Programs in Computing

Dean's Message

Welcome to the FAST School of Computing. We are the pioneers of Computing education in the country. In 1985, we started as a small and affiliated institute and today we have expanded to five cities of the country - offering five bachelor's degree programs, eight master's degree programs, and two PhD degree programs within the Fast School of Computing. In addition, we also offer specialization stream of Technopreneurship within the BS (CS) degree program.With the emergence of innovative technologies such as Generative AI, Deep Learning, Data Science, Blockchain, Cyber Security, Cloud Computing, Gaming, IoT, and Entrepreneurship our focus has been to make an innovative impact through their integration and application. Computing has massive potential in our socio-economic development. Realizing this potential, our aim has been to empower the youth with capabilities, innovation, learning, and entrepreneurship.

The School of Computing takes honors in leading the computing education of the country. Our graduates have been playing an active and leading role, both at the national as well as the international level. We have also established collaborations with several organizations and universities. Pakistan Software House Association (P@SHA) – the computing industrial representative of the country, places us as the top ranked university among all the universities of the country, which offers computing education.



Dr Jawwad Ahmed Shamsi
Professor and Dean (Computing)
PhD (CS), Wayne State University, USA (2009)
PhD Approved Supervisor
MS (CS), University of Michigan-Dearborn, USA (2002)
BE (EE), NED-UET, Karachi (1998)

Through our outstanding faculty, funded research, impactful publications, innovative ideas, well-equipped labs, and strong alliance with the industry, we strive to provide an environment which can nourish the young talent. We offer a variety of academic programs through which students can inspire them to choose their desired specialization of studies. We aim to offer personalized growth and opportunities to students so that they can enrich their talent and build upon their skills using curricular, co-curricular, and extra-curricular activities at the University.

I would like to invite you to explore the variety of opportunities offered by the University. I hope you will find the information useful. Please do not hesitate to contact us in case of any questions. My team and I will be glad to assist you.

BS Admission Test, Eligibility and Selection Criteria

Degrees	**Computing** Bachelor of Science (Artificial Intelligence) Bachelor of Science (Computer Science) Bachelor of Science (Cyber Security) Bachelor of Science (Data Science) Bachelor of Science (Software Engineering)

Admission Test	Applicants must select **only one** out of the three admission test options	FAST-NUCES SAT NTS NAT-IE, NAT-ICS *(NTS test from specific universities will not be acceptable)*

Eligibility	1	SSC (Matric) or an equivalent examination	60% minimum marks
	2	HSSC (FSc) or an equivalent examination	50% minimum marks
	3	Courses studied at HSSC or equivalent level	Mathematics

Selection Criteria	1	Weightage of Admission Test marks	50%
	2	Weightage of HSSC/equivalent	40%[1]
	3	Weightage of SSC/equivalent	10%

Computing Domain
Pre-medical students who have passed additional math's or they are waiting for results are eligible to apply for admission in computing programs.

[1]Weightage of HSSC marks shall be calculated based on (whichever is applicable) at the time of compilation of merit list.

a. Marks obtained in HSSC part I and II OR
b. Marks obtained in HSSC part I, if result of HSSC part II not available OR
c. Marks/Percentage given in IBCC equivalence certificate of A -level OR
d. Marks/Percentage given in IBCC equivalence certificate of O -level

Merit cut-off marks to be determined by the University.

Bachelor of Science (Artificial Intelligence)

Program Mission

To provide theoretical knowledge and practical skills required for a professional career in Artificial Intelligence. The degree program follows Artificial Intelligence in breadth, covering core computing concepts with a specialization in Artificial Intelligence and its application within the code of ethics.

Career Opportunities

You may become risk manager reporting analyst, project manager enterprise analyst, data engineer machine learning engineer, Artificial Intelligence developer etc.

Award of Degree

For the award of Bachelor of Science (Artificial Intelligence) degree, a student must have

- Passed courses totaling at least 134 credit hours, including all core courses
- Earned CGPA of at least 2.00



Tentative Study Plan-Bachelor of Science (Artificial Intelligence)

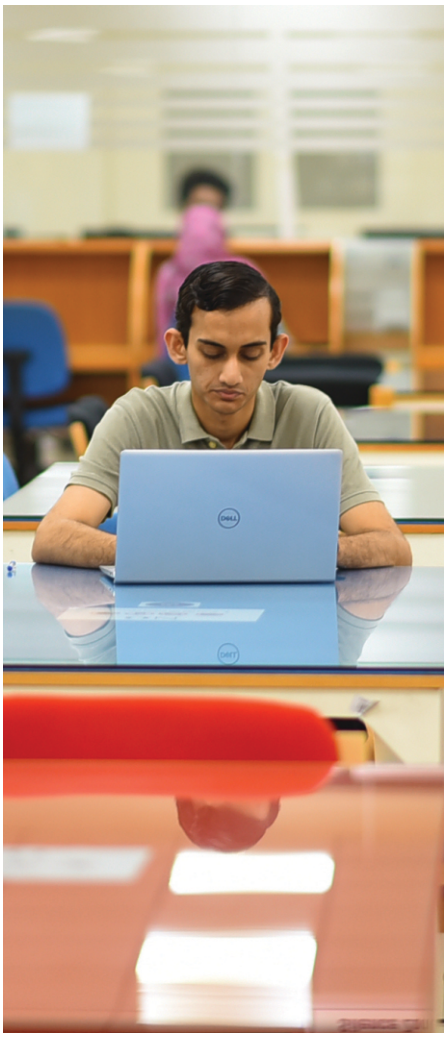
Code	Title	Cr. Hrs	Prereq	
Semester-I				
SS1019	Understanding of Sirat-Un-Nabi PBUH	NC		
MT1003	Calculus and Analytical Geometry	3	0	
CL1000	Introduction To Information and Communication Technology	0	1	
CS1002	Programming Fundamentals	3	1	
SS1012	Functional English	2	1	
SS1013	Ideology and Constitution of Pakistan	2	0	
SS1007	Islamic Studies/Ethics	2	0	
	Total	**12**	**3**	
Semester-II				
SS1015	Pakistan Studies	2	0	
MTxxxx	Qualitative Reasoning I	3	0	
EE1005	Digital Logic Design	3	1	
CS1004	Object Oriented Programming	3	1	CS 1002
SS1014	Expository Writing	2	1	
SS1021	Understanding of Holy Quran I	1	0	
SS1022	Understanding of Holy Quran II	1	0	
	Total	**15**	**3**	
Semester - III				
MTxxxx	Qualitative Reasoning II	3	0	
NSxxxx	Natural Science Elective	3	0	
CS2001	Data Structures	3	1	CS1004
AI2001	Programming for AI	2	1	
SSX31	SS Elective I	3	0	
SS2043	Civics and Community Engagement	2	0	
	Total	**16**	**2**	
Semester - IV				
MT1004	Linear Algebra	3	0	
EE2003	Computer Organization and Assembly Language	3	1	EE1005
CS2005	Database Systems	3	1	CS2001
CS2004	Fundamentals of Software Engineering	3	0	
AHX21	Arts and Humanities Elective I	2	0	
MG4011	Entrepreneurship	3	0	
	Total	**17**	**2**	
Semester -V				
AI2002	Artificial Intelligence	3	1	
CS2006	Operating Systems	3	1	CS2001
CS2009	Design and Analysis of Algorithms	3	0	CS2001
AI3001	Knowledge Representation & Reasoning	3	0	AI2001
IDSxxxx	Inter-Disciplinary Elective-I	3	0	
	Total	**15**	**2**	
Semester - VI				
AIX01	AI Elective I	3	0	
CS3001	Computer Networks	3	1	CS2001
AI3006	Neural Learning	3	0	
AI4002	Computer Vision	3	0	
IDSxxxx	Inter-Disciplinary Elective-II	3	0	
	Total	**15**	**1**	
Semester - VII				
AIX02	AI Elective II	3	0	
CS4075	Cloud Computing	3	0	
CS3002	Information Security	3	0	
AI4091	Final Year Project -I	0	3	
AI3007	AI Engineering	3	0	
	Total	**12**	**3**	
Semester - VIII				
AIX03	AI Elective III	3	0	
AIX04	AI Elective IV	3	0	
AI4092	Final Year Project - II	0	3	AI4091
AIX05	AI Elective V	3	0	
CSxxxx	Professional Certification	3	0	
	Total	**12**	**3**	

