

30.1.2

**UNIVERSITY SCHOOL
OF
INFORMATION AND COMMUNICATION TECHNOLOGY**

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

PROGRAMME STRUCTURE

B.TECH. COMPUTER SCIENCE AND ENGINEERING

2021-2025

30.1.2

08.09.23



GAUTAM BUDDHA UNIVERSITY
GAUTAM BUDH NAGAR, GREATER NOIDA, UP, INDIA

School of ICT
Gautam Buddha University
Greater Noida, (U.P.)

Signature

Signature

SEMESTER I

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	MA101	Engineering Mathematics-I	3	1	0	4	GE1
2	PH102	Engineering Physics	3	1	0	4	GE2
3	EE102	Basic Electrical Engineering	3	1	0	4	GE3
4	ME101	Engineering Mechanics	3	1	0	4	GE4
5	ES101	Environmental Studies	3	1	0	4	OE1 / AECC
6	PH104	Engineering Physics Lab	0	0	2	1	GE-L1
7	EE104	Basic Electrical Engineering Lab	0	0	2	1	GE-L2
8	EN151	Language Lab	0	0	2	1	OE-L1 / SEC
9	ME102	Workshop Practice	1	0	2	2	GE-L3 / SEC
10	GP	General Proficiency	Non Credit				
Total Hours and Credits			16	5	8	25	

SEMESTER II

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	MA102	Engineering Mathematics-II	3	1	0	4	GE5
2	CS101	Fundamentals of Computer Programming	3	1	0	4	CC1 / FC
3	CS102	Computer Organisation and Architecture	3	1	0	4	CC2
4	EC101	Basic Electronics Engineering	3	1	0	4	GE6
5	CS105	Introduction of Artificial Intelligence	2	0	0	2	CC3 / FC
6	EN101	English Proficiency	2	0	0	2	OE2 / AECC
7	CE103	Engineering Graphics Lab	1	0	2	2	GE-L4
8	CS181	Computer Programming Lab	0	0	2	1	CC-L1 / SEC
9	CS183	Computer Organisation and Architecture Lab	0	0	2	1	CC-L2 / SEC
10	EC181	Basic Electronics Engineering Lab	0	0	2	1	GE-L6
11	GP	General Proficiency	Non Credit				
Total Hours and Credits			17	4	8	25	

SEMESTER III

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	CS201	Internet Technology	3	0	0	3	CC4
2	CS203	Concepts of Operating Systems	3	0	0	3	CC5
3	CS205	Data Structure & Algorithms	3	0	0	3	CC6
4	CS207	Problem Solving using C++	3	0	0	3	CC7 / SEC
5	CS209	Logic Design	3	0	0	3	GE7
6	MA201	Engineering Mathematics-III	3	1	0	4	GE8
7	CS281	Data Structure & Algorithms Lab	0	0	3	2	CC-L3 / SEC
8	CS283	Object-Oriented Programming Lab	0	0	3	2	CC-L4 / SEC
9	CS285	Logic Design Lab	0	0	3	2	CC-L5 / SEC
10	GP	General Proficiency	Non Credit				
Total Hours and Credits			18	1	9	25	

SEMESTER IV

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	CS202	Software Engineering	3	0	0	3	CC8
2	CS204	Database Management System	3	0	0	3	CC9
3	CS206	Java Programming	3	0	0	3	CC10 / SEC
4	CS208	Artificial Intelligence	3	0	0	3	CC11
5	CS210	Theory of Automata	3	0	0	3	CC12
6	CS212	Discrete Structures	3	1	0	4	CC13
7	CS282	Database Management Systems Lab	0	0	3	2	CC-L6 / SEC
8	CS284	Java Programming Lab	0	0	3	2	CC-L7 / SEC
9	CS286	Artificial Intelligence Lab	0	0	3	2	CC-L8 / SEC
10	GP	General Proficiency	Non Credit				
Total Hours and Credits			18	1	9	25	

