

## IIIT Raichur BTech CSE Curriculum (2023 Batch)

First Year						
Semester -1				Semester-2		
Sl.No.	Course Name	Code	Credits	Course Name	Code	Credits
1	Mathematics I	MA101	3	Mathematics II	MA102	3
2	Introduction to Programming	ID110	3	Introduction to Life Sciences	BO121	1
3	Digital Fabrication	ID120	2	Hardware Description Language	EE121	2
4	Digital Logic Design	ID130	1	Discrete Structures	CS121	3
5	Digital Systems Design	ID131	1	Introduction to Object Oriented Programming	CS122	4
6	Introduction to AI& DS	ID141	2	Independent Project	ID151	1
7	Introduction to Computer Science	CS101	2	Professional Communication Skills and Writing	ID161	2
8	LA/CA elective	LXXXX	2			
<b>Total credits</b>			<b>16</b>	<b>Total credits</b>		<b>16</b>

Second Year						
Semester - 3				Semester - 4		
Sl. No	Course Name	Code	Credits	Course Name	Code	Credits
1	Introduction to Probability, Statistics and Random Process	MA201	3	Design and Analysis of Algorithms	CS251	3
2	Data Structures	CS201	4	Operating Systems Theory/ Operating Systems Lab	CS221/ CS222	3+1
3	Theory of Computation	CS202	3	Compiler and Programming Language	CS232	3
4	Software Engineering	CS210	3	DBMS	CS261	3
5	Computer Architecture	CS241	3	Engineering Elective	XXxxx	3
6	Introduction to Python Programming	CS231	1	LA Electives	LAxxx	2
7	LA elective	LAXXX	3			
<b>Total credits</b>			<b>20</b>	<b>Total credits</b>		<b>18</b>

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### Third Year

Semester-5				Semester - 6					
				Without Internship			With Internship		
Sl.No	Course Name	Code	Credit	Course Name	Code	Credits	Course	Code	Credits
1	Computer Networks	CS301	4	Mini Project 1	CS391	3	Internship	CS	6
2	Foundations of Machine Learning	CS311	3	CS Elective 3	CSxxx	3			
3	CS Elective 1	CSxxx	3	CS Elective 4	CSxxx	3			
4	Free Elective 1	XXxxx	3	Free Elective 2	XXxxx	3			
5	CS Elective 2	CSxxx	3	Science Elective	XXxxx	1			
6	Personality Development/ Pro Ethics	ID162/ ID163	2						
<b>Total credits</b>			<b>18</b>	<b>Total credits</b>			<b>13</b>		

### Fourth Year

Semester - 7							Semester- 8					
Without Internship				With Internship			Without Internship			With Internship		
Sl.no	Course	Code	Credit	Course	Code	Credit	Course	Code	Credit	Course	Code	Credit
1	Mini Project 2 / CS Elective 5	CS491	3	Mini Project 1/ CS Elective 3	CSxxx	3	Major Project	CSxxx	9	Major Project	CSxxx	9
2	CS Electiv 6	CSxxx	3	CS Elective 4	CSxxx	3				Free Elective3	XXxxx	3
3	CS Elective 7	CSxxx	3	CS Elective 5	CSxxx	3				CS Elective 7	CSxxx	3
4	Free Elective 3	XXxxx	3	CS Elective 6	CSxxx	3				Science Elective	XXxxx	1
5	Free Elective 4	XXxxx	3	Free Elective 2	XXxxx	3						
<b>Total credits</b>			<b>15</b>	<b>Total credits</b>			<b>9</b>			<b>16</b>		

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**Total Credit requirement = 125**

Sl. No	Without Internship		With Internship	
	Type	Credit	Type	Credit (wo/w)
1	Basic science	11	Basic science	11
2	Basic Engg	15	Basic Engg	15
3	Dept Core	43	Dept Core	43
4	*Dept Electives	21 (-3)	*Dept Electives	21 (-3)
5	Free Electives	12	Free Electives	9
6	Life Skills	4	Life Skills	4
7	LA/CA	7	LA/CA	7
8	*Project	15 (+3)	*Internship+ project	12 (+3)
<b>Total</b>	<b>125</b>		<b>125</b>	

- \*One CS Elective is in option with a mini project

### Credit Courses Categorization:

Sl. No.	Course Type	List of courses
1.	Basic Sciences	MA101, MA102, BO121, MA201.
2.	Basic Engg	All Courses with code IDXXX except ID161 and ID162/163.
3.	Dept. Core	All Courses starting with CSXXX except CS Elective.
4.	Dept. Elective	All CS Elective Courses.
5.	Free Electives	All Free Elective Courses.
6.	Life Skills	ID161 and ID162/163.
7.	LA/CA	All LA/CA Electives
8.	Project.	Minor Project 1, Minor Project 2 and Major Project.