CS2019	Computing Internship	0	1	

* Internship can be registered in any semester after the third and including the eighth semester. The Internship credit hours and grade shall be used in the calculation of the CGPA of the completed degree. It will not be used in the determination of semester CGPA and merit position.

Eligibility for FYP-1: 103 CH

Domain	Cr. Hrs
General Education	34
Computing Core	48
Specialization Electives	30
Professional Certification	03
Interdisciplinary Courses	12
Computing Internship	01
FYP	06
Total	**134**



Bachelor of Science (Computer Science)

Program Mission

To provide the theoretical and practical knowledge and skills required for a professional career in computing. The degree program follows Computer Science in breadth covering core computer science and its application within a code of ethics.

Career Opportunities

The graduates holding Bachelor of Science (Computer Science) degree will be able to adopt a wide range of careers, including computer programmer, software Engineer Software developer Web Game and Mobile App developer Software quality engineer, and graphics designer etc.

Award of Degree

For the award of Bachelor of Science (Computer Science) degree, a student must have

- Passed courses totaling at least 134 credit hours, including all core courses
- Earned CGPA of at least 2.00



Tentative Study Plan-Bachelor of Science (Computer Science)

Code	Title	Cr.Hrs	Prereq	
Semester-I				
SS1019	Understanding of Sirat-Un-Nabi PBUH	NC		
MT1003	Calculus and Analytical Geometry	3	0	
CL1000	Introduction To Information and Communication Technology	0	1	
CS1002	Programming Fundamentals	3	1	
SS1012	Functional English	2	1	
SS1013	Ideology and Constitution of Pakistan	2	0	
SS1007	Islamic Studies/Ethics	2	0	
	Total	**12**	**3**	
Semester-II				
SS1015	Pakistan Studies	2	0	
MTxxxx	Qualitative Reasoning I	3	0	
NSxxxx	Natural Science Elective	3	0	
CS1004	Object Oriented Programming	3	1	CS1002
SS1014	Expository Writing	2	1	
SS1021	Understanding of Holy Quran I	1	0	
SS1022	Understanding of Holy Quran II	1	0	
	Total	**15**	**2**	
Semester - III				
MTxxxx	Qualitative Reasoning II	3	0	
EE1005	Digital Logic Design	3	1	
CS2001	Data Structure	3	1	CS1004
MG4011	Entrepreneurship	3	0	
AHX21	Arts and Humanities Elective-I	2	0	
SSX31	SS Elective I	3	0	
	Total	**17**	**2**	
Semester - IV				
MT 1004	Linear Algebra	3	0	
EE2003	Computer Organization and Assembly Language	3	1	EE1005
CS2006	Operating Systems	3	1	CS2001
CS3004	Software Design and Analysis	3	0	CS1004
CS3005	Theory of Automata	3	0	
SS2043	Civics and Community Engagement	2	0	
	Total	**17**	**2**	
Semester -V				
CSX01	CS Elective I	3	0	
CS3001	Computer Networks	3	1	CS2001
CS2009	Design and Analysis of Algorithms	3	0	CS2001
IDSxxxx	Inter-Disciplinary Elective-I	3	0	
AI2002	Artificial Intelligence	3	1	
	Total	**15**	**2**	
Semester - VI				
CSX02	CS Elective II	3	0	
CSX03	CS Elective III	3	0	
CS2005	Database Systems	3	1	CS2001
CS3009	Software Engineering	3	0	CS3004
CS3002	Information Security	3	0	
	Total	**15**	**1**	
Semester - VII				
CSX04	CS Elective IV	3	0	
CSX05	CS Elective V	3	0	
IDSxxxx	Inter-Disciplinary Elective-II	3	0	
CS4091	Final Year Project-I	0	3	
CS4075	Cloud Computing	3	0	
	Total	**12**	**3**	
Semester - VIII				
CSX06	CS Elective VI	3	0	
CSX07	CS Elective VII	3	0	
CSX08	CS Elective VIII	3	0	
CS4092	Final Year Project-II	0	3	CS4091
CSxxxx	Professional Certification	3	0	
	Total	**12**	**3**	

CS2019	Computing Internship	0	1	

* Internship can be registered in any semester after third and including the eighth semester. The Internship credit hours and grade shall be used in the calculation of the CGPA of the completed degree. It will not be used in the determination of semester CGPA and merit position.

Eligibility for FYP-1: 103 CH

Domain	Cr. Hrs
General Education	34
Computing Core	54
Specialization Electives	24
Professional Certification	03
Interdisciplinary Courses	12
Computing Internship	01
FYP	06
Total	**134**

Bachelor of Science (Computer Science) (Specialization in Technopreneurship)

Program Mission

The Technopreneurship stream aims to equip students with a unique blend of technical, business, and entrepreneurial skills to create innovative tech ventures and drive digital transformation.

Why Technopreneurship?

Rapid advances in Artificial Intelligence, digital platforms, and emerging technologies are transforming industries worldwide. Organizations increasingly seek professionals who can bridge the gap between technology and business, while economies need innovators capable of creating new products, services, and ventures.

The Technopreneurship Specialization provides students with a unique opportunity to complement their Computer Science education with expertise in:

- Technology Innovation
- Product Development and Management
- Artificial Intelligence Applications
- Digital Business Models
- Technology Commercialization
- Venture Creation and Growth

This multidisciplinary approach prepares graduates to thrive in technology-driven organizations and entrepreneurial ecosystems.

Career Opportunities

Graduates of this program can explore various career paths including Tech Startup Founder/, Product Manager for Tech Products, Business Development Manager in tech companies, Innovation Consultant, and AI Product Specialist. These roles leverage the blend of tech and business skills gained through the program.

Award of Degree

The graduates will be awarded BS (CS) degree with specialization stream of Technopreneurship mentioned on their transcript. To fulfill the stream requirements, a student must have completed the eight specialized courses as outlined in the Technopreneurship curriculum. Following is the current list of prescribed courses. Other courses may be added as per requirements and market trends:

- Technology Venture Design & Innovation
- Software Product Management
- Digital Business Models & Platform Engineering
- Entrepreneurial Software Engineering
- Scalable Software Systems & Architecture
- AI for Business Applications
- Applied Deep Learning for Intelligent Systems
- Agentic AI Systems & Autonomous Applications
- Data-Driven Decision Making for Startups
- Growth Hacking & Agent based Marketing Technologies
- Tech Venture Finance
- Technology Business Development & Pre-Sales Engineering Software Metrics



Bachelor of Science (Cyber Security)

Program Mission

To provide theoretical knowledge and practical skills required for a professional career in computing and Cyber Security. The degree program follows Cyber Security in breadth covering core computing with a specialization in Cyber Security and its application within a code of ethics.

