

# Teaching & Learning Innovation Policies @ NOVA

2023.05.22

**NOVA:**

*Serving society*

*at the local, regional and global level*

*through knowledge*

NOVA's vision is to stand as a Global and Civic University, as reflected in its mission and values. This document proposes policies in teaching and learning innovation to be enforced in the near future, so as to help implementing the embedded vision in its strategic plan 2020-30.

The proposed policy plan for teaching and learning should help NOVA serving society, locally and globally, through knowledge dissemination and developing teaching excellence, enabling students to discover their potential and develop their individual talent, with a strong sense of active citizenship, democracy and justice, and providing them with the necessary skills and knowledge to successfully develop a career anywhere in the world. Such policy plan for teaching and learning innovation should be contributing to, and leveraging on:

- an inclusive, and diverse academic environment able to attract the best talent from all cultural backgrounds;
- a high quality, student-centered teaching based on international quality standards, led by academics of excellence;
- a collaborative research environment stimulating interdisciplinary teaching and learning, aimed at creating innovative programmes developing more adaptable skills to the fit the professional needs of the future;
- the promotion of knowledge-based tools and development of skills that will allow our graduates to have social and economic impact in society, helping to promote sustainable development at the economic, technological, cultural, social and health levels.

The proposed policy plan for teaching and learning innovation should be clearly grounded on the stated values of NOVA University Lisbon, namely the respect for human rights in general, (including freedom of thought, democracy and the rule of law), as well as the traditional academic values, (such as accountability, honesty and integrity, together with transparency and independence of conflicts of interest). As a public institution, NOVA is committed to promoting equal opportunities, a culture of merit and solidarity that will contribute to a sounding pedagogical system, and thus a better society.

There is a cultural identity at NOVA that no policy plan may ignore, in particular a plan for teaching and learning innovation. The 5 underlying cultural pillars are:

- A diverse, inclusive, international, and student-centered **learning environment** that prepares successful professionals and, most importantly, entrepreneurial, committed and compassionate citizens, able to make a difference in a changing global society.
- Students, academics and staff are encouraged to **be bold** breaking free from traditional paradigms when undertaking the University's overall goals and values in search of alternative and innovative ways of achieving their own goals.
- At NOVA, the **aptitude to innovate** is essential and stems from the combination of being bold and assuming a scientific spirit, widely promoted in research, teaching, and learning, that encourages curiosity, creativity, the use of evidence, critical reflection and free discussion.

- There is a strong culture of **merit and excellence recognition** in all areas of action at NOVA, guaranteeing that no talented student will be left out of NOVA, and have equal access to training and career advancement, motivating all to perform at their best.

NOVA's Community aim to contribute to a better and more **sustainable future** in its social, environmental and economic impact. Its contribution will be based on the knowledge and skills produced, on the resulting potential for innovation, on the values of active and civic citizenship that NOVA shares and promotes, on the quality of its national and international strategic partnerships, and on the collaboration with society, locally and globally, around the UN 2030 Agenda for Sustainable Development.

In order to implement its vision, namely to become a Global and Civic University, NOVA pursues 7 main strategic goals that should encompass any policy plan. In particular, for this Teaching and Learning Innovation Plan we must consider:

1. **Smart specialization:** defining the strategic areas of action, strategic actions, the cycle of studies affected, areas of recognition and suitable partnerships;
2. **Talent Policy:** aiming to attract (national and internationally), promote, retain (whenever useful) and place (national and internationally) the best possible talent. By staff we mean students, faculty, and staff;
3. **Community:** leveraging on building and consolidating a community involving students, academics, staff and external partners aimed as a helping tool for implementing the various policies of the University;
4. **Teaching:** implementing a model that will empower students with knowledge and skills that will enable them to successfully build a career anywhere in the world;
5. **Research:** relying on a specialized and interdisciplinary research agenda that may support more innovative educational programs;
6. **Value Creation:** providing graduates with the tools and skills to contribute to the social and economic development of society at large;
7. **Governance:** assuming a fluid governance at the University level, allowing for interdisciplinary cooperation across different schools in the design and implementation of various pedagogical initiatives.

## Principles for a NOVA Policy on Teaching and Learning

Such principles must be based on

- › The above-described concept of NOVA University Lisbon as a community-based institution dedicated to improving society through knowledge;
- › The desirable interaction between teaching and research in an interdisciplinary context;
- › The challenges of this decade regarding social, technological, environmental and economic future uncertainty.

