

Dean's Directive No. 26/2017 for the Administration of Final Theses and State Final Examinations at the Faculty of Information Technology of the Czech Technical University in Prague

Article 1

Introductory Provisions

1. Preparation, presentation and defense of final theses (hereafter **FT**), i.e., Bachelor and Master theses, and the implementation of State final examinations (hereafter **SFE**) at the Faculty of Information Technology (hereafter **FIT**), Czech Technical University in Prague are governed by:
 - a. *Act No. 111/1998 Sb.*¹, *regulating higher education*, as amended (**Higher Education Act**),
 - b. *Art. 16 to 18 of the Study and Examination Code for students of CTU* (hereafter **SEC CTU**),
 - c. *Rector's order No 6/2006 On the Publication of Final Theses at CTU* in accordance with Act No. 111/1998 Sb. Sec. 47(b),
 - d. *Guideline No. 1/2009 Pertaining to Ethical Principles in Preparing Final Theses in Higher Education*,
 - e. *Dean's Directive No. 25/2017 for the Administration of the Bachelor and Master Study Programme in Informatics at the Faculty of Information Technology of the Czech Technical University in Prague*.
2. This directive elaborates on the above stated rules and specifies in detail the preparation of FTs and relevant formal rules of the FT and the SFE procedures.
3. Individual provisions of this Directive shall apply jointly for **Bachelor SFEs** (hereafter **BSFE**) and **Master SFEs (MSFE)**, unless explicitly stated otherwise.

Article 2

Publishing, reserving, and approving of thesis topics and FT assignment

1. A final thesis is a demonstration of the student's ability to carry out independent creative engineering work in a given branch of study.
2. The process of assignment and approval of a final thesis topic (**FTT**) is supported by a software application accessible via the FIT portal (<https://is.fit.cvut.cz>), link 'Final theses' (hereafter **Application**). All FTTs must be published and approved using the Application.

¹ Sb. stands for 'Sbírka': the name of the Czech Code Collection.

3. FTT at FIT are published in Czech, Slovak, or English language. If FTT is published and approved (see below) in Czech or Slovak, it is the student's choice whether he/she shall write the FT in Czech or Slovak. If FTT is published and approved in English, the student must write the FT in English.
4. FTTs can be published by members of the academic staff and by doctoral students of FIT (hereafter **internal proponents**). There can also be **external proponents**, i.e., members of the academic staff and doctoral students of other CTU faculties, and by FIT external collaborators.
5. A student has the right to suggest his/her own thesis topic. In that case, however, he/she must find a proponent.
6. An external collaborator who is not a member of FIT academic community and wants to become an external proponent of a FT can apply for this role using FIT portal accessible at <http://externiste.fit.cvut.cz>. While his/her application is being processed, the person can be asked to provide more information. External proponent (future FT supervisor or reviewer) must have at least a Master degree.
7. After being approved, the external collaborator gets access to the Application and he/she becomes an external proponent. Further procedures are the same both for internal and external proponents; therefore, hereafter they are both included in the term **proponent**.
8. Creating a FTT in the Application is a two-stage process. The proponent first creates a generally outlined thesis topic (hereafter **GOTT**), from which (after the GOTT has been linked to a particular student and fitted thus to his/her study branch/specialization²) a FTT is created; this FTT, then, is a subject to the approval process. GOTT has usually a wider scope than FTT. One GOTT can become a basis for creating several FTTs for different students. The proponent may offer a particular GOTT to more than one branch of study. GOTTs are visible to more students; all of them can reserve it. By doing so, they express their interest in the given GOTT.
9. For each GOTT, the proponent shall specify the number of reservations available (i.e., the maximal number of FTTs that could be created from the given GOTT).
10. A student can show interest in more than one GOTT, in other words, he/she can reserve more than one GOTT.
11. A request for a GOTT reservation is conditional on the fact that the student's branch of study matches the GOTT's branch of study. In case a student has not gotten a branch of study assigned, he/she must apply for a study branch assignment at the Office of the Study FIT (hereafter **OoS**).
12. A proponent can confirm or reject student's request for a GOTT reservation. When a reservation capacity is reached (see Para 9), students still can see the GOTT, but now it is marked as 'taken' (students cannot apply for a reservation).
13. If a student chooses the reserved GOTT as binding, the proponent is assigned (in his Application) a **task 'Create Final Thesis Assignment'**. FTT is offered as a copy of the original GOTT; the proponent adjusts the FTT so that it matches the student's branch of study and the language of the future FT is determined (see Para 3). At this stage, it is possible to change the name of the topic. While creating FTT, the proponent may suggest a reviewer of the FT, or leave this step for a later stage of approving of the FTT. The reviewer can be selected and approved also after the FTT has been approved.
14. While formulating FTT, a special attention must be paid to the **name** of the FTT (it is provided in Czech/Slovak and English, or only in English (see Para 3)) and **guidelines**. Guide-

