Modernization and Internationalisation of Iranian HEIs via collaborative TEL-based curriculum development in engineering and STEM

GUIDELINES FOR RESEARCH

STATE OF THE ART OF HE FOR TEL

Institutional and National Report

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UNITEL WP1
Guidelines for Researching the State of the Art of HEIs
in Engineering and STEM studies for TEL

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Project	UNITEL
WP	WP1: Baseline Analysis
WP Activity	1.1. Analysis and synthesis of data - State of the Art of HEIs in Engineering and STEM studies (Institutional level) 1.2. Analysis and synthesis of data - State of the Art of HEIs in Engineering and STEM studies (National level) 1.3. Analysis and synthesis of data - State of the Art of HEIs in Engineering and STEM studies at EU level 1.4. Addendum for Skills and competences of the Universities' lecturers in line with the digital education era 1.5. Comparative analysis of state of the art in PC and EU for harmonization of curriculum development purposes 1.6. Preparation of Guidelines with recommendations about current practices in partner countries for curricula modernization 1.7. Roadmap on industry-relevant Skills and competences
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ACRONYMS

ARCS	**Attention, Relevance, Confidence, and Satisfaction**
CDIO	**Conceiving, Designing, Implementing, and Operating**
ECTS	**European Credit Transfer and Accumulation System**
ENQA	**European Network for Quality Assurance**
EU	**European Union**
EUA	**European Universities Association**
HE	**Higher Education**
HEI	**Higher Education Institution**
ICT	**Information and Communications Technology**
IR	**Iran**
NARIC	**National Academic Recognition Information Centers**
PC	**Partner Countries**
PD	**Professional Development**
QA	**Quality Assurance**
SES	**Socio Economic Status**
STEM	**Science, Technology, Engineering and Mathematics**
TEL	**Technology Enhanced Learning**
VLE	**Virtual Learning Environment**

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Introduction

The aim of baseline analysis is to identify details of the current practices and methodologies of HEIs in Engineering and STEM studies (pedagogical approaches and ICT-supported tools and systems). It will be done both at PC and EU levels and it will be focused on the state of the Art of HEIs in Engineering and STEM studies in relation to the pedagogical approaches and ICT-supported tools and systems used.

PC HEIs will produce a baseline analysis at institutional level and national level. The study methodology will follow a bottom up approach integrating a literature review with an action research involving 13 professors and instructional designers, 4 business actors and 10 students per each PC HEI in interviews allowing for a stratified sample. The filed-work analysis will be conducted through structured/semi-structured interviews, questionnaires and surveys to acquire qualitative and quantitative data. Academics, businesses and students real-life experience will be captured and used as "content" for developing participative learning activities contextualised during the training development phase.

This guideline has been prepared for all partners of the UNITEL project in order to conduct the baseline research analysis. In the first part of this document, a brief history has been given how WP1 started and how the main framework of research was defined. Details on the questionnaire preparation have been described as well. In the next pasrt of this guideline, the methodology of WP1 is explained and instructions are given for the partners on how to prepare the institutional and national report. Finally, the expected outcome and the due date of the report is presented.

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How the project started

The baseline research started with the following steps:

1. Forming a study team
2. Investigating the suggested titles
3. Literature review
4. Establishing the strategies of cooperation between the study team and the project representatives
5. Choosing the framework of questionnaires for four target groups consisting of students, teachers, companies, business actors

According to the four groups of respondents, different research questions was considered yet with a common research purpose. The research did not have any particular deduction for any respondent group and it considered four sets of research questions. For instance, the casual research questions for the students included:

Casual Research Questions

RQ1: Does positive teacher conceptions of TEL develop positive student conceptions of TEL?

RQ2: Does positive teacher appreciation of TEL develop positive student approaches to TEL?

RQ3: Does positive teacher conceptions of PD develop positive student conceptions of PD?

RQ4: Does positive teacher appreciation to PD develop positive student approaches to PD?

