GMR Institute of Technology
An Autonomous Institute Affiliated to JNTU-GV

GMRIT Training Tomorrow's Engineers Today

1.2.2(B) Structure of the program clearly indicating courses, credits/Electives and Minutes of relevant Academic Council/BOS meetings highlighting the relevant documents to this metric

Department of Electrical and Electronics Engineering

INDEX

S.No.	Description of the Document	Page No
1	AR21 Curriculum	2
2	18th Academic Council Meeting Minutes	8
3	AR23 Curriculum	9
4	20th Academic Council Meeting Minutes	13
5	AR21 PG Curriculum	19
6	18th Academic Council Meeting Minutes	25

Department of Electrical & Electronics Engineering
Minimum Credits to be earned: 160 (for Regular Students)
127 (for Lateral Entry Students)

S.No	Course Code	Course Name	POs	Contact Hours			
				L	T	P	C
First Semester							
1	21HSX01	Communicative English	1,6,10,11,12	2	-	-	2
2	21MAX01	Engineering Mathematics I	1,2,3,12,PSO1,PSO2	3	-	-	3
3	21PYX01/ 21CYX01	Engineering Physics / Engineering Chemistry	1 ,2,3,6,7,12/ 1 ,2,3,6,7,12	3/3	-	-	3/3
4	21BEX01/ 21BEX06	Basics of Engineering /IT Workshop	1 ,2,3,6,7,12 PSO1,PSO2/3,4,5,6,7,8,9,10,11,12	3/ -	-	-/ 3	3/1.5
5	21BEX02	Problem Solving and Programming Skills	1,2,3,6,12	3	-	-	3
6	21BEX03	Problem Solving and Programming Skills Lab	1,2,3,4,5,9,11,12	-	-	3	1.5
7	21BEX04/ 21BEX05	Engineering Drawing / Engineering Workshop	1,2,3,4,5,9,10,11,12/1,2,3,4,9,10,11,12	-	-	3/3	1.5/1.5
8	21PYX02/ 21CYX02	Engineering Physics Lab / Engineering Chemistry Lab	1,2,3,4,5,9,11,12/1,2,3,4,5,7,9,11,12	-	-	3/3	1.5/1.5
9	21HSX02	Communicative English Lab	1.4.5.9,10,11,12	-	-	3/-	1.5/-
			Total	**14/11**	**-**	**12/12**	**20/17**
Second Semester							
1		Language Elective	6,9,10,11,12	2	-	-	2
2	21MAX02	Engineering Mathematics II	1,2,3,12, PSO1,PSO2	3	-	-	3
3	21CYX01/ 21PYX01	Engineering Chemistry / Engineering Physics	1 ,2,3,6,7,12/ 1 ,2,3,6,7,12	3/3	-	-	3/3
4	21BEX01/ 21BEX06	Basics of Engineering / IT Workshop	1 ,2,3,6,7,12 PSO1,PSO2/3,4,5,6,7,8,9,10,11,12	-/3	-	3/-	1.5/3
5	21BEX07	Python Programming	1,2,3,12	3	-	-	3
6	21BEX08	Python Programming Lab	2,3,4,5,12	-	-	3	1.5
7	21BEX05/ 21BEX04	Engineering Workshop / Engineering Drawing	1,2,3,4,5,9,10,11,12/1,2,3,4,9,10,11,12	-	-	3/3	1.5/1.5
8	21CYX02/ 21PYX02	Engineering Chemistry Lab / Engineering Physics Lab	1,2,3,4,5,9,11,12/1,2,3,4,5,7,9,11,12	-	-	3/3	1.5/1.5
9	21HSX02	Communicative English Lab	1.4.5.9,10,11,12	-	-	-/3	-/1.5
			Total	**11/14**	**-**	**12/12**	**17/20**
Third Semester							
1	21MA302	Engineering Mathematics III	1,2,3,4,5,9,11,12,PSO1,PSO2	3	-	2	4
2	21EE302	DC Machines and Transformers	1,2,3,6,12,PSO1,PSO2	3	-	-	3
3	21EE303	Electrical Circuit Analysis	1,2,3,6,7,12,PSO1,PSO2	3	-	-	3
4	21EE304	Electromagnetic Field Theory	1,2,3,6,7,12,PSO1,PSO2	3	-	-	3
5	21EE305	Measurements and Instrumentation	1,2,3,6,12,PSO1,PSO2	3	-	-	3
6	21EE306	Semiconductor Devices and Circuits	1,2,3,4,5,6,12,PSO1,PSO2	3	-	2	4
7	21EE307	DC Machines Lab	1,2,3,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
8	21EE308	Electrical Circuits and Simulation Lab	1,2,3,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5

