

1. フロンティア精神 Frontier Spirit DP1 DP3 DP4 DP5	2. 国際性の涵養 Global Perspectives DP4 DP7	3. 全人教育 All-round Education DP2 DP8	4. 実学の重視 Practical Learning DP1 DP6
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**【知識と教養】【Knowledge and education】**

DP1 基礎物理学および応用物理学分野の根源的な理解に基づく幅広い知識を身につけている。  
Students have acquired a broad range of knowledge based on a fundamental understanding of basic and applied physics.

DP2 専門知識に偏らず、幅広く他分野の知識を持ち、俯瞰的に学問体系をとらえる能力を示すことができる。  
Students have acquired not only specialized knowledge but also extensive knowledge in other fields, and are capable of viewing academic disciplines comprehensively with a broad perspective.

**【研究力】【Research capabilities】**

DP3 最先端科学および技術に関する専門知識を身につけている。  
Students have acquired expert knowledge about cutting-edge science and technology.

DP4 技術力、洞察力、情報収集・分析能力、問題解決力、コミュニケーション能力を身につけ、高い研究遂行能力を示すことができる。  
Students have acquired technical skills, insight, information gathering and analysis abilities, problem-solving ability and communication skills, and display a high ability to carry out research.

DP5 論文作成能力、プレゼンテーション能力を身につけ、成果を有効に発信することができる。  
Students have acquired academic writing and presentation skills and are able to convey research achievements effectively.

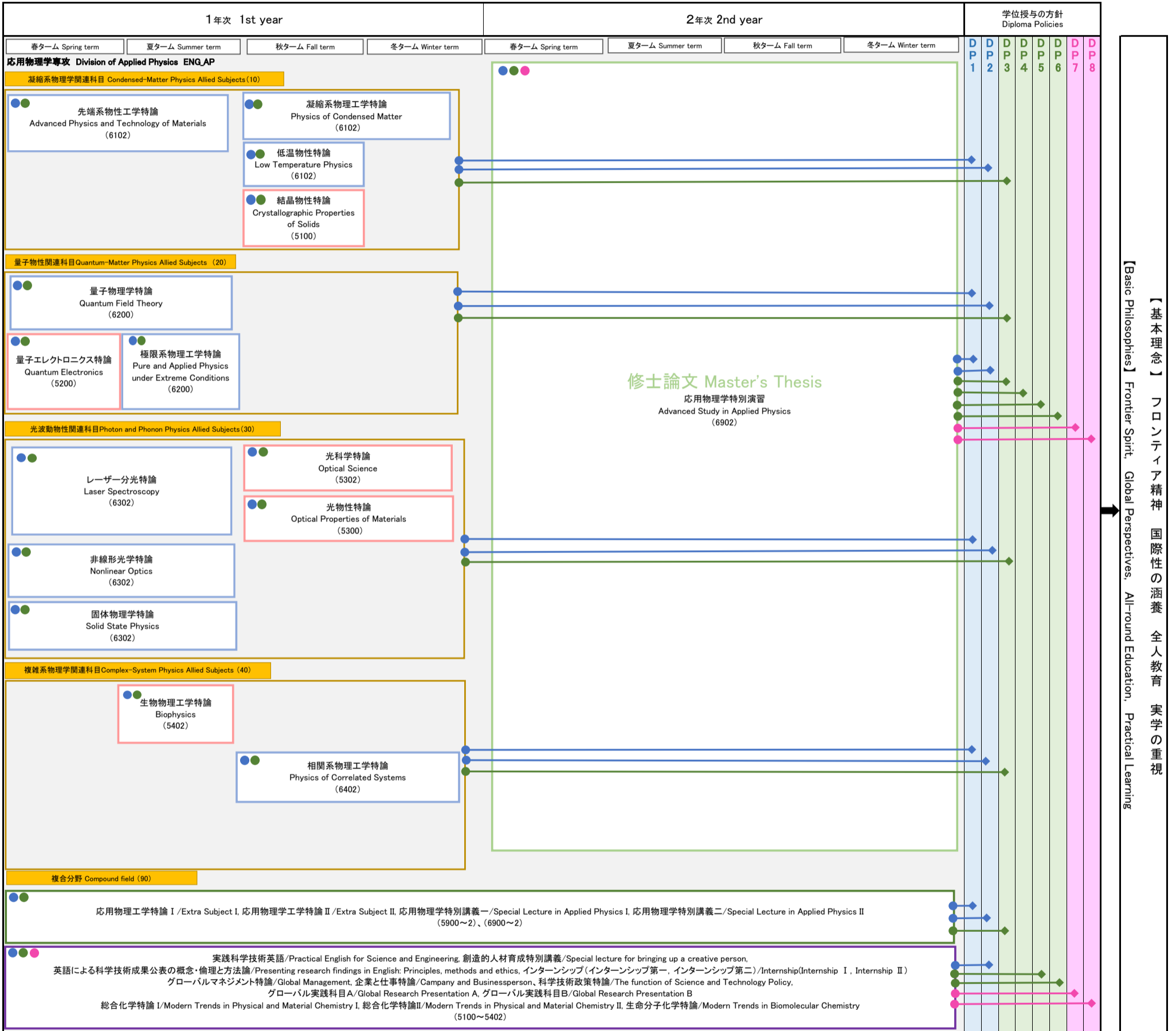
DP6 科学・技術実践の場における安全知識とリスク回避能力を身につけている。  
Students have acquired the knowledge necessary for safety management and the ability to avoid risks in the practice of science and technology.

**【社会性、国際性、コミュニケーション力】【Social skills, global perspective and communication skills】**

DP7 国際社会に対応できる教養、対話力と語学力を身につけている。  
Students are sophisticated and have acquired the communication and language skills necessary to thrive in the international community.

DP8 科学技術と社会との関係に関する倫理感と判断能力を身につけている。  
Students have acquired a strong sense of ethics and the ability to make sound judgments regarding relationships between science/technology and society.

