

The Hashemite Kingdom of Jordan



**MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC
RESEARCH**

**National eLearning Strategy for
Higher Education
(2007-2010)**

Prepared by the

eLearning Steering Committee

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Executive Summary

Many universities and institutions of higher education have recognized the value of the Internet in changing the way people learn. Traditional classroom courses can be augmented with interactive materials on the Web and old fashioned distance learning courses can be transformed from correspondence courses or television lectures into eLearning environments. However, few institutions have been able to embrace eLearning in a way that enables widespread innovative uses of learning technology throughout the institution. Instead, many rely on individual faculty or departments to make their own decisions about how to implement an eLearning environment that best suits their needs. The result is a hybrid of incompatible solutions that make it difficult for faculty to share their work. The lack of a centralized technical support organization can also limit the use of eLearning tools to departments that have technical expertise.

eLearning can be defined as the use of information and communication technology to acquire knowledge and improve skills at times and on terms defined by each learner in an interactive and engaging environment. It can cover a spectrum of activities from supported learning, to blended learning (the combination of traditional and eLearning practices), to learning that is entirely online.

The higher education has been traditionally recognized as the base for learning, technological innovation, and knowledge creation. Empowering this base with widened and lifelong learning capabilities better promotes innovation, intellectual capital investment, social and economic development, and education empowerment.

Recent advances in ICT have spurred an increasing interest in eLearning pedagogy to widen access to learning and cultivate lifelong learning among citizens through the use of ICT. The ministry of Higher Education and Scientific Research (MoHESR) has formed an eLearning steering committee to draft a national eLearning strategy with a mission

"To support institutions of higher education in their move towards embedding eLearning appropriately using technology to transform education into a learner-centric system that is internationally distinguished in its quality and impact, to foster innovation and excellence in teaching and learning, and to support employability of lifelong learning".

This strategy presents the strengths, weaknesses, opportunities, and threats for adopting eLearning in the higher education institutions in Jordan, and then sets forth seven strategic goals:

- To enable institutions to adopt eLearning and facilitate widening access to learning.
- To support institutions in their strategic planning with a holistic approach to embedding eLearning including implementation, administration, and change management.
- To create a culture and awareness for eLearning.
- To establish a robust integrated virtual learning environment.
- To assure the quality of eLearning and its impact on students' teaching, learning and assessment experience.
- To promote learning and educational technologies research that focuses on student learning rather than on technology and on faculty and staff development.
- To lead the move towards instilling lifelong learning and enabling connections between academic learning and experiential learning.

These goals are followed by specific objectives with action plans to achieve the set goals. The strategy is intended to set up the blueprint for policy makers to embed eLearning within the higher educational systems in Jordan. The steering committee will continually assess progress toward meeting the goals, provide annual reports and updates, and maintain the flexibility to revise the set goals and plans as external and internal conditions change.

Introduction

With a bold vision of His Majesty King Abdullah II, Jordan has endeavored towards building a knowledge-based economy, where the generation and the utilization of knowledge will contribute significantly to an economic growth and wealth creation. Accordingly, the whole country undertook a real revolution with a determined political will. Government institutions have adopted new tools for enhanced productivity and educational systems have inspired new learning methods inline with new installment of advanced network connectivity and state-of-the-art technologies. A

process is still needed to be introduced to guarantee that educational systems are continuously and systematically reviewed and developed to meet the demands of a fast growing and evolving technology sectors. This will require establishing an effective educational platform that closely links the process of learning development to the creation of highly educated and better-informed labor force empowered with new values, ideas, skills, and knowledge that will enable Jordan to become competitive in the global arena.

Multimedia technologies enable instructors and learning content providers to model and present many different kinds of information in dynamic ways that help people learn more rapidly and effectively by doing rather than observing. In addition, by creating communities of learners, eLearning can help people share information in both formal and informal ways. Numerous studies have shown that people learn faster with electronic means; they more accurately recall what they learned over a longer period of time; and they are better able to transfer what they learned to actual performance. Enhancing the quality of eLearning so that these benefits are more widely available is thus a vitally important priority for the years ahead. High-quality eLearning creates an economic advantage for both individuals and organizations by improving “speed to capability”—or shortening the amount of time it takes to get workers up to speed on new products and processes.

The economic case for building a successful eLearning future hinges in part on the efficiency of eLearning and its role in improving the quality of education and training. ELearning also holds enormous potential as a tool for reducing the costs of continuing and workplace education and training. However, the cost of courses delivered through eLearning is usually higher than that delivered through conventional teaching. In addition, eLearning holds the potential to broaden access to high-quality education and training opportunities and, in turn, prepare our students for the knowledge economy. The new economy places a premium on innovation, customization, new business models, and new ways of organizing work.

Universities must adopt eLearning to improve students’ skills and teach them new ways of managing knowledge and information; they can be more productive, find high-quality jobs, be self learners, and have a positive impact on the success of their future employers, their families and their communities. ELearning can certainly help students and faculty keep abreast of the rapid changes in technology, the sciences, and

other disciplines. ELearning has the potential to revolutionize the basic tenets of learning by making it individual- rather than institution-based, eliminating clock-hour measures in favor of performance and outcome measures, and emphasizing customized learning solutions over generic, one-size-fits-all instruction. It provides access to just-in-time information, advice and performance support.

Despite the fact that there are some cases of Faculty in Jordanian Universities carrying their own experiments and using trial and error to search for innovations to enhance their courses, these efforts are not matched with a large-scale institutional support and structure to move these initiatives from innovations to standards. We need the spread the culture of using technology to enhance the quality of learning. We need to build a system that is driven by instructional technologies that include design and development of components. The research finding on cognitive and instructional practices can guide the design and implementation of integrating ICT in education.

