

2022年度以前入学者向け:新カリキュラム対応表[加速器科学コースの授業科目]

Correspondence Table of Old and New Curriculum for students who have enrolled in SOKENDAI in/before AY 2022 [Subjects of Accelerator Science]

・2022年度までの授業科目(旧科目)は、2023年度以降、新カリキュラムの授業科目(新科目)として開講されます。旧科目の授業科目の単位を修得済の学生は、当該旧科目と同じ行にある新科目の履修はできません。

例)旧科目「加速器概論Ⅰ」の単位を修得済の学生は、新科目「加速器概論Ⅰ」の履修不可。

・The subjects offered until AY 2022 will be offered as new subjects under the new curriculum from AY 2023. Students who earned credits in old subjects cannot take new subjects on the same row in the old subjects.

(Ex.)The students who earned the credits of *Introduction to Accelerators I* in the old subjects cannot take *Introduction to Accelerators I* in the new subjects.

新科目(2023年度~)/New Subjects (AY2023~)					旧科目(~2022年度)/Old Subjects (~AY2022)				
講義コード Code	授業科目	Subject	単位 Credit	備考 Remarks	講義コード Code	授業科目	Subject	単位 Credit	備考 Remarks
40ACS001**	加速器概論1	Introduction to Accelerators 1	2		⇐ 10SHA009**	加速器概論Ⅰ	Introduction to Accelerators I	2	高エネルギー加速器科学研究科共通専門科目 /Common Specialized Subjects of the School of High Energy Accelerator Science
40ACS002**	加速器概論2	Introduction to Accelerators 2	2		⇐ 10SHA010**	加速器概論Ⅱ	Introduction to Accelerators II	2	
40ACS003**	加速器概論演習1	Seminar on Introduction to Accelerators 1	2		⇐ 10SHA027**	加速器概論演習Ⅰ	Seminar on Introduction to Accelerators I	2	
40ACS004**	加速器概論演習2	Seminar on Introduction to Accelerators 2	2		⇐ 10SHA028**	加速器概論演習Ⅱ	Seminar on Introduction to Accelerators II	2	
40ACS005**	放射線物理学	Radiation Physics	2		⇐ 10SHA012**	放射線物理学	Radiation Physics	2	
40ACS006**	粒子加速器のための電磁気学の基礎	Fundamentals of electromagnetism for particle accelerators	2		⇐ 10SHA016**	電磁気学	Electromagnetism	2	
40ACS007**	解析力学	Analytical Dynamics	2	旧科目「解析力学」「電気力学と特殊相対論」いずれかの単位を修得済の学生は、新科目「解析力学」の履修可。 旧科目「解析力学」「電気力学と特殊相対論」のすべての単位を修得済の学生は、新科目「解析力学」の履修不可。 The students who earned the credits of only one from <i>Analytical Dynamics</i> or <i>Electrodynamics and Special Relativity</i> in the old subjects can take <i>Analytical Dynamics</i> in the new subjects. However, the students who earned the credits of both <i>Analytical Dynamics</i> and <i>Electrodynamics and Special Relativity</i> in the old subjects cannot take <i>Analytical Dynamics</i> in the new subjects.	⇐ 10SHA018**	解析力学	Analytical Dynamics	2	高エネルギー加速器科学研究科共通専門科目 /Common Specialized Subjects of the School of High Energy Accelerator Science
					⇐ 10SHA017**	電気力学と特殊相対論	Electrodynamics and Special Relativity	2	
40ACS008**	データサイエンス入門	Foundations of Data Science	1		⇐ 10SHA034**	データサイエンス入門	Introduction to Data Science	1	高エネルギー加速器科学研究科共通専門科目 /Common Specialized Subjects of the School of High Energy Accelerator Science
40ACS009**	大規模システムの分散制御	Control of distributed devices for large systems	1		⇐ 10SHA035**	大規模システムの分散制御	Control of distributed devices for large systems	1	
40ACS010**	教育用小型加速器を用いた加速器演習	Practicum for accelerator science using the education-oriented electron linear accelerator	1		⇐ 10SHA036**	教育用小型加速器を用いた加速器演習	Practicum for accelerator science using the education-oriented electron linear accelerator	1	
40ACS011**	機械設計学	Machine Design	2		⇐ 20DACj01**	機械設計工学概論	Introduction to Mechanical Design	2	加速器科学専攻専門科目/Special Subjects of the Department of Accelerator Science
					⇐ 20DACj02**	機械工作基礎論	Fundamentals of Mechanical Machining	2	
					⇐ 20DACj04**	材料基礎論	Fundamentals of Material Science	2	
40ACS012**	ロボティクス入門	Introduction to Robotics	1	2022年度以前入学者が新科目「ロボティクス入門」の単位を修得した場合、加速器科学専攻専門科目の単位を修得したものと取り扱います。 If students who have enrolled in SOKENDAI in/before AY 2022 earn the credit of <i>Introduction to Robotics</i> , the credits will be counted as the Special Subjects of the Department of Accelerator Science.					