2 If a branch of study contains specializations, the term 'branch of study' means 'specialization' in this Directive.

- lines describe the starting point of the FT, they define checkable outputs and desired outcomes of the FT. Hence, they should be formulated in such a way that it enables one to check the compliance with the guidelines at the presentation and defense of the FT. They thus should be written using imperative mode (such as: survey, design, implement, simulate, etc.). The KOS database – into which the Application must write the approved FTTs – limits the guideline text for FTT to a maximum of 1000 bytes encoded in UTF-8.
15. After the student chooses one of his/her reserved thesis topics as binding, all the other GOTT reservations in his/her name are automatically cancelled in the Application.
 16. A student acknowledges thus created FTT and the FTT then automatically enters an approval process. The head of the guaranteeing department (or a person authorized by the head of the department: departmental approver, **DA**) approves the FTT. The study branch of the FTT is decisive for assigning the given FTT to a department.
 17. When the FTT is being approved, the following aspects of the FTT are important: relevance to the student's branch of study, the extent and professional level of the subtasks, clarity of the assignment, the extent to which the completion of the assignment can be checked. FTT should thus be formulated in a structured way.
 18. Specifications related to the expected workload the Bachelor's study programme Informatics (BSP): The student of the BSP registers for the course 'BI-BAP Bachelor Thesis' (recommended in the 6th semester, 14 credits, about $14 \times 26 = 364$ hours of expected average study workload) in the semester in which he/she expects to graduate.
 19. For the students of the BSP Informatics accredited in 2009, the FT preparation (fine-tuning of the FTT, test of the ability to collaborate with the proponent, preparation of the FTA, a survey of the literature on the topic, or other preparatory work) is a part of the course 'BI(K,E)-PPR Project, presentation, rhetoric' that a student as a rule takes a semester before the BI(E)-BAP course. The assessment for the BI(K,E)-PPR course is awarded by the instructor of this course, however, the FT supervisor contributes to the final assessment by awarding the student 0-20 points out of 100. An internal FTT proponent awards the (partial) assessment directly into an e-form in the system EDUX (<https://edux.fit.cvut.cz/courses/BI-PPR/classification/student>). An external proponent of FT fills his/her assessment into a form available in Appendix 2. A student then gives a completed and signed form to the instructor in the course BI(K,E)-PPR.
 20. For the students of the BSP Informatics accredited in 2014, the FT preparation is a topic of the course 'BI(K,E)-BPR Bachelor Project', 2 credits course, taken – as a rule – a semester preceding the BI(E)-BAP course and, furthermore, in the course BI(K,E)-DPR (Documentation, presentation, rhetoric; both in the full and part-time forms of study). A student is awarded assessment for the BI(K,E)-BPR if he/she meets the requirements set by the FT supervisor. An internal FT supervisor awards the assessment to the student directly to the KOS information system. An external FT supervisor fills his/her assessment into a form, available in Appendix 1. The student then gives the filled form to the head of the Department of Software Engineering who then awards the assessment to the student. The assessment for the course BI(K,E)-DPR is awarded by the instructor of the course, the FT supervisor contributes to the final assessment by awarding the student 0-20 points out of 100. An internal FT supervisor awards the (partial) assessment directly into an e-form in the system EDUX (<https://edux.fit.cvut.cz/courses/BI-PPR/classification/student>). An external FT supervisor fills his/her assessment into a form available in Appendix 2. A student then gives a completed and signed form to the instructor in the course BI(K,E)-DPR.