A combination of research questions and the frameworks needed a prerequisite literature review to explain some basic concepts such as TEL and PD. Thus, we searched for TEL and PD in all frameworks. For this purpose, we considered some questions and searched for the answers through literature review: "How to consider the TEL in pedagogy and teaching and learning activities?"; "The connection between pedagogical approach and student's positive approaches' towards TEL"; "TEL perception and attitudes in Iran"; ….

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However, these combinations seemed to require more time and were quite out of the scope of the research needed for the whole project (which was the combination of results of each questionnaire), so we then considered some questions that made a relation between each research questionnaire.

Relational Research Questions

RQ5: Is there a relationship between teachers' conceptions of active and collaborative learning and students' experiences of well-being and sense of belonging?

RQ6: Is there a relationship between teachers' approaches to active and collaborative learning and students' experiences of well-being and sense of belonging?

RQ7: Is there a relationship between SES and students' experiences of well-being and sense of belonging?

As can be seen in the following, each of these questions is considered as a keyword. But for more specification, we will bring forward some of the keywords used for literature review:

TEL	Medical students
Authoring tools and methods	Networked learning
Cooperative/collaborative learning	Self-directed assessment
Learning community	Social pedagogy
Lifelong learning	Active learning
Student-centered learning	Online learning
e-learning	CDIO approach
Generic competencies	Engineering related skills
Teaching strategies	Student centered assessment
Teacher centeredness	Technology enhanced assessment
Communities of practice	Soft skills
Conceptual framework	Integration of theory and practice
Constructivism	Faculty competence development
Feedback	…

With all these keywords, a big concern was raised: How can we explain/define them to all questionnaire respondents and survey participants? To overcome this issue, we provided some simple explanations/descriptions prior to the questions in each framework.

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Our main areas (Frameworks of research)

Theory and practice

Since theory and practice were essential for all our respondents (teachers, students, etc), we considered it for all previously mentioned target groups. This area actually reflects the attitudes, principles, and approached of the teachers together with the outlook of the university. But for collation of the results, some documents were also required from universities.

Self-regulation and motivation

This framework leads us towards a perspective that is related more to the students and teachers, but to find the attitude of business actors about this framework and its effect on the university's determination, we needed to find out their attitude as well. Through this area, we wanted to explore "How TEL can affect the students, teachers and business actors' behavior and attitude about learning via distance learning education."

Knowledge, skills, and attitudes

In this area, we wanted teachers to say their opinion about the skills (both hard skills and soft skills). To describe it for the respondents; we prepared some examples of each skill. We believed that this area is an essential and fundamental part of the questionnaire for the companies because they can tell us whether the students/graduates who work for them have the necessary skills or not. Moreover, teachers can tell us about the level of student's knowledge and their teaching methods.

Working-life orientation

Online learning, like other online bases, affects our relations, behaviors, and our life. So, when we want to take it into account, we should consider different aspects of its usage such as: online teacher-student relation, cooperation between students and etc.

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Questionnaire Preparation

According to the research questions, two master students in engineering education were assigned to conduct the literature survey: Amirreza Mehrabi and Sama Ghoreyshi from University of Tehran. Due to their expertise in Engineering Education which they gained at the UNESCO Chair on Engineering Education at University of Tehran, they were totally familiar with the project and its research titles, mainly TEL. The researchers worked on two different aspects: data acquisition for the state of the art and conceptions of learning and teaching. For each part, sub categories were defined: Theory and practice; Self-regulation and motivation; Knowledge, skills, and attitudes; Working-life orientation; Pedagogy for technology-enhance learning, etc.

