

# Coursework requirements (Curriculum 2020 - 2024)

These are the coursework requirements for the Doctoral Programme in Information Technology, according to the curriculum 2020-2024.

Structure for the coursework is quite flexible. The studies are individually planned with supervisor, taking into account the coursework requirements of the specialization option. Any exceptions to the coursework requirements need to be decided by the head of the doctoral school; in such cases, please contact the doctoral school coordinator ([doctoral-studies-it\[at\]jyu.fi](mailto:doctoral-studies-it[at]jyu.fi)). Substitution of individual courses is decided by the responsible teacher of the course in question.

Doctoral degree in the Faculty of Information Technology includes doctoral dissertation and 40 credits (ECTS) of coursework. If a doctoral student has two previous master's degrees or a previous doctoral degree, the requirement may be decreased to 30 credits (in such case, please contact the doctoral school coordinator). However, the compulsory studies must always be completed.

Compulsory for all doctoral students are: communication and language studies (min. 2 cr), studies in open science (min. 1 cr), and studies in research ethics (min. 1 cr).

The general principle is that the studies in the research field (discipline specific skills) must be postgraduate (level J) or advanced (level S) studies, and other studies must be at least intermediate (level A) studies.

Below are the coursework requirements listed for each of the five specialization options.

# **1. Information Systems (PhD or D.Sc. (Econ. & Bus. Adm.))**

## **1. Discipline specific skills (min. 24 cr)**

### **Obligatory studies**

TJTJ7700 Postgraduate Seminar, 4 cr

TJTJ7720 Theory in Information Systems, 3 cr \*

TJTJ7701 Qualitative Research Methods in Information Systems, 3 cr \*

TJTJ7702 Quantitative Research Methods in Information Systems, 3-6 cr \*

TJTJ7703 Design Science Research in Information Systems, 3 cr \*

*\* Can be substituted with other similar courses (e.g. INFORTE, IHME, or international courses).*

### **Optional studies**

TJTJ7704 Information Systems Research, 3 cr

TJTJ7705 How to publish in Top Information Systems Journals, 2-5 cr

ITKJ2001 Book exams, 0-6 cr

ITKJ2002 Scientific reports not included in the dissertation, 0-6 cr

ITKJ2003 Scientific conference presentation (one presentation = 2 cr), 0-6 cr

ITKJ3001 Research visit or scientific work abroad (1 month = 2 cr), 0-6 cr

ITKJ3002 Program responsibilities in international conferences (e.g. review of the proposed articles, one conference = 1-2 cr), 0-6 cr

Other master's or doctoral level courses in the discipline (e.g. INFORTE, summer schools)

## **2. Transferable skills (min. 7 cr)**

### **Obligatory studies**

ITKJ1000 Philosophy of Science, 3 cr \*

Communication and language studies (e.g. Movi courses for doctoral researchers), min. 2 cr

Open Science (e.g. LIBJ1001 or IHMJ1106), min. 1 cr

Research Ethics (e.g. IHMJ1102), min. 1 cr

*\* Can be substituted with other similar courses (e.g. INFORTE, IHME, or international courses).*

### **Optional studies**

ITKJ4001 Relevant teaching work in the discipline, 0-6 cr

Pedagogical studies, 0-10 cr

Relevant studies from other scientific fields, 0-10 cr

Optional research methods (e.g. INFORTE, IHME)

Other studies supporting general skills in research and working life

## **3. Doctoral thesis (0 cr)**

TJTTJ902 Doctoral thesis (for the degree of D.Sc. (Econ. & Bus. Adm.))

