

متطلبات دخول القسم :

يشترط لتخصص الطالب في القسم أن يجتاز بنجاح مادة " أساسيات نظم المعلومات " و يشمل متطلبات القسم المقررات التخصصية والإختيارية التالية:

مواد تخصصية إختيارية:

من ضمن المقررات الدراسية الذي ينبغي على الطالب دراستها هي المواد التخصصية الإختيارية للقسم فعلى الطالب دراسة (5) مواد دراسية أختيارية من أصل (9) مواد كما هو موضح فى الجداول التالية، كما أن القسم يقترح على الطالب بدراسة المواد المدرجة فى الجدول فى الفصول المذكورة ، كما أن الطالب غير ملزم بهذه المقترحات و يمكن اختيار أى 5 مواد من الجدول التالي:

رمز المقرر	اسم المقرر	اسم المقرر بالانجليزية	الأسبقيات
ITWT301	التنقيب فى البيانات	Data mining	ITGS211
ITWT302	إسترجاع المعلومات	Information retrieval	ITGS226
ITWT303	مقدمة فى رسوم الحاسوب	Introduction to 2D computer graphics	ITGS211
ITWT304	التجارة الإلكترونية	e-commerce	ITGS111
ITWT305	تطوير الألعاب	Game development	ITWT311
ITWT306	نقل الصوت والصورة على الشبكات	Multimedia over IP networks	ITWT324
ITWT307	الحوسبة السحابية	Cloud computing	ITWT311
ITWT308	معالجة الصور	Image processing	ITGS211
ITWT309	الشبكات المترامية	Wide area network	ITGS215

مقررات القسم التخصصية:

يستوجب على الطالب إجتياز عدد 12 مقرر كمتطلبات القسم التخصصية , بعدد 3 وحدات للمقررات النظرية ، كما هو موضح بالجدول التالي:

الأسبقيات	اسم المقرر بالانجليزية	اسم المقرر	رمز المقرر	
ITGS220	Design and Analysis of Algorithms	تصميم وتحليل الخوارزميات	ITGS301	الفصل الخامس
ITGS224	Security Policies and Procedures	اجراءات ولوائح الامان	ITWT317	
ITGS228	Advanced Database	قواعد البيانات المتقدمة	ITWT313	
ITGS223	Operating Systems	نظم تشغيل	ITGS302	
ITGS226	Advanced Internet Programming	برمجة الانترنت المتقدمة	ITWT311	
ITGS213	Human computer Interaction	تفاعل الانسان مع الحاسوب	ITWT315	
ITGS213	IT Project Management	إدارة مشاريع تقنية المعلومات	ITGS303	الفصل السادس
ITWT311	Client-Server programming	برمجة الخادم والعميل	ITWT320	
ITWT315	User interface design	تصميم واجهات المستخدم	ITWT322	
ITWT317	Ethical Hacking and Network Defense	القرصنة الاخلاقية ودفاع الشبكات	ITWT420	
ITWT311	Web application development	تطوير تطبيقات الانترنت	ITWT413	
	Elective 01	اختياري 1		
ITEL121	Scientific Writing	الكتابة العلمية	ITGS304	الفصل السابع
ITWT315 ITGS226	Multimedia System development	تطوير أنظمة الصوت والصورة	ITWT324	
ITWT311	Development Environment Content Management system	نظم التطوير المتكاملة	ITWT415	
ITWT320	WEB Services	خدمات الانترنت	ITW411	
	Elective 02	اختياري 2		
	Elective 03	اختياري 3		
ITWT311	Application development for mobile devices	تطوير تطبيقات الانترنت المتنقلة	ITWT422	الفصل الثامن
	Elective 04	اختياري 4		
	Elective 05	اختياري 5		
ITGS303	BSc Project	مشروع التخرج	ITNT 500	

توصيف المقررات الدراسية لقسم تقنيات الانترنت:

1.المقررات الالزامية:

Course title	Advanced Internet Programming		
Course code	ITWT311	Credits	3
Course type	Core <input type="checkbox"/>	Compulsory <input checked="" type="checkbox"/>	Elective <input type="checkbox"/>
Prerequisites	ITGS226		
Department	Software Engineering		
<p>Course Description:</p> <p>A second Internet programming course concentrating on advanced Internet application development. Creation of relatively sophisticated web pages and application that allow interactions between web page users and the web page as well as network programming, JDBC, XML processing are the main focus of the course. Different Internet programming language (JavaScript, jQuery, PHP) and tools will also be covered.</p>			

