



# Malla Reddy Engineering College

(An UGC Autonomous Institution, Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad).  
Accredited 3<sup>rd</sup> time by NAAC with 'A++' Grade, NIRF Rank Band 250-300, ARIIA Band Performer, NBA  
Tier -I Accredited (B.Tech – CE, EEE, ME, ECE & CSE, M.Tech – Structural Engg, Electrical Power Systems,  
Thermal Engg.) Maisammaguda(H), Medchal-Malkajgiri, Secunderabad, Telangana-500100, [www.mrec.ac.in](http://www.mrec.ac.in)



## The 14<sup>th</sup> BOARD OF STUDIES MEETING

### ACADEMIC YEAR 2023-24

### (MR22, MR21 AND MR20 REGULATIONS)



## DEPARTMENT OF INFORMATION TECHNOLOGY

*[Signature]*  
D. Shrinivas Kumar (Chairman)

*[Signature]*  
A. Sankar

*[Signature]*  
M.A.

*[Signature]*  
S. Kumar

*[Signature]*

*[Signature]*  
V.R.

*[Signature]*

*[Signature]*  
P.R.



# Malla Reddy Engineering College

(An UGC Autonomous Institution approved by AICTE and affiliated to JNTU Hyderabad, Accredited by NAAC with 'A' Grade (II - cycle)  
NBA Accredited Programmes - UG (CE, EEE, ME, ECE & CSE) PG (CE - Structural Engg., EEE-Electrical Power Systems, ME - Thermal Engg.).

To  
The Principal,  
MREC (A),  
Secunderabad-500100.

Date: 17/03/2023

**Sub: Request to approve the constitution of BOS-Dept.of Information Technology for B.Tech-UG programme for the Academic Year 2022-23-Reg.**

Respected Sir,

The following members are proposed as Board of Studies (BOS) members for the Academic Year 2022-23 to the B.Tech-IT programme. Request you to approve the same.

S. No	Name of the Member	Designation & Official Address	Subject / Specialization	Contact No	E-mail	Category
1	Dr. Deena Babu Mandru	Prof & HOD	CSE	9491369993	ithod@mrec.ac.in	Chairman
2.	Dr. D. Ramesh	Principal JNTUHCE Jagityal.	CSE	9866789967	dantamr@yahoo.com	University Nominee
3	Dr. M. Swami Das	Professor, Dept. of CSE, CBIT, Hyd.	CSE	9490475959	msdas@cbit.ac.in	Subject Expert Member (Outside the Parent University)
4	Dr. M. Suresh Babu	Professor & Principal, IIS	CS&IS	9989988912	principaliis@rediffmail.com	Subject Expert Member (Outside the Parent University)
5	Mr. D. Shiva Shankar	Data Scientist, Deloitte, Hyderabad	Software	9297256245	shivadsshankar@gmail.com	Industry Expert
6	Ms.P.Swapna	Assistant Professor	CSE	88857 55687	swapna.pochaboina@gmail.com	Faculty Member
7	Mrs.M.Sandya Vani	Assistant Professor	CSE	9542455985	sandhyavani@mrec.ac.in	Faculty Member
8	Mr.N.Sathish Kumar	Assistant Professor	CSE	83745 44678	satishkumar@mrec.ac.in	Faculty Member
9	Mr.P.Saidulu	Assistant Professor	SE	90638 02000	saidulu2palleti@gmail.com	Faculty Member
10	Mr. A.Venktrami Reddy	Assistant Professor	CSE	7993693680	ailuri.vrreddy@gmail.com	Faculty Member
11	Dheeraj Tallapally	S/W Engg, DBS Bank, Hyd	IT	80745 99828	dheeraj.ln428@gmail.com	Alumni

  
Principal



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Maisammaguda(H), Medchal - Malkajgiri District, Secunderabad, Telangana State - 500100, [www.mrec.ac.in](http://www.mrec.ac.in)



### Department of Information Technology

Date: 18/03/2023


#### 14<sup>th</sup> Board of Studies Meeting



The 14<sup>th</sup> UG-B.Tech IT Board of Studies meeting for the Department of Information Technology is conducted on 18-03-2023 at 2:30 PM in the CSE Conference Hall.






#### AGENDA

The agenda of the BOS meeting is as follows:

- 14.1 Action Taken Report (ATR) on previous BOS Meeting for the A.Y 2022-23 which is held on 05.11.2022.
- 14.2 Discussion and approval of MR22 Regulations-B.Tech. IT course - II Year Schema and Syllabus (MR22 Regulations-Batches admitting from the Academic Year 2022-23 onwards).
- 14.3 Discussion and approval of MR21 Regulations-B.Tech.IT course-III and IV Year Schema and Syllabus (MR21 Regulations-Batches admitting from the Academic Year 2021-22 onwards).
- 14.4 Review of MR20 Regulations-B.Tech.IT course-IV Year Schema and Syllabus (MR20 Regulations-Batches admitting from the Academic Year 2020-21 onwards).
- 14.5 Discussion and ratification of UG B.Tech readmitted students course structure with substitute / additional subjects for the Academic Year 2022-23, details as given below.
  - a. I Year Course structure for readmitting students (for MR21/MR20/MR18 regulations)
  - b. II Year Course structure for readmitting students (for MR20/MR18/MR17 regulations)
  - c. III&IV Year Course structures for readmitting students (for MR18/MR17 Regulations)
- 14.6 Suggestion and review panel of names for paper setters, and examiners for both theory and practical examinations that will be submit for Academic Council for approval.
- 14.7 Suggest methodologies for innovative teaching and evaluation techniques.
- 14.8 Suggestion of any activity related to research, teaching, extension and other academic activities in the department/college.
- 14.9 Delegation of power to the chairman-BOS based on the recommendation of the committee on circulation, for inclusion and exclusion of any item as per the requirements.

