BACHELOR OF TECHNOLOGY
INTERNET OF THINGS (CSE)
COURSE STRUCTURE & SYLLABUS (R20)
(Batches admitted from the academic year 2020-2021

Department of
Computer Science & Engineering
(Emerging Technologies)

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(AUTONOMOUS INSTITUTION - UGC, GOVT. OF INDIA)
Affiliated to JNTUH; Approved by AICTE, NBA-Tier 1 & NAAC with A-GRADE | ISO 9001:2015

EAMCET/ECET/PGECET/ICET CODE: **MLRD**

MRCET CAMPUS
(Autonomous Institution – UGC, Govt. of India)

BACHELOR OF TECHNOLOGY
CSE
(Internet of Things - IoT)
COURSE STRUCTURE & SYLLABUS (R20)
(Batches admitted from the academic year 2020 - 2021)

Department of
COMPUTER SCIENCE & ENGINEERING
(EMERGING TECHNOLOGIES)

M R C E T CAMPUS

(Autonomous Institution – UGC, Govt. of India)

(Affiliated to JNTU, Hyderabad, Approved by AICTE - Accredited by NBA & NAAC – _A' Grade - ISO 9001:2015 Certified)
Maisammaguda, Dhulapally (Post Via. Kompally), Secunderabad – 500100, Telangana State, India.
Contact Number: 040-23792146/64634237, E-Mail ID: mrcet2004@gmail.com, website:
www.mrcet.ac.in

Note: The regulations here under are subject to amendments as may be made by the Academic Council of the College from time to time. Any or all such amendments will be effective from such date and to such batches of candidates (including those already pursuing the program) as may be decided by the Academic Council.

PRELIMINARY DEFINITIONS AND NOMENCLATURES

➢ Autonomous Institution /College‖- means an institution/college designated as autonomous institute / college by University Grants Commission (UGC), as per the UGC Autonomous College Statutes.

➢ Academic Autonomy -‖means freedom to the College in all aspects of conducting its academic programs, granted by the University for promoting excellence.

➢ Commission - means University Grants Commission.

➢ AICTE - means All India Council for Technical Education.

➢ University - The Jawaharlal Nehru Technological University, Hyderabad.

➢ College – means Malla Reddy College of Engineering & Technology, Secunderabad unless indicated otherwise by the context.

➢ Program - means:
- ▪ Bachelor of Technology (B.Tech) degree program
- ▪ UG Degree Program: B.Tech

➢ Branch means specialization in a program like B.Tech degree program in Computer Science and Engineering, B.Tech degree program in Electronics & Communication Engineering etc.

➢ Course or Subject means a theory or practical subject, identified by its course–number and course-title, which is normally studied in a semester.

➢ T–Tutorial, P–Practical, D–Drawing, L-Theory, C-Credits

FOREWORD

The autonomy is conferred on Malla Reddy College of Engineering & Technology (MRCET) by UGCbased on its performance as well as future commitment and competency to impart quality education. It is a mark of its ability to function independently in accordance with the set norms of the monitoring bodies like UGC and AICTE. It reflects the confidence of the UGC in the autonomous institution to uphold and maintain standards it expects to deliver on its own behalf and thus awards degrees on behalf of the college. Thus, an autonomous institution is given the freedom to have its own curriculum, examination system and monitoring mechanism, independent of the affiliating University but under its observance.
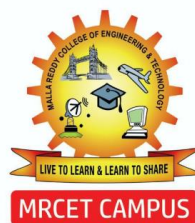
Malla Reddy College of Engineering & Technology (MRCET CAMPUS) is proud to win the credence of all the above bodies monitoring the quality of education and has gladly accepted the responsibility of sustaining, and also improving upon the values and beliefs for which it has been striving for more than a decade in reaching its present standing in the arena of contemporary technical education. As a follow up, statutory bodies like Academic Council and Boards of Studiesare constituted with the guidance of the Governing Body of the College and recommendations of the JNTU Hyderabad to frame the regulations, course structure and syllabi under autonomous status.

The autonomous regulations, course structure and syllabi have been prepared after prolonged and detailed interaction with several experts drawn from academics, industry and research, in accordance with the vision and mission of the college which reflects the mindset of the institutionin order to produce quality engineering graduates to the society.

All the faculty, parents and students are requested to go through all the rules and regulations carefully. Any clarifications, if needed, are to be sought at appropriate time with principal of the college, without presumptions, to avoid unwanted subsequent inconveniences and embarrassments. The cooperation of all the stakeholders is sought for the successful implementation of the autonomous system in the larger interests of the institution and brighter prospects of engineering graduates.

"A thought beyond the horizons of success committed for educational excellence"

PRINCIPAL

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)

Vision of the Department

"To be at the forefront of Emerging Technologies and to evolve as a Centre of Excellence in Research, Learning and Consultancy to foster the students into globally competent professionals useful to the Society."