専門科目 Specialized Subjects (応用レベル Advanced)	専門科目 Specialized Subjects (基礎レベル Basics)	専門科目 Specialized Subjects (複合分野 Compound field)	工学院共通科目 Common Subject for Graduate School of Engineering (00)
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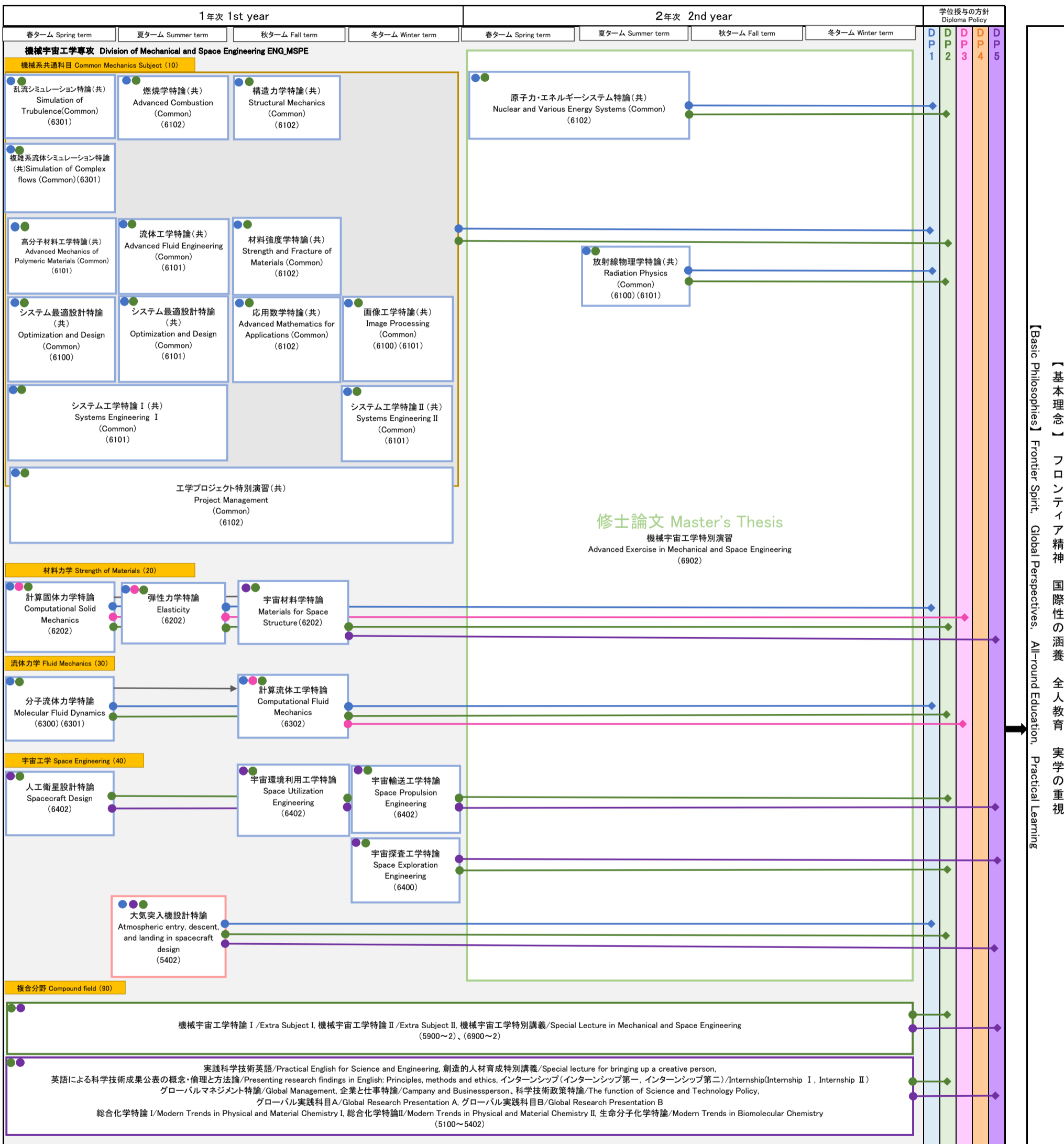
【基本理念】 フロンティア精神 国際性の涵養 全人教育 実学の重視  
 【Basic Philosophies】 Frontier Spirit, Global Perspectives, All-round Education, Practical Learning



1. フロンティア精神 Frontier Spirit : DP1 DP3 DP4	2. 国際性の涵養 Global Perspectives : DP2	3. 全人教育 All-round Education : DP2 DP4	4. 実学の重視 Practical Learning : DP1 DP3 DP5
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- DP1 機械工学を基礎とした幅広く高度な科学・工学に関する知識とその深い理解**  
Students have developed an extensive and advanced knowledge and in-depth understanding of science and engineering based on mechanical engineering.
- DP2 機械工学分野で国際的に活躍できるコミュニケーション能力**  
Students have acquired communication skills enabling them to play active roles on the international stage in the mechanical engineering field.
- DP3 機械宇宙工学の研究開発に必要な優れた現象観察力と分析力**  
Students have developed outstanding skills enabling them to observe and analyze phenomena as required for research and development in mechanical and space engineering.
- DP4 修士論文研究を通じて修得する課題発見力と研究推進力**  
Students have acquired the abilities necessary to identify issues and implement research projects through their master's thesis work.
- DP5 機械工学分野における高度の専門性を必要とする職業を担うための卓越した能力**  
Students have acquired outstanding capabilities needed to undertake work requiring a high level of professional expertise in the mechanical engineering field.

専門科目 Specialized Subjects (応用レベル Advanced)	専門科目 Specialized Subjects (基礎レベル Basics)	専門科目 Specialized Subjects (複合分野 Compound field)	工学院共通科目 Common Subject for Graduate School of Engineering (00)
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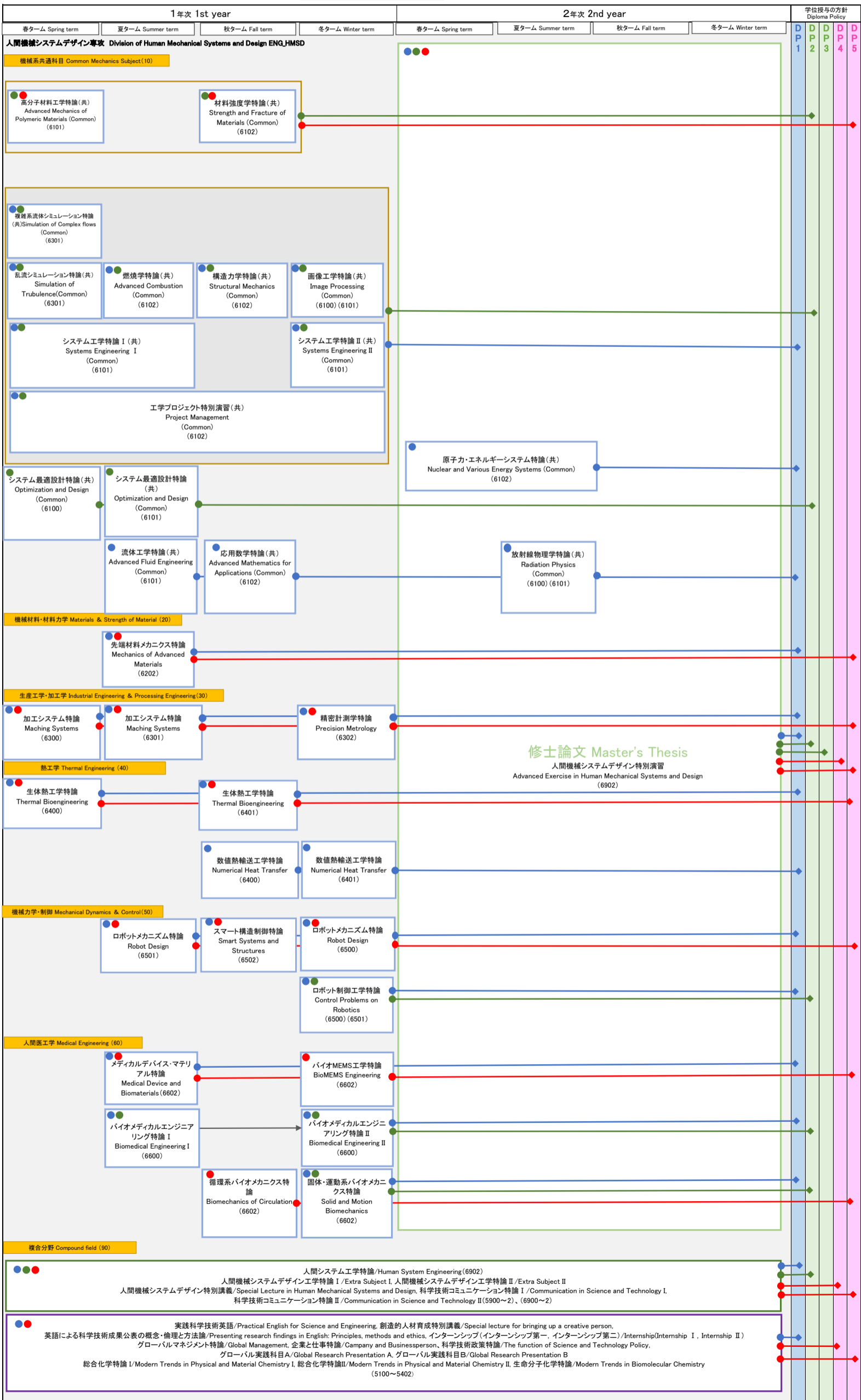
【基本理念】 フロンティア精神 国際性の涵養 全人教育 実学の重視  
 【Basic Philosophies】 Frontier Spirit, Global Perspectives, All-round Education, Practical Learning

工学院人間機械システムデザイン専攻 修士課程 カリキュラム・マップ Master's Course Curriculum Map of Division of Human Mechanical Systems and Design, Graduate School of Engineering

