

Institutional Report (WP1)

University of Tehran

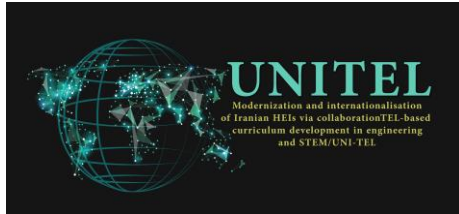
Prepared by

Cyrus Zamani

School of Metallurgy and Materials Engineering

College of Engineering

University of Tehran



Chapter 1

Institution Information

This is a report on the activities taken by the University of Tehran (UT, P9) as partial fulfillment of the WP1 of the UNITEL project.

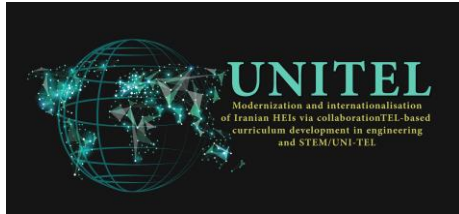
University of Tehran (UT) is the national coordinator of the project. Given this, UT plays a coordination role through the entire project. UT, in collaboration with Sharif University of Technology (SUT, P11), hosted a number of meetings for coordination of the first phase of the project.

This is the strategy followed by UT in the first phase:

UT presented the entire project in a meeting with UNESCO chair on Engineering Education (UCEE, which is hosted by UT), thus attracting their support (discussed in two monthly meetings). Following this, Masters' students of UT were introduced to SUT for collaboration in the first phase and preparation of the questionnaires.

After having the draft questionnaires prepared by SUT, these were shared with colleagues from UT. Feedbacks on the significance and translation quality were collected and WP1 coordinator was informed on this.

Having the final version, UT distributed the link asking its policy makers, academic members, and students for their collaboration. In addition, UT provided all members of UCEE and members of the Iranian Society for Engineering Education (ISEE) with the links. In parallel, all links were shared with international advisors of different colleges/schools of UT (via WhatsApp).



Chapter 2

Existing Practices for Curriculum Planning

History of E-learning at UT

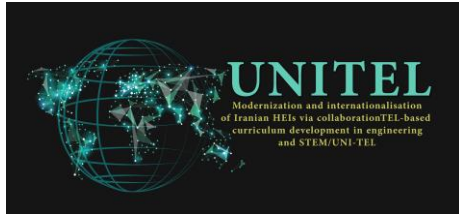
The University of Tehran's foundations for e-learning center were laid in September 2002 when UT's first e-learning platform was created and a few courses were offered online. In 2003, efforts were made on creation of e-version of general courses of each curriculum. At the same time, UT prepared a system for tutoring and module selection software were designed and implemented for the first time. In 2006, the e-learning center was re-designed and re-structured based on the pedagogical and psychological studies conducted at the center. Content generation was also accelerated in this period. Later in 2009, the regulations and bylaws of e-learning were approved and e-learning was extended to 110 programs offered by UT. Some courses were offered based on blended-learning and the academic calendar went online. Since 2016, UT's e-learning center expanded its services to all members. Modern pedagogical theories formed the basis of the newly-design platform.

In December 2019 and with the start of COVID-19 pandemic, UT was among the first Iranian universities who switched to e-learning. Many courses went online and about 60% of the programs were offered electronically. Soon, problems such as insufficient infrastructure, lack of regulations, few electronic content and limitations in access to the internet showed up. Almost the whole capacity of the university was allocated to solve these issues at internal and external levels so that the second semester was organized with less problems and around 90% of the programs were given online although practical courses and labs were still challenging. Content for virtual labs was prepared later and the university moved one step forward. All these efforts were/are supervised by a team of experts.

2.1 Policies and guidelines

Planning the initiation of a course: All courses are offered according to the academic calendar of UT. Each school/department offers courses based on the designed curriculum and the anticipated number of the students who may need to take these courses.

General goals for the curriculum are set by the ministry of science, research, and technology. Specific goals are set by the university and the school/department. No difference between in-person and online course



goals. In the case of UT, all curricula should be designed so that they comply with the strategic plan of the university which is currently based on internationalization, entrepreneurship, and ethics.