Mission of the Department

The department of CSE (Emerging Technologies) is committed to:

- To offer highest Professional and Academic Standards in terms of Personal growth and satisfaction.
- Make the society as the hub of emerging technologies and thereby capture opportunities in new age technologies.
- To create a benchmark in the areas of Research, Education and Public Outreach.
- To provide students a platform where independent learning and scientific study are encouraged with emphasis on latest engineering techniques.

QUALITY POLICY

- To pursue continual improvement of teaching learning process of Undergraduate and Post Graduate programs in Engineering & Management vigorously.
- To provide state of art infrastructure and expertise to impart the quality education and research environment to students for a complete learning experiences.
- Developing students with a disciplined and integrated personality
- To offer quality relevant and cost effective programmes to produce engineers as per requirements of the industry need.
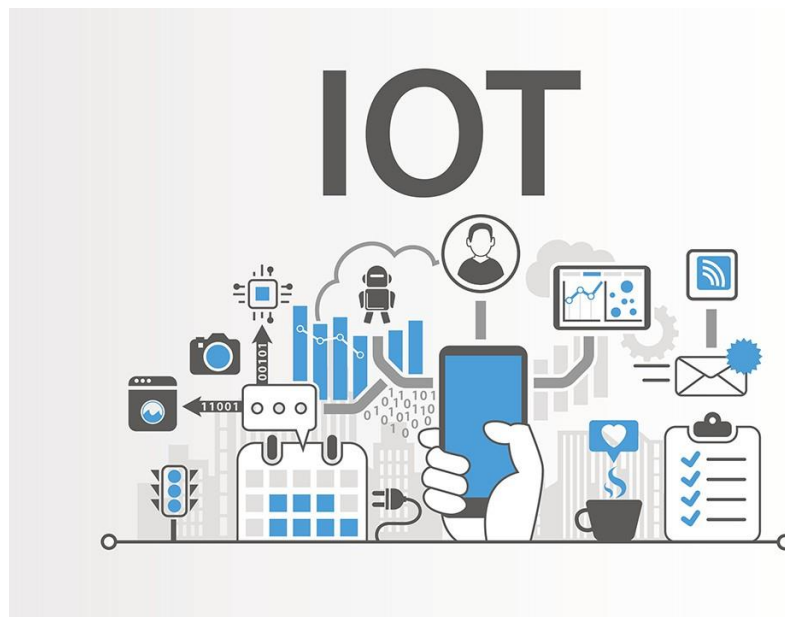
For more information: www.mrcet.ac.in

BACHELOR OF TECHNOLOGY (B.Tech)

Internet of Things (IoT)

Course Structure

(Batches admitted from the academic year 2020 - 2021)

MALLAREDDY COLLEGE OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF CSE-EMERGING TECHNOLOGIES (IOT)

I B. Tech (CSE) - IoT – I Semester (I Year I Semester)

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	MAX. MARKS	
							INT	EXT
1	R20A0001	English	2	0	0	2	30	70
2	R20A0021	Mathematics – I	3	1	0	4	30	70
3	R20A0201	Basic Electrical Engineering	3	0	0	3	30	70
4	R20A0301	Computer Aided Engineering Graphics	2	0	2	3	30	70
5	R20A0501	Programming for Problem Solving	3	0	0	3	30	70
6	R20A0281	Basic Electrical Engineering Lab	-	0	4	2	30	70
7	R20A0581	Programming for Problem Solving Lab	-	0	3	1.5	30	70
8	R20A0081	English Language Communication Skills Lab	-	0	3	1.5	30	70
9	R20A0003*	Human Values & Professional Ethics	2	0	0	0	100	-
		TOTAL	15	1	12	20	340	560

I B. Tech (CSE) - IoT – II Semester (I Year II Semester)

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	MAX. MARKS	
							INT	EXT
1	R20A0002	Professional English	2	0	0	2	30	70
2	R20A0022	Mathematics – II	3	1	0	4	30	70
3	R20A0011	Applied Physics	2	0	3	3	30	70
4	R20A0401**	Analog and Digital Electronics	3	0	0	3	30	70
5	R20A0502	Python Programming	3	0	0	3	30	70
6	R20A0082	Applied Physics Lab	-	0	4	2	30	70
7	R20A0582	Python Programming Lab	-	0	3	1.5	30	70
8	R20A0083	Engineering and IT Workshop	-	0	3	1.5	30	70
9	R20A0064	Financial Institutions, Markets and Services	2	-	-	0	100	-
		TOTAL	15	1	13	20	340	560

*Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree
** Analog and Digital Electronics Lab will not be externally evaluated

II B. Tech (CSE) - IoT – III Semester (II Year I Semester)

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	MAX. MARKS INT	EXT
1	R20A0503	Data Structures Using Python	3	0	0	3	30	70
2	R20A1201	Computer Organization and Microprocessor	3	0	0	3	30	70
3	R20A0504	Operating Systems	3	0	0	3	30	70
4	R20A0510	Computer Networks	3	0	0	3	30	70
5	R20A0024	Probability and Statistics	3	0	0	3	30	70
6	R20A0061	Managerial Economics and Financial Analysis	3	0	0	3	30	70
7	R20A0583	Data Structures Using Python Lab	-	0	3	1.5	30	70
8	R20A0593	Computer Networks and Operating Systems Lab	-	0	3	1.5	30	70
9	R20A0004*	Foreign Language: French	2	-	-	0	100	-
		TOTAL	20	-	6	21	340	560

*Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree

II B. Tech (CSE) - IoT – IV Semester (II Year II Semester)

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	MAX. MARKS INT	EXT
1	R20A0505	Design and Analysis of Algorithms	3	0	0	3	30	70
2	R20A6901	Internet of Things	3	0	0	3	30	70
3	R20A1202	Automata and Compiler Design	3	0	0	3	30	70
4	R20A0508	Object Oriented Programming through Java	3	0	0	3	30	70
5	R20A0509	Database Management Systems	3	0	0	3	30	70
6		Open Elective-I	3	0	0	3	30	70
7	R20A0585	Object Oriented Programming through Java Lab	-	0	3	1.5	30	70
8	R20A0586	Database Management Systems Lab	-	0	3	1.5	30	70
9	R20A0008*	Global Education & Professional Career	2	-	-	0	100	-
		TOTAL	20	-	6	21	340	560

*Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree

III B. Tech(CSE) - IoT – V Semester (III Year I Semester)

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	MAX. MARKS	
							INT	EXT
1	R20A0513	Artificial Intelligence	3	0	0	3	30	70
2	R20A6903	Embedded Systems and Design	3	0	0	3	30	70
3	R20A6904	Wireless Sensor Networks	3	0	0	3	30	70
4	R20A6706 R20A0562 R20A0511	**Professional Elective-I** 1. Data Science for IoT 2. Computer Graphics 3. Software Engineering	3	0	0	3	30	70
5	R20A6204 R20A1206 R20A0515	**Professional Elective-II** 1.Database Security 2.Data Warehousing and Data Mining 3. Scripting Languages	3	0	0	3	30	70
6		Open Elective-II	3	0	0	3	30	70
7	R20A6981	Embedded Design Lab	0	0	3	1.5	30	70
8	R20A0588	Artificial Intelligence Lab	0	0	3	1.5	30	70
9	R20A6991	Application Development – I	0	0	0	2	30	70
10	R20A0007*	Constitution of India	0	-	-	2	30	70
		TOTAL	**20**	**-**	**6**	**23**	**370**	**630**

*Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree

III B. Tech(CSE) - IoT – VI Semester (III Year II Semester)

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	MAX. MARKS	
							INT	EXT
1	R20A0518	Machine Learning	3	0	0	3	30	70
2	R20A1207	Mobile Application Development	3	0	0	3	30	70
3	R20A0520 R20A6609 R20A6907	**Professional Elective-III** 1. Big Data Analytics 2. Natural Language Processing 3. IoT Security & Privacy	3	0	0	3	30	70
4	R20A6202 R20A0523 R20A6606	**Professional Elective-IV** 1. Cyber Security 2. Software Testing Methodologies 3. Human Computer Interaction	3	0	0	3	30	70
5		Open Elective-III	3	0	0	3	30	70
6	R20A1284	Mobile Application Development Lab	0	0	3	1.5	30	70
7	R20A0590	Machine Learning Lab	0	0	3	1.5	30	70
8	R20A6992	Application Development II	0	0	0	2	30	70
9	R20A0006*	Technical Communication & Soft Skills	2	-	-	0	100	-
		TOTAL	**20**	**-**	**6**	**20**	**340**	**560**

*Mandatory course: Non-credit course, 50% of scoring is required for the award of the degree

IV B. Tech(CSE) - IoT – VII Semester (IV Year I Semester)

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	MAX. MARKS	
							INT	EXT
1	R20A0516	Full Stack Development	3	0	0	3	30	70
2	R20A0522	Blockchain Technology	3	0	0	3	30	70
3	R20A6610	Deep Learning	3	0	0	3	30	70
4	R20A6215 R20A0517 R20A7305	**Professional Elective-V** 1. Cyber Forensics 2. Distributed Systems 3. Computer Vision	3	0	0	3	30	70
5	R20A0521 R20A7201 R20A6213	**Professional Elective-VI** 1. Cloud Computing 2. Text Analytics 3. Ethical Hacking	3	0	0	3	30	70
6	R20A6993	Mini Project	-	-	0	3	30	70
7	R20A0591	Blockchain Technology Lab	-	-	3	1.5	30	70
8	R20A0589	Full Stack Development Lab	-	-	3	1.5	30	70
		TOTAL	15	-	6	21	240	560

IV B. Tech(CSE) - IoT – VIII Semester (IV Year II Semester)

S.NO	SUBJECT CODE	SUBJECT	L	T	P	C	MAX. MARKS	
							INT	EXT
1	R20A0337	Innovation, Start-up & Entrepreneurship	3	1	-	4	30	70
2	R20A6994	Major Project	-	-	20	10	30	70
		TOTAL	3	1	20	14	60	140