1.	Faculty	King Abdullah II School for Information Technology
2.	Department	Department of Information Technology
3.	Program title (Arabic)	ماجستير في الحكومة الالكترونية
4.	Program title (English)	Master in E-Government
5.	Track	Thesis Track

	Serial #	Degree	Dep #	Faculty #	Year	Track
Plan Number	042	08	04	19	2016	Thesis

First: General Rules and Conditions:

1) This plan conforms to the valid regulations of programs of graduate studies.
2) A Specialties of Admissions:

The First Priority: Business Information System.
The Second Priority: Business Information Technology.
The Third Priority: Computer Science.
The Fourth Priority: Computer Information System
The Fifth Priority: Computer Engineering.
The Sixth Priority: Software Engineering.
The Seventh Priority: Computer Networks
The Eighth Priority: Management Information Systems
The Ninth Priority: Computer Graphics and Animation
The Ten Priority: Any other Information Technology and engineering related degrees.

Second: Special Rules and Conditions:

Students may take some prerequisite courses according to what the Department suggests.

Third: Study Plan: Studying (33) Credit Hours as following:

1. Obligatory Courses (**15**) Credit Hours:

Course No.	Course Title	Credit Hrs	Theory	Practical.	Pre/Co-requisite
1904770	e-Government Principles and Models	٣	٣	-	-----
1904771	Technical Infrastructure of e-Government	٣	٣	-	-----
1904772	Information Security Governance and Risk Management	٣	٣	-	-----
1904774	Decision Making for Public Sector	٣	٣	-	-----
1904775	Research Methodology in e-Government	٣	٣	-	-----

2. Elective Courses: Studying (9) Credit hours from the following:

Course No.	Course Title	Credit Hrs	Theory	Practical.	Pre/Co-requisite
1904773	Legal and Ethical Aspects in e-Government	٣	٣	-	-
1904776	Project Management	٣	٣	-	-
1904777	Research Project	٣	٣	-	-
1904778	Special Topics in e-Government	٣	٣	-	-
1904779	Change Management	٣	٣	-	-
1904780	Data Centers Management	٣	٣	-	-
1904781	Citizen-Centered e-Government: Requirements and Evaluation	٣	٣	-	-
1904782	Quality Issues in E-Government	٣	٣	-	-
1904783	Document Analysis	٣	٣	-	-
1904710	Web Applications Security	٣	٣	-	-
1904715	Business Intelligence	٣	٣	-	-
1904720	Cloud Computing	٣	٣	-	-
1904725	Data Warehousing and Mining	٣	٣	-	-
1904735	Mobile Web Applications	٣	٣	-	-
1904750	Enterprise Resource Planning Design, and Implementation	٣	٣	-	-
1901765	Computer Networks	٣	٣	-	-
1902723	Database Systems	٣	٣	-	-
1902754	Geographical Information Systems	٣	٣	-	-

3. **Thesis: 9 Credit hours (1904798).**

Course Description

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5	Track	Thesis Track

A. Obligatory Courses (5 Courses - 15 hours):

1904770 e-Government Principles and Models (3 Credit Hours)

The course focuses upon the overall concept of e-Government, and the applications of the Internet and other technologies within the public sector (as well as their impact upon both governments and constituents). The course focus basically on providing theoretical, technical and practical frameworks for public administrators to better understand the opportunities and challenges associated with e-Government and the use technology in government operations. Furthermore, it introduces the technology of e-government with an in-depth examination of current government development models and management challenges of moving public services online. This course provides deeper insights into the concepts and opportunities of digital democracy and integration of public online services. It also covers an analysis of how e-Government is transforming the relationships and interactions between governments, constituents, businesses, and other organizations, as well as the changing role of the public administrator, the concepts of Open Government and Open Data, and their implications for public administration; the opportunities for technology to enhance, improve, and transform the ways in which government operates as well as how services are provided to constituents; and other issues.

1904771 Technical Infrastructure of e-Government (3 Credit Hours)

The aim of this course is to introduce students to the technological building blocks and infrastructure of e-Government services of applications including hardware, software and telecommunication (Internet), the structure and components of computer networks including wired and wireless technologies, functions of various network layers. It also introduces students to cloud computing models (public, private, hybrid, and community clouds), cloud deployment models (IaaS, PaaS, SaaS), cloud techniques, and architectures. The course introduces students to Web standards and technologies; in addition to the big picture of e-Government and e-Government development models. In addition, it introduces students to relational databases, entity-relationship modeling, and structured query language (SQL).