9	21ESX01	Employability Skills I	1,2,3,4,5,9,10,11,12	-	-	2	-
10	21HSX11	CC & EC Activities I	9,10,12	-	-	1	-
			Total	**18**	**-**	**13**	**23**
Fourth Semester							
1	21EE401	AC Machines	1,2,3,6,12,PSO1,PSO2	3	-	-	3
2	21EE402	Linear and Digital Integrated Circuits	1,2,3,4,5,6,9,11,12,PSO1,PSO2	3	-	2	4
3	21EE403	Power Electronics	1,2,3,6,12,PSO1,PSO2	3	-	-	3
4	21EE404	Power Generation, Transmission and Distribution	1, 2,3,6,7,8,12, PSO1,PSO2	3	-	-	3
5	21EE405	Signals and Systems Theory	1,2,3,6,12,PSO1,PSO2	3	-	-	3
6	21EE406	AC Machines Lab	1,2,3,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
7	21EE407	Measurements and Instrumentation Lab	1,2,3,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
8	21ESX01	Employability Skills I	1,2,3,4,5,9,10,11,12	-	-	2	2
9	21HSX11	CC & EC Activities I	9,10,12	-	-	1	1
			Total	**15**	**-**	**11**	**22**
Fifth Semester							
1	21IT306	Fundamentals of Object Oriented Programming	1,2,3,4,5,6,9,12	3	-	2	4
2	21EE502	Control Systems	1,2,3,4,5,6,9,12,PSO1,PSO2	3	-	2	4
3	21EE503	Electrical Drives	1,2,3,6,12,PSO1,PSO2	3	-	-	3
4	21EE504	Power System Protection	1,2,3,6,7,8,12,PSO1,PSO2	3	-	-	3
5		Elective I (Professional Elective)		3	-	-	3
6		Elective II (Open Elective I)		3	-	-	3
7	21EE507	Power Electronics and Drives Lab	1,2,3,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
8	21TPX01	Term Paper	1,2,4,5,8,9,10,11,12,PSO2	-	-	3	1.5
9	21ESX02	Employability Skills II	1,2,3,4,5,9,10,11,12	-	-	2	-
10	21HSX12	CC & EC Activities II	9,10,12	-	-	1	-
11	21SIX01	Summer Internship I	1,2,3,6,7,8,9,10,11,12,PSO1,PSO2				1
			Total	**18**	**-**	**13**	**24**
Sixth Semester							
1	21HSX10	Engineering Economics and Project Management	1,2,3,4,5,6,7,8,9,10,11,12	3	-	-	3
2	21EE602	Power System Analysis and Control	1,2,3 ,6,7,8,12,PSO1,PSO2	3	-	-	3
3	21EE603	Utilization of Electrical Energy	1,2,3 ,6,7,12,PSO1,PSO2	3	-	-	3
4		Elective III (Professional Elective)		3	-	2	4
5		Elective IV (Open Elective II)		3	-	-	3
6	21EE606	Power Systems Lab	1,2,3 ,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
7	21MPX01	Mini Project	1 to12,PSO1,PSO2	-	-	3	1.5
8	21ESX02	Employability Skills II	1,2,3 ,4,5,9,10,11,12	-	-	2	2
9	21HSX12	CC & EC Activities II	9,10,12	-	-	1	1
10	21ATX01	Environmental Studies	1,3,6,7	-	-	-	-
11	21ATX02	Professional Ethics and Human Values	-----	-	-	-	-
12	21ATX---	Audit Course	-----	-	-	-	-
			Total	**15**	**-**	**11**	**22**
Seventh Semester							
1		Elective V (Professional Elective)		3	-	-	3

