 授業名	Department 学科等	Professor 教員名	Classroom 教室	Note 備考
Mon 月	1					
	2	VLSI Low Power Circuit Design	I	Trong-Thuc HOANG	W2-106	*
	3	Advanced Communication Engineering and Informatics I (Information and Communication Networks)	I	Kitsuwan NATTAPONG	E4-222	*
	4					
	5					
Tue 火	1	UEC Academic Skills I (Computer Literacy)	IEC	CHOO	C-401	Old C building
	2	UEC Academic Skills II (Information literacy and Research)	IEC	CHOO	C-401	
		Life Long Learning Sports (for Senior student only)	SPORTS	ANDO Soichi (安藤 創一)		2nd-semester students only
	3	Japanese Language (日本語)	IEC			
	4	Japanese Language (日本語)	IEC			
	5	Research Presentation	HLSS	JEFFREYS Atsuko Marie	C-402	Old C building
Wed 水	1	Introduction to Computational Methods in Science and Engineering	M	MATUTTIS Hans-Georg	C-401	Old C building
	2	Advanced Environmental Materials Science	S	FURUKAWA Rei (古川 怜)	W2-105	*
		Japanese Language (日本語)	IEC			
	3	Japanese Language (日本語)	IEC			
	4	Japanese Language (日本語)	IEC			
	5					
Thu 木	1	UEC Academic Skills III (Publishing Literacy and Research)	IEC	CHOO	E3-1st floor	Computer Room #1 (2nd-Semester Students only)
	2	Advanced Engineering Science I (Polymer Photonics)	S	FURUKAWA Rei (古川 怜)	W2-105	
		Advanced Theory of Systems Reliability	J	JIN Lu (金 路)	W5-214	*
		Reading Scientific Research	HLSS	OISHI Yukiko (大石 由紀子)	C-401	Old C building
	3					
	4	Topics in Informatics II (Sustainable Supply Chain Management)	J	YAMADA Tetsuo (山田 哲男)	W5-101	
	5	Advanced Engineering Science III (Exercises in Advanced Computational Sciences)	S	MORISHITA Toru (森下 亨)	E6-237	10th April Course Guidance in E6-803
Fri 金	1	Japanese Language (日本語)	IEC			
	2	Japanese Language (日本語)	IEC			
	3	Advanced Engineering Science II (Photonics and Opto-electronics)	S	UENO Yoshiyasu (上野 芳康)	W2-106	
	4					
	5	Information and Communications Technologies for SDGs	I	MATSUURA Motoharu (松浦 基晴) TAKAHASHI Hiroki (高橋 裕樹)	C-403	* New C building

 Informatics, Science and Engineering Courses

* Joint classes with graduate programs

(1/2), (2/2) For the course which is offered twice (2 classes) a week, you will have to take both (1/2 and 2/2) to earn the credits. And the course will end earlier in 8 weeks' time.

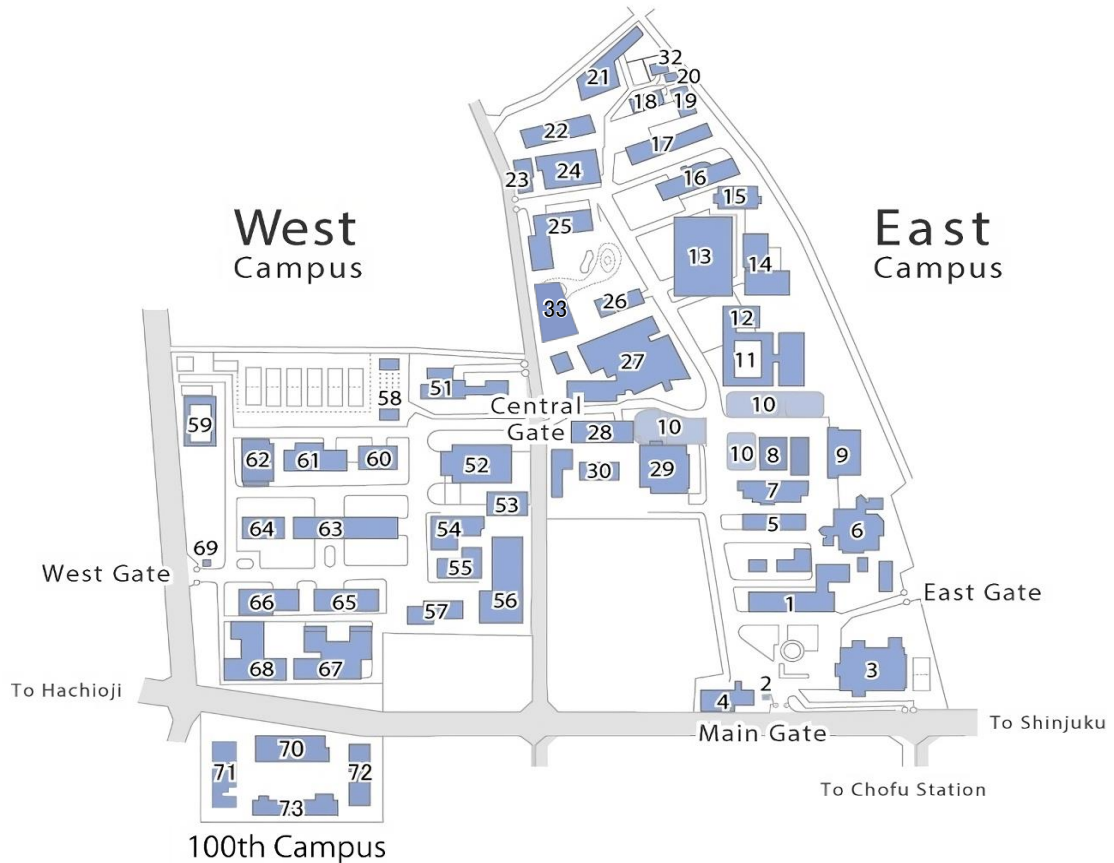
Department 学科等

J: Department of Informatics (情報学専攻)
I: Department of Computer and Network Engineering (情報・ネットワーク工学専攻)
M: Department of Mechanical and Intelligent Systems Engineering (機械知能システム学専攻)
S: Department of Engineering Science (基盤理工学専攻)
IEC: International Education Center (国際教育センター)
SPORTS: UEC Physical Education Division (健康・スポーツ科学部会)
HLSS: The Division of Humanities Languages and Social Sciences (総合文化部会)

Period (JST) 授業時間

1: 9:00-10:30
 2: 10:40-12:10
 3: 13:00-14:30
 4: 14:40-16:10
 5: 16:15-17:45
 6: 17:50-19:20
 7: 19:30-21:00

UEC CAMPUS MAP



- Main Building (1)
- Auditorium (3)
- 80th Anniversary Memorial Hall (4)
- Building E-1 (7)
- Building E-2 (28)
- Building E-3 (27)
- Building E-4 (11)
- Building E-5 (12)
- Building E-6 (13)
- Building E-7 (14)
- Building E-8 (15)
- Building E-9 (16)
- Building E-10 (17)
- Building E-11 (33)
- Building A (5)
- Building B (6)
- Building C (8)
- Building D (9)
- Communication Park (10)
- University Center (29)
- Health Care Center (26)
- International House (21)
- Facilities for Extracurricular Activities (22)
- Personnel Clubhouse (20)
- Child-Care Facility (32)
- Building E-31 (18)
- Building E-32 (19)
- Building E-33 (23)
- Building E-34 (24)
- Building E-35 (25)
- Building E-36 (30)
- Security Office of the Main Gate (2)
- Alliance Center (70)
- Student Dormitory – tomodachi (71)
- Student Dormitory – kizuna (72)
- Staff Housing (73)
- Building W-1 (65)
- Building W-2 (63)
- Building W-3 (66)
- Building W-4 (64)
- Building W-5 (54)
- Building W-6 (60)
- Building W-7 (61)
- Building W-8 (67)
- Building W-9 (68)
- Building W-10 (56)
- Building W-11 (62)
- Gymnasium (52)
- Gymnasium II (53)
- Archery Facility (58)
- Swimming Pool (59)
- West Cafeteria (55)
- Student Dormitory – goshiryō (51)
- Building W-31 (57)
- Security Office of West Gate (69)
- Center for International Programs and Exchange (28)
- University Library (27)
- Information Technology Center (27)
- Coordinated Center for UEC Research Facilities (13)
- Center for Industrial and Governmental Relations (14)
- Advanced Wireless Communication Research Center (17)
- UEC Museum of Communication (17)
- Center for Developing e-Learning (66)
- Institute for Laser Science (61)
- Center for Community Relations (1)
- Innovation Research Center for Fuel Cells (16)
- Center for Photonic Innovation (62)
- Research Center for Ubiquitous Networking and Computing (66)
- Advanced Ultrafast Laser Research Center (62)