The needs of working life and industry are not included in the usual curriculum. However, UT has started a new plan for those students who need to take courses in other disciplines depending on the students' interest. This can be related to the industry student works for.

Inline or blended learning is part of the UT's strategy for future academic activities.

Laboratory activities are always part of STEM programs. These may include engineering sciences (physics, chemistry, etc.) or specialized courses which require labs.

Before pandemic, all laboratory activities required the presence of students. Now, we have virtual labs based on the contents prepared by the departments.

The technological infrastructure used for virtual labs is mainly based on simple video recordings or simulation software. From the pedagogical point of view, I don't think a clear strategy is followed.

The Covid-19 pandemic has affected the curriculum planning practices specially for labs and those courses requiring physical presence. In order to relieve the pressure, UT made agreements with other universities nationwide asking them to host the students in their labs. This reduces problems of traveling, dorms, and other issues.

2.2 Curriculum Planning in Practice

In general, UT members do not analyze the demand for course contents. However, all members are asked to update the course content (based on the advances in the field) every 5 years.

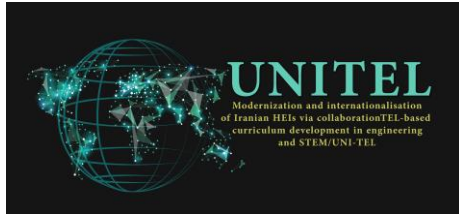
Consideration of the needs of the different stakeholders is through the recommendations of our office of planning and academic supervision in addition to the suggestions offered by our UNESCO Chair in Engineering Education (for STEM).

Course contents are designed by each respective professor who is expert in that specific field. Then it needs to be approved by UT's academic affairs.

The curricula design does not necessarily reflect any innovation. However, the use of e-learning platform has encouraged our professor to use auxiliary tools such as videos for a more effective teaching.

The working-life relevance is not observed in all courses. Some teachers may include this in their courses.

With 2137 academic members, currently, 45295 students are enrolled.



Chapter 3

Designing And Implementing a TEL Course

Data reported in this chapter is based on our e-learning center and the annual report of UT.

3.1 TEL as a Practice at UT

Before pandemic, TEL-based learning was employed by a limited number of teachers. Now, however, TEL-based and online learning are a normal practice at UT.

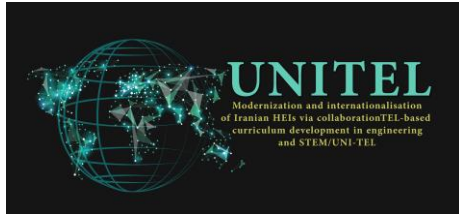
Currently, almost all UT courses are offered online (near 100%). These are in Bachelor's, Master's, and PhD level. According to our e-learning center, during last autumn semester (2020), 42687 users (32825 students) worked with our platform. 8371 courses were offered online (101321 sessions). 4.71 TB files were uploaded, 1013712 files were downloaded and 12237 home works were presented via our platform.

Now, TEL is part of our strategy for UT's development. Almost all regulations and bylaws are revisited in order to facilitate TEL-based learning.

UT is responsible for the working group of Iran's digital transformation initiative. At the same time, we are responsible for DTC of the association of the universities of Asia and the Pacific (AUAP). All practices will be run at all levels at UT.

3.2 Technology in use

At UT we use several platforms some of which developed in-house. For teaching and regular meetings, Adobe Connect is the main platform. For conferences, our webinar platform (based on BigBlueBotton) is used. Recently, we launched a new platform for Events (works with both Adobe Connect and BBB as well as other tools for video streaming, exhibition, etc.). For document management, our "Divan" platform and for live events, the platform named "Bayan" are employed.



3.3 Course development process

In TEL/online courses, we encourage using auxiliary tools (videos, archives, online resources) to help student have a better understanding of the course. In addition, continuous assessment is part of the process. These are the strategies used by many of our academic members.

3.4 Stakeholders Involved and Their Roles and Tasks

We do not involve students in course design directly. However, we receive their feedbacks continuously so that these are analyzed and transferred to the teachers for any improvement.

Course content is designed according to previously-specified syllabus. TEL-based learning helps in adding complementary files (documents, videos, etc.) for effective learning.

There is no technical support for course design. Teachers use their experiences in course development.

