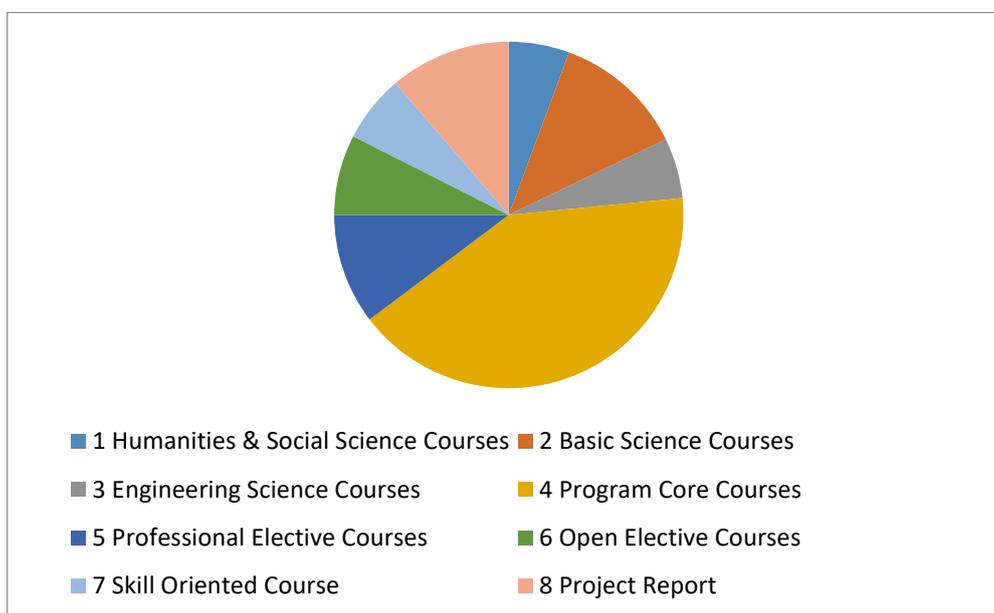


**R V R & J C COLLEGE OF ENGINEERING (Autonomous), CHOWDAVARAM, GUNTUR-19**
**B.Tech., Computer Science & Engineering (AI & ML)**

(w.e.f. the academic year 2021-2022)

**Strucutre (Categories of Courses)**

Sl. No.	Category	Breakup of Credits	Semester								
			I	II	III	IV	V	VI	VII	VIII	
1	Humanities & Social Science Courses	9	4.5	1.5						3	
2	Basic Science Courses	19.5	7.5	7.5	4.5						
3	Engineering Science Courses	9	3	3	3						
4	Program Core Courses	66	4.5	7.5	12	19.5	10.5	12			
5	Professional Elective Courses	16.5					4.5	3	9		
6	Open Elective Courses	12					3	3	6		
7	Skill Oriented Course	10			2	2	2	2	2		
8	Project Report	18					1.5	1.5	3	12	
	<b>Total</b>	<b>160</b>	<b>19.5</b>	<b>19.5</b>	<b>21.5</b>	<b>21.5</b>	<b>21.5</b>	<b>21.5</b>	<b>23</b>	<b>12</b>	



## Semester Wise Structure

### Semester I (First year)

S. No.	Course Code	Course Title	Hours Per Week	Scheme of Examination			Category Code
			L – T – P	INT	EXT	Credits	
1	CM 111	Mathematics – I	3 – 0 – 0	30	70	3	BS
2	CM 112	Engineering Chemistry	3 – 0 – 0	30	70	3	BS
3	CM 113	English for Communication Skills	3 – 0 – 0	30	70	3	HS
4	CM 114	Fundamentals of Computer Science	3 – 0 – 0	30	70	3	PC
5	CM 151	Engineering Chemistry Lab	0 – 0 – 3	30	70	1.5	BS
6	CM 152	English Language Communication Skills Lab	0 – 0 – 3	30	70	1.5	HS
7	CM 153	Engineering Graphics and Design Lab	1 – 0 – 4	30	70	3	ES
8	CM 154	Fundamentals of Computer Science Lab	0 – 0 – 3	30	70	1.5	PC
9	CMMC1	Environmental Science	2 – 0 – 0	100	-	-	MC
		Three Weeks Orientation Program	-	-	-	-	-
<b>Total</b>			<b>15 – 0 – 13</b>	<b>340</b>	<b>560</b>	<b>19.5</b>	

