اعتماد
NCAAA

T14

Program Specifications
(Postgraduate Degree)

Program Name: Master in Cyber Security
Qualification Level : 7th level
Department: Information Technology
College: College of Computers and Information Technology
Institution: Taif University

VISION 2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA

تميز
NCSEE

مسار
MASAR

اعتماد

قياس

www.etec.gov.sa

Content

A. Program Identification and General Information

1. Program Main Location:

Taif, KSA

2. Branches Offering the Program:
- Al-Hawiya Boys Campus
- Al-Hawiya Girls Campus

3. Reasons for Establishing the Program:
(Economic, social, cultural, and technological reasons, and national needs and development, etc.)

Cybercrime has been described as the 'largest transfer of wealth in human history'. Securing cyberspace is utmost important for the nation's ability to sustain and increase its economic activity through the use of information and communication technologies (ICT) such as e-commerce, finance, and government. Cyber security has now entered the mainstream in our daily life. Industries such as health care, finance, manufacturing and retail all need cyber security professionals to protect valuable information from cyber breaches. The demand for specialists in the field is high. This program will fulfill the objective of Saudi government, as Saudi Arabia has set up a new authority for cyber security to boost the security of the state, protect its vital interests, national security and sensitive infrastructure. The authority will enhance the protection of networks, IT systems, operating systems, hardware and software components, and data and services, due to the increasingly vital importance of cyber security in the lives of communities.

It also aims to create a national cyber security industry to establish the Kingdom's leadership in this area in line with Vision 2030.The program will prioritize attracting, qualifying and empowering qualified national cadres, building partnerships with public and private entities and stimulating innovation and investment in cybersecurity to contribute to achieving a technological renaissance that serves the future of the national economy. The increasing cyber-security threat has pushed the Kingdom to give greater consideration to its national cyber security strategy as the country embarks on its Vision 2030 plan, which aims to diversify its economy. Technology will play a crucial role in facilitating the vision and the digitization of almost all government data will inevitably make it more vulnerable to cybercriminals.

4. System of Study
    ☐ Coursework & Thesis   ☒ Coursework

5. Mode of Study
    ☒ On Campus   ☐ Distance Education   ☐ Others

6. Educational and Research Partnerships(if any)
- Partnership Arrangement:
- Type of Partnership:
- Duration of Partnership:

7. Total Credit Hours for Completing the Program: (37)

8. Professional Occupations/Jobs:
The program prepares students to the following professional:
- Security Analyst
- Security Engineer
- Security Architect
- Security Administrator
- Security Software Developer

- Cryptographer
- Cryptanalyst
- Security Consultant

Moreover, this program will prepare students to become:
- Offensive Security Certified Professional (OSCP)
- SSCP – Systems Security Certified Practitioner

9. Major Tracks/Pathways (if any)**: None**

Major Track/Pathway	Credit Hours (For each track)	Professional Occupations/Jobs (For each track)
1.		
2.		

10. Intermediate Exit Points/Awarded Degree (if any)**: None**

Intermediate Exit Points/Awarded Degree	Credit Hours
1.	
2.	

B. Mission, Goals, and Learning Outcomes

1. Program Mission:

Graduates of this program will make a significant contribution to cyber security for individuals, corporations, governmental services and organization.

2. Program Goals:

- **GCYSM1**: To prepare highly qualified, industry-ready specialists and professionals in Cybersecurity.
- **GCYSM2**: To prepare students becoming the premier academic researcher in cybersecurity and privacy, addressing the major technical and policy challenges.
- **GCYSM3**: To improve the quality of scientific research.
- **GCYSM4**: To create future leaders of cybersecurity and privacy in academia, government, and industry.
- **GCYSM5**: To prepare the students to engage in lifelong learning activities within a professional, legal and ethical framework.

3. Relationship between Program Mission and Goals and the Mission and Goals of the Institution/College.

Taif University mission: To develop nationally competitive competencies that contribute to the production of knowledge and its transformation into an engine for development.

Cyber security is becoming a major concern for public and private organizations, and accordingly of the most important specializations. Organizations are quickly realizing that securing enterprise information assets is a full-scale process that involves policies, strategies, management, and technical skills.

Therefore, one of the main goals of this program is to produce high quality graduates in the area of cyber security to fulfill the mission of the university and serve the country in the utmost challenging area. This program is to produce well-qualified specialists who possess the technical and managerial skills that empower them to cope with the heavy burden of protecting and securing government and enterprise information assets. Graduates of the program will be able to fill a variety of security jobs. The suggested master program provides a balanced mix of theory and practice. Graduates of the program will have a solid conceptual basis coupled with deep professional experience that will render them immediately ready for any job in this field.

Alignment of master in cyber security program mission withTaif University mission.

		Taif University Mission		
		To develop nationally competitive competencies (EDUCATION)	That contribute to the production of knowledge (RESEARCH)	And its transformation into an engine for development (COMMUNITY SERVICE)
Program Mission	Program Mission Component 1 The cyber security program enables the	√		

	graduates to contribute in emerging fields in cyber security			
	Program Mission Component 2 The cyber security programs enable the graduates to serve the community			√
	Program Mission Component 2 The cyber security program enables the graduate to pursue graduate studies		√	

Goals of Taif University Mission (GTU)
1. **GTU1:** Improve the quality of teaching and the outcomes of learning
2. **GTU2:** Effectively use research to contribute to community development
3. **GTU3:** Participate effectively in the provision and development of community services
4. **GTU4:** Improve the efficiency of the administrative systems
5. **GTU5:** Improve the efficiency of the human resources and of the infrastructure
6. **GTU6:** Improve financial efficiency and develop university-owned resources

Goals of College of Computers and Information Technology mission (GCIT)
1. **GCIT1:** Improve the quality teaching and the outcomes of learning for the college programs.
2. **GCIT2:** Participate effectively in community development.
3. **GCIT3:** Improve the quality of scientific research.
4. **GCIT4:** Improve the efficiency of the college infrastructure.
5. **GCIT5:** Improve the efficiency of human resources.

The following table shows Mapping between GTU and GCIT

	Goals of TU Mission					
	GTU1	GTU2	GTU3	GTU4	GTU5	GTU6
Goals of CCIT Mission						
GCIT1	√					
GCIT2			√			
GCIT3		√				
GCIT4				√		√
GCIT5				√	√	

The following table shows Mapping between GCIT and GCYSM

	Goals of CCIT Mission				
	GCIT1	GCIT 2	GCIT 3	GCIT 4	GCIT 5
Goals of CYSM Mission					
GCYSM1	√				
GCYSM2		√	√		
GCYSM3			√		√
GCYSM4					
GCYSM5		√		√	

4. Graduate Attributes:

Program Graduate Attributes:
A. PGA1: Ability to solve real KSA problems in cyber security domain considering KSA vision 2030.
B. PGA2: Ability to design cyber security solutions
C. PGA3: Ability to communicate effectively with diverse groups
D. PGA4: Ability to evaluate cyber security technologies considering legal and ethical rules
E. PGA5: Ability to work effectively in a team
F. PGA6: Ability to understand user needs.

Program Graduate Attributes TU Graduate Attributes (TUGA)			PGA1	PGA2	PGA3	PGA4	PGA5	PGA6
Learning and innovation skills	1.1	Creativity and innovation	√					
	1.2	Critical thinking and problem solving	√					
	1.3	Collaboration and Communication Skills					√	
Inform	2.1	Information Technology Proficiency Skills	√	√	√	√		√
	2.2	Efficiency and Media Coverage Skills	√	√	√	√	√	

at io n, m e di a a n d te c h ni c al s ki ll s	2. 3	Information and Communication Skills			√		√	√
L if e a n d pr of es si o n al s ki ll s	3. 1	Flexibility and Adaptation Skills			√		√	√
	3. 2	Initiative and Self-direction Skills			√		√	√
	3. 3	Social Skills and Multicultural Skills			√		√	√
	3. 4	Skills of Productivity and Accountability	√	√		√		
	3. 5	Leadership and Responsibility Skills			√		√	√

5.Program Learning Outcomes*

Knowledge and Understanding	
K1	Outline via appropriate methods, and using industry-standard terminology cybersecurity-related issues
K2	Describe security features to protect an organization's computing and information resources.
K3	Infer gaps in cybersecurity considering current and emerging technologies and the current state and prevailing trends in cybersecurity

Skills

S1	Assess and respond appropriately to various risks which can affect the expected operation of information systems
S2	Investigate current and emerging cyberthreats, various connection and transmission attacks and incorporate best practices to mitigate them.
S3	Apply appropriate countermeasures and security testing for given components to help protect organizational resources
S4	Use appropriate policies, procedures, ethical considerations to protect information security and levels of cybersecurity to ensure data integrity and security for information systems and network in a global context.
S5	Communicate effectively with a range of audiences to interpret applicable cyber policies and ethics for a given scenario
Values	
V1	Recognize professional responsibilities and make informed judgments in cyber security practice based on legal and ethical principles
V2	Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline

* Add a table for each track or Exit Points/Awarded Degree (if any)

C. Curriculum

1. Study Plan Structure

Program Structure		No. of Courses	Credit Hours	Percentage
Course	Required	**8**	**24**	**65%**
	Elective	**2**	**6**	**16%**
Graduation Project (if any)		**2**	**6**	**16%**
Thesis (if any)		**None**	**0**	**0%**
Field Experience (if any)		**1**	**1**	**3%**
Others (.....)		**None**	**0**	**0%**
Total		**13**	**37**	**100%**

* Add a table for each track (if any)

2. Program Courses:

Level	Course Code	Course Title	Required or Elective	Pre-Requisite Courses	Credit Hours
Level 1	502803-3	Information Security and Privacy	**Required**	None	3
	502801-3	Cryptology Theory	**Required**	None	3
	502802-3	Network Security	**Required**	None	3
Level 2	502804-3	Software Security	**Required**	502801-3	3
	502805-3	Internet Security	**Required**	502802-3	3
	502806-3	System Security	**Required**	None	3
Level 3	502808-3	Research Project I	**Required**	502810-3	3
	502810-3	Research Methodology	**Required**	None	3
	502807-3	Digital and Computer Forensics	**Required**	502802-3	3
Level 4					
	502809-3	Research Project II	**Required**	502808-3	3
	502811-1	Field Experience	**Required**	None	1

* Include additional levels if needed

** Add a table for each track (if any)

(**) Electives:					
Course code	**Course title**	**Elective/Required**	*** Pre-Requisite Courses**	**Credit hours**	**College/Dept.**
502815-3	Secure Programming	Elective I	None	3	Information Technology
502813-3	Cyber crimes and legal issues	Elective I	None	3	Information Technology
502812-3	Human Aspects of Cybersecurity	Elective I	None	3	Information Technology
502814-3	Biometric Security	Elective II	None	3	Information Technology
502816-3	Secure System Development and Assessment	Elective II	None	3	Information Technology

| 502817-3 | Security Auditing and Certification | Elective II | None | 3 | Information Technology |
| 502818-3 | Cyber Security risk and Governance | Elective II | None | 3 | Information Technology |

3. Course Specifications
Insert hyperlink for all course specifications using NCAAA template

Course Specifications

4. Program learning Outcomes Mapping Matrix
Align the program learning outcomes with program courses, according to the following desired levels of performance
(I = Introduced   P = Practiced   M = Mastered)

Course code & No.	Program Learning Outcomes									
	Knowledge and understanding			Skills					Values	
	K1	K2	K3	S1	S2	S3	S4	S5	V1	V2
502801-3	I	I			I					I
502802-3	I		I	I		I			I	I
502803-3		I	I			I				I
502804-3		P	P	P		P	P			P
502805-3		P				P		P		P
502806-3	P	P		P			P			P
502807-3			M	M	M	M				M
502808-3	M	M	M	M	M	M		M	M	
502809-3		M	M	M		M		M	M	
502810-3	P		P				P	P	P	P
502811-1	P	P	P	P		P		P	P	P
502812-3		P	P			P			P	P
502813-3	P	P		P						P
502814-3	M	M		M	M	M				M
502815-3	P	P			P				P	
502816-3		M	M	M					M	M
502817-3		M	M	M				M	M	M
502818-3		M	M	M		M	M	M		M

* Add a table for each track (if any)

5. Teaching and Learning Strategies to Achieve Program Learning Outcomes
Describe policies, teaching and learning strategies, learning experience, and learning activities, including curricular and extra-curricular activities, to achieve the program learning outcomes.
1. Lecture, support readings
2. Conducting individual tasks, solving exercises
3. Other activities and homework.

6. Assessment Methods for Program Learning Outcomes.

> Describe assessment methods (Direct and Indirect) that can be used to measure achievement of program learning outcomes in every domain of learning.

Exams, Reports, Presentation, Exercises, Group discussion

D. Thesis and Its Requirements (if any)

1. Registration of the thesis:
(Requirements/conditions and procedures for registration of the thesis as well as controls, responsibilities and procedures of scientific guidance)

None

2. Scientific Supervision:
(The regulations of the selection of the scientific supervisor and his/her responsibilities, as well as the procedures/ mechanisms of the scientific supervision and follow-up)

For each project there will a supervisor, who will supervise students to complete the project successfully. Besides regular weekly meeting (3 hours) , Each supervisor is required to have at least 3 official hours for each group. Students will be provided needed tools and applications for conducting the project. If necessary, external advising will be arranged with the experts from the industry.

3. Thesis Defense/Examination:
(The regulations for selection of the defense/examination committee and the requirements to proceed for thesis defense, the procedures for defense and approval of the thesis, and criteria for evaluation of the thesis)

E. Student Admission and Support:

1. Student Admission and Transfer Requirements, and Courses Equivalency

The minimum requirements for possible admission as a regular graduate student to pursue a Master in Cyber Security at CIT college are as follows:1. A four-year Bachelor's (B.S.) Degree in computer science, Information technology, Information Systems, Computer Engineering, or Mathematical Sciences from a recognized institution.2. A Grade-Point Average (GPA) of 2.00 or higher on a scale of 4.00 or equivalent. Official transcripts and degree certificates are required for final admission.3. Completion of IELTS with a minimum score 4.5 TOEFL or TOEFL score of 477 (PBT), 153 (CBT) or 53 (IBT). 4. At least two letters of recommendation from the faculty who taught the applicant undergraduate courses. 5. Students joining directly from commercial industry, government, academia or some other sectors must show relevant professional experience (At least five years). Students must also provide official work experience from his/her employer.

2. Student Counseling Services
(academic, career, psychological and social)

Student Academic advising is an important and mandatory requirement of College of Computers and Information Technology (CCIT). Appropriate student advising helps a student to build a close relationship with his advisor who motivates the student, helps him to engage with the institution and supportshim for during times of difficulty.Each student in the program will be assigned an academic advisor. All full-time faculty are required to do academic advising as a part of their service to the university. Faculty members are required to have a minimum of six office hours per week and are required to post the office hours on their doors with their course schedule. Office hours are dedicated to help students with their queries regarding teaching, grading, and other issues. Students are required to meet with their academic advisors every regular semester at least once for the purpose of semester schedule,

course selection, graduation requirements, study plan discussion, career development, extra-curricular activities and personal advising concerns that might occur. The first meeting/session takes place at the beginning of each semester. During the advising sessions the advisors are expected to be in their offices to guide students. In the scheduled advising session, each advisor prepares an academic profile (academic, progress report, study plan, and change-in-registration forms) for each student and reviews the student's academic progress. The EREG tool provides necessary documents and information for preparing academic profiles and monitoring students' progress. Besides scheduled advising, the students may request an appointment with the advisor anytime during the semester outside the scheduled advising hours.After each advising session, all advisors are requested to write a summary of the advising session. This helps the department to oversee the advising system for quality control to track and oversee the problems faced by college students. In the interest of student privacy, a particular advising document is only accessible to the student, his advisor, the department chairman and the college dean.When an advisor is unable to solve a student problem, the student is referred to the college counselor. The college counselor is a trained faculty member who provides professional guidance to the student. The college counselor channels the students to seek appropriate help which is provided at the university-level by trained individuals in Shariah (Islamic law) at the Shariah College or a medical expert at the university medical center. Based on the recommendation by the expert the Vice Dean of Academic Affairs at the college takes appropriate action.In addition to academic advisement, IT faculty members provide assistance in career development and other extra-curricular activities. They are advised to participate in the local student chapter conference, programming contests, workshops, training, and short course. For those who are interested in pursuing a graduate degree, they are advised to investigate scholarship opportunities.

3. Special Support
(low achievers, disabled, gifted and talented)

University Advising Administration designed a framework to manage the advising process through the levels of the programs, the college and the university. The center of the advising process is the advisor. The framework enables the advisor to organize the advising process for each individual's student. A complete report that shows the status of each student and his progress, activities, social problems…etc. This is submitted by each advisor to the advising chair. The advising chair summarizes the reports and submit his final report to university advising Administration

The regulations for student appeals on academic matters come in two different ways: informal student appeal and the very formal one.

The informal student appeal is usually the first step: the student approaches the course instructor, then the department chair, and finally the vice dean for academic affairs. These constituents intervene in a sequential way and increasing hierarchy until the issue is resolved. When the issue is not resolvable for some reasonable reason, the student can make a formal

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appeal. Usually, the appeal is made to the Deanship of Students Affairs. The deanship studies the request and then decides or not to pursue the appeal process.

Grievances

The regulations and processes for student formal appeal are universal to all university students and proper documentation can be sought at the Deanship of Students Affairs. The following represent the standard operating procedures for addressing formal grievances in the CCIT:

1. Student - Student conflict

Conflict between students should be reported to the Vice Dean of Academic Affairs for male students and Vice Dean for Female Affairs for female students.