Career Opportunities

You may become Cyber Security specialist, Cyber Security analyst Cybercrime analyst, Cyber Security consultant, IT auditor, Information security manager/ administrator information assurance engineer, IT security consultant, digital forensics analyst, penetration and vulnerability tester etc.

Award of Degree

For the award of Bachelor of Science (Cyber Security) degree, a student must have

- Passed courses totaling at least 134 credit hours, including all core courses
- Earned CGPA of at least 2.00



Tentative Study Plan-Bachelor of Science (Cyber Security)

Code	Title	Cr. Hrs		Prereq
Semester-I				
NSxxxx	Natural Science Elective	3	0	
MT1003	Calculus and Analytical Geometry	3	0	
CL1000	Introduction To Information and Communication Technology	0	1	
CS1002	Programming Fundamentals	3	1	
SS1013	Ideology and Constitution of Pakistan	2	0	
SS1012	Functional English	2	1	
AHX21	Arts and Humanities Elective-I	2	0	
	Total	**15**	**3**	
Semester-II				
SS1019	Understanding of Sirat-Un-Nabi PBUH	NC		
MTxxxx	Qualitative Reasoning I	3	0	
EE1005	Digital Logic Design	3	1	
CS1004	Object Oriented Programming	3	1	CS1002
SS1007	Islamic Studies/Ethics	2	0	
SS1014	Expository Writing	2	1	
SS1015	Pakistan Studies	2	0	
	Total	**15**	**3**	
Semester - III				
SS2043	Civics and Community Engagement	2	0	
MTxxxx	Qualitative Reasoning II	3	0	
SSX31	SS Elective I	3	0	
CS2001	Data Structures	3	1	CS1004
CY2004	Cyber Security	3	1	
SS1021	Understanding of Holy Quran I	1	0	
SS1022	Understanding of Holy Quran II	1	0	
	Total	**16**	**2**	
Semester - IV				
MT1004	Linear Algebra	3	0	
EE2003	Computer Organization and Assembly Language	3	1	EE1005
CS3001	Computer Networks	3	1	CS2001
CS2004	Fundamentals of Software Engineering	3	0	
MG4011	Entrepreneurship	3	0	
	Total	**15**	**2**	
Semester -V				
CS2005	Database Systems	3	1	CS2001
CS2006	Operating Systems	3	1	CS2001
CY3008	Cryptography and Network Security	3	1	CS3001
CS2009	Design and Analysis of Algorithms	3	0	
	Total	**12**	**3**	
Semester - VI				
CYX01	CY Elective I	3	0	
AI2002	Artificial Intelligence	3	1	
CS3002	Information Security	3	0	
IDSxxxx	Inter-Disciplinary Elective-I	3	0	
CY3009	Digital Forensics and Incident Response	3	1	
	Total	**15**	**2**	
Semester - VII				
CYX02	CY Elective II	3	0	
CYX03	CY Elective III	3	0	
CSxxxx	Professional Certification	3	0	
AI4091	Final Year Project -I	0	3	
CY4001	Secure Software Design	3	1	CS2004
	Total	**12**	**4**	
Semester - VIII				
CYX04	CY Elective IV	3	0	
CY4056	Cloud and Application Security	3	1	
AI4092	Final Year Project - II	0	3	AI4091
CY4055	Vulnerability Assessment and Reverse Engg.	3	1	
	Total	**9**	**5**	
CS2019	Computing Internship	0	1	

* Internship can be registered in any semester after the third and including the eighth semester. The Internship credit hours and grade shall be used in the calculation of the CGPA of the completed degree. It will not be used in the determination of semester CGPA and merit position.

Eligibility for FYP-1: 103 CH

Domain	Cr. Hrs
General Education	34
Computing Core	45
Specialization Electives	32
Professional Certification	03
Interdisciplinary Courses	13
Computing Internship	01
FYP	06
Total	**134**

Bachelor of Science (Data Science)

Program Mission

To provide theoretical knowledge and practical skills required for a professional career in computing and Data Science. The degree program follows Data Science in breadth covering core computing with a specialization in Data Science and its application within a code of ethics.

Career Opportunities

You may become Bachelor of Science (Data Science) scientist business analyst, big data analyst social networks analyst, data engineering, decision scientist, data quality assurance experts, business analyst, business intelligence analyst, data consultant ,data associate, database developer software engineer, machine learning engineer etc.

Award of Degree

For the award of Bachelor of Science (Data Science) degree, a student must have

- Passed courses totaling at least 134 credit hours, including all core courses
- Earned CGPA of at least 2.00



Tentative Study Plan-Bachelor of Science (Data Science)

Code	Title	Cr. Hrs		Prereq
Semester-I				
SS1019	Understanding of Sirat-Un-Nabi PBUH	NC		
MT1003	Calculus and Analytical Geometry	3	0	
CL1000	Introduction to Information and Communication Technology	0	1	
CS1002	Programming Fundamentals	3	1	
SS1012	Functional English	2	1	
SS1013	Ideology and Constitution of Pakistan	2	0	
SS1007	Islamic Studies/Ethics	2	0	
	Total	**12**	**3**	
Semester-II				
SS1015	Pakistan Studies	2	0	
MTxxxx	Qualitative Reasoning I	3	0	
EE1005	Digital Logic Design	3	1	
CS1004	Object Oriented Programming	3	1	CS1002
SS1014	Expository Writing	2	1	
SS1021	Understanding of Holy Quran I	1	0	
SS1022	Understanding of Holy Quran II	1	0	
	Total	**15**	**3**	
Semester - III				
MTxxxx	Qualitative Reasoning II	3	0	
NSxxxx	Natural Science Elective	3	0	
CS2005	Data Structures	3	1	CS1004
DS2005	Introduction to Data Science	2	1	
SSX31	SS Elective I	3	0	
SS2043	Civics and Community Engagement	2	0	
	Total	**16**	**2**	
Semester - IV				
MT1004	Linear Algebra	3	0	
EE2003	Computer Organization and Assembly Language	3	1	EE1005
CS2005	Database Systems	3	1	CS2001
CS2004	Fundamentals of Software Engineering	3	0	
AHX21	Arts and Humanities Elective-I	2	0	
MG4011	Entrepreneurship	3	0	
	Total	**17**	**2**	
Semester -V				
AI2002	Artificial Intelligence	3	1	
CS2006	Operating Systems	3	1	CS2001
CS2009	Design and Analysis of Algorithms	3	0	CS2001
DS3001	Data Analysis and Visualization	3	0	DSxxxx
IDSxxxx	Inter-Disciplinary Elective - I	3	0	
	Total	**15**	**2**	
Semester - VI				
DSX01	DS Elective I	3	0	
DS3006	Computational Statistics	3	0	
CS3001	Computer Networks	3	0	CS2001
DS3004	Data Warehousing and Business Intelligence	3	1	CS2005
IDSxxxx	Inter-Disciplinary Elective-II	3	0	
	Total	**15**	**1**	
Semester - VII				
DSX02	DS Elective II	3	0	
CS3002	Information Security	3	0	
CS4075	Cloud Computing	3	0	
DS4091	Final Year Project -I	0	3	
DS3005	Data Mining	3	0	DSxxxx
	Total	**12**	**3**	
Semester - VIII				
DSX03	DS Elective III	3	0	
DSX04	DS Elective IV	3	0	
DSX05	DS Elective V	3	0	
DS4092	Final Year Project -II	0	3	DS4091
CSxxxx	Professional Certification	3	0	
	Total	**12**	**3**	
CS2019	Computing Internship	0	1	

* Internship can be registered in any semester after the third and including the eighth semester. The Internship credit hours and grade shall be used in the calculation of the CGPA of the completed degree. It will not be used in the determination of semester CGPA and merit position.