新科目(2023年度~)/New Subjects (AY2023~)					旧科目(~2022年度)/Old Subjects (~AY2022)				
講義コード Code	授業科目	Subject	単位 Credit	備考 Remarks	講義コード Code	授業科目	Subject	単位 Credit	備考 Remarks
40ACS013**	ビーム物理学	Beam Physics	2	<p>旧科目「ビーム物理学Ⅰ」~「放射光発生機構論」(計7科目)のうち、一部の科目(1~6科目)の単位を修得済の学生は、新科目「ビーム物理学」の履修可。 旧科目「ビーム物理学Ⅰ」~「放射光発生機構論」(計7科目)のすべての単位を修得済の学生は、新科目「ビーム物理学」の履修不可。</p> <p>The students who earned the credits of 1 to 6 subjects from <i>Beam Physics I to Generation of Synchrotron Radiation</i> (total of 7 subjects) in the old subjects can take <i>Beam Physics</i> in the new subjects. However, the students who earned the credits of all of the 7 subjects from <i>Beam Physics I to Generation of Synchrotron Radiation</i> in the old subjects cannot take <i>Beam Physics</i> in the new subjects.</p>	10SHA013**	ビーム物理学Ⅰ	Beam Physics I	2	高エネルギー加速器科学研究科共通専門科目/Common Specialized Subjects of the School of High Energy Accelerator Science
					10SHA014**	ビーム物理学Ⅱ	Beam Physics II	2	
					20DACa01**	非線形力学特論	Advanced Course for Nonlinear Dynamics	2	加速器科学専攻専門科目/Special Subjects of the Department of Accelerator Science
					20DACa07**	粒子追跡法の計算コードに基づく摂動論	Perturbation theory based on realistic tracking codes	2	
					20DACa02**	ビーム電磁場解析	Analysis of Electromagnetic Field of Beams	2	
					20DACa03**	ビーム集団現象論	Theory of Collective Motion of Beams	2	
					20DACa04**	放射光発生機構論	Generation of Synchrotron Radiation	2	
40ACS014**	加速器設計概論	Particle Accelerator Design	2	<p>旧科目「加速器設計概論」~「ビーム性能開発概論」(計7科目)のうち、一部の科目(1~6科目)の単位を修得済の学生は、新科目「加速器設計概論」の履修可。 旧科目「加速器設計概論」~「ビーム性能開発概論」(計7科目)のすべての単位を修得済の学生は、新科目「加速器設計概論」の履修不可。</p> <p>The students who earned the credits of 1 to 6 subjects from <i>An introduction to designing accelerator to An introduction to development of beam performance</i> (total of 7 subjects) in the old subjects can take <i>Particle Accelerator Design</i> in the new subjects. However, the students who earned the credits of all of the 7 subjects from <i>An introduction to designing accelerator to An introduction to development of beam performance</i> in the old subjects cannot take <i>Particle Accelerator Design</i> in the new subjects.</p>	20DACc01**	加速器設計概論	An introduction to designing accelerator	2	加速器科学専攻専門科目/Special Subjects of the Department of Accelerator Science
