

**GET YOUR
3 YEARS **UK** DEGREE
COMPUTER
SCIENCE AT TMUC**

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The Millennium Universal College TMUC is Pakistan's one of the largest transnational education groups operating purpose-built University College Campuses across major urban cities and offering International programmes and highly reputed degrees and skills qualifications at home as TMUC is a provider of transnational education programs. By bringing a range of international qualifications home, TMUC aspires to be recognized as the leading institution for borderless education and committed to providing opportunities that exceed the local stream of education to the youth of Pakistan.

Our goal is to produce graduates who are not only equipped with the necessary skills and knowledge to excel in their chosen fields but are also able to make meaningful contributions to society.

DEGREE OFFERED

BS(Hons) CS

COMPUTER SCIENCE



PROGRAMME INFORMATION

This programme is designed to combine theoretical knowledge with a wide range of practical activities where you can apply and test your skills. Our research-led teaching will bring you up to date with the most innovative debates in Computing. This will prepare you to enter the job market with a thorough understanding of what it takes to administer Computing businesses in our fast-paced global environment, while giving you a unique set of specialist skills if you wish to carry on your studies at undergraduate level. You will also have the opportunity to experience student life at our global focused university.

Programme Information	
Credit Hours	360
Guided Learning Hours	1440
Independent Study Hours	2160
Duration	3 years
Guided Learning Hours	Face to Face
Assessment	SDL Local tutoring Assessments

SEMESTER-WISE BREAK DOWN OF MODULES

Level	Modules
4	Introduction to programming and Discrete Structures
	From Silicon to C
	Computational Problem Solving
	Data Modeling for Database
	Team Software Projects

Level	Modules
5	Programming and Algorithms and Data Structures
	Operating Systems & Computer Networks
	Software Development Exercises
	Contemporary Issues
	Database

Level	Modules
6	Responsible Computing
	Computer System Security
	Mobile Computing
	Computer Science Project
	Software Architecture
	Internet of Things
	Robotics

UNIVERSITY OF HERTFORDSHIRE

BSC (HONS) COMPUTER SCIENCE

LEARNING OUTCOMES

Module Code: 4WCM2001

Module Name: Computational Problem Solving

Skills and Attributes

Successful students will typically:

- Be able to write Python programs that solve wellspecified problems.
- Be able to structure computations into a hierarchy of procedures and functions, design appropriate parameterpassing interfaces, and realise their design in Python
- Choose appropriate data structures and make judicious use of recursion and iteration to manipulate them.
- Be able to construct proofs of various kinds (including proof by induction).

Knowledge and Understanding

Successful students will typically:

- Understand properties of sets, relations and functions, selfsimilar discrete structures (such as trees, graphs and languages) and algorithms that process them.
- Understand how discrete structures, including selfsimilar structures, may be represented and manipulated in Python.
- Understand basic concepts of descriptive statistics.
- Understand concepts of mathematical induction and recursion.
- Understand the use of predicates to describe the desired behaviour of programs, including pre and postconditions and loop invariants.

UNIVERSITY OF HERTFORDSHIRE

BSC (HONS) COMPUTER SCIENCE

LEARNING OUTCOMES

Module Code: 4WCM2003

Module Name: Data Modelling for Databases

Skills and Attributes

Successful students will typically:

- Select and use an appropriate relational database design for a specified application, and appropriate technique or tool at all stages of data modelling.
- Design and implement a database solution to a concisely defined requirement.
- Be able to construct schema databases, managing the data content and performing complex queries for data and information.

Knowledge and Understanding

Successful students will typically:

- Demonstrate knowledge and understanding of database systems, the broad range of applications to which they can be applied, their key role in underpinning most enterprise systems.
- Demonstrate knowledge and understanding of the role of Database Management Systems and the basic operations they perform.
- Demonstrate knowledge and understanding of evaluation approaches used in determining an appropriate database solution.

LEVEL

4

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BSC (HONS) COMPUTER SCIENCE

LEARNING OUTCOMES

Module Code: 4WCM2005

Module Name: From Silicon to C

Skills and Attributes

Successful students will typically:

- Be able to construct simple combinational and sequential circuits from components using a circuit simulator.
- Write small assembly language and C programs that process data in memory using highlevel control structures or their equivalent.
- Be able to analyse the behaviour of code and circuits enough to make his or her solution work by testing and correcting errors (debugging).