Eligibility for FYP-1: 103 CH

Domain	Cr. Hrs
General Education	34
Computing Core	47
Specialization Electives	31
Professional Certification	03
Interdisciplinary Courses	12
Computing Internship	01
FYP	06
Total	**134**

Bachelor of Science (Software Engineering)

Program Mission

To provide theoretical knowledge and practical skills required for a professional career in computing and Software Engineering. The degree program follows Software Engineering in breadth covering core computing with a specialization in Data Science and its application within a code of ethics.

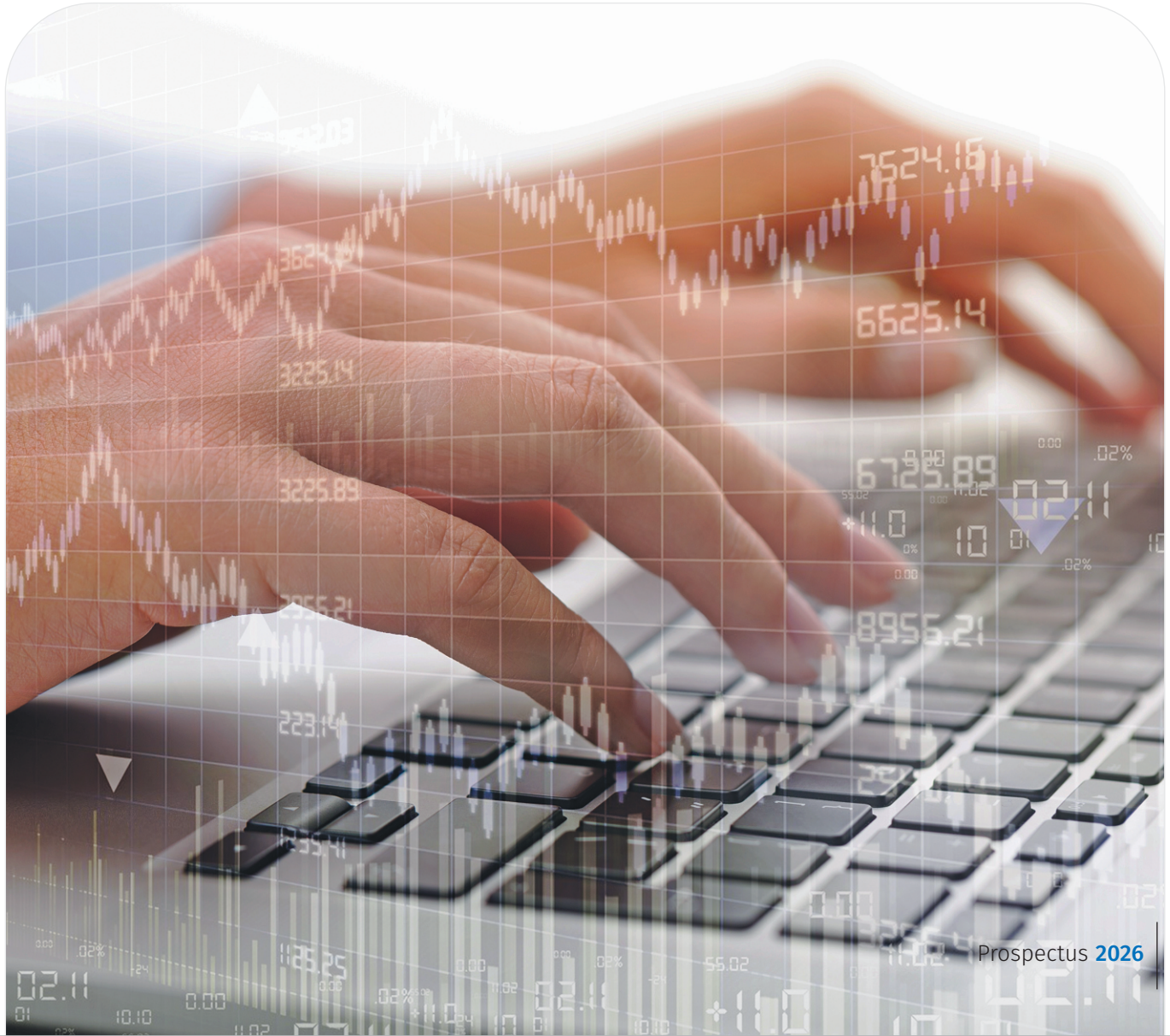
Career Opportunities

The graduates of Bachelor of Science (Software Engineering) Degree may become software quality assurance engineer, systems programmer Embedded Software Engineer, Software architect, chief technology officer, chief information officer user interface designer, information system manager or computer graphic designer etc.

Award of Degree

For the award of Bachelor of Science (Software Engineering) degree, a student must have

- Passed courses totaling at least 134 credit hours, including all core courses
- Earned CGPA of at least 2.00



Tentative Study Plan-Bachelor of Science (Software Engineering)

Code	Title	Cr. Hrs		Prereq
Semester-I				
NSxxxx	Natural Science Elective	3	0	
MT1003	Calculus and Analytical Geometry	3	0	
CL1000	Intro.to Info. And Communication Technology	0	1	
CS1002	Programming Fundamentals	3	1	
SS1013	Ideology and Constitution of Pakistan	2	0	
SS1012	Functional English	2	1	
AHX21	Arts & Humanities Elective	2	0	
	Total	**15**	**3**	
Semester-II				
SS1015	Pakistan Studies	2	0	
MTxxxx	Qualitative Reasoning I	3	0	
EE1005	Digital Logic Design	3	1	
CS1004	Object Oriented Programming	3	1	CS1002
SS1021	Understanding of Holy Quran I	1	0	
SS1014	Expository Writing	2	1	
SS1022	Understanding of Holy Quran II	1	0	
	Total	**15**	**3**	
Semester - III				
SS1019	Understanding of Sirat-Un-Nabi PBUH	NC		
MTxxxx	Qualitative Reasoning II	3	0	
EE2003	Computer Organization and Assembly Language	3	1	EE1005
CS2001	Data Structures	3	1	CS1004
SS2043	Civics and Community Engagement	2	0	
SE1001	Introduction to Software Engineering	3	0	
SS1007	Islamic Studies/Ethics	2	0	
	Total	**16**	**2**	
Semester - IV				
MT1004	Linear Algebra	3	0	
CS2006	Operating Systems	3	1	CS2001
MG4011	Entrepreneurship	3	0	
SE2001	Software Requirements Engineering	3	0	SE1001
SSX31	SS Elective I	3	0	
	Total	**15**	**1**	
Semester -V				
AI2002	Artificial Intelligence	3	1	
CS3001	Computer Networks	3	1	CS2001
CS2009	Design and Analysis of Algorithms	3	0	CS2001
SE2002	Software Design and Architecture	3	0	CS1004
IDSxxxx	Inter-Disciplinary Elective-I	3	0	
	Total	**15**	**2**	
Semester - VI				
SEX01	SE Elective I	3	0	
CS3002	Information Security	3	0	
CS2005	Database Systems	3	1	CS2001
SE3005	Software Construction and Development	3	0	SE2002
CS3002	Software Quality Engineering	3	0	SE1001
	Total	**15**	**1**	
Semester - VII				
SEX02	SE Elective II	3	0	
SEX03	SE Elective III	3	0	
CS4075	Cloud Computing	3	0	
SE4091	Final Year Project - I	0	3	
CSxxxx	Professional Certification	3	0	
	Total	**12**	**3**	
Semester - VIII				
SEX04	SE Elective IV	3	0	
SEX05	SE Elective V	3	0	
IDSxxxx	Inter-Disciplinary Elective-II	3	0	
SE4092	Final Year Project-II	0	3	SE4091
SE4092	Fundamentals of Software Project Management	3	0	SE2001
	Total	**12**	**3**	

