# 応用理工学類　＜学士（工学）＞　コンピテンス一覧
# College of Engineering Sciences　Competence List
# ＜Bachelor of Engineering＞

■汎用コンピテンス（学士課程）　Generic Competences（Bachelor Program）

| | | |
|---|---|---|
| 1 | コミュニケーション能力<br><br>Communication ability | 母語や外国語を適切に用いるとともに、各種メディアを利用したプレゼンテーション等を行うコミュニケーション能力<br><br>Communication ability to use the mother tongue and foreign languages properly and make presentations, etc. using various media |
| 2 | 批判的・創造的思考力<br><br>Ability for critical and creative thinking | 一般的・専門的知識の体系的理解をベースに批判的・創造的に思考する能力<br><br>Ability to think critically and creatively based on systematic understanding of general and specialized knowledge |
| 3 | データ・情報リテラシー<br><br>Data and information literacy | 様々な事象や情報を数量的手法やコンピュータ等を用いて適切に解析・処理する能力<br><br>Ability to properly analyze and process various events and information using quantitative methods, computers, etc. |
| 4 | 広い視野と国際性<br><br>Broad perspective and international character | 自身の専門に留まらず文化・社会と自然・物質に関して幅広く理解し、異文化を理解・尊重する能力<br><br>Ability to broadly understand culture, society, nature, and materials and understand and respect different cultures and be not only involved in one's own expertise |
| 5 | 心身の健康と人間性・倫理性<br><br>Mental and physical health, humanity, and ethics | 芸術やスポーツへの理解と実践等を通して心と身体の健康を保ち、人間性と倫理性を有する市民としての責任を自覚して実践する能力<br><br>Ability to maintain mental and physical health through the understanding, practice, etc. of arts and sports and be conscious of one's responsibility and put it into practice as a citizen with humanity and ethics |
| 6 | 協働性・主体性・自律性<br><br>Cooperative, independent, and autonomous attitudes | チームワークやリーダーシップを通して様々な物事に対処し自己を管理しながら自律的に学び続け行動する能力<br><br>Ability to keep learning and act autonomously while dealing with a situation through team work and leadership and practicing self-management |

■専門コンピテンス　Specific Competences

| | | |
|---|---|---|
| 1 | 物理現象の理解<br><br>Understanding of physical phenomena | 量子力学から電磁気学、熱力学にいたる広範な物理現象の理解<br><br>Understanding of a wide range of physical phenomena from quantum mechanics to electromagnetism and thermodynamics |
| 2 | 化学現象の理解<br><br>Understanding of chemical phenomena | 無機化学や有機化学など現代化学の基盤となる化学の理解<br><br>Understanding of the chemistry that forms the basis of modern chemistry, including inorganic and organic chemistry |
| 3 | 生物現象の理解<br><br>Understanding of biological phenomena | 生物を構成する分子の理解と、分子が生み出す生命の現象の理解<br><br>Understanding of the molecules in living organisms and the phenomena of life produced by those molecules |
| 4 | 数学的な論理力と計算力<br><br>Mathematical logic and calculation skills | 線形代数や解析学を基盤とした数学的な思考と演算の能力<br><br>Ability to think and operate mathematically on the basis of linear algebra and analysis |
| 5 | 応用物理と計測の能力<br><br>Competence in applied physics and measurement | 最先端の計測法の原理と応用の能力<br><br>Competence in the principles and applications of state-of-the-art measurement methods |
| 6 | 電子・量子工学とナノ科学の能力<br><br>Competence in electronics and quantum engineering and nanoscience | 電子や量子のテクノロジーの理解とナノサイエンスへの応用の能力<br><br>Ability to understand electron and quantum technologies and their application to nanoscience |
| 7 | 物性工学と材料工学の能力<br><br>Competence in physical and materials engineering | 有機素材から無機素材まで多様な物質の物性の理解と工学的な応用<br><br>Understanding of physical properties of various materials from organic to inorganic materials and their engineering applications |
| 8 | 物質・分子工学と複合化学の能力<br><br>Competence in materials and molecular engineering and complex chemistry | 有機分子や生体分子を中心とした複合化学と分子工学への応用<br><br>Multidisciplinary chemistry of organic molecules and biomolecules and its application to molecular engineering |

# 応用理工学類　＜学士（工学）＞　カリキュラム・マップ
# College of Engineering Sciences　＜Bachelor of Engineering＞　Curriculum Map

*科目により異なります *Varies by subject.