NOVA has come forward with a proposal for a Teaching and Learning innovation Plan for the next years. The objectives of this strategy, based on an extended consultation with the NOVA community are:

- o to establish a shared vision based on the identity of our teaching as an ecosystem in which education is closely linked to research;
- o to understand what the characteristics of excellence that associates our values with teaching should be;
- o to identify the priorities inducing the development of education and the changes responding to the challenges of the current societal context, namely
  - √ Principle of Employability: to identify complementary offers, responding to present and future social needs. In particular, respond with adequate training to the social, technological and scientific challenges that do not have an adequate response in the current training offer;
  - √ Principle of Synergy: to involve pedagogical collaborations between different areas of knowledge in order to offer interdisciplinary training, without losing the depth of knowledge appropriate to each level of training;
  - √ Principle of Internationalization: to offer programs that follow the best international practices and may help reinforcing the global impact of the brand of NOVA University. In particular, to offer new programs that allow to attract the best national and international talent (students, faculty and researchers) from outside Portugal, but also to expand the space of employability outside national borders;
  - √ Principle of Teaching and Learning innovation: to include in the new offers innovative pedagogical methods more appropriate to new forms of learning, namely (1) leveraging new forms of technology - assuming in particular the role of the digital transformation; (2) developing methods of interaction and group work –namely by engaging the students in a more pro-active way; (3) gradually recycling the faculty to this end, providing the adequate recognition of their effort and merit – and the necessarily associated means for that effect; (4) and reinforcing an adequate and enlightened leadership at various levels that may support such process.

### *Characteristics of Excellence*

The design of this policy is based on our educational aspirations in terms of students, staff, teachers, curriculum, pedagogy, former students and other stakeholders. Some of the most obvious outputs that will prove its success are:

- To create a culturally diverse community of students, whose members have different backgrounds;
- To promote inclusion, civic conscientiousness, well-being and mobility through curricula, policies and processes;

- To support students in their university integration and in their potential for impact outside the university;
- To work with the different student groups in supporting their academic evolution and integration into the labor market, taking into account their heterogeneity, with regard to socio-economic differences, age, ethnicities, culture and disabilities;
- To value faculty and staff career progression with adequate incentives aligned with the proposed policy;
- To use teaching as an inspirational tool that leads to cooperation that equally values educators, researchers and officials responsible for implementing and operating all processes underlying the outcome excellence;
- To stimulate the recognition and development of teaching excellence at the University in the most varied areas of knowledge and throughout the different cycles of study;
- To stimulate innovation in pedagogical practice based on practical evidence, opening a reputational space of pedagogical leadership, both at the individual level and for NOVA itself.
- To develop, together with students and teachers, pedagogically innovative curricula and an experience on campus that can be internally competitive and adjusted to the global labor market of the future;
- To develop a flexible educational system, based on research, interdisciplinary and high quality that can attract talent (students, teachers and staff) from any part of the Globe, and that recognizes cultural, social and geographical diversity as a value from which the entire NOVA community can benefit;
- To use teaching and learning innovation to reflect the international impact of NOVA brand, enabling global opportunities to be shared by all and for the community to welcome different perspectives, ideas and challenges and to expand across the border;
- To let our physical and virtual spaces be accessible, open and committed to an internationally recognized quality education.

### *Teaching and learning innovation*

- o Teaching and learning should be reinforced with pedagogies based on scientific knowledge and recognized practices, and renewed through careful evaluation of innovative teaching methods, so that objectives, methods, content and results are aligned.
- o Involve students as active participants in the production of knowledge;
- o Our assessments should be fair but rigorous, appropriate but challenging, subject to regular, inclusive and affordable quality control.
- o Regularly review practices taking into account the feedback from students and teachers and advances in the sector.

### *The Social Impact of Our Graduates*

We expect that, by implementing a teaching and learning innovation policy, graduates of NOVA may reinforce their current reputation, excelling in society at different levels, namely

- Individuals formed by NOVA must be creative agents of change in society, inclusive, resilient, and prepared to contribute to a more sustainable, technological and entrepreneurial society through their curiosity, critical thinking and global understanding of the phenomena that surround us.
- An educational experience in NOVA should offer opportunities inside and outside the curriculum structure so that welfare policies, approaches to the employability of different backgrounds and awareness of the need for lifelong learning for personal development are consciously worked on.
- Employers, *alumni* and other members of the NOVA community should always be heard in developing and implementing programs, including external perspectives that allow graduates to contribute as elements of change.