SEMESTER V

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	CS301	Computer Networks	3	0	0	3	CC14
2	CS303	Compiler Design	3	0	0	3	CC15
3	CS305	Wireless Communication	3	0	0	3	CC16
4	CS307	Python	3	1	0	4	CC17
5		Elective 1	3	0	0	3	E1 / DSE
6		Elective 2	3	0	0	3	E2 / DSE
7	CS381	Computer Networks Lab	0	0	3	2	CC-L9
8	CS383	Compiler Design Lab	0	0	3	2	CC-L10
9	CS385	Python Programming Lab	0	0	3	2	CC-L11 / SEC
10	GP	General Proficiency	Non Credit				
Total Hours and Credits			18	1	9	25	

SEMESTER VI

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	CS302	Web Development using PHP	3	0	0	3	CC18 / SEC
2	CS304	Software Testing	3	0	0	3	CC19
3	CS306	Analysis & Design of Algorithms	3	1	0	4	CC20
4	CS308	Cyber Security	3	0	0	3	CC21
5		Elective 3	3	0	0	3	E3 / DSE
6		Elective 4	3	0	0	3	E4 / DSE
7	CS382	Web Development using PHP Lab	0	0	3	2	CC-L12 / SEC
8	CS384	Analysis & Design of Algorithms Lab	0	0	3	2	CC-L13 / SEC
9	CS386	Cyber Security Lab	0	0	3	2	CC-L14 / SEC
10	GP	General Proficiency	Non Credit				
Total Hours and Credits			18	1	9	25	

Industrial Training will be done by candidate individually after third year during the summer break and it will be of minimum 4 weeks. It will be evaluated as per University Examination in VII semester.

SEMESTER VII

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	MA402	Modeling and Simulation	3	1	0	4	GE9
2	CS401	Internet of Things	3	0	0	3	CC22
3	CS403	Soft Computing Techniques	3	0	0	3	CC23
4	CS405	Machine Learning	2	0	0	2	CC24 / SEC
5		Elective 5	3	0	0	3	E5 / DSE
6	CS481	Internet of Things Lab	0	0	3	2	CC-L15 / DSE
7	CS491	Minor Project	0	0	6	3	MP1 / E
8	CS493	Industrial Training	0	0	10	5	IT1 / E
9	GP	General Proficiency	Non Credit				
Total Hours and Credits			14	1	19	25	

SEMESTER VIII

S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	CS490	Seminar	0	0	3	2	S / E
2	CS492	Major Project	0	0	16	8	MP2 / E
3	CS494	Internship	0	0	30	15	I / E
4	GP	General Proficiency	Non Credit				
Total Hours and Credits			0	0	49	25	

GRAND TOTAL OF CREDITS = 200

In the **Seminar**, student need to study and present individually, on latest research paper of their specialized area and It will be evaluated as per University Examination Rules.

The **Internship** in Industry will be done by candidate individually during the 8th semester and it will be for a minimum of 4 (-6) months. It will be evaluated as per University Examination Rules.

Minor and Major Project will be in a group and It will be evaluated as per University Examination Rules.

USICT will provide a mentor/supervisor for industrial training, seminar, internship, minor and major projects.