### Semester II (First Year)

S. No.	Course Code	Course Title	Hours Per Week	Scheme of Examination			Category Code
			L – T – P	INT	EXT	Credits	
1	CM121	Mathematics – II	3 – 0 – 0	30	70	3	BS
2	CM122	Engineering Physics	3 – 0 – 0	30	70	3	BS
3	CM123	Digital Electronics	3 – 0 – 0	30	70	3	ES
4	CM 124	Data Structures & Algorithms	3 – 0 – 0	30	70	3	PC
5	CM125	Programming in Python	2 – 0 – 0	30	70	2	PC
6	CM161	Engineering Physics Lab	0 – 0 – 3	30	70	1.5	BS
7	CM 162	Technical Communication & Value Science Lab	0 – 0 – 3	30	70	1.5	HS
8	CM 163	Data Structures & Algorithms Lab	0 – 0 – 3	30	70	1.5	PC
9	CM 164	Programming in Python Lab	0 – 0 – 2	30	70	1	PC
10	CMMC2	Constitution of India	2 – 0 – 0	100	-	-	MC
<b>Total</b>			<b>16 – 0 – 11</b>	<b>370</b>	<b>630</b>	<b>19.5</b>	

### Semester III (Second Year)

S. No.	Course Code	Course Title	Hours Per Week	Scheme of Examination			Category Code
			L – T – P	INT	EXT	Credits	
1	CM 211	Probability and Statistics	3 – 0 – 0	30	70	3	BS
2	CM 212	Discrete Mathematics	3 – 0 – 0	30	70	3	ES
3	CM 213	Computer Organization	3 – 0 – 0	30	70	3	PC
4	CM 214	Database Management Systems	3 – 0 – 0	30	70	3	PC
5	CM 215	Object Oriented Programming	3 – 0 – 0	30	70	3	PC
6	CM 251	Probability and Statistics Lab	0 – 0 – 3	30	70	1.5	BS
7	CM 252	Database Management System Lab	0 – 0 – 3	30	70	1.5	PC
8	CM 253	Object Oriented Programming Lab	0 – 0 – 3	30	70	1.5	PC
9	CM SL1	Skill Oriented Course - I	1 – 0 – 2	100	-	2	SC
10	CM MC3	Design Thinking & Product Innovation	2 – 0 – 0	100	-	-	MC
<b>Total</b>			<b>18 – 0 – 11</b>	<b>440</b>	<b>560</b>	<b>21.5</b>	

### Semester IV (Second Year)

S. No.	Course Code	Course Title	Hours Per Week	Scheme of Examination			Category Code
			L – T – P	INT	EXT	Credits	
1	CM 221	Computational Statistics	3 – 0 – 0	30	70	3	PC
2	CM 222	Artificial Intelligence	3 – 0 – 0	30	70	3	PC
3	CM 223	Operating Systems	3 – 0 – 0	30	70	3	PC
4	CM 224	Software Engineering	3 – 0 – 0	30	70	3	PC
5	CM 225	Design and Analysis of Algorithms	3 – 0 – 0	30	70	3	PC
6	CM 261	Computational Statistics Lab	0 – 0 – 3	30	70	1.5	PC
7	CM 262	Artificial Intelligence Lab	0 – 0 – 3	30	70	1.5	PC
8	CM 263	Design and Analysis of Algorithms Lab	0 – 0 – 3	30	70	1.5	PC
9	CM SL2	Skill Oriented Course - II	1 – 0 – 2	100	-	2	SC
10	CM MC4	Ethics & Human Values	2 – 0 – 0	100	-	-	MC
<b>Total</b>			<b>18 – 0 – 11</b>	<b>440</b>	<b>560</b>	<b>21.5</b>	