ELearning is playing a significant role in global higher education. The following emerged as priorities that many people can best be addressed by large scale adoption of eLearning technologies:

1. The vision of HM King Abdullah II that “Jordan will become an IT hub for the region” has been a rallying call to all Jordanians to pull together to realize His Majesty’s vision for the future benefit of all citizens. Critical to the ability of Jordan to enter the knowledge economy is the preparation of the country’s key advantage – its human resources.
2. Providing more access to higher education institutions by accommodating working people, women, and people with special needs. Increasing number of high school graduates will increase the number of students heading to universities and other higher education institutions with no space or capacity to absorb them. ELearning will enable institutions to admit more students by re-engineering the university required courses based on technology.
3. Improving to the quality of student learning by expanding the learning experience through increasing engagement, interactivity, and communications. Courses with e-content stimulate student interest, get students more engaged and as a result deepen students’ understanding and

help them achieve higher order thinking skills. This will help in raising the performance in the University Achievement Exam to the international level.

4. Reducing the cost of instruction by reorganizing the formats and ways courses are offered and taught. Also virtual environments, labs and knowledge sharing and collaboration have contributed cost reduction
5. Reducing the students to faculty ratio; eLearning is perceived as a possible solution to address this symptom.
6. Help in re-tooling unemployed/underemployed for new jobs (especially in critical fields).

This strategy has been crafted to build a solid eLearning capacity in Jordanian Universities and to make the emerging technology easy and effective.

Mission Statement

Definition:

ELearning is the use of information and communication technology to acquire knowledge and improve skills at times and on terms defined by each learner in an interactive and engaging environment. It can cover a spectrum of activities from supported learning, to blended learning (the combination of traditional and eLearning practices), to learning that is entirely online.

Vision:

“Enhancing the quality of education and inspiring lifelong learning through eLearning”

Mission:

To support institutions of higher education in their move towards embedding eLearning appropriately using technology to transform education into a learner-centric system that is internationally distinguished in its quality and impact, to foster innovation and excellence in teaching and learning, and to support employability of lifelong learning

Guiding Principles

- § ELearning will largely occur in the context of blended learning. The current version of the eLearning Strategy will focus on this aspect only and it will not address distance learning. However, it is recognized that eLearning has an obvious role to play in widening access to higher education within the national and regional context. This will also benefit those engaging in lifelong learning and continuing professional development.
- § Student learning and pedagogical needs and not technical possibilities must drive the use of learning technology. ELearning must be considered and developed as an integral part of teaching to make the learning process more effective, engaging and accessible to students who have increasingly diverse requirements and learning preferences.
- § eLearning should be deployed only when educationally appropriate. The Strategy does not envisage that staff will be required to adopt eLearning against their will or judgment. It does, however, venture to suggest that there will be relatively few staff who will not find something of use among the range of possibilities now opening up. The Strategy also anticipates that, over time, staff will have the knowledge and skills to use eLearning as appropriate.
- § Students should have equality of access to eLearning materials and resources. No students should be disadvantaged by the introduction of eLearning elements in a course. All eLearning materials should be easily available and tools should be accessible to all students including student support and the management of learning.
- § eLearning, like all forms of teaching, should take into account the costs and the benefits. The potential and actual teaching quality gains of any development and enhancement should always be taken into consideration.
- § ELearning must be fully integrated into mainstream accreditation and quality assurance procedures and contribute to the mission of each University.

§ Universities must be committed to the central provision of integrated facilities and support to underpin the efforts of faculty.

§ Best practices in the use of learning technology will be identified, embedded and sustained through a managed program of applied research and evaluation;

Strategic Goals:

1. To enable institutions to adopt eLearning and facilitate widening access to learning.
2. To support institutions in their strategic planning with a holistic approach to embedding eLearning including implementation, administration, and change management.
3. To create a culture and awareness for eLearning.
4. To establish a robust integrated virtual learning environment.
5. To assure the quality of eLearning and its impact on students' teaching, learning and assessment experience.
6. To promote learning and educational technologies research that focuses on student learning rather than on technology and on faculty and staff development.
7. To lead the move towards instilling lifelong learning and enabling connections between academic learning and experiential learning.

Strategic Goal 1:

“To enable institutions to adopt eLearning and facilitate widening access to learning”

Description

To enable institutions of higher education to adopt eLearning in their strategies at all levels and to ensure that the institutions are committed to implement their eLearning strategies by allocating needed resources and revising their policies and regulations to promote the adoption of eLearning. In addition, institutions have to work on joint initiatives for content development and sharing best practices and expertise.

Objectives and Actions

1. To ensure that the development of eLearning is considered at a strategic level within the institutions and academic departments.
 - 1.1. HEC to ensure that Universities will develop eLearning strategies where the Deans' Councils will adopt and develop their related regulations.
Output: At least 10 universities (public and private) develop their strategies by the end of 2007.
 - 1.2. Universities allocate resources to implement the eLearning strategies.
Output: Universities allocate a sufficient budget and needed human resources to implement their eLearning strategies by the end of 2007.
2. To make available incentives, opportunities, and models for strengthening support and motivating faculty and staff to encourage eLearning initiatives.
 - 2.1. HEC to ensure that Universities will revise their procedures, policies, and regulations to ensure that appropriate consideration of eLearning has been made and to provide incentives to faculty and staff for eLearning development work and other eLearning activities in terms of promotion credit, reduction in the academic load, and other financial incentives.
Output: Universities revise their procedures and regulations by the end of 2007.

3. To assure shared responsibility among stakeholders and to oversee initiation, coordination, controlling proceedings of the eLearning initiatives.

- 3.1. To establish a national eLearning committee.

Output: National eLearning committee is established before the end of 2006.

- 3.2. To establish a national center of excellence for eLearning that is responsible for sharing/exchanging e-content, development tools, professional expertise and best practices.

Output: A national center of excellence for eLearning is established before the end of 2007.

- 3.3. To develop eLearning material for the common university requirements at the Jordanian Universities.

Output: The e-contents for the common university requirements are developed with the help of subject communities before the end of 2007.

- 3.4. HEC to encourage Universities to establish instructional design and development programs to help faculty and staff in improving their practices using technological resources and methods of delivery and to help in course design and enhancement.

Output: At least four Universities establish programs in instructional design and development before the end of 2007.

4. To encourage strategic management of Intellectual Property Right (IPR) in order to exploit e learning.

- 4.1. Develop a national intellectual property policy for eLearning.