Research Presentation

Course title (Japanese)	Research Presentation		
Course title (English)	Research Presentation		
Course Code			
Academic year	2026	Year offered	3/4
Semester(s) offered	Spring semester	Faculty offering the course	School of Informatics and Engineering
Teaching method	Lecture	Credits	2.0
Day, Period	Tue 5		
Essential Subjects			
Category	General culture subjects		
Cluster/Department	School of Informatics and Engineering		
Lecturer(s)	Atsuko Marie Jeffreys		
Office	East 1-807		
e-mail	ajeffreys@uec.ac.jp		
Course website	Google Classroom class code: zw3xwmb1		
LMS info	NIL		
Last updated	2026/03/24 17:09:24	Status	Released /now open to public

Course Description

Topic and goals	The goal of this course is for students to be able to explain their research results in such a way as to attract and maintain the audience's attention and ensure their understanding all throughout the presentation. Through this course, the students will master the art of public speaking, with topics based on the research they have made, or are intending to make.
Prerequisites	The following courses are prerequisites to registering for this class: Academic Spoken English I and II Academic Written English I and II Academic English for the Second Year I and II
Recommended prerequisites and preparation	None in particular
Course textbooks and materials	Activities will be based on TED Masterclass on presentations.
Course outline and weekly schedule	In each class, a lesson from TED Masterclass will be studied. The list of lessons appears below. The course also includes issues concerning making research presentations, such as avoiding committing plagiarism. Class 1: Introduction of class / Lesson 1 - What are ideas? Class 2: Lesson 2 - What are your ideas? Class 3: Lesson 3 - What is your throughline? Class 4: Extracting ideas for a presentation from your previous research Class 5: Lesson 4 - Crafting your talk plan Class 6: Lesson 5 - Voice and Presence Class 7: How not to commit plagiarism Class 8: Midterm presentation + Q & A Class 9: Lesson 6 - Talk Tool: Connection Class 10: Lesson 7 - Talk Tool: Storytelling Class 11: Lesson 8 - Talk Tool: Explanation Class 12: Lesson 9 - Talk Tool: Persuasion

	Class 13: Lesson 10 - Talk Tool: Revelation Class 14: Lesson 11 - Talk Tool: Visuals Class 15: Final presentation + Q & A (Schedule subject to change)										
Face-to-face or remote classes	Face to face										
Course content utilizing practical experience											
Distance learning information	Google Classroom class code: zw3xwmb1										
Preparation and review outside class	Review your learning after class by practicing the exercises. Prepare for next class by previewing the activities.										
Evaluation and grading	<table> <tr> <td>Completion of activities</td><td>30%</td></tr> <tr> <td>Midterm presentation</td><td>35%</td></tr> <tr> <td>Final presentation</td><td>35%</td></tr> <tr> <td colspan="2">-----</td></tr> <tr> <td>Total</td><td>100%</td></tr> </table> $S \geq 90\%$, $A \geq 80\%$, $B \geq 70\%$, $C \geq 60\%$, $D < 60\%$	Completion of activities	30%	Midterm presentation	35%	Final presentation	35%	-----		Total	100%
Completion of activities	30%										
Midterm presentation	35%										
Final presentation	35%										

Total	100%										
Office hours	Email me to schedule a consultation.										
Message for students	What does not kill you makes you stronger. -- This is true.										
Others	Contents of this syllabus are subject to change as deemed necessary.										
Keyword(s)	Autonomous learning, Presentation skills, Presentation practice										

Reading Scientific Research

Course title (Japanese)	Reading Scientific Research		
Course title (English)	Reading Scientific Research		
Course Code			
Academic year	2026	Year offered	3/4
Semester(s) offered	Spring semester	Faculty offering the course	School of Informatics and Engineering
Teaching method	Lecture	Credits	2.0
Day, Period	Thu 2		
Essential Subjects			
Category	General culture subjects		
Cluster/Department	School of Informatics and Engineering		
Lecturer(s)	OISHI Yukiko (大石 由紀子)		
Office	East1-615		
e-mail	yukiko@uec.ac.jp		
Course website	N/A		
LMS info	NIL		
Last updated	2026/03/05 23:39:50	Status	Released /now open to public

Course Description

Topic and goals	This class will explore various types of scientific writing to develop students' abilities to understand the role of the articles and logically evaluate their validity and importance. Students will gain an understanding of how various publications and different target audiences determine the style, vocabulary and content of the articles.
Prerequisites	Academic Written English I & II Academic Spoken English I & II Academic English for the Second Year I/II
Recommended prerequisites and preparation	None
Course textbooks and materials	None. All materials will be distributed in class.
Course outline and weekly schedule	Week 1: Class Introduction Week 2: Introduction to reading scientific articles Week 3: Reading scientific magazine articles I Week 4: Reading scientific magazine articles II Week 5: Thinking about the audience Week 6: Presentations Week 7: Reading research articles I Week 8: Reading research articles II Week 9: Presenting general ideas and summaries Week 10: Technical writing Week 11: Literature search Week 12: Writing comparisons I Week 13: Writing comparisons II Week 14: Presentations & self-evaluations I Week 15: Presentations & self-evaluations II (Schedule subject to change)
Face-to-face or remote classes	Face to face

Course content utilizing practical experience	
Distance learning information	N/A
Preparation and review outside class	All assigned readings and other preparation must be done outside of class. Students are expected to spend about one hour each week preparing for the upcoming class, as well as reviewing materials from the previous lesson.
Evaluation and grading	Class Participation (including peer reviews and other in-class activities) = 35% Presentations = 30% Homework and other assignments = 35%
Office hours	By appointment.
Message for students	This class will be taught entirely in English.
Others	None
Keyword(s)	reading, discussions, presentations, academic English

Japanese Language

Course title (Japanese)	日本語		
Course title (English)	Japanese Language		
Course Code			
Academic year	All year	Year offered	All school year
Semester(s) offered	Spring/Fall	Faculty offering the course	School of Informatics and Engineering
Teaching method	Lecture	Credits	Based on the seated time
Day,Period			
Essential Subjects			
Category	General culture subjects		
Cluster/Department	School of Informatics and Engineering and JUSST Program		
Lecturer(s)	内藤 真理子、胡 芸群 and et. al.		
Office	East 2-213 (内藤), East 2-217 (胡)		
e-mail	内藤 真理子<naito-m@uec.ac.jp>, 胡 芸群<ko.ichun.hyq@uec.ac.jp>		
Course website	The URL, class code, and password etc. will be sent via email.		
LMS info	NIL		
Last updated	2026/02/27 15:59:59	Status	Released /now open to public

Course Description

Topic and goals	Students will learn the basic grammar, daily use vocabulary and comprehensive in an intensive manner (自分の考えや情報が的確に伝えられるを習得する).
Prerequisites	NIL
Recommended prerequisites and preparation	NIL
Course textbooks and materials	The textbook will be specified in class
Course outline and weekly schedule	A placement test will be taken before courses begin and students will be assigned to a class, as shown below, based on their Japanese language level. Introductory Level Japanese Japanese Language Elementary I Japanese Language Elementary II Japanese Language Elementary III Japanese Language Intermediate I Japanese Language Intermediate II Japanese Language Intermediate III Japanese Language Advanced The course content, schedule and other information will be provided after the class assigning.
Face-to-face or remote classes	Face to face
Evaluation and grading	Evaluation method 90% < S, 80% < A, 70% < B, 60% < C, 60% > D (fail)
Office hours	Comments and questions could be submitted by email
Message for students	
Others	Lecture style: Real time Tools to be used: ZOOM, Google Classroom, Google Drive and else
Keyword(s)	

VLSI Low Power Circuit Design

Course title (Japanese)	VLSI Low Power Circuit Design		
Course title (English)	VLSI Low Power Circuit Design		
Course Code			
Academic year	2026	Year offered	All school year
Semester(s) offered	Spring semester	Faculty offering the course	Master's Program
Teaching method	Lecture	Credits	2.0
Day, Period	Mon 2		
Essential Subjects			
Category	Graduate School Specialized Education Courses - Specialized subject II		
Cluster/Department	Department of Computer and Network Engineering		
Lecturer(s)	HOANG TRONG THUC		
Office	West 1-507		
e-mail	hoangtt (at) uec.ac.jp		
Course website	https://thuchoang90.github.io/teaching.html		
LMS info	Google Classroom	VLSI Low Power Circuit Design 2026 gkpi5jjg	https://classroom.google.com/c/ODUwMTg3MDYxMDk0?cjc=gkpi5jjg
Last updated	2026/03/06 22:52:15	Status	Released /now open to public

