



**KBN PG COLLEGE (AUTONOMOUS): VIJAYAWADA**  
**COURSE STRUCTURE FOR MASTER OF COMPUTER APPLICATIONS**  
**UNDER CHOICE BASED CREDIT SYSTEM (CBCS)**  
**W.E.F 2022-23 (R22 Regulations)**

**I SEMESTER**

Course Code	Course Name	Teaching Hours/ week			CORE / IDC/DSE/ SEC/OEC/ MOOCS	Internal Marks	External Marks	No. of Credits
		Lecture	Practical	Tutorial				
R22MCA101	Programing and Problem Solving using Python	4	0	0	Core	30	70	4
R22MCA102	Data Structures	4	0	0	Core	30	70	4
R22MCA103	Mathematical and Statistical Foundations	4	0	0	Core	30	70	4
R22MCA104	Operating Systems	4	0	0	Core	30	70	4
R22MCA105 <b>COMPULSORY</b>	<b>Personality Development through Life Enlightenment Skills</b>	3	1	0	Core	30	70	3
R22MCA106	Data Structures Lab	0	6	0	Core	30	70	3
R22MCA107	Python Lab	0	6	0	Core	30	70	3
<b>TOTAL FOR FIRST SEMESTER</b>						<b>210</b>	<b>490</b>	<b>25</b>

**II SEMESTER**

Course Code	Course Name	Teaching Hours/ week			CORE / IDC/DSE/ SEC/OEC/ MOOCS	Internal Marks	External Marks	No. of Credits
		Lecture	Practical	Tutorial				
R22MCA201	Software Engineering and Design Patterns	4	0	0	Core	30	70	4
R22MCA202	Database Management Systems	4	0	0	Core	30	70	4
R22MCA203	Computer Networks	4	0	0	Core	30	70	4
<b>R22MCA204 COMPULSORY</b>	<b>Research Methodology &amp; IPR</b>	3	1	0	SEC	30	70	3
<b>DOMAIN SPECIFIC ELECTIVE COURSES (CHOOSE ANY ONE)</b>								
R22MCA205E1	Design and Analysis of Algorithms	4	0	0	DSE	30	70	4
R22MCA205E2	Data warehousing and Data Mining	4	0	0	DSE	30	70	4
R22MCA205E3	Cloud Computing	4	0	0	DSE	30	70	4
<b>LAB PRACTICALS</b>								
R22MCA206	Data Mining Lab	0	6	0	Core	30	70	3
R22MCA207	Database Management Systems Lab	0	6	0	Core	30	70	3
<b>TOTAL FOR SECOND SEMESTER</b>						<b>210</b>	<b>490</b>	<b>25</b>

At the end of 2<sup>nd</sup> semester, every student must undergo summer Internship/ Apprenticeship/Project work/Industrial training/Research based Project work for Six weeks and must prepare a report concerned as per approved project guidelines, and submit the same to the University 14 days before the commencement of third semester end examinations.

### III SEMESTER

Course Code	Course Name	Teaching Hours/ week			CORE / IDC/DSE/ SEC/OE C/MOOC S	Internal Marks	External Marks	No. of Credits
		Lecture	Practical	Tutorial				
R22MCA301	Data Science	4	0	0	Core	30	70	4
<b>DOMAIN SPECIFIC ELECTIVE COURSES (CHOOSE ANY THREE)</b>								
R22MCA302E1	Principles of Programming Languages	4	0	0	DSE	30	70	4
R22MCA302E2	Artificial Intelligence	4	0	0	DSE	30	70	4
R22MCA302E3	Block Chain Technologies	4	0	0	DSE	30	70	4
R22MCA302E4	Information Security	4	0	0	DSE	30	70	4
R22MCA302E5	Applied Data Analytics	4	0	0	DSE	30	70	4
R22MCA302E6	Dynamic Web Programming	4	0	0	DSE	30	70	4
<b>LAB PRACTICALS</b>								
R22MCA303	Data Science lab	0	6	0	Core	30	70	3
R22MCA304	Dynamic Web Programming Lab	0	6	0	Core	30	70	3
<b>OPEN ELECTIVE (INTERDISCIPLINARY/MULTIDISCIPLINARY) COURSES (CHOOSE ANY ONE)</b>								
R22MCAOE1	R Programming	3	0	0	OEC	30	70	3
R22MCAOE2	Mobile Networks	3	0	0	OEC	30	70	3
R22MCAOE3	Unix Programming	3	0	0	OEC	30	70	3
R22MCAOE4	Office Tools	3	0	0	OEC	30	70	3
R22MCAOE5	Python Programming	3	0	0	OEC	30	70	3
<b>TOTAL FOR III SEMESTER</b>						<b>210</b>	<b>490</b>	<b>25</b>