Output: A national IPR is developed before the end of 2007.

Strategic Goal 2:

“To support institutions in their strategic planning with a holistic approach to embedding eLearning including implementation, administration, and change management”

Description

To support institutions of higher education in their move to adopt eLearning, mechanism for implementing eLearning strategies should be introduced to lead the implementation, administration, and change management inside each university. The provision of adequate and appropriate training and support for academic staff is critical to the successful development and implementation of eLearning. Consideration should be given to the development of technical skills and the pedagogical aspects of utilizing eLearning. In addition to training, it is important to consider the processes and supporting structures required to enable staff to develop and/or adopt eLearning materials.

Objectives and Actions

1. To promote organizational change and technological risk management addressing high-level issues regarding pedagogy of eLearning, strategic e-management, and the cultural challenges of change.
 - 1.1. To establish centers for eLearning that are responsible for developing and sharing e-content, implementing and disseminating best practices.

Output: At least 10 universities (public and private) establish eLearning centers by the end of 2008.
 - 1.2. Universities should establish an organizational structure and functionality for the eLearning centers to ensure full support from the Presidents, Deans, and Departments’ heads.

Output: At least 10 universities (public and private) establish an organization structure for eLearning centers by the end of 2008.
 - 1.3. Encourage collaboration between subject communities.

Output: Subject experts are established in each University to adopt common approach for course content and method of delivery by the end of 2008.

- 1.4. Disseminate best practices through seminars, workshops, and online opportunities.

Output: Best practices are continuously disseminated through seminars, workshops, and online opportunities.

2. To empower faculty and staff to provide learning opportunities that can be enriched, extended and varied by the appropriate deployment of eLearning.

- 2.1. Produce and implement a faculty and staff development plan that addresses skill, knowledge and competencies for eLearning in training and continuing professional development for faculty and staff. Include in the plan:

§ A process to define minimum levels of knowledge for computer and electronic technologies needed by faculty and staff in order to achieve success in an eLearning environment.

§ establishment of a faculty support system,

§ Provisions for ongoing educational-technology training and support through seminars, workshops, and online opportunities,

§ Development of a program to acquaint faculty with successful high quality online courses and programs in their disciplines,

§ Develop and implement mechanisms for evaluation and feedback on effectiveness of the faculty and staff development activities.

Output: A faculty and staff development plan is produced in each University before the end of 2007 and implemented before the end of 2008.

3. Provide academic and technological support to enhance student learning.

- 3.1. Develop and implement a plan that addresses skill and competencies that are required by the student to be able to use the eLearning system efficiently. Include in the plan

§ A process to define necessary skills and competencies for the student to successfully use the eLearning environment.

§ Provisions for ongoing training and support through seminars, workshops, and online opportunities,

§ Develop and implement mechanisms for evaluation and feedback on effectiveness of student support activities.

- § Ensure that students have the option to receive human assistance.
- § Publish the appropriate campus telephone number on main websites.
- § Ensure that an eLearning readiness online self-assessment is available to all students.

Output: A student development plan is produced in each University before the end of 2007 and implemented before the end of 2008.

- 3.2. Develop an online orientation for e-learners and Include tips for successful online learning, information on ISP's, browsers, plug-ins, and course tools, library access and resources, testing, sample syllabi, sample courses, tips on getting started, FAQs, and help desk information.

Output: An online orientation course for students is developed in each University before the end of 2008.

- 3.3. Provide all students with e-mail accounts.

Output: All students are provided with e-mail accounts before the end of 2007.

Strategic Goal 3:

“To create a culture and awareness for eLearning”

Description

Enabling institutions of higher education to create an eLearning culture where faculty and staff at all levels are enthusiastically engaging one another through available technologies to learn in increasingly wide spreading eLearning platforms.

Objectives and Actions

1. To increase eLearning awareness among senior management, deans, department heads, and academic staff
 - 1.1. Conduct a series of eLearning awareness presentations and training sessions to senior management and staff.

Output: Universities should conduct eLearning awareness program and relevant training sessions by the end of 2007.

2. To ensure readiness and openness of higher education institutions to disseminate information in a comprehensive manner, the readiness of management to invest in developing a robust infrastructure, and the readiness of instructors to design learner-centered curriculum along an ever-expanding continuum of students needs.
 - 2.1. Organize an annual national eLearning forum with wide participation from all Universities to share knowledge and best practices.

Output: National eLearning forum is organized on an annual basis.
 - 2.2. Establish on-line communities for knowledge and information sharing that is managed by a committee with representatives from all Universities.

Output: A portal for knowledge sharing is established by the end of 2007.
3. To ensure an effective knowledge management system in the higher education institutions which plans and implements eLearning strategies that lead to creating a community of learners.
 - 3.1. A system for monitoring and evaluation of eLearning is developed by HEC and put in place in which learning and success indicators are continuously assessed.

Output: A system of monitoring and evaluation for eLearning is created and adopted by Universities (public and private) by the end of 2007.

Strategic Goal 4:

“To establish a robust integrated eLearning environment”

Description

Integrated eLearning environment aims at providing equality of opportunity by widening participation in higher education for all able to benefit, through its local, regional, national and international partnerships.

Objectives and Actions

1. To provide and sustain appropriate physical and technical infrastructure to access e-content and to meet staff and student needs and expectations.

- 1.1 Universities should conduct a requirement analysis stage of current infrastructure and suggest what required for eLearning.

Output: Universities produce requirement analysis reports that identify the appropriate technical infrastructure.

- 1.2 Universities should provide and sustain appropriate physical and technical infrastructure support.

Output: At least 10 universities (public and private) provide and sustain appropriate infrastructure to support eLearning by the end of 2007.

2. To develop a Managed Learning Environment that will ensure that students are presented with an effective and authoritative system for accessing reliable and timely information and for communicating with their Universities.

- 2.1. HEC to provide a unified Learning Management System to be adopted by all universities.

Output: HEC to provide a unified Learning Management System to be adopted by all universities by the end 2007. At least 10 universities (public and private) adapt the system by mid 2007.