2. Student - Teaching Assistant Conflict

All cases are to be reported to the male and female Vice Deans for Academic Affairs.

3. Student - Staff Conflict

All cases are to be reported to the male and female Vice Deans for Academic Affairs. Procedures have been developed to ensure that students are protected against subsequent punitive action or discrimination following grievance or appeal. The Appeal and Grievance Forms are specific for staff, teaching assistant, and student.

4- Talented Students:

Through the Deanship of Student Affairs (talent students club), the University offers opportunities for students to show their talents in various fields, providing opportunities for training, participating in competitions and selecting outstanding students to participate in the name of the university in international and local competitions in all scientific,

5- Outstanding students:

The program offers many ways to interest outstanding students. Where they are encouraged by listing their names in the lists of distinguished and celebrate their achievement at the end of each semester and involve them in activities that drive them to further progress as a programming club.

F. Teaching and Administrative Staff

1. Needed Teaching and Administrative Staff

Academic Rank	Specialty		Special Requirements / Skills (if any)	Required Numbers		
	General	Specific		M	F	T
2	2	2	2	2	2	2
4	4	4	4	4	4	4
3	3	3	3	3	3	3
3	3	3	3	3	3	3
6 Associate Professors	6 Associate Professors	6 Associate Professors	6 Associate Professors	6 Associate Professors	6 Associate Professors	6 Associate Professors
4	4	4	4	4	4	4

2. Professional Development

2.1 Orientation for New Teaching Staff

Describe briefly the process used for orientation of new, visiting and part-time teaching staff

At the beginning of each academic year, the development deanship (https://www.tu.edu.sa/En/-Deanship-of-University-Development/84/Pages) overs a complete orientation for three days for the new professors and staff

Also a book of orientation is given for new comers to get valuable information about Taif city and life in Saudi Arabia, the following link give a copy of this orientation:
https://drive.google.com/file/d/1rzskvseyqQenSdFdmpcMQDQdhPKAl4_v/view?usp=sharing
- A faculty handbook that introduces all university rules and regulations including the study plan of each department and its courses descriptions and prerequisites is given to new teaching faculty staffs.
- Awareness workshop for new teaching faculty staffs is conducted at the beginning of each academic year.
- Several meetings directed by the Department of Information Technology chair are arranged with new teaching faculty staffs to review program and the role of the course(s) they teach, as well as, components within it.
- Department of Information Technology chair will meet the new faculty staffs to go over the department administrative policy.
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- All new faculty staffs are assigned to an experienced faculty member in the department as an advisor for their first year of employment.
- The latest approved versions of the courses syllabi and some other materials are available to all teaching faculty staffs through the PAC.
- The course syllabus includes the course objectives (COs), the course learning outcomes, and the course topics that should be followed by all the staffs teaching the same course.
- The new teaching faculty staffs could also contact other college members who taught the corresponding courses for eventual coordination.
- Courses given by multiple staffs are managed by a coordinator. Especially at the beginning of the term, the course coordinator arranges some meetings in order to orient the new faculty staffs.
The policy and the process to hire or invite part time and visiting teaching staff are as follows:
- Distinguished faculty members are invited for a period of time based on department recommendation;
- Policy of appointment of part-timers is the same as for full-timers, except that the faculty load is assigned according to the teaching and research needs of the department.
- Part time and visiting faculty are allowed to participate in the teaching process according to the institution rules;
- All part time or visiting faculty members should be high-qualified and with high contributions in their field and should be carefully selected;
- An approval is required from the university administration.
However, for the time being, the department relies fully on the full time faculty members. There is no plan to hire part time faculty members, other than those who are invited from the industry to deliver some lectures in some courses and to assist some senior design project students.

2.2 Professional Development for Teaching Staff
Describe briefly the plan and arrangements for academic and professional development of teaching staff (e.g., teaching & learning strategies, learning outcomes assessment, professional development, etc.)

There are two arrangements to improve the teaching and assessment skills of faculty and teaching staff:
- Taif University arranges trainings and workshops for its teaching staff in order to improve the teaching and assessment skills. Example of activities that had been arranged during the last two years includes Blackboard trainings and NCAAA and ABET workshops. In this type of arrangement, external speakers are invited to give talks.
- CCIT arranges many trainings and workshops that cover aspects of exam designs, new education approaches, assessing students' performance, thinking-based learning, and problem based learning. This type of arrangement is conducted frequently during the academic year where internal speakers are involved to give talks and share their experience with all colleagues. The

PAC has arranged many workshops to support teaching staff in the preparation of the assessment reports and forms.

Faculty members are encouraged to seek opportunities to enhance their current skill set and to contribute to the advancement of knowledge in the Academy. The faculty should participate in a wide range of professional societies including IEEE, ACM, and others. All faculty members are active in research. Most of our faculty have internal and externally funded grants for research and publications. Faculty regularly publish papers in peer reviewed journals and conference proceedings.

G. Learning Resources, Facilities, and Equipment

1. Learning Resources.

Policies and Procedure for providing and quality assurance of learning resources (textbooks, references and other resource materials, including electronic and web-based resources, etc.)

Please follow the following link (https://drive.google.com/file/d/1MxozXbvN5DKswl4YtrVCxBjnv6IyoD5j/view?usp=sharing) to get more information about preparing and approving books in taif university

The processes that are followed for planning and acquisition of textbooks, references, and other resource material by a curriculum committee formed from Department of Information Technology for:

- **Textbooks:** a list of the basic-IT textbooks has been developed according to a questionnaire distributed to the faculty members of the college. Also future new references are included annually as new books appear in the field of information technology.

- **References such as Journals:** a list of the information technology journals has been developed according to a questioner that has been distributed to the faculty members. A comprehensive search of the available journals according to their scientific impact index has been carried out and a list from different publication is subscribed by the CCIT administration.

- **Other resource materials such as classic literature:** classic literature refers to articles before the year 1990. When such articles are needed by faculty members or students, CD ROM will be purchased if available or alternatively, a request through the British library will be made so they can be available as printable materials in about two weeks or as electronic materials within 24 hours (British working day).

CCIT is mainly served by one library located in the CIT Lab. building. The library consistently updates and tracks with what comes new to the field in form of books, printed journals, electronic references, electronic database, and media titles.

The process of recourse acquisition including: textbooks, electronic and web based resources, educational CDs, and other media teaching resources; ensure that the library acts in response to the faculty members and students needs. The library recourses are available in various formats such as textbooks, electronic and web based resources, educational CDs and DVDs, and other media teaching resources. Librarians assist faculty members find information needed for teaching and research as well as with borrowing services and requesting articles in journals from the British library in England. Electronic resources are available - at any

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time – to faculty members using their access codes and during working hours via on-campus computers located at the library.

2. Facilities and Equipment

Policies and Procedure for providing and quality assurance of Facilities and Equipment (Library, laboratories, medical facilities, classrooms, etc.).

There are 9 computer-equipped classrooms/labs in CCIT that are shared by three departments. Each lab is also equipped with projector systems with Internet access during lab demonstrations and/or

lectures. The network consists of a switched gigabit Ethernet core and a wireless network that provides connectivity throughout the building.

A summary of the computer-equipped laboratories in CCIT is given in Table 7-2(a).

Table 7.2(a). Computer-equipped laboratories in CCIT for general courses

Lab Room No. of Computers Operating System Supported Specialized Software

02
18
Windows-7
Cisco Academy and Network Lab
Cisco Packet Tracer, MS-Office 2016, C++, Open SSL, Wireshark, Nmap, Hash generator
03
18
Windows-7
General Programming
Dev C++
Visual studio,
ORACLE,
MS-Office- (Arabic and English version)
04
24
Windows-7
MATLAB
General Programming
MATLAB
XAMPP
Notepade++
Dev C++
Microsoft Silverlight
(Arabic and English version)
Visual studio
05
18
Windows-7
SQL
General Programming
Matlab
ORACLE
XAMPP
FLASH PLAYER
06
17
iMAC
General Programming
Xcode
Office
26
OpenGL
07
23

Windows-10
General Programming
Dev C++
MATLAB
Visual studio
Office-2016
08
24
Windows-7
Linux (Dual Boot)
MATLAB
General Programming
MATLAB
XAMPP
Notepade++
Dev C++
Microsoft Silverlight
(Arabic and English version)
Visual studio
New lab1 (9)
17
Windows-10
General Programming Lab
MATLAB
Cygwin
Office-2016
Visual studio
New Lab2 (10)
18
Windows-10
General Programming Lab
MATLAB
Cygwin
Office-2016

The CCIT has also a network lab. The description is shown in table 7.2 (b)

Table 7.2(b). Network lab

Items	Quantity
56k FAX Modem	1
10/100 Ethernet Switch	1
PCs Pro Intel Pentium 3.4 GHz	11
CISCO Router	2
CISCO Router	3
USB Modem	6