Until recently, there was no facilitating mechanism. Very recently, our office of vocational training organizes courses for all academic members.

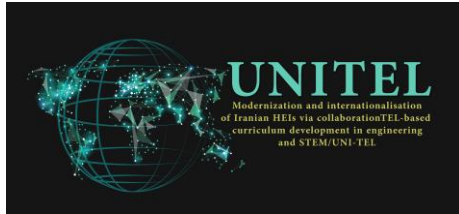
3.5 Protocol of Course Assessment

In face-to-face classes, all professors must obey the evaluation rules of the university. For example, a final exam is always mandatory. In TEL-based learning, first there was no limitation in this regard due to the problems of access to high-speed internet. Now, however, all professors are obliged to use UT's protocol and platform for e-learning and the exams follow the schedule offered by each department. Students do not take part in designing this strategy.

UT's e-learning platform offers a wide range of tools and facilities for evaluation (quizzes, HW, online and offline exams, projects, etc.). These are used for continuous evaluation of the students during each semester. A final exam is mandatory. Also, a SafeExam platform is also designed by UT for avoiding problems such as cheating.

Data can be collected by the platform itself or manually. If configured, the system manages to collect all data and perform grading. If this is not asked by the teacher, can be exported (various formats are supported) and grading is done manually.

All UT students are obliged to participate in a survey regarding the courses they attend. At the end of each semester, and prior to the final exam, they give their feedbacks through our EMS system.



The evaluation results are statistically analyzed by the system. Each professor will have access to the results through the designed platform. Here, he/she receives the feedbacks, his/her rank in the department. These data are also available to the head of the department, dean of the college, and the office of vice-president in educational affairs.

Currently, and in TEL-based learning, there is no guarantee that all these feedbacks are relevant. New measures are to be considered for preparation of the questionnaires.

3.6 Identification of TEL/Online Quality Practices or Patterns of Quality

The university has a quality assurance system to oversee the activities. However, these are not customized for TEL-based learning. The standards follow the strategies taken by systems such as ABET, meaning that we perform internal auditing first, followed by external auditing (not all departments have passed this).

There is a number of quality parameters considered. For example: preparation of course info files, teaching strategies, learning policies, etc.

UT's e-learning center has started giving reports on the offered courses. However, I believe that the data is not analyzed in this respect.

UT's e-learning center collects all data related to the courses offered via our online platform. However, I believe that it is soon to talk about the strategies in learning analytics.

Students' privacy is also taken into account in our platforms.

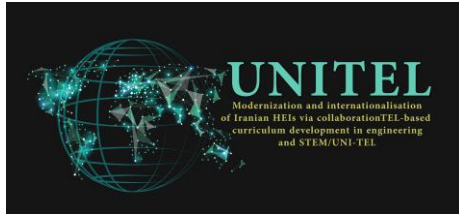
3.7 Process of Continuous Improving of Educational Provision

TEL-based programs are treated the same as face-to-face programs. UT's office of planning and academic supervision is responsible for program modifications. Updating courses is, however, a task of teachers. Therefore, while contents may change every year/semester, the revision of the program as a whole is planned every 5 years.

There is no specific plan for those students with special needs.

Under the vice-presidency for students' affairs, there are offices focusing on the students' integrity and behavior.

UT's informatics and information center is responsible for electronic security. They may have procedures for this.



3.8 Professional Development of Teachers and Instructional Designers

Faculty members do not have any expertise in design/development/evaluation of online programs. But, our e-learning center prepares online and offline lectures and documents in order to support teachers.

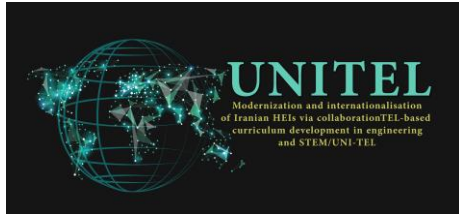
The teaching staff involved in educational programs is familiar with e-learning advantages/disadvantages.

Training courses are offered by our e-learning center in order to help our staff make use of electronic facilities.

In face-to-face practice, all new incoming staff are invited to meetings for the enhancement of teaching capabilities. Not sure about online courses.

There are specific plans to support and strengthen the teaching staff. These are offered by our office of academic affairs.

