

# الخطة الدراسية لبرنامج

## "الدبلوم البريطاني"

في

الأمن السيبراني

تتكون الخطة الدراسية لنيل الدرجة الجامعية المتوسطة في برنامج الدبلوم البريطاني/ تخصص الأمن السيبراني من (68) ساعة معتمدة، موزعة على النحو الآتي:

الرقم	المتطلب	ساعة معتمدة
1.	متطلب كلية	11
1.	المهارات المساندة	12
4.	متطلبات التخصص	45
المجموع		68

## وصف مخرجات التخصص:

يهتم تخصص الامن السيبراني بالتقنيات والإجراءات والعمليات والممارسات التي تستخدم لحماية الشبكات و الأجهزة و المعلومات من مختلف التهديدات و الاضرار. كما انه يتعرض لمبادئ الشبكات وأمنها وأنواع التهديدات وسياسات الامن الرقمي. إضافة الى ذلك فإنه يعتني بإخفاء المعلومات وتشفيرها، وتقنيات التشفير وفكه ومهارات التحقيق الجنائي المتعلق بالأمن الرقمي والتي تساعدك في الحصول على الدليل وتدوينه بعد استخلاصه من الوسائط الإلكترونية.

## المجالات المعرفية للمهارات المتخصصة:

الرقم	اسم المجال	الساعات المعتمدة		المواد التعليمية للمجال
		نظري	عملي	
1.	مهارات الامن السيبراني وإدارة الشبكات	18	6	Information Security Applied Cryptography in the Cloud Digital Forensics Information Security Management Cyber Security Networking Network Security Architecture
2.	مهارات تقنية المعلومات	9	3	Programming Database Design & Development Business Process Support Maths For Computing
3.	العمل ضمن فرق وإدارة المشاريع	7	2	Professional Practice Planning a Computing Project Computing research project
مجموع الساعات المعتمدة		34	11	45 س.م

## الخطة الدراسية لتخصص " الأمن السيبراني "

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أولاً: متطلبات كلية، (11) ساعات معتمدة موزعة على النحو الآتي:

رقم المادة	اسم المادة	س.م	نظري	عملي	المتطلب السابق
020000111	المواطنة الايجابية ومهارات الحياة	3	3	0	
020000231	ريادة الاعمال	2	2	0	
II SS100	Study Skills	3	3	0	
ICR 100	Career Readiness	3	3	0	
المجموع (س.م)		11			

ثانياً: المهارات المساندة ، (12) ساعات معتمدة موزعة على النحو الآتي:

رقم المادة	اسم المادة	س.م	نظري	عملي	المتطلب السابق
040033240	التدريب الميداني - الأمن السيبراني	3	0	9	
040002100	مقدمة في أنظمة التشغيل	3	2	3	
040002101	مقدمة في البرمجة باستخدام ( Java )	3	2	3	
040002102	مقدمة في تكنولوجيا المعلومات	3	3	0	
المجموع (س.م)		12			

\* - تدريب عملي متواصل لمدة 8 ( أسابيع )

## الخطة الدراسية لتخصص " الأمن السيبراني "

ثالثاً: متطلبات التخصص، (45) ساعة معتمدة، موزعة على النحو الآتي:

رقم المادة	اسم المادة	س.م	نظري	عملي	المتطلب السابق
040011112	Programming	3	2	3	040002101
040011131	Networking	3	2	3	
040011121	Professional Practice	3	3	0	
040011113	Database Design & Development	3	2	3	
040011232	Information Security	3	2	3	040011131
040011122	Planning a Computing Project	3	2	3	
040033211	Cyber Security	3	2	3	040011111
040011111	Maths for computing	3	3	0	
040033212	Architecture	3	2	3	
040011216	Computing research project	3	2	3	040011122
040011215	Business Process Support	3	2	3	040011113
040033213	Applied Cryptography in the Cloud	3	3	0	040011111
040033214	Digital Forensics	3	2	3	040011232
040033215	Information Security Management	3	3	0	040011232
040033216	Network Security	3	2	3	040011232
المجموع (س.م)		45	34	11	

