



## **Dean's Directive No. 58/2023 for Final Thesis and the State Final Examination at the Faculty of Information Technology of the Czech Technical University in Prague**

### **Article 1: Introductory Provisions**

1. This Directive elaborates on the below listed basic regulations and specifies the preparation of Final Bachelors and Master Theses (hereinafter FT), their formal requirements and procedural course and implementation of the State Final Examination (hereinafter SFE) at the Faculty of Information Technology (hereinafter FIT) of the Czech Technical University in Prague (hereinafter CTU).
2. This directive is governed by the following documents in particular:
  - a) Act No. 111/1998 Coll., Higher Education Act, as amended (hereinafter the **Act**) and its implementing legislation,
  - a) The Study and Examination Rules (aka The Academic and Examination Regulations) for students of CTU in Prague (**SER CTU**),
  - b) **Rector's Order No. 6/2022 – Requirements for supervision of Bachelor and Master Theses and Dissertations**, as amended (**Rector's Order**),
  - c) **Guideline No. 1/2009 Pertaining to Ethical Principles in Preparing Final Theses in Higher Education**,
  - d) and **Dean's Directive No. 57/2023 for the Administration of the Bachelor and Master Study Programmes Informatics at the FIT CTU in Prague**, as amended.
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 Final Theses Topic and FT Assignment**

1. A Final Thesis is a demonstration of the students ability of independent creative work in the given field/specialization.
2. The process of assignment and approval of FT topics (**FTT**) is supported by the software application ProjectsFIT <https://projects.fit.cvut.cz> (the **Application**). All FTTs must be published and approved using the Application.
3. FTTs 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. FTT can be published by internal or external proponent, who – after the FTT is assigned to a student and the assignment is approved in accordance with Art. 8 – become an FT supervisor. An external proponent is an employee with no employment relationship to CTU. Their qualification must be in accordance with Art. 1 Para 1 Rector's Order. Exceptions might be approved by the FIT Scientific Council.
5. In case of an external supervisor, a second supervisor with an employment relationship to CTU must be appointed as well, in accordance with Art. 1 Para 2 Rector's Order.
6. A student has right to suggest her/his own thesis topic, however, she/he must ensure that this topic is subsequently assigned by a supervisor. A person outside FIT and wants to become a supervisor of a FIT FT, apply for this role through the FIT portal <https://externiste.fit.cvut.cz>. During the approval process, a study officer (from Office of Study Affairs, OSA) might contact the proponent to fill in details. Once the role is approved, the external supervisor is granted access to the Application.
7. There is the following procedure to get a Final Thesis Topic (FTT) and Final Thesis Assignment (FTA):
  - a) A student chooses FTT from the list of available topics in the system Courses at the address <https://courses.fit.cvut.cz/SZZ/prace>. Then the student approaches the proponent of the FT directly (and outside of the Application) and expresses her/his interest in the given FT.
  - b) The FT proponent creates a FTA in the Application and assigns the student to the FTA. While formulating FTA, a special attention must be paid to the title of the FTT (it is provided in Czech/Slovak and English) and guidelines. The guidelines 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 defence of the FT. They thus should be written using imperative mode (such as: survey, design, implement, simulate, etc.). It is advisable to formulate the FTA in a structured way. The KOS database – into which the Application must write the approved FTTs – limits the guideline text for FTT to a maximum of 3400 bytes encoded in UTF-8.
  - c) The proponent shall send the FTA for approval.
  - d) The FTA enters into the approval procedure. The FTA is approved by the specialization/field of study guarantor (SG). SG or her/his delegate can either return the assignment for revision or approve it. The chosen field of study/specialization is the key to determine the FT guarantying department. When the FTT is being approved, the following aspects of the FTT are important: relevance to the student's field of study/specialization, the extent and professional level of various subtasks, clarity of the assignment, the extent to which the completion of the assignment can be checked.
  - e) Licensing terms and conditions defining the potential use of the FT must be included in the Application. Later modification is possible after SG approval.