21. Specifications related to the expected workload for the Master's programme (MSP), required sequence of courses and award of assessments: The student of the MSP should dedicate 30 credits to the FT (about $30 \times 26 = 780$ hours of expected average workload). Formally, the expected work is divided into two courses: 'MI(E)-MPR Master's Project' (3rd semester, 7 credits, i.e., 180 hours of expected average workload) and 'MI(E)-DIP Master's Thesis' (4th semester, 23 credits, i.e., 600 hours of expected average workload). The project-based course MI(E)-MPR is intended as a preparatory course for the MT (fine-tuning of the MT topic, test the ability to collaborate with the proponent, preparation of the FTA, a survey of the literature on the topic, or other preparatory work). The assessment for the MI(E)-MPR course is awarded if the student meets the requirements set by the MT supervisor. An internal supervisor awards the assessment to the student directly to the KOS information system. An external supervisor fills his/her assessment into a form, available in Appendix 1. The student then gives the filled form to the head of the Department of Software Engineering who then awards the assessment to the student into the KOS information system.
22. An assessment for the BI(E)-BAP or MI(E)-DIP course is awarded in the KOS information system automatically once the electronic version of the FT (see Art 4) is accepted and the OoS officer responsible for SFE checks the printed version.
23. DA can – later in the approval process – either accept FTT without comments, or he/she can provide it with comments, or edit it directly and return FTT for revision/completion. Both the proponent and the student must approve any such change in the Application before the FTT can be passed over to the next stage of approval. Before the FTT is finalized, however, both the proponent and the student must approve the current version of FTT. Para 26 to 28 describe further options of changes in an already-approved FTT.
24. A FTT that passes through the approval of the DA – and both the student and the proponent agree with the FTT – becomes an **approved FTT**. A FTT proponent becomes a **FT supervisor**. A student can register to the BI(E)-BAP or MI(E)-DIP course only after the FTT has been approved, no later than the second week of the semester.
25. An approved FTT is an official document **Final Thesis Assignment** (hereafter **FTA**). The student picks up the signed and stamped FTA from the **OoS officer responsible for SFE**. At the same time, this document serves as a letter of appointment for the thesis supervisor and it is an obligatory part of both the printed and the electronic version of the FT.
26. A student can apply to have the FTA cancelled in the Application (DA is responsible for the approval or disapproval of the application). To cancel FTA is not a reason for cancelling the already-registered course BI(E)-BAP or MI(E)-DIP.
27. An FT supervisor can apply for a change in FTA in the Application. Such a request is a subject to the same approval process as any FTT.
28. A request to change a FT supervisor can be initiated by the student, the FT supervisor himself/herself, or the DA. The student, the new FT supervisor, and the DA must approve the request. A request to change the FT reviewer can be initiated by the FT supervisor, current FT reviewer, or DA. Both the new FT reviewer and the DA must approve the request.
29. The approved FTA is valid for three consecutive semesters. In justified (and well-founded) cases, a student can apply to have the validity of the FTA prolonged via OoS.
30. DA approves the FT reviewer. A FT supervisor can suggest a FT reviewer. The suggested reviewer agrees (disagrees) with the nomination in the Application. If the proposed reviewer does not accept the nomination, the reviewer's position is offered to other proponents in the Application. If the reviewer's position is not filled, DA suggests a reviewer.