## الخطة الاسترشادية لتخصص "الأمن السيبراني"

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الفصل الدراسي الثاني			الفصل الدراسي الأول		
س.م.	رقم المادة	اسم المادة	س.م.	رقم المادة	اسم المادة
3	040011122	تخطيط المشاريع المحوسبة	3	040002102	مقدمة في تكنولوجيا المعلومات
3	040011112	البرمجة	3	040002101	مقدمة في البرمجة باستخدام (Java)
3	040011113	تصميم قواعد البيانات و تطويرها	3	040011111	الرياضيات و الحوسبة
3	040011131	شبكات الحاسوب	3	040002100	مقدمة في أنظمة التشغيل
3	040011121	ممارسات مهنية و اخلاقية	3	—	متطلب كلية
3	—	متطلب كلية	3	—	متطلب كلية
18	المجموع		18	المجموع	

الفصل الدراسي الرابع			الفصل الدراسي الثالث		
س.م.	رقم المادة	اسم المادة	س.م.	رقم المادة	اسم المادة
3	040033214	التحليلات الجنائية الرقمية	2	—	متطلب كلية
3	040033216	أمن الشبكات	3	040011232	أمن المعلومات
3	040033215	ادارة أمن المعلومات	3	040033212	هيكلية الحاسوب
3	040033240	التدريب الميداني	3	040011215	أنظمة دعم الاعمال
3	040011216	مشاريع الأبحاث الحوسبية	3	040033211	الامن السيبراني
			3	040033213	التشفير التطبيقي في السحابة
15	المجموع		17	المجموع	

## الوصف المختصر للمواد التعليمية لتخصص " الأمن السيبراني "

## أولاً: متطلبات الكلية

## المواطنة الإيجابية ومهارات الحياة 020000111 (3: 0-3)

يوضح المساق مفهوم المواطنة ومهارات الحياة وأهميتهما في اكتساب مهارات قيمه، والعمل على استخدام هذه المهارات في سعيهم للحصول على تعليم أفضل ونتائج ايجابية في العمل، حيث ان المساق يراعي بناء المعرفة في الموضوعات التي يتضمنها البرنامج كما ويبني المهارة عند الشباب لاستخدامها في تطبيق المعرفة كما ويبني الثقة في قدرات الشباب على استخدام هذه المعرفة والمهارة بالاضافه الى توفير الدعم الشخصي والبيئي لتغيير السلوك من خلال تعزيز قيم المواطنة الايجابية والثقافة المجتمعية البناء والعمل المجتمعي التطوعي

## ريادة الأعمال 020000231 (2: 0-2)

يوضح المساق مفهوم ريادة الأعمال، تأثيرها في الإقتصاد الوطني ودورها في القضاء على البطالة، وكيفية استحداث أفكار ريادية ومبتكرة لتوائم احتياجات المجتمع و مواجهة المخاطر والتحديات التي تعترضها، وتقييم فرص نجاحها من خلال دراسة الجدوى، وكيفية حساب كلفتها وتمويلها وإدارة شؤونها المالية، وكيفية عمل تسويق لها، والطبيعة القانونية لها وخطة العمل اللازمة للبدء بها مع التركيز على التجربة الأردنية في هذا المجال.

## Study Skills II SS100 (3:3-0)

Study Skills is a course provided by Pearson Education. In this course students will practice effective time management, study and organizational skills in addition to other skills that will enhance students' performance throughout college education as well as in their future workplace.

## Career Readiness ICR 100 (3:3-0)

This blended learning course provided by Pearson is designed to help students develop the skills and competencies expected by employers in order to increase their competitive employment advantage and achieve their career goals.

The course will help with students' personal development and employment potential through participating in interactive classes and working on an online program provided by Pearson.

By the end of the course students will have produced high quality CVs and learnt the correct way to handle interviews, they will also have developed the skills and competencies expected by employers to increase their employability.

## ثانياً: المهارت المساندة

**Training–Cybersecurity (040033240) (3: 0–9)**

This track will provide the student with practical working experience related to his field of study. The aim is to provide the student with firsthand knowledge in his domain and allow him to learn directly from experts in the workforce. The real working environment will prepare the student for a successful career launch and sharpen his communication skills and teamwork abilities. Students are required to train for a predefined period, an instructor will follow-up on the progress of the student during the training.

**Introduction to Operating Systems (040002100) (3: 2–3)**

This course provides an introduction to operating systems. It introduces the main concepts of Linux operating systems. The Linux distributions and installations. It also covers the main components of Linux, the philosophy and the terminology. The file system of Linux is introduced and the disk management techniques. The course presents the shell commands and the Linux command line interface (CLI). Finally it introduces the user environment and the permissions.