CS2019	Computing Internship	0	1	

* Internship can be registered in any semester after the third and including the eighth semester. The Internship credit hours and grade shall be used in the calculation of the CGPA of the completed degree. It will not be used in the determination of semester CGPA and merit position.

Eligibility for FYP-1: 103 CH

Domain	Cr. Hrs
General Education	34
Computing Core	48
Specialization Electives	30
Professional Certification	03
Interdisciplinary Courses	12
Computing Internship	01
FYP	06
Total	**134**

MS Admission Test, Eligibility and Selection Criteria

Degrees		Computing Master of Science (Artificial Intelligence) Master of Science (Cyber Security) Master of Science (Computer Science) Master of Science (Data Science) Master of Science (Software Engineering)
Admission Test	Applicant must select **only one** out of the two admission test options	HAT-1* **OR** NU Admission Test
Eligibility	1	Degree earned in relevant subject of Computing domain including BE (Computer Engineering)/ (Software Engineering) from a recognized University after 16 years of education Minimum 60% marks or CGPA of at least 2.00 on a scale of 4.00
Selection Criteria	1	Weightage of Admission Test marks: 50%
	2	Weightage of past academic record (Bachelor): 50%

Degree		Master of Science (Software Project Management)
Admission Test	Applicant must select **only one** out of the two admission test options	HAT-1* **OR** NU Admission Test
Eligibility	1	Degree earned in relevant subject of Science from a recognized University after 16 years of education Minimum 60% marks or CGPA of at least 2.00 on a scale of 4.00 **AND** 2 years of Post Graduation experience related to Software Development Lifecycle (SDLC) activities gained as a software engineer (or similar role e.g., quality assurance engineer, etc.) in a professional software development firm.
Selection Criteria	1	Weightage of Admission Test marks: 50%
	2	Weightage of past academic record (Bachelor): 50%

Degree		Master of Science (Applied Artificial Intelligence in Health Sciences)

MS Admission Test, Eligibility and Selection Criteria

Admission Test	Applicant must select **only one** out of the two admission test options	HAT-1* **OR** NU Admission Test

Eligibility	1	Degree earned in relevant discipline[1] from a recognized University after minimum 16 years of education [1]MBBS, DBS, Pharm-D, DPT, BS Nursing, BS Medical Laboratory Technology, BS Public Health, BS Biotechnology and other similar fields [1]BS Biology, Biochemistry, Microbiology, Genetics, Environmental Sciences and other similar fields	Minimum 60% marks or CGPA of at least 2.00 on a scale of 4.00

Selection Criteria	1	Weightage of Admission Test marks	50%
	2	Weightage of past academic record (Bachelor)	50%
Degree			Master of Science (Computational Intelligence)

Admission Test	Applicant must select **only one** out of the two admission test options HAT-1* **OR** NU Admission Test

Eligibility	1	BS degree in Engineering fields (other than Computer Engineering and Software Engineering) i.e. Telecom Engineering, Electrical Engineering, Electronics Engineering, Mechanical Engineering, Bio-Medical Engineering and other similar fields BS (Mathematics), BS (Applied Mathematics), BS (Applied Physics), BS (Statistics) and other similar fields	Minimum 60% marks or CGPA of at least 2.00 on a scale of 4.00

Selection Criteria	1	Weightage of Admission Test marks	50%
	2	Weightage of past academic record (Bachelor)	50%

* For details, please visit http://etc.hec.gov.pk

NOTE: All documents/transcripts will be checked at the time of admission. Any incorrect/false information submitted by the applicant or any attempt to hide information will lead to disqualification of the candidate for admission.

Master of Science (Applied Artificial Intelligence in Health Sciences)

Program Mission

The mission of the Master of Science (Applied Artificial Intelligence in Health Sciences) program is to equip students with cutting-edge skills in artificial intelligence, machine learning, and data science, specifically tailored for healthcare applications. The program aims to bridge the gap between technical AI expertise and healthcare domain knowledge, enabling graduates to drive innovation in medical research, clinical decision-making, and healthcare delivery.

Career Opportunities

Graduates of this program can pursue a range of exciting careers at the intersection of AI and healthcare. They can work as AI/ML Engineers in healthcare tech companies, developing intelligent systems for disease diagnosis, personalized treatment planning, or predictive analytics. They can also serve as Data Scientists in hospitals or research institutions, applying AI to unlock insights from medical data. Other potential roles include Healthcare Consultant (AI-driven solutions), Clinical Data Analyst, AI Ethics Specialist in healthcare, or Researcher in AI-driven healthcare innovation. With the growing need for AI expertise in healthcare, graduates can drive impactful change in this rapidly evolving field.

Program Learning Outcomes

1. Introduce medical professionals with AI technologies to help make healthcare related decisions
2. Make medical professionals proficient in using AI for enhanced healthcare outcomes
3. Make students with computing or related background familiar with the domain of health sciences
4. Enable the students with computing background to apply their skills to enhance healthcare outcomes

Award of Degree

For the award of Master of Science (Applied Artificial Intelligence in Health Sciences) degree, a student must have

- Passed courses totaling at least 41 credit hours, including core courses
- Earned CGPA of at least 2.50

Tentative Study Plan-Master of Science (Applied Artificial Intelligence in Health Sciences)

Code	Title	Cr. Hrs	
Semester-I			
	Foundation of AI in Health Sciences	3	0
	Foundations of Health Information Systems	3	0
	Programming for Digital Health Application	3	0
SS1021	Understanding of Holy Quran – I	1	0
	Total	**10**	
Semester-II			
	Research Methodology	3	0
	Health Data Modeling and Predictive Analytics	3	0
	Ethics in AI and Health Sciences	3	0
SS1022	Understanding of Holy Quran – II	1	0
	Total	**10**	**0**
Semester-III			
	Elective – I	3	0
	Elective – II	3	0
	Thesis –I/MS Project I	0	3
	Statistical Methods for Health Data Analysis	3	0
	Total	**9**	**3**
Semester-IV			
	Elective - III	3	0
	Elective – IV	3	0
	Thesis – II/MS Project II	0	3
	Total	**6**	**3**
	G. Total	**41**	

Registration in 'MS Thesis-I/Project-I/Practicum-I' shall be allowed provided the student has

a) Earned at least 18 CH
b) Passed the 'Research Methodology course' AND
c) CGPA is equal to or more than 2.50

Master of Science (Artificial Intelligence)

Program Mission

To produce competent and well – round professionals capable of Applying Master of Science (Artificial Intelligence) and Data Science to solve real - life problems.

