

## Major Course Requirements for Dept. of Physics (For undergraduate students admitted in 2015 or before)

- **Credit Requirement for Graduation:** Required to complete a total of more than 130 credits
  
- **Elective Basic Courses :** Required to complete more than 9 credits
  - ※ Students having entered KAIST in 2011 and before : at least 6 credits
  - ※ Students having a double major take at least 3 credits.
    - ① Required: PH152 General Physics Laboratory II (also recommended for double major students)
    - ② Recommended: CH103 General Chemistry II
      - MAS109 Introduction to Linear Algebra
      - MAS201 Differential Equations and Applications
      - MAS202 Applied Mathematical Analysis
  - ※ Applicable to students matriculated in 2005 and onwards.
  
- **Major:** Required to complete more than 40 credits
  - **Mandatory major courses:** 19 credits
  - **Elective major courses:** 21 credits
  
- **Minor:** Required to complete more than 19 credits
  - minimum 19 credits in physics courses including PH301 Quantum Mechanics I, and PH351 Physics Laboratory III
  - ※ A maximum of overlapping 9 credits earned in major courses offered by other academic organizations can be recognized.
  
- **Double major:** Required to complete more than 40 credits
  - Required to complete 40 credits in major courses, including more than 19 credits in a mandatory major area
  - ※ A maximum of overlapping 9 credits earned in major courses offered by other academic organizations can be recognized.
  
- **Research Courses:** Required to complete more than 5 credits
  - Research Course: PH490 B.S. Thesis Research(3), PH496 Seminar(2, maximum 2 credits) in at least 5 credits of study subjects including.
  - ※ Students having a double major are exempt.
    - Required: 5 credits
      - PH490 B.S. Thesis Research: 3 credits

- PH496 Seminar (2, maximum 2 credits)

○ Optional: PH495 Individual Study

- PH495 Individual Study(maximum 4 credits)

- PH495 Individual Study(maximum 2 credits per semester, maximum 4 credits)

※ Applicable to students taking a credit in Fall 2014 and onwards

**Transitional measure**

○ Students admitted in 2015 or before may choose to be governed by the completion requirements applicable to students admitted in 2016 and onward if desired.

## Major Course Completion Requirements of Dept. Physics (For undergraduate students admitted from 2016 to 2019)

- **Credit Requirement for Graduation:** Required to complete a total of more than 136 credits
  - ※ Required to choose and complete one among Advanced Major, Double Major, Minor, and Individually Designed Major.
  
- **Elective Basic Courses :** Required to complete more than 9 credits
  - ① Required: PH152 General Physics Laboratory II (also recommended for double major students)
  - ② Recommended: CH103 General Chemistry II
    - MAS109 Introduction to Linear Algebra
    - MAS201 Differential Equations and Applications
    - MAS202 Applied Mathematical Analysis
  - ※ Students having a double major take at least 3 credits.
  
- **Major:** Required to complete more than 43 credits
  - **Mandatory major courses:** 19 credits
  - **Elective major courses:** 24 credits
  
- **Advanced Major:** Required to complete a total of more than 12 credits
  
- **Individually Designed Major:** Required to complete a total of more than 12 credits
  - Required to more than 12 credits in major courses offered by more than two academic organizations
  
- **Minor:** Required to complete at least 18 credits
  - minimum 18 credits in major courses including PH301 Quantum Mechanics I, and PH351 Physics Laboratory III
  - ※ Recognition of overlapping credits earned in major courses offered by other academic organizations is not allowed.
  
- **Double major :** Required to complete a total of more than 40 credits
  - Required to complete 40 credits in major courses, including more than 19 credits in a mandatory major
  - ※ Recognition of overlapping credits earned in major courses offered by other academic organizations is not allowed.

**Research Courses:** Required to complete more than 5 credits

- Research Course: PH490 B.S. Thesis Research(3),  
PH496 Seminar(2, maximum 2 credits) in at least 5 credits of study subjects including.

※ Students having a double major are exempt.

○ Required: 5 credits

- PH490 B.S. Thesis Research: 3 credits

- PH496 Seminar (2, maximum 2 credits)

○ Optional: PH495 Individual Study(maximum 2 credits per semester,  
maximum 4 credits)

**Transitional measure**

Students admitted in 2015 or before may choose to be governed by the completion requirements listed above if desired.