Course Description

Topic and goals	VLSI is one of the important infrastructures for the ICT society today. We study the fundamentals of VLSI design and the design technology for low-power LSI.
Prerequisites	Fundamental electric circuit theorems LSI design flow and implementations of the low-power techniques
Recommended prerequisites and preparation	Fundamental electric circuit theorems
Course textbooks and materials	- Neil H. E. Weste and David M. Harris, "CMOS VLSI Design – A Circuits and Systems Perspective" (fourth edition) - Wai-Kai Chen, "The VLSI Handbook" (second edition) Original lecture materials will be delivered in class. More reading: - Neil H. E. Weste and David M. Harris, "CMOS VLSI Design – A Circuits and Systems Perspective" (fourth edition) - Wai-Kai Chen, "The VLSI Handbook" (second edition)
Course outline and weekly schedule	The lecture in this course, type I(Aa), is offered in English. Course Outline: 1) Introduction to VLSI 2) MOSFET Devices 3) Nonideal Model 4) Logic Design 5) Delay Model 6) Multistage Optimization 7) Power Model 8) Combinational Circuits 9) Sequential Circuits 10) Advanced Designs 11) Interconnect and Layout

	12) SRAM and Memory 13) Advanced Topics 14) Course Summary 15) Final Test
Face-to-face or remote classes	Face to face
Course content utilizing practical experience	Circuit simulation, synthesis, and layout will be exercised with open-source CAD tools.
Distance learning information	For working master's students, lecture videos will be distributed on Google Classroom. Google Classroom name: VLSI Low Power Circuit Design 2026 Google Classroom code: gkpi5jjg
Preparation and review outside class	Review for the last lecture is recommended before the lectures.
Evaluation and grading	Evaluation is shown as follow: 10% attending, 30% final test, and 60% weekly report. Final grade: A (≥ 80), B (≥ 70), C (≥ 60), and D (< 60)
Office hours	Send an email before going to the room (W1-507).
Message for students	This class focuses not only on low-power circuit design but also on the overview and fundamentals of VLSI technology. This class could give you access to the semiconductor industry, which nowadays is considered infrastructure.
Others	The lecture in this course, type I, is mostly offered in English. Lecture videos will be distributed on Google Classroom.
Keyword(s)	VLSI, Low power, Circuit design

Information and Communication Networks

Course title (Japanese)	情報通信ネットワーク		
Course title (English)	Information and Communication Networks		
Course Code			
Academic year	2026	Year offered	All school year
Semester(s) offered	Spring semester	Faculty offering the course	Master's Program
Teaching method	Lecture	Credits	2.0
Day,Period	Mon 3		
Essential Subjects			
Category	Graduate School Specialized Education Courses - Specialized subject		
Cluster/Department	Department of Computer and Network Engineering		
Lecturer(s)	KITSUWAN NATTAPONG		
Office	East 3-1021		
e-mail	kitsuwana@uec.ac.jp		
Course website	http://www.kitsuwana.cei.uec.ac.jp/lecture/icn/ password will be informed in the class.		
LMS info	NIL		
Last updated	2026/02/27 15:59:59	Status	Released /now open to public

Course Description

Topic and goals	Communication networks serve as the most important infrastructure for the today's information society. This course deals with mathematical programming and algorithms for communication networks. The course objectives are to understand the fundamental concepts communication networks and theories for network designs and controls, and bridge the gap between the theories and practices.
Prerequisites	The minimum requirement to understand this course is a knowledge of linear algebra and computer logic.
Recommended prerequisites and preparation	Undergraduate courses related to information, communications, networks, probability and statistics, and mathematical programming.
Course textbooks and materials	Book1: E. Oki, Linear Programming and Algorithms for Communication Networks, CRC Press, Boca Raton, 2012. The contents of this course are almost covered by Book 1.
Course outline and weekly schedule	The lecture including materials in this course is offered in English (Type Aa). The subjects include the following items. 1. Introduction and Basic problems for communication networks 2. Algorithms for basic problems (Shortest path routing max flow problem) 3. Algorithms for basic problems (Minimum-cost flow problem) 4. Disjoint path routing 1 (Edge-disjoint) 5. Disjoint path routing 2 (Vertex-Disjoint) 6. Linear programming basics 7. Application of linear programming 8. GLPK (GNU Linear Programming Kit) 9. Basic problems solved by LP 10. Disjoint path routing 11. Wavelength assignment 12. Routing and traffic demand model 13. Mathematical puzzles 14. Advanced mathematical puzzles 15. Report, presentation and discussion ***The topics may be subject to change due to the progress.***

Face-to-face or remote classes	Face to face
Course content utilizing practical experience	
Distance learning information	Usually, there is no online lecture. If the online lecture is needed, I'll inform the detail in the class.
Preparation and review outside class	Reading the textbook or material before the class is preferred.
Evaluation and grading	Methods: Homework and report 50%, and final presentation 50% Criteria: Fundamentals, theories, and Practices
Office hours	Contact by email kitsuwan [at] uec.ac.jp
Message for students	The students are required to study the textbook to understand the contents of this course. Lecture and material will be given mainly in English.
Others	Although the lecture is in English, both Japanese and English is acceptable for question.
Keyword(s)	Information and communication, communication network, design and control, mathematical programming, algorithm

Introduction to Computational Methods in Science and Engineering

Course title (Japanese)	Introduction to Computational Methods in Science and Engineering		
Course title (English)	Introduction to Computational Methods in Science and Engineering		
Course Code			
Academic year	2026	Year offered	3/4
Semester(s) offered	Spring semester	Faculty offering the course	School of Informatics and Engineering
Teaching method	Lecture	Credits	2.0
Day, Period	Wed 1		
Essential Subjects			
Category	General culture subjects		
Cluster/Department	School of Informatics and Engineering		
Lecturer(s)	Hans-Georg Matuttis		
Office	E4-721		
e-mail	hg@mce.uec.ac.jp		
Course website	https://webclass.cdel.uec.ac.jp		
LMS info	NIL		
Last updated	2026/03/09 15:21:35	Status	Released /now open to public

Course Description

Topic and goals	Computational methods have replaced analytical methods already in many fields of science and engineering, and their importance is still increasing. The aim of the lecture is to provide fundamental criteria for the choice of numerical methods, give an overview about some available methods in some fields, and give ideas about performance-oriented implementation for such methods. Depending on the background and interest of the auditory, some topics may be subject to changes.
Prerequisites	First year Analysis and Linear Algebra, one procedural Programming Language
Recommended prerequisites and preparation	NIL
Course textbooks and materials	Script can be downloaded from http://webclass.cdel.uec.ac.jp/ , further reading: A. L. Garcia, Numerical Methods for Physics, Benjamin-Cummings Pub Co, 1999 G.J. Borse: Numerical Methods with Matlab, International Thomson Publishing, 1997
Course outline and weekly schedule	In the first half of the semester, the lectures on general topics will be cover the lesson time (90 minutes). In the second half, every student will get a project (topic will be discussed between students and lecturer), and the first half of the lesson will be lecture on more specific and specialized topics, and the second half will be dedicated to the completion of the project. 1. Introduction Interpreters and Compilers, basic MATLAB syntax, interacting with the operating system 2. More advanced Syntax Implicit loops, vector- and matrix commands 3. Stochastic Methods I a) Random numbers and direct Monte Carlo Averages and Variance; Computing Pi with random numbers and the power of Monte Carlo Methods for problems of arbitrary dimension 4. Stochastic Methods I b) Modeling