*Internship of Minimum 3 Weeks is mandatory during Summer Vacation (Will be evaluated in fifth Semester)*

*\*\*Registration for Honors/Minor degree permitted in this semester (Maximum Two additional courses per semester are permitted for Honors/Minor\*\**

### Semester V (Third Year)

S. No.	Course Code	Course Title	Hours Per Week	Scheme of Examination			Category Code
			L – T – P	INT	EXT	Credits	
1	CM 311	Automata Theory & Formal Languages	3 – 0 – 0	30	70	3	PC
2	CM 312	Computer Networks	3 – 0 – 0	30	70	3	PC
3	CM 313	Data and Visual Analytics in AI	3 – 0 – 0	30	70	3	PC
4	CM 314	Professional Elective – I	3 – 0 – 0	30	70	3	PE
5	CM 315	Open/Job-Oriented Elective – I	3 – 0 – 0	30	70	3	OE
6	CM 351	Data and Visual Analytics in AI Lab	0 – 0 – 3	30	70	1.5	PC
7	CM 352	Professional Elective Lab	0 – 0 – 3	30	70	1.5	PE
8	CM 353	Summer Internship	0 – 0 – 0	100	-	1.5	PR
9	CM SL3	Skill Oriented Course – III	1 – 0 – 2	100	-	2	SC
<b>Total</b>			<b>16 – 0 – 8</b>	<b>410</b>	<b>490</b>	<b>21.5</b>	

### Semester VI (Third Year)

S. No.	Course Code	Course Title	Hours Per Week	Scheme of Examination			Category Code
			L – T – P	INT	EXT	Credits	
1	CM 321	Natural Language Processing	3 – 0 – 0	30	70	3	PC
2	CM 322	Machine Learning	3 – 0 – 0	30	70	3	PC
3	CM 323	Soft Computing	3 – 0 – 0	30	70	3	PC
4	CM 324	Professional Elective – II	3 – 0 – 0	30	70	3	PE
5	CM 325	Open/Job-Oriented Elective – II	3 – 0 – 0	30	70	3	OE
6	CM 361	Natural Language Processing Lab	0 – 0 – 3	30	70	1.5	PC
7	CM 362	Machine Learning Lab	0 – 0 – 3	30	70	1.5	PC
8	CM 363	Term Paper / Seminar	0 – 0 – 3	100	-	1.5	PR
9	CM SL4	Skill Oriented Course – IV	1 – 0 – 2	100	-	2	SC
<b>Total</b>			<b>16 – 0 – 11</b>	<b>410</b>	<b>490</b>	<b>21.5</b>	

*Internship minimum 6 weeks (Mandatory) during summer vacation (will be evaluated in Seventh semester)*

### Semester VII (Fourth Year)

S. No.	Course Code	Course Title	Hours Per Week	Scheme of Examination			Category Code
			L – T – P	INT	EXT	Credits	
1	CM 411	Humanities & Social Sciences Elective	3 – 0 – 0	30	70	3	HS
2	CM 412	Professional Elective – III	3 – 0 – 0	30	70	3	PE
3	CM 413	Professional Elective – IV	3 – 0 – 0	30	70	3	PE
4	CM 414	Professional Elective – V (MOOCS)	0 – 0 – 0	-	100	3	PE
5	CM 415	Open/Job-Oriented Elective – III	3 – 0 – 0	30	70	3	OE
6	CM 416	Open Elective – IV (MOOCS)	0 – 0 – 0	-	100	3	OE
7	CM 451	Industrial Internship / Professional Certification	0 – 0 – 3	100	-	3	PR
8	CM SL5	Skill Oriented Course – V	1 – 0 – 2	100	-	2	SC
<b>Total</b>			<b>13 – 0 – 5</b>	<b>320</b>	<b>480</b>	<b>23</b>	