| 科目区分 Course Category | | 科目番号 Course Number | 授業科目の名称 Course Name | | 単位数 Credits | 標準履修年次 Standard registration year | 汎用コンピテンス Generic Competences | | | | | | 専門コンピテンス Specific Competences | | | | | | | | 必修／選択／自由の別 Required, Elective, or Free | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1 コミュニケーション能力 Communication ability | 2 批判的・創造的思考力 Ability for critical and creative thinking | 3 データ・情報リテラシー Data and information literacy | 4 広い視野と国際性 Broad perspective and international character | 5 心身の健康と人間性・倫理性 Mental and physical health, humanity, and ethics | 6 協働性・主体性・自律性 Cooperative, independent, and autonomous attitudes | 1 物理現象の理解 Understanding of physical phenomena | 2 化学現象の理解 Understanding of chemical phenomena | 3 生物現象の理解 Understanding of biological phenomena | 4 数学的な論理力と計算力 Mathematical logic and calculation skills | 5 応用物理と計測の能力 Competence in applied physics and measurement | 6 電子・量子工学とナノ科学の能力 Competence in electronics and quantum engineering and nanoscience | 7 物性工学と材料工学の能力 Competence in physical and materials engineering | 8 物質・分子工学と複合化学の能力 Competence in materials and molecular engineering and complex chemistry | 必修 Required | 選択 Core Electives | 自由 Free Electives |
| 基礎科目 General Foundation Subjects | 共通科目 Common Foundation Subjects | 11***** | 総合科目（ﾌｧｰｽﾄｲﾔｰｾﾐﾅｰ） | Multidisciplinary Subjects(First Year Seminar) | 共通科目のカリキュラム・マップを参照 Refer to the Curriculum Map of Common Foundation Subjects | | | | | | | | | | | | | | | | ○ | | |
| | | 12***** | 総合科目（学問への誘い） | Multidisciplinary Subjects(Invitation to Arts and Sciences) | | | | | | | | | | | | | | | | | ○ | | |
| | | 2****** | 体育 | Physical Education | | | | | | | | | | | | | | | | | ○ | | |
| | | 3****** | 第1外国語（英語） | 1st Foreign Language(English) | | | | | | | | | | | | | | | | | ○ | | |
| | | 6****** | 情報リテラシー(講義) | Information Literacy(Lectures) | | | | | | | | | | | | | | | | | ○ | | |
| | | 6****** | 情報リテラシー(演習) | Information Literacy (Exercises) | | | | | | | | | | | | | | | | | ○ | | |
| | | 6****** | データサイエンス | Data Science | | | | | | | | | | | | | | | | | ○ | | |
| | | 12***** | 総合科目（学士基盤科目） | Multidisciplinary Subjects(exc. First Year Seminar and Invitation to Arts and Sciences) | | | | | | | | | | | | | | | | | | ○ | |
| | | 3****** | 英語（選択・自由科目） | English | | | | | | | | | | | | | | | | | | ○ | |
| | | 3****** | 第2外国語（初修外国語） | 2nd Foreign Language (Elementary Foreign Language) | | | | | | | | | | | | | | | | | | ○ | |
| | | 5****** | 国語 | Japanese Language | | | | | | | | | | | | | | | | | | ○ | |
| | | 4****** | 芸術 | Art | | | | | | | | | | | | | | | | | | ○ | |
| | | 2****** | 体育 | Physical Education | | | | | | | | | | | | | | | | | | ○ | |
| | 関連科目 Specific Foundation Subjects | | 他学群または他学類が開設している科目（学類長が指定する科目を除く） | Subjects offered by other Schools and Colleges excluding subjects specified by the Dean | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | | ○ | |
| | | | 教職に関する科目及び博物館に関する科目 | Subjects related to the Teaching Profession, the Museum | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | | ○ | |
| | | | 特設自由科目 | Free Electives (Purpose-Built Subjects) | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | | ○ | |
| | | | FF00で始まる授業科目 | Subjects with Course Numbers beginning with FF00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | | ○ | |
| 専門基礎科目 Foundation Subjects for Major | 数学 | FA01311 | 微積分1 | Calculus 1 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FA01321 | 微積分1 | Calculus 1 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FA01411 | 微積分2 | Calculus 2 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FA01421 | 微積分2 | Calculus 2 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FA01511 | 微積分3 | Calculus 3 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FA01521 | 微積分3 | Calculus 3 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FF18664 | 解析学A | Analysis A | 1.0 | 2 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FF18674 | 解析学A | Analysis A | 1.0 | 2 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FF18684 | 解析学B | Analysis B | 1.0 | 2 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FF18694 | 解析学B | Analysis B | 1.0 | 2 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FF18704 | 解析学C | Analysis C | 1.0 | 2 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FF18714 | 解析学C | Analysis C | 1.0 | 2 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FA01111 | 数学リテラシー1 | Mathematics Literacy 1 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FA01121 | 数学リテラシー1 | Mathematics Literacy 1 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FA01211 | 数学リテラシー2 | Mathematics Literacy 2 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FA01221 | 数学リテラシー2 | Mathematics Literacy 2 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FA01611 | 線形代数1 | Linear Algebra 1 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FA01621 | 線形代数1 | Linear Algebra 1 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FA01711 | 線形代数2 | Linear Algebra 2 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FA01721 | 線形代数2 | Linear Algebra 2 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FA01811 | 線形代数3 | Linear Algebra 3 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FA01821 | 線形代数3 | Linear Algebra 3 | 1.0 | 1 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FF18724 | 線形代数A | Linear algebra A | 1.0 | 2 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FF18734 | 線形代数A | Linear algebra A | 1.0 | 2 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FF18744 | 線形代数B | Linear algebra B | 1.0 | 2 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | | FF18754 | 線形代数B | Linear algebra B | 1.0 | 2 | | | ○ | | | | | | | ○ | | | | | ○ | | |
| | 物理学 | FCB1221 | 力学1 | Mechanics 1 | 1.0 | 1 | | ○ | | | | | ○ | | | | | | | | ○ | | |
| | | FCB1241 | 力学2 | Mechanics 2 | 1.0 | 1 | | ○ | | | | | ○ | | | | | | | | ○ | | |
| | | FCB1281 | 力学3 | Mechanics 3 | 1.0 | 1 | | ○ | | | | | ○ | | | | | | | | ○ | | |
| | | FCB1321 | 電磁気学1 | Electromagnetism 1 | 1.0 | 1 | | ○ | | | | | ○ | | | | | | | | ○ | | |
| | | FCB1361 | 電磁気学2 | Electromagnetism 2 | 1.0 | 1 | | ○ | | | | | ○ | | | | | | | | ○ | | |
| | | FCB1381 | 電磁気学3 | Electromagnetism 3 | 1.0 | 1 | | ○ | | | | | ○ | | | | | | | | ○ | | |
| | | FF18604 | 電磁気学A | Electromagnetism A | 1.0 | 2 | | ○ | | | | | ○ | | | | | | | | ○ | | |

# 応用理工学類　＜学士（工学）＞　カリキュラム・マップ
# College of Engineering Sciences　＜Bachelor of Engineering＞　Curriculum Map

*科目により異なります *Varies by subject.