## NOVA's 6 Dimensions of Innovation in Teaching and Learning<sup>1</sup>

NOVA's offer comprehends its graduate cycles of studies (1st, 2nd or 3rd Cycles) and non-degree training (particularly lifelong learning).

In today's world, where knowledge content and training needs are constantly changing, maintaining the level of excellence of training offer requires constant attention to the performance of various components of that offer and, equally important, the ability to innovate. In this context, it is fair to assume that a 21st century training offer delivered in the European Union, where the so-called 'Bologna Process' is fully implemented, has to consider a number of components which constitutes the already ongoing Learning@NOVA initiative; comprehending Teaching and learning innovation; Internationalization of the core curriculum; Presence of complementary training in addition to core curriculum; Presence of credits aimed at fostering employability and entrepreneurship; Connection to Research; Lifelong Learning: (re)training of skills.

The present policy proposal takes a complementary approach, crossing all the above and enriching its scope focusing in the innovative and rich teaching and learning environments, both digital and non-digital based.

As such Teaching and Learning Innovation embraces the best-known practices taking both pedagogy and advanced ways of learning the contents provided by the university. It no longer limits itself to the use of the latest technological innovations providing students with an enriching and progressively hybrid learning experience (blended learning), combining classroom interaction with increasingly wider access to digital content, such as the flipped classroom method, tailoring classroom interaction to the characteristics of today's generation of students, 'always on the web'

The evolved model of teaching and learning innovation will progressively come into existence as a distinctive element of NOVA's teaching offer in all its strategic cycles of studies and, where appropriate, in non-degree training.

This Teaching and learning innovation policy is organized in 6 dimensions:

1. The Professional Development of All Those Who Teach;
2. Teaching and Learning in a Digital World;
3. Leadership, alignment, and connectedness;
4. Student Engagement and collaboration;
5. Evidence based decision making and Scholarship of Teaching and Learning;
6. Assessment For, As and Of learning.

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<sup>1</sup> Adapted from the Irish Delta Framework

# 1 The Professional Development of All Those Who Teach

## *Summary*

Nova's Schools should recognize different career perspectives: teaching track and research track, both to be equally respected and granted equivalent support and career advancement opportunities.

It is important to notice that such different tracks already exist as legally approved at NOVA University, as published by a law decree. It is up to the different Schools to implement one such vision of multiple tracks or not, depending on their degree of internal complexity and the alignment of their own vision, mission and policy with the concepts therein incorporated.

To implement adequately such idea, schools should have staff development units properly funded, and connected both internally and across the University, bringing national and international best practices.

## *Goals*

- Distinguishing appropriately within each Schools different vocations among faculty according to this vision;
- Getting a significant number of engaged faculty members on teaching and learning innovation and practices' dissemination in each faculty.

## *Strategies*

- To segment faculty according to the proposed categories<sup>2\*</sup>:
  - Scholarly Academics,
  - Practice Academics,
  - Instructional Practitioners and
  - Additional Faculty.
- To adapt and publish a common set of rules for promotion to be adopted by each school, differentiating the various segments;
- To include stronger weight on the pedagogical dimensions, and an additional weight for the innovation component and its recognition among faculty categories more devoted to education, as compared to the usual research track;
- To define differentiated recruitment strategy for the different profiles;
- To offer an Advanced Learning Office (ALO) in each school, or articulate among a group of schools, that may work as a support unit for pedagogical training and digital technology for instructors;
- To connect and complement the activities of such ALO across the University;
- To provide and consolidate educational resources repository collected across the University and other sources, to be shared internally and across the university.

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<sup>2</sup> Follows the well-established classification proposed by the AACSB.

\*See the glossary at the end of the document for clarification of the terms.