Career Opportunities

The Master of Science (Artificial Intelligence) comprises of both course work as well as research components. There are three core courses aimed at strengthening the understanding and competence of students in Artificial Intelligence fundamentals. The university expects its Master of Science (Artificial Intelligence) graduates to pursue careers as Al experts in either academia or industry.

Program Learning Outcomes

1. Create autonomous system/agents for solving complex real – world problems.
2. Apply the tools and techniques to make a strategically important impact on industry and society.
3. Pursue doctoral studies within the domain of Artificial Intelligence at top – ranked institutes of the world.
4. Take a leadership role in both AI academia and industry.
5. Students shall have the ability to make effective oral and written presentations on technical topics.

The following three courses or equivalent are prerequisites for starting Master of Science (Artificial Intelligence) coursework:

1. Object oriented programming
2. Data Structures and Algorithms
3. Artificial Intelligence

A student selected for admission may be asked to study these courses. The Admission Committee may assign up to four deficiency courses. These must be passed in the first two semesters. Deficiency courses shall be determined by the Graduate Studies Committee, before admitting the student. Fee is not charged for studying deficiency courses. A student may be allowed to take the Mathematical Foundation of AI course Along with the deficiency courses.

Award of Degree

For the award of Master of Science (Artificial Intelligence) degree, a student must have

- Passed courses totaling at least 32 credit hours, including core courses
- Earned CGPA of at least 2.50

Tentative Study Plan-Master of Science (Artificial Intelligence)

Code	Title	Cr.Hrs	
Semester-I			
AI5001	Advanced Artificial Intelligence	3	0
AI5002	Mathematical Foundation of Artificial Intelligence	3	0
CS4002	Applied Programming[1]	NC	
XXXX	General Elective (Computing/Management Sciences)	3	0
SS1021	Understanding of Holy Quran - I	1	0
	Total	**10**	**0**
Semester-II			
AI5003	Advanced Machine Learning	3	0
CS5001	Research Methodology	3	0
XXXX	Computing Elective-I	3	0
SS1022	Understanding of Holy Quran - II	1	0
	Total	**10**	**0**
Semester-III			
XXXX	Computing Elective-II	3	0
AIxxxx	MS Thesis-I/MS Project-I	0	3
	Total	**3**	**3**
Semester-IV			
XXXX	Computing Elective-III	3	0
AIxxxx	MS Thesis-II/MS Project-II	0	3
	Total	**3**	**3**
	G. Total	**32**	

NOTE: [1]Applied Programming is an NC course, which must be cleared during the first semester. The course may be exempted based on good performance in admission test.

Registration in 'MS Thesis-I/Project-I' shall be allowed provided the student has

a) Earned at least 15 CH
b) Passed the 'Research Methodology course' AND
c) CGPA is equal to or more than 2.50

Master of Science (Computational Intelligence)

Program Mission

The mission of the Master of Science (Computational Intelligence) is to equip students with advanced theoretical knowledge and practical skills in machine learning, deep learning, and computational intelligence techniques. The program aims to foster innovative research, ethical problem-solving, and interdisciplinary collaboration, preparing graduates to address complex computational challenges in industry and academia.

Career Opportunities

1. To prepare students to design and manage complex computational intelligence (CI) projects by formulating strategies and handling uncertainties in intelligent systems.
2. To guide students in identifying, documenting, and negotiating change management for CI project scopes to achieve optimal outcomes.
3. To prepare students for robust configuration management of large-scale intelligent software environments.
4. To empower students to prioritize and schedule CI solution releases by performing precise resource and performance estimation.

To train students to detect and resolve conflicts that emerge during the life cycle of CI projects, ensuring smooth execution.

Program Learning Outcomes

1. Students will demonstrate expertise in designing, implementing, and evaluating large-scale computational intelligence projects or conducting advanced CI research.
2. Students will exhibit strong analytical, communication, and project-forecasting skills to ensure quality implementation and successful completion of CI projects.
3. Students will master industry-adopted standards for CI systems and be able to calculate, analyze, and optimize performance metrics.
4. Students will show effective leadership and teamwork capabilities in managing CI project stakeholders and driving innovation.

Program Structure

Foundation courses have been included which will allow students to acquire skills in the computing field. The program is spanned over 4 semesters and included 44 CH:

Award of Degree

For the award of Master of Science (Computational Intelligence) degree, a student must have

- Passed courses totaling at least 44 credit hours, including core courses
- Earned CGPA of at least 2.50

Tentative Study Plan-Master of Science (Computational Intelligence)

Code	Title	Cr.Hrs	
	Semester-I		
	Programming for AI (Python)	3	0
	Data Structures & Algorithms	3	0
	Mathematics for Computational Intelligence	3	0
	Database and Operating Systems	3	0
	Total	**12**	**0**
	Semester-II		
	Advanced Machine Learning	3	0
	Applied Computational Intelligence	3	0
	Research Methodology	3	0
SS1022	Understanding of Holy Quran – I	1	0
	Total	**10**	**0**
	Semester-III		
	Deep Learning	3	0
	Elective – I	3	
	Elective – II	3	
	Thesis – 1		3
	Total	**9**	**3**
	Semester-IV		
	Elective III	3	0
	Elective – IV	3	3
	Thesis II		3
	Understanding of Holy Quran – II	1	
	Total	7	3
	G. Total	**44**	

Registration in 'MS Thesis-I/Project-I/Practicum-I' shall be allowed provided the student has

a) Earned at least 21 CH
b) Passed the 'Research Methodology course' AND
c) CGPA is equal to or more than 2.50

Master of Science (Computer Science)

Program Mission

Master of Science (Computer Science) course work is tailored according to the international standards to nurture the capacity building and original thinking in our postgraduates for lifelong – learning. Our goal is to produce such postgraduates that are highly sought after by many national and international IT organizations and can pursue their further studies in national and international universities.

Career Opportunities

1. To produce computer scientists who fulfil the requirements of the industry's software needs.
2. To fill the vacuum present, due to lack of computer science and technology education in the local region and beyond.
3. To provide a broad understanding of the computer science field by introducing innovative concepts, theories and techniques.
4. The sharpen communication skills in students and enable them to produce well – organized reports.
5. To provide formal foundations for further higher education.
6. To develop highly skilled researchers and scholars who may pursue in the field of computer sciences.

Program Learning Outcomes

1. Students will possess advanced knowledge of the computer science field.
2. Students will be able to think creatively and critically; to solve non – trivial problems.
3. Students will be able to use computing knowledge to develop efficient solutions for real – life problems.
4. Students will be able to design solutions and can conduct research – related activities.
5. Students shall have the ability to make effective oral and written presentations on technical topics.

The following core courses are recommended to be completed before entering the Master of Science (Computer Science) program.