					20DACc02**	線形加速器設計特論	Advanced Course for Linear Accelerator Design	2	
					20DACc03**	円形加速器設計特論	Design of Circular Accelerators	2	
					20DACc04**	放射光源加速器特論	Basic lecture on synchrotron radiation light sources	2	
					20DACc05**	陽子加速器特論	Advanced course for proton accelerators	2	
					20DACc06**	コライダー特論	Collider Accelerators	2	
					20DACb03**	ビーム性能開発概論	An introduction to development of beam performance	2	
40ACS015**	電磁石概論	Accelerator magnets and power supplies	2	<p>旧科目「電磁石概論」~「電磁石電源概論」(計3科目)のうち、一部の科目(1~2科目)の単位を修得済の学生は、新科目「電磁石概論」の履修可。 旧科目「電磁石概論」~「電磁石電源概論」(計3科目)のすべての単位を修得済の学生は、新科目「電磁石概論」の履修不可。</p> <p>The students who earned the credits of 1 to 2 subjects from <i>Introduction to magnets to Introduction to magnet power supplies</i> (total of 3 subjects) in the old subjects can take <i>Accelerator magnets and power supplies</i> in the new subjects. However, the students who earned the credits of all of the 3 subjects from <i>Introduction to magnets to Introduction to magnet power supplies</i> in the old subjects cannot take <i>Accelerator magnets and power supplies</i> in the new subjects.</p>	20DACe01**	電磁石概論	Introduction to magnets	2	加速器科学専攻専門科目/Special Subjects of the Department of Accelerator Science
					20DACe02**	電磁石設計・計測特論	Advanced course on magnets design and measurements	2	
					20DACe03**	電磁石電源概論	Introduction to magnet power supplies	2	
40ACS016**	計算科学概論	Introduction to Computational Science	2		20DACH01**	計算科学概論	Introduction to Computer Science	2	加速器科学専攻専門科目/Special Subjects of the Department of Accelerator Science
40ACS017**	放射線計測概論	Introduction to Radiation Detection and Measurement	2		20DACi02**	放射線計測概論	Introduction to Radiation Detection and Measurement	2	
40ACS018**	表面分析法概論	Introduction to Surface Analysis	2		20DACi03**	表面分析法概論	Introduction to Surface Analysis	2	