### *Resources*

- Advanced Learning Office Network
  - > Educational and pedagogical training and support
  - > Technological training and support
  - > Development and innovation of pedagogical tools and mechanisms
  - > Updating with best international practices
- Shared repository
  - > Educational Resources
  - > Assessment tools

### *Scheduled goals*

- Clear identification of the different groups of instructors per school by 2023 Dec
- Regular Interschool Meetings to discuss ALO practices: 2023 Dec / 2024 Jul / 2025 Jul
- Distinctive incentive strategies for the various faculty categories 2023 Nov

## **2 Teaching and Learning in a Digital World**

### *Summary*

In the current competitive environment, the pedagogical development of higher education institutions cannot ignore the substantial contribution of technology and digital transformation, namely the impact of neurosciences and artificial intelligence. Digital media and tools are key to significantly enhance the teaching and learning environment.. A Distance Education strategy using digital online resources and environments for providing learning offers could make a difference while serving multiple goals: providing visibility for NOVA schools and courses, interdisciplinary opportunities, flexible and open learning for all citizens while profiting of and enriching the teaching and learning resources repositories.

### *Goals*

- To develop a digital system of “Customized Education”, that support students in their academic path towards professional and personal accomplishment;
- To develop a digital and on-line presence for the Curricular Units across the University;
- To use digital competences in order to implement active learning strategies;
- To become a player on the global online distance education offer;
- To effectively train and support instructors and faculty members in contextualized approach for teaching and learning.

## *Strategies*

- Request the help of more experienced units such as IMS and FCT in order to implement “Customized Education” pilots at the different units;
- Identify and collect data from publicly available sources (including social networks) related to our students’ community;
- Rely on Career Services and Alumni Offices at the different Schools, collecting data from employers and social networks based on our alumni community, their academic background and career, in order to facilitate the placement strategies given the profiles of NOVA’s students;
- Profiling our students via the Career Services Offices using various data sources and sharing practices across schools; in parallel, profile students through AI strategies in strict compliance with data protection regulations and comparing with the non-AI approach;
- Develop a digital presence of Curricular Units that generate concrete resources to help students in the teaching and learning process, beyond the simple online description;
- Develop pilots on active learning methods, such as flipped learning among others;
- Develop a repository of various shared resources (digital tutorials, simulations, quizzes, etc.) and practices on teaching and learning content;
- Develop and implement training courses for Digital Competency development, to be recognized as Distance Education competencies development.

## *Resources*

- Repository of shared resources and practices
- Career Service Office and Employers network
- Alumni Coordination Offices
- Advanced Learning Offices with digital competences
- Possible external data sources

## *Scheduled goals*

- By the end of 2023 one online repository available
- Regarding the Digital presence in Curricula:
  - › By the end of 2023, at least 2 CU per School (CU with up to 1 CE of 1<sup>st</sup> cycle) or 1 CU per department in larger Schools
  - › By the end of 2024, at least 4 CU per School (CU with up to 1 CE of 1<sup>st</sup> cycle) or 2 CU per department in larger Schools
  - › By the end of 2025, at least 8 CU per School (CU with up to 1 CE of 1<sup>st</sup> cycle) or 4 CU per department in larger Schools
- Regarding the Training of Faculty
  - › By the end of 2023:
    - 50% of all faculty with beginners level of training
    - 33% of all faculty with intermediate level of training
    - 10% of all faculty with advanced level of training



- Pedagogic Councils in all Nova Units (that have one) and CoDE NOVA
- Advanced Learning Offices
- NOVA Teaching and Learning Division

#### *Scheduled goals*

- By early 2023: formal acceptance of this policy;
- Regular reports validated with institutional feedback;
- Every year: Nova One Day Workshop (replicate the Seminal Teaching and learning innovation Workshop).

## 4 Student Engagement and Collaboration

### *Summary*

Students are a driving force of any educational institution, and they are eager to contribute. However, their full potential can only be harnessed if proper measures are set in place to capture their views and maximize their input.

Although NOVA's governance model considers the student's representation in several mid-management structures (e.g., Pedagogical Committees for each program), it could complement this with a broader participation in different initiatives, not only at the local university level, but also outside the University, in direct contact with the surrounding communities.

### *Goals*

- To get to know NOVA Students thoughts about their Schools, their learning system, and the University as a whole;
- To implement more innovative learning systems that allow students to be more engaged in the process;
- To place NOVA students in contact with the economic and societal reality through different organizations;
- In the context of Lifelong learning, creation of a senior educational valence at NOVA in the spirit of inclusion and pedagogical diversification and multidisciplinary innovation.