  
(Dr. Deena Babu Mandru)  
HOD & Chairman  
UG-B.Tech-IT-BOS

   
D. Shrinivas



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**Department of Information Technology**

18.03.2023

**14<sup>th</sup> BOS Meeting**

**Action Taken Report (ATR) on previous BoS Meeting (13<sup>th</sup>) in AY 2022-23**

The previous (13<sup>th</sup>) Board of Studies meeting to the A.Y 2022-23 was held on 11/05/2022. The following resolutions and corresponding actions are taken as follows:

<b>Resolution 1</b>	Implementation of MR22 Regulations as per JNTUH R22 Regulations
<b>Action Taken</b>	Regulations prepared as per JNTUH R22 regulations
<b>Resolution 2</b>	Discussion of MR20 Course Structure and detailed Syllabus for III/II, IV/I and IV/II.
<b>Action Taken</b>	The devised scheme of instructions is prepared for MR20 regulation for III/II, IV/I and IV/II and is implemented from the academic year 2022-23 and 2023-24.
<b>Resolution 3</b>	Implementation of Course Structure and Syllabus for II Year (MR21 batch)
<b>Action Taken</b>	The same has been implemented
<b>Resolution 4</b>	BOS Members suggested that change the course title of the following Courses: <b>Essentials of Big Data Analytics</b> as <b>Big Data Analytics</b> in III Year II Semester (MR20 Regulations (PE-V)) and <b>Fundamentals of Block Chain Technology</b> as <b>Block Chain Technologies and Applications of Deep Learning</b> as <b>Deep Learning</b> in IV/I Semester (MR20 Regulations (PE-VI)).
<b>Action Taken</b>	The same has been implemented
<b>Resolution 5</b>	If any item needs to be modified /added/ deleted, the same may be circulated by e-mail to all members and after taking <b>electronic/e-mail approval</b> the modification may be made operational.
<b>Action Taken</b>	Consent mail has been sent to all members of BOS and the members have given their consent for the Course Structure and Syllabus.

V.R.

D. Shrinivas

N. Subbarao  
my

Chaitanya

(Dr. Deena Babu Mandru)  
HOD & Chairman  
UG-B.Tech-IT-BOS



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### Department of Information Technology

Date: 18/03/20223

### 14<sup>th</sup> BOS-Minutes of Meeting

The 14<sup>th</sup> Board of Studies meeting of B.Tech-IT (UG) for the academic year 2022-23 is conducted on 18/03/2023 at 02:30 P.M in offline mode. The following BOS Members have attended to the Meeting:

#### a. BOS Members

Sl.No	Name of the Member	Designation	Position
1	Dr.Deena Babu Mandru	Prof & Head	Chairman
2.	Dr.D. Ramesh	Principal, JNTUHCE, Jagitya.	University Nominee
3	Dr.M. Swami Das	Professor, Dept. of CSE, CBIT, Hyd.	Subject Expert (Outside the Parent University)
4	Dr.M. Suresh Babu	Professor & Principal, IIS	Subject Expert (Outside the Parent University)
5	Mr. D. Shiva Shankar	Data Scientist, Deloitte, Hyderabad	Industry Expert
6	Ms.P.Swapna	Assistant Professor	Faculty Member
7	Mrs.M.Sandya Vani	Assistant Professor	Faculty Member
8	Mr.N.Sathish Kumar	Assistant Professor	Faculty Member
9	Mr.P.Saidulu	Assistant Professor	Faculty Member
10	Mr.A.Venktrami Reddy	Assistant Professor	Faculty Member
11	Dheeraj Tallapally	S/W Engg, DBS Bank, Hyd	Alumni

#### b. Agenda of the Meeting

The agenda of the BOS meeting is as follows:

1. Action Taken Report (ATR) on previous BOS Meeting for the A.Y 2022-23 which is held on 05.11.2022.
2. Discussion and approval of MR22 Regulations-B.Tech. IT course - II Year Schema and Syllabus (MR22 Regulations-Batches admitting from the Academic Year 2022-23 onwards).
3. Discussion and approval of MR21 Regulations-B.Tech.IT course-III and IV Year Schema and Syllabus (MR21 Regulations-Batches admitting from the Academic Year 2021-22 onwards).
4. Review of MR20 Regulations-B.Tech.IT course-IV Year Schema and Syllabus (MR20 Regulations-Batches admitting from the Academic Year 2020-21 onwards).

*(Handwritten signatures of the BOS members)*

5. Discussion and ratification of UG B.Tech readmitted students course structure with substitute / additional subjects for the Academic Year 2022-23, details as given below.
  - i. **I Year** Course structure for readmitting students (for MR21/MR20/MR18 regulations)
  - ii. **II Year** Course structure for readmitting students (for MR20/MR18/MR17 regulations)
  - iii. **III&IV Year** Course structures for readmitting students (for MR18/MR17 Regulations)
6. Suggestion and review panel of names for paper setters, and examiners for both theory and practical examinations that will be submit for Academic Council for approval.
7. Suggest methodologies for innovative teaching and evaluation techniques.
8. Suggestion of any activity related to research, teaching, extension and other academic activities in the department/college.
9. Delegation of power to the chairman-BOS based on the recommendation of the committee on circulation, for inclusion and exclusion of any item as per the requirements.

At the outset, Chairman of the IT (UG)-Board of Studies, welcomed the members of the BoS and appraised the purpose of the meeting. He also briefed about the previous BoS meeting resolutions and actions taken. Later, BoS members have discussed in detail about each item of the proposed agenda and finally the following items have been resolved unanimously by all the members of BoS for their implementation from the academic year 2022-23 onwards (for 2022-2023 admitted batch).