The survey on each subcategory began by reading the substantial quantity of papers. Details on the quantity and quality of the literature review step is stated below:

- Theory and practice (*by Sama Ghoreyshi*): more than 9 papers were reviewed for this subtitle, and most of them focused on the difference between theory and practice, how to manage this gap and best practices to integrate practice and theory more.
- Self-regulation and motivation (*by Amirreza Mehrabi and Sama Ghoreyshi*): more than 11 papers were reviewed; most of the papers focused on the motivation and type of encouragement, different models of motivation like ARCS model, and most of them explained data that can be used just for a specific situation, but the researchers needed to consider the position of motivation of their own country like "what is happening about the motivation in Iran?". They continued reviewing this section by reading some papers based on motivation in Iran and made a taxonomy of them.
- Knowledge, skills and attitudes (*by Amirreza Mehrabi*): 12 papers were reviewed; initially, the researcher had to consider the type of skills, but this section changed in titles, after several meetings between the project partners. The skills were divided into two kinds of skills (soft and hard). Then a taxonomy was made of both types of skills and more focus was aligned on the knowledge of engineering students in Iran.

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- Working-life orientation (*by Sama Ghoreyshi*): 12 papers were reviewed and most of them were about TEL on the working-life, collaboration between industry and university, skills necessary for professional life, industry settings' attitudes towards TEL and online learning in universities.
- Pedagogy for technology-enhance learning (*by Sama Ghoreyshi*): 8 papers were reviewed. The main plus point of this review was the pedagogical prospect of the TEL and the good examples of that in addition to the best practices for pedagogies and assessment methods in TEL which were found.
- Work-based learning (*by Amirreza Mehrabi*):15 papers were reviewed. He works on some titles that the research group examined before, and the purpose of this section was to find better ways of enhancing workers' abilities to apply and integrate theoretical, practical, and self-regulative knowledge in problem-solving. Some other subcategories were directly reviewed too, like ICT tools in education, assessment, CDIO approach and etc.

To find the points from the articles, the researchers used Mendeley software to indicate and easily share: the problem statement of the articles, statistic results, abstracts, and other important features. The researchers reached some fundamental starting points for preparing the first version of the questionnaire. For each of the headings described above, some principals that they had reached are shown below:

- The applications of theory and practice in Iran
- The challenges and opportunities of technology-enhance learning for teaching theory and practice
- The position of Iran's universities about the orientation
- The roles of teachers and students in education environment
- The opportunities of self-regulated learning and different stakeholders opinion about it
- Pedagogical practices used in TEL
- Pedagogical practices for developing students' soft skills
- Pedagogical practice for social learning
- Pedagogical practices used in collaborative learning
- The challenges and opportunities of collaborative learning
- The challenges and opportunities of collaborative learning in online learning environment

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- The challenges and opportunities of problem-based learning in online learning environment
- Pedagogical practices for secondary (workplace) learning
- Specific pedagogical practice for online learning
- Designing a technology-enhanced learning method for traditional classes
- Problem solving is the core process in curriculum planning

Based on the above results, discussions started between the WP1 representatives (P11, P1 and P2) via Zoom meeting to investigate the effects and decide "How to summarize and reflect them into four questionnaires?" and "What are the main aspect that the researchers should consider for each questionnaire?". Accordingly, four cover letters were prepared (by Amirreza Mehrabi) based on the four respondent groups:

- Business actors
- Instructors, professors, and teachers of universities
- Students
- Companies that collaborate with universities

In each one of the cover letters the following main points were considered and highlighted:

- The purpose of the questionnaire and the project
- Cooperation of the researcher and university in preparing the cover letter
- The researcher's information for any connection with the repliers
- The project supporters
- Time for respond
- The role of respondents
- The security policy for respondent's self-information
- HELP for replying to each of the questions

The cover letter changed to just "policy section" and "the supporter of the project" in the second meeting. Researchers then started to develop the questionnaires and they used a similar policy with the literature review. Moreover, they argued about the type of data and databases for the questionnaire. They had to keep a balance between the time of responding to the questions and the number of questions in each part. After discussions and meetings, some qualitative questions were added and some suggestions were made:

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- Most of the questions should be in Likert type.
- A limit was defined for the number of questions in each questionnaire
- A Policy for interview was determined.

Control variables

- Age (scale)
- Gender (male, female, other)
- Education attainment (number of years in Higher Education, level of study)
- University (seat of study)
- Socio-economic Status (SES)

In order to acquire data for the control variables, we added some extra questions. For example, we asked students to indicate their academic position, their age, etc.