31. A FT reviewer is a member of the academic staff, FIT doctoral student, or a FIT's external collaborator. If a FT supervisor is an external collaborator, then the reviewer must be a member of the academic staff at FIT or a FIT doctoral student. DA can grant an exception to the rule.
32. A request to change a reviewer can be initiated by the FT supervisor, or DA. DA must approve the request.
33. By assigning a reviewer, the FTA changes its status from **approved** to **assigned**. This status is a necessary condition for a student to be allowed to take his/her SFE.
34. If a student fails to present and defend his/her FT successfully, the dean – based on the decision of the SFE committee – decides whether the student must prepare a new FT:
 - a. with the same FTA and the same FT supervisor,
 - b. with the same FTA and a different FT supervisor,
 - c. with a different FTA and the same FT supervisor,
 - d. with a different FTA and a different FT supervisor.

Article 3

Content and Formal Requirements for the Thesis

1. A final thesis (both the electronic and printed version) must contain the following parts:
 - a. the FTA Form,
 - b. an abstract and a list of keywords in Czech (Slovak) and in English,
 - c. a statement declaring that the FT is based upon the student's independent work and that the sources and references are properly cited and listed,
 - d. a solution to the given problem including a survey of the given topic,
 - e. a conclusion discussing the reached results,
 - f. a list of references,
 - g. a table of contents including a list of Appendices.

For a BT, between 30 – 100 pages of text is recommended (leaving aside automatically generated Indices and Appendices).
 For a MT, between 50 – 150 pages of text is recommended (leaving aside automatically generated Indices and Appendices).
2. For a FT, the usual compliance with the formalities for a technical text is required: use of symbols, definitions prior to their use, inclusion of a table of contents, a list of figures, a list of tables, and a list of used symbols, and – if relevant – an index, properly used references to printed or other sources, standard bibliographic list of references, etc.
3. The LaTeX and TeX templates are available (and recommended) to support the typesetting process. See Appendix 3.
4. A FT must be bound in a hard cover. Templates for the front and back covers of FTs are exemplified in Appendix 4.
5. A student submits his/her FT to an OoS officer in two paper copies; a one has to include the original FTA, the second includes a copy of FTA, in both cases placed as a first sheet in the FTs.
6. A mandatory appendix to both the original and the copy of the submitted FT is an electronic version of the FT on an electronic medium (CD, DVD, USB, SD card, etc.). The electronic medium must be inserted (glued) within the FT, for instance, it can be inserted into a sleeve on the inner side of the back cover. The electronic medium shall contain the text in a source format and the resulting PDF file, including FTA. Furthermore, if the su-

- supervisor suggests it, the attached medium may contain source or compiled programs, user documentation, installation instructions or packages, etc.
7. After the presentation and defense of FT, the secretary of the committee returns a copy of his/her FT to the student. The original remains at FIT for at least 10 years (according to Art. 4 of Rector's Order 6/2006).

Article 4

Thesis submission, registration for SFE, and SFE administration

1. Dates for SFEs are set in accordance with the schedule for the FIT academic year. OoS informs the students and the members of SFE committees on the time schedule, the scheduled rooms, and the list of students assigned to individual SFE committees at least 3 days before the actual date of the SFE. OoS publishes the dates and places of SFEs on the official notice board.
2. A student is obliged to submit his/her electronic version of the FT in the Application. The FT supervisor, then, sees a task 'Accept FT' in his/her Application. If the FT supervisor accepts the FT, the FT is finalized and it cannot be further changed. In case the FT supervisor does not accept the FT, the student can either insist on submitting the FT in the current state, or withdraw the current version of the FT and submit a new version afterwards. In this case, the process starts anew, as described at the beginning of this Para. The process of submissions of the electronic versions of the FT has a deadline set in the schedule for the FIT academic year. If, after the deadline, there still are submitted FTs without the FT supervisors' decisions on their acceptance in the Application, these FTs are automatically accepted.
3. A student has to submit his/her FT to an OoS officer in the semester in which he/she is registered for the BI-BAP or MI-DIP course within the deadlines set by the schedule for the academic year at FIT. The student then gives the OoS-checked FT (including all the appendices) to the supervisor and the reviewer.
4. If a student fails to submit his/her FT within the deadline, the course of action that follows is governed by Art. 16(4) SEC CTU. The student applies for a new deadline for submission of the FT using the form **Application for an alternate deadline for FT submission** (at OoS) following the schedule for the academic year at FIT. The application must include: a (letter of) written apology explaining the reasons for not having submitted the FT on time and a request to set a new deadline, a written statement of the FT supervisor and the head of the department responsible for the FT. In the case that the student has registered for the BI-BAP/MI-DIP course for the first time, an alternate submission deadline will be granted only exceptionally, as the student still has the option to register for the relevant course for a second time.
5. A student registers for a SFE in the Application by submitting a request within the deadline set by the schedule of the FIT academic year. An OoS officer – within the deadline set by the schedule of the FIT academic year – checks for compliance with the study plan for all the students who did not mark the fulfillment of their study plan in KOS themselves. If a student does not comply with the study plan, his/her request to sign up for the SFE is automatically cancelled.
6. After the submission of the FT, the supervisor prepares a **supervisor's evaluation** and proposes a grade, following Art. 11(1) SEC CTU. Similarly, the reviewer writes a **review re-**

