B.Tech. in Computer Science & Engineering (Data Sciences)

COURSE STRUCTURE

Department of Computer Engineering,

Faculty of Engineering & Technology,

Jamia Millia Islamia

B. TECH. COMPUTER SCIENCE & ENGINEERING (Data Sciences)
COURSE STRUCTURE

Codes for nature of courses

L : Lecture courses
P : Laboratory Based courses
S : Seminar

Category of Courses

PCC : Program Core courses

Weightage for Course Evaluation

L : Lecture T : Tutorial P : Practical CCA : Continuous Class Assessment MTE :Mid TermExam

B. TECH. COMPUTER SCIENCE & ENGINEERING (Data Sciences)

S.No.	Course Name	Type of Course	Credit	Periods/ week			Examination Scheme (Distribution of Marks)				
							Mid Semester Evaluation			End Semester Evaluation	Total Marks
				L	T	P	CCA	MTE-1	MTE-2		
THEORY - 1st Semester											
01	Communication Skills	Theory (HSMC)	2	2	-	0	20			30	50
02	Engineering Physics I	Theory (BSC)	3	3	-	0	30			45	75
03	Engineering Chemistry	Theory (BSC)	3	3	-	0	30			45	75
04	Engineering Mathematics I	Theory (BSC)	3	3	-	0	30			45	75
05	Basics of Electrical Engineering	Theory (ESC)	3	3	-	0	30			45	75
06	Fundamentals of Computing	Theory (ESC)	3	3	-	0	30			45	75
PRACTICAL (LAB)											
I	Language Laboratory	Lab (HSMC)	1	0	-	2	15			10	25
II	Engineering Physics Laboratory I	Lab (BSC)	1	0	-	2	15			10	25
III	Engineering Chemistry Laboratory	Lab (BSC)	1	0	-	2	15			10	25
IV	Engineering Graphics & Design	Lab (BSC)	2	0	-	4	30			20	50
V	Design Thinking & Idea Lab	Lab (ESC)	1	0	-	2	15			10	25
	Total		**23**	**17**	**-**	**12**	**260**			**315**	**575**

THEORY - 2nd Semester									
01	Engineering Physics II	Theory (BSC)	3	3	-	0	30	45	75
02	Engineering Mathematics II	Theory (BSC)	3	3	-	0	30	45	75
03	Biology for Engineers	Theory (BSC)	3	3	-	0	30	45	75
04	Basics of Electronics & Communication Engg.	Theory (ESC)	3	3	-	0	30	45	75
05	Engineering Mechanics	Theory (ESC)	3	3	-	0	30	45	75
06	Basics of Civil Engineering	Theory (ESC)	3	3	-	0	30	45	75
07	Constitution of India	Theory (MC-1)	0	2	-	2	-	-	-
PRACTICAL (LAB)									
I	Engineering Physics Laboratory II	Lab (BSC)	1	0	-	2	15	10	25
II	Workshop Practice	Lab (ESC)	2	0	-	4	30	20	50
III	Engineering Mechanics Laboratory	Lab (ESC)	1	0	-	2	15	10	25
	Total		**22**	**20**	-	**10**	**240**	**310**	**550**

B. TECH. COMPUTER SCIENCE & ENGINEERING (Data Sciences) -II YEAR

S.No.	Course Name	Type of Course	Credit	Periods /week			Examination Scheme (Distribution of Marks)				
							Mid Semester Evaluation			End Semester Evaluation	Total Marks
				L	T	P	CCA	MTE-1	MTE-2		
THEORY - 3rd Semester											
01	Universal Human Values	**MC-II**	3	3	-	-	30			45	75
02	Engineering Mathematics III	**BSC**	3	3	-	-	30			45	75
03	Discrete Mathematics – PCC1	**PCC**	3	3	-	-	30			45	75
04	Data Structure- PCC2	**PCC**	3	3	-	-	30			45	75
05	Digital Logic Design – PCC3	**PCC**	3	3	-	-	30			45	75
06	Database Management System- PCC4	**PCC**	3	3	-	-	30			45	75
PRACTICAL (LAB)											
I	Data Structure Lab- PCL1	**PCC**	1	-	-	2	15			10	25
II	Digital Logic Design Lab– PCL2	**PCC**	1	-	-	2	15			10	25
III	C Programming Lab – PCL3	**PCC**	1	-	-	2	15			10	25
IV	Database Management System Lab – PCL4	**PCC**	1	-	-	2	15			10	25
	Total		**22**	**18**	-	**6**	**240**			**310**	**550**
THEORY 4th Semester											

01	Environmental Science	**MC-III**	2	2	-	-	20	30	50
02	Computer Organization & Architecture- PCC5	**PCC**	3	3	-	-	30	45	75
03	Data Mining – PCC6	**PCC**	3	3	-	-	30	45	75
04	Operating System - PCC7	**PCC**	3	3	-	-	30	45	75
05	Essence of Indian Traditional Knowledge	**MC-IV**	0	2	-	-			
06	Operations Research OEC-1	**HSMC (OEC I)**	3	3	-	-	30	45	75
07	Economics OEC-2	**HSMC (OEC II)**	3	3	-	-	30	45	75
PRACTICAL (LAB)									
I	Data Mining Lab - PCL5	**PCC**	1	-	-	2	15	10	25
II	Python Programming Lab – PCL6	**PCC**	1	-	-	2	15	10	25
III	Operating System & Linux Lab – PCL7	**PCC**	1	-	-	2	15	10	25
IV	Numeric and Scientific Computing Lab.	**ESC**	2	-	-	4	30	20	50
	Total		**22**	**19**	**-**	**10**	**245**	**305**	**550**