**Introduction to programming using Java (040002101) (3: 2–3)**

This course introduces students to the basics of problem solving and design using pseudo code and flowcharts. It also gives an introduction to programming using JAVA language, which enables the students to write simple JAVA programs using variables, arithmetic and logical operations, decisions and loops, and functions implementation.

**Introduction in Information technology (040002102) (3: 3–0)**

This track gives the basic concepts of computer and information technology from its two sides (The physical and programmatic sides) and it covers:

An introduction in computer components the physical and programmatic components, Counting systems, The ways of data visualization, Stages of programs development, Applied software and systems software. To focus on the fundamentals and ways of problem solving and algorithms design.

## ثالثاً: متطلبات التخصص

**Programming (040011112)(3:2-3)**

This unit introduces students to the core concepts of programming with an introduction to algorithms and the characteristics of programming paradigms. Among the topics included in this unit are: introduction to algorithms, procedural, object-orientated & event-driven programming, security considerations, the integrated development environment and the debugging process.

**Networking (040011131)(3:2-3)**

The aim of this unit is to provide students with wider background knowledge of computer networking essentials, how they operate, protocols, standards, security considerations and the prototypes associated with a range of networking technologies. Students will explore a range of hardware, with related software, and will configure and install these to gain knowledge of networking systems. A range of networking technologies will be explored to deliver a fundamental knowledge of Local Area Networking (LAN), Wide Area Networking (WAN) and their evolution to form largescale networks and the protocol methodologies related to IP data networks will be explored.

**Professional Practice (040011121)(3:3-0)**

This unit provides a foundation for good practice in a variety of contexts. The ability to communicate effectively using different tools and mediums will ensure that practical, research, design, reporting and presentation tasks are undertaken professionally and in accordance with various communication conventions. In everyday life the ability to apply critical reasoning and solve problems are necessary skills to enable task resolution and facilitate effective decision-making. Working with others in a group environment academically or within the workplace is an integral part of everyday life. Therefore, understanding the dynamics of teams in terms of culture, roles and responsibilities will ensure that there is a better understanding and awareness of the importance and value of teamwork. Continuing professional development, self-improvement and working towards various goals is an area that is encouraged in the workplace through the appraisals framework. In addition, professional development extends into higher levels of learning and the need to demonstrate effective research skills and academic reporting skills is also required. Among the topics included in this unit are: the development of communication skills and communication literacy; the use of qualitative and quantitative data to



demonstrate analysis, reasoning and critical thinking; and tasks that require the integration of others within a team-based scenario and planning and problem solving.

**Database Design & Development.( 040011113)(3:2-3)**

The aim of this unit is to give students opportunities to develop an understanding of the concepts and issues relating to database design and development, as well as to provide the practical skills to translate that understanding into the design and creation of complex databases. Topics included in this unit are: examination of different design tools and techniques; examination of different development software options; considering the development features of a fully functional robust solution covering data integrity, data validation, data consistency, data security and advanced database querying facilities across multiple tables; appropriate user interfaces for databases and for other externally linked systems; creating complex reports/dashboards, testing the system against the user and system requirements; and elements of complete system documentation.

**Information Security (040011232)(3:2-3)**

The aim of this unit is to provide students with knowledge of security, associated risks and how security breaches impact on business continuity. Students will examine security measures involving access authorization, regulation of use, implementing contingency plans and devising security policies and procedures. This unit introduces students to the detection of threats and vulnerabilities in physical and IT security, and how to manage risks relating to organizational security. Among the topics included in this unit are Network Security design and operational topics, including address translation, DMZ, VPN, firewalls, AV and intrusion detection systems. Remote access will be covered, as will the need for frequent vulnerability testing as part of organizational and security audit compliance.

**Planning a Computing Project (040011122)(3:2-3)**

As computing systems and technologies continually develop so do the ways in which businesses utilise technologies to support their operations and remain competitive. As a computing professional it is important to understand the ways in which technology evolves and how it can be utilised in different sectors.

The aim of this unit is to give students an opportunity to demonstrate the research skills required for developing a deeper understanding of a subject and the ability to use evidence to inform decisions. Students will undertake independent research, and

investigation of a theme set by Pearson. Students will also investigate and research an industry sector as outlined in the centre-set project brief. Students will use the outcomes of their research to help them plan a computer-based project and to support recommendations for how the identified business could utilise the tools and technologies identified as part of their research.