Media Converter(Fiber/Ethernet)
2
Router/Baseline switch
1
10/100Mbps Converter
1
Wireless Router
1
Wireless 802.11g PCI Card
8
54Mbps Wireless PCI Adaptor
1
Wireless 802.11g PCI Card
1
Server Rack
1
24-patch panel
1
Networking Tool Kit
7
Faceplate
16
27
Jack
16
Coaxial Cable Cutter
3
Fiber patch cable
1
Coaxial Cable Crimper
2
32-bit PCMCIA Network Card
2
Remote-Cable Tester
1
Roll of Coaxial Cable
1
Cabinet
4
Tables with Faceplates
6
Chairs
11
Punch tool
20
Cabling Crimp Tool(RJ45&Coaxial)
2

Projector with VGA cable
1
2 point USB KVM switch
1
Network patch cable connectors
1 packet
USB 2.0 cable
2
HDMI cable
1
ARUBAIAP
1
CISCO WIRELESS ROUTER
3
Netgear switches
6
Hawkin Wireless LAN
Extender
1

The CCIT has also a digital design lab. The description is shown in table 7.2 (c)

Table 7.2(c). Digital design lab

Total PC's: 14 **Operating System(s):** Windows 7
Software's installed: Labview
Name/description
Quantity
COM3 LAB MASTER UNIT
5
70017 DIGITAL
TECHNOLOGY COM3LAB
5
70018 DIGITAL
TECHNOLOGY COM3LAB
5
IDL-400 LOGIC TRAINER
5
LOGIC PROBE AND LOGIC
PULSER(MODEL-610)
2
JUMP WIRE KITS
14
70011 DC FUNDAMENTALS 1
1
70012 DC FUNDAMENTALS 2
2
70013 AC FUNDAMENTALS 1
1
70014 AC FUNDAMENTALS 2
2
70015 ELECTRONICS COMPONENTS 1
5

70016 ELECTRONICS COMPONENTS 2
6
28
70019 MICRO COMPUTER
1
70074 MODEM TECHNOLOGY
1
70081 OPERATIONAL AMPLIFIER
5

In the girls campus Cyber security program uses several labs that are mainly used by female students. The details of the labs are shown table 7.2(d).

Table 7.3(e). Labs in girls campus

Lab Room
No. of Computers
Operating System Supported
Specialized
Software (If Any)
101
24
Windows
General Programming
Matlab
StarUML
Visual studio
Weka
DosBox
Cisco
102
25
Windows
General Programming
Matlab
StarUML
Visual studio
Weka
DosBox
MySQL
Filezella
103
24
Windows
General Programming
StarUML
Visual studio
Weka
Cisco
104
25
Windows

General Programming
Matlab
StarUML
Weka
Cisco
MySQL
XAMPP
105
25
Windows
General Programming
Matlab
StarUML
Visual studio
Cisco
MySQL
XAMPP
29
Wireshark
Filezilla
Mplabx-v4.25
Xc8-v1.95
106
25
Windows
General Programming
Matlab
Visual studio
Weka
Python
107
30
Windows
General computing lab
Visual studio
Cisco
Gimb
108
31
Windows
General computing lab
Matlab
Weka
Cisco
Gimb
Python
109
31
Windows

General computing lab
Matlab
StarUML
Visual studio
Gimb
Wireshark
201
31
Windows
Linux
Operating system
StarUML
Visual studio
Weka
DosBox
Cisco
Wireshark
Filezella
202
31
Windows
Linux
Operating system
Matlab
StarUML
Visual studio
Weka
Cisco
Filezella
203
25
Windows
Linux
Operating system
StarUML
Visual studio
Weka
30
DosBox
Cisco
204
25
Windows
Linux
Operating system
StarUML
Visual studio
Weka
DosBox

Cisco
Wireshark
Filezella
205
25
Windows
Engineering lab
Matlab
StarUML
Visual studio
Weka
DosBox
Cisco
MySQL
Mplabx-v4.25
Xc8-v1.95
206
25
Windows
Engineering lab
Matlab
Weka
DosBox
Gimb
207
25
Windows
Database
StarUML
Visual studio
Weka
DosBox
MySQL
208
18
Windows
Engineering lab
StarUML
Weka
Cisco
MySQL
209
1
Windows
Engineering lab
Cisco
210
-
-
Network lab

-
213
-
-
Engineering lab
-
Extra software that are available on the lab rooms: Microsoft office, Adobe Reader , Flash player, Trend micro, Dev C++, Eclipse, Win rare and Google chrome
There is also computer lab that is opened during and after the regular working hours for students to use them for gaining hands on experience while studying.
The Information Technology program, as all other programs in CCIT, enjoy a wide range of computing resources that are used to support various activities in the college including

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teaching. These computing resources are managed by the Information Technology (IT) Unit. The IT Unit is one of the main supporting units in the CCIT. It is responsible to manage and serve the IT needs of all academic and non-academic units and personnel in the college.
Services offered by the IT Unit
1. Technical support for faculty and staff
2. Equipment purchasing and installation
3. Accounts for faculty members, students and staff
4. Remote access services
5. Manage LMS/ Blackboard System: Learning Management System
Starting from 2014, the University has been encouraging and recommending the use of LMS (Learning Management System)/Blackboard provided by the E-learning and distance learning deanship through the link https://lms.tu.edu.sa. Faculty members are expected to progressively use this Blackboard system to support their teaching for all courses. Training sessions on the use of the Blackboard system have been organized many times by the college and the deanship of E-learning and distance learning. Each faculty member has access to the Blackboard system (using their university username and password). All students have automatically access to the courses available on the Blackboard system in which they are registered.
The Deanship of Admission and Registration provides access to the e-academic services system (EduGate) to students and faculty members through the link https://edugate.tu.edu.sa/tu/init.Through the use of the EduGate system, students can perform online registration, monitor their academic progress, view transcripts/grades, etc. while instructors can monitor their students/advisees, see their academic progress and results, insert marks and absences for students, edit their profile, etc.
Besides regular computing labs CCIT has following special labs for the students.
1. Linux environments
2. Apple Mac environments
3. Open lab
To provide appropriate guidance regarding the use of the tools, equipment, computing resources and laboratories. A copy of lab safety manual will be shown during on-site visit, if needed. General safety instructions are provided at the beginning of the semester for students enrolled in the college. For other teaching and learning equipment, usually, the department chair collects all the needs in this matter and fills an order to be submitted to the dean of the college. Once approved by the dean, the request is deferred to the University Administration (usually the vice president) to be completed. The processes that are followed by faculty for planning and acquisition of resources for:
- **Library and classroom:** Head of Departments contact faculty members for the selection of library recourses that are needed for teaching. Selection of materials is considered after the approval

of the Head of the Department and according to the recommendations from experienced faculty members. The information is then provided to the Director of library, which in turn will acquire the resource from a trusted publisher.

- Laboratories: Head of Departments contacts faculty members for selection or any recommendations on laboratory recourses. Selection of laboratory material is considered

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after the approval of the Head of the Department and according to the recommendations of experienced faculty members. The information is then passed on to the director of laboratories to act in response to the needs. In addition, each course instructor prepares a laboratory manual. The manual is reviewed by experienced faculty members and approved by the Head of the Department. All courses materials are uploaded to college website.

3. Arrangements to Maintain a Healthy and Safe Environment (According to the nature of the program)

The maintenance and upgrading of the tools, equipment, computing resources and laboratories is administered by Department in coordination with the Dean. All procurements for maintaining and upgrading the tools, equipment, computing resources, and laboratories in the Department must comply with the annual budget plan.

Each fiscal academic year, the IT Chair in collaboration with the Dean, writes and submits a budget proposal for supporting academic and research activities for the year ahead. This is based on the projection of needed improvements in the learning and research infrastructure.

Once the proposal is compiled, it is then submitted to the CCIT Dean for approval. The proposal is then sent for evaluation by VP of academic affairs.