新科目(2023年度~)/New Subjects (AY2023~)					旧科目(~2022年度)/Old Subjects (~AY2022)					
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40ACS019**	ビーム計測概論	Beam instrumentation basics	2	旧科目「ビーム計測法概論」~「光学とそのビーム計測への応用」(計3科目)のうち、一部の科目(1~2科目)の単位を修得済の学生は、新科目「ビーム計測概論」の履修可。 旧科目「ビーム計測法概論」~「光学とそのビーム計測への応用」(計3科目)のすべての単位を修得済の学生は、新科目「ビーム計測概論」の履修不可。 The students who earned the credits of 1 to 2 subjects from <i>Beam instrumentation basics</i> to <i>Optics and its application for beam measurements</i> (total of 3 subjects) in the old subjects can take <i>Beam instrumentation basics</i> in the new subjects. However, the students who earned the credits of all of the 3 subjects from <i>Beam instrumentation basics</i> to <i>Optics and its application for beam measurements</i> in the old subjects cannot take <i>Beam instrumentation basics</i> in the new subjects.	⇐	20DACb01**	ビーム計測法概論	Beam instrumentation basics	2	加速器科学専攻専門科目/Special Subjects of the Department of Accelerator Science
					20DACb02**	光ビーム計測特論	Beam measurement with photons	2		
					20DACb05**	光学とそのビーム計測への応用	Optics and its application for beam measurements	2		
40ACS020**	加速器制御概論	Introduction to accelerator control system	2		⇐	20DACd02**	加速器制御システム概論	Introduction to accelerator control system	2	加速器科学専攻専門科目/Special Subjects of the Department of Accelerator Science
40ACS021**	超伝導・低温技術概論	Superconducting technology and cryogenics engineering	2	旧科目「超伝導・低温技術概論」~「熱力学・統計力学」(計4科目)のうち、一部の科目(1~3科目)の単位を修得済の学生は、新科目「超伝導・低温技術概論」の履修可。 旧科目「超伝導・低温技術概論」~「熱力学・統計力学」(計4科目)のすべての単位を修得済の学生は、新科目「超伝導・低温技術概論」の履修不可。 The students who earned the credits of 1 to 3 subjects from <i>Introduction to superconducting technology and cryogenics engineering</i> to <i>Thermodynamics/Statistical Mechanics</i> (total of 4 subjects) in the old subjects can take <i>Superconducting technology and cryogenics engineering</i> in the new subjects. However, the students who earned the credits of all of the 4 subjects from <i>Introduction to superconducting technology and cryogenics engineering</i> to <i>Thermodynamics/Statistical Mechanics</i> in the old subjects cannot take <i>Superconducting technology and cryogenics engineering</i> in the new subjects.	⇐	20DACd03**	超伝導・低温技術概論	Introduction to superconducting technology and cryogenics engineering	2	加速器科学専攻専門科目/Special Subjects of the Department of Accelerator Science
					20DACd04**	低温技術特論	Cryogenics Engineering with a seminar	2		
					20DACd05**	冷却技術特論	Advanced Course for Refrigeration Techniques	2		
					10SHA020**	熱力学・統計力学	Thermodynamics/Statistical Mechanics	2	高エネルギー加速器科学研究科共通専門科目/Common Specialized Subjects of the School of High Energy Accelerator Science	
40ACS022**	高周波加速概論	Beam acceleration and RF systems	2	現行カリキュラム授業科目「ビーム加速科学特論」~「ビーム安定性特論」(計4科目)のうち、一部の科目(1~3科目)の単位を修得済の学生は、新カリキュラム授業科目「高周波加速概論」の履修可。 現行カリキュラム授業科目「ビーム加速科学特論」~「ビーム安定性特論」(計4科目)のすべての単位を修得済の学生は、新カリキュラム授業科目「高周波加速概論」の履修不可。 The students who earned the credits of 1 to 3 subjects from <i>Advanced Course for Beam Acceleration Science</i> to <i>Advanced Course for Beam Stability</i> (total of 4 subjects) of the current curriculum can take <i>Beam acceleration and RF systems</i> in the new subjects. However, the students who earned the credits of all of the 4 subjects from <i>Advanced Course for Beam Acceleration Science</i> to <i>Advanced Course for Beam Stability</i> of the current curriculum cannot take <i>Beam acceleration and RF systems</i> in the new subjects.	⇐	20DACf01**	ビーム加速科学特論	Advanced Course for Beam Acceleration Science	2	加速器科学専攻専門科目/Special Subjects of the Department of Accelerator Science
					20DACf03**	大電力高周波特論	Advanced Course for High Power Microwave Engineering	2		
					20DACc08**	次世代先端加速構造開発特論	Next-Generation Accelerating Structure Developments for Energy-Frontier Experiments	2		
					20DACb04**	ビーム安定性特論	Advanced Course for Beam Stability	2		