TKT0J04 Doctoral thesis (for the degree of Doctor of Philosophy)

## **2. Software and Communications Engineering (Ph.D. or D.Sc. (Tech.))**

### **1. Discipline specific skills (min. 24 cr)**

#### **Obligatory studies**

TIEJ601 Postgraduate Seminar, 4 cr

ITKJ8000 Research Methods in Engineering, 3 cr \*

*\* Obligatory for those students who are studying towards the degree of D.Sc. (Tech.), and do not have similar studies in their previous education. Other students can also participate.*

#### **Optional studies**

ITKJ2001 Book exams, 0-6 cr

ITKJ2002 Scientific reports not included in the dissertation, 0-6 cr

ITKJ2003 Scientific conference presentation (one presentation = 2 cr), 0-6 cr

ITKJ3001 Research visit or scientific work abroad (1 month = 2 cr), 0-6 cr

ITKJ3002 Program responsibilities in international conferences (e.g. review of the proposed articles, one conference = 1-2 cr), 0-6 cr

Other advanced master's level courses, postgraduate courses, and seminars in the discipline (e.g. IHME, INFORTE, summer schools etc.)

## **2. Transferable skills (min. 7 cr)**

### **Obligatory studies**

ITKJ1000 Philosophy of Science, 3 cr \*

Communication and language studies (e.g. Movi courses for doctoral researchers), min. 2 cr

Open Science (e.g. LIBJ1001 or IHMJ1106), min. 1 cr

Research Ethics (e.g. IHMJ1102), min. 1 cr

*\*Can be substituted with other similar courses (e.g. INFORTE, IHME, or international courses).*

### **Optional studies**

ITKJ4001 Relevant teaching work in the discipline, 0-6 cr

Pedagogical studies, 0-10 cr

Relevant studies from other scientific fields, 0-10 cr

Optional research methods (e.g. INFORTE, IHME)

Other studies supporting general skills in research and working life

## **3. Doctoral thesis (0 op)**

TIEJ802 Doctoral thesis (for the degree of Doctor of Philosophy)

TIEJ8003 Doctoral thesis (for the degree of D.Sc. (Tech.))

### 3. Computational Science (Ph.D. or D.Sc. (Tech.))

#### 1. Discipline specific skills (min. 24 cr)

##### Obligatory studies

TIEJ601 Postgraduate Seminar, 4 cr

ITKJ8000 Research Methods in Engineering, 3 cr \*

*\* Obligatory for those students who are studying towards the degree of D.Sc. (Tech.), and do not have similar studies in their previous education. Other students can also participate.*

##### Optional studies

ITKJ2001 Book exams, 0-6 cr

ITKJ2002 Scientific reports not included in the dissertation, 0-6 cr

ITKJ2003 Scientific conference presentation (one presentation = 2 cr), 0-6 cr

ITKJ3001 Research visit or scientific work abroad (1 month = 2 cr), 0-6 cr

ITKJ3002 Program responsibilities in international conferences (e.g. review of the proposed articles, one conference = 1-2 cr), 0-6 cr

Other advanced master's level courses, postgraduate courses, and seminars in the discipline (e.g. IHME, INFORTE, summer schools etc.)

## **2. Transferable skills (min. 7 cr)**

### **Obligatory studies**

ITKJ1000 Philosophy of Science, 3 cr \*

Communication and language studies (e.g. Movi courses for doctoral researchers), min. 2 cr

Open Science (e.g. LIBJ1001 or IHMJ1106), min. 1 cr

Research Ethics (e.g. IHMJ1102), min. 1 cr

*\*Can be substituted with other similar courses (e.g. INFORTE, IHME, or international courses).*

### **Optional studies**

ITKJ4001 Relevant teaching work in the discipline, 0-6 cr

Pedagogical studies, 0-10 cr

Relevant studies from other scientific fields, 0-10 cr

Optional research methods (e.g. INFORTE, IHME)

Other studies supporting general skills in research and working life

## **3. Doctoral thesis (0 cr)**

TIEJ802 Doctoral thesis (for the degree of Doctor of Philosophy)

TIEJ8003 Doctoral thesis (for the degree of D.Sc. (Tech.))

