BS (Hons) - IT
[Bachelor of Studies (Honours) Information Technology]

ELIGIBILITY CRITERIA:

The candidate has passed the Intermediate or equivalent examination with Mathematics securing at least 50% marks in aggregate from an institution recognized by the Higher Education Commission of Pakistan / Inter Board Committee of Chairmen, Pakistan.
*Equivalency certificate by IBCC will be required in case of education from some other country or system.
• The students who have not studied Mathematics at intermediate level have to pass deficiency courses of Mathematics (06 credits) in first two semesters.

PROGRAM STRUCTURE:

(Program is equivalent to 16 years of education)

Minimum Duration: 4 years; through 8 regular semesters (Fall/Spring)

Minimum Credits: 132

STRUCTURE A- SINGLE MAJOR

The breakup of these 132 Credits is as follows:

Category	Credits	No. of Courses
General Education	39	13
Distribution Courses	39	13
Major	54	18
Internship	Non Credit (compulsory)	-
PLL	Non Credit (compulsory)	-

STRUCTURE B- ONE MAJOR + ONE MINO R

The breakup of these 132 Credits is as follows:

Category	Credits	No. of Courses
General Education	39	13
Distribution Courses	30	10
Major	51	17
Minor	12	4
Internship	Non Credit (compulsory)	-
PLL	Non Credit (compulsory)	-

STRUCTURE C- DOUBLE MAJOR

The breakup of these 132 Credits is as follows:

Category	Credits	No. of Courses
General Education	39	13
Distribution Courses	15	5
Major 1	39	13
Major 2	39	13
Internship	Non Credit (compulsory)	-
PLL	Non Credit (compulsory)	-

STRUCTURE D- SINGLE MAJOR + TWO MINOR

The breakup of these 132 Credits is as follows:

Category	Credits	No. of Courses
General Education	39	13
Distribution Courses	18	6
Major	45	15
Minor 1	15	5
Minor 2	15	5
Internship	Non Credit (compulsory)	-
PLL	Non Credit (compulsory)	-

STRUCTURE E- ASSOCIATE DEGREE (60 CREDIT HOURS)

The breakup of these 60 Credits is as follows:

Category	Credits	No. of Courses
General Education	39	13
Distribution Courses	6	2
Major	15	5

GENERAL EDUCATION - COMPULSORY COURSES   *Total: 39 Credits*

Category	Courses	Code	Title of Course	Credits
Arts & Humanities	2	GENL151	10. Functional Urdu	2
		GENL252	11. Translation of Holy Quran (*for Muslim Students*) **OR**	4
		GENL253	Principles of Ethics (*for Non-Muslim Students*)	4
		GENL324	12. Sports and Exercise Physiology	3
		GENL434	13. Short Film and Drama Production	3
		GENL435	14. Cultural Heritage in Pakistan	3
Natural Sciences	2	GENL121	10. Environmental Sciences	3
		GENL122	11. Fundamentals of Applied Physics	3
		GENL123	12. Every Day Science	3
		GENL124	13. Geography and Natural Resources	3
		GENL125	14. Introduction to Ecology	3
Social Sciences	2	GENL101	12. Introduction to Political Science	3
		GENL102	13. Introduction to International Relations	3
		GENL103	14. Introduction to Sociology	3
		GENL131	15. Population Studies	3
		GENL132	16. Legal Systems of Pakistan	3
		GENL231	17. Gender Studies	3
Expository Writing	3	GENL161	7. Expository 1: Functional Composition & Comprehension	3
		GENL262	8. Expository II: Communication and Academic Writing	3

		GENL263	9. Exposition III: Technical writing & Presentation Skills	3
Quantitative Reasoning	2	GENL111	12. Elements of Statistics & Probability	3
		GENL112	13. General Mathematics	3
		GENL113	14. Introduction to Mathematical Reasoning	3
		GENL114	15. Introduction to Information and Communication Technology	3+1
		GENL115	16. Logic and Critical Thinking	3
Islamiyat / Moral Values	1	GENL141	3. Fundamentals of Islamic Studies (*For Muslim Students*) **OR**	3
		GENL142	Moral Values (*for Non-Muslim Students*)	3
Pakistan Studies	1	GENL143	Pakistan Studies	3

LIST OF DISTRIBUTION COURSES

No. of Distribution courses for Single Major: 13 courses (39 credits)