新科目(2023年度～)/New Subjects (AY2023～)					旧科目(～2022年度)/Old Subjects (～AY2022)				
講義コード Code	授業科目	Subject	単位 Credit	備考 Remarks	講義コード Code	授業科目	Subject	単位 Credit	備考 Remarks
40ACS023**	真空科学技術概論	Vacuum science and technology for particle accelerators	2	旧科目「真空科学概論」「真空科学応用特論」どちらか1科目の単位を修得済の学生は、新科目「真空科学技術概論」の履修可。 旧科目「真空科学概論」「真空科学応用特論」両方の単位を修得済の学生は、新科目「真空科学技術概論」の履修不可。 The students who earned the credits of only one from <i>Basic concepts of vacuum science and technology</i> or <i>Vacuum science and technologies applied to accelerators</i> in the old subjects can take <i>Vacuum science and technology for particle accelerators</i> in the new subjects. However, the students who earned the credits of both <i>Basic concepts of vacuum science and technology</i> and <i>Vacuum science and technologies applied to accelerators</i> in the old subjects cannot take <i>Vacuum science and technology for particle accelerators</i> in the new subjects.	20DACg01**	真空科学概論	Basic concepts of vacuum science and technology	2	加速器科学専攻専門科目/Special Subjects of the Department of Accelerator Science
					20DACg02**	真空科学応用特論	Vacuum science and technologies applied to accelerators	2	
40ACS024**	ビーム生成概論	Particle Sources	2		20DACd06**	ビーム源概論	Introduction to Electron Beam Sources	2	加速器科学専攻専門科目/Special Subjects of the Department of Accelerator Science
40ACS025**	超伝導空洞特論	Advanced Course for Superconducting Cavities	2		20DACf02**	超伝導空洞特論	Advanced Course for Superconducting Cavities	2	
40ACS026**	データ収集法特論	Data Acquisition and Analysis Methods	2		20DACH04**	データ収集法特論	Data acquisition and analysis methods in High Energy Physics	2	
40ACS027**	高性能計算科学特論	High Performance Computing	2		20DACH05**	高性能計算科学特論	High Performance Computing	2	
40ACS028**	放射線遮蔽特論	Advanced Course for Radiation Shielding	2		20DACi01**	放射線遮蔽特論	Advanced Course for Radiation Shielding	2	
40ACS029**	放射線防護特論	Advanced Course for Radiation Protection	2		20DACi04**	放射線防護特論	Advanced Course for Radiation Protection	2	
40ACS030**	計算放射線学特論	Advanced Computational Radiation physics	2		20DACi05**	計算放射線学特論	Lecture of Radiation Simulation by Monte Carlo Code	2	
40ACS031**	計算放射線学演習	Practicum of Radiation Simulation by Monte Carlo Code	2		20DACi06**	計算放射線学演習	Practicum of Radiation Simulation by Monte Carlo Code	2	
40ACS032**	超伝導電磁石特論	Advanced Course for superconducting magnets	2		20DACE04**	超伝導磁石特論	Advanced Course for superconducting magnets	2	
40ACS033**	計算機アーキテクチャ特論	Computer Architecture	2		20DACH02**	ソフトウェア工学特論	Software Engineering	2	
80ACS001**	加速器科学認定研究ⅡA	Qualifying Research in High Energy Accelerator Science ⅡA	2		90SHA001**	高エネルギー加速器科学認定研究	Qualifying Research in High Energy Accelerator Science	4	高エネルギー加速器科学研究科共通専門科目/Common Specialized Subjects of the School of High Energy Accelerator Science
80ACS002**	加速器科学認定研究ⅡB	Qualifying Research in High Energy Accelerator Science ⅡB	2		90SHA001**	高エネルギー加速器科学認定研究	Qualifying Research in High Energy Accelerator Science	4	
40COM001**	高エネルギー加速器科学セミナー1	High Energy Accelerator Science Seminar 1	2	素粒子原子核コース、加速器科学コース、物質構造科学コースの共同開設/Jointly offered by Particle and Nuclear Physics, Accelerator Science, and Materials Structure Science	10SHA001**	高エネルギー加速器科学セミナーⅠ	High Energy Accelerator Seminar I	2	
40COM002**	高エネルギー加速器科学セミナー2	High Energy Accelerator Science Seminar 2	2		10SHA002**	高エネルギー加速器科学セミナーⅡ	High Energy Accelerator Seminar II	2	