**c. Suggestions/Resolutions:**

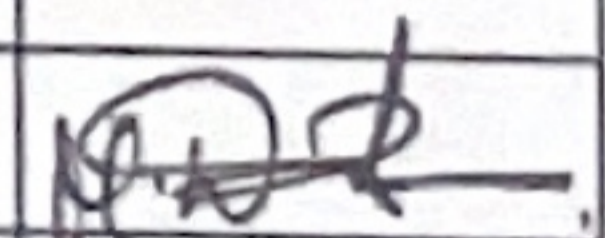
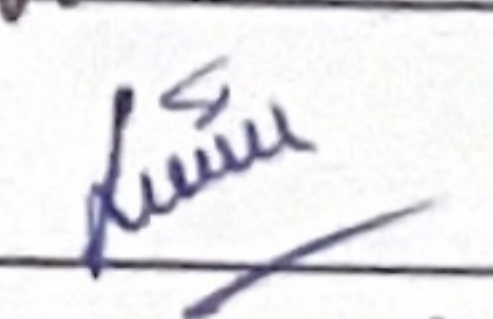
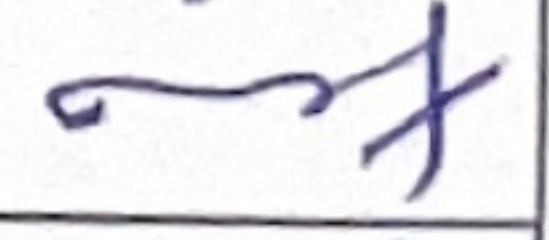

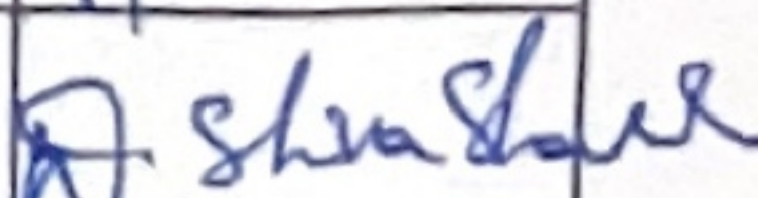
The following suggestions/resolutions were made by the members of the Board of studies:

- a. Suggested to Balance credits in III Year and IV year of MR21 Regulations
- b. Introduce the course Graph Data Structure in III Year students


Finally, Dr.Deena Babu Mandru, HOD and Chairman of the IT (UG)-Board of Studies, expressed his sincere thanks to all the members for their active participation and contribution.

**d. Members Attendance**

The following members have attended the BOS meeting:

Sl. No	Name of the Member	Designation & Official Address	Category	Signature
1	Dr. Deena Babu Mandru	Prof & Head	Chairman	
2.	Dr. D. Ramesh	Principal, JNTUHCE ,Jagityal.	University Nominee	
3	Dr. M. Swami Das	Professor, Dept. of CSE, CBIT, Hyd.	Subject Expert (Outside the Parent University)	
4	Dr. M. Suresh Babu	Professor & Principal, IIS	Subject Expert (Outside the Parent University)	
5	Mr. D. Shiva Shankar	Data Scientist,	Industry Expert	

		Deloitte, Hyderabad		
6	Ms.P.Swapna	Assistant Professor	Faculty Member	P.S.P
7	Mrs.M.Sandya Vani	Assistant Professor	Faculty Member	J.L
8	Mr.N.Sathish Kumar	Assistant Professor	Faculty Member	P.A
9	Mr.P.Saidulu	Assistant Professor	Faculty Member	P
10	Mr.A.Venktrami Reddy	Assistant Professor	Faculty Member	V.P
11	Dheeraj Tallapally	S/W Engg, DBS Bank, Hyd	Alumni	dhij

  
**(Dr.Deena Babu Mandru)**  
**HOD & Chairman**  
**UG-B.Tech-IT-BOS**

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### Department of Information Technology

Date: 18-03-2023

### 14<sup>th</sup> BOS-Attendance

The 14<sup>th</sup> Board of Studies meeting for B.Tech-IT (UG) was held on 18-03-2023 at 02.30 P.M.

The following members have attended to the meeting to finalize the Course structures, Syllabus for II Year (MR22), III and IV Year (MR21) and review the Course structure and syllabus of IV Year (MR20) of B.Tech IT programme and other points of agenda.

Sl. No	Name of the Member	Designation & Official Address	Category	Signature
1	Dr.Deena Babu Mandru	Prof & Head	Chairman	
2.	Dr.D.Ramesh	Principal, JNTUHCE, Jagityal.	University Nominee	
3	Dr. M.Swami Das	Professor, Dept. of CSE, CBIT, Hyderabad.	Subject Expert Member	
4	Dr.M.Suresh Babu	Professor & Principal, IIS	Subject Expert Member	
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11	Dheeraj Tallapally	S/W Engg, DBS Bank, Hyd	Alumni	

(Dr. Deena Babu Mandru)  
HOD & Chairman  
UG-B.Tech-IT-BOS





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201-250, ARIIA Band Performer, NBA Tier-I Accredited (B.Tech. - CE, EEE, ME, ECE & CSE, M.Tech. - SE, EPS, TE)