Knowledge and Understanding

Successful students will typically:

- Understand how data is represented as bit strings in the memory of a low level platform. Understand how data is processed by combinational circuits and how computations are implemented in hardware as execution steps with data held in sequential circuits synchronised by a clock, and the basics of computer architecture.
- Understand the principles of data communication, including the need for protocols.
- Understand the meaning and utility of machine instructions, and how they are combined to achieve the required computations, control and input/output.
- Understand how highlevel data types, arithmetic/logic expressions and control structures (including

LEVEL

4

UNIVERSITY OF HERTFORDSHIRE

BSC (HONS) COMPUTER SCIENCE

LEARNING OUTCOMES

Module Code: 4WCM2007

Module Name: Introduction to Programming and Discrete Structures

Skills and Attributes

Successful students will typically:

- Be able to comprehend and manipulate expressions, statements and chains of reasoning written using formalisms such as algebra, set notation and predicate logic.
- Be able to comprehend and test simple programs that involve sequence, selection and iteration.
- Be able to use the Python language to implement algorithms as programs and subprograms, and locate and correct errors in them.

Knowledge and Understanding

Successful students will typically:

- Understand discrete mathematical structures, including sets, relations, functions and automata and their use for modelling real life objects and actions for the purposes of computing.
- Understand concepts and tools of propositional and predicate logic and their use as a basis for describing problems and their solutions.
- Understand basic concepts of probability.
- Understand how algorithms may be used to solve computational problems.

LEVEL

4

UNIVERSITY OF HERTFORDSHIRE

BSC (HONS) COMPUTER SCIENCE

LEARNING OUTCOMES

Module Code: 4WCM2009

Module Name: Team Software Project

Skills and Attributes

Successful students will typically:

- Be able to work as a member of a development team recognising the different roles within a team, different ways of organising teams.
- Be able to communicate effectively in electronic as well as written and oral form to a range of audiences.
- Be able to identify the components of a system development task.
- Be able to identify risk in the software development cycle.

Knowledge and Understanding

Successful students will typically:

- Have knowledge and understanding of legal, social, ethical, and professional issues involved in the exploitation of computer technology.
- Understand system development processes and practices.
- Understand project and team management approaches, techniques, and methods.

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BSC (HONS) COMPUTER SCIENCE

LEARNING OUTCOMES

Module Code: 5WCM2009

Module Name: Data Science Team Project

Skills and Attributes

Successful students will typically:

- Be able to undertake a range of system development activities within a data science context, particularly system design and implementation, selecting appropriate solutions and/or software development techniques, evaluating the appropriateness of these solutions and techniques where applicable;
- Communicate effectively with different stakeholders, both internal and external to the project team;
- Function effectively as an individual, and as a member or leader of a team.

Knowledge and Understanding

Successful students will typically:

- Demonstrate knowledge and understanding of the principal stages of requirements engineering and the key challenges in developing sound and usable requirements specifications.
- Demonstrate knowledge and understanding of a wide range of approaches to software development, the different project roles, and their application in a data science context.
- Demonstrate knowledge and understanding of the key stages of a data science project lifecycle.

LEVEL

5

UNIVERSITY OF HERTFORDSHIRE

BSC (HONS) COMPUTER SCIENCE

LEARNING OUTCOMES

Module Code: 5WCM2001

Module Name: Accessibility and Usability

Skills and Attributes

Successful students will typically:

- Be able to identify and analyse the legal, social, ethical and professional issues involved in the accessibility and usability of computer applications.
- Be able to evaluate the accessibility and usability of computing applications.
- Identify, propose and communicate solutions for accessibility and usability problems effectively in electronic as well as written and oral forms to a range of audiences.

Knowledge and Understanding

Successful students will typically:

- Be able to demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to the accessibility and usability of computing applications.
- Be able to demonstrate knowledge and understanding of the commercial and economic context of the development, use and maintenance of accessible and usable information systems.
- Be able to demonstrate knowledge and understanding of how accessibility and usability concerns may be embedded in development lifecycles.

LEVEL

5

UNIVERSITY OF HERTFORDSHIRE

BSC (HONS) COMPUTER SCIENCE

LEARNING OUTCOMES

Module Code: 5WCM2007

Module Name: Artificial Intelligence

Skills and Attributes

Successful students will typically:

- Be able to analyse and write simple artificial intelligence (AI) algorithms and apply them to basic AI problems;
- Be able to identify and formulate recursive data structures and algorithms, as well as implement them in an appropriate programming language, such as Python, for the relevant problems;
- Be able to write and program different AI architectures, such as different controllers for decisionmaking agents (rulebased, probabilistic, embodied, etc.).