新科目(2023年度～)/New Subjects (AY2023～)				
講義コード Code	授業科目	Subject	単位 Credit	備考 Remarks
40ACS034**	計算機プログラミング特論	Computer Programming (C++ or Python)	2	2022年度以前入学者が新科目「計算機プログラミング特論」「計算機プログラミング演習」「加速器科学特別考究 I A～II B」の単位を修得した場合、加速器科学専攻専門科目の単位を修得したものと して取り扱います。 If students who have enrolled in SOKENDAI in/before AY 2022 earn the credit of <i>Computer Programming (C++ or Python)</i> , <i>Computer Programming Laboratory</i> and <i>Special Exercise for Accelerator Science I A～II B</i> , the credits will be counted as the Special Subjects of the Department of Accelerator Science.
40ACS035**	計算機プログラミング演習	Computer Programming Laboratory	2	
80ACS003**	加速器科学特別考究 I A	Special Exercise for Accelerator Science I A	2	
80ACS004**	加速器科学特別考究 I B	Special Exercise for Accelerator Science I B	2	
80ACS005**	加速器科学特別考究 II A	Special Exercise for Accelerator Science II A	2	
80ACS006**	加速器科学特別考究 II B	Special Exercise for Accelerator Science II B	2	

旧科目(～2022年度)/Old Subjects (～AY2022)				
講義コード Code	授業科目	Subject	単位 Credit	備考 Remarks

【先端学術院特別研究/Dissertation Work in Advanced Studies】

新科目(2023年度～)/New Subjects (AY2023～)				
コード Code	授業科目	Subject	単位 Credit	備考 Remarks
80GAS001**	先端学術院特別研究 I A	Dissertation Work in Advanced Studies I A	2	加速器科学専攻専門科目/Special Subjects of the Department of Accelerator Science
80GAS002**	先端学術院特別研究 I B	Dissertation Work in Advanced Studies I B	2	
80GAS003**	先端学術院特別研究 II A	Dissertation Work in Advanced Studies II A	2	
80GAS004**	先端学術院特別研究 II B	Dissertation Work in Advanced Studies II B	2	
80GAS005**	先端学術院特別研究 III A	Dissertation Work in Advanced Studies III A	2	
80GAS006**	先端学術院特別研究 III B	Dissertation Work in Advanced Studies III B	2	
80GAS007**	先端学術院特別研究 IV A	Dissertation Work in Advanced Studies IV A	2	
80GAS008**	先端学術院特別研究 IV B	Dissertation Work in Advanced Studies IV B	2	
80GAS009**	先端学術院特別研究 V A	Dissertation Work in Advanced Studies V A	2	
80GAS010**	先端学術院特別研究 V B	Dissertation Work in Advanced Studies V B	2	

旧科目(～2022年度)/Old Subjects (～AY2022)				
コード Code	授業科目	Subject	単位 Credit	備考 Remarks
⇐ 20DACK01**	加速器科学特別演習 I A	Special Exercise for Accelerator Science I A	2	加速器科学専攻専門科目/Special Subjects of the Department of Accelerator Science
⇐ 20DACK02**	加速器科学特別演習 I B	Special Exercise for Accelerator Science I B	2	
⇐ 20DACK03**	加速器科学特別演習 II A	Special Exercise for Accelerator Science II A	2	
⇐ 20DACK04**	加速器科学特別演習 II B	Special Exercise for Accelerator Science II B	2	
⇐ 20DACK05**	加速器科学特別演習 III A	Special Exercise for Accelerator Science III A	2	
⇐ 20DACK06**	加速器科学特別演習 III B	Special Exercise for Accelerator Science III B	2	
⇐ 20DACK07**	加速器科学特別研究 IV A	Special Research for Accelerator Science IV A	2	加速器科学専攻専門科目/Special Subjects of the Department of Accelerator Science
⇐ 20DACK08**	加速器科学特別研究 IV B	Special Research for Accelerator Science IV B	2	
⇐ 20DACK09**	加速器科学特別研究 V A	Special Research for Accelerator Science V A	2	
⇐ 20DACK10**	加速器科学特別研究 V B	Special Research for Accelerator Science V B	2	

**には開講学期や担当教員に応じて2桁の数字またはアルファベットが入る。

** will be two-digit numbers or letters according to the semester or the lecturer.