	Producing test data, Modeling 5. Numerical analysis I Why bother about errors; integer vs. floating point numbers, precision and rounding errors; Truncation error and strategies to reduce it 6. Graphics I 2D- and 3D-plots Basic plotting functions and not so basic methods of manipulating the graphs 7. Graphics II More complex Surfaces, overlaying graphics and textures, transparency alpha; From animated graphics to making movies -> End of first part 8. Linear Algebra I: From implicit loops to vectors and matrices How many matrix products are there, Performance and loop ordering; Norms, Matrix inversion and other matrix commands for linear algebra 9. Linear Algebra II Eigenvalue decomposition, Determinants, Landau-Order symbol for computational effort / complexity 10. Linear Algebra III: Non-square matrices Least squares fitting, singular value decomposition, condition number; Overfitting and Underfitting; Difference between fitting and interpolation 11. Stochastic Methods II: Spin Systems From Magnets to Spin systems: Frustration and physics problem with no good solution: Spin glasses, ground states, thermodynamics weights: Form importance Sampling Monte Carlo to Simulated Annealing at zero and finite Temperature 12. Stochastic Methods III: Neural networks as a foot note to spin glasses From infinite range spin glasses to nerve systems; Pattern recognition with Neural Networks; fast Fourier Transform and convoluting the input; the incremental advances from Neural Networks to Deep learning 13. Numerical Analysis II a) Types of numerical ordinary differential Equations Symplectic, non-stiff and stiff ODEs; standard methods with constant step size 14. Numerical Analysis II b) Types of numerical ordinary differential Equations From constant step size to variable step size
Face-to-face or remote classes	Face to face
Course content utilizing practical experience	There will always be short programming examples during the lecture, so students should always have their MATLAB-environment ready for use.
Distance learning information	
Preparation and review outside class	Exercises will be given as homework.
Evaluation and grading	20% Participation (including punctuality) and activity (asking meaningful questions and giving meaningful answers when asked) in the Lecture 80% Homework exercises
Office hours	Contact me by E-Mail and we organise date and time at the earliest possible moment.
Message for students	A craving to work with "Object orientation" has derailed several students in 2022 in this course: This course is about algorithms (mostly floating point arrays), and the structuring and packaging of the data is irrelevant. You have to work out and implement algorithms, not play around with data structures in this course.
Others	The lecture starts after the the introduction to the computer system in the JUSST-Program has been held.
Keyword(s)	Numerical Analysis, Scientific Programming, Computational Science

Advanced Environmental Materials Science

Course title (Japanese)	環境材料学特論		
Course title (English)	Advanced Environmental Materials Science		
Course Code			
Academic year	2026	Year offered	All school year
Semester(s) offered	Spring semester	Faculty offering the course	Master's Program, Doctoral Program
Teaching method	Lecture	Credits	2.0
Day, Period	Wed 2		
Essential Subjects			
Category	Graduate School Specialized Education Courses - Specialized subject II		
Cluster/Department	Department of Engineering Science		
Lecturer(s)	FURUKAWA Rei (古川 怜)		
Office	W8-815		
e-mail	furukawa@ee.uec.ac.jp		
Course website	none		
LMS info	NIL		
Last updated	2026/03/25 13:09:55	Status	Released /now open to public

Course Description

Topic and goals	This course covers how the resources and wastes are handled nowadays and some concerns that still need to be solved.
Prerequisites	none
Recommended prerequisites and preparation	none
Course textbooks and materials	Solid Waste Engineering : Worrell, William A./ Vesilind, P. Aarne/ Gupta, Tarun Introduction to Environmental Engineering : Davis, Mackenzie L./ Cornwell, David A.
Course outline and weekly schedule	1 Introduction, general idea of pollution 2 What to be reminded with the "SDGs" 3 Approaches in environmental chemistry 4 Mass balance 5 Heat energy and the earth 6 Biology and ecosystem 7 Midterm project (topic: writing a proposal) 8 Midterm project (topic: writing a proposal) continued 9 Midterm Presentation and Discussion 10 Plastics 11 Bioplastics 12 Greenplastics 13 Leadership required for an engineer 14 Final Presentation (topic: Being part in a team) 15 Final Presentation and discussion Outline may change depending on the interest of students.
Face-to-face or remote classes	Face to face
Course content utilizing practical experience	

Distance learning information	to be explained in the class
Preparation and review outside class	Students need to take time outside the class for group works for midterm and final presentations.
Evaluation and grading	Weekly in-class quiz 20% (in total) Midterm presentation and report 30% Final presentation and report 50% This course aims to earn ethical points of view as a materials engineer to manage resources and wastes correctly.
Office hours	to be explained in the class
Message for students	Students will have a chance to discuss in groups (English only) in every lesson. They are required to present their idea in front of the class. Please be equipped with computers or tablets to make yourself comfortable taking an online class and also for yourself to present.
Others	to be explained in the class
Keyword(s)	solid wastes, hazardous wastes, collection, separation, resources, SDGs

Advanced Engineering Science I (Polymer Photonics)

Course title (Japanese)	Advanced Engineering Science I (Polymer Photonics)		
Course title (English)	Advanced Engineering Science I (Polymer Photonics)		
Course Code			
Academic year	2026	Year offered	3/4
Semester(s) offered	Spring semester	Faculty offering the course	School of Informatics and Engineering
Teaching method	Lecture	Credits	2.0
Day, Period	Thu 2		
Essential Subjects			
Category	Specialized subject		
Cluster/Department	Cluster III		
Lecturer(s)	FURUKAWA Rei (FURUKAWA Rei (古川 怜))		
Office	W8-815		
e-mail	furukawa@ee.uec.ac.jp		
Course website	none		
LMS info	NIL		
Last updated	2026/02/27 17:18:10	Status	Released /now open to public

Course Description

Topic and goals	This course covers interactions between lightwave and polymeric material in multiple scale.
Prerequisites	Electromagnetics
Recommended prerequisites and preparation	Electromagnetics
Course textbooks and materials	Frank L. Pedrotti, S.J., Leno S. Pedrotti (1993). Introduction to Optics 2nd edition. Prentice-Hall, Inc. Max Born, Emil Wolf (1997). Principles of Optics 7th edition. Cambridge University Press. Yasuhiro • 冢@Koike • 冢@ (2015). Fundamentals of Plastic Optical Fibers. Wiley. S.O. Kasap (2001). Optoelectronics and Photonics: Principles and Practices. Prentice-Hall, Inc.
Course outline and weekly schedule	1 Type of interactions between lightwave and matters 2 Interaction with group of atoms 3 Mathematical expression of harmonic waves 4 Interaction with molecular unit 4.1 Matrix treatment of polarization 4.2 Dielectric tensor in an anisotropic medium 4.3 Ellipsoid expression of wave normals 4.4 Intrinsic and stress birefringence 5 Interaction with sub-micron inhomogeneity 5.1 Waveguide condition and propagation modes 5.2 Fiber optic data transmission Outline may change depending on the interest of students.
Face-to-face or remote classes	Face to face
Course content utilizing practical experience	Optical characterizations of materials Evaluations on single/multimode fiber-optic transmission
Distance learning information	

Preparation and review outside class	Assignments are given every week
Evaluation and grading	Assignments 30% Final exam 70%
Office hours	To be announced in the class
Message for students	To be announced in the class
Others	none
Keyword(s)	polarization, dielectric tensor, birefringence, waveguides

Advanced Theory of Systems Reliability

Course title (Japanese)	システム信頼性特論		
Course title (English)	Advanced Theory of Systems Reliability		
Course Code			
Academic year	2026	Year offered	All school year
Semester(s) offered	Spring semester	Faculty offering the course	Master's Program, Doctoral Program
Teaching method	Lecture	Credits	2.0
Day, Period	Thu 2		
Essential Subjects			
Category	Graduate School Specialized Education Courses - Specialized subject II		
Cluster/Department	Department of Informatics		
Lecturer(s)	JIN Lu (金 路)		
Office	West 5-601		
e-mail	jin.lu@uec.ac.jp		
Course website	http://www.rm.inf.uec.ac.jp		
LMS info	NIL		
Last updated	2026/03/03 14:27:06	Status	Released /now open to public

Course Description

Topic and goals	This lecture deals with Reliability Engineering and its theory which focus on the philosophy, ideas and scientific methods to build in quality and reliability into systems. Also, recent development of information technology has been changing the methods of Reliability Engineering. These new aspects are also dealt with.
Prerequisites	None
Recommended prerequisites and preparation	It would be helpful if the students have a background of probability and statistic.
Course textbooks and materials	No textbooks, just original material
Course outline and weekly schedule	#1 : Guidance #2: Introduction to reliability engineering #2: Lifetime distribution functions and their application in reliability engineering #3: Maintainability and Availability #4: Lifetime Distribution and Hard Time Scheduled Maintenance (1) #5: Hard Time Scheduled Maintenance (2) #6: On Condition Maintenance #7: Stochastic Process and Markov Model #8: Reliability Evaluation of Engineering Systems Using Markov Model #9: Markov Decision Process #10 : Condition Monitoring Maintenance (1) #11 : Condition Monitoring Maintenance (2) #12: Systems Reliability (1) Series system, parallel system, redundant design #13: Systems Reliability (2) Structure function and reliability assessment #14: Summary of this course
Face-to-face or remote classes	Face to face
Course content utilizing practical experience	

