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Certification of linguistic, entrepreneurial and digital skills in the Algerian higher education system (LEADS)

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DIGITAL SKILL CERTIFICATION REFERENTIAL

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INTRODUCTION

The digital skill certification referential, developed under the LEADS Project, adapts the EU Digital Competence Framework for Citizens (DigComp) version 2.2 to meet the needs of Algerian higher education. It provides a structured pathway for students to develop digital competencies essential for academic and professional success. The referential is organized into three proficiency levels: basic, intermediate, and advanced, with each level encompassing training in five core competencies: Information and Data Literacy, Communication and Collaboration, Digital Content Creation, Safety, and Problem Solving.

At the basic level, students focus on fundamental skills such as browsing and filtering information, interacting through digital tools, developing simple digital content, protecting devices, and solving basic technical problems. The intermediate level emphasizes more advanced capabilities, including evaluating information, adhering to digital communication norms, understanding copyright laws, protecting personal data, and identifying appropriate technological solutions. At the advanced level, candidates gain expertise in managing digital content, controlling their digital identity, programming, safeguarding health and well-being in the digital environment, and using innovative digital solutions creatively.



DIGITAL SKILL CERTIFICATION REFERENTIAL

LEVEL 1 BASIC

C1.1 BROWSE, SEARCH AND FILTER DATA, INFORMATION AND DIGITAL CONTENT

1. Identify and explain information needs, find data, information and content through a simple search in digital environments.
2. Find how to access these data, information and content and navigate between them.
3. Apply searches to obtain data, information and content in digital environments.
4. Identify, explain and Organize simple personal search strategies.

C1.2 INTERACT, SHARE AND COLLABORATE THROUGH DIGITAL TECHNOLOGIES

1. Select a variety of appropriate digital communication means for a given context.
2. Share data, information and digital content through a variety of appropriate digital tools
3. Use appropriate digital technologies to empower himself and to participate in society as a citizen
4. Use well-defined and routine digital tools and technologies for collaborative processes.

C1.3 DEVELOP, INTEGRATE AND RE-ELABORATE DIGITAL CONTENT

1. Identify ways to create and edit content in different formats
2. Select the appropriate format for digital content according to its purpose
3. Create infographics and posters combining information, statistical content and visuals using available apps or software.
4. Create digital content on open platforms (e.g. create and modify text in a wiki environment)
5. Use Internet of Things (IoT) and mobile devices to create digital content (e.g. use embedded cameras and microphones to produce photos or videos).
6. Assess the most appropriate ways to modify, refine, improve and integrate specific new items of content and information to create new and original ones.

C1.4 PROTECT DEVICES

1. Protect devices and digital content, and differentiate simple risks and threats in digital environments.
2. Choose safety and security measures, and identify ways to have due regard to reliability and privacy.
3. Fix security vulnerabilities and protect against malicious software (i.e. malware). keep the operating system and applications up-to-date.
4. Define security policies and configure basic Firewall
5. Be aware of different types of risks in digital environments, such as identity theft scams, malware attacks (e.g. ransomware)
6. Know the difference between Confidentiality and integrity and how to grand them.

C1.5 SOLVE TECHNICAL PROBLEMS

1. Identify technical problems when operating devices and using digital environments, and find solution for them
2. identify and solve a camera and/or a microphone issue when in an online meeting.
3. Verify and troubleshoot problems related to interconnected IoT devices and their services.
4. Take a step-by-step approach to identify the root of a technical problem (e.g. hardware vs software) and explores various solutions when facing a technical malfunction
5. Find solutions on the internet when facing a technical problem



LEVEL 2 INTERMEDIATE

C2.1 EVALUATE DATA, INFORMATION AND DIGITAL CONTENT

1. Detect the credibility and reliability of common sources of information
2. Perform the analysis, comparison and evaluation of the credibility and reliability of well-defined sources of data, information and digital content
3. Carry out an evaluation of the credibility and reliability of different sources of data, information and digital content.
4. Critically assess data, information and digital content.

C2.2 APPLYING NETIQUETTE STANDARDS TO COMMUNICATE RESPONSIBLY AND COLLABORATIVELY ACROSS DIGITAL PLATFORMS

1. Choose simple communication modes and strategies adapted to an audience and
2. Differentiate simple cultural and generational diversity aspects to consider in digital environments.
3. Apply different behavioural norms and know-how while using digital technologies and interacting in digital environments.

C2.3 APPLY KNOWLEDGE OF COPYRIGHT AND INTELLECTUAL PROPERTY RIGHTS TO ENSURE COMPLIANT AND RESPONSIBLE USE OF DIGITAL RESOURCES

1. Identify simple rules of copyright and licenses that apply to data, digital information and content.
2. identify and select digital content for downloading or uploading legally (e.g. public domain databases and tools, open licences).
3. Use and share digital content legally (e.g. checks the terms and conditions and licensing schemes available, such as the various types of Creative Commons)