- 1. フロンティア精神 Frontier Spirit DP2, DP3
- 2. 国際性の涵養 Global Perspectives DP4, DP5
- 3. 全人教育 All-round Education DP1, DP5
- 4. 実学の重視 Practical Learning DP1, DP4, DP5

<p>【知識と教養】 【Knowledge and education】</p> <p>DP1 機械工学を基礎とした幅広く高度な科学・工学に関する知識とその深い理解 Students have developed an extensive and advanced knowledge and in-depth understanding of science and engineering based on mechanical engineering.</p>
<p>【研究力】 【Research capabilities】</p> <p>DP2 人間機械システムの研究開発に必要な優れた現象観察力と分析力 Students have developed outstanding skills enabling them to observe and analyze phenomena as required for the research and development of man-machine systems.</p>
<p>DP3 修士論文研究を通じて修得する課題発見力と研究推進力 Students have acquired the abilities necessary to identify issues and implement research projects through their master's thesis work.</p>
<p>【社会性、国際性、コミュニケーション力】 【Social skills, global perspective and communication skills】</p> <p>DP4 機械工学分野で国際的に活躍できるコミュニケーション能力 Students have acquired communication skills enabling them to play active roles on the international stage in the mechanical engineering field.</p>
<p>DP5 機械工学分野における高度の専門性を必要とする職業を担うための卓越した能力 Students have acquired outstanding capabilities needed to undertake work requiring a high level of professional expertise in the mechanical engineering field.</p>

- 専門科目 Specialized Subjects (応用レベル Advanced)
- 専門科目 Specialized Subjects (基礎レベル Basics)
- 専門科目 Specialized Subjects (複合分野 Compound field)
- 工学院共通科目 Common Subject for Graduate School of Engineering (00)



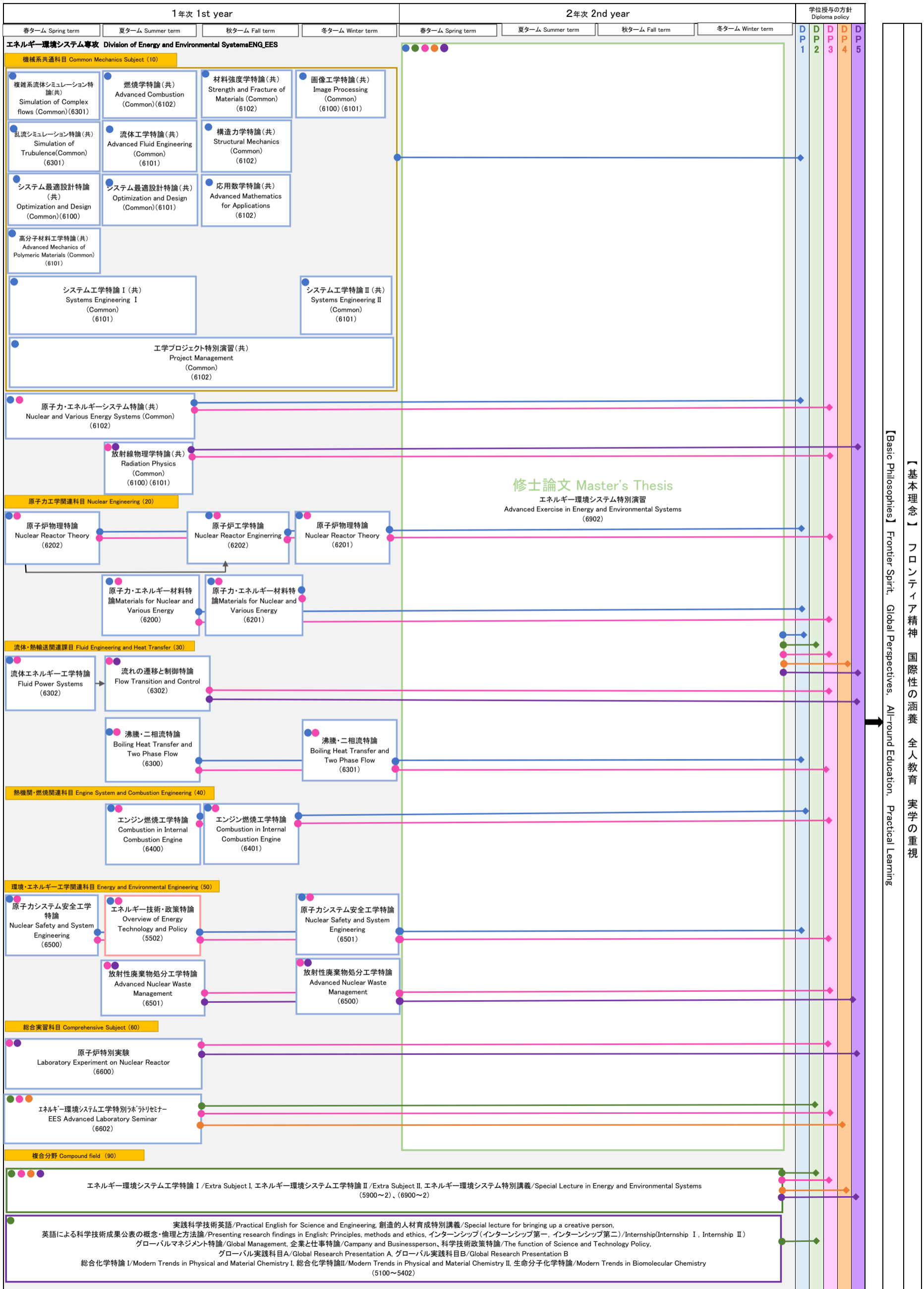
【基本理念】 フロンティア精神 国際性の涵養 全人教育 実学の重視

【Basic Philosophies】 Frontier Spirit, Global Perspectives, All-round Education, Practical Learning

工学院エネルギー環境システム専攻 修士課程 カリキュラム・マップ Master's Course Curriculum Map of Division of Energy and Environmental Systems, Graduate School of Engineering

1. フロンティア精神 Frontier Spirit DP4 DP5	2. 国際性の涵養 Global Perspectives DP2	3. 全人教育 All-round Education DP1 DP2	4. 実学の重視 Practical Learning DP3 DP5
● DP1 機械工学・原子力工学を基礎とした幅広く高度な科学・工学に関する知識とその深い理解 Students have developed an extensive and advanced knowledge and in-depth understanding of science and engineering based on mechanical engineering.			
● DP2 機械工学・原子力工学分野で国際的に活躍できるコミュニケーション能力 Students have acquired communication skills enabling them to play active roles on the international stage in the mechanical engineering and nuclear engineering fields.			
● DP3 エネルギー環境システムの研究開発に必要な優れた現象観察力と分析力 Students have developed outstanding skills enabling them to observe and analyze phenomena as required for the research and development of energy and environmental systems.			
● DP4 修士論文研究を通じて習得する課題発見力と研究推進力 Students have acquired the abilities necessary to identify issues and implement research projects through their master's thesis work.			
● DP5 機械工学・原子力工学分野における高度の専門性を必要とする職業を担うための卓越した能力 Students have acquired outstanding capabilities needed to undertake work requiring a high level of professional expertise in the mechanical engineering and nuclear engineering fields.			