3. To establish formal mechanisms for the effective piloting and evaluation of eLearning tools and techniques.

- 3.1. HEC to develop a standard framework for producing e-courses.

Output: A standard framework for producing e-courses is developed by the end of 2007.

- 3.2. Issuing funded pilot projects in eLearning.

Output: Funded pilot projects are issued by the end of 2007.

4. To provide supporting mechanisms for Faculty, staff and students.

- 4.1. Universities should establish help desk for eLearning centers.

Output: At least 10 universities (public and private) establish eLearning help desks by the end of 2008.

5. To ensure a reliable, high-speed access to the Universities' networks and portals including access from off campus.
 - 5.1. To establish on-campus open labs and to move towards wireless campuses.

Output: Each university will provide free access to computing labs at least two hours daily per student.

Output: At least 10 Universities will provide free wireless access to their students in their campuses by 2008.
 - 5.2. To enable student's access to knowledge stations and to provide students with dialup access to campuses.

Output: Students are given the opportunities to remotely access the eLearning portals through dialup or knowledge stations by 2008.
 - 5.3. To develop and implement an initiative for providing a computer (PC, Notebook, etc...) for each student at low cost with different funding schemes.

Output: At least 5 universities (public and private) establish a funding scheme with the private sector for student support (PCs, Portable, etc...).

6. To provide fully accessible, interactive, online library services and resources.
 - 6.1 Strengthen the Center of Excellence (CoE) for Library Services by providing on-line library services to support eLearning development.

Output: Online services are provided by the CoE by the end of 2007.

Strategic Goal 5:

“To assure the quality of eLearning and its impact on students' teaching, learning and assessment experience”

Description

To ensure effective eLearning methodologies to support quality online teaching, learning and assessment processes with measurable delivery outcome and standardized academic contents.

Objectives and Actions

1. To establish guiding framework and regulations governing eLearning practices and quality assurance procedures.
 - 1.1. A system for monitoring and evaluation is developed, then learning and success indicators are continuously assessed.

Output: Monitoring and evaluation tools are made available for a specific online course, National education, for instance.

2. To create a coherent framework for eLearning skills development that will enable meaningful analysis of student needs and effective provision of appropriate skills, understanding and awareness.
 - 2.1. Apply eLearning in the context of a sound understanding of education processes, supporting subject matter experts in the creation and integration of eLearning tools that meet student needs and learning requirements.

Output: Improved effectiveness and increased efficiency of learning and assessment to match desired learning outcomes

3. To ensure that online student learning services are consistent with face-to-face student learning services. Such services include lecturing, discussions, problem solving, homework, in-class assessment, and more.
 - 3.1. Articulate professional roles and working practices for eLearning to become consistent with face-to-face learning services.

Output: Students are able to access information, tutor support, expertise and guidance, and communicate with each other effectively. Students are

able to check and record their achievement in a form designed for multiple uses to enable personal and professional development.

4. To promote good practices in the use of technologies to support quality and standards in eLearning, with specific reference to key issues such as quality models, evaluation frameworks, metrics and embedding with benchmarking against international standards for quality in eLearning.

- 4.1. Engage in evaluations of eLearning technologies inline with standards, quality models, metrics and reporting to decision-makers in the higher education institutions.

Output: ELearning technology resources are monitored, managed, reported and enhanced

Strategic Goal 6:

“To promote learning and educational technologies research that focuses on student learning rather than on technology and on faculty and staff development”

Description and Actions

The university is fully responsible for ensuring the quality of student learning and staff development. This can be achieved through a very seriously conducted research that Should be relevant to the program aims and out comes and focus on students learning and faculty proficiency. The results of this research should be explicit and accessible to the student and the staff and be published and imposed in a way that might affect positively in students performance and faculty efficacy. Finally the research should be valid and reliable and apply different kind of assessment including formative and summative assessment.

Objectives

1. To identify and disseminate new ways of improving the effectiveness and efficiency of learning, teaching and assessment, including the use of learning technologies.

1.1. MoHESR to allocate adequate funds for eLearning research on a yearly basis.

Output: An estimated budget of 100K JD is annually allocated to eLearning research.

1.2. MoHESR to hold an international conference on eLearning.

Output: An international conference on eLearning is organized in cooperation with international organizations such as IEEE, ACM, and Elsevier every two years.

2. To use learning technology to promote learning as a student centered activity and to equip students with the skills required to foster a spirit of enquiry and to challenge orthodoxy.

2.1. Further development and expansion on existing aspects of staff training and development to enable staff to become skilled in the use and evaluation of appropriate pedagogical models and techniques of eLearning in their subject.

Output: Seminars and workshops are conducted to disseminate new approaches and techniques in eLearning delivery.

3. To explore the use of appropriately-designed learning technology in formative and summative assessment, and to explore the alignment of electronic assessment methods to all disciplines.

3.1. Encourages and helps staff to engage in the evaluation of and pedagogical research in eLearning.

Output: New methodologies and approaches are assessed and evaluated by the faculty.

Strategic Goal 7:

“To lead the move towards instilling lifelong learning and enabling connections between academic learning and experiential learning”

Description

Instilling lifelong learning via: 1) adopting learning in action to move from course-based, one-to-many, and off-line provisioning to application based , peer-to-peer, and on-line interactions, 2) integration eLearning environment that includes: lectures, readings, audiovisual, demonstration, practice, and teaching others learning methods, and 3) Move from students, teachers, uni-directionality, discipline-based, class rooms, examinations, stand-alone, and statically structured curricula to knowledge workers, mentors, interactivity, multidisciplinary, laboratories, results/solution, collaborative, and dynamic and unstructured curricula, respectively. The learners will be activate self-learn process, empowered in problem solving, situated to search and organize the information for the right solutions, and self-based experience.

Objectives and Actions

1. Develop and implement appropriate eLearning systems/mechanisms to support students’ personal development and planning.

1.1 Develop online courses to support students’ personal development and self learning.

Output: At least two online courses are developed to motivate self learning and soft skills.

Output: An on-line forum is created for the community including all stakeholders.

1.2 Support Alumni through the appropriate use of eLearning to enhance activities and employability.

Output: Links between alumni, employer, and the academic institutions are established and maintained.

