Department of Cyber security and Cloud computing Engineering Technology

1- About the program
  Program Aim:
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1. Preparing technical and engineering cadres with a high level of understanding, knowledge, and academic and technical preparation that combine engineering perceptions, technical creativity, scientific skill, and implementation quality in engineering cyber security technologies and cloud computing.

2. Prepare technical and engineering cadres responsible for building, designing, and protecting enterprise IT systems to prevent data breaches and keep them safe from hackers, viruses, and other potential problems.

3. Permanent development of study programs through cooperation with Arab and international academic institutions to suit the requirements of Iraqi and local cyber and national security programs and the needs of the labor market and provide a suitable environment for theoretical and practical teaching using the latest educational means.

4. Continuous qualification of the capabilities of faculty members, technicians, and administrators in the department through participation in seminars, conferences, and workshops held by the department or corresponding departments in local and international universities.

5. Cooperate with the departments to follow up on the department graduates and continuously evaluate their performance after graduation to ensure effective contribution to the market labor under a plan and a future vision to develop and expand the circle of market lobber participation.

6. Providing technical and academic consultancy in cybersecurity and cloud computing.

7. Adopting influential theories to develop the department's capabilities in conducting research and studies. Furthermore, able to adapt to various working conditions and keep pace with the rapid developments in the field of specialization while respecting the profession's ethics. Moreover, preparing the requirements of study to comply with the quality standards in the Ministry of Higher Education and Scientific Research through graduates equipped with various knowledge that qualify them to excel in their field of work

Medium and Course Assessment
The program is based on the course system. The Cyber security and Cloud Computing Engineering Technologies program extends over four academic years and grants a bachelor's degree in Cybersecurity Engineering Technologies and Cloud Computing

Graduation Requirements
Students are required to successfully complete 42 courses (172 credits), including one capstone project.
Those who have failed a course are allowed a second attempt and those who failed again are required to retake it.

2- Curriculum Structure

Summary of hours for the Department of Cyber security Technologies Engineering and Cloud (Computing - Courses - approved (compulsory			
units	**Practical hours**	**theoretical hours**	**stage**
45	24	33	1 stage
42	28	28	2 stage
42	26	29	3 stage
40	30	25	4 stage
169	108	115	the total

Summary of hours for the Department of Engineering Technologies of Cybersecurity and Cloud Computing - Courses -selectives (the student must choose 21 units)			
units	Practical hours	theoretical hours	stage
12	8	8	**1 stage**
6	4	4	**2 stage**
6	4	4	**3 stage**
6	4	4	**4 stage**
30	20	20	the total

Summary of hours for the Department of Cybersecurity Technologies Engineering and Cloud Computing - Courses (Total)			
units	Practical hours	theoretical hours	stage
57	32	40	**1 stage**
48	30	34	**2 stage**
48	30	32	**3 stage**
46	34	32	**4 stage**
199	126	138	the total