| 科目区分 Course Category | | 科目番号 Course Number | 授業科目の名称 Course Name | | 単位数 Credits | 標準履修年次 Standard registration year | 汎用コンピテンス Generic Competences | | | | | | 専門コンピテンス Specific Competences | | | | | | | | 必修／選択／自由の別 Required, Elective, or Free | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1 コミュニケーション能力 Communication ability | 2 批判的・創造的思考力 Ability for critical and creative thinking | 3 データ・情報リテラシー Data and information literacy | 4 広い視野と国際性 Broad perspective and international character | 5 心身の健康と人間性・倫理性 Mental and physical health, humanity, and ethics | 6 協働性・主体性・自律性 Cooperative, independent, and autonomous attitudes | 1 物理現象の理解 Understanding of physical phenomena | 2 化学現象の理解 Understanding of chemical phenomena | 3 生物現象の理解 Understanding of biological phenomena | 4 数学的な論理力と計算力 Mathematical logic and calculation skills | 5 応用物理と計測の能力 Competence in applied physics and measurement | 6 電子・量子工学とナノ科学の能力 Competence in electronics and quantum engineering and nanoscience | 7 物性工学と材料工学の能力 Competence in physical and materials engineering | 8 物質・分子工学と複合化学の能力 Competence in materials and molecular engineering and complex chemistry | 必修 Required | 選択 Core Electives | 自由 Free Electives |
| 専門基礎科目 Foundation Subjects for Major | | FF18614 | 電磁気学A | Electromagnetism A | 1.0 | 2 | | ○ | | | | | ○ | | | | | | | | ○ | | |
| | | FF18624 | 電磁気学B | Electromagnetism B | 1.0 | 2 | | ○ | | | | | ○ | | | | | | | | ○ | | |
| | | FF18634 | 電磁気学B | Electromagnetism B | 1.0 | 2 | | ○ | | | | | ○ | | | | | | | | ○ | | |
| | | FF18644 | 電磁気学C | Electromagnetism C | 1.0 | 2 | | ○ | | | | | ○ | | | | | | | | ○ | | |
| | | FF18654 | 電磁気学C | Electromagnetism C | 1.0 | 2 | | ○ | | | | | ○ | | | | | | | | ○ | | |
| | | FF18784 | 力学A | Classical Mechanics A | 1.0 | 2 | | ○ | | | | | ○ | | | | | | | | ○ | | |
| | | FF18794 | 力学A | Classical Mechanics A | 1.0 | 2 | | ○ | | | | | ○ | | | | | | | | ○ | | |
| | 化学 | FE11271 | 化学1 | Chemistry 1 | 1.0 | 1 | | ○ | | | | | | ○ | | | | | | | ○ | | |
| | | FCB1381 | 化学2 | Electromagnetism 3 | 1.0 | 1 | | ○ | | | | | | ○ | | | | | | | ○ | | |
| | | FCB1391 | 化学3 | Electromagnetism 3 | 1.0 | 1 | | ○ | | | | | | ○ | | | | | | | ○ | | |
| | | FF18761 | 化学A | Chemistry A | 1.0 | 2 | | ○ | | | | | | ○ | | | | | | | ○ | | |
| | | FF18771 | 化学B | Chemistry B | 1.0 | 2 | | ○ | | | | | | ○ | | | | | | | ○ | | |
| | 学類共通 | FF20051 | 専門英語1 | Technical English 1 | 1.0 | 3 | ○ | | | ○ | | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | |
| | | FF20061 | 専門英語2 | Technical English 2 | 1.0 | 3 | ○ | | | ○ | | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | |
| | | FF20071 | 専門英語3 | Technical English 3 | 1.0 | 3 | ○ | | | ○ | | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | |
| | | FF30051 | 専門英語1 | Technical English 1 | 1.0 | 3 | ○ | | | ○ | | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | |
| | | FF30061 | 専門英語2 | Technical English 2 | 1.0 | 3 | ○ | | | ○ | | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | |
| | | FF30071 | 専門英語3 | Technical English 3 | 1.0 | 3 | ○ | | | ○ | | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | |
| | | FF40051 | 専門英語1 | Technical English 1 | 1.0 | 3 | ○ | | | ○ | | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | |
| | | FF40061 | 専門英語2 | Technical English 2 | 1.0 | 3 | ○ | | | ○ | | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | |
| | | FF40071 | 専門英語3 | Technical English 3 | 1.0 | 3 | ○ | | | ○ | | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | |
| | | FF50051 | 専門英語1 | Technical English 1 | 1.0 | 3 | ○ | | | ○ | | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | |
| | | FF50061 | 専門英語2 | Technical English 2 | 1.0 | 3 | ○ | | | ○ | | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | |
| | | FF50071 | 専門英語3 | Technical English 3 | 1.0 | 3 | ○ | | | ○ | | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | |
| | | FF18804 | 熱力学 | Thermodynamics | 2.0 | 2 | | ○ | | | | | ○ | | | | | | | | ○ | | |
| | | FF18814 | 熱力学 | Thermodynamics | 2.0 | 2 | | ○ | | | | | ○ | | | | | | | | ○ | | |
| | | FF17011 | 応用理工学概論 | Introduction to Engineering Sciences | 1.0 | 1 | | | | ○ | ○ | | | | | | ○ | ○ | ○ | ○ | ○ | | |
| | | FF19303 | 応用理工物理学実験 | Engineering Science Laboratory (Physics) | 3.0 | 2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ | ○ | ○ | | | ○ | | |
| | | FF19313 | 応用理工物理学実験 | Engineering Science Laboratory (Physics) | 3.0 | 2 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | | | ○ | ○ | ○ | | | ○ | | |
| | | FF19203 | 応用理工化学実験 | Engineering Science Laboratory (Chemistry) | 3.0 | 2 | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | | ○ | | | ○ | ○ | ○ | | |
| | | FF19213 | 応用理工化学実験 | Engineering Science Laboratory (Chemistry) | 3.0 | 2 | ○ | ○ | ○ | ○ | ○ | ○ | | ○ | | ○ | | | ○ | ○ | ○ | | |
| | | FF15514 | 解析力学A | Analytical mechanics A | 1.0 | 2 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF15524 | 解析力学A | Analytical mechanics A | 1.0 | 2 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF15534 | 解析力学B | Analytical mechanics B | 1.0 | 2 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF15544 | 解析力学B | Analytical mechanics B | 1.0 | 2 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF15504 | 電気回路 | Electric circuit | 2.0 | 2 | | | ○ | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF15554 | アナログ電子回路 | Analog Circuits | 1.0 | 2 | | | ○ | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF15564 | 確率論 | Proberbility theory | 1.0 | 2 | | ○ | ○ | | | | | | | ○ | | | | | | ○ | |
| | | FF15574 | 統計学 | Statistics | 1.0 | 2 | | ○ | ○ | | | | | | | ○ | | | | | | ○ | |
| | | FF15584 | 応用理工学情報処理 | Introduction to Information Processing | 2.0 | 2 | | | ○ | | | | | | | ○ | | | | | | ○ | |
| | | FF15594 | 応用理工学情報処理 | Introduction to Information Processing | 2.0 | 2 | | | ○ | | | | | | | ○ | | | | | | ○ | |
| | | FF15604 | 応用理工学情報処理 | Introduction to Information Processing | 2.0 | 2 | | | ○ | | | | | | | ○ | | | | | | ○ | |
| 専門科目 Major Subjects | 応用物理 | FF20113 | 応用物理専攻実験A | Applied Physics Laboratory A | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | | | ○ | | |
| | | FF20123 | 応用物理専攻実験A | Applied Physics Laboratory A | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | | | ○ | | |
| | | FF20133 | 応用物理専攻実験B | Applied Physics Laboratory B | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | | | ○ | | |
| | | FF20143 | 応用物理専攻実験B | Applied Physics Laboratory B | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | | | ○ | | |
| | | FF29928 | 卒業研究A | Undergraduate Research A | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | | | ○ | | |
| | | FF29938 | 卒業研究A | Undergraduate Research A | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | | | ○ | | |
| | | FF29948 | 卒業研究B | Undergraduate Research B | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | | | ○ | | |
| | | FF29958 | 卒業研究B | Undergraduate Research B | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | ○ | | | | ○ | | |
| | | FF25001 | 量子力学I | Quantum Mechanics I | 3.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF25011 | 量子力学II | Quantum Mechanics II | 3.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF25021 | 統計力学I | Statistical Mechanics I | 3.0 | 3 | | ○ | | | | | | | | ○ | ○ | | | | | ○ | |
| | | FF25091 | 固体物理学1 | Solid State Physics 1 | 1.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF25101 | 固体物理学2 | Solid State Physics 2 | 2.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF25111 | 化学C | Chemistry C | 1.0 | 3 | | ○ | | | | | | ○ | | | ○ | | | | | ○ | |