C2.4 PROTECT PERSONAL DATA AND PRIVACY

1. protect personal data and privacy in digital environments
2. Identify privacy policy statements of how personal data is used in digital services.
3. Evaluate the most appropriate ways of using and sharing personally identifiable information.
4. Apply a variety of digital usage monitoring and limitation strategies (e.g. rules and agreements on screen-free times, delayed availability of devices for children, installing time limitation and filter software).
5. Recognise embedded user experience techniques (e.g. clickbait, gamification, nudging) designed to manipulate and/or to weaken one's ability to be in control of decisions (e.g. make users to spend more time on online activities, encourage consumerism)

C2.5 IDENTIFY NEEDS AND TECHNOLOGICAL RESPONSES

1. Use the internet to conduct transactions (e.g. purchasing, selling) and non-commercial ones (e.g. donating, gifting) of goods and services of all kinds.
2. Use machine translation solutions (e.g. Google Translate, DeepL) and simultaneous interpretation apps (e.g. iTranslate) to get a rough understanding of a document or conversation.
3. Know how to choose assistive tools to better access information and content online (e.g. screen readers, voice recognition tools), and to take advantage of voice output options to produce speech
4. Leverage IA tools (chatGPT, Gemini, perplexity ...) to produce digital content



LEVEL 3 ADVANCED

C3.1 MANAGE DATA, INFORMATION AND DIGITAL CONTENT

1. Identify how to organise, store and retrieve data, information and content in a simple way in digital environments.
2. Recognise where to organise them in a simple way in a structured environment.
3. Organise information, data and content to be easily stored and retrieved.
4. Manipulate information, data and content for their easier organisation, storage and retrieval.
5. Adapt them to be organised and processed in the most appropriate structured environment.

C3.2 MANAGE DIGITAL IDENTITY

1. Identify a digital identity
2. Know the difference between Authentication and Authorization
3. use a variety of digital identities
4. apply different ways to protect him reputation online
5. Knows how to create and manage profiles in digital environments for personal purposes (e.g. civic participation, e-commerce, social media use) and professional purposes (e.g. create a profile on an online employment platform).
6. Considers the benefits (e.g. fast authentication process, user preferences) and risks (e.g. having identities stolen, personal data exploited by third parties) when managing one or multiple digital identities across digital systems, apps and services.
7. Manipulate certificate and digital signature

C3.3 DEVELOP INNOVATIVE SOFTWARE AND DIGITAL SYSTEMS

1. List simple instructions for a computing system to solve a simple problem or perform a simple task.
2. Combine a set of program blocks (e.g. as in the visual programming tool Scratch), in order to solve a problem.
3. Identify input and output data in some simple programs.
4. Detect issues in a sequence of instructions, and make changes to resolve them (e.g. to find an error in the program and correct it; to detect the reason why the execution time or output of the program is not as expected)

C3.4 PROTECT ENVIRONMENT, HEALTH AND WELL-BEING

1. Avoid health risks and threats to physical and psychological well-being while using digital technologies.
2. Protect himself from possible dangers in digital environments.
3. Identify digital technologies for social well-being and social inclusion.
4. Recognise environmental impacts of digital technologies and their use.
5. Protect the environment from the impact of digital technologies and their use

C3.5 APPLY CREATIVE AND INNOVATIVE TECHNOLOGICAL STRATEGIES TO SOLVE COMPLEX PROBLEMS

1. Use digital technologies to help turn one's idea into action (e.g. master video making to open a channel to share useful content).
2. Identify and use online platforms that can be used to design, develop and test IoT technologies and mobile apps.
3. plan a strategy using multiple IoT and mobile devices to implement a task (e.g. use a smartphone to optimise energy consumption in a room by setting the intensity of the lights based on the time of day and ambient light).
4. Enhance self and group productivity by leveraging digital technology (IoT, IA, Cloud)



CERTIFICATION MODALITY

The examination is conducted periodically at the certification center, which is equipped with a secure server containing a question bank and client machines connected via a local network. Candidates must have authenticated accounts to access the examination platform. The questions are randomly generated from the question bank for each candidate, ensuring variation in both the order of questions and answer choices to prevent cheating. Each question has a predefined difficulty level and time limit set in the question bank. **The exam consists of 40 questions per level**, covering five competencies with 10 questions each. Of these, 80% are automatically graded, while 20% require manual evaluation. The test includes both theoretical and practical questions, where theoretical questions assess conceptual understanding, while practical ones require hands-on elaboration. **To pass a level, a candidate must achieve at least 75% correct answers.** However, if a candidate fails, they must retake the entire certification exam, as partial success does not allow them to retain past sections. The question bank is structured in ascending order of difficulty, starting with the easiest questions and progressing to the most challenging ones.

This approach is commonly used in educational assessments to help learners build confidence and gradually engage with more complex material. For instance, studies have shown that arranging questions from easiest to hardest can enhance test performance and reduce dropout rates. Additionally, many question banks categorize questions into levels such as Easy, Medium, and Hard, allowing for a structured progression in learning. Therefore, it's standard practice to organize question banks from the simplest to the most difficult questions to facilitate effective learning and assessment.

Level	Nature	Time	Evaluation	Succes Criteria
LEVEL 1 BASIC	40 MCQ	20 mn	Automatic	50%
LEVEL 2 INTERMEDIATE	X MCQ	10 mn	Automatic Weight 40%	50%
	Practical case	30 mn	Maual Weight 60%	
LEVEL 3 ADVANCED				



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