2		Elective VI (Professional Elective)		3	-	-	3
3		Elective VII (Open Elective III)		3	-	-	3
4	21SIX02	Summer Internship II	1 to 12,PSO1,PSO2	-	-	-	1
5	21PWX01	Project	1 to 12,PSO1,PSO2	-	-	16	8
			Total	**9**	**-**	**16**	**18**
Eighth Semester							
1		Elective VIII (Professional Elective)		-	-	-	3
2		Elective IX (Open Elective IV)		-	-	-	3
3	21FIX01	Full Semester Internship (FSI)	1 to 12,PSO1,PSO2	-	-	-	8
			Total	**-**	**-**	**-**	**14**

Language Electives							
No.	**Course Code**	**Course**	**POs**	**Contact Hours**			
				L	**T**	**P**	**C**
1	21HSX03	Advanced Communicative English	6,9,10,11,12	2	-	-	2
2	21HSX04	Communicative German		2	-	-	2
3	21HSX05	Communicative French		2	-	-	2
4	21HSX06	Communicative Japanese		2	-	-	2
5	21HSX07	Communicative Spanish		2	-	-	2
6	21HSX08	Communicative Korean		2	-	-	2
7	21HSX09	Communicative Hindi		2	-	-	2
Elective I							
Career Path I, II, III and Other Core Electives							
1	21EEC11	Electrical Vehicle Technologies	2,3,4,7,12,PSO1,PSO2	3	-	-	3
2	21EEC21	Green Energy Technologies	1,2,3,6,7,12,PSO1,PSO2	3	-	-	3
3	21EEC31	Micro and Smart Grid Technologies	2,3,6,7,12,PSO1,PSO2	3	-	-	3
4	21EE004	Electrical Machine Design	1,2,3,8,12,PSO1,PSO2	3	-	-	3
5	21EE005	High Voltage DC Transmission	1,2,3,6,7,12,PSO1,PSO2	3	-	-	3
6	21EE006	Special Electrical Machines	1,2,3,7,12,PSO1,PSO2	3	-	-	3
Elective III							
Career Path I, II, III and Other Core Electives							
1	21EEC12	Electric Vehicle Drive Train Systems	1,2,3 ,4,5,6,7,9,12,PSO1,PSO2	3	-	2	4
2	21EEC22	Power Electronic Applications to Green Energy Systems	1,2,3 ,4,5,6,7,9,12,PSO1,PSO2	3	-	2	4
3	21EEC32	Control and Instrumentation of Smart Grid Systems	1,2,3 ,4,5,6,7,12,PSO1,PSO2	3	-	2	4
4	21EE007	Advanced Control Systems	1,2,3 ,4,5,6,12,PSO1,PSO2	3	-	2	4
5	21EE008	Discrete Signal Processing	1,2,3 ,4,5,6,12,PSO1,PSO2	3	-	2	4
6	21EE009	Machine Modelling and Steady State Analysis	1,2,3 ,4,5,6,8,12,PSO1,PSO2	3	-	2	4
Elective V							
Career Path I, II, III and Other Core Electives							
1	21EEC13	Battery Management Systems	1,2,3,6,7,12, PSO1,PSO2	3	-	-	3
2	21EEC23	Hybrid Renewable Energy Systems Design	1,2,3,6,7,12, PSO1,PSO2	3	-	-	3
3	21EEC33	Communication and Security in Smart Grid	1,2,3,6,7,8,12, PSO1,PSO2	3	-	-	3
4	21EE010	Electrical Distribution Systems	1,2,3,6,7,8,12, PSO1,PSO2	3	-	-	3
5	21EC401	Analog and Digital Communications	1,2,3,6,7,12, PSO1,PSO2	3	-	-	3
6	21IT304	Database Management Systems	1,2,3,6,8,12	3	-	-	3
Elective VI							
1	21EE011	Energy Audit, Conservation and Management	1,2,3,6,7,8,12, PSO1,PSO2	3	-	-	3
2	21EE012	Microprocessors and Microcontroller Interfacing	1,2,3,6,12, PSO1,PSO2	3	-	-	3
3	21EE013	Programmable Logic Controllers	1,2,3,6,12, PSO1,PSO2	3	-	-	3
Elective VIII (Professional Elective)							
1	21EE014	Power System Deregulation	1,2,3,6,7,12, PSO1,PSO2	-	-	-	3
2	21EE015	Power System Dynamics & Control	1,2,3,8,12, PSO1,PSO2	-	-	-	3
3	21EE016	High Voltage Engineering	1,2,3,6,8,12, PSO1,PSO2	-	-	-	3
Elective II, IV, VII							
(List of Open Electives)							
No.	**Course Code**	**Course**	**POs**	**L**	**T**	**P**	**Credits**
1	21CE001	Disaster Management	2,7	3	-	-	3
2	21EE001	Electrical Installation, Safety and Auditing	1,2,3,6,7,8,12	3	-	-	3
3	21ME001	Fundamentals of Optimization Techniques	1,2,3,5	3	-	-	3
4	21EC001	Sensors for Engineering Applications	1	3	-	-	3
5	21CS001	Fundamentals of Artificial Intelligence	1,2,3	3	-	-	3
6	21CH001	Energy Conversion and Storage Devices	1,3,6,7	3	-	-	3
7	21IT001	Fundamentals of Multimedia	3,5,7	3	-	-	3