ELECTIVES FROM DCSE							
S.No.	Course Code	Course Name	L	T	P	Credits	Types
1	CS309	Computer Graphics	3	0	0	3	E1
2	CS311	Computer Vision	3	0	0	3	E1
3	CS313	Android Operating System	3	0	0	3	E1
4	CS315	Computer Based Numerical & Statistical Techniques	3	0	0	3	E1
5	CS317	Data Mining	3	0	0	3	E1
6	CS319	System Analysis & Design	3	0	0	3	E2
7	CS321	Software Project Management	3	0	0	3	E2
8	CS323	Information Retrieval System	3	0	0	3	E2
9	CS325	Graph Theory	3	0	0	3	E2
10	CS327	Knowledge Engineering	3	0	0	3	E2
11	CS310	Digital Image Processing	3	0	0	3	E3
12	CS312	Adhoc & Sensor Networks	3	0	0	3	E3
13	CS314	Expert Systems	3	0	0	3	E3
14	CS316	Business Intelligence	3	0	0	3	E3
15	CS318	Mobile Computing	3	0	0	3	E3
16	CS320	Computer Security	3	0	0	3	E4
17	CS322	Management Information System	3	0	0	3	E4
18	CS324	Evolutionary Computation	3	0	0	3	E4
19	CS326	Fuzzy logic	3	0	0	3	E4
20	CS328	Big Data Analytics	3	0	0	3	E4
21	CS407	Pattern Recognition	3	0	0	3	E5
22	CS409	Robotics	3	0	0	3	E5
23	CS411	Optimization Techniques	3	0	0	3	E5
24	CS413	Cloud Computing	3	0	0	3	E5
25	CS415	Information Security	3	0	0	3	E5
26	CS417	Data Science Basics and Visualization	3	0	0	3	E5

CS Computer Science

CC Core Course from USICT

GE General Elective from related discipline of other Deptt./School

GE L General Elective Lab from related discipline of other Deptt./School

OE Open Elective from other discipline of other Deptt./School

AECC Ability Enhancement Compulsary Course

DSE Discipline Specific Course

SEC Skill Enhancement Course

E Elective from USICT

CC-L Core Course Lab from USICT

IT1 Industrial Training

MP Minor / Major Project

S Seminar

I Internship

BUSINESS INTELLIGENCE			
Course Code:	CS316	Course Credits:	3
Course Category:	E3	Course (U / P)	U
Course Year (U / P):	3U	Course Semester (U / P):	5U
No. of Lectures + Tutorials (Hrs/Week):	03 + 00	Mid Sem. Exam Hours:	1.5
Total No. of Lectures (L + T):	45 + 00	End Sem. Exam Hours:	3
COURSE OBJECTIVES			
1. Understand the basic concepts of business intelligence			
2. Design and implement a data warehouse			
3. Apply data mining techniques to analyze data			
4. Develop business intelligence solutions			
COURSE OUTCOMES			
At the end of the course the students should be able to:			
1. Explain the different components of a BI system.			
2. Design a data warehouse that meets the needs of a specific organization.			
3. Implement a data mining algorithm to solve a real-world problem.			
4. Develop a BI dashboard that visualizes data in a meaningful way.			
5. Communicate the results of BI analysis to stakeholders in a clear and concise way.			

INTRODUCTION TO BUSINESS INTELLIGENCE

What is business intelligence?, the history of business intelligence, the different components of business intelligence, the benefits of business intelligence, the challenges of business intelligence.

UNIT-2 DATA WAREHOUSING

What is a data warehouse?, types of data warehouses, design and implementation of data warehouses, management of data warehouses, the security of data warehouses.

UNIT-3 DATA MINING

What is data mining? , types of data mining, techniques of data mining, applications of data mining, challenges of data mining.

UNIT-4 BUSINESS ANALYTICS

What is business analytics?, the different types of business analytics, the techniques of business analytics, the applications of business analytics, the challenges of business analytics.

UNIT-5 COMMUNICATING BI RESULTS

How to communicate the results of BI analysis, the different methods of communication, the best practices for communication, the challenges of communication.

TextBooks:


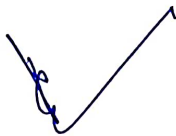


1. Business Intelligence: A Beginner's Guide by Arun Kumar
2. Data Mining for Business Intelligence by Galit Shmueli

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3. Analytics: The Definitive Guide by Thomas H. Davenport and Jeanne G. Harris

Reference Books:

1. Data Science for Business by Foster Provost and Tom Fawcett
2. The Data Warehouse Toolkit by Ralph Kimball and Margy Ross

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