Knowledge and Understanding

Successful students will typically:

- Be able to identify, understand and formulate core artificial intelligence concepts and algorithms;
- Be able to select suitable data structures and algorithms for specific AI problem classes;
- Be able to identify and formulate simple AI architectures for typical scenarios.

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BSC (HONS) COMPUTER SCIENCE

LEARNING OUTCOMES

Module Code: 5WCM2005

Module Name: Database System

Skills and Attributes

Successful students will typically:

- Select, design and implement an appropriate database design for a specified application Specify, design and implement multiple database solutions.
- Design, construct, implement and integrate all elements of a database system.

Knowledge and Understanding

Successful students will typically:

- Be able to demonstrate a knowledge and understanding of advanced and diverse data modelling approaches Know appropriate tools and understand fundamental techniques of data modelling.
- Be able to demonstrate a knowledge and understanding of methods and issues involved in deploying database systems to meet business goals, including the evaluation process in determining an appropriate database solution.
- Be able to demonstrate a knowledge and understanding of theoretical and practical processes to specify, design, deploy, verify and maintain database systems, including working with technical uncertainty and a broad range of Database Management System functions.

LEVEL

5

UNIVERSITY OF HERTFORDSHIRE

BSC (HONS) COMPUTER SCIENCE

LEARNING OUTCOMES

Module Code: 5WCM2011

Module Name: Operating System and Computer Networks

Skills and Attributes

Successful students will typically:

- Use the command line and other tools to configure operating systems and networks; Identify and correct system configuration errors;
- Articulate and make decisions in the deployment of appropriate operating systems and networks.

Knowledge and Understanding

Successful students will typically:

- Demonstrate knowledge and understanding of how operating systems and networks concepts are embodied in practical systems;
- Demonstrate knowledge and understanding of how operating systems and networks can be configured to meet user requirements;
- Demonstrate knowledge and understanding of the underlying principles of operating systems and networks including points of similarity and difference between alternatives;

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BSC (HONS) COMPUTER SCIENCE

LEARNING OUTCOMES

Module Code: 5WCM2012

Module Name: Programming, Algorithms and Data Structures

Skills and Attributes

Successful students will typically:

- Identify appropriate algorithms and data structures for a range of problems.
- Develop appropriate algorithms and data structures for a range of problems.
- Independently implement algorithms in an appropriate programming language.

Knowledge and Understanding

Successful students will typically:

- Demonstrate knowledge and understanding of the processes involved in the systematic development of fundamental algorithmic concepts.
- Demonstrate knowledge and understanding of the different data structures with the ability to evaluate when and where to apply them.
- Demonstrate knowledge and understanding of the underlying mathematics relating to the development of algorithms.
- Demonstrate knowledge and understanding of a range of applications for the algorithms.
- Demonstrate knowledge and understanding of how the data structures and algorithms are implemented in a relevant programming library.

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BSC (HONS) COMPUTER SCIENCE

LEARNING OUTCOMES

Module Code: 6WCM0029

Module Name: Computer Science Project

Skills and Attributes

Successful students will typically:

- Deliver a realistic solution to a realworld problem.
- Devise a project schedule to support the management of the project to completion, adapting the schedule as needed.
- Produce an extensive technical report that critically evaluates the work conducted.

Knowledge and Understanding

Successful students will typically:

- Individually research, plan, develop and implement the solution to a substantial computer science problem.
- Organise, evaluate and reflect on their capabilities to deliver a defined technical solution.
- Critique and evaluate their work in order to produce a technical report.
- Develop a body of work within the context of appropriate legal, social ethical and professional issues.

LEVEL
6

UNIVERSITY OF HERTFORDSHIRE

BSC (HONS) COMPUTER SCIENCE

LEARNING OUTCOMES

Module Code: 6WCM0031

Module Name: Computer System Security

Skills and Attributes

Successful students will typically:

- Scope, manage and conduct a penetration test with minimal supervision or direction.
- Scope, manage and conduct a risk and threat assessment with minimal supervision or direction.

Knowledge and Understanding

Successful students will typically:

- Demonstrate knowledge and understanding of a range of current computer security techniques and of how the principles of systems security methods are embodied therein.
- Demonstrate knowledge and understanding of Cyber security risks and threats.