### Semester VIII (Fourth Year)

S. No.	Course Code	Course Title	Hours Per Week	Scheme of Examination			Category Code
			L – T – P	INT	EXT	Credits	
1	CM 461	Project Work, Seminar and Internship in Industry	0 – 0 – 12	30	70	12	PR
<b>Total</b>			<b>0 – 0 – 12</b>	<b>30</b>	<b>70</b>	<b>12</b>	

**Skill Courses**

<b>Skill Oriented Courses (Basic)</b>	<b>Skill Oriented Course (Advanced)</b>
A. Web Design & Development	A. Mobile App Development
B. Programming with C++	B. Soft Skills
C. 2D - Computer Animation	C. Ethical Hacking
D. Server-side Scripting	D. Computer Animation

**Professional Elective Courses**

<b>V &amp; VI Semesters</b>		<b>VII &amp; VIII Semesters</b>	
<b>Code</b>	<b>Course Title</b>	<b>Code</b>	<b>Course Title</b>
CMEL01	Cloud Computing	CMEL09	Deep Learning
CMEL02	Interactive Computer Graphics	CMEL10	Block Chain Technologies
CMEL03	Cryptography & Network Security	CMEL11	Optimization Techniques for ML
CMEL04	Digital Image Processing	CMEL12	Robotic Process Automation
CMEL05	Business Intelligence & Analytics	CMEL13	Augmented and Virtual Reality
CMEL06	Quantum Computing	CMEL14	Human Computer Interaction
CMEL07	Web Services	CMEL15	Cyber Security
CMEL08	Industry Recommended Course	CMEL16	Industry Recommended Course

**Humanities and Social Science Elective Courses**

<b>Code</b>	<b>Course Title</b>	<b>Code</b>	<b>Course Title</b>
HSEL1	Industrial Management & Entrepreneurship	HSEL3	Introduction To Industrial Management
HSEL2	Economics For Engineers	HSEL4	Project Management & Entrepreneurship

**Open Electives Offered by CSE (AI & ML) for other depts**

<b>Code</b>	<b>Course Title</b>	<b>Code</b>	<b>Course Title</b>
CMOL1	Artificial Intelligence	CMOL2	Programming in C++

**Job-Oriented Elective Courses**

<b>Code</b>	<b>Course Title</b>	<b>Code</b>	<b>Course Title</b>
JOEL21	Open Source Systems	JOEL22	Machine Learning

**Courses offered for Minor in Computer Science & Engineering (AI & ML)**  
**(Offered for ChE / CE / ECE / EEE / ME branch students)**

S. No.	Course Code	Course Title	Hours Per Week	Scheme of Examination			Category Code
			L – T – P	INT	EXT	Credits	
1	CM MR1	Introduction to Artificial Intelligence	3 – 1 – 0	30	70	4	PC
2	CM MR2	Machine Learning	3 – 1 – 0	30	70	4	PC
3	CM MR3	Data Analytics	3 – 1 – 0	30	70	4	PC
4	CM MR4	Soft Computing	3 – 1 – 0	30	70	4	PC
5	CM MR5	MOOCS – I	0 – 0 – 0	-	-	2	PC
6	CM MR6	MOOCS – II	0 – 0 – 0	-	-	2	PC

Note: Two courses to be done through MOOCs (12 weeks duration) with the acceptance of CSE (AI & ML) BoS

List of MOOCS
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- |  |
|--|
| <ul style="list-style-type: none"> <li>A. Natural Language Processing</li> <li>B. Deep Learning</li> <li>C. Data Science for Engineers</li> <li>D. Robotics</li> </ul> |
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