UT organizes courses on faculty competence in skills. There are also workshops organized by for example, our UNESCO chair in Engineering Education for pedagogy enhancement.



Chapter 4

Industry Relevance

4.1 Policy and Action Plan for Industry-Relevance

Historically, our programs have been developed based on industry needs. But now, establishing new programs is a long way to go since it needs the approval of several entities inside and outside the universities. Currently, new programs, based on the industry needs may be designed and submitted to the authorities for their approval.

No specific plan to involve other stakeholders in program development.

4.2 Infrastructure

UT's e-learning platform support almost any kind of activity related to teaching/learning.

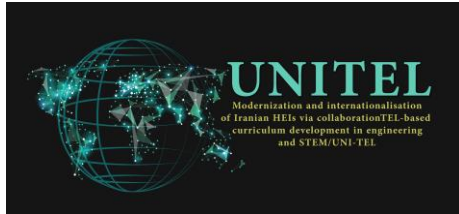
Basically, the platforms are designed for effective teaching and evaluation. However, these platforms provide environments for knowledge sharing. They can also upload any activity related to the course.

4.3 Assessment of Learning

So far, several strategies for assessment have been employed. At UT, we emphasized on continuous assessment during the semester. However, problems such as cheating are still affecting the overall process. UT employs a SafeExam platform which is not mandatory. Our surveys show that the problem continues and the marks obtained by the students do not reflect their knowledge/abilities. In addition to this, some tools (controlled timing, student tracking, quiz, ...) embedded in our platform, make it easier to get closer to the real status.

4.4 Functionalities of the Technical Infrastructure

Our virtual learning platform contains almost any option required to run classes and perform assessment. These are, for sure, designed based on the existing pedagogical methods.



Since its establishment, our platform has been under continuous development. It is based on open-source and licensed systems. However, the focus is on open-source systems which can be customized.

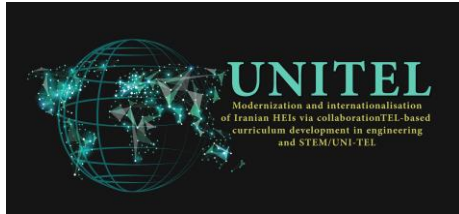
The platforms employed by UT come with several facilities, so that they may fit some necessities of people with special needs. However, no specific platform is developed for this.

4.5 Use of Virtual and Remote Laboratories

UT counts on the largest university library nationwide. A large percentage of the documents are now available online.

As of the beginning of the pandemic, numerous labs went online. These virtual labs are mainly based on videos and software related to the lab.

There is no remote lab at UT. However, there are facilities which may be run remotely.



Chapter 5

TEL Quality Practices and Support

5.1 Staff Professionalization

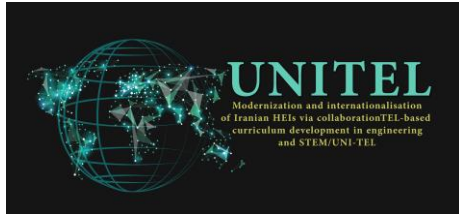
In Iran, all applicants should subscribe to a centralized national system if willing to apply for a university as academic member. Then they are invited by the respective university to interviews and after following a procedure, they may join. This is the case for UT members as well.

The university does not offer pedagogical training courses. However, a number of booklets and manuals containing regulations are provided to all new members. There are also short meetings for them. Although training of trainers does not take place, new ideas and developments in teaching/learning are presented in lectures.

There are a number of videos prepared for academic staff, helping them in organizing online courses. However, no specific plan for staff coordination exists.

There is a large number of videos and instructions available to the professors.

Pedagogical training is mandatory for all teaching staff. However, this is counted on teachers' promotion only.



Chapter 6

Opportunities and Challenges

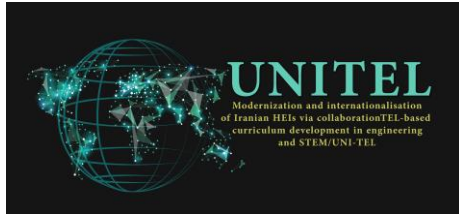
The pandemic showed the need to TEL-based learning platforms. Although our center has been active since 2002, the lockdown due to COVID-19 pandemic proved the potentialities of the system and the benefits associated with e-learning. However, there are challenges which also need to be coped.