- f) If the FT or its part (e.g., annexes) is to be deferred for publication, this information must be selected at the time of the FT is being published in the Application and approved, including the period of deferred publication of the FT or its part(s). A later change is possible after SG approval.
  - g) Approval of FTA makes the FT assigned.
  - h) In case the student failed to defend the FT and has to prepare a new one with the same FTA and the same supervisor, the original assignment in the Application is duplicated and subsequently archived.
8. A FTT that is approved both by SG and the proponent and the student, becomes an approved FTA. The FTT proponent becomes an FT supervisor. If the FT supervisor is an external FIT associate, the SG appoints a FIT-internal second supervisor in accordance with Art. 1 Para 2 Rector's Order.
  9. A student can register for the course BI-BAP/BI-BAP.21 or MI-DIP/NI-DIP in the given semester only if her/his FTA has been approved, no later than the second week of the beginning of the semester in question.
  10. The approved FTA becomes an official document. At the same time, it serves as a letter of appointment for the FT supervisor and it is an obligatory part of the FT.
  11. A student can apply to have the FTA cancelled via the designated person from the OSA. To cancel FTA is not a reason for cancelling the already-registered course BI-BAP/BI-BAP.21 or MI-DIP/NI-DI
  12. The FT supervisor can initiate a request to change the FTA via the designated FTE person from OSA. The new text must be approved by SG.
  13. A request to change a FT supervisor can be initiated by the student, the FT supervisor himself/herself, or the SG. The student, the new FT supervisor, and the SG must approve the request. Once approved, a new FTA is created with the new FT supervisor.
  14. The approved FTA is valid by the end of the third consecutive semesters following the semester in which the FT has been assigned. In justified cases, the student can apply to have the validity of the FTA prolonged via the designated person from the OSA.
  15. SG approves the FT reviewer. A reviewer may nominate herself/himself, or may be proposed by the FT supervisor of an authorized OSA person, provided that the proposed FT reviewer expresses her/his dis/agreement with her/nis nomination t in the Application, otherwise the reviewer-role is freely offered in the Application. If the reviewer's position is not filled, SG appoints the reviewer.
  16. A FT reviewer may be a member of the FIT academic staff, a doctoral student at FIT, or FIT's external collaborator. A person outside FIT academic community who wishes to become a external FT reviewer apply for this role through the FIT portal at <https://externiste.fit.cvut.cz>. During the approval process, the person in charge from OSA may ask the proposed reviewer to

supplement relevant data. Once the role has been approved, the external reviewer is given access to the Application.