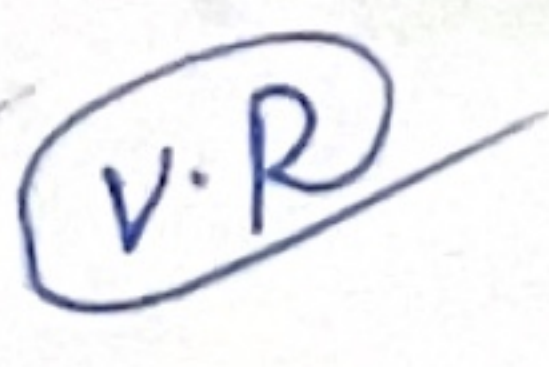
## Department of Information Technology

18<sup>th</sup> March, 2023

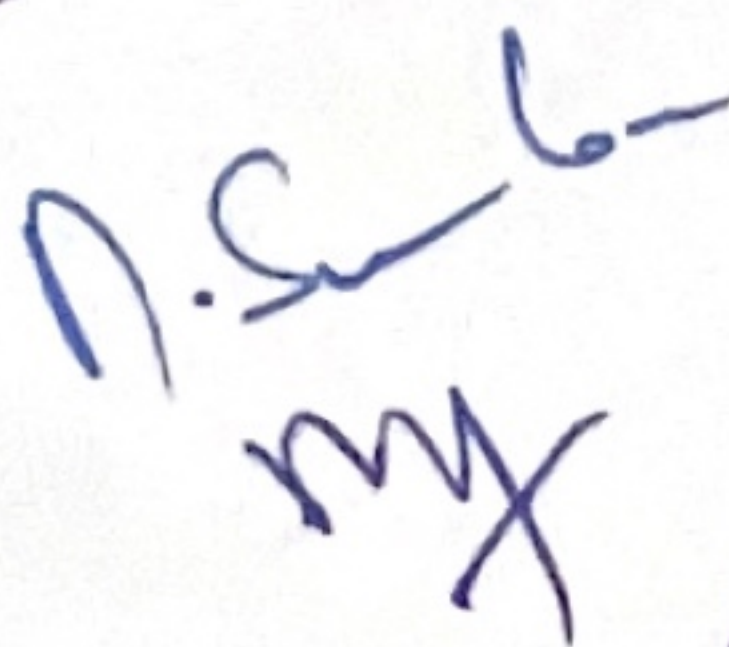
### 14<sup>th</sup> Board of Studies Meeting

#### Research, Teaching, Extension, and other Academic activities in the Department/College

- Industrial Visits: Interaction of students at industries using services from TASK, T-HUB, J-HUB, MSME etc... for real time exposure.
- Guest Lectures / Expert lectures from Industrial experts and academicians from reputed institutions like IITs, IIITs, NITs, Universities, Autonomous Institutions etc.
- Industrial Oriented Mini Projects / Internships
- Encourage faculty members for peer reviewed. Research Publications in standard Journals (SCI, Scopus and WOS), Books & Book chapters published, patents filing in national and international level.
- Encourage Students also for incremental innovation and petty patents.
- National and International Conferences and Patents
- Encourage faculty members and students for applying various funding projects and consultancy works.
- Encourage environmental related research work.
- Encourage faculty members and students to complete at least 2 NPTEL / Coursera Courses.

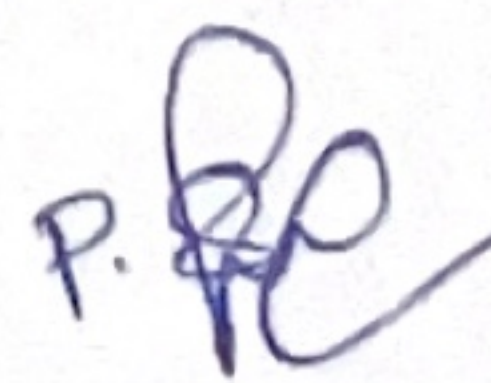


  
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(Dr. Deena Babu Mandru)  
HoD & Chairman,  
UG-B.Tech.-IT - BOS



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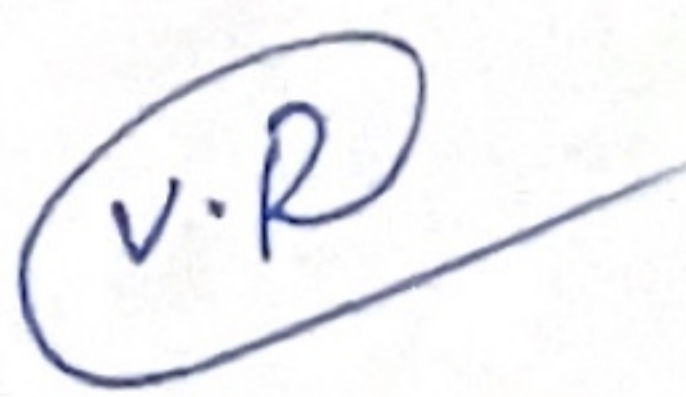
### Department of Information Technology

18<sup>th</sup> March, 2023

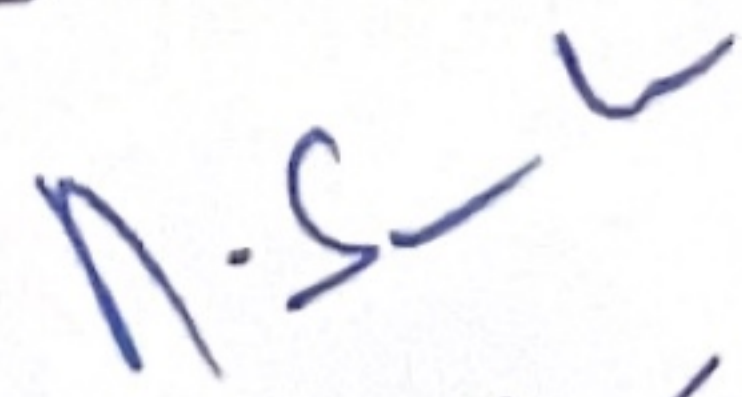
#### 14<sup>th</sup> Board of Studies Meeting