# 応用理工学類　＜学士（工学）＞　カリキュラム・マップ
# College of Engineering Sciences　＜Bachelor of Engineering＞　Curriculum Map

*科目により異なります *Varies by subject.

| 科目区分 Course Category | | 科目番号 Course Number | 授業科目の名称 Course Name | | 単位数 Credits | 標準履修年次 Standard registration year | 汎用コンピテンス Generic Competences | | | | | | 専門コンピテンス Specific Competences | | | | | | | | 必修／選択／自由の別 Required, Elective, or Free | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1 コミュニケーション能力 Communication ability | 2 批判的・創造的思考力 Ability for critical and creative thinking | 3 データ・情報リテラシー Data and information literacy | 4 広い視野と国際性 Broad perspective and international character | 5 心身の健康と人間性・倫理性 Mental and physical health, humanity, and ethics | 6 協働性・主体性・自律性 Cooperative, independent, and autonomous attitudes | 1 物理現象の理解 Understanding of physical phenomena | 2 化学現象の理解 Understanding of chemical phenomena | 3 生物現象の理解 Understanding of biological phenomena | 4 数学的な論理力と計算力 Mathematical logic and calculation skills | 5 応用物理と計測の能力 Competence in applied physics and measurement | 6 電子・量子工学とナノ科学の能力 Competence in electronics and quantum engineering and nanoscience | 7 物性工学と材料工学の能力 Competence in physical and materials engineering | 8 物質・分子工学と複合化学の能力 Competence in materials and molecular engineering and complex chemistry | 必修 Required | 選択 Core Electives | 自由 Free Electives |
| 専門科目 Major Subjects | | FF25121 | 化学D | Chemistry D | 1.0 | 3 | | ○ | | | | | | ○ | | | ○ | | | | | ○ | |
| | | FF25131 | 化学E | Chemistry E | 1.0 | 3 | | ○ | | | | | | ○ | | | ○ | | | | | ○ | |
| | | FF25141 | 生命科学1 | Life Science 1 | 1.0 | 3 | | ○ | | | | | | | ○ | | ○ | | | | | ○ | |
| | | FF25151 | 生命科学2 | Life Science 2 | 1.0 | 3 | | ○ | | | | | | | ○ | | ○ | | | | | ○ | |
| | | FF25161 | 生命科学3 | Life Science 3 | 1.0 | 3 | | ○ | | | | | | | ○ | | ○ | | | | | ○ | |
| | | FF26231 | 半導体電子工学1 | Semiconductor Device Physics 1 | 1.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF26241 | 半導体電子工学2 | Semiconductor Device Physics 2 | 1.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF26251 | 光物性工学Ⅰ | Optical Properties of Solids I | 1.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF26261 | 光物性工学Ⅱ | Optical Properties of Solids II | 1.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF26271 | デジタル電子回路 | Digital Electronics | 1.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF26281 | 応用数学Ⅱ | Applied Mathematics II | 2.0 | 3 | | ○ | | | | | | | | ○ | ○ | | | | | ○ | |
| | | FF26291 | 固体物理学特論 | Advanced Solid State Physics | 1.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF26301 | 物理計測 | Physical Measurement | 1.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF26311 | 計算機実習 | Numerical Computation Exercise | 1.0 | 3 | | | ○ | | | | | | | ○ | ○ | | | | | ○ | |
| | | FF26321 | 光学 | Optics | 1.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF26331 | 応用原子物理 | Applied Atomic Physics | 1.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF26341 | 回折結晶学 | Diffraction Crystallography | 1.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF26351 | 統計力学Ⅱ | Statistical Mechanics II | 2.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF26361 | レーザー光学 | Laser Science | 1.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF26371 | プラズマ工学 | Plasma Engineering | 1.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF26381 | 計測工学 | Basics of Measurement | 1.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF26391 | 制御工学 | Control Theory | 1.0 | 3 | | ○ | | | | | ○ | | | | ○ | | | | | ○ | |
| | | FF26401 | 表面・界面工学 | Surfaces and Interfaces Engineering | 1.0 | 4 | | ○ | | | | | | | | | ○ | | | | | ○ | |
| | | FF22001 | 応用物理特論 | Introduction to Applied Physics | 1.0 | 3 | | ○ | | | | | | | | | ○ | | | | | ○ | ○ |
| | 電子・量子工学 | FF30113 | 電子・量子工学専攻実験A | Laboratory Exercise for Electronics and Quantum Effect Engineering A | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | ○ | | | ○ | | |
| | | FF30123 | 電子・量子工学専攻実験A | Laboratory Exercise for Electronics and Quantum Effect Engineering A | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | ○ | | | ○ | | |
| | | FF30133 | 電子・量子工学専攻実験B | Laboratory Exercise for Electronics and Quantum Effect Engineering B | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | ○ | | | ○ | | |
| | | FF30143 | 電子・量子工学専攻実験B | Laboratory Exercise for Electronics and Quantum Effect Engineering B | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | ○ | | | ○ | | |
| | | FF39928 | 卒業研究A | Undergraduate Research A | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | ○ | | | ○ | | |
| | | FF39938 | 卒業研究A | Undergraduate Research A | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | ○ | | | ○ | | |
| | | FF39948 | 卒業研究B | Undergraduate Research B | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | ○ | | | ○ | | |
| | | FF39958 | 卒業研究B | Undergraduate Research B | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | ○ | | | ○ | | |
| | | FF35001 | 量子力学I | Quantum Mechanics I | 3.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF35011 | 量子力学II | Quantum Mechanics II | 3.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF35021 | 統計力学I | Statistical Mechanics I | 3.0 | 3 | | ○ | | | | | | | | ○ | | ○ | | | | ○ | |
| | | FF35091 | 固体物理学1 | Solid State Physics 1 | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF35101 | 固体物理学2 | Solid State Physics 2 | 2.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF35111 | 化学C | Chemistry C | 1.0 | 3 | | ○ | | | | | | ○ | | | | ○ | | | | ○ | |
| | | FF35121 | 化学D | Chemistry D | 1.0 | 3 | | ○ | | | | | | ○ | | | | ○ | | | | ○ | |
| | | FF35131 | 化学E | Chemistry E | 1.0 | 3 | | ○ | | | | | | ○ | | | | ○ | | | | ○ | |
| | | FF35141 | 生命科学1 | Life Science 1 | 1.0 | 3 | | ○ | | | | | | | ○ | | | ○ | | | | ○ | |
| | | FF35151 | 生命科学2 | Life Science 2 | 1.0 | 3 | | ○ | | | | | | | ○ | | | ○ | | | | ○ | |
| | | FF35161 | 生命科学3 | Life Science 3 | 1.0 | 3 | | ○ | | | | | | | ○ | | | ○ | | | | ○ | |
| | | FF36221 | 半導体電子工学1 | Semiconductor Device Physics 1 | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36231 | 半導体電子工学2 | Semiconductor Device Physics 2 | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36241 | 光物性工学Ⅰ | Optical Properties of Solids I | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36251 | 光物性工学Ⅱ | Optical Properties of Solids II | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36261 | デジタル電子回路 | Digital Electronics | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36271 | 応用数学Ⅱ | Applied Mathematics II | 2.0 | 3 | | ○ | | | | | | | | ○ | | ○ | | | | ○ | |

# 応用理工学類　＜学士（工学）＞　カリキュラム・マップ
# College of Engineering Sciences　＜Bachelor of Engineering＞　Curriculum Map

*科目により異なります *Varies by subject.