Commented [DG1]: Approved in 18th Academic Council Meeting

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Commented [DG7]: Approved in 18th Academic Council Meeting

8	21BS001	Nano Materials and Technology	1,12	3	-	-	3
9	21DS001	Fundamentals of Data Science	1,2	3	-	-	3
10	21CE002	Air Pollution and Environmental Impact Assessment	6,7,12	3	-	-	3
11	21EE002	Renewable Energy Sources	1,2,3,6,7,12	3	-	-	3
12	21ME002	Principles of Entrepreneurship	1,5,8,11	3	-	-	3
13	21EC002	Electronics for Agriculture	1,2	3	-	-	3
14	21CS002	Fundamentals of Machine Learning	2,5	3	-	-	3
15	21CH002	Industrial Safety and Hazard Management	1,2,3,6,8	3	-	-	3
16	21IT002	Fundamentals of Cloud Computing	2,6,7,8,12	3	-	-	3
17	21BS002	Advanced Numerical Techniques	1,2	3	-	-	3
18	21BS003	Functional Materials and Applications	1,7	3	-	-	3
19	21CE003	Solid Waste Management	3,7,12	3	-	-	3
20	21EE003	Fundamentals of Electrical Vehicle Technology	1,2,3,6,7,12	3	-	-	3
21	21ME003	Industrial Engineering and Management	1,11	3	-	-	3
22	21EC003	Interfacing and Programming with Arduino	1,2	3	-	-	3
21	21CS003	Data Science for Engineering Applications	2,3,4	3	-	-	3
24	21CH003	Industrial Ecology for Sustainable Development	2,6,7	3	-	-	3
25	21IT003	Fundamentals of Mobile Computing	1,7	3	-	-	3
26	21BS004	Advanced Materials of Renewable Energy	1,7	3	-	-	3
27	21BS005	Applied Linear Algebra for Engineers	1,12	3	-	-	3
28	21CE019	Green Buildings	1,7,12	3	-	-	3
29	21EE017	Sustainable Energy	1,2,3,6,7,12	3	-	-	3
30	21ME019	Total Quality Management	1,11	3	-	-	3
31	21EC011	Communication Technologies	1,2	3	-	-	3
32	21CS020	Applications of Artificial Intelligence	2,3,6,7	3	-	-	3
33	21CH016	Green Technologies	2,6,7	3	-	-	3
34	21IT015	Human Computer Interaction	1,7	3	-	-	3
35	21BS006	Handling of Industrial waste and waste water	1,7	3	-	-	3
36	21OE001	Robotics and Automation	5,6,7	3	-	-	3
37	21OE002	Introduction to IoT	1,2	3	-	-	3
38	21OE003	Fundamentals of Image processing	1,2	3	-	-	3
39	21OE004	Fundamentals of Data Acquisition systems	1,2	3	-	-	3
40	21OE005	Airport Operations Management	2,4,11,12	3	-	-	3
41	21OE006	Fundamentals of Embedded Systems	1,2	3	-	-	3
42	21OE007	Remote Sensing and GIS	1,2,5,7,10	3	-	-	3
43	21OE008	Big Data Analytics	1,7	3	-	-	3
44	21OE009	Fundamentals of Cyber Security	3,6,8	3	-	-	3
45	21OE010	Smart Cities	7,12	3	-	-	3
46	21OE011	Nano Materials and Thin Film Technology	1,12				
47	21CSMC1	Cloud computing	2,3	3	-	-	3
48	21CSMC2	Ethical Hacking	1,2,3	3	-	-	3
49	21CSMC3	Fundamentals of Web Development	2,3,5	3	-	-	3
50	21OE012	Business Intelligence & Analytics	2,3,5	3	-	-	3
51	21OE013	Introduction To Industry 4.0 And Industrial IoT	2,3	3	-	-	3
52	21OE014	Natural Language Processing	2,3	3	-	-	3
Audit Course							
1	21AT001	Communication Etiquette in Workplaces	-	-	-	-	-
2	21AT002	Contemporary India: Economy, Policy and Society	-	-	-	-	-
3	21AT003	Design The Thinking	-	-	-	-	-
4	21AT004	Ethics and Integrity	-	-	-	-	-
5	21AT005	Indian Heritage and Culture	-	-	-	-	-
6	21AT006	Intellectual Property Rights and Patents	-	-	-	-	-
7	21AT007	Introduction to Journalism	-	-	-	-	-
8	21AT008	Mass Media Communication	-	-	-	-	-
9	21AT009	Science, Technology and Development	-	-	-	-	-
10	21AT010	Social Responsibility	-	-	-	-	-
11	21AT011	The Art of Photography and Film Making	-	-	-	-	-
12	21AT012	Gender Equality for Sustainbility	-	-	-	-	-