## **Major Course Completion Requirements of Dept. Physics** **(For undergraduate students admitted in 2020)**

- **Credit Requirement for Graduation:** Required to complete a total of more than 136 credits
  - ※ Required to choose and complete one among Advanced Major, Double Major, Minor, and Individually Designed Major.
  
- **Elective Basic Courses :** Required to complete more than 9 credits
  - Recommended: CH103 General Chemistry II  
MAS109 Introduction to Linear Algebra  
MAS201 Differential Equations and Applications  
MAS202 Applied Mathematical Analysis
  - ※ Students having a double major take at least 3 credits.
  
- **Major:** Required to complete more than 43 credits
  - **Mandatory major courses:** 19 credits
  - **Elective major courses:** 24 credits
  
- **Advanced Major:** Required to complete a total of more than 12 credits
  
- **Individually Designed Major:** Required to complete a total of more than 12 credits
  - Required to more than 12 credits in major courses offered by more than two academic organizations
  
- **Minor:** Required to complete at least 18 credits
  - minimum 18 credits in major courses including PH301 Quantum Mechanics I, and PH351 Physics Laboratory III
  - ※ Recognition of overlapping credits earned in major courses offered by other academic organizations is not allowed.
  
- **Double major :** Required to complete a total of more than 40 credits
  - Required to complete 40 credits in major courses, including more than 19 credits in a mandatory major
  - ※ Recognition of overlapping credits earned in major courses offered by other academic organizations is not allowed.

■ **Research Courses:** Required to complete more than 5 credits

- Research Course: PH490 B.S. Thesis Research(3),  
PH496 Seminar(2, maximum 2 credits) in at least 5 credits of study subjects including.

※ Students having a double major are exempt.

○ Required: 5 credits

- PH490 B.S. Thesis Research: 3 credits

- PH496 Seminar (2, maximum 2 credits)

○ Optional: PH495 Individual Study(maximum 2 credits per semester,  
maximum 4 credits)

□ **Transitional measure**

Applied to students admitted in 2020.

## Major Course Completion Requirements of Dept. Physics (For undergraduate students admitted in 2023 and after)

- **Credit Requirement for Graduation:** Required to complete a total of more than 138 credits
  - ※ Required to choose and complete one among Advanced Major, Double Major, Minor, and Individually Designed Major.
  
- **Elective Basic Courses :** Required to complete more than 9 credits
  - Recommended: CH103 General Chemistry II  
MAS109 Introduction to Linear Algebra  
MAS201 Differential Equations and Applications  
MAS202 Applied Mathematical Analysis
  - ※ Students having a double major take at least 3 credits.
  
- **Major:** Required to complete more than 43 credits
  - **Mandatory major courses:** 19 credits
  - **Elective major courses:** 24 credits
  
- **Advanced Major:** Required to complete a total of more than 12 credits
  
- **Individually Designed Major:** Required to complete a total of more than 12 credits
  - Required to more than 12 credits in major courses offered by more than two academic organizations
  
- **Minor:** Required to complete at least 18 credits
  - minimum 18 credits in major courses including PH301 Quantum Mechanics I, and PH351 Physics Laboratory III
  - ※ Recognition of overlapping credits earned in major courses offered by other academic organizations is not allowed.
  
- **Double major :** Required to complete a total of more than 40 credits
  - Required to complete 40 credits in major courses, including more than 19 credits in a mandatory major
  - ※ Recognition of overlapping credits earned in major courses offered by other academic organizations is not allowed.

**Research Courses:** Required to complete more than 5 credits

- Research Course: PH490 B.S. Thesis Research(3),  
PH496 Seminar(2, maximum 2 credits) in at least 5 credits of study subjects including.

※ Students having a double major are exempt.

○ Required: 5 credits

- PH490 B.S. Thesis Research: 3 credits

- PH496 Seminar (2, maximum 2 credits)

○ Optional: PH495 Individual Study(maximum 2 credits per semester,  
maximum 4 credits)

**Transitional measure**

Applied to students admitted in 2023 and thereafter.