Dependent and independent variables

We considered the construction of dependent and independent variables. For instance, independent variables for students included:

- Teacher's conceptions of online learning (TcTEL),
- Teacher's appreciation for active learning (TaTEL)
- Teacher's conceptions of professional development (for both teacher and students' questionnaires)

Then we integrated these constructed independent variables into the frameworks (pedagogy and practice, etc.) For that purpose, we added some more questions to each framework. Dependent variables were constructed as below:

- Students' conceptions of technology-enhanced learning (ScTEL),
- approaches to technology-enhanced learning (SaTEL),
- Students' conceptions of professional development (ScPD),
- Students' approaches to professional development (SaPD).

Finally, the questions were imported to Google form and were translated to Persian.

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Sample

A non-probability sample was used, meaning we involved a non-random selection based on convenience or other criteria, allowing us to collect data easily. Selection was based on students attaining STEM courses during the academic year 2020-2021. Because the research doesn't have any pre-determined assumptions and only descriptive analysis is needed, we ignored the Cronbach's alpha. It should be noted that a quasi-experimental design or correlational design can be used depending on whether we can establish causality in the data. Quasi-experimental means that we, as researchers, do not control the treatment but instead study pre-existing groups that received different teaching styles during the online learning period, trying to establish causality between the variables. No control groups were used as all teaching was carried out in the blended or online format. We, as researchers, cannot establish causality between the variables but aim at establishing a relationship between the variables.

Methodology and Instruction

The baseline research on the state of the art of HEIs in Engineering and STEM studies implementing TEL will be conducted in three levels: *Questionnaires, Interviews, and Desk Research*. In the following, details on each section along with instructions on how to conduct them have been explained.

Questionnaires

The questionnaires have been prepared according to four target groups: Students, Teachers, Business Actors and Companies. The questionnaires can be accessed via the following links to their google forms. All Iranian HEIs involved in this project should share the questionnaires between the respondent groups with *at leas*t **10 students**, **13 teachers, 4 business actors** and **5 companies**. Details on the definition of the respondent groups are given below:

- **Students**
  Undergraduate students in (as much as possible) different departments. Since the partners of the project include technology and nontechnology-based universities, we would prefer to collect information from a diverse set of expertise. For example,

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try NOT to collect information from the students in the same department in your university, but at least from 3 different departments. This helps to better reflect the needs, strengths and shortcomings in each field which is necessary for the next work packages.

Link to student's questionnaire:

https://docs.google.com/forms/d/e/1FAIpQLSeAn12TF01SSjCt_mxJKachcMrz4DliSaec7E6szrMjpFuSrw/viewform?vc=0&c=0&w=1&flr=0

- **Teachers**

  Faculties and instructional designers involved in course preparation and delivery. Same as students, please select faculties from different departments.

  Link to teacher's questionnaire:

  https://docs.google.com/forms/d/e/1FAIpQLSdfu0clLbsheBSpdRw51y_yx-CnTmo5gLs1BtEkZ1csLOp3Xw/viewform?vc=0&c=0&w=1&flr=0

- **Business Actors**

  The business actors are official bodies that have different management/director roles in HEIs. For instance, rectors, faculty deans, heads, directors, chancellor/vice-chancellor of education/research/students/… affairs and other authorities responsible for the course development, accreditation and evaluation.

  Link to business actor's questionnaire:

  https://docs.google.com/forms/d/e/1FAIpQLSf4R-RZ-oWqAsDWS0FO3UGcm2ABbq_-3_nrt7KdpnLfo3JRcA/viewform?vc=0&c=0&w=1&flr=0

- **Companies**

  By companies, we mean the spin-offs and start-up companies that are in collaboration with HEIs or their members are among the students or faculties of HEIs and are in close contact. The questionnaires of this respondent group can also be filled by any small or large enterprises that have collaboration records with HEIs.