Output: Employment opportunities of graduates are increased.

2. To engage business and industry, government, and non-profit organizations by providing electronic training programs/courses and services that meet their training, education and research needs, and improve their effectiveness and competitiveness.

2.1. Develop online material to support continuous education and lifelong learning.

Output: At least two online courses are developed to motivate self learning and soft skills.

Output: Universities adopt online training material and programs to leverage the skills, knowledge, and productivity of workers.

2.2. Create learning community-centered courses that emphasize the social aspects of learning

Output: At least one on-line course is developed and offered to the community to emphasize the social aspects of learning.

3. To engage business, industry, and professional bodies in the content development.

3.1. Include representatives from business, industry, and professional bodies in the content development teams.

Output: All professional courses that are related to business and industry are developed in cooperation with the relevant bodies.

Summary

Objective	Activity	Output	Timeline	Performance Indicator	Risks/Assumptions
<i>To enable institutions to adopt eLearning and facilitate widening access to learning</i>					
To ensure that the development of eLearning is considered at a strategic level within the institutions and academic departments	HEC to ensure that Universities will develop eLearning strategies where the Deans' Councils will adopt and develop their related regulations	At least 10 universities (public and private) develop their strategies	1/2007-1/2008	Effective e-learning strategies in place	Insufficient or uncertain human resources
	Universities allocate resources to implement the eLearning strategies	Universities allocate a sufficient budget and needed human resources to implement their eLearning strategies	1/2008-1/2010	Universities allocate at least 0.5% of their annual budgets to eLearning development	Increased budget cuts
To make available incentives, opportunities, and models for strengthening support and motivating faculty and staff to encourage eLearning initiatives.	HEC to ensure that Universities will revise their procedures, policies, and regulations to ensure that appropriate consideration of eLearning has been made and to provide incentives to faculty and staff for eLearning development ...	Universities revise their procedures and regulations.	1/2008-1/2009	Increased take up of eLearning (course and faculty) Regulations are revised	Technical limitations of solutions reached or exceeded Poor Quality Assurance
To assure shared responsibility among stakeholders and to oversee initiation, co-ordination, controlling proceedings of the eLearning initiatives.	To establish a national eLearning committee	National eLearning committee is established.	1/2007-1/2008	Committee is involved and informed as implementation plan is developed and delivered	Poor leadership

	To establish a national center of excellence for eLearning ...	A national center of excellence for eLearning is established.	1/2007-1/2009	Increased take up of eLearning.	Lack of budget Sustainability Failure to meet technical standards
	To develop eLearning material for the common university requirements at the Jordanian Universities.	The e-contents for the common university requirements are developed with the help of subject communities.	1/2007-1/2009	E-content for all common university requirements are produced and piloted.	Lack of budget Poor Quality Assurance Failure to meet technical standards
	HEC to encourage Universities to establish instructional design and development programs to help faculty and staff in improving their practices using technological resources and methods of delivery and to help in course design and enhancement.	At least four Universities establish programs in instructional design and development.	1/2007-1/2009	Four programs in instructional design and development are established	Insufficient or uncertain human resources
To encourage strategic management of Intellectual Property Right (IPR) in order to exploit e learning.	Develop a national intellectual property policy for eLearning.	A national IPR is developed before the end of 2007.	1/2007-1/2008	Increased take up of e-content development	Failure to comply with the IPR.
<i>To support institutions in their strategic planning with a holistic approach to embedding eLearning including implementation, administration, and change management</i>					
To promote organizational change and technological risk management addressing high-level issues regarding	To establish centers for eLearning that are responsible for developing and sharing e-content, implementing and disseminating best practices.	At least 10 universities (public and private) establish eLearning centers by the end of 2008.	1/2007-1/2008	Increased take up of eLearning (course and faculty)	Lack of budget Sustainability

pedagogy of eLearning, strategic e-management, and the cultural challenges of change.	Universities should establish an organizational structure and functionality for the eLearning centers to ensure full support from the Presidents, Deans, and Departments' heads.	At least 10 universities (public and private) establish an organizational structure for eLearning centers	1/2007-1/2009	Organizational structure established	Lack of support from management
	Encourage collaboration between subject communities.	Subject experts are established in each University to adopt common approach for course content and method of delivery.	1/2007-1/2009	Increased take up of eLearning (course and faculty)	Lack of formal change management process Insufficient or uncertain human resources
To empower faculty and staff to provide learning opportunities that can be enriched, extended and varied by the appropriate deployment of eLearning.	Disseminate best practices through seminars, workshops, and online opportunities.	Best practices are continuously disseminated through seminars, workshops, and online opportunities.	1/2007-1/2010	Increased number of seminars, workshops, and online resources with positive feedback.	Unrealistic expectations
	Produce and implement a faculty and staff development plan that addresses skill, knowledge and competencies for eLearning in training and continuing professional development for faculty and staff.	A faculty and staff development plan is produced in each University.	1/2007-1/2009	Increased take up of eLearning (course and faculty)	Lack of budget Lack of support from management Insufficient or uncertain human resources

Provide academic and technological support to enhance student learning.	Develop and implement a plan that addresses skill and competencies that are required by the student to be able to use the eLearning system efficiently.	A student development plan is produced in each University.	1/2007-1/2009	Increased take up of eLearning with positive feedback from the students	Lack of budget Lack of support from management
	Develop an online orientation for e-learners and Include tips for successful online learning, information on ISP's, browsers, plug-ins, and course tools, library access and resources, testing, sample syllabi, sample courses, ...etc	An online orientation course for students is developed in each University.	1/2007-1/2009	Increased take up of eLearning with positive feedback from the students	Lack of budget Lack of support from management
	Provide all students with e-mail accounts.	All students are provided with e-mail accounts.	1/2007-1/2010	Every student has a valid internal email address.	Lack of budget Technical limitations of solutions reached or exceeded
<i>To create a culture and awareness for eLearning</i>					
To increase eLearning awareness among senior management, deans, department heads, and academic staff	Conduct a series of eLearning awareness presentations and training sessions to senior management and staff.	Universities should conduct eLearning awareness program and relevant training sessions.	1/2007-1/2009	Increased knowledge and improved skills and perception with positive feedback. Increased take up of eLearning	Lack of support from management Insufficient or uncertain human resources

