UNIVERSITY of Technology
الجامعة التكنولوجية

Bachelor of Science Honors (B.Sc. Honors) – Computer and cyber security

بكالوريوس علوم الحاسوب – امنية الحاسوب والامن السيبراني

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1.   Mission & Vision Statement

Vision Statement

The Computer Security and Cyber Security Branch was established beginning with the name of the Data Security Branch in the year 2004-2005. A graduate of the Computer Security and Cyber Security Branch works in the field of understanding and developing secure programs and secured systems, protecting data and storing it in a way that cannot be modified by any third party, and ensuring its reliability when transferring, maintaining and developing it. Ways to protect data and its stores from tampering and eavesdropping. A graduate of the Computer Security and Cybersecurity Branch has expertise in understanding and implementing the most important basic encryption methods and algorithms, as well as in the ability to detect intruders on computer networks and ways to hide important digital information using texts, images, audio or digital video. The student is also prepared to keep pace with technological development and limit Cybercrimes, as well as absorbing and understanding legal, professional, technical and ethical responsibilities.

The Computer Security Branch is keen to keep abreast of the latest developments in the field of computer security and cybersecurity. It also has a major and important role in consulting state institutions and joint work with them in the field of information security and

cybersecurity and developing state cadres in these areas. Accordingly, the branch makes every effort To develop all faculty members, educational resources, research and curricula, and the branch works with all the capabilities available to it to meet the needs of local and regional markets by graduating students who are properly trained to serve their community, these graduates have the ability to obtain a career in computer security, and that Depending on the broad scientific knowledge gained in the basics of computer science, information security and networks, in addition to the ability of graduate students to pursue postgraduate studies and choose research fields that keep pace with the rapid development in the field of computer security.

Mission Statement

- Applying strategies and technical skills to secure data and information protection
- Studying commitment to ethical behavior in the field of information security
- Applying the principles of scientific and systematic thinking to solve the problems and challenges of digital and cyber information security
- Mastering the skills necessary for the student to move to a stage specializing in computer and information security.

2. Program Specification

Programme code:	BSc-Computer Science	ECTS	240
Duration:	4 levels, 8 Semesters	Method of Attendance:	Full Time

Computer **science** is a wonderfully wide-ranging subject. The emphasis of the program is the whole organism to which everything is related, The degree is popular - for some it's the breadth of the subject that appeals, for others it's a path to specialisation. All students have the opportunity to transfer onto our specialist degrees in Computer and Cyber security, r, and programming at the end of the first year.

Level 1 exposes students to the fundamentals of computer, and computer security suitable for progression to all programs within the computer program group. Program-specific core topics are covered at Level 2 preparing for research-led subject specialist modules at Levels

3 and 4. A computer science graduate is therefore trained to appreciate how research informs teaching, according to the University and School Mission statements.

At Levels 2, 3 and 4 students are more than half of their specialist in the field of computer and cyber security modules. This allows students to develop their own wide-ranging interests in computer field. Decisions on what to study are made with input from personal tutors.

Academic tutorials are held at Levels 1 and 2 with the same tutor, who is also the personal tutor, providing continuity and progressive guidance. Level 1 and 2 tutorials include a number of workshops to teach skills, e.g. library use and presentation skills, followed by assessed exercises, e.g. essays and talks, as opportunities to practice these skills in a subject-specific context.

3. Program Goals

1. To provide a comprehensive education in Computer and cyber security that stresses scientific reasoning and problem solving across the spectrum of disciplines within information and data security .

2. To prepare students for a wide variety of post-baccalaureate paths, including graduate school, professional training programs, or entry level jobs in any area of Cyber security.

3. To provide extensive hands-on training in electronic technology, statistical analysis, laboratory skills, and field techniques

4. To provide thorough training in written and oral communication of scientific information

5. To enrich students with opportunities for alternative education in the area of Computer security through undergraduate research, internships, and study-abroad

4.   Student Learning Outcomes

This report contains information about the Computer Science Department, at the University of Technology/ software branch. Since the founding of Section 1983 was called the Computer branch on behalf of the branch name was changed to the software in 2004 - 2005, and it represents knowledge in the understanding and development programs. The graduate works in the area of learning, designing and software developing. It also has expertise in the field of infrastructures and methods of data storage, transfer and implementation of calculation algorithms and methods of object-oriented programming and networking concepts, communication and information transfer. He\she also has expertise in basic structures and methods of data storage and transfer, and the implementation of algorithms and calculation methods of object-oriented programming and concepts of networks and communication and information transfer.