- port** and suggests a grade. The supervisor's evaluation and the review report must be filed in the Application no later than 5 calendar days before the date of SFE.
7. The FT supervisor delivers a signed supervisor's evaluation and (his/her) printed version of the FT at the department where the presentation and defense of the FT will take place.
 8. The FT reviewer delivers a signed review report and (his/her) printed version of the FT at the department where the presentation and defense of the FT will take place.
 9. The delivered FTs are available at the relevant departments, in accordance with *Rector's order 6/2006*.

Article 5

Rules of Procedure for SFE Committees and SFE Grading

1. The dean appoints a committee for the SFE (hereafter **Committee**) consisting of a **chairperson**, a **vice-chairperson**, and three other members. The following people can be appointed to be members of a Committee and have rights to examine at SFE: professors, associate professors, experts approved by the Scientific Council of FIT, and experts appointed by the Ministry of Education. A chairperson is a professor or an associate professor of FIT.
2. The chairperson manages a Committee meeting; when the chairperson is not present, the vice-chairperson manages the meeting.
3. The quorum for a Committee is defined in Art. 16(11) SEC CTU.
4. A SFE takes place in one day and it consists of two parts – presentation and defense of the FT and an exam based on SFE topics. The SFE is realized in five steps (in parentheses below, approximate times are indicated):
 - a. a **written preparation for the exam based on SFE topics**; it takes place in a study room (40 min),
 - b. a **FT presentation and defense** (BT 15min, MT 20min, including reading of reports and discussion),
 - c. an **oral exam based on SFE topics** (10min, 2 questions, usually 5min each),
 - d. **committee discussion** (closed to public),
 - e. **announcement of results** (5min).

Steps b), c), and e) are open to public. The dean can – based on a recommendation from the center ELSA – adjust the times to fit the student's needs.
5. The chairperson of a committee is responsible for the preparation of questions based on SFE topics for the students of his/her committee.
6. Written preparation for the topic-based part of SFE takes place in a designated study room – without any aids and under supervision. A student prepares his/her answers on official stamped papers provided by the academic staff on duty. A student is required to come to the prearranged place no later than 10 minutes before the start of his/her written preparation.
7. After having entered the study room, every student is given two written questions in a sealed envelope: one is based on SFE topics from compulsory courses of the degree study programme and the second one is based on SFE topics from the branch of study. The written preparation takes 40 minutes.