B. TECH. COMPUTER SCIENCE & ENGINEERING (Data Sciences) –III YEAR

								Mid Semester Evaluation			**End Semester Evaluation**	**Total Marks**
					L	**T**	**P**	**CCA**	**MT E-1**	**MT E-2**		
THEORY - 5th Semester												
01	CEN-501	Introduction to Machine Learning – PEC1	**PEC (CBCS)**	3	3	-	-	30			45	75
02	CEN-502	Automata Theory – PCC8	**PCC**	3	3	-	-	30			45	75
03	CEN-503	Data Analytics - PCC9	**PCC**	3	3	-	-	30			45	75
04	CEN-504	Computer Networks - PCC10	**PCC**	3	3	-	-	30			45	75
05	CEN-505	Software Engg - PCC11	**PCC**	3	3	-	-	30			45	75
06	CEN-506	Object Oriented Programming – PCC12	**PCC**	3	3	-	-	30			45	75
PRACTICAL (LAB.)												
I	CEN-591	Object Oriented Programming Lab - PCL8	**PCC**	1	-	-	2	15			10	25
II	CEN-592	Machine Learning Lab - PCL9	**PCC**	1	-	-	2	15			10	25
III	CEN-593	Computer Network Lab - PCL10	**PCC**	1	-	-	2	15			10	25
IV	CEN-594	Data Analytics Lab - PCL11	**PCC**	1	-	-	2	15			10	25
		Total		**22**	**18**	**-**	**8**	**240**			**310**	**550**
THEORY - 6th Semester												
01	CEN-601	Analysis and Design of Algorithms - PCC13	**PCC**	3	3	-	-	30			45	75
02	CEN-602	Compiler Design PCC14	**PCC**	3	3	-	-	30			45	75
03	CEN-603	Data Visualization – PCC15	**PCC**	3	3	-	-	30			45	75
04	CEN-604	Artificial Intelligence – PCC16	**PCC**	3	3	-	-	30			45	75
05	CEN-605	Deep Learning- PEC II	**PEC**	3	3	-	-	30			45	75
PRACTICAL (LAB/SEMINAR)												

I	CEN-691	Compiler Design Lab PCL12	**PCC**	1	-	-	2	15	10	25
II	CEN-692	Artificial Intelligence Lab - PCL13	**PCC**	1	-	-	2	15	10	25
III	CEN-693	Deep Learning Lab - PCL14	**PCC**	1	-	-	2	15	10	25
IV	CEN-694	Data Visualization Lab - PCL15	**PCC**	1	-	-	2	15	10	25
V	CEN-695	Seminar	**PROJ**	1	-	-	2	15	10	25
		Total		**20**	**15**	**-**	**10**	**225**	**275**	**500**

B. TECH. COMPUTER SCIENCE & ENGINEERING (Data Sciences) –IV YEAR

S.No.	Course Name	Type of Course	Credit	Periods/ week			Examination Scheme (Distribution of Marks)				
							Mid Semester Evaluation			End Sem. Evaluation	Total Marks
				L	T	P	CCA	MTE-1	MTE-2		
THEORY- 7th Semester											
01	PEC III	**PEC**	3	3	-	-	30			45	75
02	PEC IV	**PEC**	3	3	-	-	30			45	75
03	PEC V	**PEC**	3	3	-	-	30			45	75
04	PEC VI	**PEC**	3	3	-	-	30			45	75
05	OEC III	**OEC**	3	3	-	-	30			45	75
I	Summer Internship	**PROJ**	2	-	-	4	30			20	50
II	Minor Project	**PROJ**	3	-	-	6	45			30	75
	Total		**20**	**15**	**-**	**10**	**225**			**275**	**500**
THEORY - 8th Semester											
01	OEC IV	**OEC**	3	3	-	-	30			45	75
02	OEC V	**OEC**	3	3	-	-	30			45	75
06	Major Project	**PROJ**	6	-	-	12	90			60	150
	Total		**12**	**6**	**-**	**12**	**150**			**150**	**300**

List of Electives:

Electives in 7th Semester	Electives in 8th Semester
CEN-701: CV and Image Processing CEN-702: Soft Computing CEN-703: Cloud Computing CEN-704: Social Network Analysis CEN-705: Natural Language Processing and Information Extraction CEN-706: Artificial Neural Networks CEN-707: Advanced Deep Learning CEN-708: Embedded System CEN-709: Parallel & Distributed Computing **To be added as and when required**	CEN-801: Network Security CEN-802: Blockchain Technology & its Application CEN-803: Software Testing CEN-804: Mobile Computing & IoT CEN-805: Advanced Graph Theory **To be added as and when required**

- **Total Credits from III[rd] to VIII[th] Semester : 118**
- **Total Credits from I[st] to VIII[th] Semester : 163**
- **Total Marks from III[rd] to VIII[th] Semester : 2950**