専門科目 Specialized Subjects (応用レベル Advanced)	専門科目 Specialized Subjects (基礎レベル Basics)	専門科目 Specialized Subjects (複合分野 Compound field)	工学院共通科目 Common Subject for Graduate School of Engineering (00)
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【基本理念】フロンティア精神 国際性の涵養 全人教育 実学の重視

【Basic Philosophies】Frontier Spirit, Global Perspectives, All-round Education, Practical Learning

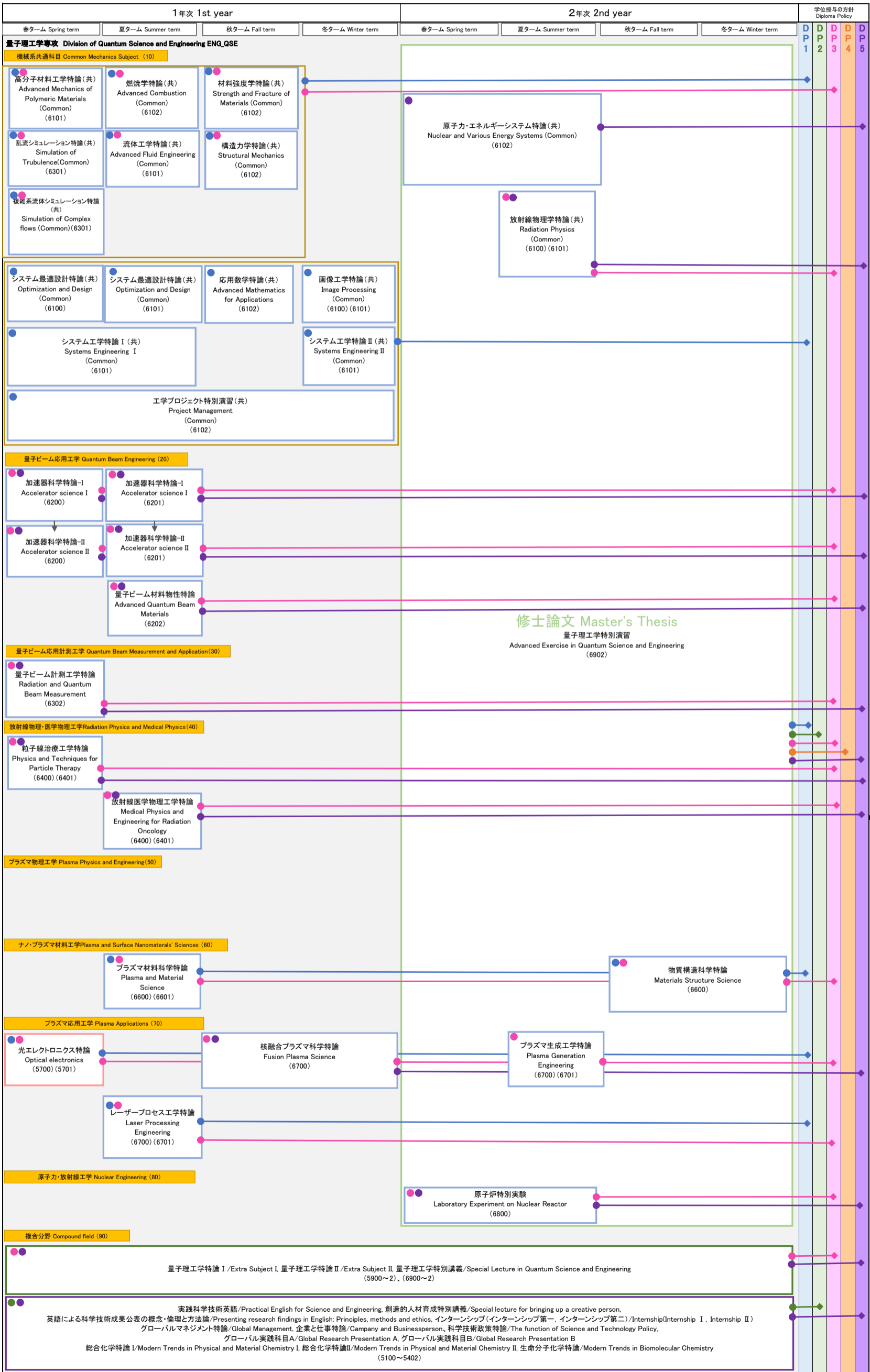


工学院量子理工学専攻 修士課程 カリキュラム・マップ Master's Course Curriculum Map of Division of Quantum Science and Engineering, Graduate School of Engineering

1. フロンティア精神 Frontier Spirit DP1 DP3 DP4	2. 国際性の涵養 Global Perspectives DP2 DP5	3. 全人教育 All-round Education DP2 DP4	4. 実学の重視 Practical Learning DP3 DP5
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- DP1** 量子工学、プラズマ工学、原子工学およびそれらの応用に関する理工学(量子理工学)を基礎とした幅広く高度な科学・工学に関する知識とその深い理解  
Students have developed an extensive and advanced knowledge and in-depth understanding of science and engineering based on quantum beam engineering, plasma engineering, nuclear engineering, and related applied fields (i.e., quantum science and engineering).
- DP2** 量子理工学分野で国際的に活躍できるコミュニケーション能力  
Students have acquired communication skills enabling them to play active roles on the international stage in the quantum science and engineering fields.
- DP3** 量子理工学の研究開発に必要な優れた観察能力と分析力  
Students have developed outstanding skills enabling them to observe and analyze phenomena as required for research and development in quantum science and engineering.
- DP4** 修士論文研究を通して修得する問題発見力と研究推進力  
Students have acquired the abilities necessary to identify issues and implement research projects through their master's thesis work.
- DP5** 量子理工学分野における高度の専門性を必要とする業務を担うための卓越した能力  
Students have acquired outstanding capabilities needed to undertake work requiring a high level of professional expertise in the quantum science and engineering fields.

専門科目 Specialized Subjects (応用レベル Advanced)	専門科目 Specialized Subjects (基礎レベル Basics)	専門科目 Specialized Subjects (複合分野 Compound field)	工学院共通科目 Common Subject for Graduate School of Engineering (00)
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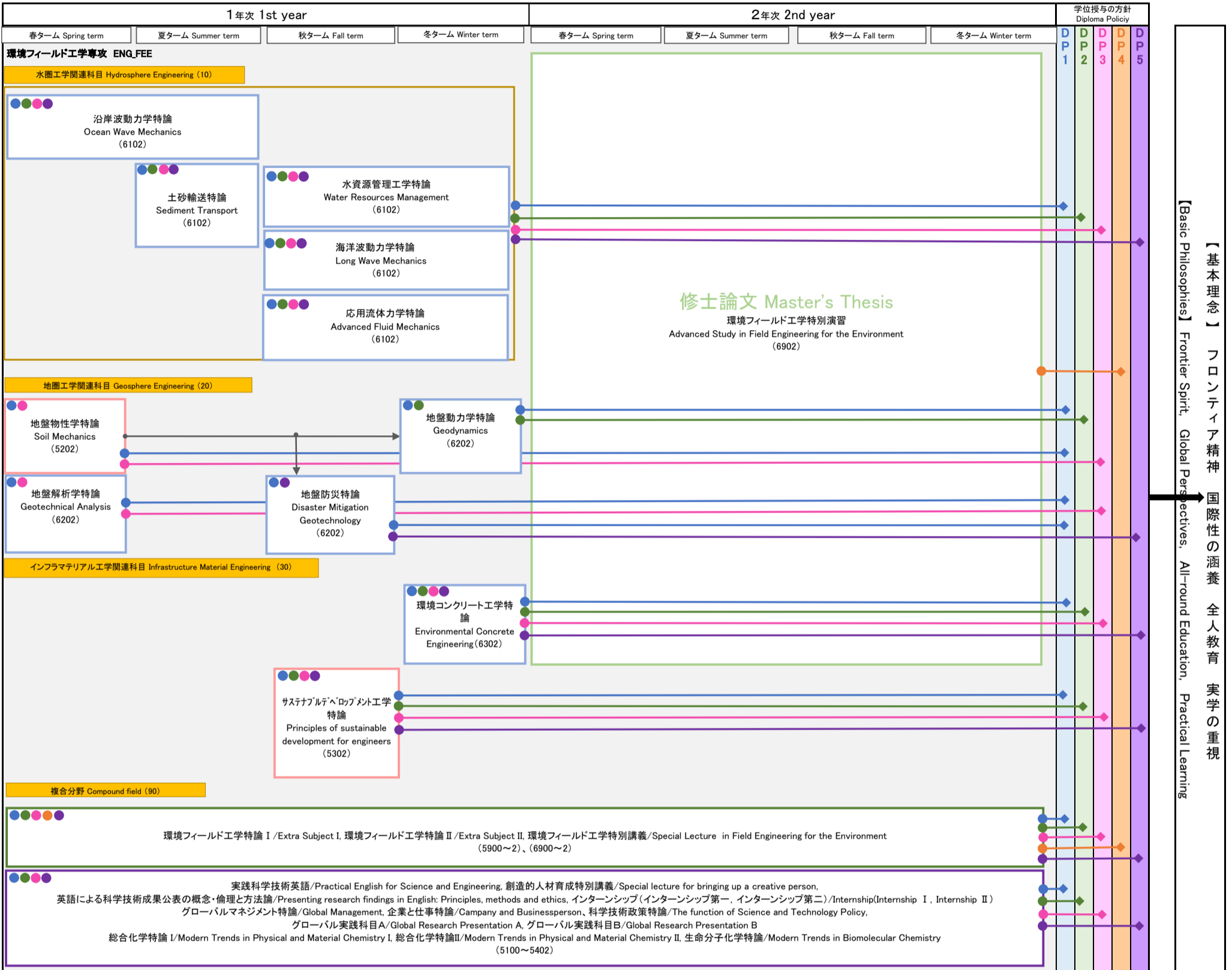