3- Courses

level one

					Course Name		Requirement type
Curricula for the specialization of cyber security technologies engineering and cloud computing							
The first academic level (for the first semester and the second semester) (45) credit units, at a rate of 22 units per semester							
code		number of units	The number of practical hours	The number of theoretical hours	The name is in English	The name is in Arabic	
NTU101		2	0	2	English language 1	اللغة الانكليزية 1	**the University**
NTU102		2	2	1	Fundamentals of programming	حاسوب 1	
NTU103		2	2	1	Computer programming	حاسوب 2	
NTU104		2	0	2	Human rights and Democracy	حقوق الانسان وديمقراطية	
NTU105		2	0	2	Arabic language	لغة عربية (أختياري)	
NTU106					Physical Education	رياضة (أختياري)	
TEMO107					Physics	فيزياء (أختياري)	**the college**
TEMO108		2	0	2	Mathematics 1	رياضيات 1	
TEMO109		2	2	1	Engineering drawing	رسم هندسي	
TEMO110		2	0	2	Mathematics 2	رياضيات 2	
CCT111		3	2	2	Fundamentals of Electrical Engineering	مبادئ الهندسة الكهربائية	**Section**
CCT114		3	2	2	Digital Circuits Design	تصميم الدوائر الرقمية	
CCT115		3	2	2	Computer organization	تركيب الحاسوب	
CCT117		3	2	2	Introduction to Digital logic	اسس المنطق رقمي	
CySCT119		2	0	2	Introduction to Sociology	مقدمة الى علم الاجتماع	
CySCT113		3	2	3	Data structure	هياكل بيانات	
CySCT112		3	2	2	Probability and Statistics	الاحصاء والاحتمالية	
CCT116		1	2	0	Electronic workshop	ورشة الكترونية	
CySCT114		3	2	2	Elective 1(Microprocessor and Assembly Language)	دوائر حاسوبية (أختياري)	
CySCT214		3	2	3	Elective 2 (Foundation of Cyber Security)	مؤسسة الامن السيبراني	
CCT128					Elective 3 (Computer Application)	تطبيقات الحاسوب (اختياري)	
CCT129					Elective 4 (Computer Software)	برمجيات الحاسوب (اختياري)	
		45	24	33	**Total semester units for the first level (first semester, second semester)**		

level two

					Course Name		Requirement type
Curricula for the specialization of cyber security technologies engineering and cloud computing							
The second academic level (for the first semester and the second semester) (42) credit units, 12 units per semester							
code	grader	number of units	The number of practical hours	The number of theoretical hours	The name is in English	The name is in Arabic	
NTU200	NTU101	2	0	2	English language 2	لغة إنكليزية 2	**the University**
NTU201		2	0	2	Cyber Ethics	اخلاقيات مهنة الامن السيبراني	
TEMO202		3	0	3	Discrete Mathematics 3	رياضيات 3	**the college**
CCT213		1	2	0	Summer Training 1	التدريب الصيفي 1	
TEMO203	TEMO202	3	1	3	Advance Discrete Mathematics 4	رياضيات 4	
CCT206		3	2	2	Computer Architecture	معمارية الحاسوب	**Section**
CySCT207		2	2	1	Python and Cyber Programming	برمجة البايثون والامن السيبراني	
CCT215		3	2	2	Operating systems	انظمة تشغيل	
CCT208		2	2	1	Data Base Systems	انظمة قواعد البيانات	
CySCT209		2	2	1	Hardware Devices of Cyberspace	الاجهزة المادية في الفضاء السيبراني	
CCT210		3	2	2	Computer Electronics	الكترونيك	
CySCT211		3	2	2	Fundamentals of Cloud Computing	اساسيات الحوسبة السحابية	
CCT212		3	2	2	Computer Networks 1	شبكات الحاسوب 1	
CySCT215	CCT212	3	2	2	Introduction to Computer Security	مقدمة الى امن الحاسوب	
CySCT218		2	2	1	Network Administration	ادارة الشبكات	
CySCT217	CCT208	3	2	2	Database Security	امن انظمة قواعد البيانات	
CCT216	CCT215	3	2	2	Advance Operating Systems	انظمة تشغيل متقدمة (اختياري)	
CySCT208					Elective 1 (Java and Cyber Programming)	برمجة الجافا والامن السيبراني) (اختياري	
CySCT209					Elective 2 (System Administration)	ادارة النظام) (اختياري	
		42	28	28	**Total semester units for the second level (first semester, second semester)**		