To ensure readiness and openness of higher education institutions to disseminate information in a comprehensive manner, the readiness of management to invest in developing a robust infrastructure, and the readiness of instructors to design learner-centered curriculum along an ever-expanding continuum of students needs.	Organize an annual national eLearning forum with wide participation from all Universities to share knowledge and best practices.	National eLearning forum is organized on an annual basis.	1/2007-1/2010	Increased take up of eLearning	Lack of budget Insufficient or uncertain human resources
	Establish on-line communities for knowledge and information sharing that is managed by a committee with representatives from all Universities.	A portal for knowledge sharing is established.	1/2008-1/2010	A Network for Capacity Building and Knowledge Exchange between Universities is established and utilized.	Lack of budget Insufficient or uncertain human resources Lack of support from management Insufficient resources
To ensure an effective knowledge management system in the higher education institutions which plans and implements eLearning strategies that lead to creating a community of learners.	A system for monitoring and evaluation of eLearning is developed by HEC and put in place in which learning and success indicators are continuously assessed.	A system of monitoring and evaluation for eLearning is created and adopted by Universities (public and private).	1/2008-1/2010	Measurements of KPI ensure that strategies are reviewed and achieve their objectives.	Poor Quality Assurance Lack of support from management

<i>To establish a robust integrated eLearning environment</i>					
To provide and sustain appropriate physical and technical infrastructure to access e-content and to meet staff and student needs and expectations.	Universities should conduct a requirement analysis stage of current infrastructure and suggest what required for eLearning.	Universities produce requirement analysis reports that identify the appropriate technical infrastructure	1/2007-1/2008	Requirement analysis of infrastructure is conducted.	Insufficient or uncertain human resources
	Universities should provide and sustain appropriate physical and technical infrastructure support.	At least 10 universities (public and private) provide and sustain appropriate infrastructure to support eLearning.	1/2007-1/2008	Appropriate infrastructure is provided	Lack of support from management Lack of fund
To develop a Managed Learning Environment that will ensure that students are presented with an effective and authoritative system for accessing reliable and timely information and for communicating with their Universities.	HEC to provide a unified Learning Management System to be adopted by all universities.	HEC to provide a unified Learning Management System to be adopted by all universities by the end 2007. At least 10 universities (public and private) adapt the system.	1/2007-1/2008	Unified Learning Management System is adapted.	Lack of fund Insufficient or uncertain human resources
To establish formal mechanisms for the effective piloting and evaluation of eLearning tools and techniques.	HEC to develop a standard framework for producing e-courses.	A standard framework for producing e-courses is developed.	1/2007-1/2008	A standard framework is adopted.	Lack of fund Poor quality assurance
	Issuing funded pilot projects in eLearning.	Funded pilot projects are issued.	1/2007-1/2008	Pilot projects are issued.	Lack of fund

To provide supporting mechanisms for Faculty, staff and students.	Universities should establish help desk for eLearning centers.	At least 10 universities (public and private) establish eLearning help desks.	1/2008-1/2009	Help desks are established.	Lack of fund; Insufficient or uncertain human resources
To ensure a reliable, high-speed access to the Universities' networks and portals including access from off campus.	To establish on-campus open labs and to move towards wireless campuses.	Each university will provide free access to computing labs at least two hours daily per student. At least 10 Universities will provide free wireless access to their students in their campuses.	1/2008-1/2009	Free access to computing labs is provided. Wireless access is provided.	Lack of fund
	To enable student's access to knowledge stations and to provide students with dialup access to campuses.	Students are given the opportunities to remotely access the eLearning portals through dialup or knowledge stations	1/2008-1/2009	Remote access to the e-learning portal is provided.	Lack of fund.
	To develop and implement an initiative for providing a computer (PC, Notebook, etc...) for each student at low cost with different funding schemes	At least 5 universities (public and private) establish a funding scheme with the private sector for student support (PCs, Portable, etc...).	1/2008-1/2009	Funded scheme is provided.	Poor cooperation with the private sector.
To provide fully accessible, interactive, online library services and resources.	Strengthen the Center of Excellence (CoE) for Library Services by providing on-line library services to support eLearning development.	Online services are provided by the CoE.	1/2007-1/2009	On-line library services are provided.	Lack of fund; Failure to comply with the IPR.

<i>To assure the quality of eLearning and its impact on students' teaching, learning and assessment experience</i>					
To establish guiding framework and regulations governing eLearning practices and quality assurance procedures.	A system for monitoring and evaluation is developed, then learning and success indicators are continuously assessed.	Monitoring and evaluation tools are made available for a specific online course, National education, for instance.	1/2007-1/2009	Guiding framework and regulations are in place and enforced	Lack of awareness Lack of governance support
To create a coherent framework for eLearning skills development that will enable meaningful analysis of student needs and effective provision of appropriate skills, understanding and awareness.	Apply eLearning in the context of a sound understanding of education processes, supporting subject matter experts in the creation and integration of eLearning tools that meet student needs and learning requirements.	Improved effectiveness and increased efficiency of learning and assessment to match desired learning outcomes	1/2008-1/2010	Questionnaires and assessment tools are regularly developed and conducted on student needs	Lack of continuing efforts and follow up procedures Lack of fund
To ensure that online student learning services are consistent with face-to-face student learning services. Such services include lecturing, discussions, problem solving, homework, in-class assessment, and more.	Articulate professional roles and working practices for eLearning to become consistent with face-to-face learning services.	Students are able to access information, tutor support, expertise and guidance, and communicate with each other effectively. Students are able to check and record their achievement in a form designed for multiple uses to enable personal and professional development.	1/2008-1/2010	About 50% of courses offered in Engineering and Science disciplines embed online learning services – and that these services are published, documented, and communicated to students	Lack of expertise, resources, and enforcement procedures