| 科目区分 Course Category | | 科目番号 Course Number | 授業科目の名称 Course Name | | 単位数 Credits | 標準履修年次 Standard registration year | 汎用コンピテンス Generic Competences | | | | | | 専門コンピテンス Specific Competences | | | | | | | | 必修／選択／自由の別 Required, Elective, or Free | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1 コミュニケーション能力 Communication ability | 2 批判的・創造的思考力 Ability for critical and creative thinking | 3 データ・情報リテラシー Data and information literacy | 4 広い視野と国際性 Broad perspective and international character | 5 心身の健康と人間性・倫理性 Mental and physical health, humanity, and ethics | 6 協働性・主体性・自律性 Cooperative, independent, and autonomous attitudes | 1 物理現象の理解 Understanding of physical phenomena | 2 化学現象の理解 Understanding of chemical phenomena | 3 生物現象の理解 Understanding of biological phenomena | 4 数学的な論理力と計算力 Mathematical logic and calculation skills | 5 応用物理と計測の能力 Competence in applied physics and measurement | 6 電子・量子工学とナノ科学の能力 Competence in electronics and quantum engineering and nanoscience | 7 物性工学と材料工学の能力 Competence in physical and materials engineering | 8 物質・分子工学と複合化学の能力 Competence in materials and molecular engineering and complex chemistry | 必修 Required | 選択 Core Electives | 自由 Free Electives |
| 専門科目 Major Subjects | | FF36281 | 固体物理学特論 | Advanced Solid State Physics | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36291 | 物理計測 | Physical Measurement | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36301 | 計算機実習 | Numerical Computation Exercise | 1.0 | 3 | | | ○ | | | | | | | ○ | | ○ | | | | ○ | |
| | | FF36311 | 光学 | Optics | 1.0 | 3 | | ○ | | | | | | | | | | ○ | | | | ○ | |
| | | FF36321 | 磁性体工学 | Magnetism and magnetic materials | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36331 | 誘電体工学 | Introduction to Dielectrics | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36341 | 回折結晶学 | Diffraction Crystallography | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36351 | 情報通信工学概論 | Communication Network Technology | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36361 | 集積回路工学1 | Integrated Circuit Technology 1 | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36371 | 集積回路工学2 | Integrated Circuit Technology 2 | 1.0 | 4 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36381 | 統計力学Ⅱ | Statistical Mechanics II | 2.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36391 | レーザー光学 | Laser Science | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36401 | パワー半導体デバイス | Power Semiconductor Devices | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36411 | プラズマ工学 | Plasma Engineering | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36421 | 計測工学 | Basics of Measurement | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36431 | 制御工学 | Control Theory | 1.0 | 3 | | ○ | | | | | ○ | | | | | ○ | | | | ○ | |
| | | FF36441 | 表面・界面工学 | Surfaces and Interfaces Engineering | 1.0 | 4 | | ○ | | | | | | | | | | ○ | | | | ○ | |
| | | FF32201 | 電子・量子工学特論 | Introduction to Quantum and Electronic Engineering | 1.0 | 3 | | ○ | | | | | | | | | | ○ | | | | ○ | ○ |
| | 物性工学 | FF40113 | 物性工学専攻実験A | Applied Condensed Matter Physics Laboratory A | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | ○ | | ○ | | |
| | | FF40123 | 物性工学専攻実験A | Applied Condensed Matter Physics Laboratory A | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | ○ | | ○ | | |
| | | FF40133 | 物性工学専攻実験B | Applied Condensed Matter Physics Laboratory B | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | ○ | | ○ | | |
| | | FF40143 | 物性工学専攻実験B | Applied Condensed Matter Physics Laboratory B | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | ○ | | ○ | | |
| | | FF49928 | 卒業研究A | Undergraduate Research A | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | ○ | | ○ | | |
| | | FF49938 | 卒業研究A | Undergraduate Research A | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | ○ | | ○ | | |
| | | FF49948 | 卒業研究B | Undergraduate Research B | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | ○ | | ○ | | |
| | | FF49958 | 卒業研究B | Undergraduate Research B | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | ○ | | ○ | | |
| | | FF45001 | 量子力学Ⅰ | Quantum Mechanics I | 3.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF45011 | 量子力学Ⅱ | Quantum Mechanics II | 3.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF45021 | 統計力学Ⅰ | Statistical Mechanics I | 3.0 | 3 | | ○ | | | | | | | | ○ | | | ○ | | | ○ | |
| | | FF45091 | 固体物理学1 | Solid State Physics 1 | 1.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF45101 | 固体物理学2 | Solid State Physics 2 | 2.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF45111 | 化学C | Chemistry C | 1.0 | 3 | | ○ | | | | | | ○ | | | | | ○ | | | ○ | |
| | | FF45121 | 化学D | Chemistry D | 1.0 | 3 | | ○ | | | | | | ○ | | | | | ○ | | | ○ | |
| | | FF45131 | 化学E | Chemistry E | 1.0 | 3 | | ○ | | | | | | ○ | | | | | ○ | | | ○ | |
| | | FF45141 | 生命科学1 | Life Science 1 | 1.0 | 3 | | ○ | | | | | | | ○ | | | | ○ | | | ○ | |
| | | FF45151 | 生命科学2 | Life Science 2 | 1.0 | 3 | | ○ | | | | | | | ○ | | | | ○ | | | ○ | |
| | | FF45161 | 生命科学3 | Life Science 3 | 1.0 | 3 | | ○ | | | | | | | ○ | | | | ○ | | | ○ | |
| | | FF46181 | 半導体電子工学1 | Semiconductor Device Physics 1 | 1.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF46191 | 半導体電子工学2 | Semiconductor Device Physics 2 | 1.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF46201 | 凝縮系物理 | Condensed Matter Physics | 1.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF46211 | 光物性工学Ⅰ | Optical Properties of Solids I | 1.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF46221 | 光物性工学Ⅱ | Optical Properties of Solids II | 1.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF46231 | デジタル電子回路 | Digital Electronics | 1.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF46241 | 応用数学Ⅱ | Applied Mathematics II | 2.0 | 3 | | ○ | | | | | | | | ○ | | | ○ | | | ○ | |
| | | FF46251 | 磁性体工学 | Magnetism and magnetic materials | 1.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF46261 | 誘電体工学 | Introduction to Dielectrics | 1.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF46271 | 金属材料学Ⅰ | Metallic materials I | 2.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF46281 | 金属材料学Ⅱ | Metallic materials II | 1.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF46291 | 無機材料工学Ⅰ | Inorganic Materials I | 1.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF46301 | 無機材料工学Ⅱ | Inorganic Materials II | 1.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |

# 応用理工学類　＜学士（工学）＞　カリキュラム・マップ
# College of Engineering Sciences　＜Bachelor of Engineering＞　Curriculum Map

*科目により異なります *Varies by subject.