  Link to company's questionnaire:

  https://docs.google.com/forms/d/e/1FAIpQLSe-fXMwJQ4tqyeGYQbeYgwP3TH13zJOPirSovJJjgS3YwkToQ/viewform?vc=0&c=0&w=1&flr=0

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Interviews

Once the data from the questionnaires are gathered, a number of nominees will be selected to interview with by P11 at a later stage. The selection process for the interviews will be based on the answers from the questionnaire respondents that seem to have a higher potential to reflect either positive/negative opinions (i.e. respondents that have entered their opinion to open-ended questions in the questionnaire or volunteers for interviews). Moreover, any suggested participants for interviews by HEIs is highly welcomed. The interviews will be in Persian and will be recorded. They can be conducted online (preferred) or in-person. The interviews will be carried with all four target groups of respondents. A brief report in English will be prepared by P11 based on the answers of the participants per each interview and will be used as the content for the comparative analysis step.

Desk Research

Apart from the data collected through questionnaires and interviews, an important part of data collection is attributed to the institutional reports.The aim of this desk research is to identify the existing TEL practices, policies and standards, challenges, obstacles and opportunities for applying at a national and institutional level, and to find the needs of the stakeholders involved (policy makers, academic/teaching staff, students, administrative staff, technical staff, content designers and developers, education experts and didactical designers).

The desk research should be conducted by each HEI in order to identify the local situation. Each partner involved in the project should draw up a report describing the state of the art in TEL on its own institution. This data collection is a part of Erasmus+ project UNITEL and must take place simultaneously in each HEI. Please notice that answers may be needed from several respondents. Answering requires cooperation in the institution. Same questions are more linked to institutional policies, some are dealing with practices in teaching. Please indicate in each major topic area what resources or documents were used and who answered the questions.

In order to conduct the research, the partners should do the following:
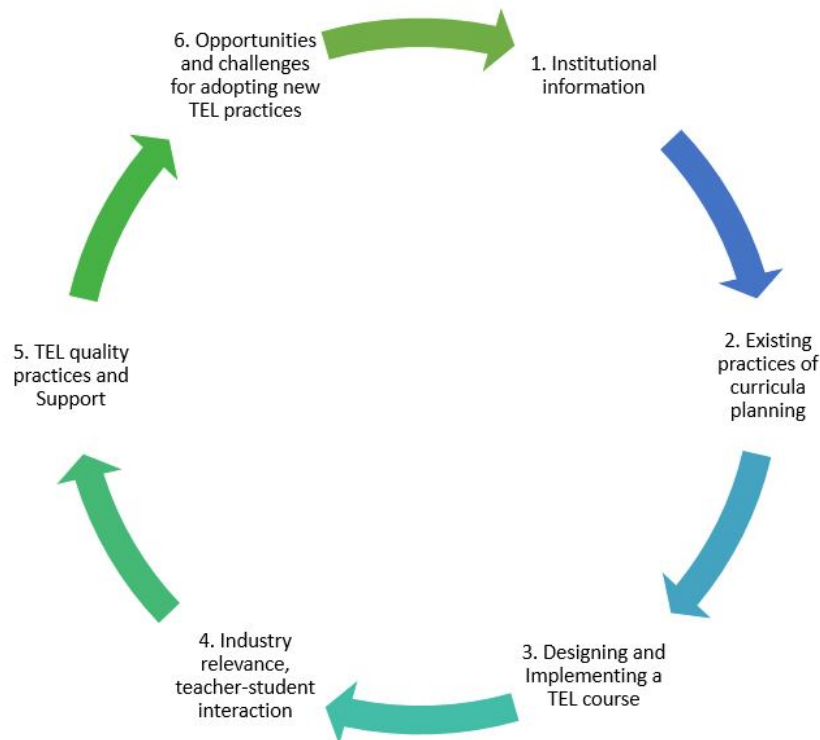
- Review earlier researches and statistical data available for their country/institution;
- Seek and review policies and national legislation

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Please also notice that:

- The questions posed per chapter are to help organize the information to be gathered.
- The answers must be short and to the point. All necessary information must be mentioned.
- Organize key findings using bullets or tables.
- Overlapping in answers is possible.
- To correctly identify the trends, sources must be recent (not more than 3 years old)
- Each finding must be, ideally, attributed to a source therefore a reference is needed.
- Specific frameworks, policies, legislation must be fully referenced.