To promote good practices in the use of technologies to support quality and standards in eLearning, with specific reference to key issues such as quality models, evaluation frameworks, metrics and embedding with benchmarking against international standards for quality in eLearning.	Engage in evaluations of eLearning technologies inline with standards, quality models, metrics and reporting to decision-makers in the higher education institutions.	ELearning technology resources are monitored, managed, reported and enhanced	1/2008-1/2010	"Best practice" model identified and documented Quality procedures are in place and enforced	Lack of fund Lack of expertise Lack of awareness
<i>To promote learning and educational technologies research that focuses on student learning rather than on technology and on faculty and staff development</i>					
To identify and disseminate new ways of improving the effectiveness and efficiency of learning, teaching and assessment, including the use of learning technologies.	MoHESR to allocate adequate funds for eLearning research on a yearly basis	An action research committee for e-learning is setup. An estimated budget of 100K JD is annually allocated to eLearning research.	1/2008-1/2010	Increased number of research articles and surveys. Funding is targeted accurately to develop capacity to embed e-learning in programs.	Lack of fund
	MoHESR to hold an international conference on eLearning.	An international conference on eLearning is organized every two years.	1/2008-1/2010	Two international conferences are organized with positive feedback.	Lack of fund

To use learning technology to promote learning as a student centered activity and to equip students with the skills required to foster a spirit of enquiry and to challenge orthodoxy.	Further development and expansion on existing aspects of staff training and development to enable staff to become skilled in the use and evaluation of appropriate pedagogical models and techniques of eLearning in their subject.	Seminars and workshops are conducted to disseminate new approaches and techniques in eLearning delivery	1/2008-1/2010	Increased number of seminars and workshops with positive feedback. Increased take up of eLearning	Lack of motivation for faculty
To explore the use of appropriately-designed learning technology in formative and summative assessment, and to explore the alignment of electronic assessment methods to all disciplines	Encourages and helps staff to engage in the evaluation of and pedagogical research in eLearning.	New methodologies and approaches are assessed and evaluated by the faculty.	1/2008-1/2010	Increased number of courses and faculty adopting new technologies and approaches	Resistance from faculty
<i>To lead the move towards instilling lifelong learning and enabling connections between academic learning and experiential learning</i>					
Develop and implement appropriate eLearning systems/mechanisms to support students' personal development and planning.	Develop online courses to support students' personal development and self learning.	At least two online courses are developed to motivate self learning and soft skills. An on-line forum is created for the community including all stakeholders	1/2008-1/2010	Two courses are developed and delivered with positive feedback. Online forum is created and	lack of fund Lack of awareness

	Support Alumni through the appropriate use of eLearning to enhance activities and employability.	Links between alumni, employer, and academic institutions are established and maintained. Employment opportunities of graduates are increased.	1/2008-1/2010	Increased interactions with alumni with feedback from employer Increased of employment opportunities.	Poor cooperation with the private sector Lack of awareness
To engage business and industry, government, and non-profit organizations by providing electronic training programs/courses and services that meet their training, education and research needs, and improve their effectiveness and competitiveness.	Develop online material to support continuous education and lifelong learning.	At least two online courses are developed to motivate self learning and soft skills. Universities adopt online training material and programs to leverage the skills, knowledge, and productivity of workers.	1/2008-1/2010	Two courses are developed and delivered with positive feedback. Online training programs are created and utilized. Increased knowledge and improved skills and perception with positive feedback.	lack of fund Lack of awareness Poor cooperation with the private sector
	Create learning community-centered courses that emphasize the social aspects of learning	At least one on-line course is developed and offered to the community to emphasize the social aspects of learning.	1/2008-1/2010	One course is developed on delivered with positive feedback.	lack of fund Lack of awareness Poor cooperation with the private sector
To engage business, industry, and professional bodies in the content development.	Include representatives form business, industry, and professional bodies in the content development teams	All professional courses that are related to business and industry are developed in cooperation with the relevant bodies.	1/2008-1/2010	Positive feedback on professional courses from the private sector and professional bodies.	Lack of fund Lack of awareness Poor cooperation with the private sector and professional bodies.

Annex A:

Strengths, Weaknesses, Opportunities, and Threats Analysis

Despite the fact that our Universities are distinguished in the quality of teaching and research, their utilization of eLearning is still in the early stages and we may face many challenges in this regard. We have excelled in some areas related to information technology and have many challenges to face as well. In what follows, we will identify our strengths, weaknesses, and threats in eLearning as well as the many opportunities that will be available. We will utilize our strengths and build on them, mitigate our weaknesses, avoid our threats and exploit our opportunities.

Strengths

- § The vision of HM King Abdullah II that “Jordan will become an IT hub for the region” has been a rallying call to all Jordanians to pull together to realize His Majesty’s vision for the future benefit of all citizens.
- § In 2003, the Ministry of Education (MOE) lead Jordan to become the first country in the Arab world to take clear steps into applying true eLearning to all its students by deploying EduWave at the Kingdom’s main Data Center and to serve over 1.2 million students in Jordan.
- § Connecting Jordanians Initiative (CJI): A National Broadband Learning and Educational Network (NBN) has been lunched in 2003 and it will install approximately 5,000 km of optical fiber and several thousand IT-network devices to create one of the most advanced educational networks in the world. This network will link Jordan’s 3200 public schools, 10 public universities, 23 community colleges, and 75 Knowledge Stations to support the transformation of Jordan’s formal and informal education system. Currently, the Jordan Universities Network is connecting the 10 public universities and the Schools Broadband Learning Network has been lunched.
- § Jordanian Universities are interconnected to the Internet via a 155 Mbps (STM-1) link.