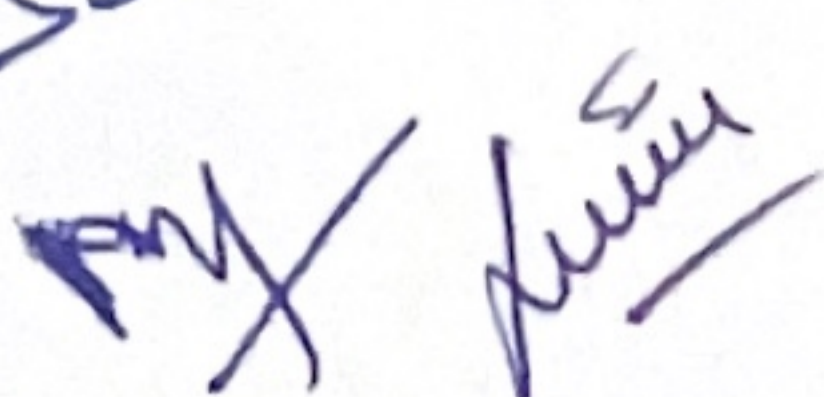
##### Methodologies for Innovative Teaching and Evaluation Techniques

- Encourage students to participate in global coding competitions and online certification courses
- ICT-based Teaching Courses
- Guest lectures and seminars by Industry and Research personnel.
- Consistent up-gradation of Course materials preparation and distribution
- Innovative Assignments
- Encourage students to participate in Group discussions and Seminars / workshops / Conferences
- Activity-based and collaborative teaching and learning
- Providing MREC YouTube lectures
- Collaborative Learning
- Effective Assessment
- Encourage faculty members and students to complete at least ENPTTEL / Coursera
- Encourage students to develop and demonstrate Project based learning and Working Models
- Encourage students to participate in Project Competitions.





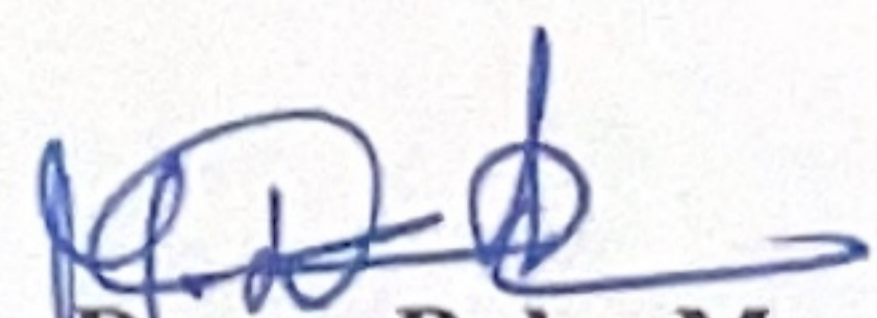










  
(Dr. Deena Babu Mandru)  
HoD & Chairman,  
UG-B.Tech.-IT - BOS



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### Department of Information Technology

#### Course Structure

(MR22 Regulations-Effective from the Academic Year 2022-23 onwards)

I YEAR I SEMESTER							
S. No	Category	Course Code	Name of the Subject	Contact Hours/Week			Credits
				L	T	P	
1.	HSMC	C0H01	English	3	-	-	3
2.	BSC	C0B01	Linear Algebra and Numerical Methods	3	1	-	4
3.	ESC	C0501	Programming for Problem Solving	3	-	-	3
4.	ESC	C0201	Basic Electrical and Electronics Engineering	3	-	-	3
5.	ESC	C0502	Programming for Problem Solving Lab	-	1	2	1.5
6.	HSMC	C0H02	English Language and Communication Skills Lab	-	-	3	1
7.	ESC	C1201	Engineering and IT Workshop	-	-	2	1.5
8.	ESC	C0202	Basic Electrical and Electronics Engineering Lab	-	-	2	1
<b>Total</b>				<b>12</b>	<b>2</b>	<b>9</b>	<b>18</b>
<b>Total Contact Hours</b>				<b>23</b>			

I YEAR II SEMESTER							
S. No	Category	Course Code	Name of the Subject	Contact Hours/Week			Credits
				L	T	P	
1.	BSC	C0B17	Engineering Chemistry	3	1	-	4
2.	ESC	C0301	Engineering Graphics	2	-	2	3
3.	BSC	C0B09	Semiconductor Physics	3	1	-	4
4.	BSC	C0B02	Probability and Statistics	3	-	-	3
5.	ESC	C0504	Python Programming	3	1	-	4
6.	BSC	C0B11	Applied Physics Lab	-	-	2	1
7.	BSC	C0B18	Engineering Chemistry Lab	-	-	2	1
8.	ESC	C0506	Python Programming Lab	-	1	2	2
<b>Total</b>				<b>14</b>	<b>4</b>	<b>8</b>	<b>22</b>
<b>Total Contact Hours</b>				<b>26</b>			

B A V.P.
   
 A.S. M. H. P.
   
 M. H. P.

II YEAR I SEMESTER							
S. No	Category	Course Code	Name of the Course	Contact Hours / Week			Credits
				L	T	P	
1	BSC	C0507	Discrete Mathematics	3	-	-	3
2	PCC	C1202	Introduction to IoT	3	-	-	3
3	PCC	C0508	Computer Organization and Architecture	3	-	-	3
4	PCC	C0509	Data Structures	3	-	-	3
5	PCC	C0511	Object Oriented Programming through Java	3	-	-	3
6	PCC	C0512	Data Structures Lab	-	-	3	1.5
7	PCC	C0513	Object Oriented Programming through Java Lab	-	-	3	1.5
8	PCC	C0514	Data Visualization: Programming/ Power BI	-	1	2	2
9	PCC	C00M1	Gender Sensitization Lab	-	-	2	0
<b>Total</b>				<b>15</b>	<b>1</b>	<b>10</b>	<b>20</b>
<b>Total Contact Hours</b>				<b>26</b>			

II YEAR II SEMESTER							
Sl.No	Category	Course Code	Name of the Course	Contact Hours / Week			Credits
				L	T	P	
1	PCC	C0B07	Applied Statistics and Optimization Techniques	3	1	-	4
2	PCC	C0515	Database Management Systems	3	-	-	3
3	PCC	C0517	Design and Analysis of Algorithms	3	-	-	3
4	PCC	C0516	Operating Systems	3	-	-	3
5	PCC	C1203	Web Technologies	3	-	-	3
6	PCC	C0519	Database Management Systems Lab	-	-	2	1
7	PCC	C1204	Design and Analysis of Algorithms Lab	-	-	2	1
8	PCC	C0521	Real-time Research Project/ Societal Related Project	-	-	2	1
9	PCC	C0522	Node JS/ React JS/ Django	-	-	2	1
10	MC	C00M2	Environmental Science	2	-	-	-
<b>Total</b>				<b>17</b>	<b>1</b>	<b>8</b>	<b>20</b>
<b>Total Contact Hours</b>				<b>26</b>			

B A V.R.