Distance learning information	The material will be distributed via Google Classroom. Google Classroom: mmfewuk3
Preparation and review outside class	Please use the handout to review the content and work on the assignments to deepen your understanding.
Evaluation and grading	Assessment will be based on the level of understanding
Office hours	Please take an appointment by email.
Message for students	There are also many foreign student in this class. So it is also a good change to make foreign friends. I will prepare the handout in both English and Japanese, furthermore, the important part will be explained in both languages, so the students do not need to worry about their English.
Others	This lecture will be given in English.
Keyword(s)	Reliability, Quality Control, Maintenance

Topics in Informatics II (Sustainable Supply Chain Management)

Course title (Japanese)	Topics in Informatics II (Sustainable Supply Chain Management)		
Course title (English)	Topics in Informatics II (Sustainable Supply Chain Management)		
Course Code			
Academic year	2026	Year offered	2/3/4
Semester(s) offered	Spring semester	Faculty offering the course	School of Informatics and Engineering
Teaching method	Lecture	Credits	2.0
Day, Period	Thu 4		
Essential Subjects			
Category	Specialized subject		
Cluster/Department	Cluster I/Cluster II		
Lecturer(s)	YAMADA Tetsuo (山田 哲男)		
Office	Room #507 in Building West 5		
e-mail	tyamada@uec.ac.jp		
Course website	http://webclass.cdel.uec.ac.jp/webclass/ Note: Before the first class, let you login webclass and join this course by yourself!		
LMS info	NIL		
Last updated	2026/03/11 10:08:06	Status	Released /now open to public

Course Description

Topic and goals	Supply Chain is that product and information flows among suppliers, factories, distribution centers and markets by manufacturing and logistics. This supply chain is now globally networked consisting of not only domestic but also overseas suppliers, factories and markets. Thus, the global supply chain management is required to pursue higher profit for companies. On the other hand, the environmental issues such as global warming and material starvation have been more serious because manufacturing and logistics inevitably consume natural resources for materials and energy and emit Greenhouse Gases (GHG) including CO2 throughout their product lifecycle and supply chain. In order to not to become more serious for the environmental issues, it is necessary for the supply chain to minimize the material and energy consumptions during the whole product lifecycle economically. This course gives variety topics in supply chain management and sustainability, and acquire how to harmonize the supply chain and sustainability simultaneously.
Prerequisites	None
Recommended prerequisites and preparation	Production Management, Operations Research, Introduction to Operations Research
Course textbooks and materials	No textbook, Handouts will be used as a guide for the class.
Course outline and weekly schedule	1. Guidance and Making teams 2. Sustainable Manufacturing 3. Supply Chain Management 4. Global Supply Chain 5. Low-carbon Supply Chain 6. Life Cycle Assessment 7. Renewable Energy 8. Carbon Trading and Tax 9. Disassembly, Reuse and Recycling 10. Reverse and Closed-loop Supply Chain 11. SNS Analysis for Manufactures by Text Mining 12. Health Care Systems Engineering

	13. Work Life Balance 14. AI Application 15. Summary
Face-to-face or remote classes	Face to face
Course content utilizing practical experience	
Distance learning information	Before the first class, let you login webclass and join this course by yourself.
Preparation and review outside class	Several assignments will be conducted.
Evaluation and grading	Evaluation: Presentations (30%), Activities (40%) and Assignments (30%). The presentations and assignments are qualitatively evaluated while the activities mean your self-motivated opinions delivered quantitatively.
Office hours	Mondays at the 4th class. Make an appointment by e-mail in advance.
Message for students	Let • りfs discuss how to harmonize supply chain and sustainability and enjoy it!
Others	No assignments and self-motivated opinions, No success. This course is taught in English, and Japanese is also added as the need arises.
Keyword(s)	Global Supply Chain, Sustainable Manufacturing, Reuse and Recycling, Low-carbon and Closed-loop Supply Chain, Sustainable Product Design, Assembly/Disassembly, Renewable Energy, Health Care Systems Engineering, Work Life Balance

Advanced Engineering Science III (Exercises in Advanced Computational Science)

Course title (Japanese)	Advanced Engineering Science III (Exercises in Advanced Computational Science)		
Course title (English)	Advanced Engineering Science III (Exercises in Advanced Computational Science)		
Course Code			
Academic year	2026	Year offered	3
Semester(s) offered	Spring semester	Faculty offering the course	School of Informatics and Engineering
Teaching method	Lecture/Exercise (drill)	Credits	2.0
Day, Period	Thu 5		
Essential Subjects			
Category	Specialized subject		
Cluster/Department	Cluster III		
Lecturer(s)	Endo (遠藤), Ohfuti (大淵), Ozeki (尾関), Saito (齋藤 (弘)), Shirakawa (白川 (英)), Nakamura (中村 (淳)), Hasegawa (長谷川), Yamashita (山鹿), Morishita (森下)		
Office	East 6-528 (森下)		
e-mail	NIL		
Course website	https://www.edu.cc.uec.ac.jp/pc/toru/adv_comp/		
LMS info	NIL		
Last updated	2026/03/17 20:29:24	Status	Released /now open to public

Course Description

Topic and goals	Topic: In today's highly information-driven society, advanced computer programming knowledge and skills are essential in all industrial fields. In this course, students will choose a faculty member from among several instructors and set their own tasks in consultation with that faculty member. By constructing program code and examining the results obtained, students will acquire a wide range of knowledge and skills related to computer programming. In addition, this course is also offered as an international course, so students who take it as an international course will give presentations in English and acquire international literacy. Goals: - Set tasks. - Carry out the set tasks. - Examine the results obtained. - Improve computer programming knowledge and skills through consultation with each faculty member.
Prerequisites	Computer literacy, basic programming, and exercises (drills)
Recommended prerequisites and preparation	Numerical analysis, programming exercises (drills), and computational mathematics and engineering
Course textbooks and materials	NIL
Course outline and weekly schedule	Students will determine their project by consulting directly with individual instructors via email, using the example themes and content examples provided on the course-related webpage as a reference. Details such as the programming language and OS will also be decided in consultation with the assigned instructor. Several general meetings (possibly online) will be held to report on progress. At the end of the semester, students will give presentations (possibly online) about their projects. 1. Guidance 2. Explanation by the instructor and Computer Exercise (drill) 1

	3. Explanation by the instructor and Computer Exercise (drill) 2 4. Explanation by the instructor and Computer Exercise (drill) 3 5. Explanation by the instructor and Computer Exercise (drill) 4 6. General meeting 7. Explanation by the instructor and Computer Exercise (drill) 5 8. Explanation by the instructor and Computer Exercise (drill) 6 9. Explanation by the instructor and Computer Exercise (drill) 7 10. Explanation by the instructor and Computer Exercise (drill) 8 11. Explanation by the instructor and Computer Exercise (drill) 9 12. Explanation by the instructor and Computer Exercise (drill) 10 13. Explanation by the instructor and Computer Exercise (drill) 11 14. Explanation by the instructor and Computer Exercise (drill) 12 15. Comprehensive presentation The contents of the advanced computer exercises (drills) will be determined in consultation with each instructor. The guidance will be held on April 9th, 5th period (16:15-) at East 6-803.
Face-to-face or remote classes	Face to face
Course content utilizing practical experience	
Distance learning information	
Preparation and review outside class	Will be finalized after consulting with each instructor
Evaluation and grading	Evaluated based on oral presentations in the comprehensive presentation. A comprehensive judgment will be made on aspects such as the Contents, setting, execution, and examination of results of the project.
Office hours	To be determined in consultation with each instructor.
Message for students	If it enhances computer programming knowledge and skills, you can proceed with what you want to do while consulting with the instructor, without being restricted by programming languages, OS, etc. As it is offered as an international course, you can also acquire international literacy.
Others	Please select one instructor, referring to the example themes and Contents examples of each instructor on the course-related webpage. Then, contact the selected instructor directly via email to discuss and decide on the project.
Keyword(s)	Advanced Computer Exercise (drill)

Exercises in Advanced Computational Sciences

Course Guidance Date and Time

Thursday, April 9, 4:15 p.m.
at Bldg East-6, Rm 803

Google classroom class code
3yhphc5h

Exercise Contents

Anything to do with computers!