【基本理念】 フロンティア精神 国際性の涵養 全人教育 実学の重視  
【Basic Philosophies】 Frontier Spirit, Global Perspectives, All-round Education, Practical Learning

工学院環境フィールド工学専攻 修士課程 カリキュラム・マップ Master's Course Curriculum Map of Division of Field Engineering for the Environment, Graduate School of Engineering

1. フロンティア精神 Frontier Spirit DP4 DP5	2. 国際性の涵養 Global Perspectives DP2 DP4	3. 全人教育 All-round Education DP1 DP2 DP3	4. 実学の重視 Practical Learning DP1 DP2
● DP1 環境フィールド工学を基礎とした幅広く高度な科学・工学に関する知識とその深い理解 Students have developed an extensive and advanced knowledge and in-depth understanding of science and engineering based on environmental field engineering.			
● DP2 環境フィールド工学分野で国際的に活躍できるコミュニケーション能力 Students have acquired communication skills enabling them to play active roles on the international stage in environmental field engineering.			
● DP3 環境フィールド工学の研究開発に必要な優れた現象観察力と分析力 Students have developed outstanding skills enabling them to observe and analyze phenomena as required for research and development in environmental field engineering.			
● DP4 修士論文研究を通して修得する課題発見力と研究推進力 Students have acquired the abilities necessary to identify issues and implement research projects through their master's thesis work.			
● DP5 環境フィールド工学分野における高度の専門性を必要とする職業を担うための卓越した能力 Students have acquired the outstanding capabilities needed to undertake work requiring a high level of professional expertise in environmental field engineering.			

専門科目 Specialized Subjects (応用レベル Advanced)	専門科目 Specialized Subjects (基礎レベル Basics)	専門科目 Specialized Subjects (複合分野 Compound field)	工学院共通科目 Common Subject for Graduate School of Engineering (00)
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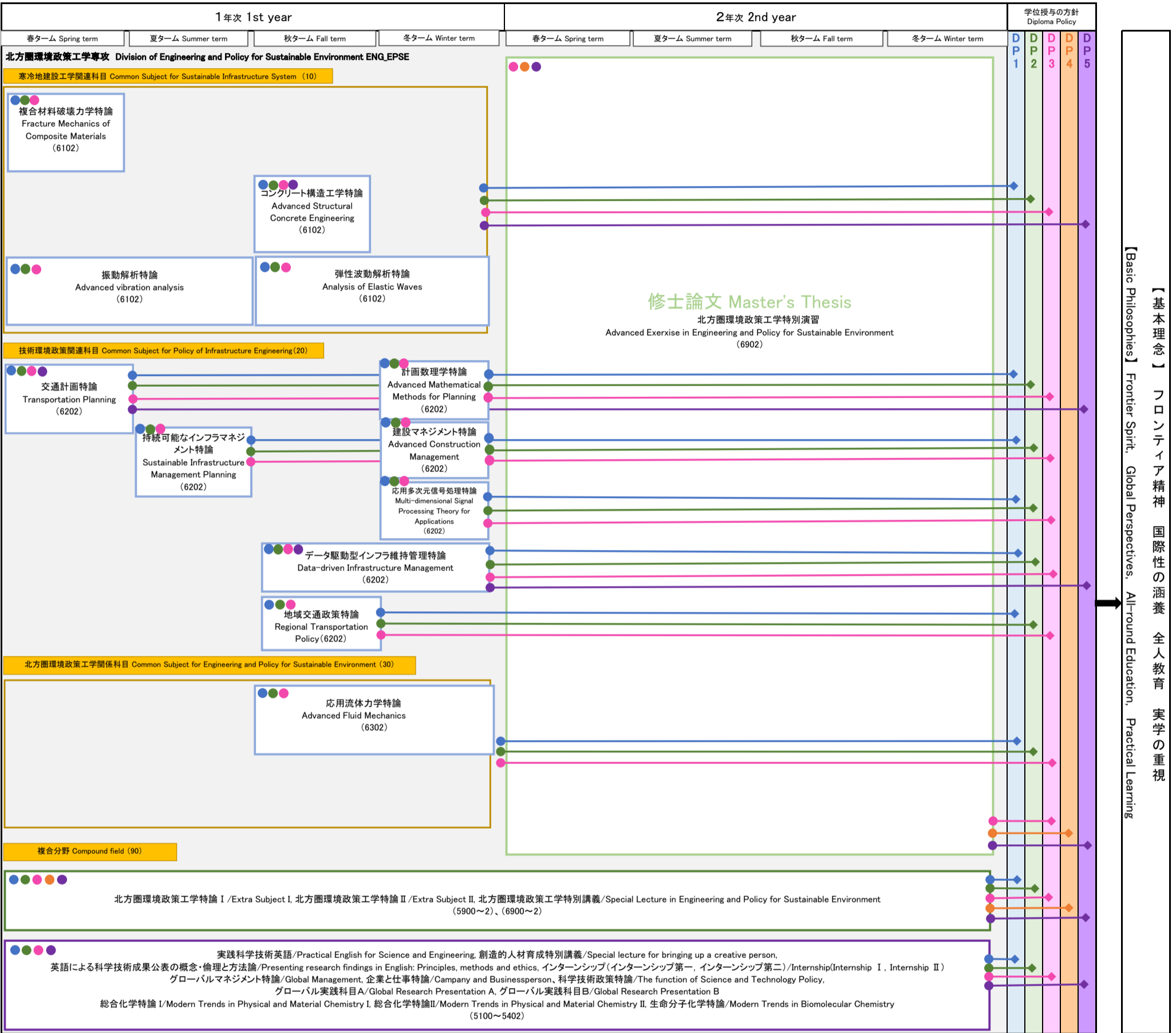


【基本理念】フロンティア精神 国際性の涵養 全人教育 実学の重視  
 【Basic Philosophies】Frontier Spirit, Global Perspectives, All-round Education, Practical Learning

1. フロンティア精神 Frontier Spirit DP4 DP5	2. 国際性の涵養 Global Perspectives DP2 DP4	3. 全人教育 All-round Education DP1 DP2 DP3	4. 実学の重視 Practical Learning DP1 DP2
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- DP1 北方圏環境政策工学を基礎とした幅広く高度な科学・工学に関する知識とその深い理解  
Students have developed an extensive and advanced knowledge and in-depth understanding of science and engineering based on the field of engineering and policy for sustainable environment in northern regions.
- DP2 北方圏環境政策工学分野で国際的に活躍できるコミュニケーション能力  
Students have acquired communication skills enabling them to play active roles on the international stage in the field of engineering and policy for sustainable environment in northern regions.
- DP3 北方圏環境政策工学の研究開発に必要な優れた現象観察力と分析力  
Students have developed outstanding skills enabling them to observe and analyze phenomena as required for research and development in the field of engineering and policy for sustainable environment in northern regions.
- DP4 修士論文研究を通じて修得する課題発見力と研究推進力  
Students have acquired the abilities necessary to identify issues and implement research projects through their master's thesis work.
- DP5 北方圏環境政策工学分野における高度の専門性を必要とする職業を担うための卓越した能力  
Students have acquired the outstanding capabilities needed to undertake work requiring a high level of professional expertise in the field of engineering and policy for sustainable environment in northern regions.