The following picture is meant to illustrate the different dimensions of the data collection. Each HEI will answer chapters 1-6 proposed in this picture. In addition, Iranian coordinator and EU members will answer to national questions in chapter 7.

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Definitions of Important Terms

Prior to answering the questions, the following definitions on important keywords related to the report are provided for your convenience:

Online courses are courses taught online, mostly using a Learning Management System and including asynchronous and eventually synchronous online communication. They may have a face to face moment, but only for final assignments or exams.

A **blended course** includes online and face to face sessions (being the latter not only for final assignments or exams). The ratio of online to face to face sessions may vary, as do the succession and types of each kind of session.

Technological Enhanced Learning refers to all learning that is supported by technology, mainly digital. Although there are different concepts (even defining it as a synonym to e-learning), it is mainly used to describe face to face teaching and learning that makes use of technology to maximize these processes (in this sense it is distinguished from fully online learning).

A **Virtual laboratory** is based on software to simulate the lab environment: it is made up of simulations of the real experiment developed on the computer in a virtual environment. All the objects of the experiments, are totally virtual.

A **Remote laboratory**, by definition, is an experiment which is conducted and controlled remotely through the Internet. The remote laboratory ICT system includes the setting up of the infrastructure for the remote control of the experiment, the experimental system located at the university lab class for the practical experience undertaken which refers to the lab equipment, cameras and systems for the constant monitoring and safe control procedures (also in terms of management of data), the communication system which includes the use of programmable devices for the connection at distance of the experimental apparatuses.

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Report Structure

The use of the report template is obligatory. Please use the following format of contents:

Chapter 1. Institution Information

> • *Name of the partner*
> • *Names of respondents, positions, departments*
> • *Provide a short introduction describing the methodology you used and the number and types of sources*
> • *Please keep your answer short, maximum 1 page*

Chapter 2. Existing practices for curriculum planning

> • *Name of the partner*
> • *Names of respondents, positions, departments*
> • *Provide a short introduction describing the methodology you used and the number and types of sources*
> • *Please keep your answer short, maximum 1-1 ½ page per question*

2.1. Policies and guidelines in use for curriculum planning

> ● *How do you plan the initiation of a course (e.g. needs analysis for demand and constraint identification etc.)*
> ● *What kind of goals are set in the organizational strategy and other governing documents for overall curriculum planning and development?*
> ● *Are the needs of working life and the industry somehow described in the governing documents? If they are, please describe, how?*
> ● *Is TEL/online learning part of the overall strategy for your institution's development and how?*
> ● *Do you foresee laboratory activities within curriculum planning?*
> ● *Which kind of laboratory activities do you use? (e.g. in presence, virtual, remote labs etc.).*
> ● *In case you use virtual/remote labs can you please describe them in terms of technological infrastructure and pedagogical model applied?*
> ● *Has the COV-19 pandemic affected your curriculum planning practices? In which way? (please describe any changes that occurred after covid pandemic broke out).*

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2.2. Curriculum planning in practice

- *How do you plan the initiation of a course (e.g. needs analysis for demand and constraint identification etc.)*
- *How are different stakeholders (e.g. teachers, students, businesses and other actors in society) and their needs taken into account in the curriculum development?*
- *How is the content of the course designed?*
- *In faculty level, does the curricula design reflect any specific pedagogical practices and innovation?*
- *In faculty level, what way is working-life relevance discussed in the curricula?*
- *What is the teaching staff-student ratio?*

Chapter 3. Designing and implementing and a TEL course

- *Name of the partner*
- *Names of respondents, positions, departments*
- *Provide a short introduction describing the methodology you used and the number and types of sources*
- *Please keep your answer short, maximum 1-1 ½ page per question*