### IV SEMESTER

Course Code	Course Name	Teaching Hours/ week			CORE / IDC/DSE/ SEC/OEC/ MOOCS	Internal Marks	External Marks	No. of Credits
		Lecture	Practical	Tutorial				
R22MCA401	Big Data Analytics	4	0	0	Core	30	70	4
<b>DOMAIN SPECIFIC ELECTIVE COURSES (CHOOSE ANY ONE)</b>								
R22MCA402E1	Data Processing and Visualization using Tableau	4	0	0	DSE	30	70	4
R22MCA402E2	Fog Computing for IOT	4	0	0	DSE	30	70	4
R22MCA402E3	Technical Report writing	4	0	0	DSE	30	70	4
R22MCA402E4	Machine Learning	4	0	0	DSE	30	70	4
<b>LAB PRACTICALS</b>								
R22MCA403	Big Data Analytics Lab	0	6	0	Core	30	70	3

ENTREPRENURIAL & INNOVATION/IT SKILL RELATED TO DOMAIN SPECIFIC ELECTIVE COURSES (CHOOSE ANY ONE)									
R22MCA404E1	Social Networking	3	0	0	SEC	30	70	3	
R22MCA404E2	Deep Learning	3	0	0	SEC	30	70	3	
R22MCA404E3	NO SQL Databases	3	0	0	SEC	30	70	3	
<b>* CHOOSE MOOCs FROM SWAYAM/NPTEL SOURCES</b>									
MOOCs									2
SEMINAR									2
<b>PROJECT WORK EVALUATION AND VIVA-VOCE</b>								200	12
<b>TOTAL FOR IV SEMESTER</b>						<b>120</b>	<b>480</b>	<b>30</b>	

**Note:** Students may be allowed to register and appear for any Eight Weeks MOOC course from the third semester itself. However if the student fail to produce the pass certificate , autonomous will conduct semester end examination for the concerned paper.

➤ **Total number of credits at the end of course:**

S.No	Semester	Credits
1	I Semester	25
2	II Semester	25
3	III Semester	25
4	IV Semester	30
<b>TOTAL</b>		<b>105</b>

➤ **Procedure to evaluate midterm examinations:**

Two mid examinations will be conducted in every semester. Final mid semester marks shall be arrived at by considering the Best of the two mid marks of the examinations.

**Note:**

For Example:

Marks obtained in first mid: 30

Marks obtained in second mid: 28

Final mid semester Marks: Best of (30,28) = 30

- **Practical:**

*Continuous assessment/ Day to day work	Semester End Exam	Total
30 marks	70 marks	100M

\*Continuous assessment sheet given below.

**Note:** For practical courses, there shall be a continuous evaluation during the semester for 30 sessional marks and end examination shall be for 70 marks. Day-to-day work in the laboratory shall be evaluated for 30 marks by the concerned laboratory teacher based on the regularity/record/viva. The end examination shall be conducted by the concerned laboratory teacher and external examiner in the subject from other university.

- Internal marks will be awarded by internal examiner only.

**Procedure for Project Evaluation and Viva-Voce:**

The Project Evaluation and Viva-Voce for 200 marks shall be conducted by a committee consisting of HOD, Project Supervisor and an External Examiner nominated by the University. The Internal Evaluation shall be made by the departmental committee on the basis of review presentation given by each student on the topic of his/her project.