専門科目 Specialized Subjects (応用レベル Advanced)	専門科目 Specialized Subjects (基礎レベル Basics)	専門科目 Specialized Subjects (複合分野 Compound field)	工学院共通科目 Common Subject for Graduate School of Engineering (00)
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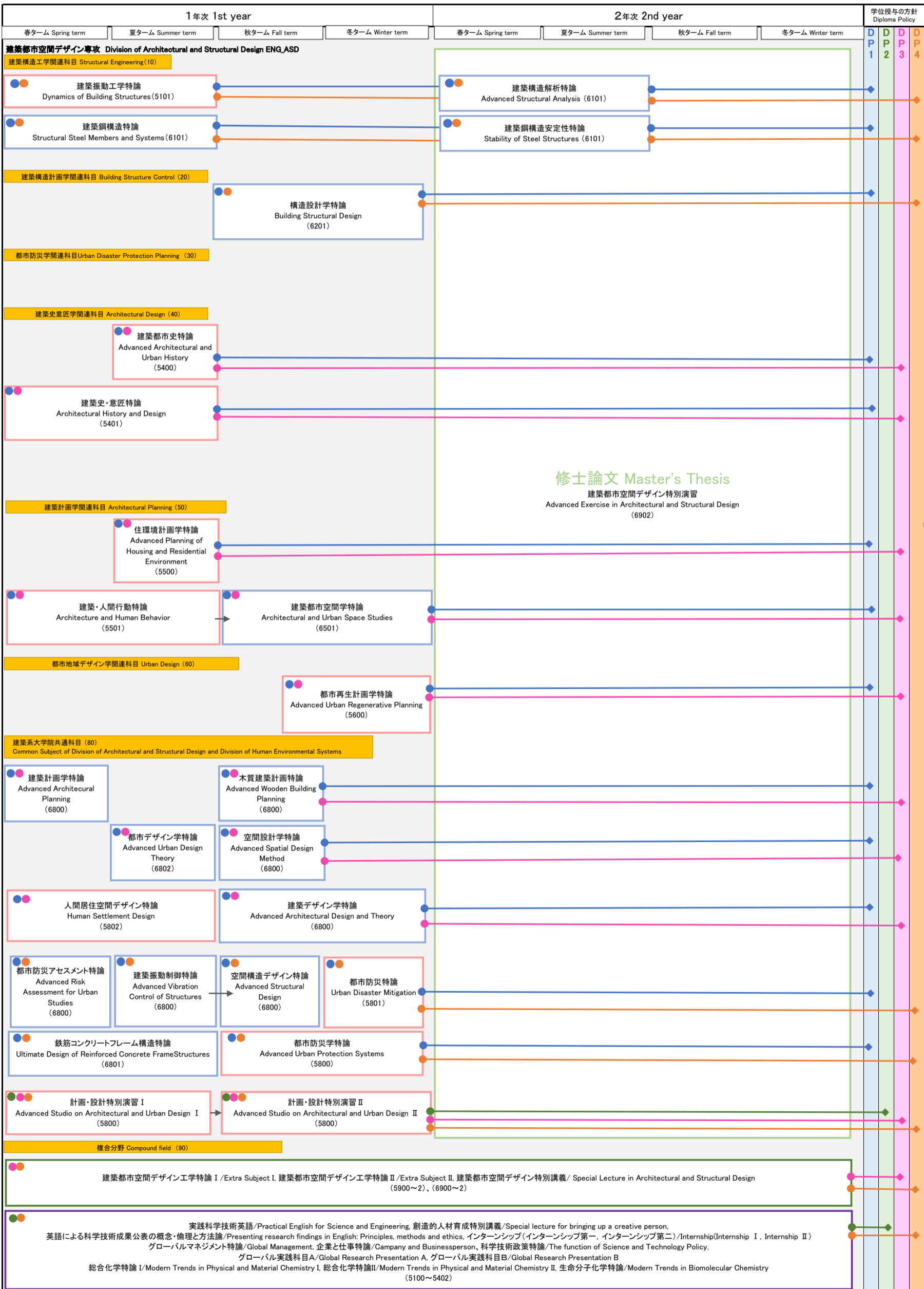


工学院建築都市空間デザイン専攻 修士課程 カリキュラム・マップ Master's Course Curriculum Map of Division of Architectural and Structural Design, Graduate School of Engineering

1. フロンティア精神 Frontier Spirit DP3 DP4	2. 国際性の涵養 Global Perspectives DP2 DP3	3. 全人教育 All-round Education DP1 DP2 DP3	4. 実学の重視 Practical Learning DP1 DP3 DP4
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- DP1 建築工学に関する高度な科学・工学に関する知識とその深い理解力を有する。  
Students have developed an extensive and advanced knowledge and in-depth understanding of science and engineering related to architectural engineering.
- DP2 建築工学分野で国際的に活躍できるコミュニケーションスキルを有する。  
Students have acquired communication skills enabling them to play active roles on the international stage in the architectural engineering field
- DP3 建築空間および都市空間の創出に必要な技術とデザイン力を有する。  
Students have developed the techniques and design skills necessary to create architectural and urban spaces
- DP4 建築工学分野における高度の専門性を必要とする職業を担える。  
Students have acquired the outstanding capabilities needed to undertake work requiring a high level of professional expertise in the architectural engineering field.

専門科目 Specialized Subjects (応用レベル Advanced)	専門科目 Specialized Subjects (基礎レベル Basics)	専門科目 Specialized Subjects (複合分野 Compound field)	工学院共通科目 Common Subject for Graduate School of Engineering (00)
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【基本理念】 フロンティア精神 国際性の涵養 全人教育 実学の重視  
 【Basic Philosophies】 Frontier Spirit, Global Perspectives, All-round Education, Practical Learning

工学院空間性能システム専攻 修士課程 カリキュラム・マップ Master's Course Curriculum Map of Division of Human Environmental Systems, Graduate School of Engineering