Safety and risk management procedures:

In each lab, the instruction of use and safety procedures is published to the students:

- The instructor tells the students about the safety procedures of safety and instructions of use
- The instruction od use and safety instructions are posted in each lab in an access place for each student to see and access
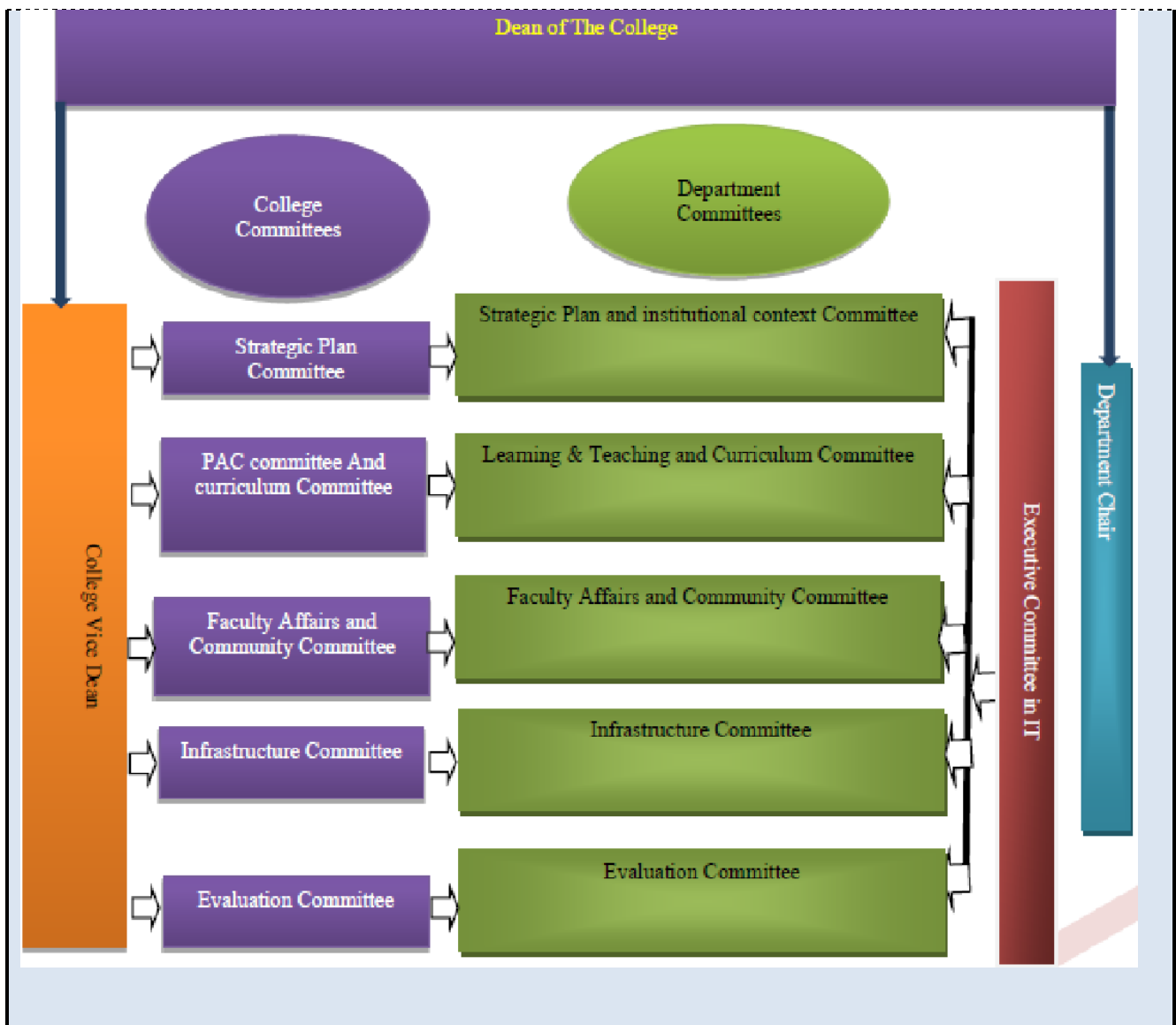
Alarm bells, fire extinguishers and exits are available throughout the corridors of the college. There are signs and also notices of how to use next to each.

H. Program Management and Regulations

1. Program Management
1.1 Program Structure
(including boards, councils, units, committees, etc.)

Dean of The College

College Committees

Department Committees

College Vice Dean

Strategic Plan Committee	Strategic Plan and institutional context Committee
PAC committee And curriculum Committee	Learning & Teaching and Curriculum Committee
Faculty Affairs and Community Committee	Faculty Affairs and Community Committee
Infrastructure Committee	Infrastructure Committee
Evaluation Committee	Evaluation Committee

Executive Committee in IT

Department Chair

1.2 Stakeholders' Involvement

Describe the representation and involvement of stakeholders in the program planning and development. (students, professional bodies, scientific societies, alumni, employers, etc.)

1. ***Students*** : The students are the main outcome of our program, therefore they are given the utmost importance. Hence, their feedback and satisfactions is considered to be one of the prominent criteria for its continuous improvement. Other than the evaluation and feedback at the course level the program employs EXIT Survey, advising system, feedback from the alumni and informal discussions with the students in improving the program.

2. ***Faculty:*** Faculty provides the instructional elements of the program. They deliver the program and ensure it is up to date in accordance with the latest developments in the field of computing.

3. ***Employers (Public and Private):*** Employers are also an important constituent of the program, this includes both the public employing agency such as the military, various ministries etc... and private employers of various sectors such as oil, telecom, financial and retail sector.

4. ***Alumni:*** : Alumni provide continuous feedback of student performance in the workplace and graduate schools over the years. It enforces a practical review

Strategic Plan and institutional context Committee
Department Chair
Faculty Affairs and Community Committee
Infrastructure Committee
Evaluation Committee
PAC committee And
curriculum Committee
Strategic Plan
Committee
Faculty Affairs and
Community Committee
Infrastructure Committee
Evaluation Committee
College Vice Dean
Executive Committee in IT
Committees College
Committees
Dean of The College
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and potential improvisations to the program with a changing technological landscape.

5. **Advisory Board**:

The advisory committee is a collection of individuals who bring unique knowledge and skills, which augment the knowledge, and skills of the professors and other stackholders in order to more effectively guide developing the program. Advisory board helps in program creation and planning, development of program policy and planning and implementing public relations.

The BCyber security program has put forth the following process to establish and review the Program

1. The Department Curriculum Committee (DCC) receives feedback and input from Advisory Board, alumni/ employer, and computer science students through surveys.

2. The DCC discusses the appropriateness of the recommendations with respect to the mission statements of Taif University, student outcomes and program educational objectives.

3. Any resulting recommendations from DCC are discussed in Department faculty meetings.

4. Recommendations for changes in the program from committees are voted on by the CS faculty, and if passed, the recommendations for changes are reviewed by DCC.

5. The final version of the PEOs is communicated to the constituents.

PEO's review tools:

1. Alumni Survey

2. Employer's Survey

3. Analysis of individual Course Assessment Files (CAF).

4. Facilities and Resources Assessment.

The curriculum committee review the institute mission to check for any change also, the curriculum committee studies the results of surveys to check a necessary modification for Cyber Security PEOs is required. The chair and the advisory board discuss the recommendations of the curriculum committee as well as TU mission in the periodical meeting and decide whether a necessary change for PEOs is required. The curriculum committee approved the PEOs listed in the Section B above during the meeting held in December 2020. The advisory board discussed and approved the PEOs list in February 2020.

Program Review Process

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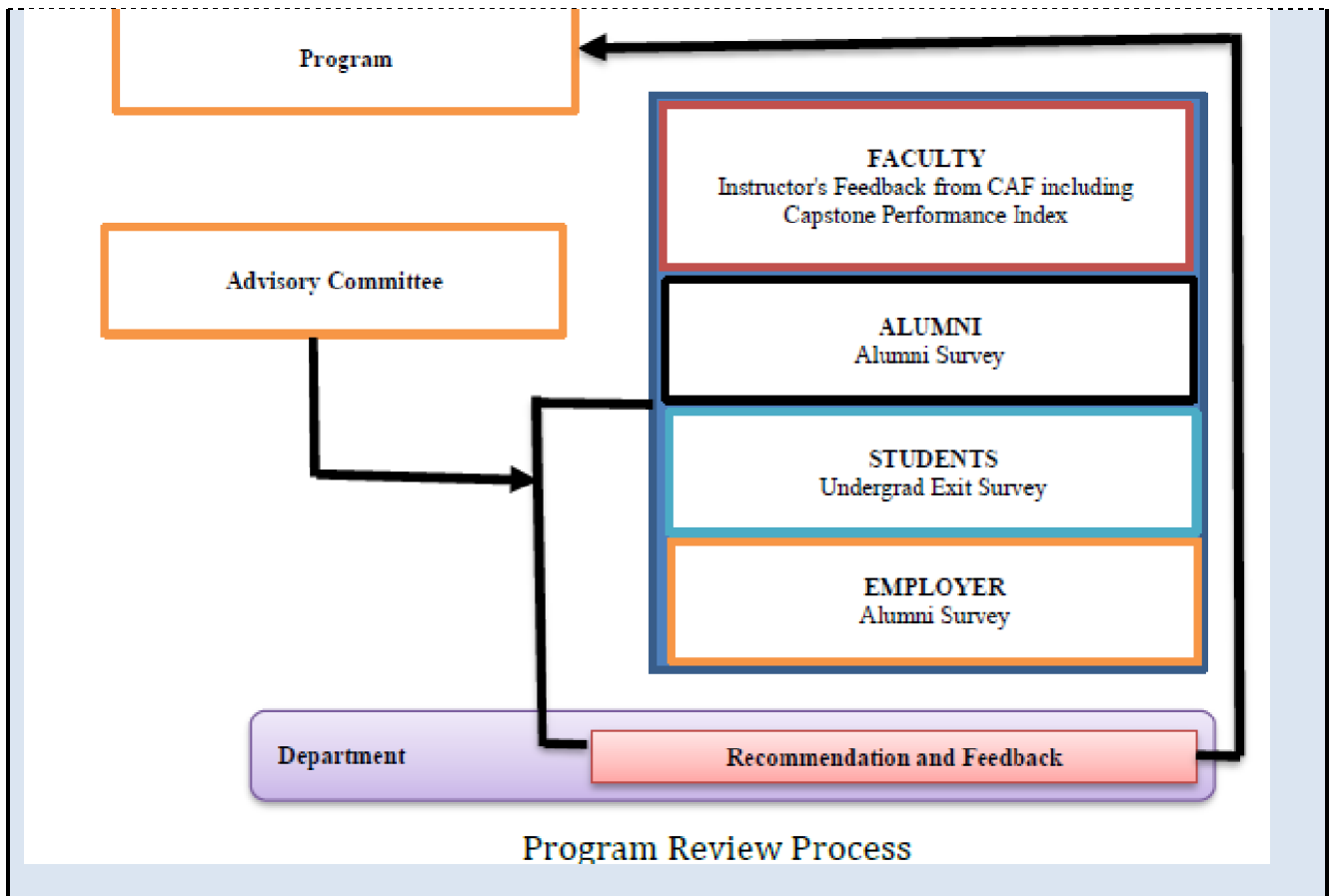
2. Program Regulations