LEVEL

6

UNIVERSITY OF HERTFORDSHIRE

BSC (HONS) COMPUTER SCIENCE

LEARNING OUTCOMES

Module Code: 6WCM2005

Module Name: Internet of Things

Skills and Attributes

Successful students will typically:

- Design, configure and use IoT networks, such as LoRaWAN.
- Design and programme for the Web of Things.
- Implement controls to secure an IoT infrastructure.

Knowledge and Understanding

Successful students will typically:

- Demonstrate a critical understanding of the principles (standards, architectures and interoperability) of Internet of Things (IoT).
- Demonstrate knowledge and understanding of the policies and regulations relating to the IoT.
- Appreciate data security, privacy and trust requirements of IoT devices and networks and be aware of solutions.

LEVEL

6

UNIVERSITY OF HERTFORDSHIRE

BSC (HONS) COMPUTER SCIENCE

LEARNING OUTCOMES

Module Code: 6WCM2007

Module Name: Robotics

Skills and Attributes

Successful students will typically:

- Identify appropriate AI and behavioural and cognitive architectures for specific robotic applications.
- Be able to develop programs and implement and arbitrate multiple AI and behavioural elements into a robotic platform.
- Test and critically evaluate robot performance and behaviours using formal methods.

Knowledge and Understanding

Successful students will typically:

- Demonstrate knowledge and understanding of some common types of cognitive and AI based robot architectures.
- Demonstrate knowledge and understanding of how AI and cognitive behaviours are designed and implemented.
- Demonstrate knowledge and understanding of how reactive, cognitive and behavioural based AI methods are used in robotics and to explore and evaluate what can be achieved with such methods.

ELIGIBILITY CRITERIA AND ENTRY REQUIREMENT

Requirement Detail	
Age Requirement	Student should ideally be aged 18
Academic Requirement	International Qualifications: 8 O Levels, 3 A Levels (A-E) Years of Education completed: 12 Pass Intermediate with 50% Marks



APPLICATION PROCESS

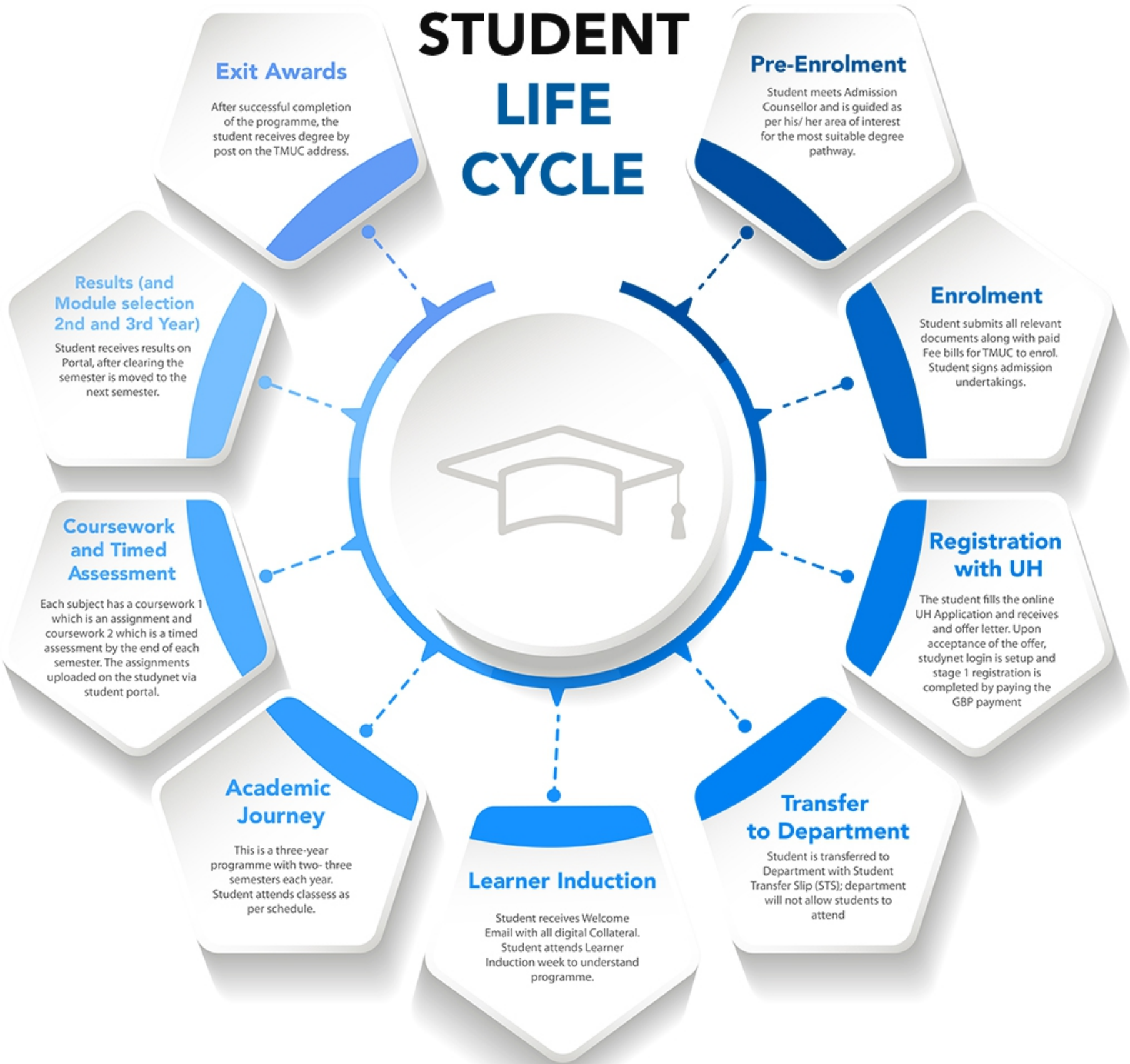
TMUC APPLICATION PROCESS:

Step 1
Document submission
Admission form pack to be provided to admission office
Four Passport size photographs
CNIC/Passport copy of applicant and Parent
Step 2
Initial document review by admission office
Step 3
Admission confirmation
Step 4
Payment of dues
Step 5
Enrolment

UNIVERSITY OF HERTFORDSHIRE APPLICATION PROCESS:

Stage 1
Initial Application handling where offer once received is to be accepted by student within 24 hrs
Stage 2
Payment to UH

STUDENT LIFE CYCLE



Exit Awards

After successful completion of the programme, the student receives degree by post on the TMUC address.

Pre-Enrolment

Student meets Admission Counsellor and is guided as per his/ her area of interest for the most suitable degree pathway.

Enrolment

Student submits all relevant documents along with paid Fee bills for TMUC to enrol. Student signs admission undertakings.

Registration with UH

The student fills the online UH Application and receives and offer letter. Upon acceptance of the offer, studynet login is setup and stage 1 registration is completed by paying the GBP payment

Transfer to Department

Student is transferred to Department with Student Transfer Slip (STS); department will not allow students to attend

Learner Induction

Student receives Welcome Email with all digital Collateral.
Student attends Learner Induction week to understand programme.

Academic Journey

This is a three-year programme with two- three semesters each year. Student attends classess as per schedule.

Coursework and Timed Assessment

Each subject has a coursework 1 which is an assignment and coursework 2 which is a timed assessment by the end of each semester. The assignments uploaded on the studynet via student portal.

Results (and Module selection 2nd and 3rd Year)

Student receives results on Portal, after clearing the semester is moved to the next semester.

ALUMNI PROFILE AND POTENTIAL JOB PLACEMENTS

I am writing to express my heartfelt gratitude for the outstanding education and support I received during my B.Sc. Hons in Computer Science at TMUC in affiliation with the University of Hertfordshire. Achieving a First-Class Honours degree would not have been possible without the unwavering commitment and guidance of the entire faculty. The quality of instruction, relevant curriculum, and hands-on learning experiences have equipped me with the skills and confidence needed for success in the field of computer science.

I am particularly grateful to Sir Mir Wajid Ali, the Head of the Department, for his exceptional support and mentorship. His knowledge, dedication, and belief in my potential have been instrumental in shaping my academic journey.

I would also like to extend my thanks to TMUC and its management, especially Sir Faisal Mushtaq, for creating this opportunity to offer a renowned UK university program locally.



Nile Rizwan

BSc. (Hons.)
Computer Science

POSSIBLE JOB PLACEMENTS AT:

Software Developer | Web Developer | Network Administrator | Database Administrator | IT Support Specialist | Systems Analyst | IT Project Manager | Cybersecurity Analyst | Data Analyst | Digital Forensic Specialist