3.1. TEL as a practice in your institution

- *Is TEL or online courses a usual practice in your university, or do you organize teaching like this only due to pandemic?*
- *How many, in what level? (e.g. graduate/postgraduate).*
- *Is TEL part of the overall strategy for your institution's development and how?*
- *Is there a strategy in your institution for digital innovation, TEL being a part of it? Is this strategy known within the institution at all levels?*

3.2. Technology in use

- *What kind of technology are you using (e.g. platforms, videoconferencing etc.)*

3.3. Course development process

- *How do you plan the initiation of a course (e.g. needs analysis for demand and constraint identification etc.) in TEL/online courses compared to face-to-face courses?*

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3.4. Stakeholders involved and their roles and tasks

- *Do you involve students in TEL/online course design?*

- *How is the content of the course designed?*

- *Is there any technical support for teachers in course design? Is support given at university, faculty or department level?*

- *Are there any facilitators that support the learners? If there are, please elaborate: describe their role, tasks and the cooperation with the lecturer.*

3.5. Protocol of course assessment

- *How do you evaluate the course: Is there a systematic institutional process / protocol? Are students involved at this stage?*
- *How is evaluation performed after the course is taught/delivered?*
- *How is data collected?*
- *Do students give feedback on teaching? If, please describe how.*
- *Who is informed about the evaluation?*
- *What measures can be taken for improvement?*

3.6. Identification of TEL /online quality practices or patterns of quality

- *Is your Institution using Quality standards/frameworks for TEL/online?*
- *If no, what are the reasons?*
- *Are you planning to use one in the future?*
- *If yes, which are they?*
- *What quality areas do they cover? How long have you been using them?*
- *Does your Institution collect data in order to evaluate TEL/online programs?*

- *Is there a strategy on the use and purpose of learning analytics within the institution?*

- *Does your institution consider ethical norms and government policy with respect to data protection and the privacy of students?*

3.7. Process of continuous improving of educational provision

- *Are TEL/online programs reviewed, updated, and improved and how?*

- *Are there any Institutional policies, structures, processes, and resources in place to*

> *guarantee the successful teaching and learning process of students with special educational needs?*
>
> ● *Is there an institutional policy and code of practice to ensure academic integrity and freedom and ethical behavior?*
>
> ● *Are there any electronic security measures set by your institution's policy/code of practice?*

3.8. Professional development of teachers and instructional designers

> ● *In faculty level, do people involved in designing/ developing/ evaluating TEL/online programs have specific expertise in academic and technical aspects and which?*
>
> ● *Is the teaching staff involved in designing/ developing/ evaluating educational programs familiar with the advantages/disadvantages of using TEL/online in particular course contexts?*
>
> ● *Is the teaching staff trained and proficient in the use of learning technologies and (e-) assessment methods?*
>
> ● *Are there any particular training activities for new staff?*
>
> ● *Has the institution developed procedures to identify the support requirements of the teaching staff?*
>
> ● *What workshops are available for your teachers to attend? (for example: professional development, enhancement of faculty competence in skills, enhancement of faculty competence in pedagogy and enhancement of faculty competence in TEL)*

Chapter 4. Industry relevance

> • *Name of the partner*
> • *Names of respondents, positions, departments*
> • *Provide a short introduction describing the methodology you used and the number and types of sources*
> • *Please keep your answer short, maximum 1-1 ½ page per question*

4.1. Policy and action plan for industry-relevance

> ● *Are industry needs considered when developing the learning model and the curricula design?*

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- *How is industry and other stakeholders involved in the process? Are there specific needs considered for STEM education in your institution when transferring courses to technology enhanced learning or online learning? If so, please explain how.*

4.2. Infrastructure

- *Is the technical infrastructure aligned with the teaching methodology, learning activities, and e-assessment methods? If so, please explain how.*

- *Does the mentioned infrastructure and used online tools support student active learning and collaboration?*

4.3. Assessment of learning

- *Are (e-) assessment methods fit for purpose, allowing students to demonstrate the extent to which the intended learning outcomes have been achieved?*
- *How are they designed?*