## **4. Educational Technology (Ph.D. or D.Sc. (Tech.))**

### **1. Discipline specific skills (min. 24 cr)**

#### **Obligatory studies**

KOTEJ601 Postgraduate Seminar in Educational Technology, 4 cr

KOTEJ901 Theories in Educational Technology, 5 cr

ITKJ8000 Research Methods in Engineering, 3 cr \*

Methodological studies in the discipline, 5 cr

*\* Obligatory for those students who are studying towards the degree of D.Sc. (Tech.), and do not have similar studies in their previous education. Other students can also participate.*

#### **Optional studies**

ITKJ2001 Book exams, 0-6 cr

ITKJ2002 Scientific reports not included in the dissertation, 0-6 cr

ITKJ2003 Scientific conference presentation (one presentation = 2 cr), 0-6 cr

ITKJ3001 Research visit or scientific work abroad (1 month = 2 cr), 0-6 cr

ITKJ3002 Program responsibilities in international conferences (e.g. review of the proposed articles, one conference = 1-2 cr), 0-6 cr

Other advanced master's level courses, postgraduate courses, and seminars in the discipline (e.g. IHME, INFORTE, summer schools etc.)



## **2. Transferable skills (min. 7 cr)**

### **Obligatory studies**

ITKJ1000 Philosophy of Science, 3 cr \*

Communication and language studies (e.g. Movi courses for doctoral researchers), min. 2 cr

Open Science (e.g. LIBJ1001 or IHMJ1106), min. 1 cr

Research Ethics (e.g. IHMJ1102), min. 1 cr

*\*Can be substituted with other similar courses (e.g. INFORTE, IHME, or international courses).*

### **Optional studies**

ITKJ4001 Relevant teaching work in the discipline, 0-6 cr

Pedagogical studies, 0-10 cr

Relevant studies from other scientific fields, 0-10 cr

Optional research methods (e.g. INFORTE, IHME)

Other studies supporting general skills in research and working life

## **3. Doctoral thesis (0 cr)**

KOTEJ902 Doctoral thesis (for the degree of Doctor of Philosophy)

KOTEJ903 Doctoral thesis (for the degree of D.Sc. (Tech.))

## 5. Cognitive Science (PhD)

### 1. Discipline specific skills (min. 24 cr)

#### Obligatory studies

KOGJ2000 Postgraduate Seminar, 4 cr

KOGS5305 Classic Discourses in Cognitive Science, 5 cr \*

Methodological studies in the discipline (e.g. KOGS403 Empirical Research Methods), 5 cr

*\* If not included in previous studies.*

#### Optional studies

ITKJ2001 Book exams, 0-6 cr

ITKJ2002 Scientific reports not included in the dissertation, 0-6 cr

ITKJ2003 Scientific conference presentation (one presentation = 2 cr), 0-6 cr

ITKJ3001 Research visit or scientific work abroad (1 month = 2 cr), 0-6 cr

ITKJ3002 Program responsibilities in international conferences (e.g. review of the proposed articles, one conference = 1-2 cr), 0-6 cr

Other advanced master's level courses, postgraduate courses, and seminars in the discipline (e.g. IHME, INFORTE, summer schools etc.)

## **2. Transferable skills (min. 7 cr)**

### **Obligatory studies**

ITKJ1000 Philosophy of Science, 3 cr \*

Communication and language studies (e.g. Movi courses for doctoral researchers), min. 2 cr

Open Science (e.g. LIBJ1001 or IHMJ1106), min. 1 cr

Research Ethics (e.g. IHMJ1102), min. 1 cr

*\*Can be substituted with other similar courses (e.g. INFORTE, IHME, or international courses).*

### **Optional studies**

ITKJ4001 Relevant teaching work in the discipline, 0-6 cr

Pedagogical studies, 0-10 cr

Relevant studies from other scientific fields, 0-10 cr

Optional research methods (e.g. INFORTE, IHME)

Other studies supporting general skills in research and working life

## **3. Doctoral thesis (0 cr)**

KOGJ902 Doctoral thesis (for the degree of Doctor of Philosophy)