

Department of Computer Science and Engineering

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
Semester I						
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	
Semester II						

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

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
Semester IV						
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	KCS403	Microprocessor	3	1	0	4
25	KCS451	Operating Systems Lab	0	0	2	1
26	KCS452	Microprocessor 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>

Semester V						
29	RAS501	Managerial Economics	3	0	0	3
30	RAS502 /RUC501	Sociology/Cyber Security	3	0	0	3
31	RCS501	Database Management Systems	3	0	0	3
32	RCS502	Design and analysis of	3	1	0	4

		Algorithm				
33	RCS503	Principles of Programming Languages	3	0	0	3
34	CS-Elective-I	Deptt. Elective Course 1	3	1	0	4
35	RCS551	Database Management Systems Lab	0	0	2	1
36	RCS552	Design and analysis of Algorithm Lab	0	0	2	1
37	RCS553	Principles of Programming Languages Lab	0	0	2	1
38	RCS554	Web Technologies Lab	0	0	2	1
Semester VI						
39	RAS601	Industrial Management	3	0	0	3
40	RAS602/ RUC601	Industrial Sociology /Cyber Security	3	0	0	3
41	RCS601	Computer Networks	3	0	0	3
42	RCS602	Compiler Design	3	1	0	4
43	RCS603	Computer Graphics	3	0	0	3
44	CS-Elective-2	Deptt. Elective Course2	3	1	0	4
45	RCS651	Computer Networks Lab	0	0	2	1
46	RCS652	Compiler Design Lab	0	0	2	1
47	RCS653	Computer Graphics Lab	0	0	2	1
48	RCS654	Data Warehousing & Data Mining Lab	0	0	2	1

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

Semester VII						
49	Open Elective-1	Open Elective Course-1	3	0	0	3
50	CS Elective-3	Deptt. Elective Course-3	3	0	0	3
51	CS Elective-4	Deptt. Elective Course-4	3	1	0	4
52	RCS701	Distributed System	3	1	0	4

53	RCS702	Artificial Intelligence	3	0	0	3
54	RCS751	Distributed System Lab	0	0	2	1
55	RCS752	Artificial Intelligence Lab	0	0	2	1
56	RCS753	Industrial Training	0	0	3	2
57	RCS754	Project	0	0	6	3
Semester VIII						
58	Open Elective-2	Open Elective Course-2	3	0	0	3
59	CS Elective-5	Deptt. Elective Course-5	3	1	0	4
60	CS Elective-6	Deptt. Elective Course-6	3	0	0	3
61	RCS851	Seminar	0	0	3	2
62	RCS852	Project	0	0	12	12

Source:

https://aktu.ac.in/pdf/syllabus/syllabus1920/B.Tech_4th%20Year%20CBCS_CSE_2019-20.pdf

<u>DEPARTMENTAL ELECTIVES</u>	
<u>Departmental Electives 1</u>	
RIT-051: Software Project Management	
RIT-052: Software Testing & Audit	
RCS-051: Operation Research	
RCS-052: Web Technologies	
<u>Departmental Electives 2</u>	
RIT-061 : Design and Development of Applications	
RIT-062 :Data warehousing& Data Mining	
RCS-061:Internet of Things	
RCS-062:Neural Network	
<u>Departmental Electives 3</u>	
RCS-070: Embedded Systems	
RCS-071: Application of Soft Computing	
RCS-072: High Performance Computing	
RCS-073: Human Computer Interface	

Departmental Electives 4

RCS-075: Cloud Computing
RCS-076:Block chain Architecture Design
RCS-077: Agile Software Development
RCS-078: Augmented & Virtual Reality

Departmental Electives 5

RCS-080: Machine Learning
RCS-081: Game Programming
RCS-082: Image Processing
RCS-083: Parallel and Distributed Computing

Departmental Electives 6

RCS-085: Speech Natural language processing
RCS-086: Deep Learning
RCS-087: Data Compression
RCS-088: Quantum Computing

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