Provide a list of related program regulations, including their link to online version: admission, study and exams, recruitment, appeals and complaint regulations, etc.)

The Cyber security program policies and regulations and faculty handbook contain all regulations and policies:

• Cyber security program policies and regulations:

https://drive.google.com/file/d/1L_X5AhyUsW0sfotoKmk-dIMsSCQvldoU/view?usp=sharing

• Faculty hand book: https://drive.google.com/file/d/1Vy17c-fMU8tqWlbhewR3FcgCm2HypL7d/view?usp=sharing

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I. Program Quality Assurance

1. Program Quality Assurance System

Provide online link to quality assurance manual

The Cyber security program design, review, and major revision involve almost all the faculty members in the department, including some specific constituent such as the department and the college curriculum committees. Besides that, the department strives for perfection through its periodical program reviews and the application and is not shy to use expertise and experience from faculties outside the university.

Please check TU guidelines for quality: https://drive.google.com/file/d/1DClOw0rd986MS-NbUL07mcRQuJssbXKG/view?usp=sharing

2. Program Quality Monitoring Procedures

The program is reviewed every year seeking for solving problems, weakness issues, improving planning, adopting new books. In addition, there is a complete review cycle each

three years. The yearly and complete review is done under the supervision of the quality deanship at Taif University.

Student outcomes are statements that describe what students are expected to know and be able to perform by the time of graduation. These statements relate to the skills, knowledge, and behaviors that students acquire in their matriculation through the program. The goal/objective of the program is to provide students with a strong theoretical and practical background in the use of analytical thinking to design software solutions to real world problems. Information Technology professional should also have the ability to evolve their knowledge and skills as new technologies are discovered and apply this knowledge with ethical consideration of the individual and collective impact. These same objectives are reflected in the ABET student outcomes.

In this section, we describe the process through which the student outcomes were established for the Information Technology department. We will also explain the review process put in place for any further changes to the student outcomes. We will provide evidence of the implementation of this process and explain how we ended up with our current list of student outcomes.

Establishment of Student Outcomes

The process to define the student outcomes was initiated in January 2013 by the program assessment committee (PAC). In 2010, PAC was formed by the Dean of the college to start the process of ABET accreditation for Computer Science and Computer Engineering programs. When Information Technology Program was started, PAC presented an initial draft, mainly ABET defined student outcomes, to the Information Technology Department. The department council approved the ABET suggested list of SOs. Eventually, department decided to adopt ABET suggested list of 'a through n' Student Outcomes (SO) for its program in January 2010 and onward.

Assessment and Review of Student Outcomes

Once the Student Outcomes were established, the PAC decided to put forward a process through which the student outcomes are reviewed. Since 2016 the PAC roles have been assigned to the department curriculum committee (DCC) to oversee the assessment and review process of student outcomes. Review process of student

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outcomes has two-fold objectives. First, it is imperative for the department and the college administration to keep an eye on the quality of the program. The quality must be measured in terms of the degree to which our claimed mission, objectives and the student outcomes are being achieved. Second, based on the evidence collected during the assessment of the program, DCC must also review and update various components of the program, including its student outcomes. Since 2013 student outcomes remain unchanged.

Assessment and Review Process Schedule

Student outcomes assessment is a continuous process though the review of student outcomes occurs at the end of each academic year. The schedule of data collection that is tied to student assessment activities follows the term schedule at CCIT. Most data from a term is compiled shortly after the end of the term. The DCC meets thereafter to compile and finalize assessment reports.

Assessment and Review Process Components

The Student Outcomes assessment and review process is overseen by the department curriculum committee. After each academic year the DCC collects assessment data from various sources. This data is compiled in various reports and deliberated over by the DCC.
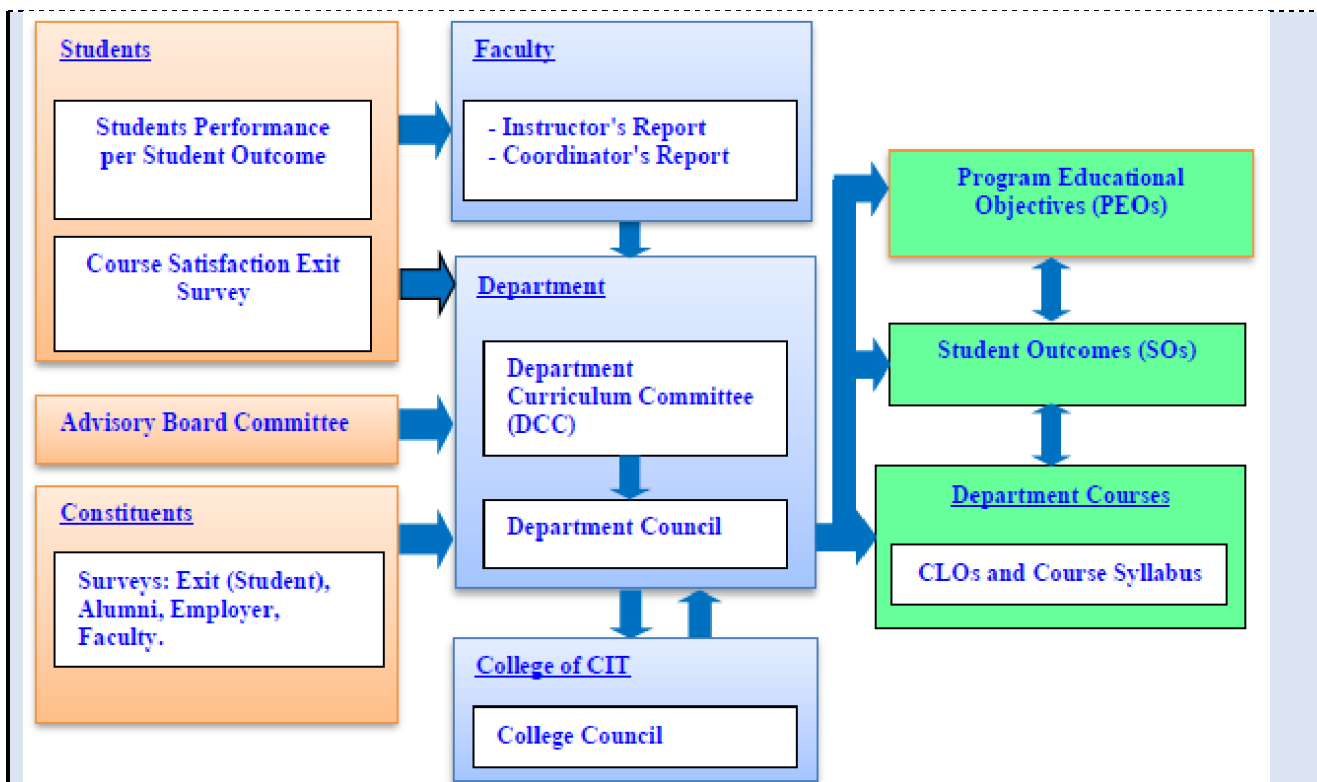
The DCC prepares its recommendations for SOs reviews, based on these deliberations and discussions with other constituencies and presents them to the department council for review and approval.

The Students Outcomes Assessment and Review process involve the following necessary components:

1- Student outcome assessment and review by courses

Assessment result of student outcomes by a related course is prepared in a course assessment file (CAF), that documents the attainment of related student outcomes and performance of the students by the course. Attainment result is obtained for the related student outcome thorough the course learning outcomes (CLOs) that are mapped with specific SOs. The results give an indication of attainment of student outcomes by a course and the performance of students. The result is then analyzed by the course instructors and the coordinator.