1904772 Information Security Governance and Risk Management (3 Credit Hrs)

The aim of this course is to provide students with the Common Body of Knowledge and skills to manage and protect information and communication technologies in today business environments. This course covers the methodologies and planning frameworks used to protect information assets within an organization. Also, it covers the governance, organizational structures and cultures, and the security awareness training that should be instructed to employees at all levels. The course will covers topics such as: Planning for Security, Planning for Contingencies, Information Security Policy, Developing the Security Program, Security Management Models, Security Management Practices, Risk Management: Identifying and Assessing Risk, Risk Management: Controlling Risk, Protection Mechanisms and Personnel and Security.

1904774 Decision Making for Public Sector (3 Credit Hours)

The course discusses tools and models for decision making in the public sector. The course also introduces different business intelligence systems (BIS) including data warehousing, data mining, expert systems, knowledge management system, and analytical decision support systems. The students apply and evaluate appropriate BIS for collaborative decision-making in government institutions.

1904775 Research Methodology in e-Government
(3 Credit Hours)

This course introduces methods and techniques for collecting, organizing and analyzing data in order to handle a research problem in e-government domain. The course provides students with the basic knowledge in identifying and formulating research questions in the area of e-government, selecting and applying research methods, planning and performing studies including, the collection and analysis of data and reporting results and draw conclusions, and relate them to previous work.

B. Elective Courses (١٨ Courses the student selects 3 of them 9 hours):

1904773 Legal and Ethical Aspects in e-Government (3 Credit Hours)

This course provides an overview of the legal and ethical aspects regulating information management in governments, and public policies that use information technologies to address economic and social concerns and their impact on citizens and governmental organizations. The topics include: legal, social, and political aspects, e-government laws, e-voting, e-governance, electronic crimes, e-signature fraud, e-documents, e-democracy, electronic transactions laws (acts) and the rules that govern these topics. Participants will be able to use this knowledge to identify legal issues and laws applied in e-government cases.

1904776 Project Management (3 Credit Hours)

This course includes identifying and managing the lifecycle to be used, applying it to the user-centered design process, formulating the project team, and efficiently guiding the team through all phases until project completion. The course will explore and define project management techniques to keep executive management informed and engaged, i.e. making decisions and taking action to ensure project success. Topics covered will include identifying and managing stakeholders, business benefits, project scope, work and schedule, the project team, mitigating risks, and project delivery techniques.

1904777 Research Project (3 Credit Hours)

The main goal of this course is to enable students to apply knowledge and skills that they have already learned to analyze issues related to a practical application in e-government domain that should result in extending experience or add strengths to what is already known. The course provides the opportunity for a student to apply knowledge and skills that he/she has been learning to a practical application area in the digital government domain. This course emphasizes a detailed contextual analysis, to a specific issue in e-government domain, in order to examine the interplay of all variables that can provide a complete understanding of an event or situation. Furthermore, students will learn how to design studies, generate data, analyze and interpret the data and disseminate findings in a documented report (technical report). More details about this course can be found in Appendix I.

1904778 Special Topics in e-Government (3 Credit Hours)

This course introduces the latest topics in e-government information systems. The main objective of this course is to provide students with the most recent knowledge and advances in this domain.

1904779 Change Management (3 Credit Hours)

The course will present models and methods for project management in public administration, with a focus on change management. The course will also present to students the association between e-Democracy with citizen participation in the processes of policy making, promoting and preserving the democratic values. In addition, the course will introduce students to the new concept called Citizen Empowerment.

1904780 Data Centers Management (3 Credit Hours)

This course introduces students to the cutting-edge technologies in the field of Data Center management, while focusing on the efficiency of resource management processes. It discusses the challenges related to the management aspects of modern data centers. It also introduces the emerging resolution techniques used in addressing these challenges. Aspects covered include: high availability, data and storage management, data center networking, and large scale computing.