**Major Course Completion Requirements for Dept. of Physics  
(For Master's course students admitted in Spring semester in 2018 or  
before)**

**Thesis Master's Degree Program**

- **Credit Requirement for Graduation:** Required to complete a total of more than 33 credits
- **Mandatory General Courses :** Required to complete more than 3 and 1AU credits
  - Courses designated by the department: CC510 Introduction to Computer Application, CC511 Probability and Statistics, CC512 Introduction to Materials and Engineering, CC522 Introduction to Instruments.
- **Mandatory Major Courses:** Required to complete a total of more than 9 credits
  - Required to complete more than 9 credits in a mandatory major, including courses such as Applied Physics Laboratory I, Quantum Mechanics I, Advanced Electrodynamics I
- **Elective Courses:** Required to complete a total of more than **9** credits
  - minimum 9 credits (minimum 6 credits from physics).
- **Research Courses:** Required to complete at last **12** credits
  - Required to complete more than 2 semesters of PH990 required,  
(Not required for recipients of general scholarship and foreign students)

□ **Other matters**

- Graduate students are strongly recommended to take CC500.
- Applied to students admitted in the fall semester of 2018 and thereafter.
  - Applied Physics Lab. I (Mandatory Major Course)
  - > Applied Physics Lab. I (Elective Course)

**Major Course Completion Requirements for Dept. of Physics  
(For Master's course students admitted in fall semester in 2018 and  
after)**

**Thesis Master's Degree Program**

- **Credit Requirement for Graduation:** Required to complete a total of more than 33 credits
- **Mandatory General Courses :** Required to complete more than 3 and 1AU credits
  - Courses designated by the department: CC510 Introduction to Computer Application, CC511 Probability and Statistics, CC512 Introduction to Materials and Engineering, CC522 Introduction to Instruments.
- **Mandatory Major Courses:** Required to complete a total of more than 6 credits
  - Required to complete more than 6 credits in a mandatory major, including courses such as Quantum Mechanics I, Advanced Electrodynamics I
- **Elective Courses:** Required to complete a total of more than **12** credits
  - minimum 12 credits (minimum 6 credits from physics).
- **Research Courses:** Required to complete at last **12** credits
  - Required to complete more than 2 semesters of PH990 required,  
(Not required for recipients of general scholarship and foreign students)

□ **Other matters**

- Graduate students are strongly recommended to take CC500.
- Applied to students admitted in the fall semester of 2018 and thereafter.
  - Applied Physics Lab. I (Mandatory Major Course)
  - > Applied Physics Lab. I (Elective Course)

**Major Course Completion Requirements for Dept. of Physics  
(For Doctoral course students admitted in Spring semester in 2018 or  
before)**

- **Credit Requirement for Graduation:** Required to complete a total of more than 60 credits
  - **Mandatory General Courses :** Required to complete more than 3 and 1AU credits
    - Courses designated by the department: CC510 Introduction to Computer Application, CC511 Probability and Statistics, CC512 Introduction to Materials and Engineering, CC522 Introduction to Instruments.  
(not required if taken during the Master's degree program)
  - **Mandatory Major Courses:** Required to complete a total of more than **9 credits**
    - Required to complete more than 9 credits in a mandatory major, including courses such as Applied Physics Laboratory I, Quantum Mechanics I, Advanced Electrodynamics I
  - **Elective Courses:** Required to complete a total of more than 18 credits
    - minimum 18 credits (minimum 12 credits from physics).
  - **Research Courses:** Required to complete a total of more than 30 credits
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- **Transitional Measure**
    - The course credits earned in the Master's course work can be used towards the Doctoral degree(except research credits).
    - The Renaissance Program's Department Design Projects 1 and 2 have been replaced by 6 credits in research course(Each 3 credits / semester).
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- **Other matters**
    - Graduate students are strongly recommended to take CC500.
    - Applied to students admitted in the fall semester of 2018 and thereafter.
      - Applied Physics Lab. I (Mandatory Major Course)
      - > Applied Physics Lab. I (Elective Course)