17. If a FT supervisor is FIT's external collaborator, then the reviewer must be a member of academic staff at FIT or a FIT doctoral student. SG can grant an exception to the rule.
18. A request to a change of the reviewer can be initiated by the FT supervisor, current FT reviewer or SG. The request must be approved by the new FT reviewer and SG.
19. The guidelines on the expected workload of the FT for the Bachelor's degree program (including full-time and part-time form of study), required time sequence and award of assessments are determined as follows:
  - a) For a student of Bachelor degree program Informatics 2009 (hereinafter **BSP**), there is allotted 20 credits (approximately  $20 \cdot 26 = 520$  hours of expected average study workload). Formally, the work is divided among three courses:
    - i. „BI(K)-BPR Bachelor project“ (recommended in the 5th semester, i.e. the semester preceding BI-BAP, 2 credits, cf. about 52 hours of expected average study workload). The project-based course BI(K)-BPR serves as a preparation course for the FT (fine-tuning of the topic, test of the ability to collaborate with the proponent, preparation of the assignment, a survey of the literature on the topic, or other preparatory work). A student is awarded an assessment for the course if she/he meets the requirements set by the FT supervisor. An internal FT supervisor awards the assessment to the student directly to the KOS. An external FT supervisor fills in the form to award an assessment (accessible online). The student then gives the completed form to the person in charge from the OSA and she/he – after checking it – hands it over to the vice-dean for the assessment award process.
    - ii. „BI(K)-DPR Documentation, presentation, rhetoric“ both in full-time and part-time forms of study (recommended in the 6<sup>th</sup> semester, 4 credits, thus about 104 hours of expected average study workload). The assessment for the BI(K)-DPR course is awarded by the instructor of the course; however, the FT supervisor contributes to the student's final assessment by awarding 0-20 points out of 100 possible points.
    - iii. „BI-BAP Bachelor thesis“, 14 credits (thus about 364 hours of expected average study workload). A student registers for BI-BAP course in the semester in which she/he expects to complete her/his studies (recommended in the 6<sup>th</sup> semester). An assessment for the BI-BAP course is awarded in the KOS automatically once the electronic version of the FT in the Application is checked by the person in charge from OSA.
  - b) For a student of Bachelor degree program Informatics 2021 (hereinafter **BSP.21**), there is allotted 18 credits (approximately  $18 \cdot 26 = 468$  hours of expected average study workload). Formally, the work is divided into three courses:
    - i. „BI(K)-BPR.21 Bachelor project“ (recommended in the 5th semester, i.e. the semester preceding BI-BAP.21, 1 credit, cf. about 26 hours of expected average study workload). The project-based course BI(K)-BPR.21 serves as a preparation course for the FT (fine-tuning of the topic, test of the ability to collaborate with the proponent,

preparation of the assignment, a survey of the literature on the topic, or other preparatory work). A student is awarded an assessment for the course if she/he meets the requirements set by the FT supervisor. An internal FT supervisor awards the assessment to the student directly to the KOS. An external FT supervisor fills in the form to award an assessment (accessible online). The student then gives the completed form to the person in charge from the OSA and she/he – after checking it – hands it over to the vice-dean for the assessment award process.

- ii. „BI(K)-TDP.21 Creating documentation and presentation“ both in full-time and part-time forms of study (recommended in the 6<sup>th</sup> semester, 3 credits, thus about 78 hours of expected average study workload). The assessment for the BI(K)-TDP.21 course is awarded by the instructor of the course; however, the FT supervisor contributes to the student's final assessment by awarding 0-20 points out of 100 possible points.
- iii. „BI-BAP.21 Bachelor thesis“ 14 credits (thus about 364 hours of expected average study workload). A student registers for BI-BAP.21 course in the semester in which she/he expects to complete her/his studies (recommended in the 6<sup>th</sup> semester). An assessment for the BI-BAP.21 course is awarded in the KOS automatically once the electronic version of the FT in the Application is checked by the person in charge from OSA.

20. The guidelines on the expected workload of the FT for the Master's degree program, required time sequence and award of assessments are determined as follows:

- a) For a student of the Master study program Informatics 2010 (hereinafter **MSP**), there is allotted 30 credits (approximately  $30 \cdot 26 = 780$  hours of average time workload) to finish her/his Master thesis hereinafter **MT**). Formally, the work is divided into two courses:
  - i. „MI-MPR Master's project“ (recommended in the 3<sup>rd</sup> semester, i.e., one semester before MI-DIP, 7 credits, thus about 182 hours of expected average workload). The project-based course MI-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 thesis assignment, a survey of the literature on the topic, or other preparatory work). The assessment for the MI-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 system. An external supervisor fills in a form (accessible online). The student then gives the completed form to the person in charge from the OSA and she/he – after checking it – hands it over to the vice-dean for the assessment award process.
  - ii. „MI-DIP Master's thesis“ (4<sup>th</sup> semester, 23 credits, thus about 598 hours of expected average workload). The assessment of the MI-DIP course is awarded in the KOS automatically once the electronic version of the MT (see Art 4) is accepted and the OSA person in charge checks the MT uploaded using the Application.
- b) For a student of the Master study program Informatics accredited in 2018 (hereinafter **MSP.18**), there is allotted 37 credits (approximately  $37 \cdot 26 = 962$  hours of expected average time workload) to finish her/his Master thesis. Formally, the work is divided into two courses:

- i. „NI-MPR Master’s project” (recommended in the 3<sup>rd</sup> semester, i.e., one semester before NI-DIP, 7 credits, thus about 182 hours of expected average workload). The project-based course NI-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 thesis assignment, a survey of the literature on the topic, or other preparatory work). The assessment for the NI-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 system. An external supervisor fills in a form (accessible online). The student then gives the completed form to the person in charge from the OSA and she/he – after checking it – hands it over to the vice-dean for the assessment award process.
  - ii. „NI-DIP Master’s thesis” (4<sup>th</sup> semester, 30 credits, thus about 780 hours of expected average workload). The assessment of the NI-DIP course is awarded in the KOS automatically once the electronic version of the MT (see Art 4) is accepted and the OSA person in charge checks the MT uploaded using the Application.
21. The guidelines and rules set out in Para 19 and 20 apply equally to study programs taught in English and the related English versions of the courses, i.e., BIE-BPR, BIE-BAP, BIE-DPR, BIE-BPR.21, BIE-BAP.21, BIE-TDP.21, MIE-MPR, MIE-DIP, NIE-MPR and NIE-DIP.

### **Article 3: Content and formal requirements for a FT**

1. The FT must contain the following parts:
  - a) FTA,
  - b) An abstract and key words in Czech or Slovak and English,
  - c) A statement declaring the independent elaboration of the FT and the completeness of the citations and sources used,
  - d) The solution of the assigned problem, usually including a research of the relevant literature and problem,
  - e) A final evaluation of the results,
  - f) A list of references,
  - g) A table of content, including a list of possible Annexes.

The recommended length of the BT is 30–100 pages of substantive text (not including automatically generated indexes and Annexes). The recommended length of the MT is 50–150 pages of substantive text (not including automatically generated indexes and Annexes).

2. For an FT, the usual compliance with the formalities for a technical text is required: use of symbols, definitions of terms 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, accessible online.
4. As specified by the FT supervisor, mandatory attachments to the FT are source or attached programs, user documentation, installation manuals, packages, etc., created within the FT and cannot be uploaded to the Application. If the executable program cannot be uploaded to the Application, the student is required to submit the program and everything related to that, so that the supervisor and the reviewer can evaluate the FT.
5. In case of deferred publication of the FT, the student must provide one hardback copy, unless otherwise provided by law.

#### **Article 4: FT submission, registration for SFE, and SFE administration**

1. The dates of the SFE are set in accordance with the FIT academic year. The OSA shall inform students and members of the SFE committees of the timetable, room schedule and the list of students assigned to the individual SFE committees at least 3 calendar days in advance. OSA publishes the dates of the SFE and the locations of the SFE in the public section of the FIT website.
2. A student is obliged to submit an electronic version of his/her FT in the Application. The submission in the Application is final and cannot be reverted.
3. A student submits her/his FT in the semester in which she/he is registered for the BI-BAP/BI-BAP.21 or MI-DIP/NI-DIP course within the deadlines set by the FIT academic year timetable.
4. A student is obliged to produce one physical copy (in any kind of binding) which is identical in content to the electronic version of the FT and bring it to the defence.
5. If a student fails to submit her/his FT for serious reasons within the deadline set by the academic year, the relevant provisions of the SER, in such a case, the student hands over to the person in charge from OSA the following:
  - a. a written apology with reasons for not submitting the FT within the deadline
  - b. and a request for an alternative deadline for the FT submission, with the statements of the FT supervisor and the head of the department that assigned the FT, on the form "Request for an Alternative Deadline to submit the FT" within the deadline given in the schedule of the FIT academic year.