1. フロンティア精神 Frontier Spirit DP1 DP3	2. 国際性の涵養 Global Perspectives DP2	3. 全人教育 All-round Education DP1 DP2 DP3 DP4	4. 実学の重視 Practical Learning DP4
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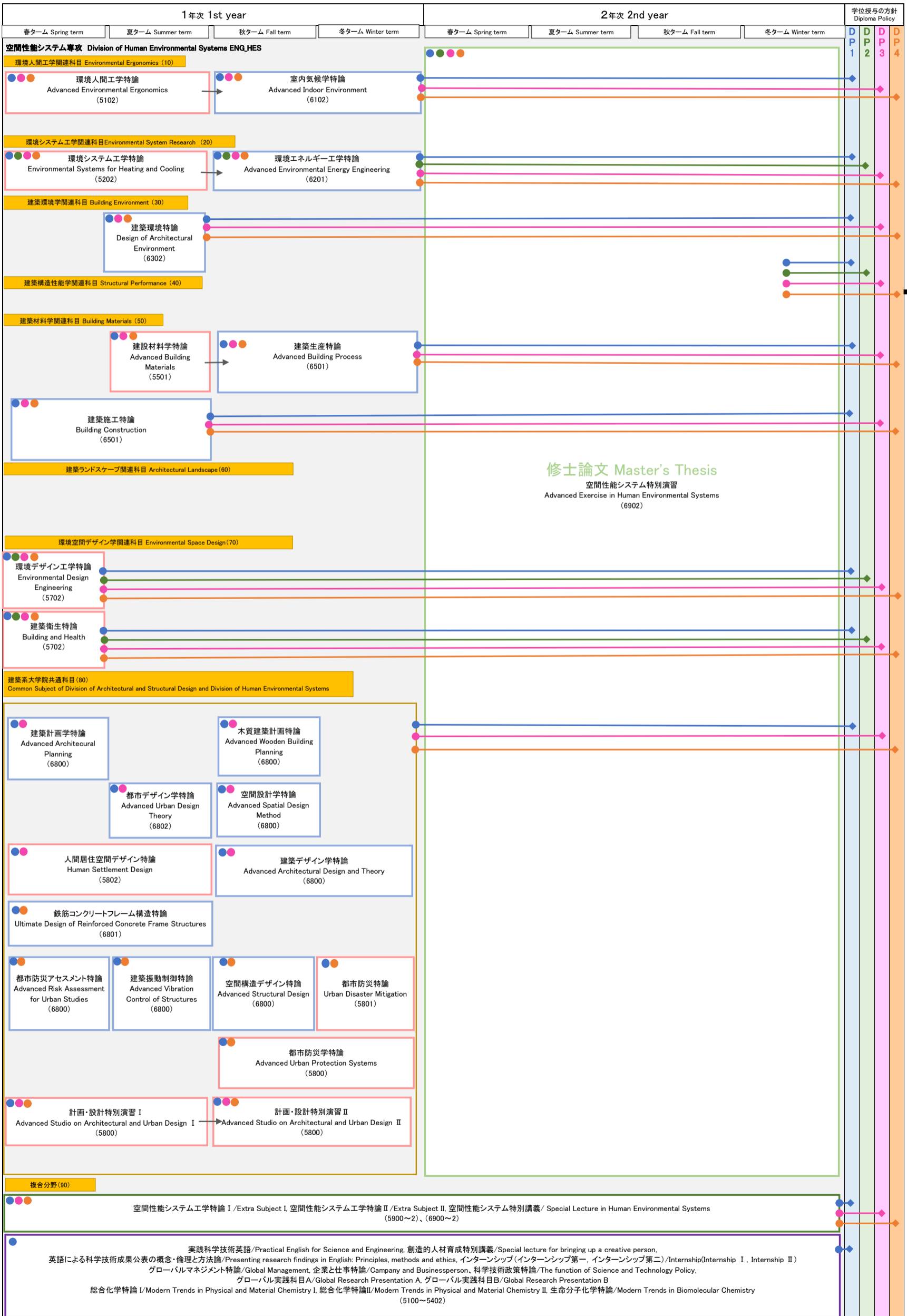
● DP1 空間性能システムに関する高度な科学・工学に関する知識とその深い理解力を有する  
Students have developed an extensive and advanced knowledge and in-depth understanding of science and engineering related to human environment systems.

● DP2 空間性能システム分野で国際的に活躍できるコミュニケーションスキルを有する  
Students have acquired communication skills enabling them to play active roles on the international stage in the field of human environment systems.

● DP3 建築・都市空間および、良質な空間の環境の創出に必要な技術とデザイン力を有する  
Students have developed the techniques and design skills necessary to create architectural/urban spaces and high-quality spatial environments.

● DP4 空間性能システム分野における高度の専門性を必要とする職業を担える能力を有する  
Students have acquired the outstanding capabilities needed to undertake work requiring a high level of professional expertise in the field of human environmental systems.

専門科目 Specialized Subjects (応用レベル Advanced)	専門科目 Specialized Subjects (基礎レベル Basics)	専門科目 Specialized Subjects (複合分野 Compound field)	工学院共通科目 Common Subject for Graduate School of Engineering (00)
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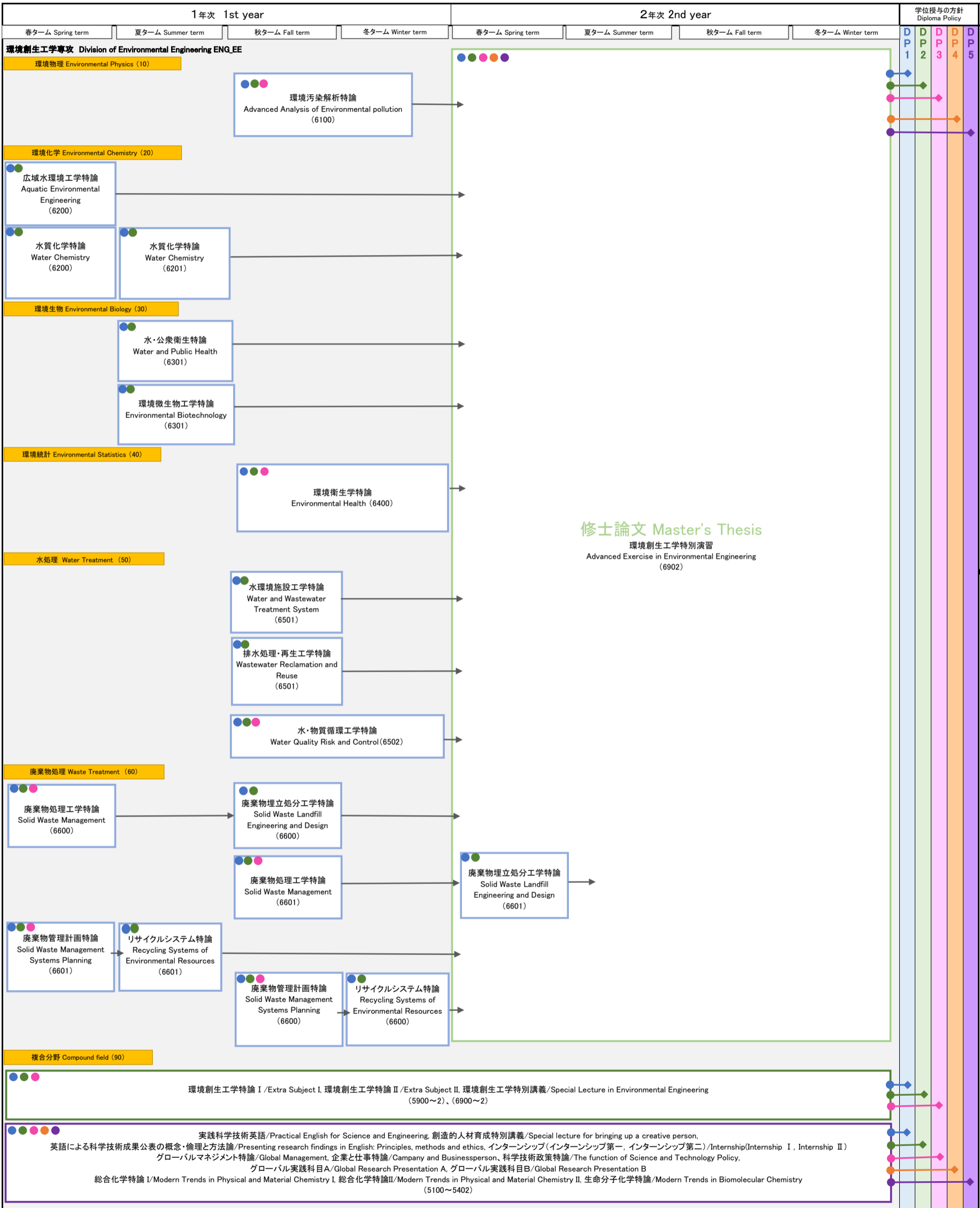
【基本理念】 フロンティア精神 国際性の涵養 全人教育 実学の重視  
【Basic Philosophies】 Frontier Spirit, Global Perspectives, All-round Education, Practical Learning

工学院環境創生工学専攻 修士課程 カリキュラム・マップ Master's Course Curriculum Map of Division of Environmental Engineering, Graduate School of Engineering

1. フロンティア精神 Frontier Spirit DP4	2. 国際性の涵養 Global Perspectives DP5	3. 全人教育 All-round Education DP1	4. 実学の重視 Practical Learning DP2, DP3
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- DP1 環境工学およびその基礎となる分野の幅広い知識・理解と自立的学習力  
Students have developed an extensive knowledge and understanding of environmental engineering and its underlying fields and self-learning ability.
- DP2 環境工学分野の研究開発に必要な研究動向に関する情報収集力と分析力  
Students have acquired the ability to gather and analyze information on research trends as required for research and development in the environmental engineering field.
- DP3 環境工学分野における高度の専門性を必要とする職業を担うための卓越した能力  
Students have acquired the outstanding capabilities needed to undertake work requiring a high level of professional expertise in the environmental engineering field.
- DP4 環境工学分野の課題解決に対応する洞察力・発想力・問題解決力  
Students have acquired the insight, inventive thinking and problem-solving abilities necessary to approach issues in the environmental engineering field.
- DP5 環境工学分野で国際的に活躍できるコミュニケーション能力  
Students have acquired communication skills enabling them to play active roles on the international stage in the environmental engineering field.