2- Course exit survey

Student outcomes are also reviewed using indirect assessment result that is captured by students' feedback for each course. The feedback survey questions gauge the attainment of student outcomes achieved by a course thorough the surveys of course learning outcomes (CLOs) that are mapped with specific SOs.

3- Instructor's Feedback

Each CAF requires the instructor to document a report about whether the course delivery achieved the course learning outcomes and the related student outcomes. If an improvement is needed, the course instructor must provide suggestions in the course file in the next offering of the course. The instructor's report in the CAF also documents whether the CLOs need improvement both in terms of greater coverage of SOs and knowledge depth. If an improvement is needed, the course instructor must provide his / her suggestions to do so. The course coordinator in the subsequent offering of the course must process these suggestions in collaboration with the department level curriculum committee.

Each instructor must also attempt to identify in his CAF report any changes to the program's Student Outcomes that the curriculum content and design indicate the need for.

4. Department

As mentioned before, all course instructors who teach courses with outcomes tied to the program student outcomes assess and evaluate their courses each semester. This assessment data is archived in the ASPIRE system. At the end of the academic year DCC reviews these data to see if changes are needed either to specific courses or to the outcomes themselves. DCC considers assessment result archived in the ASPIRE and instructors' instructor feedback and suggestions. If changes are recommended by the committee, any such recommendations are sent to the department council for discussion and approval.

5- Others

Student outcomes are also reviewed considering feedback from program constituents and advisory board committee. Survey is conducted to get feedback from the constituents

3. Arrangements to Monitor Quality of Courses Taught by other Departments.

Not applicable

4. Arrangements Used to Ensure the Consistency between Main Campus and Branches (including male and female sections)

1) For each course, there is a coordinator
2) The coordinator supervises the teaching process and coordinate between all sections in both campuses
3) Each branch put their own exam, the coordinator review the exams and be sure that all exams are consistent in both campuses
4) All assessment data for each section are submitted to the PAC office.
5) CAF reports are generated by the system (ASPIRE)
6) FAR and NCAAA course reports generated by ASPIRE for each section
7) Each member reviews the results in FAR and enter all necessary comment and improvement plans
8) The coordinator reviews the FAR and NCAAA course report from all sections in both campuses and summaries all recommendations and give one improvement plans which reflects most important points mentioned in the individual section reports
9) Curriculum committee review all course reports and summarizes all comments, recommendations and improvement plans in one report and submit it to the department council for discussion and approval

5. Arrangements to Apply the Institutional Regulations Governing the Educational and Research Partnerships (if any).

None

6. Assessment Plan for Program Learning Outcomes (PLOs), and Mechanisms of Using its Results in the Development Processes

Continuous assessment process will be used for obtaining assessments of the overall quality of the program and achievement of its intended learning outcomes.
The following steps will be considered:

A. Data Collection, Assessment and Evaluation Process:
1. At the beginning of a semester each instructor reviews the mappings of CLOs, program learning outcomes with the course.
2. Each course instructor identifies and devises appropriate assessment tools with respect to the appropriate CLOs and program learning outcomes.

3. Throughout the semester each instructor collects assessment data per the assessment tool and enters assessment data in the data collection and evaluation system, called ASPIRE. Data collection and verification is monitored by a specific team called Program Assessment Committee (PAC).
4. When data collection is complete, ASPIRE system generates a file called Course Assessment File (CAF) that shows the assessment summary of a course.
5. At the end of a semester, each instructor submits a short assessment report, called Faculty Assessment Report (FAR), analyzing assessment data produced by the ASPIRE system.
6. Each course has a course coordinator who supervises the progress of a course. Once the instructors' reports are available, each coordinator submits a coordinator assessment report to the curriculum committee after analyzing the instructors' reports, assessment materials, and assessment results of a course.
7. Curriculum Committee reviews all the reports and submits recommendations and actions to the department council. Department council discusses and takes necessary actions. Curriculum Committee is also responsible to examine the attainment of each student outcomes to see if the targeted level of attainment is met. Our target for the level of attainment of student outcome is 60% or better. ASPIRE system produces the attainment results of each student come from the assessment data entered by the instructors. The Curriculum Committee presents results, discusses, and proposes recommendations to the department council.

B. Define the expected level of attainment for each of the student outcomes:
Since attainment of a learning outcome may be partially or entirely assessed by a course, the assessment of a learning outcome is accomplished by consolidating all courses which assess that particular learning outcome. Since multiple courses assess the same learning outcome, the attainment level is the average of attainment of learning from all course assessed. Our target for the level of attainment of each learning outcome is **60%** or better.

C. Analysis and Evaluation of Student Outcomes
At the learning outcomes level, assessment involves measuring students' performance for each outcome using two main data sources: Courses; and Surveys (course survey and exit survey). The second data source comes from the course survey that student fills after completing the course and exit surveys that students fill out just before they graduate.

D. Measuring the Attainment of learning outcomes
In order to produce final attainment of a particular learning outcome, we aggregate learning outcomes attainment of all the courses mapped to that learning outcome. If the aggregated value of a learning outcomes falls below the target attainment, the source of the problem is searched by looking at the courses that produced low attainment, beginning with the CLOs and learning outcomes mapping, coordinator's report of that course, faculty assessment of that course, and other factors.

**E. Analysis of Assessment results and recommendations**
In general the Continuous Improvement Process is as follows: 1. Data are collected and compiled from direct and indirect assessments.
2. Data are analyzed and summarized by Curriculum Committee
3. Summary of assessment results are reviewed by department council and recommendations are proposed.
4. The Advisory Board is consulted on the proposed recommendations.
5. Implementations are made based on recommendations by constituents.
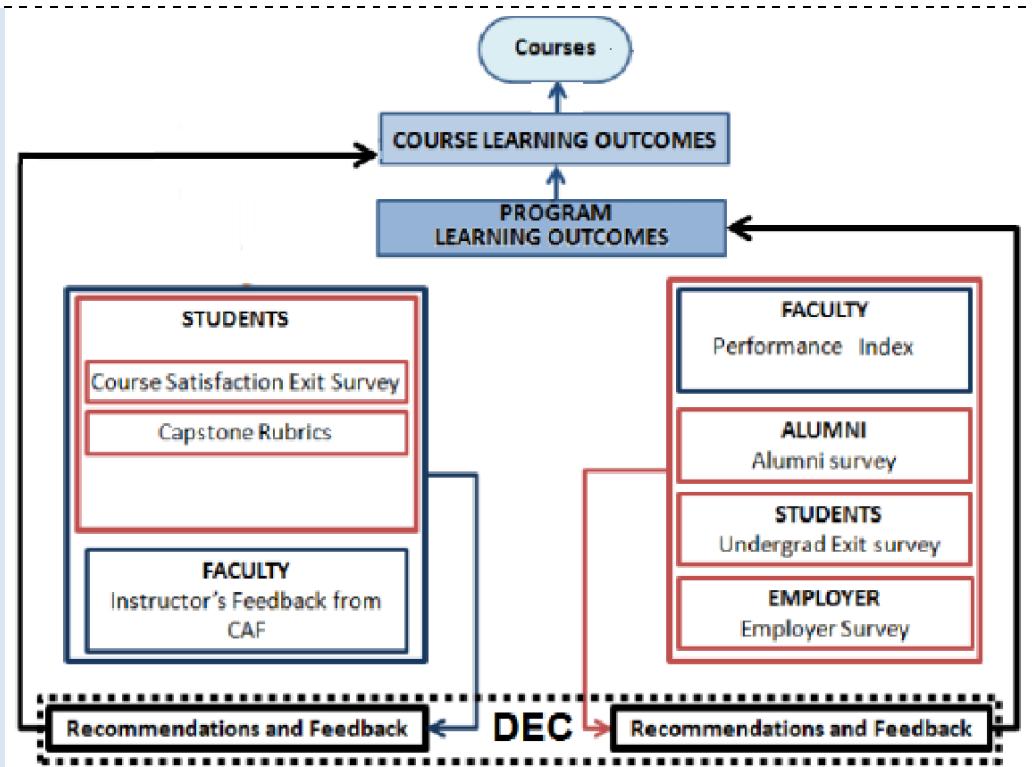
The above figure shows the main actors and the process of review and evaluation of the program quality and the intended learning outcomes (PLOs, also called Student Outcomes according to ABET conventions). Faculty, alumni, students, and employers contribute in the evaluation of the quality of the program and the PLOs.

The following figure shows all phases needed for the review and evaluation process of the courses and the whole program.

Review and evaluation phases

Regarding the assessment of the program quality, the department follows a college-level procedure. At the end of each year, the college quality committee conducts two surveys. The first is the Student experience survey to be filled by all the college students and which focuses on the general environment of the college, including advising and support, learning resources and facilities, learning and teaching strategies, and eventual opinions on weaknesses and concerns. The second survey is the program evaluation survey devoted to gather opinions from final year students about their experiences at the department throughout their program. It describes the academic help and

supporting resources, and their suggestions to improve the program quality. The college quality committee gathers the survey records and generates a global survey report to be forwarded to the department's chair. The department chair debates the report with the department's committees in order to undertake corrective actions accordingly. These actions will be finally discussed and eventually approved by the department's council. Once approved, the actions will be forwarded to the corresponding action leaders for implementation.