| 科目区分 Course Category | | 科目番号 Course Number | 授業科目の名称 Course Name | | 単位数 Credits | 標準履修年次 Standard registration year | 汎用コンピテンス Generic Competences | | | | | | 専門コンピテンス Specific Competences | | | | | | | | 必修／選択／自由の別 Required, Elective, or Free | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1 コミュニケーション能力 Communication ability | 2 批判的・創造的思考力 Ability for critical and creative thinking | 3 データ・情報リテラシー Data and information literacy | 4 広い視野と国際性 Broad perspective and international character | 5 心身の健康と人間性・倫理性 Mental and physical health, humanity, and ethics | 6 協働性・主体性・自律性 Cooperative, independent, and autonomous attitudes | 1 物理現象の理解 Understanding of physical phenomena | 2 化学現象の理解 Understanding of chemical phenomena | 3 生物現象の理解 Understanding of biological phenomena | 4 数学的な論理力と計算力 Mathematical logic and calculation skills | 5 応用物理と計測の能力 Competence in applied physics and measurement | 6 電子・量子工学とナノ科学の能力 Competence in electronics and quantum engineering and nanoscience | 7 物性工学と材料工学の能力 Competence in physical and materials engineering | 8 物質・分子工学と複合化学の能力 Competence in materials and molecular engineering and complex chemistry | 必修 Required | 選択 Core Electives | 自由 Free Electives |
| 専門科目 Major Subjects | | FF46311 | 回折結晶学 | Diffraction Crystallography | 1.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF46321 | 統計力学Ⅱ | Statistical Mechanics II | 2.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF46331 | レーザー光学 | Laser Science | 1.0 | 3 | | ○ | | | | | ○ | | | | | | ○ | | | ○ | |
| | | FF46341 | 表面・界面工学 | Surfaces and Interfaces Engineering | 1.0 | 4 | | ○ | | | | | | | | | | | ○ | | | ○ | |
| | | FF42001 | 物性工学特論 | Introduction to Applied Condensed Matter Physics | 1.0 | 3 | | ○ | | | | | | | | | | | ○ | | | ○ | ○ |
| | 物質・分子工学 | FF50113 | 物質・分子工学専攻実験A | Materials and Molecular Engineering Laboratory A | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | | ○ | ○ | | |
| | | FF50123 | 物質・分子工学専攻実験A | Materials and Molecular Engineering Laboratory A | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | | ○ | ○ | | |
| | | FF50133 | 物質・分子工学専攻実験B | Materials and Molecular Engineering Laboratory B | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | | ○ | ○ | | |
| | | FF50143 | 物質・分子工学専攻実験B | Materials and Molecular Engineering Laboratory B | 2.0 | 3 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | | ○ | ○ | | |
| | | FF59928 | 卒業研究A | Undergraduate Research A | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | | ○ | ○ | | |
| | | FF59938 | 卒業研究A | Undergraduate Research A | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | | ○ | ○ | | |
| | | FF59948 | 卒業研究B | Undergraduate Research B | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | | ○ | ○ | | |
| | | FF59958 | 卒業研究B | Undergraduate Research B | 4.0 | 4 | ○ | ○ | ○ | ○ | ○ | ○ | | | | | | | | ○ | ○ | | |
| | | FF55001 | 量子力学Ⅰ | Quantum Mechanics I | 3.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF55011 | 量子力学Ⅱ | Quantum Mechanics II | 3.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF55021 | 統計力学Ⅰ | Statistical Mechanics I | 3.0 | 3 | | ○ | | | | | | | | ○ | | | | ○ | | ○ | |
| | | FF55091 | 固体物理学1 | Solid State Physics 1 | 1.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF55101 | 固体物理学2 | Solid State Physics 2 | 2.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF55111 | 化学C | Chemistry C | 1.0 | 3 | | ○ | | | | | | ○ | | | | | | ○ | | ○ | |
| | | FF55121 | 化学D | Chemistry D | 1.0 | 3 | | ○ | | | | | | ○ | | | | | | ○ | | ○ | |
| | | FF55131 | 化学E | Chemistry E | 1.0 | 3 | | ○ | | | | | | ○ | | | | | | ○ | | ○ | |
| | | FF55141 | 生命科学1 | Life Science 1 | 1.0 | 3 | | ○ | | | | | | | ○ | | | | | ○ | | ○ | |
| | | FF55151 | 生命科学2 | Life Science 2 | 1.0 | 3 | | ○ | | | | | | | ○ | | | | | ○ | | ○ | |
| | | FF55161 | 生命科学3 | Life Science 3 | 1.0 | 3 | | ○ | | | | | | | ○ | | | | | ○ | | ○ | |
| | | FF56221 | 半導体電子工学1 | Semiconductor Device Physics 1 | 1.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF56231 | 半導体電子工学2 | Semiconductor Device Physics 2 | 1.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF56241 | 光物性工学Ⅰ | Optical Properties of Solids I | 1.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF56251 | 光物性工学Ⅱ | Optical Properties of Solids II | 1.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF56261 | 応用数学Ⅱ | Applied Mathematics II | 2.0 | 3 | | ○ | | | | | | | | ○ | | | | ○ | | ○ | |
| | | FF56271 | 光学 | Optics | 1.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF56281 | 磁性体工学 | Magnetism and magnetic materials | 1.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF56291 | 誘電体工学 | Introduction to Dielectrics | 1.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF56301 | 金属材料学Ⅰ | Metallic materials I | 2.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF56311 | 無機材料工学Ⅰ | Inorganic Materials I | 1.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF56321 | 無機材料工学Ⅱ | Inorganic Materials II | 1.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF56331 | 高分子科学Ⅰ | Polymer Science I | 1.0 | 3 | | ○ | | | | | | ○ | | | | | | ○ | | ○ | |
| | | FF56341 | 高分子科学Ⅱ | Polymer Science II | 1.0 | 3 | | ○ | | | | | | ○ | | | | | | ○ | | ○ | |
| | | FF56351 | 触媒化学 | Catalytic Chemistry | 1.0 | 3 | | ○ | | | | | | ○ | | | | | | ○ | | ○ | |
| | | FF56361 | 電気化学A | Electrochemistry A | 1.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF56371 | 電気化学B | Electrochemistry B | 1.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF56381 | 有機化学1 | Organic Chemistry 1 | 1.0 | 3 | | ○ | | | | | | ○ | | | | | | ○ | | ○ | |
| | | FF56391 | 有機化学2 | Organic Chemistry 2 | 1.0 | 3 | | ○ | | | | | | ○ | | | | | | ○ | | ○ | |
| | | FF56401 | 有機化学3 | Organic Chemistry 3 | 1.0 | 3 | | ○ | | | | | | ○ | | | | | | ○ | | ○ | |
| | | FF56411 | 有機化学4 | Organic Chemistry 4 | 1.0 | 3 | | ○ | | | | | | ○ | | | | | | ○ | | ○ | |
| | | FF56421 | 生体材料 | Biomaterials | 1.0 | 3 | | ○ | | | | | | | ○ | | | | | ○ | | ○ | |
| | | FF56431 | 回折結晶学 | Diffraction Crystallography | 1.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF56441 | 統計力学Ⅱ | Statistical Mechanics II | 2.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF56451 | レーザー光学 | Laser Science | 1.0 | 3 | | ○ | | | | | ○ | | | | | | | ○ | | ○ | |
| | | FF56461 | 表面・界面工学 | Surfaces and Interfaces Engineering | 1.0 | 4 | | ○ | | | | | | | | | | | | ○ | | ○ | |
| | | FF56211 | 機器分光分析 | Instrumental Analysis Using Spectroscopy | 1.0 | 3 | | ○ | | | | | | | | | | | | ○ | | ○ | |
| | | FF52101 | 物質・分子工学特論 | Introduction to Materials and Molecular Engineering | 1.0 | 3 | | ○ | | | | | | | | | | | | ○ | | ○ | ○ |
| | 学類共通 | FF19401 | 基礎実験学 | Basic Laboratory Practices | 1.0 | 2 | | ○ | | | | | | ○ | | ○ | ○ | ○ | ○ | ○ | ○ | | |
| | | FF13103 | インターンシップⅠ | Internship I | 1.0 | 3・4 | ○ | | | ○ | ○ | ○ | | | | | | | | | | ○ | ○ |

