

## Major requirements for Industrial & Systems Engineering (For undergraduate students admitted in 2015 or before)

Please check the common graduation requirements.

■ **Credit Requirement for Graduation:** Required to complete a total of more than 130 credits

■ **(Special Note) Other curricular requirements except for major or research course set by Department of Industrial & Systems Engineering**

- Elective Basic Courses: at least 9 credits (The students who entered in or after the 2010 academic year must take the basic course of MAS109).

※ Students having a double major take 6 credits. (applicable to students entering KAIST in 2010 or after)

■ **Major:** at least 51 credits

- **Mandatory Major Courses:** at least 24 credits

- Engineering Statistics I, Manufacturing Process Innovation, Information Technology for Industrial Engineering, Production Management I, Operations Research I, Operations Research II, Engineering Statistics II, Applied Data Structures and Algorithms

- **Elective Major Courses:** at least 27 credits

- IE481: up-to 9 credits in case topics of the subjects taken are different respectively.

- Designated Elective Courses: The selected courses (up-to 9 credits) from other departments are accepted as Elective Course Credit of Industrial & Systems Engineering (applicable to students entering KAIST in Spring 2013 and thereafter; for those who have entered KAIST in 2012 and before, refer to the Course Completion Requirements by Year of Admission).

※ The selected list is available at the department office or the department homepage. It can change each year.

■ **Minor:** at least 18 credits

At least 18 credits in Industrial & Systems Engineering Major courses.

※ A maximum of 9 credits can be recognized from any courses

(Exception: if the student from Department of Industrial & Systems Engineering(ISysE) takes minor in School of Business and Technology Management(BTM) after Spring, 2010 academic year, up-to 6 credits will be double counted for graduation requirements for both ISysE and BTE.

■ **Double Major:** at least 40 credits

at least 40 credits from major courses, including 24 credits in required major courses.

※ A maximum of 9 credits can be recognized from any courses

■ **Research Courses:** up-to 6 credits

- Students must take 3 credits for Research in Industrial & Systems Engineering (IE490)

- IE Seminar : 1 credit (required), A foreign student doesn't need to take the seminar course.

- Individual Study : up-to 2 credits.

※ Students having a double major are exempt.

□ **Transitional Measures**

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

- Students who entered since 2001 should fulfill current degree requirements.

But, Major Elective course will be applicable for all the enrolled students, and the basic course or Humanities and Social Sciences course must be taken according to the curricular requirements set by the year in which the student entered at KAIST.

- If students who entered before 2015 have completed IE362 data structure and algorithm application(3 credits), IE260 data structure and analysis (3 credits) is considered to be completed.

## Major requirements for Industrial & Systems Engineering (For undergraduate students admitted in 2016 and after)

Please check the common graduation requirements.

- **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.
  
- **(Special Note) Other curricular requirements except for major or research course set by Department of Industrial & Systems Engineering**  
Elective Basic Courses: at least 9 credits (The students who entered in or after the 2010 academic year must take the basic course of MAS109).
  
- **Major:** at least 45 credits
  - Mandatory Major Courses: at least 24 credits
  - Elective Major Courses: at least 21 credits
  
- **Advanced Major:** at least 12 credits  
from Elective major course at least 12 credits  
\*Elective major courses with IE code only.
  
- **Individually Designed Major:** at least 12 credits  
Students must take 12 credits or more of major courses from more than two departments other than Industrial & Systems Engineering.
  
- **Minor:** at least 18 credits  
At least 18 credits in Industrial & Systems Engineering Major courses.
  - ※ No credits from the same course will be doubly counted to satisfy major and minor department requirements.
  
- **Double Major:** at least 40 credits  
at least 40 credits from major courses, including 24 credits in required major courses.
  - ※ Up-to 6 credits can be doubly counted to satisfy both major department requirements.
  
- **Research Courses:** at least 6 credits
  - Students must take 3 credits for Research in Industrial & Systems Engineering (IE490).
  - IE Seminar : 1 credit (required), A foreign student doesn't need to take the

seminar course.

- Individual Study : up-to 2 credits.

**Transitional Measures**

- Students admitted in 2015 or before may choose to be governed by the completion requirements listed above if desired.
- If students who entered before 2017 have completed IE362 data structure and algorithm application(3 credits), IE260 data structure and analysis (3 credits) is considered to be completed.

## Major requirements for Industrial & Systems Engineering (For Master's Program)

### Thesis Master's Degree

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**Please check the common graduation requirements.**

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■ **Credit Requirement for Graduation:** Required to complete a total of more than 33 credits

■ **Mandatory General Courses:** 3 credits and 1AU

- The courses will be substitutable as follows.
  - Probability and Statistics → Mathematical Statistics
  - Engineering Economy and Cost Analysis → Advanced Topics in Engineering Economy & Cost Analysis

■ **Elective Courses:** at least 21 credits

- should take more than 15 credits offered by the department of Industrial & Systems Engineering
- Select at least 21 credits including a minimum of 9 credits from IE-coded major courses (whereas in case of students enrolled in an interdisciplinary program, a minimum of 6 credits from IE-coded major courses must be included)
- A maximum of 9 credits can be recognized from major courses with a subject code of 400 level or below. But, among them, any courses which are not mutually recognized for undergraduate and graduate programs must be approved by the academic advisor and department head from Department of Industrial & Systems Engineering.
- IE801: up to 6 credits in case topics of the subjects taken are different respectively.