1904781 Citizen-Centered e-Government: Requirements and Evaluation (3 Credit Hours)

This course introduces students to the concept of citizen-centered services in E-Government, methods and models for developing citizen-centered services, according to citizens' needs and requirements. It discusses

methods for users' involvement and participation with a focus on user innovation methods. Another focus is on making use of and combining enterprise models and integration techniques for identification and developing of citizen-centered services that meet requirements of end users. Lastly, methods and frameworks will be presented to evaluate the perceived impact of the provided online service with respect to the citizens.

1904782 Quality Issues in E-Government (3 Credit Hours)

This course is to provide the basic concepts, tools, and practices of Total Quality Management (TQM) in the electronic government context, so the student can apply these tools at his/her work and generate his/her desired improvement results. The topics include: principles of quality and process innovation and their impact on management strategy and practice, quality tools and techniques, quality management for electronic government (operation systems, control systems, decision support systems, and virtual organization), requirements of some international and local certifications (e.g. ISO), manage complexities of managing and leading in a TQM environment. The students will be given assignments to apply TQM tools and standards in the e-government context. Lastly, this course will address assessment frameworks to evaluate e-government projects.

1904783 Document Analysis (3 Credit Hours)

This course is designed to enable students to develop the theoretical knowledge underpinning forensic document examination and provide intensive training and practical experience. It covers the analysis of handwriting, signatures, questioned and fraudulent documents and provides training in the use of a range of highly specialized techniques, such as Video Spectral Comparator (VSC), comparison microscopy, Electrostatic Detection Apparatus (ESDA) and Raman Spectroscopy.

1904710 Web Applications Security (3 Credit Hours)

Web applications security, as branch of secure software design, focuses on how to design and develop dependable and trustworthy web applications. Having completed this course the student will be able to participate in, and cooperate with, web application development teams with a goal to achieving appropriate levels of security for web products. The course covers common web vulnerabilities such as Cross-Site Scripting, Cross-site Request Forgery, SQL injection and more. It introduces students to Saltzerand Schroeder security design principles and how security can be integrated with the web application development lifecycle. Topics such as threat modeling, abuse cases and secure programming will be discussed as well.

1904715 Business Intelligence (3 Credit Hours)

This course provides students with an advance understanding of Business Intelligence, including the processes, methodologies, infrastructure, and current practices used to transform business data into useful information and support business decision-making. We will study data mining techniques, and we will examine real-world examples and cases to place data-mining techniques in context, to develop statistical data-analytic thinking using predictive modeling, classification, regression, tree induction, probability estimation, Bayesian and memory based reasoning, unsupervised methods, clustering association, page rank, K-Nearest Neighbor, text and web mining and, neural network, genetic algorithms and visualization.

1904720 Cloud Computing (3 Credit Hours)

This course will introduce students to the state-of-the-art in Cloud Computing technologies and applications. The course focuses on cloud computing services, types, models, security issues, Quality of Service(QoS), Service-Level Agreements (SLA) , Virtual Machines, performance monitoring, pricing, risk management, scientific computing, tools for building different types of clouds, legal issues in cloud computing, business computing on clouds, and novel applications of cloud computing. The course aims also to identify potential research directions and technologies that will facilitate creation a global market-place of cloud computing services supporting scientific, industrial, business and consumer applications.

1904725 Data Warehousing and Mining (3 Credit Hours)

This course provides students with an in-depth understanding of the design and implementation of data warehousing and Big data analytics systems. It will address the opportunities and challenges of big data in

academics, businesses, sciences and the Web. It will cover Data Warehouse modeling and Architecture, extraction, Translation and Loading, Query Processing and Optimization, Data Warehouse Administration and Security, Column-store and NoSQL Databases, Distributed Data Processing, Streaming Databases/Complex Event Processing, and Online Analytical Processing (OLAP) databases.

1904735 Mobile Web Applications (3 Credit Hours)

This course will cover advanced topics for web application development such as the architecture, standards, mobile programming languages and business aspects. This course introduces the concepts, practices, and technologies to design, develop, and manage cross-platform applications running on modern mobile devices. The course will help the students to identify and use the appropriate development technologies, tools, and frameworks for mobile web development. Moreover, it will study, compare and analyze user interactions between desktop web, mobile application, and mobile web.