If the students is registered to the course BI-BAP/BI-BAP.21, and MI-DIP/NI-DIP for the first time, the alternate submission deadline shall be allowed only in exceptional cases: the student still has the option of the second registration to the course. If the student is registered for the course BI-BAP/BI-BAP.21, and MI-DIP/NI-DIP for the second time, an alternative submission date shall be permitted only in exceptional circumstance upon evidence of good cause.



6. A student registers for an SFE in the system KOS by submitting a request within the deadline set by the schedule of the FIT academic year. An OSA person in charge – within the deadline set by the schedule of the FIT academic year – checks for compliance with the study plan for all the students who sign up to SFE and who didn't indicate that they have fulfilled their study plans in the KOS system themselves. If a student does not comply with the study plan, her/his request to sign up for the SFE is automatically cancelled.
7. After the submission of the FT, the supervisor prepares an evaluation and proposes a grade, following the relevant SER provisions; similarly, the reviewer writes a FT report and suggests a grade. The supervisor and the opponent may, as a part of the activity specified in the previous sentence, check and evaluate the level of plagiarism of the FT, unless an internal standard of CTU or FIT stipulates otherwise. The evaluation and the report shall be completed by the supervisor and the reviewer in the Application no later than 5 calendar days before the date of the SFE.

#### **Article 5: Rules of procedure of the SFE committee and SFE classification**

1. The dean appoints a committee for the SFE (hereafter **committee**) consisting of a **chair**, a **vice-chair**, and three other members. The following people can be appointed as 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, Youth and Sports (MŠMT). The chair is a professor or an associate professor of FIT.
2. The meeting of the committee shall be chaired by the chair, in her/his absence by the vice-chair.
3. The quorum of the committee is defined in the relevant provisions of SER.
4. As a rule, SFE takes place in one day and it consists of two parts – presentation and defence of the FT and an examination based on SFE topics. The actual examination consists of the following parts:
  - a) written preparation for the exam based on the SFE topics in a study room (approx.. 40 min),
  - b) FT defence (BT approx. 15 min / MT approx.. 20 min, including reading of reports and discussion),
  - c) oral exam based on the SFE topics (approx. 10 min),
  - d) private meeting of the committee and
  - e) public announcement of the results (approx. 5 min).

Parts b), c) and e) are open to public. On the recommendation of ELSA Center, the vice-dean for study affairs may extend the times to take into account the specific needs of the student.

5. The chair of the committee is responsible for the preparation of the questions based on the SFE topics for the student of her/his committee.



6. **No later than 3 calendar days before the SFE, the student receives a timetable which indicates the date and location of the SFE. The student is obliged to arrive at the place of the SFE in the time indicated.**
7. Written preparation for the topic-based part of SFE takes place in a designated study room – without any aids, excluding writing supplies and under supervision. The student prepares her/his answers on official stamped papers provided by the academic staff on duty. The student is required to come to the place no later than 10 minutes before the start of her/his written preparation.
8. In the study room, every student is given two written questions in a sealed envelope: one is based on SFE topics from the compulsory courses of the degree study program and the second one is based on SFE topics from the branch of study/specialization. The written preparation takes approximately 40 minutes.
9. **The SFE part in front of the committee starts with the presentation and defence of the FT, the following parts are obligatory:**
  - a) **Presentation of the background and results of the FT using a data projector. Language of the defence: Czech/Slovak, if the FT is written in Czech, or Czech/Slovak or English, if the FT is written in English. The presentation must be in an electronic format (PDF) and it must be stored on a suitable medium (USB disk, for example), in justified cases on the student's own laptop (to be approved in advance by an OSA person in charge). The presentation is limited to 10 minutes for a BT and 15 minutes for a MT.**
  - b) **Briefing the committee of the essential parts of the supervisor's evaluation and the reviewer of the FT and the grades proposed by the supervisor and the reviewer.**
  - c) **The student's responses to any questions and comments from the FT supervisor and FT reviewer.**
  - d) **A public debate on the FT in which the student respond to questions and comments made by members of the committee or other persons present.**
10. **After the FT defence, the oral part of the exam based on the SFE topics (SFET; for about 10 min) follows; this part is based on the student's written preparation and serves mainly to clarify illegible, incomprehensible and incomplete answers.**
11. As a rule, the member of the committee appointed by the chair to assign a question to the student leads the oral examination. Other members of the committee can also ask additional **questions**.
12. The student's written preparation becomes a part of the SFE documentation.
13. After the oral examination on the SFET, a closed meeting of the committee follows. The aim of this meeting is to grade the individual parts of the SFE and to determine a final grade for the SFE. If the supervisor or the reviewer is not a member of the committee, she/he is allowed to participate in the closed meeting but does not have voting rights.

