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 2007 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 in 2016 and after)

▣ **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 for Dept. of Physics

(For Master's course students admitted in Spring semester in 2018 or before)

Thesis Mater'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 Mater'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

☐ **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 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)