Level three

code	grader	number of units	The number of practical hours	The number of theoretical hours	Course Name		Requirement type
					The name is in English	**The name is in Arabic**	
Curricula for the specialization of cyber security technologies engineering and cloud computing							
The third academic level (for the first semester and the second semester) (42) credit hours, 20 hours for each semester							
NTU310		2	0	2	Methodology of Scientific Research - 1	منهج البحث العلمي 1-	
NTU301		2	0	2	English for Information Technology 3	لغة انكليزية 3	the University
CCT312		1	2	0	Summer Training 2	التدريب الصيفي 2	the college
NTU302		2	0	2	Technical and Scientific Writing1	اسس الكتابة العلمية والتقنية 1	
CCT302		3	2	2	Cryptography Fundamentals	اسس التشفير	Section
CySCT303		3	2	2	Introduction to Hardware Security	مقدمة في امن الاجهزة المادية	
CCT304		3	2	2	Embedded and Real Time System Design	تصميم الانظمة المضمن وفي الوقت الحقيقي	
CCT305		3	2	2	Introduction to Digital forensics	مقدمة في الادلة الجنائية الرقمية	
CCT306		3	2	2	Signal and Systems	الإشارات والأنظمة	
CySCT307	CySCT211	3	2	2	Cloud Computing Security	امن الحوسبة السحابية	
CCT308		2	2	1	Secure Software Development) (Writing Secure Codes	تطوير البرمجيات الآمنة (كتابة الرموز الآمنة))	
CySCT309		3	2	2	Mobile and Wireless Networks 2	شبكات الحاسوب 2 (الشبكات الاسلكية والمحمولة)	
CySCT310		3	2	2	Practicing Cybersecurity: Attacks and Countermeasures	ممارسة الأمن السيبراني: الهجمات والتدابير المضادة	
CySCT311		3	2	2	Secure Operating Systems	امنية انظمة التشغيل	
CySCT312					Elective 1 (Engineering Analysis)	اختياري 1 التحليلات الهندسية	
CySCT313	CySCT309	3	2	2	Mobile and Wireless Networks Security	أمن شبكات الجوال والشبكات اللاسلكية	
CySCT314					Elective 2 (Internet of Things)	اختياري 2 (انترنت الاشياء)	
CySCT311	CySCT208	3	2	2	Secure Web Development	تطوير الويب الآمن	
		42	**26**	**29**	**Total semester units for the third level (first semester, second semester)**		

Level four

code	grader	number of units	The number of practical hours	The number of theoretical hours	Course Name		Requirement type
					The name is in Arabic	**The name is in Arabic**	
Curricula for the specialization of cyber security technologies engineering and cloud computing							
The forth academic level (for the first semester and the second semester) (40) credit hours, 20 hours for each semester							
NTU401	NTU301	2	0	2	English Language for Information Technology 4	لغة انكليزية 4	the University
NTU410		2	0	2	Methodology of Scientific Research -2	منهج البحث العلمي 2-	
NTU402	NTU302	2	0	2	Technical and Scientific Writing 2	اسس الكتابة العلمية والتقنية 2	
TEMO402		2	2	1	Information Technology Project Management	إدارة مشاريع تكنولوجيا المعلومات	the college
TEMO403		2	4	0	Project1 (Red Team Offensive)	مشروع 1	
TEMO414		2	4	0	Project 2 (Blue Team Defenses)	مشروع 2	
CySCT404		3	2	2	Malware Analysis (Reverse Software Engineering)	تحليل البرامج الضارة (هندسة البرمجيات العكسية)	Section
CySCT405		2	2	1	penetration testing and Vulnerability Analysis (Ethical Hacking)	اختبار الاختراق وتحليل نقاط الضعف (القرصنة الأخلاقية)	
CySCT406		3	2	2	Intrusions Detection Systems	أنظمة كشف التسلل	
CCT407		3	2	2	Artificial intelligence and Cyber Security	الذكاء الاصطناعي والامن السيبراني	
CySCT408		3	2	2	Social Engineering and Social Network Security	الهندسة الاجتماعية وأمن الشبكات الاجتماعية	
		3	2	2	Secure Communication Protocols	بروتوكولات الاتصال الآمن	
CySCT410		3	2	2	Hardware Design with FPGAs: Secure and Trustworthy Systems	تصميم الأجهزة باستخدام FPGAs: أنظمة آمنة وجديرة بالثقة	
CCT411		3	2	2	Cyber Security Risk Assessment Treatment, and Reporting	تقييم مخاطر الأمن السيبراني ومعالجتها والابلاغ عنها	
CySCT412					Elective 1 (Power system and Smart Grid)	اختياري 1 (نظام الطاقة والشبكة الذكية)	
CySCT413	CCT304	3	2	2	Security of Embedded systems	أمن الانظمة المدمجة	
CySCT414					Elective 2 (Data Hiding and Steganography)	اختياري 2 (إخفاء البيانات وإخفاء المعلومات)	
CySCT409		2	2	1	(Host Based cyber defense)	انظمة الدفاع السيبراني القائم على المضيف	
		40	30	25	**Total semester units for the fourth level (first semester, second semester)**		