No. of Distribution courses for Double Major: 5 courses (15 credits)

No. of Distribution courses for Single Major and One Minor: 10 courses (30 credits)

No. of Distribution courses for Single Major and Two Minors: 6 courses (18 credits)

No. of Distribution courses for Associate Degree Program: 2 courses (6 credits)

Sr#	Code	Title of Course	Credits
		Political Science	
1	PSIR-432	Politics of South Asia	3
2	PSIR-302	Comparative Political Systems of Developing States	3
3	PSIR-319	Contemporary Political Ideologies	3
4	PSIR-334	Major Issues in Pakistan's Politics	3
5	PSIR- 221	Introduction to Local Government System	3
		International Relations	
1	PSIR-442	Contemporary Regional and International Issues	3
2	PSIR-432	Politics of South Asia	3
3	PSIR- 431	Major Issues of Muslim World	3
4	PSIR-322	Conflict and Conflict Resolution	3
5	PSIR -303	Comparative Political Systems of Developed States	3
		Psychology	
1	PSY101	Introduction to Psychology	3
2	PSY121	Theories of personality	3
3	PSY112	Social Psychology	3
4	PSY412	Positive Psychology	3
5	PSY413	Attachment and Relationship	3

		Sociology	
1	SOCL 132	Pakistani Society and Culture	3
2	SOCL 331	Sociology of Emotions and Human Feelings	3
3	SOCL 341	Criminology and Society	3
4	SOCL 421	Sociology of Globalization	3
5	SOCL 441	Human Rights and Citizenship	3
6	SOCL 442	Sociological Approaches to Conflict Resolution	3
7	SOCL 231	Gender Studies	3
		Economics	
1	ECON 272	Comparative Economic system	3
2	ECON 141	Introduction to Development Economics	3
3	ECON275	Islamic Economics	3
4	ECON271	Issues in Pakistan's Economy	3
5	ECON 101	Introduction to economics	3
		Education	
1	Edu-211	School, Community and Teacher	3
2	Edu-241	Assessment and Evaluation in Classroom	3
3	Edu-315	Critical Thinking and Reflective Practices	3
4	Edu-272	Principles of Guidance and Counseling	3
5	Edu-313	Contemporary Trends and Issues in Education	3
		ComputerSciences & IT	
1	CRSC111	Basic Electronics	3
2	CRSC112	Applied Physics	3
3	CRSC116	Communication and Presentation Skills	3
4	CRSC117	Logic and Critical Thinking	3
5	CRSC121	Programming Fundamentals	3
6	CRSC225	Web Engineering	3
7	CRSC241	Database Systems	3
8	CRSC251	Introduction to Software Engineering	3
9	CRSC331	Computer Networks	3
10	CRSC341	Enterprise Systems	3
11	CRSC342	Business Process Engineering	3
12	CRSC343	Fundamentals of Graph Theory	3
13	CRSC344	Theory of Programming Languages	3
14	CRSC353	Software Requirements Engineering	3
15	CRSC381	Research Methodology for CSC	3
16	CRSC382	Operations Research	3
17	CRSC383	Stochastic Processes	3
18	CRSC422	Information Security	3
19	CRSC452	Formal Methods	3
20	CRSC453	Modeling and Simulation	3

Physical Education & Sports Science

1	SPSC121	Basics of Human Anatomy	3
2	SPSC122	Introduction to Sports Physiology	3
3	SPSC111	Philosophical Basis of Physical Education	3
4	SPSC112	Rules and Techniques of the Games	3
5	SPSC212	Science of Track and Field	3

Mathematics

1	MATH111	Logic and Set Theory	3
2	MATH112	Discrete Structures for CSC	3
3	MATH233	Differential Equations	3
4	MATH212	Linear Algebra for CSC	3
5	MATH113	Calculus and Analytical Geometry for CSC	3
6	MATH312	Algebra I	3
7	MATH131	Calculus I	3
8	MATH201	History of Mathematics	3
9	MATH231	Linear Algebra I	3
10	MATH 321	Numerical Methods and Computation	3
11	MATH 333	Multivariable Calculus for CSC	3