1904750 Enterprise Resource Planning Design, and Implementation (3 Credit Hours)

This course is designed to provide the student with a thorough understanding of both the role that Web based Enterprise Resource Planning Systems (ERP) play in an organization and the challenging task of designing and implementing ERP systems. The hand's-on exercises, coupled with the in-class discussions of ERP, will prepare the student with the knowledge sought by most ICT industry in Jordan to develop Web based ERP system to maintain their competitive edge in the market place. The course focus will be upon ERP functionality and on business processes.

1901765 Computer Networks (3 Credit Hours)

This course discusses Computer Networks and the Internet, Data Link Layer, Network Layer, Transport Layer Options (Silly Window Syndrome, Delayed ACK , Selective Acknowledgments, Selective Retransmission Request (SRR), Time Stamp, Window Scale); VLANs (Virtual Local Area Networks);Advanced Multimedia-Networking Protocols: Real-time Transmission Protocol (RTP), Real-time Transmission Control Protocol (RTCP), Session Initiation Protocol (SIP); Network-Management Protocols: Simple Network Management protocol (SNMP), Structure of Management Information (SMI), Management Information Base (MIB); Quality of Service (QoS): Integrated Services (Intserv), Resource Reservation protocol (RSVP), Differentiated Service (Diffserv); Asynchronous Transfer Mode (ATM).

1902723 Database Systems (3 Credit Hours)

Advance data modeling concepts: advance relational data modeling, object oriented data modeling, database design theory, advance relational algebra, database normalization, object oriented database design, advance query languages, advance relational SQL constructs, object oriented query languages, database integrity, concurrency control, concurrency problems, concurrency approaches, database recovery, recovery solutions and approaches, database security.

1902754 Geographical Information Systems (3 Credit Hours)

Theory and techniques whereby diverse kinds of geographical data are processed into new knowledge. Map data structure, advanced analysis, map topologies, temporal and spatial data, quality of geographic data, geographic data modeling and presentation. The combination of theory, application and practical training, inputting, processing, and outputting geographic data within the scope of a GIS, case study.

Appendix I

Research Project (1904777)

Description: This course provides the opportunity for a student to apply knowledge and skills that he/she has been learning to a practical application area in the digital government domain. This course emphasizes a detailed contextual analysis, to a specific issue in e-government domain, in order to examine the interplay of all variables that can provide a complete understanding of an event or situation. Furthermore, students will learn how to design studies, generate data, analyze and interpret the data and disseminate findings in a documented report (technical report). Lastly, students need to satisfy the main goal specified for this course in the submitted report. The main goal is presented next.

Main Goal: The main goal of this course is to enable students to apply knowledge and skills that they have already learned to analyze issues related to a practical application in e-government domain that should result in extending experience or add strengths to what is already known.

Intended Learning Outcomes:

- **Knowledge and Understanding**
  - **Demonstrate understanding of the current developments in a selected e-government application area (or case study).**
  - **Demonstrate knowledge of research principles, methods and techniques applicable to a selected e-government application area to meet a certain objective.**
  - **Demonstrate awareness of legislation, statutory requirements standards of practice side relevant to the selected case study.**

- **Cognitive and Intellectual skills:**
  - **Demonstrate the ability to investigate, analyze, concepts and principles in order to apply established concepts to solve technically challenging ICT problems concerning the selected case study.**
  - **Demonstrate technical skills to justify theoretical propositions and to apply technical knowledge, using IT research methodology, to design, implement and evaluate the proposed frameworks aiming to fulfill the research objectives.**
  - **Demonstrate the ability to realize, analyze and measure the level of risk, including both IT technical risks and related to users and environment. Risk handling strategies should be suggested for management.**

Suggested Cases for the proposed E-Government Program

1. **E-Government: The Key challenges for Management.**
2. **A Risk Assessment Framework for E-Services.**
3. **Scenarios of e-Government in 2020 and implications for strategy design.**
4. **The Influence of Perceived Characteristics of Innovating on e-Government Adoption.**
5. **Implementing e-Government Services in Jordan: Assessing Status through Content Analysis of Government Websites.**
6. **Models for Interactive Decision Making in E-Government.**
7. **When e-Government is opposed by Unwilling Clients; Case Studies on e-Enforcement.**
8. **The Risk of e-Voting in E-Government.**
9. **Ethical Problems for e-Government: The Development of an Evaluative Framework.**
10. **Communication and Culture in Jordan: Designing a Knowledge-enabled Environment to Effect Local Government Reform.**