  
 A.S. L. M.Y. P. P. D. J.



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### Department of Information Technology

#### Course Structure

(MR21 Regulations-Effective from the Academic Year 2021-22 Onwards)

I YEAR I SEMESTER							
S. No	Category	Course Code	Name of the Subject	Contact Hours/Week			Credits
				L	T	P	
1.	HSMC	B0H01	English	3	-	-	3
2.	BSC	B0B01	Linear Algebra and Numerical Methods	3	1	-	4
3.	ESC	B0501	Programming for Problem Solving	3	-	-	3
4.	ESC	B0201	Basic Electrical and Electronics Engineering	3	-	-	3
5.	ESC	B0502	Programming for Problem Solving Lab	-	1	2	1.5
6.	HSMC	B0H02	English Language and Communication Skills Lab	-	-	3	1
7.	ESC	B1201	Engineering and IT Workshop	-	-	2	1.5
8.	ESC	B0202	Basic Electrical and Electronics Engineering Lab	-	-	2	1
<b>Total</b>				<b>12</b>	<b>2</b>	<b>9</b>	<b>18</b>
<b>Total Contact Hours</b>				<b>23</b>			

I Year II Semester							
S. No	Category	Course Code	Name of the Subject	Contact Hours/Week			Credits
				L	T	P	
1.	BSC	B0B17	Engineering Chemistry	3	1	-	4
2.	ESC	B0301	Engineering Graphics	2	-	2	3
3.	BSC	B0B09	Semiconductor Physics	3	1	-	4
4.	BSC	B0B02	Probability and Statistics	3	-	-	3
5.	ESC	B0504	Python Programming	3	1	-	4
6.	BSC	B0B11	Applied Physics Lab	-	-	2	1
7.	BSC	B0B18	Engineering Chemistry Lab	-	-	2	1
8.	ESC	B0506	Python Programming Lab	-	1	2	2
<b>Total</b>				<b>14</b>	<b>4</b>	<b>8</b>	<b>22</b>
<b>Total Contact Hours</b>				<b>26</b>			

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II YEAR I SEMESTER							
No	Category	Course Code	Name of the Course	Contact Hours /Week			Credits
				L	T	P	
1	PCC	B0507	Discrete Mathematics	3	-	-	3
2	PCC	B0508	Computer Organization and Architecture	3	-	-	3
3	PCC	B0509	Data Structures	3	-	-	3
4	PCC	B0510	Object Oriented Programming through Java	3	-	-	3
5	PCC	B0511	Operating Systems	3	-	-	3
6	PCC	B0512	Data Structures Lab	-	-	3	1.5
7	PCC	B0513	Object Oriented Programming through Java Lab	-	-	3	1.5
8	PCC	B0514	Operating Systems Lab	-	1	2	2
9	MC	B00M1	Gender Sensitization	-	-	2	-
<b>Total</b>				<b>15</b>	<b>1</b>	<b>10</b>	<b>20</b>
<b>Total Contact Hours</b>				<b>26</b>			

II YEAR II SEMESTER							
No	Category	Course Code	Name of the Course	Contact Hours /Week			Credits
				L	T	P	
1	BSC	B0B07	Applied Statistics and Optimization Techniques	3	-	-	3
2	PCC	B0515	Database Management Systems	3	-	-	3
3	PCC	B0516	Design and Analysis of Algorithms	3	-	-	3
4	PCC	B1202	Web Technologies	3	-	-	3
<b>Professional Elective –I</b>							
5	PEC-I	B0522	Computer Graphics	3	-	-	3
		B1203	Neural Network				
		B1204	Android Application Development				
		B1205	Principles of Programming Languages				
		B0518	Free & Open-Source Software's				
6	PCC	B0520	Database Management Systems Lab	-	1	2	2
7	PCC	B1206	Web Technologies Lab	-	-	3	1.5
8	PCC	B0521	Design and Analysis of Algorithms Lab	-	-	3	1.5
9	MC	B00M2	Environmental Science	2	-	-	-
<b>Total</b>				<b>17</b>	<b>1</b>	<b>8</b>	<b>20</b>
<b>Total Contact Hours</b>				<b>26</b>			

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III Year I Semester							
Sl.No	Category	Course Code	Name of the Course	Contact Hours /Week			Credits
				L	T	P	
1	HMSC	B0H08	Engineering Economics and Accountancy	3	-	-	3
2	PCC	B1207	Theory of Automata	3	-	-	3
3	PCC	B0524	Software Engineering and Modeling	3	-	-	3
4	PCC	B6201	Computer Networks	3	-	-	3
Professional Elective –II							
5	PEC-II	B6203	Artificial Intelligence	3	-	-	3
		B1208	Data Analysis and Visualization				
		B6706	R Programming				
		B0532	Multimedia and Rich Internet Applications				
		B1209	Information Retrieval				
6	OEC-II		Open Elective-I	3	-	-	3
7	PCC	B0535	Software Engineering and Modeling Lab	-	-	3	1.5
8	PCC	B6202	Computer Networks Lab	-	-	3	1.5
9	MC	B00M3	Quantitative Aptitude & Verbal Reasoning-I	2	-	-	-
<b>Total</b>				20	-	6	21
<b>Total Contact Hours</b>				26			