6.1 Opportunities

1. More flexibility in course scheduling (time, duration, etc.)
2. Flexibility in using international network of experts and knowledge sharing
3. Cost management due to less travels, dorms, and physical spaces
4. No missed sessions: teachers can upload content for the days they are not present. Students have access to recorded classes.
5. Access to international curricula
6. Possibility of offering personalized courses
7. Design and development of new interdisciplinary programs
8. Possibility of providing more services to the students with special needs
9. Improved gender equity specially in countries with family limitations on women students

6.2 Barriers

1. Difficulties in controlling cheating problems
2. Difficulties in running practical courses
3. Lack of access to high-speed internet in rural areas
4. Lack of access to computer and hardware needed to attend courses
5. Problems in obtaining license for some software needed
6. Bureaucracy in program/course design and accreditation
7. Insufficient software/hardware knowledge in elderly teachers



Chapter 7

National Policies

7.1 TEL Practices in Higher Education in Iran

When pandemic started, there were very limited practices of e-learning in Iran. UT and a few leading universities had online systems for e-learning though they were used mainly by members of ECE departments.

With the rise of pandemic, a rapid shift towards online learning occurred. The Iranian ministry of science, research, and technology (MSRT) granted the permission to offer all programs via e-learning nationwide (before, UT was the only university allowed to give all programs online). Then, and following the request submitted by UT, the ministry of ICT accepted to provide students and professors with free internet thus making all transfers from/to e-learning domains free of charge. Also, all members of the academic society can register in a system asking for free gigabytes. This ensures them the access to classes and content without worries.

In addition, new regulations were approved in order to facilitate processes via online systems. Examples are:

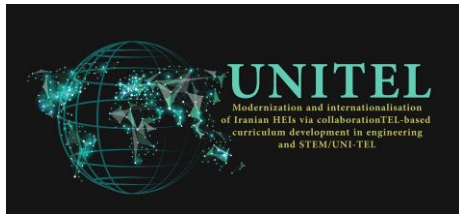
Possibility of presentation of theses via remotely and via online platforms.

Using digital signatures instead of real ones.

Possibility to use local universities for specific issues. For example, students may conduct their laboratory tasks in the nearest university (for practical courses).

7.2 Approaches and Methods for Quality Assurance

The ministry of science, research, and technology is responsible for the programs. When a program is designed, the respective department submits the documents to the academic affairs of the university. If approved, it will be sent to the ministry for consideration and final approval. If approved, the university



will be granted a temporary permission for a specific period of time. During this period, the program is supervised by the ministry. If successful, a permanent permission is issued.

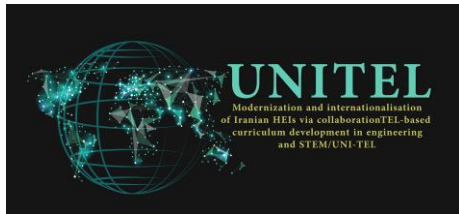
Therefore, evaluation of course contents and program assessment is conducted through comparing the approved syllabus with the outcome of the courses. Outside the universities, there are entities involved with university programs which makes the accreditations and approvals a difficult and time-consuming task. The office of supervision, assessment and quality assurance of the ministry of science, research and technology is responsible for any activity in this regard. Among its tasks are: strategy development for quality assurance, design of parameters and criteria for quality, supervision of the universities, design and implementation of quality assurance programs for all H.E. institutions. Recently, this office has started to evaluate some institutions nationwide. However, this is not focused on the program quality so that the overall activities are checked.

It should be noted that so far, no standard quality assurance program has been run at the ministry level. So far, none of the Iranian universities have been checked entirely for their programs. In other words, a lack of a comprehensive quality assurance system is sensed. However, some universities already started new programs for quality assurance. For example, University of Tehran counts on an office dedicated to internal and external assessment of the departments and programs offered by them. Until now, their strategy has been the following: First, each department perform an internal evaluation. This is conducted based on standard methods which helps the management team understand some weak points of the department. Then, the university performs the internal assessment at the university level. This assessment is more intense and highlights serious program deficiencies. The next step would be an external assessment which is not conducted so far (none of the universities nationwide).