Management Sciences

1	BUSS101	Introduction to Business	3
2	BUSS141	Principles of Human Resource Management	3
3	BUSS102	Management Principles and Application	3
4	BUSS104	Business on Internet	3
5	BUSS103	Principles and Practices of Marketing	3
6	BUSS107	Digital Banking	3
7	BUSS106	Banking and Financial Markets	3
8	BUSS105	Digital and Social Media Marketing	3
9	BUSS206	Fundamentals of Project Management	3
10	BUSS205	Business and Society	3
11	BUSS204	Professional Practices for Future Leaders	3
12	BUSS121	Principles of Business Finance	3
13	BUSS203	Business Ethics	3
14	BUSS202	Cross-border Business	3
15	BUSS201	Business Investment Decisions	3
16	BUSS109	Legal Mechanism of Business	3
17	BUSS108	Islamic Banking Systems	3

Accounting & Finance

1	ACCT111	Financial Accounting	3

Law

1	LAW101	Introduction to Law	3
2	LAW214	Human Rights Law	3
3	LAW483	Law of Contract	3
4	LAW484	Islamic Personal Law	3

5	LAW335	Law of Business Organizations	3
6	LAW421	Constitutional History in Pakistan	3

Mass Communications

1	MCOM101	Introduction to Journalism & Mass Communication	3
2	MCOM211	Journalistic English	3
3	MCOM111	Introduction to Social Media	3
4	MCOM322	Data Journalism	3
5	MCOM231	Broadcast Journalism	3
6	MCOM221	News Reporting and Writing	3

English

1	ENGL103	Introduction to Language & Linguistics	3
2	ENGL422	Issues in Syntax	3
3	ENGL102	Intro to Literary Device & Genre of Literature	3
4	ENGL555	IELTS through short stories	3
5	ENGL559	Introduction to Essentials of Proposal papers & Journals	3
6	ENGL 304	Popular Fiction	3

IslamicStudies

1	ISLM313	قرآن کا انسان مطلوب	3
2	ISLM371	اسلام اور جدید چیلنجز	3
3	ARAB111	آسان عربی بول چال	3
4	ISLM472	تزکیہ و تصوف (کریکٹر بلڈنگ)	3
5	ISLM333	غذا میں حلال و حرام اسلامی احکام	3
6	ISLM231	اسلامی فقہ اور عملی زندگی کے مسائل	3

Urdu

1	URDU371	نظم کا مطالعہ	3
2	URDU411	ناول کا مطالعہ	3
3	URDU211	شعر فہمی	3
4	URDU313	شعری اصناف	3
5	URDU111	عملی قواعد اردو	3

COURSES OF STUDY:

(*Information about the Prerequisites (if any) of the course(s) will be provided by the Department at the beginning of the program*)

COURSE FOR MAJORING IN INFORMATION TECHNOLOGY:

G) Single Major in Information Technology   (without any Minor)   *Total: 39 Credits*

Course Code	Title of Course	Credits
CRSC221	Object Oriented Programming	4
CRSC222	Data Structure and Algorithms	4
CRSC223	Operating Systems	3
CRSC201	IT Infrastructure	3
CRSC202	Technology Management	3
CRSC334	System and Network Administration	3
CRSC337	Virtual Systems and Services	3
CRSC357	IT Project Management	3
CRSC342	Database Administration and Management	3
CRSC461	Cyber Security	4
CRSC482	Final Year Project for CSC	6

Electives Courses   *Total: 15 Credits*

Subject to University offerings, the student shall opt five from the list below:

Course Code	Title ofCourse	Credits
CRSC232	Telecom Systems	3
CRSC273	Mobile Application Development	3
CRSC274	E-Commerce	3
CRSC301	Human Computer Interaction	3
CRSC312	Artificial Intelligence	3
CRSC332	Network Management	3
CRSC335	Internet Architecture and Protocols	3
CRSC336	Information Systems	3
CRSC341	Topics in Database Management Systems	3
CRSC345	Knowledge Based Systems	3
CRSC441	Data Mining	3
CRSC442	Data Warehousing	3
CRSC454	Software Quality Assurance	3
CRSC456	Principles of Cloud Computing	3

H) Major in Information Technology (alongside One Minor)   *Total: 39 Credits*

Course Code	Title of Course	Credits
CRSC221	Object Oriented Programming	4
CRSC222	Data Structure and Algorithms	4
CRSC223	Operating Systems	3
CRSC201	IT Infrastructure	3
CRSC202	Technology Management	3
CRSC334	System and Network Administration	3
CRSC337	Virtual Systems and Services	3
CRSC357	IT Project Management	3
CRSC342	Database Administration and Management	3
CRSC461	Cyber Security	4
CRSC482	Final Year Project for CSC	6