### **Cyber Security (040033211) (3:2-3)**

This unit has been designed to develop students' knowledge and understanding in relation to cyber threats and vulnerabilities, cyber defence techniques and incident response. Students will explore fundamental principles as well as leading-edge concepts, terminologies, models, and hardening methods. Students will assess the types of malicious activity and potential targets, and the role everyone has for maintaining cyber resilience.

### **Maths For Computing (040011111)(3:3-0)**

This unit introduces students to the mathematical principles and theory that underpin the computing curriculum. Through a series of case studies, scenarios and task-based assessments students will explore number theory within a variety of scenarios; use applicable probability theory; apply geometrical and vector methodology; and finally evaluate problems concerning differential and integral calculus. Among the topics included in this unit are: prime number theory, sequences and series, probability theory, geometry, differential calculus and integral calculus.

### **Architecture (040033212) (3:2-3)**

This unit introduces students to the hardware and software architecture of computer systems and low-level language program development using CPU registers to manipulate data. Students will explore how program instructions and data types can be represented, stored in a computer system and used to carry out a computing task.

Among the topics included in this unit are: computer architecture elements, CPU instruction sets, fetch-execute cycle, CPU registers, binary calculations, use of PC and stack, reading/writing to peripherals, architectural security aspects including protected memory segmentation and synchronous/asynchronous channel I/O operations, parallel machines, emerging computer architectures and security considerations.

### **Computing Research Project (040011216)(3:2-3)**

The aim of this unit is to offer students the opportunity to engage in sustained research in a specific field of study. The unit enables students to demonstrate the capacity and ability to identify a research theme, to develop research aims, objectives and outcomes, and to present the outcomes of such research in both written and verbal formats. The unit also encourages students to reflect on their engagement in the research process during which recommendations for future, personal development are key learning points.

### **Business Process Support (040011215)(3:2-3)**

This unit introduces students to a range of tools, techniques and technologies used for acquiring data and processing it into meaningful information that can be used to support business functions and processes.

Students will examine how data and information support business processes, the mechanisms to source and utilise data and turn it in to usable, and valuable, information output. Students will explore real-world business problems, the emergence of data science and how the application of data science can be used to support business processes. Finally, students will demonstrate practical application of data science techniques to support real-world business problems.

### **Applied Cryptography in the Cloud (040033213)(3:3-0)**

This unit introduces students to the applied principles of cryptography and looks at its practical applications and methods, many of which are fundamental to secure data in the cloud. Students are expected to analyse fundamental symmetric, asymmetric and hashing encryption methods, and investigate examples of these in practice. Students are expected to demonstrate the use of cryptography and cryptanalysis tools, methods and their applications. Students are also expected to appraise the inner workings of cryptographic protocols and principles, including transport layer security (TLS) and blockchain, and evaluate how they can be used by organisations to enhance security when considering a move to a cloud environment.

### **Digital Forensics (040033214)(3:2-3)**

This unit introduces students to digital forensics involving the use of specialized techniques to investigate the recovery, authentication and analysis of data on electronic data storage devices as well as Network Security breaches and cyberattacks using different tools and techniques.

On successful completion of this unit students will be able to carry out digital forensics in accordance with industry and legal guidelines and procedures using different tools as well as understand low-level file structures of several Operating Systems and undertake digital Forensic Investigation of devices.

**Information Security Management (040033215)(3: 3-0)**

This unit introduces students to the basic principles of an ISMS and how businesses use them to effectively manage the ongoing protection of sensitive information they hold. There are many reasons for establishing an ISMS for an organisation, but one of the main goals is to enable the organisation to manage information security as a single entity which can be monitored and continually improved upon. This unit considers information security management in a business context and will allow students to understand how modern organisations manage the ongoing threats to their sensitive assets.

**Network Security (040033216)(3:2-3)**

This unit introduces students to the fundamental principles of Network Security practices. As Systems Administration and Management are important tasks in the day-to-day functioning and security of Information Systems, poor or improper practices can lead to loss of data, its integrity, performance reductions, security breaches or total system failure.

On successful completion of this unit students will be able to discuss with confidence several types of Network Security measures as well as associated protocols, cryptographic types and configuration settings of Network Security environments. Finally, students will be able to test the security of a given network to identify and fix vulnerabilities.