1. Computer Programming
2. Data Structures
3. Operating Systems
4. Database Systems
5. Design and Analysis of Algorithms
6. Computer Networks
7. Theory of Automata
8. Software Engineering

A student selected for admission having deficiency in the above stated courses may be required to study a maximum of FOUR courses, which must be passed in the first two semesters. Deficiency courses shall be determined by the Graduate Studies Committee, before admitting the student. Fee is not charged for studying deficiency courses. A student May be allowed to take Research Methods and Applied Programming Course along with Deficiency Courses. If a student only has a deficiency in Theory of Automata, then the student cannot take theory of Programming Languages and Advanced Theory of Computation. Other courses in MS may be allowed to take. If a student has deficiency in Programming Fundamentals, Object Oriented Programming, and Algorithms, then it may be covered through the Applied Programming Course.

Award of Degree

For the award of Master of Science (Computer Science) degree, a student must have

- Passed courses totaling at least 32 credit hours, including core courses
- Earned CGPA of at least 2.50



Tentative Study Plan-Master of Science (Computer Science)

Code	Title	Cr.Hrs	
Semester-I			
CS4002	Applied Programming[1]	NC	
SS1021	Understanding of Holy Quran – I	1	0
	Core Course-I	3	0
	Core Course-II	3	0
	Core Course-III	3	0
	Total	**10**	**0**
Semester-II			
CS5001	Research Methodology	3	0
SS1022	Understanding of Holy Quran – II	1	0
	Computing Elective-I	3	0
	Computing Elective-II	3	0
	Total	**10**	**0**
Semester-III			
	Computing Elective-III	3	0
	MS Thesis-I/MS Project-I	0	3
	Total	**3**	**3**
Semester-IV			
	Computing Elective-IV	3	0
	MS Thesis-II/MS Project-II	0	3
	Total	**3**	**3**
	G. Total	**32**	

NOTE: [1]Applied Programming is an NC course, which must be cleared during the first semester. The course may be exempted based on good performance in admission test.

Registration in 'MS Thesis-I/Project-I' shall be allowed provided the student has

a) Earned at least 15 CH
b) Passed the 'Research Methodology course' AND
c) CGPA is equal to or more than 2.50

Core Courses for Master of Science (Computer Science)

CS5001 Advanced Analysis of Algorithms
CS5005 Advanced Operating System
CS5007 Advanced Theory of Computation
CS5006 Theory of Programming Languages

Master of Science (Cyber Security)

Program Mission

Mission of the Master of Science (Cyber Security) program is to develop knowledgeable professionals with the skills to detect, respond to and prevent cyber-attacks in organizations and protect national security. With a graduate degree in cyber security, you will build a comprehensive and strong foundation in the technical skills you need to keep your organization's computer systems, networks and data safe, secure and private. The program has been designed to prepare students with both theoretical and practical knowledge and enhance their research skills in these emerging areas.

Career Opportunities

This program prepares students to meet challenges posed by a highly inter – connected world. Mobile Computing, Sensor Networks and other emerging technologies require a thorough understanding of related technologies. This program provides understanding and exposure to the latest trends and technologies in this flied.

Program Learning Outcomes

1. To equip students so that they able to play an effective role in international efforts to make cyberspace safe, secure and reliable for the national and international community.
2. Prepare the students to learn the technical aspects of information security by understanding current threats and vulnerabilities and examining ways of developing effective countermeasures.
3. To produce skilled people who are able to contribute towards need of protecting national information infrastructure from all kinds of threats.
4. Prepare students who can understand the implications of handling data in terms of data security.
5. Students shall have the ability to make effective oral and written presentations on technical topics.

Award of Degree

For the award of Master of Science (Cyber Security) degree, a student must have

- Passed courses totaling at least 32 credit hours, including core courses
- Earned CGPA of at least 2.50

Tentative Study Plan-Master of Science (Cyber Security)

Code	Title	Cr.Hrs	
	Semester-I		
CS5001	Research Methodology	3	0
SS1021	Understanding of Holy Quran – I	1	0
	Core Course-I	3	0
	Core Course-II	3	0
	Applied Programming[1]	NC	
	Total	**10**	**0**
	Semester-II		
SS1022	Understanding of Holy Quran – II	1	0
	Core Course-III	3	0
	Elective-I	3	0
	Elective-II	3	0
	Total	**10**	**0**
	Semester-III		
	Elective-III	3	0
AI	MS Thesis-I/MS Project-I	0	3
	Total	**3**	**3**
	Semester-IV		
	Elective-IV	3	0
	MS Thesis-II/MS Project-II	0	3
	Total	**3**	**3**
	G. Total	**32**	

NOTE: [1]Applied Programming is an NC course, which must be cleared during the first semester. The course may be exempted based on good performance in admission test.

Registration in 'Thesis-I/Project-I' shall be allowed provided the student has

a) Earned at least 15 credits;
b) Passed the 'Research Methodology' course; AND
c) CGPA is equal to or more than 2.50

Core Courses

CY 5005	Applied Information Security
CY 5006	Advanced Network Security
CY 5004	Secure Systems Design

Deficiency Courses: For interdisciplinary admissions, following (undergraduate level) deficiency courses may be considered:

CY xxx Cyber Security
CY xxx Computer Networks
CS xxx Software engineering

Master of Science (Data Science)

Program Mission

Master of Science (Data Science) course work is tailored according to the international standards to nurture the capacity building and original thinking in our postgraduates for lifelong – learning. Our goal is to produce such postgraduates that are highly sought after by national and international organizations and can pursue further studies in national and international universities.

Career Opportunities

This program equips students to transform data into actionable insights that enable one to make complex business decisions. Students will able to process large and complex data sets through computational, statistical, and machine learning techniques. This program will provide exposure to the latest trends and technologies in this field thus producing the man – power to fuel national and international emerging market of data science products.

1. To produce computer scientists who fulfil the requirements of the national and international market of data science products.
2. To equip students to transform data into actionable insights that enable them to make complex business decisions.
3. To enable students to apply computational. Statistical and machine learning techniques to process large and complex data sets.
4. To enable students to conceive and execute data science projects.

Program Learning Outcomes

The outcomes of the Master of Science (Data Science) program are:

1. To equip students to transform data into actionable insights to make complex business decisions.
2. To enable students, understand and analyze a problem and arrive at commutable solutions.
3. To expose students to the set of technologies that match those solutions.
4. To gain Hands – on experience on data-centric tools for statistical analysis. Visualizations. And big data applications at the same rigorous scale as in a practical data science project.
5. To understand the implications of handling data in terms of data security and business ethics.
6. Students shall have the ability to make effective oral and written presentations on technical topics.

The following two courses or equivalent are prerequisites for starting Master of Science(Data Science) coursework

1. Object oriented programming
2. Data Structures and Algorithms

A student selected for admission having deficiency in the above stated courses may be required to study them. However, these must be passed in the first two semesters. Deficiency courses shall be determined by the Graduate Studies Committee, before admitting the student. Fee is not charged for studying deficiency courses. A student may take the States and Mathematical Data Science Course along with the deficiency courses.