code	grader	number of units	The number of practical hours	The number of theoretical hours	Course Name		Requirement type
					The name is in Arabic	The name is in Arabic	
NTU001		2	0	2	Arabic Language	لغة عربية	the University credit hours 2 only
NTU002		2	2	1	Physical Education	رياضة	
NTU107		2	0	2	French Language	لغة فرنسية	
CySCT119		2	0	2	Introduction to Sociology	مقدمة الئ علم الاجتماع (المجتمع العراقي انموذجا)	
CySCT112		2	2	1	Statistics and Probabilities	ألاحصاء والاحتمالية	Section credit hours 21 only
CySCT218		2	2	1	Network Administration	ادارة الشبكات	
CySCT217	CCT208	3	2	2	Database System Security	امن انظمة قواعد البيانات	
CCT308		3	2	2	Engineering Analysis	التحليلات الهندسية	
CySCT313	CySCT309	2	2	1	Mobile and Wireless Networks Security	امنية شبكات الجوال والشبكات اللاسلكية	
CCT008		2	2	1	Internet of Things	انترنت الاشياء	
CySCT311		3	2	2	Secure Web Development	تطوير الويب الآمن	
CCT010		3	2	2	Secure Communication Protocols	بروتوكولات الاتصال الآمن	
CySCT412		2	2	1	Power system and Smart Grid	نظام الطاقة والشبكة الذكية	
CySCT414		2	2	1	Security of Power system and Smart Grid	امن نظام الطاقة والشبكة الذكية	
CCT012		3	2	2	Security of Embedded systems	امن الانظمة المدمجة	
CCT013		3	2	2	Algorithms Design& Analysis	تصميم وتحليل الخوارزميات	
CCT306		3	2	2	Engineering Control	هندسةالسيطرة	
CCT305		3	2	2	Communication Fundamentals	اسس الاتصالات	
CCT404		3	2	2	Information Theory	نظرية المعلومات	
CCT307		3	2	2	Digital Communications	الاتصالات الرقمية	
CCT012		3	2	2	Optical Communication	الاتصالات البصرية	
CCT209		3	2	2	Measurements& Sensors	القياسات والمتحسسات	
CySCT013		3	2	2	Data Hiding and Steganography	إخفاء البيانات وإخفاء المعلومات	
CySCT113		3	2	2	Data structure	هياكل بيانات	
CySCT112		3	2	2	Microprocessor and Assembly Language	دوائر حاسوبية	
CCT116		1	2	0	Electronic workshop	ورشة الكترونية	
CCT216	CCT215	3	2	2	Advance Operating Systems	انظمة تشغيل متقدمة	
CySCT208	CySCT207	3	2	2	Java and Cyber Programming	برمجة الجافا والامن السيبراني	
CySCT214		3	2	2	Foundation of Cyber Security	مؤوسسة الامن السيبراني	
CCT128		2	2	1	Computer Application)	تطبيقات الحاسوب	
CCT129		3	2	2	Computer Software)	برمجيات الحاسوب	
CySCT209		2	2	1	System Administrator	أدارة النظام (نظام التشغيل)	