Outcome 1

Identification of Complex Relationships

Graduates will be able to understand, design, and develop software products, and to build structures for data storage and information transfer.

Outcome 2

Oral and Written Communication

Graduates will be able to understand problems and suggest solutions. Formally communicate the results of investigations using both oral and written communication skills. Satisfying the requirements by collecting data, executing algorithms, using computation methods, and programming.

Outcome 3

Laboratory and Field Studies

Graduates will be able to perform laboratory experiments and field studies, by using scientific equipment and computer technology while observing appropriate safety protocols.

Outcome 4

Scientific Knowledge

Graduates will be able to demonstrate a balanced concept of how scientific knowledge develops, including the historical development of foundational theories and laws and the nature of science.

Outcome 5

Data Analyses

Graduates will be able to demonstrate scientific quantitative skills, such as the ability to conduct simple data analyses.

Outcome 6

Critical Thinking

Graduates will be able to use critical-thinking and problem solving skills to develop a research project and/or paper.

5. Academic Staff

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6.   Credits, Grading and GPA

Credits

University of Technology-Iraq is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

Calculation of the Grade Point Average (GPA)

1. The GPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

   GPA of a 4-year B.Sc. degrees:

   GPA = [(1st module score x ECTS) + (2nd module score x ECTS) + ...] / 240

7.   Curriculum/Modules

Semester 1 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PRFU111	Programming Fundamental	110	90	8.00		
MAITH112	Mathematics	93	57	6.00		
STPR113	Statistics and Probability	93	57	6.00		
COOR114	Computer Organization	63	37	4.00		
CYSP115	Cyber Security Principles	63	37	4.00		
WORSH11	Workshop	46.5	3.5	2.00		

Semester 2 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
STPR121	Structured Programming	110	90	8.00		
DIST122	Discrete Structures	63	62	5.00		
LODE123	Logic Design	95	55	6.00		
COTE124	Coding Techniques	63	37	4.00		
NUTH125	Number Theory	80	45	5.00		
WORSH11	Workshop	46.5	3.5	2.00		

Semester 3 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
OBOP211	Object Oriented Programming	110	90	8.00		
DAST212	Data Structures	80	45	5.00		
NUAN213	Numerical Analysis	80	45	5.00		
INDS214	Stream Cipher	95	55	6.00		
INDS215	Information and Data Security	64	36	4.00		
ENLA216	English Language	33	17	2.00		

Semester 4 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
DATA221	Database	110	90	8.00		
MICR222	Microprocessor	95	55	6.00		
SOSA223	Sorting and Searching Algorithms	80	45	5.00		
SESD224	Secure Software Design	78	47	5.00		
AUAC225	Authentication and Access Control	63	37	4.00		
HURI226	Human Rights	33	17	2.00		

Semester 5 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
COAR311	Computer Architecture	95	55	6.00		
COTH312	Computation Theory	78	47	5.00		
IMPR313	Image Processing	95	55	6.00		
MACO314	Malicious Codes	63	62	5.00		
PUKE315	Public Key Cryptography	95	55	6.00		
ETHI316	Ethics	33	17	2.00		

Semester 6 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
WEPR321	Web Programming	110	90	8.00		
CODE322	Complier Design	95	55	6.00		
CONE323	Computer Network	80	45	5.00		
BLCI324	Block Cipher	80	45	5.00		
CRYP325	Cloud computing security	48	27	3.00		
ENAW326	English Academic writing	48	27	3.00		

Semester 7 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
OPSY411	Operating Systems	110	90	8.00		
ADCR412	Advance cryptography	63	37	4.00		
MALE413	Mobile and network Security	65	60	5.00		
ETHA414	Ethical Hacking	80	45	5.00		
ARIN415	Artificial intelligence	63	37	4.00		
PROJ406	Project	62	37	4.00		

Semester 8 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
CLCS421	Cryptoanalysis	80	70	6.00		
INHW422	Information Hiding and Watermarking	80	45	5.00		
DIFP423	Digital Forensic Principles	78	47	5.00		
CYSE424	Cyber Security	78	47	5.00		
DAMI425	Data mining	80	45	5.00		

PROJ406	Project	62	38	4.00		

8. Contact

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