### Glossary of Terms:

1. **CS Elective:** A course of the student's choice, to be selected from the pool of electives offered by the CS department
2. **Free Elective:** A course of the student's choice, to be selected from any department (subject to meeting the prerequisites) or any online course
3. **LA/CA Elective:** A course of the student's choice, to be selected from the Liberal Arts and Creative Arts category
4. **Science Elective:** A course of the student's choice, to be selected from the Science stream

**Credit Requirement:** The minimum credit requirement for successful completion of the B.Tech course is 124 credits

**Semester Internship:**

## IIIT Raichur BTech CSE Curriculum (2023 Batch)

1. A student can enroll for an internship in either the 6th or 7th or 8th semester.
2. A student has to score a minimum of 7.5 CGPA with no active backlogs in all previous semesters for availing of the internship.
3. The duration of the internship is 6 months.
4. Only one internship is allowed in the entire BTech course.
5. A student has to complete the mandatory credits requirement before going to the internship.
6. A student opting for the internship has to inform his/her faculty adviser prior (at the beginning of a particular semester) along with the letter of approval from the industry/research institute he/she wants to get enrolled in.
7. Upon successful completion, a student has to submit the internship report to the faculty adviser. A committee will be formed to conduct the viva for evaluation.
8. Below are the guidelines which have to be followed if a student opts for an internship in a specific semester:

Sl. No.	Semester for enrolling	Guidelines
1.	6th Semester	It is mandatory for the student to complete the credit courses in either the 7th or 8th semester.
		If no courses are offered during the 8th semester, the student has to register with the 6th-semester course (during the 8th semester only) to complete the credit requirements.
		Since only one internship is allowed, if a student completes the internship prior to placement, he/she will be allowed to appear for those companies whose mandatory requirement is not internship before PPO.
2.	7th Semester	It is mandatory for the student to complete the credit courses in either the 6th or 8th semester.
		If no courses are offered during the 8th semester, the student has to register with the 6th-semester course (during the 8th semester only) to complete the credit requirements.
		Since only one internship is allowed, if a student completes the internship prior to placement, he/she will be allowed to appear for those companies whose mandatory requirement is not internship before PPO.
3.	8th Semester	A student has to complete the credit requirements before going for an internship.
		If a company offered a mandatory internship, it is possible to convert the internship to an external project provided all the details of the project will be made public and the student should be allowed to publish the thesis online.

### **B.Tech Honors**

# IIIT Raichur BTech CSE Curriculum (2023 Batch)

IIIT Raichur has provision for an Honors program that is designed to challenge the brighter and more ambitious students, without burdening an average student. Some salient features are listed below:

- A student can opt for Honors after the completion of the second year.
- The student should have a CGPA  $\geq 8.0$  (without any backlog) at the end of the fourth semester.
- The student must complete an additional 12 discipline credits.
- The student should have CGPA  $\geq 8.0$  (without any backlog) at the end of the eighth semester and should not have any backlog throughout the B.Tech course.
- Please see the detailed guidelines for enrollment in Honors courses.

## Probable list of CS Electives:

1. Knowledge Representation and Reasoning
2. Machine Learning
3. Logic in Computer Science
4. Formal Verification
5. Information Retrieval
6. Cyber Security
7. Cryptography (and Network security)
8. Big Data analysis and Applications
9. Introduction to Multi-Agent Modeling
10. Graphics and Multimedia
11. Data Mining and warehousing
12. Computational Geometry
13. Digital Image Processing
14. Soft Computing and evolutionary AI
15. Distributed Computing
16. High-performance computing
17. Cloud Computing
18. Human-Computer Interaction
19. VLSI System design
20. Wireless networks
21. Advanced Algorithms
22. Combinatorial Optimization
23. Introduction to Approximation Theory and Optimization
24. Deep Learning with Graphs
25. Introduction to Quantum Machine Learning
26. Maths Tool for Machine learning and Data Science