III Year II Semester							
S.No	Category	Course Code	Name of the Course	Contact Hours / Week			Credits
				L	T	P	
1		B1210	Machine Learning	3	-	-	3
2	PCC	B0536	Compiler Design	4	-	-	4
3	PCC	B1211	Cryptography and Network Security	3	-	-	3
Professional Elective –III							
4	PEC-III	B0530	Distributed Systems	3	-	-	3
		B1212	Cyber Security				
		B0533	Virtual Reality and Augmented Reality				
		B1213	Soft Computing				
		B1214	Data Science through R				
5	OEC-II		Open Elective-II	3	-	-	3
6	HSMC	B0H03	English Communication and Presentation Skills Lab	-	-	2	1
7	PCC	B1215	Machine Learning Lab	-	1	2	2
8	PCC	B0543	Compiler Design Lab	-	1	2	2
9	MC	B00M4	Quantitative Aptitude & Verbal Reasoning-II	2	-	-	-
<b>Total</b>				18	2	6	21
<b>Total Contact Hours</b>				26			

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IV Year I Semester							
S.No	Category	Course Code	Name of the Course	Contact Hours/ Week			Credits
				L	T	P	
1	HSMC	B0H09	Management Fundamentals	3	-	-	3
2	PCC	B0545	Data Mining	3	-	-	3
3	PCC	B1216	Internet of Things	2	-	-	2
Professional Elective –IV							
5	PEC-IV	B1217	Social Media Analytics	3	-	-	3
		B1218	Image Processing and Pattern Recognition				
		B1219	UI/UX Designing				
		B1220	Object Oriented Analysis and Design				
		B1221	Advanced Computer Architecture				
Professional Elective –V							
6	PEC-V	B1222	DevOps	3	-	-	3
		B1223	Software Project Management				
		B1224	Blockchain Technologies				
		B1225	Business Analytics				
		B1226	Deep Learning				
8	PCC	B0544	Data Mining Lab	-	-	2	1
9	PCC	B1227	Internet of Things Lab	-	-	2	1
10	PROJ	B0P01	Mini Project	-	-	4	2
<b>Total</b>				14	-	8	18
<b>Total Contact Hours</b>				22			

IV Year II Semester							
S.No	Category	Course Code	Name of the Course	Contact Hours/Week			Credits
				L	T	P	
Professional Elective –VI							
2	PEC-VI	B0548	Software Testing Methodologies	3	-	-	3
		B1228	AI for Robotics				
		B1229	Digital Forensics				
		B0537	Natural Language Processing				
		B1230	Soft Computing				
7	OEC-III	<b>Open Elective-III</b>		3	-	-	3
3	PROJ	B0P02	Major Project	-	-	24	12
4	TSEM	B0P03	Technical Seminar on Emerging Areas	-	-	2	1
				09	-	26	22

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### Department of Information Technology

#### Course Structure and Syllabus for B.Tech Information Technology (IT) Programme (MR20 Regulations–Effective from the Academic Year 2020-21 onwards)

I Year I Semester							
S. No.	Category	Course Code	Name of the Course	Contact Hours/Week			Credits
				L	T	P	
1	BSC	A0B01	Linear Algebra and Numerical Methods	3	1	-	4
2	BSC	A0B17	Engineering Chemistry	3	1	-	4
3	ESC	A0201	Basic Electrical and Electronics Engineering	3	-	-	3
4	ESC	A0501	Programming for Problem Solving	3	-	-	3
5	BSC	A0B18	Engineering Chemistry Lab	-	-	2	1
6	ESC	A0202	Basic Electrical and Electronics Engineering Lab	-	-	2	1
7	ESC	A0502	Programming for Problem Solving Lab	-	-	3	1.5
8	ESC	A1201	Engineering and IT Workshop	-	-	3	1.5
<b>Total</b>				<b>12</b>	<b>2</b>	<b>10</b>	<b>19</b>
<b>Total Contact Hours</b>				<b>24</b>			<b>19</b>

I Year II Semester							
S. No	Category	Course Code	Name of the Course	Contact Hours/Week			Credits
				L	T	P	
1	HSMC	A0H01	English	3	-	-	3
2	BSC	A0B02	Probability and Statistics	3	-	-	3
3	BSC	A0B09	Semiconductor Physics	3	1	-	4
4	ESC	A0504	Python Programming	3	1	-	4
5	ESC	A0301	Engineering Graphics	2	-	2	3
6	HSMC	A0H02	English Language Lab	-	-	2	1
7	BSC	A0B11	Applied Physics Lab	-	-	2	1
8	ESC	A0506	Python Programming Lab	-	1	2	2
<b>Total</b>				<b>14</b>	<b>3</b>	<b>11</b>	<b>21</b>
<b>Total Contact Hours</b>				<b>28</b>			<b>21</b>

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II Year I Semester							
S. No	Category	Course Code	Name of the Course	Contact Hours/Week			Credits
				L	T	P	
1	PCC	A0507	Discrete Mathematics	3	-	-	3
2	PCC	A0508	Computer Organization and Architecture	3	-	-	3
3	PCC	A0509	Data Structures	3	-	-	3
4	PCC	A0510	Object Oriented Programming	3	-	-	3
5	PCC	A0511	Operating Systems	3	-	-	3
6	PCC	A0512	Data Structures Lab	-	-	3	1.5
7	PCC	A0513	Object Oriented Programming Lab	-	-	3	1.5
8	PCC	A0514	Operating Systems Lab	-	1	2	2
9	MC	A00M1	Gender Sensitization	-	-	2	-
<b>Total</b>				<b>15</b>	<b>1</b>	<b>10</b>	<b>20</b>
<b>Total Contact Hours</b>				<b>26</b>			