### *Strategies*

- A yearly workshop with students active participation to the likes of the Teaching and Learning Innovation 2022 workshop;
- Creation of a senior educational valence at NOVA in the spirit of inclusion and pedagogical diversification and multidisciplinary innovation;

- Development of pilots on student-centered strategies such as Problem-Based Learning (PBL) and Team-Based Learning (TBL) among others, as pedagogical methods to better engage students in the learning process.
- Creation of a senior educational valence at NOVA in the spirit of inclusion and pedagogical diversification and multidisciplinary innovation;
- Use the *Learning with Impact* program to develop the interaction of students with the surrounding community within the framework of UN's Strategic Development Goals (SDG) and of the European Green Deal (EGD)\*.

### **Resources**

- Local Student Associations
- Nova Federation of Students
- Volunteer students' organizations
- External partners and sponsors

### **Scheduled goals**

- 2023: First Annual Students @ Nova Workshop with delegates from each of the different schools, from all learning cycles, to produce a student recommendations agenda regarding Teaching and Learning.
- Creation of some pilots of senior multidisciplinary educational projects for senior attendees in the area of culture, digital literacy, and well-being.
- Other scheduled goals to articulate with the Learning with Impact program.

## 5 Evidence based decision making and Scholarship of Teaching and Learning

### *Summary*

There is a vast amount of scientific literature about teaching and learning in higher education. These have been mostly produced by researchers in the Education domain. The idea of every teacher to be a researcher on teaching and learning on its domain should be pursued by building a motivational process for teachers. Increasing the number of published studies and thus enhancing knowledge on the matter will be provide for a better system. Moments to evaluate the measured outcomes should be implemented. And also ways to reflect these through new metrics and clear impact on career progression.

### *Goals*

- To promote and motivate school wide research of teaching and learning
- To share experiences across the different departments and schools
- Publish research on peer-review journals, according to A3ES criteria.

### *Strategies*

- Faculty members to develop case studies on the T&L of their syllabuses
- To develop an online web system with specialized information regarding teaching & Learning research and relevant findings
- To promote with schools a T&L annual meetings with posters from which the best may become papers to be published by the university
- To annually repeat the Teaching and learning innovation Workshop for feedback and strategic update, led by an international expert.

### *Resources*

- Doctoral School
- Teaching and Learning Innovation Division
- Offices of Enhanced Learning
- External experts

### *Scheduled goals*

- 2023: develop a training course on distance education for teachers
- 2024: offer the first open edition distance online course on T&L Research.
- 2024: development of at least one case study per school

## 6 Assessment For / As and Of learning

### *Summary*

Assessment is a fundamental component of the teaching and learning process and must be valid, reliable, equitable, explicit and transparent, supporting of students learning process.

Plagiarism may be a problem and should be openly addressed

Digital Assessment tools provide for flexibility and opportunities of creating a better assessment process when combined with other non-digital assessment approaches, partly relieving teachers of marking tests exams, freeing time for continuous and richer assessments and student support. To this effect proper facilities must exist.

Apart from the academic integrity initiatives quality information should be made available regarding fraud prevention using digital as non-digital assessment tools.

Assessment and feedback must be designed and positioned in a way that integrates learning from different course components in ways that prepare students to apply their learning successfully within their lives and work

### *Goals*

- To develop an Academic Integrity act across all NOVA's schools to be published by Nova and shared by all school
- To ensure that instructors at NOVA are comfortable with the process of assessment, both digital and non-digital
- To ensure a proper balance between continuous and discrete assessment approaches in all curricular units
- To achieve a higher volume of credible Digital Assessment usage

### *Strategies*

- Ensure that deans and all instructors and staff engage strongly in the “cause of assessment”;
- Ensure that all schools integrate and publicize the Academic Integrity Act across regulations;
- Pedagogic Boards of all courses to discuss Academic Integrity between teachers and students;
- Pedagogic boards to provide a yearly school report on the assessment outcomes (allowing for comparison with previous years);
- Provide proper assessment training to teachers across the schools, via a common training program;
- Organize workshops across schools for sharing of practices, both digital, non-digital and mixed;
- Devise strategies for digital online assessment.

