

# SHARDA UNIVERSITY UZBEKISTAN

FACULTY OF ENGINEERING & TECHNOLOGY

PROGRAM STRUCTURE : B.Tech-COMPUTER SCIENCE & TECHNOLOGY

Credits required for Under graduation: 240

Credits required as essential distribution requirement: 200

Credits free to choose from anywhere (including from programme and specialization beyond minimum): 40

#### UNIVERSITY CORE (59 Credits)

Core	Course Code	Course Title	Credits
UC	ENG100	Basic English course	6
	ENG101	Intermediate English Course	0
UC	DI1404	Religious Studies	4
UC	ENG102	Proficient English Course	6
	ENG201	Advanced English language with Literature	0
UC	FA1104	Philosophy	4
UC	UYTII04	Modern History of Uzbekistan	4
UC	PME101	Principles of Management for Engineers	3
UC	CSESII	Summer Industry Internship	6
UC	UCD411	Capstone Design - I	10
UC	HMM421	Professional Ethics	4
UC	UCD412	Capstone Design - II	12

#### SCHOOL CORE (52 Credits)

Core	Course Code	Course Title	Credits
SC	CSE111	Problem Solving Using Programming Language with Lab	6
SC	MTH101	Maths-1	6
SC	PHY111	Physics-1	6
SC	CSE002	Digital Literacy	2
SC	CSE112	Object Oriented Programming with Lab	6
SC	CSE113	Programming Project Lab	2
SC	MTH102	Math-II	6
SC	PHY112	Physics-II with Lab	6
SC	MTH103	Discrete Structure	6
SC	CSE001	Basic Web Development	6

#### PROGRAM CORE (89 Credits)

Core	Course Code	Course Title	Credits
PC	CSE003	Microproessor programming Lab	
PC	CSC101	Introduction to Cyber security and its laws	2
PC	CSA101	Introduction to Artificial Intelligence and Machine Learning	
PC	CSE211	Computer Organization and Architecture	6
PC	CSE212	Data Structures with Lab	6
PC	CSE213	Principles of Operating System with Lab	6
PC	CSE214	Theory of Computation	6
PC	CSE215	Database Management System with Lab	6
PC	CSE216	Project Based Learning (PBL) - I	4
PC	CSE311	Design and Analysis of Algorithm with Lab	6
PC	CSE312	Software Engineering and Testing Methodologies with Lab	6
PC	CSE313	Computer Networks with Lab	6
PC	CSE314	Project Based Learning (PBL) - II	4
PC	CSE315	Internet & Web Technologies with Lab	6
PC	CSE316	Compiler Design with Lab	6
PC	CSE317	System Simulation & Modeling	3
PC	CSE318	Project Based Learning (PBL) - III	4
PC	CSE411	Artificial Intelligence with Lab	6
PC	CSE412	Introduction to Virtualization and Cloud Computing	6

#### ELECTIVES: Core CSE (40 Credits)

Elective	Course Code	Course Title	Credits
DE I	CSE011	Mathematical Techniques	4
F E-1	INT211	Android Application Develpoment	4
PE-II	CSE012	Introduction to Graph Theory and its Applications	4
	CSA011	Concepts of Machine Learning	4
DE III	CSE021	Introduction to Cloud Computing	4
PE-III	CSC021	Ethical Hacking	4
PE IV	CSE022	Quantum Computing	4
1 12-1 4	CSA022	Digital Image Processing	+
PE-V	INT031	Free and Open souce software	4
	INT311	Human Computer Interaction with Lab	4
DE VI	CSE031	Introduction to Big data	4
FL-VI	CSC031	Cryptography and Network Security	4
DE VII	CSE041	3D Printing and Software Tools	4
ГĽ-VП	CSE042	Risk Management	4
PE-VIII	CSE043	Software Project Management	4
	CSI053	Introduction to Internet of Things	- 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4
DE IV	CSE051	Parallel Computing Algorithms	4
re-ia	CSE052	Mobile Computing	4
DE V	CSE053	Software Testing	4
г <u>с</u> -Л	CSE054	Wireless networks	4

## ELECTIVES: Specialization Information Technology (40 Credits)

Elective	Course Code	Course Title	Credits
DE I	ITW011	Advance OOP with lab	4
PE-I	ITM011	Mobile Architecture and App Development	4
PE-II	ITW012	Frontend Development-I ( JavaScript, HTML, CSS, jQuery, - Advance Version )	4
	ITM012	Mobile and Generic UI development	
DE III	ITW021	Backend Development-1 (Advance PHP, Laravel, Symfony, CakePHP)	4
PE-III	ITM021	Basic Android Programming with Lab	4
DE IV	ITW022	Frontend Development-2 ( AngularJS, Node JS, React JS )	4
F 12-1 V	ITM022	Basic iOS Application Development with Lab	4
PE-V	ITW031	Backend Development-2 (Advance DBMS, Google Cloud platform,AWS )	4
	ITM031	Advanced Android Programming with lab	4
PE-VI	ITW032	Programming with Python	4
	ITM032	Advanced iOS Application Development	4
PE-VII	ITW041	Advanced Python (Frameworks like Django)	4
	ITM041	Cross-platform Application Development	4
PE-VIII	ITW042	Software Testing	4
	ITM042	Mobile Testing	4
PE-IX	IT001	Enterprise Resource Planning	4
PE-X	IT002	UI/UX Development	4

# ELECTIVES: Specialization Artificial Intelligence & Machine Learning (40 Credits)

Elective	Course Code	Course Title	Credits
PE-I	CSA011	Concepts of Machine Learning	4
PE-II	CSA010	Data Collection and Pre-processing	4
PE-III	CSA012	Concepts of Neural Networks	4
PE-IV	CSA022	Digital Image Processing	4
PE-V	CSA021	Soft Computing	4
PE-VI	CSA031	Pattern Recognition	4
PE-VII	CSA032	Deep Learning and Its Applications	4
PE-VIII	CSA042	Introduction to Natural Language Processing	4
PE-IX	CSA051	Applications of AIML in healthcare/ ICT/ Computer Networks	4
PE-X	CSA052	Computer Vision	4

## ELECTIVES: Specialization Cyber Security (40 Credits)

Elective	Course Code	Course Title	Credits
PE-I	CSC011	Digital Forensics	4
PE-II	CSC031	Cryptography and Network Security	4
PE-III	CSC021	Ethical Hacking	4
PE-IV	CSC012	Security Architecture	4
PE-V	CSC022	Disaster Recovery Management	4
PE-VI	CSC032	Malware Analysis	4
PE-VII	CSC041	Information Security & Audit Monitoring	4
PE-VIII	CSC042	Intrusion Detection and Prevention System	4
PE-IX	CSC051	Introduction to IoT and It's Security	4
PE-X	CSC052	Security Threats Intelligence and Risk Management	4