Electives Courses   *Total: 12 Credits*

Subject to University offerings, the student shall opt four from the list below:

Course Code	Title of Course	Credits
CRSC232	Telecom Systems	3
CRSC273	Mobile Application Development	3
CRSC274	E-Commerce	3
CRSC301	Human Computer Interaction	3
CRSC312	Artificial Intelligence	3
CRSC332	Network Management	3
CRSC335	Internet Architecture and Protocols	3
CRSC336	Information Systems	3
CRSC341	Topics in Database Management Systems	3
CRSC345	Knowledge Based Systems	3
CRSC441	Data Mining	3
CRSC442	Data Warehousing	3
CRSC454	Software Quality Assurance	3
CRSC456	Principles of Cloud Computing	3

I) **Major in Information Technology (alongside another Major in CS or SE)**
   Total: 39 Credits

Subject to University offerings, the student shall opt 39 credits from the list below:

Course Code	Title of Course	Credits
CRSC201	IT Infrastructure	3
CRSC202	Technology Management	3
CRSC226	Web Technologies	3
CRSC331	Computer Networks	4
CRSC334	System and Network Administration	4
CRSC337	Virtual Systems and Services	3
CRSC357	IT Project Management	3
CRSC341	Enterprise Systems	3
CRSC342	Database Administration and Management	3
CRSC353	Software Requirements Engineering	3
CRSC382	Operations Research	3
CRSC432	Information Security	3
CRSC461	Cyber Security	4
CRSC452	Formal Methods	3
CRSC453	Modeling and Simulation	3
CRSC482	Final Year Project for CSC	6

J) **Major in Information Technology (alongside another Major)**
   Total: 39 Credits

Course Code	Title of Course	Credits
CRSC121	Programming Fundamentals	4
CRSC221	Object Oriented Programming	4
CRSC222	Data Structure and Algorithms	4
CRSC242	Database Management Systems	4
CRSC432	Information Security	3
CRSC331	Computer Networks	4
CRSC461	Cyber Security	4
CRSC201	IT Infrastructure	3
CRSC334	System and Network Administration	3
CRSC482	Final Year Project for CSC	6

K) Major in Information Technology (alongside two Minors)   *Total: 45 Credits*

Course Code	Title of Course	Credits
CRSC121	Programming Fundamentals	4
CRSC221	Object Oriented Programming	4
CRSC222	Data Structure and Algorithms	4
CRSC223	Operating Systems	3
CRSC242	Database Management Systems	4
CRSC251	Introduction to Software Engineering	3
CRSC432	Information Security	3
CRSC331	Computer Networks	4
CRSC461	Cyber Security	4
CRSC201	IT Infrastructure	3
CRSC334	System and Network Administration	3
CRSC482	Final Year Project for CSC	6

L) Major in Information Technology (for Associate Degree Program)   *Total: 5 courses*

Course Code	Title of Course	Credits
CRSC121	Programming Fundamentals	4
CRSC201	IT Infrastructure	3
CRSC202	Technology Management	3
CRSC331	Computer Networks	4
CRSC334	System and Network Administration	3

COURSES FOR MINOR IN INFORMATION TECHNOLOGY :

Minor in Information Technology (alongside Major and one or Two Minor in another discipline)   *Total: 4 or 5 courses*

Student will study 4 courses in case of single minor alongside one Major and 5 courses in case of double minor alongside one Major and one Minor from offered courses.

Course Code	Title of Course	Credits
CRSC201	IT Infrastructure	3
CRSC202	Technology Management	3

CRSC334	System and Network Administration	3
CRSC357	IT Project Management	3
CRSC337	Virtual Systems and Services	3

Minor in Cyber Security   *Total: 4 or 5 courses*

Student will study 4 courses in case of single minor alongside one Major and 5 courses in case of double minor alongside one Major and one Minor from offered courses.

Course Code	Title of Course	Credits
CRSC461	Cyber Security	3
CRSC462	Digital Forensics	3
CRSC463	Wireless and Mobile Security	3
CRSC464	Secure Software Design and Development	3
CRSC465	Vulnerability Assessment & Reverse Engineering	3
CRSC466	Cyber Law	3