### *Resources*

- Deans of each school
- Pedagogic Councils in each school
- Digital Assessment Tools licenses
- Nova Assessment group of sharing practices
- Enhanced Office for Learning network

### *Scheduled goals*

- By the end of 2023: all schools have Academic integrity as an explicit chapter on their regulations
- By the end of 2024: all schools have implemented a common procedure of (digital) assessment for comparison with non-digital procedures
- By the end of 2024 all schools and good practice sharing



## Glossary

### *Advanced Learning Offices (ALO)*

A support unit for pedagogical training and digital technology for instructors at the university. These ALO can be centralized, internal to a UO or a shared UO service.

### *Curricular Units (CU) involved in Pedagogical Development*

Any CU that in a given moment has a registered intention to experiment some change, records the process, analyses the results, and produces a final decision on the results. It can produce a written report, or even a research report.

### *Curricular Units (CU) with Digital Presence*

Any CU that in its syllabus (FUC) specifically includes a digital approach in its pedagogical methodology

### *"Customized Education" System*

A digital system based in AI and machine learning that identifies students' profiles and allows the schools to better support their academic path towards professional and personal accomplishment.

### *Educational Repository*

NOVA Teach Repository: a database where the resources (videos, documents' pdf, podcasts, etc.) are adequately registered and classified, allowing easy consultation and use.

### *Instructors categories*

A set of four categories is designated to demonstrate current and relevant intellectual capital or professional engagement in the area of teaching to support the school's mission and related activities. Categories for specifying faculty qualifications are based on both the initial academic preparation / professional experience, and sustained academic and professional engagement within the area of teaching as follows:

- Scholarly Academics (SA) are faculty who have normally attained a terminal degree in a field related to the area of teaching and who sustain currency and relevancy through scholarship and activities related to their field of teaching. SA faculty are normally expected to produce some peer- or editorial-reviewed publications related to their field of teaching as part of their portfolio of scholarship. In addition to publications related to their field of teaching, SA faculty may produce other publications outside their field of teaching in support of other mission-related components of the school and reflective of the faculty member's role at the school.
- Practice Academics (PA) are faculty who have normally attained a terminal degree in a field related to their area of teaching and who sustain currency and relevancy through professional engagement, interaction, and activities related to their field of teaching.
- Scholarly Practitioners (SP) are faculty who have normally attained a master's degree related to their field of teaching; have professional experience substantial in duration and responsibility at the time of hire; and who sustain currency and relevancy through scholarship related to their professional background and experience in their field of teaching.
- Instructional Practitioners (IP) are faculty who have normally attained a master's degree related to their field of teaching; have professional experience substantial in duration and responsibility at the time of hire; and who sustain currency and relevancy through continued professional experience and engagement related to their professional background and experience in their field of teaching.
- Additional Faculty (A) are faculty who do not meet the school's criteria for SA, PA, SP, or IP.

### *Learning with Impact Programme*

A programme that will be developed and coordinated at the University level. Most organizations, from multinationals to regular corporations, SME, Charities and Public Offices do not have an explicitly aligned sustainability agenda (or have some unclear guidelines), there is a concrete and valuable opportunity within this framework for our students to a greater citizenship involvement. The idea of this project is to bring NOVA students in contact with organizations, so that they will be able to:

- identify an ODS/EGD concrete aspect in these organizations actions;
- understand the organization with a system thinking approach with specific tools;
- trace the organization layout and identify potential opportunities and critical issues;
- interact and debate this potential with the organization members;
- Explore practical implementations and devise a roadmap for the integration of SDG/EDG on the organization's agenda.

### *Pedagogical Development*

Any activity that promotes pedagogical competence development as, for example, formal training, participation on workgroups or pedagogical research groups/communities.

### *Resources*

Pedagogical resources centered at the NPIN (Nova Pedagogical Innovation Nucleus), either developed in-house or shared by the Schools.

### *Senior Programmes*

For people that are no longer- active workers.

## *Training Levels*

### **Level 1 – beginners – Digital Competencies**

Knowledge acquired by teachers that enables them to make instrumental use of ICTs as functional tools in their professional context.

### **Level 2 – intermediate – Pedagogical and professional competencies**

Knowledge acquired by teachers which enables them to integrate ICT into their practices, exploiting it as a pedagogical and didactic resource and mobilising it for the development of teaching strategies, with a view to improving the quality of the student learning process.

### **Level 3 – advanced – Advanced ICT competencies**

Knowledge acquired by teachers that enables them to innovate teaching practices with ICT, to manage their experiences and reflections in an investigative perspective and in a sense of sharing and collaboration with the educational community.