- § Knowledge Stations: 114 Public centers with computers, internet, and trainers spreading all over kingdom to provide electronic services to the community and to train Jordanians.
- § Jordan Education Initiative has produced 5 e-curricula (Math, ICT, English, Arabic, Science) since it started in 2003 and it has been piloted in 100 Discovery Schools
- § Jordan is already well endowed with telecommunications infrastructure. A fixed or mobile telephone service is available almost universally in inhabited areas of the country, and penetration has reached more than 93% of households overall.
- § Mobile penetration is growing rapidly and reached 64%, mainly due to significant drops in mobile charges.
- § The quality and reliability of the telecommunications infrastructure is above global standards.
- § Technology Incubators to encourage innovative solution development in partnership with private sector (Yarmouk University, I-park incubators, Jordan Innovation Center, Philadelphia University, JIC – University of Jordan, Al-Hasan Industrial zone)
- § Jordanian Universities have robust, standards-based information technology network infrastructure, including hardware, software, and applications for intra-university connectivity; and global connectivity through the Internet.
- § Jordanian Universities are connected to centralized integrated e-library system.
- § Some Universities have invested in eLearning tools (VLE and Content Development tools)

Weaknesses

- § ELearning experience is immature in all Jordanian Universities and it is scattered among some departments/faculties without consistency.
- § There is no broad awareness of eLearning beyond academic and some government circles.
- § There is no common definition of eLearning as they range from using computers for learning to purely distance learning.

- § There is no common understanding of the benefits of eLearning. Some see it as a lesser form of education (when compared with traditional classroom-based, teacher or professor-led instruction). Very few people see the potential it can bring to improving the quality of education, and increasing the reach and breadth of educational opportunities.
- § There is no shared vision of eLearning for Jordan; some decision makers see eLearning as a luxury form of education, a replacement of faculty, a way to reduce budget deficit, etc.
- § There is no holistic or coordinated/collaborative approach to eLearning that considers the cost of PCs and Internet access.
- § There is no broad adoption of international web-based training development standards.
- § There is no large-scale production of courseware; Universities rely on pilot projects that do not follow web-based training standards (SCORM/AICC)
- § There is a lack of content developer or little evidence that content developers are trained in instructional design, learning theory and instructional technologies
- § Despite our skilled human resources, there is no source for training eLearning course developers and instructional technologists.
- § There is no cooperation/collaboration between subject experts, content developers, and instructional technologists.
- § There is a lack of cooperation/collaboration between Universities and private sector in eLearning.
- § There is a lack of skills for self-paced learning which has been addressed by the JEI.
- § The current eLearning efforts are largely run individually by faculty or for piloting purposes.
- § There is no Jordanian eLearning community.
- § There is no ELearning “champion” who works at the highest levels of government, with enough clout to obtain inter-ministry cooperation and collaboration, plus inter-university cooperation and collaboration
- § ELearning needs commitment and leadership support from University presidents, deans, and departments’ heads.

- § Most of the content being developed does not leverage eLearning instructional design.
- § Huge investments need to be made to provide the infrastructure and content to address university required courses and to build capacity in eLearning

Opportunities

- § Prepare Students for the knowledge economy which places a premium on innovation, customization, new business models, and new ways of organizing work. ELearning will improve students' skills and teach them new ways of managing knowledge and information; they can be more productive, find high-quality jobs, be self learners, and have a positive impact on the success of their future employers, their families and their communities.
- § Increasing number of high school graduates will increase the number of students heading to universities and other higher education institutions with no space or capacity to absorb them. Many are looking to eLearning as a possible solution.
- § The Students to Faculty ratio is very high, eLearning is perceived as a possible solution to address this symptom.
- § ELearning may help re-tool unemployed/underemployed for new jobs (especially in critical fields).
- § There is a strong desire to improve the quality of education in Universities; eLearning is perceived as one of the solutions to improve the quality of instruction and to raise the performance in the University Achievement Exam to the international level.
- § A new initiative for transforming computer centers in Universities into data centers and to establish a higher education data center.
- § ELearning can provide the solution to many students who can go outside Jordan to get education, which saves the country hard currency.
- § To share highly qualified subject experts among Universities.
- § Universities can collaborate in producing e-content for shared University's Requirement Courses.
- § Lack of nation-wide eLearning programs in the region.

Threats

- § PC penetration is 7.1% and is growing annually at 27% but it is still behind desired levels due to affordability issues.
- § Internet penetration in Jordan is only approximately 10.7%
- § Broadband penetration is still at low levels with 0.5% and is very immature.
- § Throughput – and width limitations could limit usage of advanced media; i.e., streaming video, large graphical and data files.
- § The MOHESR, Universities, and private sector need to cooperate rather than direct or indirect competition in content development.
- § There is no framework or regulations to govern eLearning practices and quality assurance procedures in Jordan.
- § There are no policies or in place Intellectual Property Right (IPR) to protect eLearning content authors.
- § The Accreditation Council/MOHESR still does not accredited courses or degrees delivered through eLearning.
- § ELearning needs strong cooperation/collaboration between MoE, MoHSR, MoP, MoICT, and Universities.
- § There is a lack of eLearning culture and there is some fear of eLearning, particularly among faculty, who do not have a clear understanding of their role in eLearning (will they be replaced? What happens to the course materials I have worked so hard to develop? Who will take care of my students? They need me!) There are concerns that most of our students lack the ability to be self learners, soft skills, and personal and time management skills.

Annex B:

A Framework for eLearning environment

eLearning is playing a significant role in education to improve students' skills and teach them new ways for managing their knowledge and information. Recent advances in information and communication technologies and new developments in instruction design results in creating personalized, engaging and manageable learning environments. Badrul Khan developed a framework for eLearning environments that comprises eight dimensions: institutional, pedagogical, technological, interface design, evaluation, management, resource support, and ethical. Each dimension focuses on certain aspects of the eLearning environment.

A Framework for eLearning environment							
Pedagogical	Technological	Interface Design	Evaluation	Managemen	Resource Support	Ethical	Institutional
Content Analysis	Infrastructure planning	Page and site design	Assessment of learners	eLearning Content Development	Online support	Social and Political Influence	Administrative Affairs
Audience Analysis	Hardware	Content design	Evaluation of the instruction & learning environment	ELearning Maintenance	Resources	Cultural Diversity	Academic affairs
Goal Analysis	Software	Navigation				Bias	Student services
Medium Analysis		Accessibility				Geographical diversity	
Design approach						Learner diversity	
Organization						Digital Divide	
Methods and Strategies						Etiquette	
						Legal issues	