■ **Research Courses:** at most 9 credits. (including 1 credits in Seminar)

- A foreign student who has taken HS586 course doesn't need to take the seminar course
- Individual Study : up-to 3 credits.

□ **Transitional Measures**

- The requirements will be applicable to all students from Fall, 2012.

## Coursework Master's Degree

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**Please check the common graduation requirements.**

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■ **Credit Requirement for Graduation:** Required to complete a total of more than 36 credits

■ **Mandatory General Courses:** 3 credits and 1AU

- The courses will be substitutable as follows.
- Probability and Statistics → Mathematical Statistics
- Engineering Economy and Cost Analysis → Advanced Topics in Engineering Economy & Cost Analysis

■ **Elective Courses:** at least 27 credits

- should take more than 15 credits offered by the department of Industrial & Systems Engineering
- A maximum of 9 credits can be recognized from major courses with a subject code of 400 level or below. But, among them, any courses which are not mutually recognized for undergraduate and graduate programs must be approved by the academic advisor and department head from Department of Industrial & Systems Engineering.

■ **Research Courses:** at most 6 credits. [among Seminar or Individual study(M.S.)]

- The students who take the internship, project report, or research equivalent to KAIST Individual Study from the counterpart university of double degree program, such accomplishments can be substituted for and transferred for Individual Study at KAIST.

■ **Application :**

The Coursework Master's Degree can be applicable to the right case of double degree program which can grant KAIST degree to students from counterpart of agreed university by the power of agreement stricken.

□ **Transitional Measures**

- The requirements will be applicable to all students from Spring, 2012.

## Major requirements for Industrial & Systems Engineering (For Doctoral Program)

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Please check the common graduation requirements.

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- **Credit Requirement for Graduation:** Required to complete a total of more than 69 credits
  
- **Mandatory General Courses:** 3 credits and 1AU
  - The courses will be substitutable as follows.
    - Probability and Statistics → Mathematical Statistics
    - Engineering Economy and Cost Analysis → Advanced Topics in Engineering Economy & Cost Analysis
  
- **Elective Courses:** at least 36 credits
  - should take more than 24 credits offered by the department of Industrial & Systems Engineering
  - Select at least 36 credits, including a minimum of 24 credits from IE-coded major courses (whereas in case of students enrolled in an interdisciplinary program, a minimum of 9 credits from IE-coded major courses must be included, and whereas in case of students graduated from other universities rather than KAIST or from other departments rather than Industrial & Systems Engineering Department at M.S. program, a minimum of 18 credits from IE-coded major courses must be included)
  - A maximum of 9 credits can be recognized from major courses with a subject code of 400 level or below. But, among them, any courses which are not mutually recognized for undergraduate and graduate programs must be approved by the academic advisor and department head from Department of Industrial & Systems Engineering.
  - IE801: up to 9 credits in case topics of the subjects taken are different respectively.
  
- **Research Courses:** at most 30 credits. (including 1 credits in Seminar)
  - A foreign student who has taken HS586 course doesn't need to take the seminar course
  - Individual Study : up-to 3 credits.
  - ※ The course credits earned in the Master's course work can be used towards the Doctoral degree (except research credits).  
The credits earned from other colleges rather than KAIST may be transferred to credits for KAIST doctoral course with submission of the completed from

of 'Application for Credit Transfer(from other universities)' and appropriate approvals.

**Transitional Measures**

- The requirements of master's and doctoral courses will be applicable to all students from Spring, 2015.



## **Major requirements for Industrial & Systems Engineering (For MS-PhD Integrated Program)**

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**Please check the common graduation requirements.**

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■ **Credit Requirement for Graduation:** Required to complete a total of more than 69 credits

■ **Mandatory General Courses:** 3 credits and 1AU

- The courses will be substitutable as follows.
  - Probability and Statistics → Mathematical Statistics
  - Engineering Economy and Cost Analysis → Advanced Topics in Engineering Economy & Cost Analysis

■ **Elective Courses:** at least 36 credits

- should take more than 24 credits offered by the department of Industrial & Systems Engineering
- A maximum of 9 credits can be recognized from major courses with a subject code of 400 level or below. But, among them, any courses which are not mutually recognized for undergraduate and graduate programs must be approved by the academic advisor and department head from Department of Industrial & Systems Engineering.
- IE801: up to 9 credits in case topics of the subjects taken are different respectively.

■ **Research Courses:** at most 30 credits. (including 1 credits in Seminar)

- A foreign student who has taken HS586 course doesn't need to take the seminar course
- Individual Study : up-to 3 credits.

※ The course credits earned in the Master's course work can be used towards the Doctoral degree (except research credits).

The credits earned from other colleges rather than KAIST may be transferred to credits for KAIST doctoral course with submission of the completed form of 'Application for Credit Transfer(from other universities)' and appropriate approvals.

□ **Transitional Measures**

- The requirements of master's and doctoral courses will be applicable to all students from Spring, 2015.