7.3 Mission Statement and Strategy of the National Evaluation and Accreditation Agency

Bellow is the list of missions mentioned in MSRT's office of supervision, assessment and quality assurance website (<https://nezarat.msrt.ir/fa>):

- Design of strategic plans of H.E. based on the strategies and upstream documents.
- Study, design, revision of quality factors and criteria in all H.E. disciplines (teaching, research, technology, students, cultural, and international).
- Continuous supervision of all H.E. institutions whether public or private.
- Planning for quality assurance and supervision of H.E. institutions at regional level.
- Design and implementation of quality assurance programs to supervise all H.E. institutions.
- Design and implementation of the quality assurance system for H.E. in Iran.
- Close collaboration with NGOs for improving quality assurance programs.
- Supervision of the MSRT for its activities and reporting to the minister for any improvement.



- Design and implementation of a quality assurance system for management in H.E.
- Design and implementation of a ranking system for H.E. institutions.
- Design of procedures and support for H.E. institutions in hiring new academic staff.

7.4 Future National Policies, Practices, Efforts, Initiatives, Frameworks, that Relate to TEL Quality

No data was found on the website regarding future policies.

7.5 Needs for National Policies, Practices, Efforts, Initiatives, Frameworks, that Relate to TEL Quality

TEL learning is new in Iran. Therefore, there are challenges on the way of implementing quality assurance in TEL-based learning. Firstly, almost all existing regulations are for face-to-face courses. This means that many procedures need to be revised. Legislations related to the course scheduling, practical courses, examinations, and assessment may need revision.

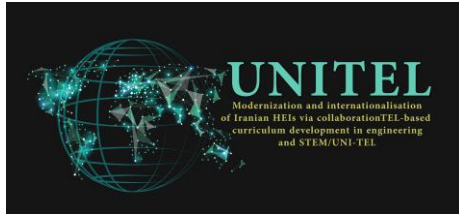
Copyright problems, Student participation in classes, cheating issues, and final assessment still remain to be solved. Improving legislations in these areas are of great importance.

In general, a good strategy would be revisiting e-learning from all aspects. It is a unique opportunity to design new interdisciplinary programs.

7.6 Training Needs for TEL Quality

For TEL learning to be established, all members of H.E. institutions need training. Teachers, students, and administrative staff need a minimum level of TEL knowledge. Elderly professors mainly need instructions on content preparation. All professors and students need access to online content and support for copyright issues. Students and administrative staff require support on e-learning platforms.

In addition, in order to benefit from international collaborations, language abilities of all members of academic society needs an improvement. This is a very important issue for administrative staff in Iran.



References

In addition to the below references, the author has used internal documents of the University of Tehran. References are in Persian.

<https://news.ut.ac.ir/fa/news/19534/%D8%A7%DB%8C%D9%86%D9%81%D9%88%DA%AF%D8%B1%D8%A7%D9%81%DB%8C-%DA%AF%D8%B2%D8%A7%D8%B1%D8%B4-%D8%B9%D9%85%D9%84%DA%A9%D8%B1%D8%AF-%D8%AF%D8%A7%D9%86%D8%B4%DA%AF%D8%A7%D9%87-%D8%AA%D9%87%D8%B1%D8%A7%D9%86>

<https://news.ut.ac.ir/fa/news/19604/%DA%AF%D8%B2%D8%A7%D8%B1%D8%B4-%D8%AA%D9%88%D8%B5%DB%8C%D9%81%DB%8C-%D8%AA%D8%AD%D9%84%DB%8C%D9%84%DB%8C-%D8%B1%D8%A6%DB%8C%D8%B3-%D8%AF%D8%A7%D9%86%D8%B4%DA%AF%D8%A7%D9%87-%D8%AA%D9%87%D8%B1%D8%A7%D9%86-%D8%A7%D8%B2-%D8%B9%D9%85%D9%84%DA%A9%D8%B1%D8%AF-%D8%AF%D8%A7%D9%86%D8%B4%DA%AF%D8%A7%D9%87-%D8%AF%D8%B1-%D8%B3%D8%A7%D9%84-%DB%B1%DB%B3%DB%B9%DB%B9>

<https://www.msrt.ir/en>

<https://utec.ut.ac.ir/>

<https://nezarat.msrt.ir/fa>