# 応用理工学類　＜学士（工学）＞　カリキュラム・マップ
# College of Engineering Sciences　＜Bachelor of Engineering＞　Curriculum Map

*科目により異なります *Varies by subject.

| 科目区分 Course Category | | 科目番号 Course Number | 授業科目の名称 Course Name | | 単位数 Credits | 標準履修年次 Standard registration year | 汎用コンピテンス Generic Competences | | | | | | 専門コンピテンス Specific Competences | | | | | | | | 必修／選択／自由の別 Required, Elective, or Free | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 1 | 2 | 3 | 4 | 5 | 6 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | |
| | | | | | | | コミュニケーション能力 Communication ability | 批判的・創造的思考力 Ability for critical and creative thinking | データ・情報リテラシー Data and information literacy | 広い視野と国際性 Broad perspective and international character | 心身の健康と人間性・倫理性 Mental and physical health, humanity, and ethics | 協働性・主体性・自律性 Cooperative, independent, and autonomous attitudes | 物理現象の理解 Understanding of physical phenomena | 化学現象の理解 Understanding of chemical phenomena | 生物現象の理解 Understanding of biological phenomena | 数学的な論理力と計算力 Mathematical logic and calculation skills | 応用物理と計測の能力 Competence in applied physics and measurement | 電子・量子工学とナノ科学の能力 Competence in electronics and quantum engineering and nanoscience | 物性工学と材料工学の能力 Competence in physical and materials engineering | 物質・分子工学と複合化学の能力 Competence in materials and molecular engineering and complex chemistry | 必修 Required | 選択 Core Electives | 自由 Free Electives |
| 専門科目 Major Subjects | | FF13203 | インターンシップII | Internship II | 1.0 | 3・4 | ○ | | | ○ | ○ | ○ | | | | | | | | | | ○ | ○ |
| | | FF14003 | 応用理工学特別実習I | Engineering science practical training I | 1.0 | 1～3 | ○ | | | ○ | ○ | ○ | | | | | ○ | ○ | ○ | ○ | | ○ | ○ |
| | | FF14103 | 応用理工学特別実習II | Engineering science practical training II | 1.0 | 3・4 | ○ | | | ○ | ○ | ○ | | | | | ○ | ○ | ○ | ○ | | ○ | ○ |
| | | FF16111 | 応用数学I | Applied Mathematics I | 3.0 | 2 | | ○ | | | | | | | | ○ | | | | | | ○ | |
| | | FF16121 | 応用数学I | Applied Mathematics I | 3.0 | 2 | | ○ | | | | | | | | ○ | | | | | | ○ | |
| | | FF16711 | 計測実験学 | Introductory Sciences in Measurements | 1.0 | 2 | | ○ | ○ | ○ | | | ○ | | | | ○ | | | | | ○ | |
| | | FF16301 | 先端科学・工学概論 | Introduction to Interdisciplinary Program in Advanced Physics and Engineering | 1.0 | 2 | | ○ | ○ | ○ | | | ○ | | | ○ | | ○ | | | | ○ | |
| | | FF16401 | 材料物性工学概論 | Introduction to Material Science and Engineering | 1.0 | 2 | | ○ | ○ | ○ | | | ○ | ○ | | | | | ○ | | | ○ | |
| | | FF16801 | 分子工学概論 | Introduction to Molecular Engineering | 1.0 | 2 | | ○ | ○ | ○ | | | | ○ | ○ | | | | | ○ | | ○ | |
| | | FF16901 | 応用物理工学概論 | Introduction to Applied Physics | 1.0 | 2 | | ○ | ○ | ○ | | | ○ | | ○ | | ○ | | | | | ○ | |
| | | FA00011 | 科学技術倫理 | Science and Engineering Ethics | 1.0 | 2・3 | | ○ | ○ | ○ | ○ | ○ | | | | | ○ | ○ | ○ | ○ | | ○ | ○ |
| | | FA00021 | 知的財産と技術移転 | Intellectual Property and Technology Transfer | 1.0 | 2・3 | | ○ | ○ | ○ | ○ | ○ | | | | | ○ | ○ | ○ | ○ | | ○ | ○ |
| | JTP科目 | FF00208 | 特別研究 | Laboratories Research | 8.0 | 1 | ○ | | | ○ | ○ | ○ | | | | | ○ | ○ | ○ | ○ | | | |
| | | FF00308 | 特別研究I | Laboratories Research | 3.0 | 1 | ○ | | | ○ | ○ | ○ | | | | | ○ | ○ | ○ | ○ | | | |
| | | FF00408 | 特別研究II | Laboratories Research | 3.0 | 1 | ○ | | | ○ | ○ | ○ | | | | | ○ | ○ | ○ | ○ | | | |