Award of Degree

For the award of Master of Science (Data Science) degree, a student must have

- Passed courses totaling at least 32 credit hours, including core courses
- Earned CGPA of at least 2.50





Tentative Study Plan-Master of Science (Data Science)

Code	Title	Cr.Hrs	
	Semester-I		
CS4002	Applied Programming[1]	NC	
DS5002	Data Science Tools and Techniques	3	0
DS5003	Statistics and Mathematics Methods for Data Science	3	0
SS1021	Understanding of Holy Quran - I	1	0
	Specialized Core-I	3	0
	Total	**10**	**0**
	Semester-II		
CS5001	Research Methodology	3	0
DS5004	Machine Learning for Data Science	3	0
SS1022	Understanding of Holy Quran - II	1	0
	Specialized Core-II	3	0
	Total	**10**	**0**
	Semester-III		
	Computing Elective-I	3	0
	MS Thesis-I/MS Project-I	0	3
	Total	**3**	**3**
	Semester-IV		
	Computing Elective-II	3	0
	MS Thesis-II/MS Project-II	0	3
	Total	**3**	**3**
	G. Total	**32**	

NOTE:[1]Applied Programming is an NC course, which must be cleared during the first semester. The course may be exempted based on good performance in admission test.

Registration in 'MS Thesis-I/Project-I' shall be allowed provided the student has

a) Earned at least 15 CH
b) Passed the 'Research Methodology course' AND
c) CGPA is equal to or more than 2.50

Specialized Core Courses (Choose 2)

DS 5001 Advance Big Data Analytics (3)
DS 5005 Distributed Data Processing (3)
DS 5006 Deep Learning (3)
DS 5007 Natural Language Processing (3)

Master of Science (Software Engineering)

Program Mission

The mission is to produce future software designers and innovators to shape the future of the nation through high-quality education, research, and Technopreneurship. To provide students with state-of-the-art knowledge of the field and to develop their practical skills to meet current industrial requirements, as well as enhancing their ability to adapt to the new developments of tomorrow's technology.

Career Opportunities

1. Prepare students who can critically apply concepts, theories, and practices to provide creative solutions to complex computing problems.
2. Prepare students to effectively communicate their ideas in written and electronic form and prepare them to work collaboratively in a team environment.
3. Prepare students with a theoretical background of software engineering concepts, and train them on applied research of the field, needed to secure a doctorate position in the future
4. Prepare students to join a dynamic and divers career position in a computing-related field, and to maintain a growing career in a rapidly evolving field.
5. Prepare students to join a dynamic and diverse career position in a computing-related field, and to maintain a growing career in a rapidly evolving field.
6. Theories and practices to provide creative solutions to complex computing problems.

To respond to the current and emerging industrial needs utilizing modern trends for building complex software systems.

Program Learning Outcomes

1. To have the ability to design systems, components, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
2. To understand the impact of engineering solutions in a global, economic, environmental, and societal context.
3. To use the techniques, skills, and modern software engineering tools necessary for developing reliant software
4. To demonstrate an understanding of the applied current theories, models, and techniques that provide a basis for the software lifecycle
5. To communicate effectively with different audiences.
6. To change the world for the better through research and development in areas like healthcare, transportation, education, etc.

The following gcore courses are recommended to be completed before entering the Master of Science (Software Engineering) program.

1. Object Oriented Programming
2. Data Structures
3. Software Engineering
4. Software Design and Analysis
5. Software Quality Engineering

A student selected for admission having deficiency in the above stated courses may be required to study maximum of FOUR courses. These courses must be passed in the first two semesters. Deficiency courses shall be determined by the Graduate Studies Committee, before admitting the student. Fee is not charged for studying deficiency courses.

Award of Degree

For the award of Master of Science (Software Engineering) degree, a student must have

- Passed courses totaling at least 32 credit hours, including core courses
- Earned CGPA of at least 2.50





Tentative Study Plan-Master of Science (Software Engineering)

Code	Title	Cr.Hrs	
	Semester-I		
CS4002	Applied Programming[1]	NC	
SS1021	Understanding of Holy Quran - I	1	0
SE5001	Advance Software Requirement Engineering	3	0
SE5002	Advance Quality Assurance	3	0
	Computing Elective-I	3	0
	Total	**10**	**0**
	Semester-II		
CS5001	Research Methodology	3	0
SE5003	Advance Software Architecture	3	0
SS1022	Understanding of Holy Quran - II	1	0
	Computing Elective-II	3	0
	Total	**10**	**0**
	Semester-III		
	Computing Elective-III	3	0
	MS Thesis-I/MS Project-I	0	3
	Total	**3**	**3**
	Semester-IV		
	Computing Elective-IV	3	0
	MS Thesis-II/MS Project-II	0	3
	Total	**3**	**3**
	G. Total	**32**	

NOTE:[1]Applied Programming is an NC course, which must be cleared during the first semester. The course may be exempted based on good performance in admission test.

Registration in 'MS Thesis-I/Project-I' shall be allowed provided the student has

a) Earned at least 15 CH
b) Passed the 'Research Methodology course' AND
c) CGPA is equal to or more than 2.50



Master of Science (Software Project Management)

Program Mission

To develop students' skills necessary to manage Master of Science (Software Project Management) coupling both with its theoretical and practical aspects that strengthens them to acquire leadership poisons in the software industry whereby they can become agents of change and improvement.

Career Opportunities

1. To prepare the students to assess and mange risks by developing strategies that handle them.
2. To enable students to gather and manage requirements and provide effective coordination between relevant stakeholders.
3. To help students in identifying, documenting and analyzing change managements to agree on changes to scope.
4. To prepare students for configuration management of large scale software.
5. To enable students to identify, prioritize and agree on software releases by preparing release schedules by estimating software costs and resource requirements.
6. To acquire students with the ability to identify and resolve conflicts the may arise during the management of software projects.

Inculcate a sense of ethics, responsibilities and leadership.

Program Learning Outcomes

1. Students will be able to exhibit expertise in managing large scale projects as their final year project or conduct research related to software project management.
2. Students will demonstrate analytical and communication skills while exhaling project resource forecasting abilities and quality implementing for successful completion of the project.
3. Students will develop skills to understand and implement industry adopted standards and calculate and examine project and process metrics.
4. Demonstrate effective organizational leadership skills concerning project teams and stakeholders.

Award of Degree

For the award of Master of Science (Software Project Management) degree, a student must have

- Passed courses totaling at least 32 credit hours, including core courses
- Earned CGPA of at least 2.50

Tentative Study Plan-Master of Science (Software Project Management)

Code	Title	Cr.Hrs	
Semester-I			
SS1021	Understanding of Holy Quran-I	1	0
CS5001	Research Methodology	3	0
CS5015	Software Project Management	3	0
MG4006	Management and Organizational Behavior	3	0
	Total	**10**	**0**
Semester-II			
SS1022	Understanding of Holy Quran-II	1	0
CS5002	Software Quality Assurance	3	0
CS5003	Software Process Management and Metrics	3	0
CS5004	Requirements Engineering	3	0
	Total	**10**	**0**
Semester-III			
	Computing Elective	3	0
	MS Thesis-I/MS Project-I/Practicum-I	0	3
	Total	**3**	**3**
Semester-IV			
	General Elective-I (Computing/Management Sciences)	3	0
	MS Thesis-II/MS Project-II/Practicum-II	0	3
	Total	**3**	**3**
	G. Total	**32**	

Registration in 'MS Thesis-I/Project-I/Practicum-I' shall be allowed provided the student has

a) Earned at least 15 CH
b) Passed the 'Research Methodology course' AND
c) CGPA is equal to or more than 2.50