FACULTY OF COMPUTING

S#	NAME	QUALIFICATION
01	Hamza Saeed	MSCS
02	Ms. Fatima Zahid	MSCS
03	Haad Bodla	MSCS
04	Basit Niazi	MSCS
05	Ms. Khadija Naveed	MSCE
06	Mr. Tayyab Mir	MSCE
07	Mr. Bilal Hussain	MSCE
08	Mr. Sajid Ali	MSCE
09	Ms. Kulsoom Farhan	MS(DS)
10	Mr .M Ali Ahsan	ME (Electronics)
11	Mr. Naveed Farrukh	MS (CN)
12	Mr. Muttahar Ahmed Khan	MS (Management)
13	Mr. Hafiz M. Attaullah	MS (Telecommunication)
14	Mr. Syed Zaid Irshad	MSCS
15	Ms. Hira Shahzad	Masters in Info Security
16	Dr. Irfan Azhar	PhD Computer Science (DIP)
17	Ms. Marwa Aamir	Masters in Software Engr.
18	Ms. Humaira Shaheen	Masters in Computer Science
19	Mr. Syed Shakeel Anjum	Masters in IT, LLB, PMP
20	Mr. Raja Zeeshan	Masters in Computer Science
21	Mr. Umar Sultan	Masters in Software Engr
22	Mr. Waqas Arif	Masters in Process Automation

FACULTY OF COMPUTING

S#	NAME	QUALIFICATION
23	Mr. Mir Wajid Ali	MS IS
24	Ms. Zoha Farooq	MS CS
25	Dr. Talha Shahid	PhD (Robotics)
26	Muhammad Sadheer	MS CS
27	Ms. Amina Tufail	MS IS
28	Mr. Ehsan Elahi	MS SE
29	Mr. Rana Hassan Ajmal	MS-CS
30	Ms. Fatima Ahmad	M.Eng. (Robotics)
31	Mr. Tahir Bhatti	M.Eng.
32	Ms. Amnah Riaz Chohan	MS-CS
33	Muhammad Sohail (new)	MS-CS
34	Ms. Kainat Rizwan	MS-CS
35	Ms. Kanza Ahmad	MS-IT
36	Mr. Muhammad Usman Tahir	MS-CS
37	Ms. Fizza Khan (new)	MS-CS
38	Ms. Sundus Latif	Masters in Software Engineering
39	Ms. Kulsoom Farhan	Masters in Data Science
40	Mr. Naveed Farrukh	MS in Computer Networks & Comm
41	Mr. Shah Zaib	Masters in Computer Science
42	Mr. Muhammad Bilal	Masters in Computer Science
43	Mr. Manik Hussain	Masters in Information Technology
44	Mr. Hamza Ahmed	Masters in Computer Science
45	Ms. Sadia Sheikh	Masters in Computer Science
46	Ms. Maria Ghayas	MS in Industrial Engineering & Management

FACULTY OF COMPUTING

S#	NAME	QUALIFICATION
47	Ms. Sumaira Imtiaz	Masters in CS & Technology
48	Ms. Fariba Laiq	MSCS
49	Mr. Basit Ali	MSCS
50	Dr. Zahid Farid	Ph.D. Artificial Intelligence
51	Muhammad Junaid ur Rehman	MS Information Technology
52	Mr. Muhammad Ali Azam Khattak	MS Data Science
53	Mr. Kashif Iltaf Mughal	MSCS
54	Mr. Muhammad Abdul Tawab Khalil	MSCS
55	Engr. Muhammad Salman Khan	MSCS
56	Ms. Raya Fatima Amjad	CS & Technology
57	Jazib Nazar	Computer Science
58	Marwa Khan Jadoon	Project Management IT
59	Ahsan Jadoon	Information Security
60	Ms. Urooj Tariq	Computer Science

OUR CAMPUSES

ISLAMABAD CAMPUS

No. 68, South Street, Sector
H-11/4, Islamabad

051 4866181-87

GUJRANWALA CAMPUS

Main Sialkot Bypass Road
Gujranwala

055 3200068-68

RAWALPINDI CAMPUS

Bahria Springs, Phase 7
Bahria Town, Rawalpindi

051 5400311-3

FAISALABAD CAMPUS

Opposite Boulevard Mall
West Canal Road, Faisalabad

041 8722228

LAHORE CAMPUS

No. 310/1, Sector F, Phase 6,
DHA, Lahore

042 37338377-80

KARACHI CAMPUS

No. 10, Sector-47 Korangi Creek
Road, Korangi Creek, Karachi

021-35090042

ABBOTTABAD CAMPUS

TMUC, Main Manshera
Road, Near Radio Pakistan

0992-408421

PESHAWAR CAMPUS

Nasir Bagh Road, Near FC
Plaza DHA Peshawar

0303 3332448



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universalcollege



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tmucpakistan

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