Try anything you want to do.

Note

It is required to attend and provide a presentation at
the final presentation in the end of September to get
an S, A, B, or C grade.

Teachers in charge

Endo, Ozeki, Saito, Shirakawa, Nakamura
(Jun), Hasegawa, Morishita, Yamashika

URL(UEC account is required)

https://www.edu.cc.uec.ac.jp/pc/toru/adv_comp

Examples of tasks

Any other computer-related projects
are also welcome!

Electronics

- Robot control by microcomputer

Physics

- Let's get familiar with quantum mechanics through simulations
- Monte Carlo simulation
- Basic computational physics

Chemistry and Biology

- Simulation of biological systems

Others

- The basics of deep learning through "Tic-Tac-Toe" games
- TVML Creative content
- Easy life with Python

The course is also offered as an
International Course

- Engage in English with international students!
- Of course, in Japanese also OK!

Advanced Engineering Science II (Photonics and Opto-electronics)

Course title (Japanese)	Advanced Engineering Science II (Photonics and Opto-electronics)		
Course title (English)	Advanced Engineering Science II (Photonics and Opto-electronics)		
Course Code			
Academic year	2026	Year offered	3/4
Semester(s) offered	Spring semester	Faculty offering the course	School of Informatics and Engineering
Teaching method	Lecture	Credits	2.0
Day, Period	Fri 3		
Essential Subjects			
Category	Specialized subject		
Cluster/Department	Cluster III		
Lecturer(s)	UENO Yoshiyasu (上野 芳康)		
Office	Room no. 313, Building no. West-2 (W2-313).		
e-mail	uenoy@ultrafast.ee.uec.ac.jp		
Course website	http://www.ultrafast.ee.uec.ac.jp/ueno-classes.html		
LMS info	NIL		
Last updated	2026/03/17 16:40:07	Status	Released /now open to public

Course Description

Topic and goals	Modern photonics and electronics have been deeply spread to both academy and industry of our Real World, without country borders. It is because photonics and opto-electronics have realized terabit-per-second network infrastructures, optical-disk memories (DVD&CD's), compact and accurate laser diodes (from infrared to blue), and flat displays, in industry uses and home uses. In these science and technology, particle-based photonic properties of representative materials are almost always fully combined with their wave-based optical properties, in "bright" manners. In this course, typically 15 weeks, participants are expected to study and understand the scientific fundamentals of these photonic technology, and also to develop interests to on-going, long-term (i.e. large-scale) R&D activities in our world.
Prerequisites	fundamentals of electro-magnetic waves (propagating in speed of light). fundamentals of electronics such as basic diodes and transistors.
Recommended prerequisites and preparation	fundamentals of quantum mechanics (particles and waves). fundamentals of crystalline materials and their basic, electronic properties.
Course textbooks and materials	1) Saleh and Teich, Fundamentals of Photonics, 2nd edition, Wiley, 2007. 2) Amnon Yariv and Pochi Yeh, Photonics: Optical Electronics in Modern Communications, 6th edition, Oxford, 2006.
Course outline and weekly schedule	1st-5th weeks: (1) Areas of science and technology where photonics and opto-electronics play particularly important roles in our world. (2) Representative photonic devices and materials that many of us must use and rely on, in these areas of science and technology. (3) Fundamental properties of silicon and other few important types of semiconductor crystals. Basics of direct transition (for light-emitting diodes and lasers), in contrast to indirect transition (for sensors and solar cells, for example). Then, basics of quantum-particle-based properties such as conservation laws in unit of electron-volts, in contrast to quantum-wave-based properties. (All of these are well understood and designed in all LED's, laser diodes, optical sensors, solar cells, for example.) 6th-10th weeks:

	(4) General relationship from electrons to electron waves. That from lightwaves (em waves) to photons. (5) Device's internal structures (of light-emitting diodes and light-absorbing sensors), and their working principles. (6) Energy conversion law and general limits in energy-conversion efficiency, from electronic energy to photonic energy. That in the opposite direction, that is, from photonic energy to electronic energy. 11th-15th weeks: (7) advanced groups of lasers, consisting of cavities and waveguides, which are deeply and broadly used in advanced systems such as network infrastructures (terabit per second), optical-disk memories (DVD&CD's), compact and accurate laser diodes (from infrared to blue). (8) high-density light energy in time and 3D-space dimensions (total four dimensions), that is rather simply generated by laser oscillators in particular. (Several kinds of experimental research are going on in our UEC campus, as well.)
Face-to-face or remote classes	Face to face
Course content utilizing practical experience	
Distance learning information	
Preparation and review outside class	Both personal and group studies, efficiently before and after each weekly classroom, are encouraged.
Evaluation and grading	Understanding level of each student is evaluated, in the final test in the end of the 15-week course.
Office hours	6th period, Tuesdays. (Notify me Ueno by email, when I was not available in the period of tuesday.)
Message for students	The number of participants to this course will be around 10, too, and, could be slightly less. So, this lecturer Ueno welcomes questions from participants sometimes in the middle of 90 minutes, rather than after it. Your asking good questions to lecturer inspires the other participants, too, basically.
Others	Lecturer Ueno's international activities: http://www.ultrafast.ee.uec.ac.jp/ueno-cv.html
Keyword(s)	photonics, opto-electronics, quantum mechanics, electro-magnetic waves, light-emitting diodes (spontaneous emission), lasers (stimulated emission), optical sensors, solar batteries, silicon, gallium arsenide, semiconductor.

Information and Communications Technologies for SDGs

Course title (Japanese)	SDGsを支える情報通信論		
Course title (English)	Information and Communications Technologies for SDGs		
Course Code			
Academic year	2026	Year offered	All school year
Semester(s) offered	Spring semester	Faculty offering the course	Master's Program, Doctoral Program
Teaching method	Lecture	Credits	2.0
Day, Period	Fri 5		
Essential Subjects			
Category	Graduate School Practical Education Subjects		
Cluster/Department	For all departments		
Lecturer(s)	MATSUURA Motoharu (松浦 基晴), TAKAHASHI Hiroki (高橋 裕樹)		
Office	East 3-1028(Matsuura), West 6-509(Takahashi)		
e-mail	m.matsuura@uec.ac.jp, rocky@inf.uec.ac.jp		
Course website	None		
LMS info	NIL		
Last updated	2026/03/19 10:26:16	Status	Released /now open to public

Course Description

Topic and goals	Topic SDGs (Sustainable Development Goals) means the international goal of "The Sustainable Development Agenda" adopted at the United Nations summit in Sep 2015, are a universal concern not only for developing countries but also for developed countries., and Japan is actively engaged in wide fields. In this course, students will understand the purpose of the SDGs and ICT (Information and Communications Technologies) that support the SDGs, and learn the energy, information security and ICT policy that are important for achieving SDGs. Then, students will study several specific fields where ICT are contributing to SDGs, through lectures and on-the-spot tours. Goals ① Understand the establishment and meaning of the SDGs, and key issues regarding ICT for SDGs, i.e. energy, information security and ICT policy. ② Study how ICTs are contributing to realize SDGs. ③ Cultivating engineers' readiness and foresight toward the realization of SDGs.
Prerequisites	None
Recommended prerequisites and preparation	None
Course outline and weekly schedule	In this course, all lectures will be given mainly in English. #1 April 10 (Fri), 5th period "Introduction" Prof. MATSUURA Motoharu "About SDGs including BHN activities" Mr. TOMINO Takeshi (BHN) #2 April 17 (Fri), 5th period "ICT policy to realize SDGs" Mr. SAKAMOTO Yasuo (Toyo University) #3 April 24 (Fri), 5th period "Energy as key issue to achieve SDGs" Prof. SOGABE Touma #4 May 1 (Fri), 5th period "Information security as key issues to achieve SDGs" Dr. HARADA Yonosuke (Emer. Prof. of Institute of Information Security) #5 May 8 (Fri), 5th period "ICT for disaster prevention and mitigation" Mr. UMINO Shinobu (BHN)

