



Dated: 11-sep-2018

Amendment in Curriculum for B.Sc. in Computer Science From session 2018 and onwards.

Semester -1			
Course Code	Course Title	Credit Hrs	Prerequisites
CS-142	Programming Fundamentals	3-1	None
CS-141	Introduction to Computing	3-1	None
HU-102	Functional English	3-0	None
MA-123	Calculus	3-0	None
PHY-111	Applied Physics	2-1	None
ME-100L	Workshop Practices	0-1	None

Semester Credit Hours: 14-4

Semester -2			
Course Code	Course Title	Credit Hrs	Prerequisites
CS-241	Object Oriented Programming	3-1	Programming Fundamentals
CSE-221	Digital Logic Design	3-1	Applied Physics
HU-104	Communication Skills	2-0	None
HU-111L	Communication Skills LAB	0-1	None
MA-116	Linear Algebra & Differential Equations	3-0	Calculus
CS-211	Discrete Mathematical Structures	3-0	None

Semester Credit Hours: 14-3

Semester-3			
Course Code	Course Title	Credit Hrs	Prerequisites
CS-212	Data Structure & Algorithms	3-1	None
HU-221	Technical writing and Presentation Skills	3-0	None
CSE-222	Computer Organization & Assembly Language	3-1	Digital Logic Design, Programming Fundamentals
CSEL-251	Professional Practices in Software Development	3-0	None
MA-256	Probability & Statistical Process	2-0	None

Semester Credit Hours: 14-2

Semester- 4			
Course Code	Course Title	Credit Hrs	Prerequisites
CS-363	Database Systems	3-1	None
CS-362	Operating Systems	3-1	Data Structures & Algorithms
MA-224	Multivariate Calculus	3-0	Calculus
CS-311	Analysis of Algorithms	3-0	Data Structure & Algorithms,
CS-312	Theory of Automata & Formal Languages	3-0	None

Semester Credit Hours: 15-2

Semester - 5			
Course Code	Course Title	Credit Hrs	Prerequisites
CS-411	Compiler Construction	3-0	Theory of Automata
CS-361	Artificial Intelligence	3-1	Data Structures & Algorithms
CS-302	Intro to Human Computer Interaction	3-0	None
CS-445	Programming Languages	3-0	Theory of Automata
CS-381	Software Engineering	3-1	None

Semester Credit Hours: 15-2

Semester -6			
Course Code	Course Title	Credit Hrs	Prerequisites
CSE-331	Computer Networks	3-1	Operating Systems
CS-441	Mobile Application Development	3-0	Object oriented Programing
CSEL-XXX	Computer Science Elective-1	3-0	
CSEL-XXX	Computer Science Elective-2	3-0	
MA-346	Numerical Methods	3-0	None

Semester Credit Hours: 15-1

Semester- 7			
Course Code	Course Title	Credit Hrs	Prerequisites
CSE-491	Final Year Project-I	0-3	None
CS-443	Intro to Parallel & Distributed Computing	3-0	Operating systems
CSEL-464	Information Security	3-0	None
CSEL-XXX	Computer Science Elective-3	3-0	
IS-101	Islamic & Pakistan Studies I	3-0	None
CSEL-XXX	Computer Science Elective-4	3-0	

Semester Credit Hours: 15-3

Semester- 8			
Course Code	Course Title	Credit Hrs	Prerequisites
CSE-492	Final Year Project-II	0_3	Final Year Project-I
MGT-414	Entrepreneurship & Business Management	3-0	None
CSEL-XXX	Computer Science Elective-5	3-0	
IS-201	Islamic & Pakistan Studies II	3_0	None
MGT-301	International Language	2_0	None

Semester Credit Hours: 11-3

Total Credit Hours: 133

Course Code	Course Title
CSEL-301	UX/UI Design
CS-382	Web Technologies
CSEL-312	Game Development
CSEL-313	Open Source Software Development
CSEL-314	Enterprise Application Development
CSE-421	Computer Architecture
CS-281	Object Oriented Analysis and Design
CS-481	Design Patterns
CSEL-353	Software Requirements Engineering
CSEL-354	Software Quality Assurance
CSEL-355	Software Measurement & Metrics
CSEL-356	Software Design & Architecture
CSEL-357	Software Project Management
CSEL-358	Intro to Program Analysis
CSEL-359	Formal Methods
CSE-431	Wireless Networks
CSEL-362	Internetworking with Unix TCP/IP
CSEL-363	Ethical Hacking
CSEL-371	Database Administration
CSEL-372	Database Performance & Optimization
CSEL-373	Database Backup & Recovery
CSEL-374	Distributed Databases
CSEL-375	Data Warehousing
CS-461	Management Information Systems
CSEL-377	Information Retrieval
CSEL-378	Graph Databases
CSEL-381	Web semantic
CSEL-382	Introduction to Data Science
CSEL-383	Natural Language Processing
CS-463	Data Mining
CS-464	Machine Learning
CS-401	Computer Graphics
CSEL-393	Computer Vision and Image Processing
CSEL-394	Operations Research

CSEL-395	Internet of Things
CSEL-396	Big Data Analytics
CSEL-315	Strategic Time Management for Software Developers
CSEL-316	Strategic Vision for Software Developer
CSEL-317	Effective Leadership for Software Developers
CSEL-318	Bridging the Difference between Software Teams
CSEL-319	Habits of Highly Effective Software Engineer
CSEL-384	Soft Computing