Course title	Advanced Database		
Course code	ITWT313	Credits	3
Course type	Core <input type="checkbox"/>	Compulsory <input checked="" type="checkbox"/>	Elective <input type="checkbox"/>
Prerequisites	ITGS228		
Department	Software Engineering		
<p>Course Description:</p> <p>The course aims for the students to be able to develop scalable, distributed applications with SQL to meet organizational requirements. Contents of this subject: Data definition; Managing Tables with DDL; Creating schemas; Referencing schemas versus using the default schema; hiding schemas with synonyms; Building tables; Adding and enforcing constraints; Declaring variables and parameters; Creating and utilizing local variables; Passing input and output parameters; Calling built-in scalar functions; Converting data using CAST and CONVERT; Ordering data with ranking functions; Maintaining Data; Modifying data; Creating Views; Stored Procedures and Stored procedure compilation and execution; Auditing and implementing constraint on data by the means of Triggers; Handling errors by communicating problems.</p>			

Course title	Human and Computer Interaction		
Course code	ITWT315	Credits	3
Course type	Core	Compulsory <input checked="" type="checkbox"/>	Elective
Prerequisites	ITGS213		
Department	Software Engineering		
<p>Course Description:</p> <p>Students will learn the fundamental concepts of human-computer interaction and user centered design thinking, through working in teams on an interaction</p>			

design project, supported by lectures, readings, and discussions. They will learn to evaluate and design usable and appropriate software based on psychological, social, and technical analysis. They will become familiar with the variety of design and evaluation methods used in interaction design, and will get experience with these methods in their project. Topics will include: usability and affordances, direct manipulation, systematic design methods, user conceptual models and interface metaphors, design languages and genres, human cognitive models, physical ergonomics, information and interactivity structures, and design tools and environments.

Course title	Security Policies		
Course code	ITWT317	Credits	3
Course type	Core	Compulsory <input checked="" type="checkbox"/>	Elective
Prerequisites	ITGS224		
Department	Network Department		
<p>Course Description:</p> <p>This course provides students with an introduction to information security policies. The course discusses the entire lifecycle of policy creation and enactment and presents students with issue specific policies in different domains of security. The structure of the policy is also discussed to assist the students in design and modification of policies. Several examples from different domains are incorporated to assist students to learn in context of real life situations.</p> <p>The topics covered in this course include: General Overview of Policies, Policy Lifecycle, and Writing Security Policies, Information Classification and Privacy Policies, Network Security and Email Policies, Application, Operating System and Software Security Policy, Encryption and Key Management Policy, Security Policy: Audit and Compliance, Acceptable Use Policies and Training /Awareness, Security Policy: Enforcement and Effectiveness.</p>			

Course title	Client-Server Programming		
Course code	ITWT320	Credits	3
Course type	Core	Compulsory <input checked="" type="checkbox"/>	Elective
Prerequisites	ITWT311		
Department	Network Department		
<p>Course Description:</p> <p>The aim of this course is to give the students network programming concepts using a modern programming platform. Topics covered include: Introduction to Network Programming; Transport Layer Protocols; TCP, UDP, and SCTP; Client-Server Model; TCP Sockets; UDP Sockets; SCTP Sockets; I/O Multiplexing; DNS and Address Conversion; Threads Programming; RPC, Raw Sockets and Datalink Access. A practical part includes writing Client-side scripts and server-side programs.</p>			

Course title	User Interface Design		
Course code	ITWT322	Credits	3
Course type	Core	Compulsory <input checked="" type="checkbox"/>	Elective
Prerequisites	ITWT315		

Department	WEB Department		
<p style="text-align: right;">Course Description:</p> <p>Topics include: Human-centered software development: Approaches, characteristics, and overview of process, functionality and usability: task analysis, interviews, surveys, Specifying interaction and presentation, Prototyping techniques and tools Graphical user-interface design: Choosing interaction styles and interaction techniques, HCI aspects of common widgets, HCI aspects of screen design: layout, color, fonts, labeling, Handling human failure, Beyond simple screen design: visualization, representation, metaphor, Multi-modal interaction: graphics, sound, and haptics, 3D interaction and virtual reality Graphical user-interface programming: UIMS, dialogue independence and levels of analysis, Widget classes, Event management and user interaction, Geometry management, GUI builders and UI programming environments, Cross-platform design HCI aspects of multimedia systems: Categorization and architectures of information: hierarchies, hypermedia, Information retrieval and human performance (Web search, Usability of database query languages, Graphics, Sound), HCI design of multimedia information systems, Speech recognition and natural language processing, Information appliances and mobile computing</p>			