	#6 May 15 (Fri), 5th period "ICT for healthcare" Ms. YONEZAWA Asako (NTT DKK) #7 May 22 (Fri), 5th period "ICT for welfare" Prof. TAKAHASHI Hiroki #8 May 29 (Fri), 5th period "ICT for earth environment" Dr. TANAKA Toshiyuki (JAXA) #9 June 12 (Fri), 5th period "ICT for regional revitalization" Emer. Prof. MIKI Tetsuya #10 June 19 (Fri), 5th period "ICT for car driving/transportation" Dr. INOUE Yuji (BHN) #11, #12 June 26 (Fri), 5th and 6th period "Presentation and discussion about the exercise theme, Part 1" (Note) Prof. MATSUURA, Prof. TAKAHASHI, Prof. YURA, Mr. YAMASHITA(BHN) #13, #14 July 3 (Fri), 5th and 6th period "Presentation and discussion about the exercise theme, Part 2" (Note) Prof. MATSUURA, Prof. TAKAHASHI, Prof. YURA, Mr. YAMASHITA(BHN) #15 July 10 (Fri), 5th period "Presentation and discussion about the exercise theme, Part 3" (Note) Prof. MATSUURA, Prof. TAKAHASHI, Prof. YURA, Mr. YAMASHITA(BHN) (Note) Exercise Theme Please create your proposals to solve SDGs issues using ICT in your home region/ home country. "Technical tour" will be held on (TBA).
Face-to-face or remote classes	Face to face
Course content utilizing practical experience	The faculty members for this course have a lot of experiences in joint research with enterprises. In addition, lecturers from outside have enough practical business knowledge in the ICT related industrial world. This course is given by these lecturers in an omnibus method, providing knowledge of diverse international science and technology communication.
Distance learning information	- Classroom: New C Building-403 - If you cannot attend the classroom due to unavoidable circumstances, you can attend online. On-demand learning is also available. - To access online class or on-demand learning, please connect to the e-learning site at URL bellow and login with following ID / Password. The "e-learning user manual" is available there. URL: http://www.super-program.jp/bhn_moodle/ Get the ID and Password from the professor.
Preparation and review outside class	Read the lecture materials provided in advance so that you can ask questions during class.
Evaluation and grading	Evaluation method The contents of the presentations and discussions at the exercise and the reports on the final assignments will be evaluated comprehensively. Evaluation criteria The level of understanding of learning goals ① and ② and the attitude toward learning goal ③ based on the following evaluation criteria; A (80-100 points): It is recognized that goals ① and ② are sufficiently achieved, and goal ③ has been fully cultivated. B (70-79 points): It is recognized most of goals ① and ② are achieved, and goal ③ has been cultivated. C (60-69 points): It is recognized most of goals ① and ② are achieved fairly, and goal ③ has been cultivated to some extent. D (59 points or less, rejected): Goals ① and ② are not fully achieved and goal ③ has not been cultivated.
Office hours	Take appointments by email in advance.
Message for students	This course holds technical tours related to SDG.
Others	This subject is one of the BHN Kuwahara Foundation Donation Courses. It is also a subject for the Joint Innovative PhD Program, and is offered online to students of other universities.
Keyword(s)	SDGs, ICT, information security, energy, medical and welfare, disaster prevention, regional revitalization, earth environment

UEC Academic Skills I (Computer Literacy)

Course title (Japanese)	UEC Academic Skills I (Computer Literacy) (上級科目)		
Course title (English)	UEC Academic Skills I (Computer Literacy)		
Course Code			
Academic year	2026	Year offered	3/4
Semester(s) offered	Spring semester	Faculty offering the course	School of Informatics and Engineering
Teaching method	Lecture	Credits	2.0
Day, Period	Tue 1		
Essential Subjects			
Category	General culture subjects		
Cluster/Department	School of Informatics and Engineering		
Lecturer(s)	Choo Cheow Keong		
Office	E2-305		
e-mail	uec-as1@fedu.uec.ac.jp		
Course website	http://www.fedu.uec.ac.jp/skills		
LMS info	Moodle	UEC Academic Skills I λT	AS1 http://www.fedu.uec.ac.jp/skills
Last updated	2026/03/09 21:30:15	Status	Released /now open to public

Course Description

Topic and goals	This course provides students with fundamental to advanced knowledge of computer systems and networks in a typical academic environment. The lectures emphasize essential tools and techniques applicable to a broad range of systems, focusing on the use of powerful tools such as the UNIX shell, HTML, LaTeX, and Git/GitHub. [Important Notes] - As international courses are scheduled to coincide with the arrival of exchange students, this course may start one week later than the standard university calendar. Please confirm the start date with the instructor. - Please bring a laptop or tablet with Wi-Fi capability to every class.
Prerequisites	NIL
Recommended prerequisites and preparation	コンピューターリテラシー Computer literacy
Course textbooks and materials	NIL
Course outline and weekly schedule	[Course Schedule and Topics] The following is an overview of the weekly topics. While the curriculum covers general computer literacy, it focuses primarily on LaTeX for academic writing and includes group work and presentations. This is a hands-on course where the instructor introduces the topics, and students complete assignments during lab sessions or as homework. The course follows a "learn, practice, implement, and apply" approach, combining theoretical lectures with practical exercises to cover the basic usage of UNIX systems, Git/GitHub, LaTeX, and HTML. 1. Introduction (Usage of the Information Technology Center (ITC), UEC campus network policies) 2. Computer Operating Systems and Tools (Fundamentals) 3. Unix Operating System (Fundamentals)

	4. Unix Operating System (The Internet and Computer Networks) 5. Word Processing and LaTeX (Basic Unix Editor and LaTeX) 6. LaTeX (Environments and layout; Commands, Structure, Packages, Classes, and Text typesetting) 7. LaTeX (Mathematical Formulas) 8. LaTeX (Lists, Tabulators, and Tables) 9. LaTeX (Graphics and Drawing) 10. LaTeX (Labels, Cross-referencing, Citations, and Bibliography) 11. Introduction to Git and GitHub (Git Basics, Website project) 12. HTML (Basics; Structure, Tags, Colors, and Typesetting) 13. HTML (Links and Multimedia; Images, Sound, and Video) 14. HTML (Lists, Tables, Interactivity, and Cascading Style Sheets (CSS)) 15. HTML (Website Project Work) Note: The lecture schedule is subject to revision throughout the course. Remember to bring a laptop PC with UECwireless connectivity to every class.
Face-to-face or remote classes	Face to face
Course content utilizing practical experience	
Distance learning information	While this course is primarily designed for in-person classroom instruction, it may be delivered remotely if necessary.
Preparation and review outside class	As a final project, students are required to design and create their own homepages and present them in class at the end of the semester. Please note that additional time outside of regular class hours may be required to complete the website.
Evaluation and grading	The final grade will be determined based on the following: - Weekly Assignments: 50% - Mid-semester Presentation: 30% - Final Presentation: 20% As this course emphasizes hands-on experience, regular attendance and active participation are mandatory. To be eligible for credit, students must satisfy all of the following requirements: 1. Maintain an attendance rate of at least 70%. 2. Submit all assignments. 3. Complete both the mid-semester and final presentations.
Office hours	12:00-13:00. To ensure availability, please schedule an appointment before walking in.
Message for students	Students are expected to be an active part of the learning process. We highly encourage participation in class discussions, asking questions, and interacting with others. If you have any comments or insights on the topics covered, please feel free to share them with the class.
Others	Students are expected to arrive at class on time. Absences may be excused in cases of emergency, illness, or attendance at academic conferences. In such instances, please ensure that you contact the instructor as soon as possible (either in advance or immediately after the absence).
Keyword(s)	Unix, HTML, Latex, Website, Git/GitHub

UEC Academic Skills II (Information Literacy and Research)

Course title (Japanese)	UEC Academic Skills II (Information Literacy and Research) (上級科目)		
Course title (English)	UEC Academic Skills II (Information Literacy and Research)		
Course Code			
Academic year	2026	Year offered	3/4
Semester(s) offered	Spring semester	Faculty offering the course	School of Informatics and Engineering
Teaching method	Lecture	Credits	2.0
Day, Period	Tue 2		
Essential Subjects			
Category	General culture subjects		
Cluster/Department	School of Informatics and Engineering		
Lecturer(s)	Choo Cheow Keong		
Office	E2-305		
e-mail	uec-as2@fedu.uec.ac.jp		
Course website	http://www.fedu.uec.ac.jp/skills		
LMS info	Moodle	UEC Academic Skills II AS2	http://www.fedu.uec.ac.jp/skills
Last updated	2026/03/09 21:32:39	Status	Released /now open to public