II Year II Semester							
S. No	Category	Course Code	Name of the Course	Contact Hours/Week			Credits
				L	T	P	
1	BSC	A0B07	Applied Statistics and Optimization Techniques	3	-	-	3
2	PCC	A0515	Database Management Systems	3	-	-	3
3	PCC	A0516	Design and Analysis of Algorithms	3	-	-	3
4	PCC	A1202	Web Technologies	3	-	-	3
5	PEC-I	<b>Professional Elective -I</b>					
		A1203	Computer Graphics	3	-	-	3
		A1204	Neural Network				
A0519	Cloud Computing						
6	PCC	A0520	Database Management Systems Lab	-	1	2	2
7	PCC	A1205	Web Technologies Lab	-	-	3	1.5
8	PCC	A0521	Design and Analysis of Algorithms Lab	-	-	3	1.5
9	MC	A00M2	Environmental Science	2	-	-	-
<b>Total</b>				<b>17</b>	<b>1</b>	<b>8</b>	<b>20</b>
<b>Total Contact Hours</b>				<b>26</b>			

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III Year I Semester							
S.No	Category	Course Code	Name of the Course	Contact Hours/ Week			Credits
				L	T	P	
1	PCC	A1206	Theory of Automata	3	-	-	3
2	PCC	A0524	Software Engineering and Modeling	3	-	-	3
3	PCC	A6201	Computer Networks	3	-	-	3
Professional Elective –II							
4	PEC-II	A1207	Cryptography and Network Security	3	-	-	3
		A0526	Artificial Intelligence				
		A1208	Virtual Reality				
		A1209	Principles of Programming Languages				
		A1210	Data Science Using R Programming				
Professional Elective –III							
5	PEC-III	A0528	Distributed Systems	3	-	-	3
		A1211	Android Application Development				
		A1212	Cyber Security				
		A1213	Information Retrieval Systems				
		A1216	Soft Computing				
6	PCC	A0535	Software Engineering and Modeling Lab	-	1	2	1.5
7	PCC	A1214	Android Application Development Lab	-	1	2	1.5
8	PCC	A6202	Computer Networks Lab	-	1	1	1
9	MC	A00M3	Quantitative Aptitude & Verbal Reasoning-I	2	-	-	-
<b>Total</b>				17	3	5	
<b>Total Contact Hours</b>				25			19

III Year II Semester							
S.No	Category	Course Code	Name of the Course	Contact Hours / Week			Credits
				L	T	P	
1	HS	A0H08	Engineering Economics and Accountancy	3	-	-	3
2	PCC	A1217	Machine Learning	3	-	-	3
3	ESC	A0536	Compiler Design	4	-	-	4
Professional Elective –IV							
4	PEC-IV	A1218	Data Analysis and Visualization	3	-	-	3
		A1219	Image Processing and Pattern Recognition				
		A1220	UI/UX Designing				
		A1221	Object Oriented Analysis and Design				
		A1222	Advanced Computer Architecture				
Professional Elective –V							
5	PEC-V	A1223	DevOps	3	-	-	3
		A1224	Software Quality Assurance and Testing				
		A1225	Mobile Communication				
		A1226	Social Media Analytics				
		A1227	Big Data Analytics				
6	OEC-I	<b>Open Elective-I (Green Building)</b>		3	-	-	3
7	HSMC	A0H03	English Communication and Presentation Skills Lab	-	-	2	1

8	PCC	A1215	Machine Learning Lab	-	-	2	1
9	ESC	A0543	Compiler Design Lab	-	-	2	1
10	MC	A00M4	Quantitative Aptitude & Verbal Reasoning-II	2	-	-	-
<b>Total</b>				20	-	6	<b>21</b>
<b>Total Contact Hours</b>				<b>26</b>			

IV Year I Semester							
S.No	Category	Course Code	Name of the Course	Contact Hours / Week			Credits
				L	T	P	
1	HSMC	A0H09	Management Fundamentals	3	-	-	3
2	PCC	A0545	Data Mining	3	-	-	3
3	PCC	A1228	Internet of Things	3	-	-	3
Professional Elective -VI							
4	PEC-VI	A1229	IT Infrastructure Management	3	-	-	3
		A1230	AI for Robotics				
		A1231	Software Project Management				
		A1232	Block Chain Technologies				
		A1233	Digital Forensics				
Professional Elective -VII							
5	PEC-VII	A1234	Software Testing Methodologies	3	-	-	3
		A1235	Design Pattern				
		A1236	Deep Learning				
		A1237	Natural Language Processing				
		A1238	Semantic Web				
6	OEC-II	Open Elective-II		3	-	-	3
7	OEC-III	Open Elective-III		3	-	-	3
8	PCC	A0544	Data Mining Lab	-	-	4	2
9	PCC	A1239	Internet of Things Lab	-	-	4	2
10	PROJ	A0P01	Mini Project	-	-	4	2
<b>Total</b>				21	-	12	<b>27</b>
<b>Total Contact Hours</b>				<b>33</b>			

IV Year II Semester							
S.No	Category	Course Code	Name of the Course	Contact Hours / Week			Credits
				L	T	P	
1	PROJ	A0P02	Major Project	-	-	24	12
2	TSEM	A0P03	Technical Seminar on Emerging Areas	-	-	2	1
<b>Total</b>				-	-	26	<b>13</b>
<b>Total Contact Hours</b>				<b>26</b>			

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### Department of Information Technology

#### List of Open Electives

S.No	Course Code	Name of the Course	Credits
1	A1242	Information Theory & Coding	3
2	A1243	Python Programming	3
3	A1244	Mobile Computing	3
4	A1245	Concurrent Programming	3
5	A1246	Network Programming	3
6	A1247	Scripting Languages	3

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