Course title	Multimedia		
Course code	ITWT324	Credits	3
Course type	Core	Compulsory <input checked="" type="checkbox"/>	Elective
Prerequisites	ITWT315	ITGS226	
Department	Software Engineering		
<p style="text-align: right;">Course Description:</p> <p>The course is a basic grounding in issue surrounding multimedia design, implementation, and multimedia data. It enhances the student's view about graphics and images. The course will cover the following: digital audio, graphics, still images and videos, animation. Also it includes data compression and transmission of media, as well as software tools used for integrating digital media.</p>			
Course title	Web Services		
Course code	ITWT411	Credits	3
Course type	Core	Compulsory <input checked="" type="checkbox"/>	Elective
Prerequisites	ITWT320		
Department	WEB Department		
<p style="text-align: right;">Course Description:</p> <p>Topics covered in this course include: Apache, TCP/IP, How Does Apache Use TCP/IP; Apache's Flags; Block Directives; Virtual Hosts; HTTP Response Headers; Common Gateway Interface (CGI); Writing and Executing Scripts; Script Directives; Debugging Scripts; Setting Environment Variables; suEXEC on Unix;</p>			

Handlers; Actions; Authentication; Authentication Protocol Authentication Directives; Passwords Under Unix; Order, Allow, and Deny; Digest Authentication; Anonymous Access; Automatic User Information; Using .htaccess Files; Overrides; MIME, Content and Language Negotiation; Indexing ; Redirection; Proxy Server, Proxy Directives, Caching; Server-Side Includes: Server Status, Server Info, Logging, Authentication; Blocking Access; Counters; Faster CGI Programs; FrontPage from Microsoft; Languages and Internationalization; Server-Side Scripting; Throttling Connections; URL Rewriting; Miscellaneous: MIME Magic, DSO; Security: Apache-SSL, The Apache API, Writing Apache Modules.

Laboratory Projects: Students implement a Unix operating system and provide user services, internetwork services and application services to serve external "client" requests.

Course title	Web Application Development		
Course code	ITWT413	Credits	3
Course type	Core	Compulsory <input type="checkbox"/>	Elective
Prerequisites	ITWT311		
Department	WEB Department		
<p>Course Description:</p> <p>This course will introduce web application concepts using both Django/Python and J2EEbased technologies, and you will be able to generalize these concepts to other web application technologies and tools. Topics Covered include: Web data protocols. HTML, CSS, and Bootstrap. JavaScript. jQuery. Ajax. Web frameworks and design patterns. Cookies. Sessions. Many Django and J2EE applied concepts. Databases and transaction management. ORM tools. Web security. Concurrency. View templating. Web scalability and performance. Cloud services. Principles of UI design.</p>			

Course title	Development Environment Content Management System		
Course code	ITWT415	Credits	3
Course type	Core	Compulsory <input checked="" type="checkbox"/>	Elective
Prerequisites	ITWT311		
Department	WEB Department		
<p>Course Description:</p> <p>This course explores the use of the three most popular open source web-based content management systems—WordPress, Joomla, and Drupal—to create dynamic and flexible websites and landing pages. Participants explore the fundamentals of planning dynamic websites, CMS database management, developing CSS-controlled site templates, and creating database-driven websites through the planning and creation of their own topic-based sites.</p>			

Course title	Ethical Hacking and Network Defense
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Course code	ITWT420	Credits	3
Course type	Core	Compulsory <input checked="" type="checkbox"/>	Elective
Prerequisites	ITWT317		
Department	Network Department		
<p>Course Description:</p> <p>Topics covered in this course include: introduction to Ethical Hacking; Hacking Laws; Footprinting; Google Hacking; Scanning; Enumeration; System Hacking; Trojans and Backdoors; Viruses and Worms; Phishing; Session Hijacking; Hacking Web Servers; Network Devices & Attacks; Denial of Service Attacks; Hacking Wireless Networks; Hacking Laws and Legal and Ethical Considerations.</p>			

Course title	Application Development for Mobile Devices		
Course code	ITWT422	Credits	3
Course type	Core	Compulsory <input checked="" type="checkbox"/>	Elective
Prerequisites	ITWT311		
Department	Mobile Department		
<p>Course Description:</p> <p>This course will introduce students to application development for mobile devices. The course focuses on using the SAMSUNG LAB as the development platform, but the concepts covered in the course are platform agnostic. As such, students will be introduced to the Objective-C programming language, the XCode programming environment, and the iPhone SDK and APIs. Topics include: User-interaction design and requirements design, Graphical User Interfaces and Event-Driven Programming, Advanced Object-Oriented Programming, Robust design and programming for user constraints (application interruption, application responsiveness, partial user engagement), Robust design and programming for device constraints (power consumption, screen size, network connectivity, memory limitations), Data distribution: distribution types, basic parsing, distribution security. Location awareness, messaging, and other connections between the device and the outside world.</p>			

2.المقررات الاختيارية:

Course title	Data Mining		
Course code	ITWT301	Credits	3
Course type	Core	Compulsory	Elective
Prerequisites	ITGS211	ITGS 228	
Department	Information Systems Department		
<p>Course Description:</p> <p>This course covers: basic concepts concerning knowledge discovery in data, relation of knowledge discovery and data mining. Data sources for knowledge discovery. Principles and techniques of data preprocessing for mining. Systems for knowledge discovery in data, data mining query languages. Data mining techniques association rules, classification and prediction, clustering. Mining unconventional data - data streams, time series and sequences, graphs, spatial and spatio-temporal data, multimedia. Text and web mining. Working-out a data mining project by means of an available data mining tool.</p>			