8. The SFE part in front of the committee starts with the presentation and defense of the FT composed of the following four parts:
 - a. A presentation of the background and the results of the FT using a data projector. The presentation must be in an electronic format (PDF) and it must be stored on a suitable medium (USB disk, CD, DVD), in justified cases on the student's own laptop (to be announced in advance to an OoS officer). The presentation is limited to 10 minutes for a BT and 15 minutes for a MT.
 - b. Presentation of essential parts of the supervisor's evaluation and the review report and announcement of the grades proposed by the supervisor and the reviewer.
 - c. The student answers the questions raised by the reviewer and the supervisor (if there are any).
 - d. A discussion on the FT and its presentation in which the student answers questions and comments of members of the committee and guests.
9. After the presentation and defense of the FT, there is an oral examination from two questions. This should last approximately 10 minutes and it is based on the student's written preparation. The aim of the oral examination is to clarify illegible, incomprehensible, or incomplete answers.
10. The member of the committee appointed by the chairperson to assign a question to the student leads the oral examination. Other members of the committee can also ask additional questions.
11. The student's written preparation becomes a part of the SFE documentation.
12. After the oral examination on the SFE topics, a closed meeting of the committee follows. The aim of this meeting is to grade individual parts of the SFE and to give a final grade for the SFE. If the supervisor or the reviewer is not a member of the Committee, he/she is allowed to participate in the closed meeting, but does not have voting rights.
13. To determine the grading of the SFE and the final grading for the whole study programme, the regulations of Art. 17 and 18 SEC CTU apply.
14. In the event that the committee does not agree on a grade for a part of the SFE, the committee votes by acclamation. In the case of a draw, the chairperson's vote is decisive; the chairperson always has to vote either for or against.
15. The committee decides the grade for the presentation and defense of the FT while taking into consideration the grades proposed by the supervisor and the reviewer.
16. When grading the part based on the SFE topics, the committee takes into account the proposals of both examiners. If the relevant question is not adequately answered in writing (if the student submits a blank paper as a written preparation or if the written preparation shows fundamental shortcomings and errors that remained uncorrected in the oral examination), the chairperson may decide to assign an additional oral question from the corresponding list of SFE topics. In this case, the best grade the student may be awarded is E. Otherwise, or when the additional question was not answered sufficiently, the relevant question is graded F (fail).
17. If one of the parts of the examination on the SFE topics is graded F, the SFE part based on the SFE topics is also graded F and in accordance with Art. 17 SEC CTU, that part of the SFE must be repeated.
18. If no part of the SFE is graded F, the resulting SFE grade is calculated as follows:
 - a. The three grades (presentation and defense of the FT and the two topic-based examinations) are converted into numbers: A=1, B=1.5, C=2, D=2.5, E=3.
 - b. The weighted arithmetic mean is computed:

- i. BSFE: the grade from the presentation and defense – weighting 0.3, each grade from a SFE topic – weighting 0.3, and the grade based on the previous study results extracted from KOS – weighting 0.1.
- ii. MSFE: the grade from the presentation and defense – weighting 0.6, each grade from a SFE topic – weighting 0.15, and the grade based on the previous study results extracted from KOS – weighting 0.1.
- c. The resulting SFE grade is calculated from the weighted arithmetic mean rounded to two decimal places as follows:

Weighted arithmetic mean	Resulting SFE grade
1.00–1.24	A
1.25–1.74	B
1.75–2.24	C
2.25–2.74	D
2.75–3.00	E

- 19. The committee can decide by a majority of votes that the resulting SFE grade can be raised or lowered into the resulting SFE grade by one grade, except for lowering the grade E to grade F.
- 20. The chairperson shall announce the student's SFE results in public immediately after the closed meeting.
- 21. The committee's secretary shall write a protocol on the proceedings of the SFE and all the present committee members shall sign it; the student adds his/her signature as well.
- 22. The committee may submit a proposal to the dean to award the Dean's Award for an Outstanding BT/MT.

Article 6

Final Provisions

- 1. This regulation cancels *Dean's Directive 14/2015 for the Administration of Final Theses and State Final Examinations at the Faculty of Information Technology of the Czech Technical University in Prague*.
- 2. This Directive enters into force upon proclamation.

In Prague, December 14, 2017

doc. RNDr. Ing. Marcel Jiřina, Ph.D.
Dean of the Faculty of Information Technology

Appendix 1: Form to award an assessment by an external FT supervisor (for courses BI(E)-BPR and MI(E)-MPR).

Appendix 2: Form to award points by an external FT supervisor (for courses BI(K,E)-PPR, BI(K,E)-DPR).

Appendix 3: Archive of LaTeX templates for FT.

Appendix 4: Templates for front and back covers for FT.

Appendix 5: Template for a supervisor's evaluation and reviewer report.