

## Department of Information Technology

### Course Curriculum

The program curriculum as prescribed by the affiliating university Dr. A. P. J. Abdul Kalam Technical University (AKTU), Lucknow is followed by the Institutes. The course curriculum of B.Tech. (Computer Science & Engineering) for academic year 2020-21 is listed below-

Sr.No.	Course Code	Course Title	Lecture (L)	Tutorial (T)	Practical (P)	Credits
<b>Semester I</b>						
1	KAS101T/ KAS102T	Engineering Physics/ Engineering Chemistry	3	1	0	4
2	KAS103T	Engineering Mathematics-I	3	1	0	4
3	KEE101T/ KEC101T	Basic Electrical Engineering/ Emerging Domain in Electronics Engineering	3	0	0	3
4	KCS101T/ KME101T	Programming for Problem Solving / Fundamentals of Mechanical Engineering & Mechatronics	3	0	0	3
5	KAS151P/ KAS152P	Engineering Physics Lab/ Engineering Chemistry Lab	0	0	2	1
6	KEE151P/ KEC151P	Basic Electrical Engineering Lab/ Electronics Engineering Lab	0	0	2	1
7	KCS151P/ KAS154P	Programming for Problem Solving / English Language Lab	0	1	2	1
8	KCE151P/ KWS151P	Engineering Graphics & Design Lab/ Mechanical Workshop Lab	0	1	2	1
9	KMC101/ KMC102	AI For Engineering/ Emerging Technology for Engineering	2	0	0	2
10	KNC101	Soft Skill I	2	0	0	
<b>Semester II</b>						

11	KAS201T/ KAS202T	Engineering Physics/ Engineering Chemistry	3	1	0	4
12	KAS203T	Engineering Mathematics-I	3	1	0	4
13	KEE201T/ KEC201T	Basic Electrical Engineering/ Emerging Domain in Electronics Engineering	3	0	0	3
14	KCS201T/ KME201T	Programming for Problem Solving / Fundamentals of Mechanical Engineering & Mechatronics	3	0	0	3
15	KAS251P/ KAS252P	Engineering Physics Lab/ Engineering Chemistry Lab	0	0	2	1
16	KEE251P/ KEC151P	Basic Electrical Engineering Lab/ Electronics Engineering Lab	0	0	2	1
17	KCS251P/ KAS254P	Programming for Problem Solving / English Language Lab	0	1	2	1
18	KCE251P/ KWS251P	Engineering Graphics & Design Lab/ Mechanical Workshop Lab	0	1	2	1
19	KMC201/ KMC202	AI For Engineering/ Emerging Technology for Engineering	2	0	0	2
20	KNC201	Soft Skill I	2	0	0	

Sources:

[https://aktu.ac.in/pdf/syllabus/syllabus2021/B.Tech.%20Ist%20Year%20AICTE%20Model%20Curriculum%202020-21\\_12th%20Oct%202020.pdf](https://aktu.ac.in/pdf/syllabus/syllabus2021/B.Tech.%20Ist%20Year%20AICTE%20Model%20Curriculum%202020-21_12th%20Oct%202020.pdf)

Semester III						
10	KOE031- 38/ KAS302	Engineering Science Course/Mathematics IV	3	1	0	4
11	KAS301/ KVE 301	Technical Communication/Universal Human values	2	1	0	3
			3	0	0	
12	KCS301	Data Structure	3	1	0	4
13	KCS302	Computer Organization and Architecture	3	1	0	4

14	KCS303	Discrete Structures & Theory of Logic	3	0	0	3
15	KCS351	Data Structures Using C Lab	0	0	2	1
16	KCS352	Computer Organization Lab	0	0	2	1
17	KCS353	Discrete Structure & Logic Lab	0	0	2	1
18	KCS354	Mini Project or Internship Assessment	0	0	2	1
19	KNC301/ KNC302	Computer System Security/Python Programming	2	0	0	0
<b>Semester IV</b>						
20	KAS402/ KOE041-48	Mathematics-IV / Engg. Science	3	1	0	4
21	KVE401/ KAS401	Universal Human Values/ Technical Communication	3	0	0	3
			2	1	0	
22	KCS401	Operating Systems	3	0	0	3
23	KCS402	Theory of Automata and Formal Languages	3	1	0	4
24	KIT401	Web Designing	3	1	0	4
25	KCS451	Operating Systems Lab	0	0	2	1
26	KIT451	Web Designing Lab	0	0	2	1
27	KCS453	Python Language Programming Lab	0	0	2	1
28	KNC402/ KNC401	Python Programming/ Computer System Security	2	0	0	0

Source: <https://aktu.ac.in/pdf/syllabus/syllabus1920/B.Tech%202nd%20Year%20CSE%20&%20CSIT%20AICTE%20Model%20Curriculum%202019-20.pdf>

<b>Semester V</b>						
29	KCS501	Database Management Systems	3	1	0	4
30	KIT501	Web Technology	3	1	0	4
31	KCS503	Design and Analysis of Algorithm	3	1	0	4
32	Deptt- Elective-I	Departmental Elective-I	3	0	0	3

33	Deptt- Elective-II	Departmental Elective-II				
34	KCS551	Database Management Systems Lab	0	0	2	2
35	KIT551	Web Technology Lab	0	0	2	2
36	KCS553	Design and analysis of Algorithm Lab	0	0	2	2
37	KCS554	Mini Project or Internship Assessment*	0	0	2	2
38	KNC501/ KNC502	Constitution of India, Law and Engineering / Indian Tradition, Culture and Society	2	0	0	2
<b>Semester VI</b>						
39	KCS601	Software Engineering	3	1	0	4
40	KIT601	Data Analytics	3	1	0	4
41	KCS603	Computer Networks	3	1	0	4
42	Deptt- Elective-II	Departmental Elective-III	3	0	0	3
43		Open Elective-I	3	0	0	3
44	KCS651	Software Engineering Lab	0	0	2	2
45	KIT651	Data Analytics Lab	0	0	2	2
46	KCS653	Computer Networks Lab	0	0	2	2
47	KNC601/ KNC602	Constitution of India, Law and Engineering /Indian Tradition, Culture and Society	2	0	0	2