Course title	Introduction to 2D Computer Graphics		
Course code	ITWT303	Credits	3
Course type	Core	Compulsory	Elective
Prerequisites	ITGS211		
Department	WEB Department		
<p>This course covers: introduction to OpenGL, basics of rendering, drawing of graphics primitives, their features, camera settings, materials and lighting, textures, MIP mapping, filtration, rendering, textures (generation, procedural textures, special textures), volume data rendering, ray tracing advanced methods, radiation methods, morphing - 2D raster and 2D vector, global visibility, virtual reality, simulation and visualization of particle systems, free deformation, soft tissue animation, articulated structures animation.</p>			

Course title	e-commerce		
Course code	ITWT304	Credits	3
Course type	Core	Compulsory	Elective
Prerequisites	ITGS111		
Department	WEB Department		
<p>Course Description:</p> <p>The course introduces modern management techniques that are used for the marketing, selling, and distribution of goods and services through the Internet. Topics include: E-business Strategy, Business Models in the new world, Cyber-services, E-business relationships, E-business technology, E-Marketing and e-payment, Antecedents and barriers to e-commerce, Business Process Management, Case studies with LAB work.</p>			

Course title	Computer Games Design and Implementation		
Course code	ITWT305	Credits	3
Course type	Core	Compulsory	Elective
Prerequisites	ITWT311		
Department	Software Engineering		
<p>Course Description:</p> <p>The course provides an introduction to the core concepts involved in designing and programming computer games. Subjects covered are: graphics; sprites, threads, sound; 2D platform games; 3D graphics; interaction and animation; lighting.</p>			

Course title	Multimedia over IP Networks		
Course code	ITWT306	Credits	3
Course type	Core	Compulsory	Elective
Prerequisites	ITWT324		
Department	Network Department		
<p style="text-align: right;">Course Description:</p> <p>Advanced topics in technologies, protocols, standards, and future trends of multimedia over computer IP networks are discussed in this course. Students taking this course will be aware of all details about standard protocols that are used to take care about multimedia transportation from end-to-end in Internet.</p> <p>Topics covered in this course include: review of standard TCP/IP protocol structure; study of standard multimedia protocols such as: session initiation protocol (SIP);session description protocol (SDP); real-time transport protocol (RTP);real-time control protocol (RTCP); real time streaming protocol (RTSP); resource reservation protocol (RSVP) and H.323 protocol; MPLS protocol and multimedia; study different multimedia applications such as VoIP; video conferencing and IPTV; finally network analysis case studies with OPNET tool.</p>			

Course title	Cloud Computing		
Course code	ITWT307	Credits	3
Course type	Core	Compulsory	Elective
Prerequisites	ITWT311		
Department	Network Department		
<p style="text-align: right;">Course Description:</p> <p>The course present the state of the art in cloud computing technologies and their applications, topics include: introduction to cloud computing, Infrastructure as a Service (IaaS): resource virtualization (server, storage, network), Platform as a Service (PaaS): computation and storage, Software as a Service (SaaS): web services and web 2.0, telecommunications needs, architectural models for cloud computing, security, privacy, trust management, resource allocation and quality of service, pricing and risk management, interoperability and internetworking, legal issues, Students can familiar with cloud services and their techniques through labs and a project.</p>			

Course title	Image Processing		
Course code	ITWT308	Credits	3

Course type	Core	Compulsory	Elective
Prerequisites	ITGS211		
Department	WEB Department		
<p>Course Description: This course covers: introduction to image processing, image acquiring, point and discrete image transforms, linear image filtering, image distortions, types of noise, optimal image filtering, non-linear image filtering, watermarks, edge detection, segmentation, motion analysis, loseless and lossy image compression techniques.</p>			

Course title	Wide Area Network		
Course code	ITWT309	Credits	3
Course type	Core	Compulsory	Elective
Prerequisites	ITGS215		
Department	Network Department		
<p>Course Description:</p> <p>Topics covered in this course include: Introduction to Fundamentals of WANs; WAN Concepts and Components; Wired and Wireless used in WAN networks; WAN environments, WAN architectures; Components involved in WAN; Physical Layer WAN Protocols; low & high-speed options for Physical Layer MAN/WAN; Data Link Layer WAN Protocols; Differences between circuit-switched and packet- switched networks; Higher Layer WAN Protocols; WAN Solutions Wide Area Networks; Standards WANs protocols and networks- X.25, Frame Relay- ATM network protocols, services and layering- SONET/SDH layers- Frame relay operation- layers and frames- Broadband Wireless networks; Voice and Video on WAN.</p>			