専門科目 Specialized Subjects (応用レベル Advanced)	専門科目 Specialized Subjects (基礎レベル Basics)	専門科目 Specialized Subjects (複合分野 Compound field)	工学院共通科目 Common Subject for Graduate School of Engineering (00)
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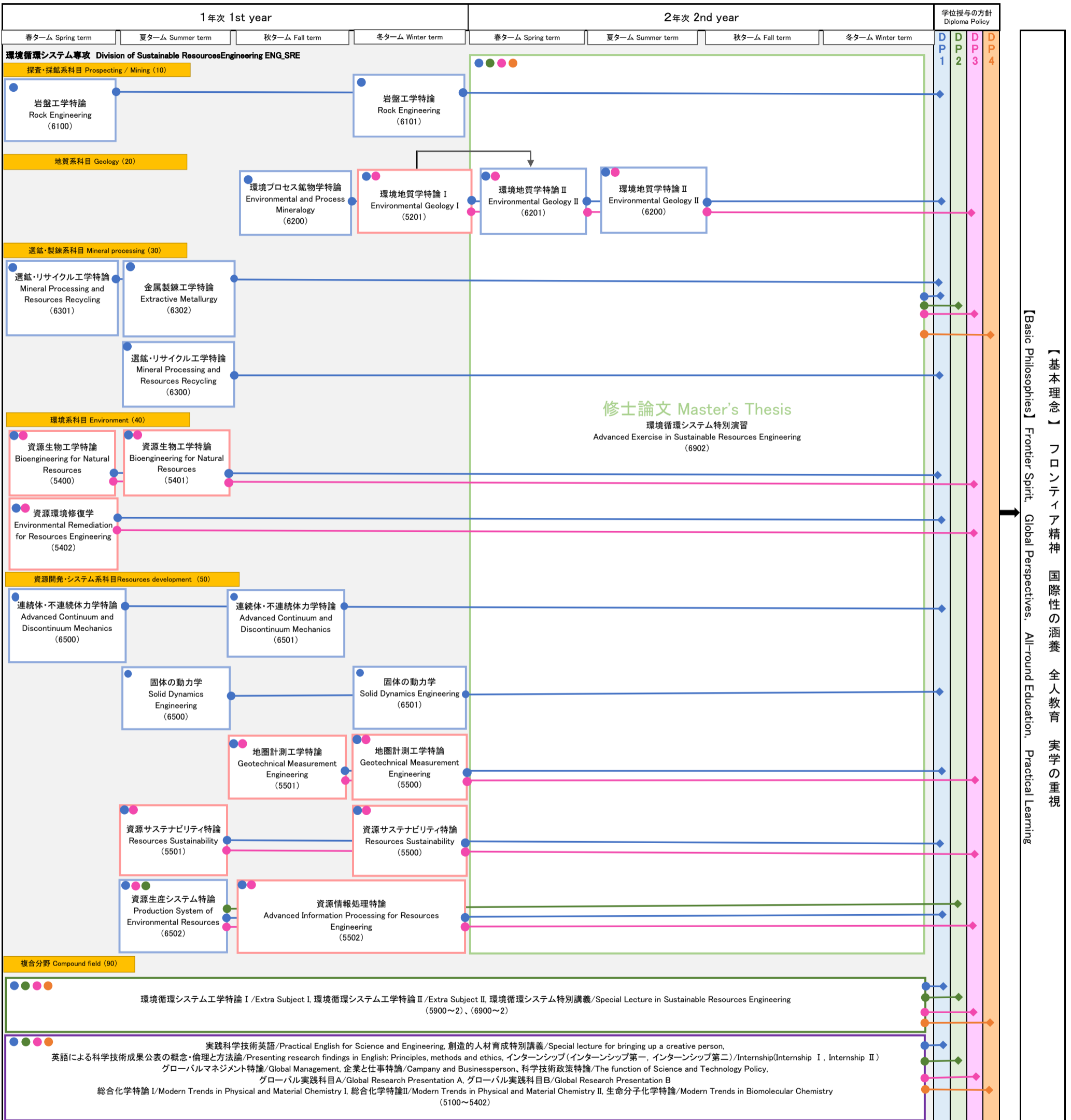
【基本理念】 フロンティア精神 国際性の涵養 全人教育 実学の重視  
【Basic Philosophies】 Frontier Spirit, Global Perspectives, All-round Education, Practical Learning

工学院環境循環システム専攻 修士課程 カリキュラム・マップ Master's Course Curriculum Map of Division of Sustainable Resources Engineering, Graduate School of Engineering

1. フロンティア精神 Frontier Spirit DP2	2. 国際性の涵養 Global Perspectives DP2 DP3	3. 全人教育 All-round Education DP3 DP4	4. 実学の重視 Practical Learning DP1
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- DP1 資源、環境、地殻を基軸とした工学に関する幅広い専門知識  
Students have developed an extensive and specialized knowledge of engineering with a focus on resources, the environment and the earth's crust.
- DP2 資源循環システム分野において国際的に活躍できるコミュニケーション能力  
Students have acquired communication skills enabling them to play active roles on the international stage in the field of resource recycling systems.
- DP3 国内外で開催される学術集会以て研究発表するためのプレゼンテーション能力と質疑応答力  
Students have acquired presentation skills and the ability to respond to questions necessary for giving presentations at academic conferences at home and abroad.
- DP4 修士論文の研究遂行時に修得する論理的思考力と問題解決力  
Students have developed logical thinking and problem-solving capabilities through their master's thesis work.

専門科目 Specialized Subjects (応用レベル Advanced)	専門科目 Specialized Subjects (基礎レベル Basics)	専門科目 Specialized Subjects (複合分野 Compound field)	工学院共通科目 Common Subject for Graduate School of Engineering (00)
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1. フロンティア精神 Frontier Spirit DP1 DP2 DP3 DP4 | 2. 国際性の涵養 Global Perspectives DP3 DP4 | 3. 全人教育 All-round Education DP1 DP2 DP3 DP4 | 4. 実学の重視 Practical Learning DP1 DP2

● DP1 地質、探査、採鉱、選鉱、製錬、環境保全・修復、地熱、石油などの資源工学の全貌を俯瞰できる能力  
A comprehensive grasp of resources engineering (including geology, exploration, mineral extraction, mineral processing, refining, environmental conservation/restoration, geothermal heat and petroleum)

● DP2 経済や政治などの社会的制約条件を考慮して資源工学のプロセスをデザイン・マネージメントできる能力  
The capacity to consider economic, political and other social constraints and design/manage the process of resources engineering

● DP3 国際的な場で活躍するために必要なコミュニケーション能力、積極性や適応力  
The communication skills, positivity and adaptability necessary for active contribution in international settings

● DP4 異文化や社会を鑑別して国際的な視点から資源の問題を捉えることのできる能力  
The ability to understand different cultures and communities and consider resource problems from a global perspective

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