**Source:** <https://aktu.ac.in/pdf/syllabus/Syllabus1819/allnew/3rd%20Year%20Syllabus%20Computer%20Science%20&%20Engineering%202018-19.pdf>

<b>Semester VII</b>						
48	KHU701/KHU 702	HSMC -1 / HSMC-2	3	0	0	3
49	KCS07X	Departmental Elective-IV	3	0	0	3
50	KCS07X	Departmental Elective-V	3	1	0	4
51	KOE07X	Open Elective-II	3	1	0	4
52	KIT751A	Artificial Intelligence Lab	0	0	2	2

53	KIT752	Mini Project or Internship Assessment*	0	0	2	2
54	KIT753	Project	0	0	8	8

<b>Semester VIII</b>						
55	KHU801/KHU802	HSMC -1 / HSMC-2	3	0	0	3
56	KCS08X	Open Elective-III	3	0	0	3
57	KCS08X	Open Elective-IV	3	0	0	3
58	KIT753	Project	0	0	18	18

Source:

[https://aktu.ac.in/pdf/syllabus/syllabus1920/B.Tech\\_4th%20Year%20CBCS\\_CSE\\_2019-20.pdf](https://aktu.ac.in/pdf/syllabus/syllabus1920/B.Tech_4th%20Year%20CBCS_CSE_2019-20.pdf)

**DEPARTMENTAL ELECTIVES**

Departmental Elective-I

1. KIT-051 Statistical Computing
2. KIT-052 Compiler Design
3. KCS-053 Computer Graphics
4. KCS-054 Object Oriented System Design

Departmental Elective-II

5. KCS-055 Machine Learning Techniques
6. KCS-056 Application of Soft Computing
7. KCS-057 Augmented & Virtual Realit

Departmental Elective-III

1. KCS-061 Big Data
2. KCS-062 Image Processing
3. KIT -061 Blockchain Architecture Design
4. KCS-064 Data Compression

Departmental Elective-IV

- 1.KCS071 Artificial Intelligence
- 2.KCS072 Natural language processing
- 3.KCS073 High Performance .Computing
- 4.KCS074 Cryptography and Network Security
- 5.KCS075 Design & Development of Applications
- 6.KCS076 Software Testing
- 7.KCS077 Distributed Systems

Departmental Elective-V

- 1.KCS078 Deep Learning
- 2.KCS079 Service Oriented Architecture
- 3.KCS710 Quantum Computing
- 4.KCS711 Mobile Computing
- 5.KCS712 Internet of Things
- 6.KCS713 Cloud Computing
- 7.KIT071 Software Project Management

**OPEN ELECTIVES**

Open Electives-1

- ROE071 - Modeling and Simulation of Dynamic Systems
- ROE072 - Introduction to Smart Grid
- ROE073 - Cloud computing
- ROE074 - Understanding the human being Comprehensively Human Aspiration audits fulfillment

Open Electives-2

- ROE081 - Digital and Social Media Marketing
- ROE082 - Entrepreneurship Development
- ROE083 - Machine Learning
- ROE084 - Micro and Smart Systems
- ROE085 - Operations Research
- ROE086 - Renewable Energy Resources
- ROE087 - \*Human Values in Madhyasth Darshan
- ROE088 - \*Values, Relationship & Ethical Human Conduct-For a Happy &Harmonious Society

Science Based Open Electives

- KOE031/041 Engineering Mechanics
- KOE032/042 Material Science
- KOE033/043 Energy Science & Engineering
- KOE034/044 Sensor & Instrumentation
- KOE035/045 Basics Data Structure & Algorithms
- KOE036/046 Introduction to Soft Computing
- KOE037/047 Analog Electronics Circuits
- KOE038/048 Electronics Engineering

NPTEL Course (MOOCS Courses Hons. Degree):The student shall be awarded Hons. Degree (on successful completion of MOOCS based 20 credit) if he/she secures 7.50 or above CGPA and passed each subject of that Degree Programme in single attempt without any grace marks.

These NPTEL courses may be cleared during the B. Tech degree program. After successful completion of these Moocs courses the students, shall, provide their successful completion NPTEL status/certificates to the University (COE) through their college of study. The list of courses offered by University:

1. Algorithms for Big Data
2. C Programming and Assembly Language
3. Concepts of Thermodynamics
4. Data Analytics with Python
5. Data Science for Engineers
6. Design Analysis and Algorithm
7. Design of Reinforced Concrete Structures
8. Developing Soft Skills and Personality
9. Emotional Intelligence
10. Enhancing Soft Skills and Personality
11. Fundamental of Welding Science and Technology
12. Fundamentals of Conduction And Radiation
13. Google Cloud Computing Foundation Course
14. Introduction To Block chain Technology And Applications
15. Introduction To Industry 4.0 And Industrial Internet Of Things
16. Introduction To Internet Of Things
17. Introduction To Robotics
18. Introduction To Embedded System Design
19. Manufacturing Process Technology I & II
20. Mat-Lab Programming For Numerical Computation
21. Mechanics of Materials
22. Patent Law for Engineers and Scientist
23. Speaking Effectively
24. Structural Analysis