14. **The relevant provisions of the SER CTU shall apply to the grading of the SFE and the determination of the overall grade for the study.**
15. 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 chair's vote is decisive; the chair always must vote either for or against.
16. The committee decides the grade for the presentation and defence of the FT while taking into consideration the grades proposed by the supervisor and the reviewer.
17. In the case a student fails to defend his/her FT at the SFE, the dean – based on the recommendation of the SFE Committee – decides whether the student should write a new FT:
  - a) with the same FTA and the same FT supervisor,
  - b) with the same FTA and another FT supervisor,
  - c) with a different FTA and the same FT supervisor, or
  - d) with a different FTA and a different FT supervisor.
18. 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 or not made good in the oral examination), the chair 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 granted is E. Otherwise, or when the additional question was not answered sufficiently, the relevant question based on the SFE topics is graded F (fail).
19. 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 the relevant provisions of the SER CTU, that part of the SFE must be repeated.
20. If no part of the SFE is graded F, the resulting SFE grade is calculated as follows:
  - a) The three grades (presentation and defence of the FT and two SFET-based examinations) are converted into numbers: A=1, B=1.5, C=2, D=2.5, E=3.
  - b) A weighted arithmetic mean is calculated:
    - i. **BSFE:** the grade from the presentation and defence – weighting 0.3, each grade from an SFET – 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 defence – weighting 0.6, each grade from an SFET – weighting 0.15, and the grade based on the previous study results extracted from KOS – weighting 0.1.
  - c) **The resulting grade is calculated from the weighted arithmetic mean rounded to two decimal places as follows:**

Weighted arithmetic mean of the resulting SFE grade	Resulting SFE grade
1,00–1,24	A
1,25–1,74	B
1,75–2,24	C
2,25–2,74	D
2,75–3,0	E

21. 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.
22. The chair shall announce the student's SFE results in public immediately after the closed meeting.
23. The committee's secretary shall prepare a written record on the SFE process which shall be signed by all the committee members present and subsequently by the student.
24. The committee may submit a proposal to the dean for the award of the Dean's Award for Outstanding BT/MT.

### **Article 6: Final Provisions**

1. This directive repeals the Dean's directive No. 52/2021 for FT and SFE at the Faculty of Information Technology of the Czech Technical University in Prague.
2. This directive comes into force on March 6, 2023.

## List of abbreviations

BSFE	Bachelor State Final Examination
BSP	Bachelor Study Program Informatics 2009
BSP.21	Bachelor Study Program Informatics 2021
BT	Bachelor Thesis
CTU	Czech Technical University in Prague
ELSA	Support Center for Students with Special Needs at CTU
FIT	Faculty of Information Technology
FT	Final Thesis
FTA	Final Thesis assignment
FTT	Final Thesis Topic
KOS	Information system KOS
MSFE	Master State Final Examination
MSP	Master Study Program Informatics 2010
MSP.18	Master Study Program Informatics 2018
MŠMT	Ministry of Education, Youth and Sports
MT	Master Thesis
OSA	Office of Study Affairs FIT
SER	Study and Examination Rules for Students of CTU
SFE	State Final Examination
SFET	SFE Topics
SG	Specialization/field of study guarantor