Course Description

Topic and goals	This course is designed to foster students' ability to identify, evaluate, and utilize diverse information sources effectively in science and engineering studies. Students will learn how to search for academic papers and technical materials using databases such as Web of Science. The practical exercises focus on mastering information technology tools (open-source freeware) to create mind maps, diagrams, and posters for effective communication. At the end of the semester, students are required to deliver a poster presentation on their major field of study or research. (Target students: 2nd-year undergraduates and above, and graduate students. No prior English proficiency is required. Since this is an international course taught alongside exchange students, all students are welcome to join.) Important Notes - Course Schedule: Please note that international courses may start one week later than the standard university calendar to coincide with the arrival of exchange students. Please confirm the exact start date with the instructor. - Preparation: Please bring a laptop or tablet with Wi-Fi capability to every class.
Prerequisites	UEC Academic Skills I (Computer Literacy) or コンピューターリテラシー
Recommended prerequisites and preparation	NIL
Course textbooks and materials	NIL
Course outline and weekly schedule	[Course Schedule and Topics] The following is an overview of the weekly topics. This course covers the fundamental methods of searching, collecting, and managing academic resources using the university library collection, scholarly databases, e-journals, and various search engines essential for research. Additionally, students will gain practical skills in scientific drawing, spreadsheet management, graphing, and poster production. The course introduces powerful tools for scientific research and engineering. The lectures include hands-on learning and practical exercises designed for students without prior experience or specialized training. The initial focus is on the basic usage of scientific software and standard

	research procedures. 1. Introduction (Usage of the Information Technology Center (ITC), etc.) 2. Scientific Literature and Resource Retrieval (UEC Library) 3. Mind Mapping and Brainstorming 4. Academic Integrity (Referencing, citing, and creating bibliographies) 5. Managing and Sharing Resources 6. Writing a Research Proposal 7. Scientific Drawing, Charts, Diagrams, and Timelines (Inkscape, GIMP) 8. Tables and Graphs (SciDAVis) 9. Desktop Publishing for Scientific Posters (Scribus) 10. Creating Effective Scientific Posters 11. Formula Editors and Word Processing 12. Writing a Research Abstract 13. Preparation for Presentations 14. Poster Presentation (Part 1) 15. Poster Presentation (Part 2) [Note] - Please bring a laptop PC with Wi-Fi capability to access course materials and participate in exercises. - The lecture schedule is subject to revision throughout the course.
Face-to-face or remote classes	Face to face
Course content utilizing practical experience	
Distance learning information	While this course is primarily designed for in-person classroom instruction, it may be delivered remotely if necessary.
Preparation and review outside class	Students are required to read one to three academic articles related to their current research or a topic of interest. Based on these articles, students are expected to summarize the key points and deliver a poster presentation at the end of the semester.
Evaluation and grading	The final grade will be determined based on the following: - Weekly Assignments: 50% - Mid-term Presentation: 20% - Poster Presentation: 30% As this is a practical, hands-on course, regular attendance and active participation are mandatory. To be eligible for credit, students must satisfy all of the following requirements: 1. Maintain an attendance rate of at least 70%. 2. Submit all assignments. 3. Complete the mid-term presentation, the final poster presentation, and the poster presentation self-evaluation report.
Office hours	12:00-13:00. To ensure availability, please schedule an appointment before visiting.
Message for students	Students are expected to be an active part of the learning process. We highly encourage participation in class discussions, asking questions, and interacting with others. If you have any comments or insights on the topics covered, please feel free to share them with the class.
Others	Students are expected to arrive at class on time. Absences may be excused in cases of emergency, illness, or attendance at academic conferences. In such instances, please ensure that you contact the instructor as soon as possible (either in advance or immediately following the absence).
Keyword(s)	Research Methodology, Information Retrieval, University Library, Desktop Publishing (DTP), Poster Presentation, Scientific Communication

UEC Academic Skills III (Publishing Literacy and Research)

Course title (Japanese)	UEC Academic Skills III (Publishing Literacy and Research)		
Course title (English)	UEC Academic Skills III (Publishing Literacy and Research)		
Course Code			
Academic year	2026	Year offered	3/4
Semester(s) offered	Spring semester	Faculty offering the course	School of Informatics and Engineering
Teaching method	Lecture	Credits	2.0
Day, Period	Thu 1		
Essential Subjects			
Category	General culture subjects		
Cluster/Department	School of Informatics and Engineering		
Lecturer(s)	Choo Cheow Keong		
Office	E2-305		
e-mail	uec-as3@fedu.uec.ac.jp		
Course website	http://www.fedu.uec.ac.jp/skills		
LMS info	Moodle	UEC Academic Skills III AS3	http://www.fedu.uec.ac.jp/skills
Last updated	2026/03/09 21:27:47	Status	Released /now open to public

Course Description

Topic and goals	This course provides students with the fundamental skills for research and presentation through the practical execution of a strategic research project. Guided by their own research themes, students will experience the entire academic process: from drafting a research proposal and collecting information to conducting the study and preparing a manuscript for publication. Furthermore, the course covers the essential ethics and morals that scientists and engineers must uphold in their professional conduct. At the end of the semester, students will participate in an international mini-conference to deliver their oral presentations. (Target students: 3rd-year undergraduates and above, and graduate students. No prior research experience or English proficiency is required. As this is an international course taught alongside exchange students, everyone is welcome to join.) [Important Notes] - Course Schedule: Please note that international courses may start one week later than the standard university calendar to coincide with the arrival of exchange students. Please confirm the exact start date with the instructor. - Preparation: Please bring a laptop or tablet with Wi-Fi capability to every class.
Prerequisites	UEC Academic Skills I (Computer Literacy) or コンピューターリテラシー
Recommended prerequisites and preparation	UEC Academic Skills II (Information Literacy and Research)
Course textbooks and materials	NIL
Course outline and weekly schedule	The following is an overview of the weekly topics. This course is designed to support the pursuit of writing research papers and to share the skills required for high-quality academic publishing. All lectures are integrated with practical activities. By the end of the course, students are required to write a paper and deliver a presentation based on their individual research projects. 1. Introduction (Usage of the Information Technology Center (ITC), etc.) 2. Academic Integrity (Scientific misconduct, originality, and ethics) 3. Researcher's Outputs (The why, how, and where of disseminating research) 4. Planning Research & Protocols (LaTeX editors, mind mapping, brainstorming, etc.) 5. Proposing and Reporting on Research

	6. Constructing Scientific Presentations 7. Midterm Presentation (Part 1) 8. Midterm Presentation (Part 2) 9. Brushing Up Your Skills (Strategies for handling Q&A sessions) 10. Communication and Correspondence (Interacting with peers, researchers, and editors) 11. Academic Publishing I (Overview: Dissertations, monographs, and scientific papers) 12. Academic Publishing II (Submission procedures, peer-review processes, and standards) 13. Assessment and Evaluation (Peer review and self-assessment) 14. Oral Presentation (Part 1) 15. Oral Presentation (Part 2) [Note] - Please bring a laptop PC with Wi-Fi capability to access course materials and participate in exercises. - Note: The lecture schedule is subject to constant revision throughout the course.
Face-to-face or remote classes	Face to face
Course content utilizing practical experience	
Distance learning information	While this course is primarily designed for in-person classroom instruction, it may be delivered remotely if necessary.
Preparation and review outside class	Students are required to read two to three academic articles related to their research or a topic of interest. Based on these articles, students are expected to summarize the key findings and deliver oral presentations at both the mid-semester and the end of the semester. For students already assigned to a laboratory, the essential project hours are estimated to be more than eight hours per week. This aligns with the standard expectations for a graduation thesis project, and students are expected to engage deeply with their research.
Evaluation and grading	The final grade will be determined based on the following: - Weekly Assignments: 40% - Research Paper Writing: 30% - Oral Presentations (Mid-term and Final): 30% As this is a hands-on course, regular attendance and active participation are mandatory. To be eligible for credit, students must satisfy all of the following requirements: 1. Maintain an attendance rate of at least 70%. 2. Submit all assignments. 3. Complete all required presentations.
Office hours	12:00-13:00. To ensure availability, please schedule an appointment before visiting.
Message for students	Students are expected to take an active role in their own learning process. We highly encourage participation in class discussions, asking questions, and interacting with peers. If you have any comments or insights on the topics covered, please feel free to share them with the class.
Others	Students are expected to arrive at class on time. Absences may be excused in cases of emergency, illness, or attendance at academic conferences. In such instances, please ensure that you contact the instructor as soon as possible (either in advance or immediately following the absence).
Keyword(s)	Research Methodology, Paper Writing and Submission, Oral Presentation, Academic Publishing, Research Integrity, Scientific Communication

