TYPE OF DEGREE AND TEACHING UNIT

- M.Sc. in Computer Science
- Theoretical Computer Science

METHODS OF ASSESSING STUDENTS' LEARNING

- Students' knowledge, skills, and expertise are assessed through an oral examination consisting of:
  1. A few *open-ended questions to be answered in writing*. For example, "What is the cardinality of SD and why?", "Show that H is not in D", "Provide a reduction from CNF-SAT to 3SAT", "Show that DREACH belongs to LOGSPACE", "Is NP closed under Kleene star and why?" or "Define and discuss the polynomial hierarchy" are reasonable candidates. Conversely, "Provide a proof of Cook's theorem", "Provide a procedure that mimics the UTM", "Define the single tape deterministic TM", "Define a Boolean well-formed formula" or "Is P = NP?" are either too technical or too simple, and therefore they are definitely not good candidates.
  2. A *10-minute talk on a topic at will* that touches the contents of both modules ("decidability and logic" and "computational complexity") of the teaching unit. For example, "Turing machines vs. computer programming languages in computability and complexity theory", "The power of encoding", "Languages vs. function problems", "Classes of languages vs. sets of languages", are good themes. Conversely, "Cook's theorem", "The halting problem", "Deterministic Reachability", "Asymptotic notations" are either too technical or too narrow, and therefore they are not good candidates.
  3. An *oral discussion* including questions related to points 1 and 2.
- The exam will be held online on *Microsoft Teams* (Team code: hxctevq).

ESSE3 PHASE

1) The teacher will create the *exam* on ESSE3.
2) Each student will register for a specific exam within a week of the established date.
3) The teacher will assign each student to a specific *time slot* (the scheduling will be posted on *Microsoft Teams*).
4) The outcome of the exam will be registered the same day without prior publication of the results.

PRELIMINARY STEPS BEFORE THE EXAM DATE

1) On the *Team* associated to the teaching unit, for each exam, the teacher will create a dedicated channel named "Exam-aaaa-mm-dd" and he will schedule on it one or more meetings related to the specific time slots.
2) Students make sure they have: *(i)* one *primary* device equipped with internet access, webcam, speakers, microphone, the latest version of Microsoft Teams and the slides for the talk; *(ii)* any device (primary or secondary) with an image capture app (e.g., Adobe Scan, Microsoft Lens or even the default camera app) and a personal email account; *(iii)* their University cards; and *(iv)* one checkered paper sheet and two good pens.
3) Students arrange the examination environment as follows: *(i)* prefer a well-lit environment; *(ii)* put on a wide desk all and only the *allowed items* specified at point 2; *(iii)* place the primary device on the desk in such a way that the webcam can fully frame *hands*, *face,* and all the *allowed items* at the same time; *(iv)* avoid having a direct light source in view of the camera; *(v)* be alone in the room for the entire duration of the examination.

EXAMINATION PHASES

1) The students of a specific time slot join the prescribed meeting and turn their microphones and webcams on.
2) One after the other, each student shows his/her University card via the webcam to the examination committee.
3) The examination committee verifies that each student can only have access to the *allowed items*.
4) The teacher shares his screen to show the open-ended questions to be answered in writing.
5) Each student copies the questions on his/her paper sheet and remains "framed" for 30 minutes.
6) All the students show, through the webcam and for a few seconds, what they wrote. Then, they scan their paper sheets and send the file(s) via email to all the members of the examination committee.
7) One after the other, each student gives his/her 10-minute talk, immediately followed by the oral discussion.
8) Final scores are communicated once all the students of the considered time slot have been evaluated.

FINAL REMARKS

1) The examination committee consists of the teacher together with at least a second member.
2) In case a student has serious technical problems, the examination committee proposes practical alternatives.
3) It is strictly forbidden to share any media content of the exam (photo, video, audio) with third parties.
4) To guarantee fairness, the teacher can record parts of the exam (being erased once the exam is registered).