4.4. Functionalities of the technical infrastructure

- *Does the virtual learning environment, VLE (if any) support specific pedagogical methods and tools?*

- *Is the VLE based on non-proprietary web standards and is it updated to reflect technological changes? How often?*

- *Does the technical infrastructure ensure the accessibility of the TEL/online programme by students with special educational needs and how?*

4.5. Use of virtual and remote laboratories

- *Does the institution provide students with an e-library?*

- *Does the institution have virtual labs?*

- *Does the institution have remote labs?*

Chapter 5. TEL quality practices and support

- *Name of the partner*
- *Names of respondents, positions, departments*

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- *Provide a short introduction describing the methodology you used and the number and types of sources*
- *Please keep your answer short, maximum 1-1 ½ page per question*

5.1. Staff professionalization

- *Has your institution procedures for recruiting and hiring teaching staff?*

- *Do you offer pedagogical training for teaching staff? Do you have courses specific for technology-enhanced learning? How is it organized?*

- *How is the teaching staff coordinated during course delivery?*

- *Do you have support materials available on the intranet for online learning and teaching?*

- *Is pedagogical training mandatory for teaching staff?*

Chapter 6. Opportunities and challenges for adoption of TEL practices

- *Name of the partner*
- *Names of respondents, positions, departments*
- *Provide a short introduction describing the methodology you used and the number and types of sources*
- *Please keep your answer short, maximum 1-1 ½ page per question*

- *After describing the current state of art in previous chapters, identify opportunities and barriers for transformation of education. Put them in order: **the most important first.***

6.1. Opportunities

- *1. (Max. 50 words)*

- *2. (Max. 50 words)*

- *3. (Max. 50 words)*

6.2. Barriers

- *1. (Max. 50 words)*

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- *2. (Max. 50 words)*

- *3. (Max. 50 words)*

Please notice that the following chapter 7 is meant for the Iranian coordinating institution, and the EU institutions to answer.

Chapter 7. National Policies

- *This chapter is obligatory only for EU partners and the Iranian coordinator.*

7.1. TEL practices in Higher Education in (the name of the partner country)

- *Please describe the relevant documentation on this (max 2 pages).*

7.2. Approaches and Methods for Quality Assurance

- *Please describe the main evaluation principles (max 2 pages).*

7.3. Mission statement and strategy of the National Evaluation and Accreditation Agency

- *Please describe the relevant documentation on this (max 2 pages).*

7.4. Future National Policies practices, efforts, initiatives, frameworks that relate to TEL quality

- *Are you aware of any plans to design new policies?*
- *If yes, are National-wide stakeholders involved in developing TEL criteria (policy makers, National or regional authorities, associations etc.)?*

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7.5. Needs for National Policies practices, efforts, initiatives, frameworks that relate to TEL quality

- *Which area(s) of legislation pose a significant challenge to the application of TEL quality methods?*
- *What should be improved? Please provide any recommendations you may have regarding policy reforms (at all levels) that would help your organization establish TEL quality processes.*
- *Please provide any ideas you may have regarding reforms in educational policies (at all levels) that would help your organization establish TEL quality processes.*

7.6. Training Needs for TEL Quality

- *Are there any training curriculums for TEL/(online teaching practices in general?*
- *Which should be the top 5 educational objectives of a training curriculum in TEL/online teaching practices?*
- *Who should be trained for TEL/online practices?*

References: Please provide the list of references you used

Outcome, Duration and Deadline

At the end of the research, each partner is expected to produce a report describing the research findings regarding the local situation. The report should be written in English. The structure of the report should follow the structure described in the previous section. You may add questions. The entire duration of the activity (including research and production of the report) should be 4 weeks. Reports should be sent to P11 by **August 10th the latest**.

The questionnaire survey will be initiated around July 10th 2021 and will run in parallel in Iranian HEIs.

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We would like to warmly thank all the members who have contributed to this desk research!

UNITEL project team

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