Aiming to assess the program learning outcomes, a similar procedure is followed. At the end of each semester, faculty members collect students' data (courses grades and courses survey results) for the courses that they taught and upload the assessment materials to Aspire system. Aspire is a centralized online system which allows to manage the data related to all the courses of every department. It provides a flexible way to upload the approved versions of the syllabi by the curriculum committee and the assessment data for each course by the course's instructors. The Aspire system, which is administrated by the PAC, compiles the aggregated data and generates analysis reports at courses levels and at program level. According to the analysis results, the PAC will recommend eventual changes about CLOs and/or PLOs (SOs) to the Department chair.

Feedbacks are also gathered from alumni. In fact, after graduation each department keeps contact information about their alumni. Every year, the alumni office contacts the graduates to update its database with the companies and higher education programs in which the graduates are hired. The office also asks the alumni to fill the alumni survey.

(ii) from independent advisors and/or evaluator(s)?.

The Department of Information Technology created The Advisory Committee. It is appointed by the chair and consists of industrial representative and MOHE representative.

The representative advises the chair on job possibilities and help the chair in organizing job fairs. They are also involved in the formulation and amendments of the program educational objectives. This committee reports directly to the chair with a cc to the Vice Dean.

The deanship for University Development has recently conducted two internal audits for the fulfilment of the NCAAA requirements. A committee was established especially to visit the college of Computers and Information Technology in both campuses (male and female sections). The committee revised the relevance of NCAAA's eleven evaluation standards in administration, teaching and learning facilities, and research, and social services. A report from the committee was received by the college quality committee which started to implement the recommendations.

(iii) from employers, Advisory Committee, and/or other stakeholders.

The feedback from the employers is important in the evaluation and the improvement of the program entities. Based on the contacts established by the Alumni Office, a database of employers is continuously updated. Every year, the Alumni office should contact the employers and companies' managers to involve them in an annual assessment of the performance of the graduates among their staff. They are asked to fill the employer survey. The survey focuses mainly on problem solving skills, technical knowledge skills, communication skills, and ethical behavior. The alumni office summaries the employers' concerns and recommendations in an annual report to be sent to the department chair. The department's committees debate the report and suggest corrective actions that will be approved by the department council before implementing them.

7. Evaluation of Program Quality Matrix

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
PLOs assessment, effectiveness of teaching & assessment and learning resources assessment	Students	● Taking course CLO survey at the end of each term. Student's opinion about covered course CLOs.	End of the semester

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Data collection		• Taking student exit survey at the end of the program. • Taking student experience survey at the end of each year. • Taking program evaluation survey by final year students. • Taking capstone project survey after the completion of this course	
	Faculty	• Taking course direct assessment with students' marks.	End of the year
	Alumni	• Taking alumni students' opinion about the whole program.	One in each evaluation cycle
	Employer	• Taking employers' opinion about their employees who graduated from our program.	One in each evaluation cycle
PLOs review, effectiveness of teaching review and learning resources review Data Review	DCC	• reviews the CLOs and course content. • Fixes inconsistencies. • DCC contacts department council for possible inconsistencies.	At the beginning of each semester
PLOs data verification and analysis, effectiveness of teaching data verification and analysis, learning resources verification and analysis verification & Analysis & Statistics	DCC ITPAC	• Measuring covered CLOs for each course and detecting non-covered ones. • Measuring covered PLOs for the entire program. • Measuring non-covered PLOs. • Measuring the students' progress in each course. • Measuring the overall process in the whole program.	End of the semester
PLOs Evaluation, effectiveness of teaching data Evaluation and learning resources Evaluation	ITPAC DCC	• Approving statistics and comments • Sending comments to DCC • Recommending changes to DCC	End of the semester

Evaluation Areas/Aspects	Evaluation Sources/References	Evaluation Methods	Evaluation Time
Conclusions & Recommendations		● Approval of recommendations by DCC Approval of recommendations by department's council	

Evaluation Areas/Aspects (e.g., leadership, effectiveness of teaching & assessment, learning resources, partnerships, etc.)
Evaluation Sources (students, graduates, alumni, faculty, program leaders, administrative staff, employers, independent reviewers, and others (specify)
Evaluation Methods (e.g., Surveys, interviews, visits, etc.)
Evaluation Time (e.g., beginning of semesters, end of academic year, etc.)

8. Program KPIs*

The period to achieve the target (2022) year.

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
1.	KPI-PG-1	**Percentage of achieved indicators of the program operational plan objectives**	**70%**	Percentage of performance indicators that achieved the target level in the operational plan annually to the total number of targeted indicators per year	**End of the year**
2.	KPI-PG-2	**Students' Evaluation of quality of learning experience in the program**	Students who give evaluation 3 or more is 70%	Average rating of the overall quality of students' learning experiences on a five point scale in an annual survey of final year students	**End of the year**
3.	KPI-PG-3	**Students' evaluation of the quality of the courses**	Students who give evaluation 3 or more is 70%	Average rating of the overall students evaluation of courses on a	**End of the year**

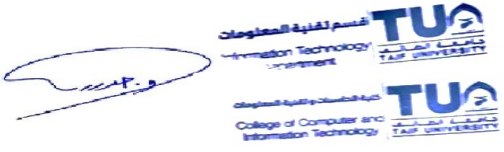| No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
				five point scale in an annual survey	
4.	KPI-PG-4	Students' evaluation of the quality of scientific supervision	Students who give evaluation 3 or more is 70%	Average rating of the overall students evaluation of courses on a five point scale in an annual survey	**End of the year**
5.	KPI-PG-5	Average time for students' graduation	Percent of students who passed the examinations from total number students who entered the exam is 70%	Percent of students who completed the program in two years	**End of the year**
6.	KPI-PG-6	Rate of students dropping out of the program	0%	Percent of students who did not complete the program	**End of the year**
7.	KPI-PG-7	Graduates' employability	70%	Proportion of graduates from the program who within a year of graduation are: a. employed b. enrolled in further study	**End of the year**
8.	KPI-PG-8	Employers' evaluation of the program graduates' competency	Employers who give evaluation 3 or more is 70%	The average rating of employers for the proficiency of the program's graduates on a scale of five levels in an annual survey	**End of the year**

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
9.	KPI-PG-9	**Students' satisfaction with the provided services**	Students who give evaluation 3 or more is 70%	Student satisfaction rate for the various services offered by the program (restaurants, transport, sports facilities, academic guidance ...) on a five-level scale in an annual survey of students	**End of the year**
10.	KPI-PG-10	**Ratio of students to faculty members**	1:10	Total number of full-time and full time equivalent teaching staff to the total number of students in the program	**End of the year**
11.	KPI-PG-11	**Percentage of faculty members' distribution based on academic ranking**	Total number of full-time and full time equivalent teaching staff to the total number of students in the program is the same in each campus	Percentage of teaching staff distribution based on: a. Gender b. Branches Academic Ranking	**End of the year**
12.	KPI-PG-12	**Proportion of faculty members leaving the program**	3%	Proportion of teaching staff leaving the	**End of the year**

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
				program annually for reasons other than age retirement to the total number of teaching staff.	
13.	KPI-PG-13	**Satisfaction of beneficiaries with learning resources**	beneficiaries who give evaluation 3 or more is 70%	Satisfaction rate of beneficiaries on the adequacy and diversity of learning resources (references, journals, databases… etc) on a scale of five levels in an annual survey.	**End of the year**
14.	KPI-PG-14	**Satisfaction of beneficiaries with research facilities and equipment**	beneficiaries who give evaluation 3 or more is 70%	Satisfaction rate of beneficiaries on the adequacy and diversity of learning resources (references, journals, databases… etc) on a scale of five levels in an annual survey.	**End of the year**
15.	KPI-PG-15	**Percentage of publications of faculty members**	**70% of the total number of faculty members**	Number of full-time faculty members who published at least one	**End of the year**

No	KPIs Code	KPIs	Target	Measurement Methods	Measurement Time
				research during the year to total faculty members	
16.	KPI-PG-16	Rate of published research per faculty member	1	The average number of refereed or published researches per each faculty member during the year.	End of the year
17.	KPI-PG-17	Citations rate in refereed journals per faculty member	10	Number of citations in refereed journals per total number of publication.	End of the year
18.	KPI-PG-18	Percentage of students' publication	100%	Percentage of students who published at least one paper publication	End of the year
19.	KPI-PG-19	Number of patents, innovative products, and awards of excellence	1	Number of patents, innovative products, and awards of excellence	End of the year

* including KPIs required by NCAAA

j. Specification Approval Authority

Council / Committee	
Reference No.	
Date	