**Major Course Completion Requirements for Dept. of Physics  
(For Doctoral course students admitted in fall semester in 2018 and  
after)**

- **Credit Requirement for Graduation:** Required to complete a total of more than 60 credits
- **Mandatory General Courses :** Required to complete more than 3 and 1AU credits
  - Courses designated by the department: CC510 Introduction to Computer Application, CC511 Probability and Statistics, CC512 Introduction to Materials and Engineering, CC522 Introduction to Instruments.  
(not required if taken during the Master's degree program)
- **Mandatory Major Courses:** Required to complete a total of more than **6 credits**
  - Required to complete more than 6 credits in a mandatory major, including courses such as Quantum Mechanics I, Advanced Electrodynamics I
- **Elective Courses:** Required to complete a total of more than **21** credits
  - minimum 21 credits (minimum 12 credits from physics).
- **Research Courses:** Required to complete a total of more than 30 credits

□ **Transitional Measure**

- The course credits earned in the Master's course work can be used towards the Doctoral degree(except research credits).
- The Renaissance Program's Department Design Projects 1 and 2 have been replaced by 6 credits in research course(Each 3 credits / semester).

□ **Other matters**

- Graduate students are strongly recommended to take CC500.
- Applied to students admitted in the fall semester of 2018 and thereafter.
  - Applied Physics Lab. I (Mandatory Major Course)
  - > Applied Physics Lab. I (Elective Course)

**Major Course Completion Requirements for Dept. of Physics**  
**(For MS-PhD Integrated course students admitted in Spring semester**  
**in 2018 or before)**

■ **Credit Requirement for Graduation:** Required to complete a total of more than 60 credits

■ **Mandatory General Courses:** Required to complete more than 3 and 1AU credits

- Courses designated by the department: CC510 Introduction to Computer Application, CC511 Probability and Statistics, CC512 Introduction to Materials and Engineering, CC522 Introduction to Instruments.  
(not required if taken during the Master's degree program)

■ **Mandatory Major Courses:** Required to complete a total of more than 9 credits

- Required to complete more than 9 credits in a mandatory major, including courses such as Applied Physics Laboratory I, Quantum Mechanics I, Advanced Electrodynamics I

■ **Elective Courses:** Required to complete a total of more than 18 credits

- minimum 18 credits (minimum 12 credits from physics).

■ **Research Courses:** Required to complete a total of more than 30 credits

- Required to complete more than 2 semesters of PH990 required,  
(Not required for recipients of general scholarship and foreign students)

□ **Other matters**

- The curricula of existing master's and PhD programs are followed.
- The curriculum credits and research credits earned from the master's course may be cumulatively counted.
- Applied to students admitted in the fall semester of 2018 and thereafter.
  - Applied Physics Lab. I (Mandatory Major Course)
  - > Applied Physics Lab. I (Elective Course)

**Major Course Completion Requirements for Dept. of Physics**  
**(For MS-PhD Integrated course students admitted in fall semester in**  
**2018 and after)**

■ **Credit Requirement for Graduation:** Required to complete a total of more than 60 credits

■ **Mandatory General Courses:** Required to complete more than 3 and 1AU credits

- Courses designated by the department: CC510 Introduction to Computer Application, CC511 Probability and Statistics, CC512 Introduction to Materials and Engineering, CC522 Introduction to Instruments.  
(not required if taken during the Master's degree program)

■ **Mandatory Major Courses:** Required to complete a total of more than 6 credits

- Required to complete more than 6 credits in a mandatory major, including courses such as Quantum Mechanics I, Advanced Electrodynamics I

■ **Elective Courses:** Required to complete a total of more than **21** credits

- minimum 21 credits (minimum 12 credits from physics).

■ **Research Courses:** Required to complete a total of more than 30 credits

- Required to complete more than 2 semesters of PH990 required,  
(Not required for recipients of general scholarship and foreign students)

□ **Other matters**

- The curricula of existing master's and PhD programs are followed.
- The curriculum credits and research credits earned from the master's course may be cumulatively counted.
- Applied to students admitted in the fall semester of 2018 and thereafter.
  - Applied Physics Lab. I (Mandatory Major Course)
  - > Applied Physics Lab. I (Elective Course)