13	21AT013	Women in Leadership	-	-	-	-	-
14	21AT014	Introduction to Research Methodology	-	-	-	-	-
15	21AT015	Climate Chnages and Circular Economy					
B. Tech. (Honors)							
Domain I: AI in Electrical and Electronics Engineering							
01	21EEH11	Computational Intellegence in Electrical Engineering	1,2,3,6,12,PSO1,PSO2	4	-	-	4
02	21EEH12	Data analytics in Electrical Engineering	1,2,3,6,7,12,PSO1,PSO2	4	-	-	4
03	21EEH13	Internet of Things in Electrical Engineering	1,2,3,6,7,12,PSO1,PSO2	4	-	-	4
04	21EEH14	Introduction to Smart Cities	1,2,3,6,7,12,PSO1,PSO2	4	-	-	4
Domain II: Power Systems							
01	21EEH21	Design and Layout of Power Systems	1,2,3,6,7,12,PSO1,PSO2	4	-	-	4
02	21EEH22	Distributed Generation Technologies	1,2,3,6,7,11,12,PSO1,PSO2	4	-	-	4
03	21EEH23	Distribution System Planning and Automation	1,2,3,6,7,8,12,PSO1,PSO2	4	-	-	4
04	21EEH24	Power Quality	1,2,3,6,7,8,12,PSO1,PSO2	4	-	-	4
Domain III: Control Systems							
01	21EEH31	Adaptive Control Systems	1,2,3,12,PSO1,PSO2	4	-	-	4
02	21EEH32	Introduction to Autonomous Vehicles	1,2,3,6,12,PSO1,PSO2	4	-	-	4
03	21EEH33	Introduction to Robust Control Systems	1,2,3,6,12,PSO1,PSO2	4	-	-	4
04	21EEH34	Optimal Control Systems	1,2,3,6,12,PSO1,PSO2	4	-	-	4
Domain IV: Power Electronics and Drives							
01	21EEH41	Advanced Power Electronics	1,2,3,6,12,PSO1,PSO2	4	-	-	4
02	21EEH42	Flexible AC Transimission Systems	1,2,3,6,12,PSO1,PSO2	4	-	-	4
03	21EEH43	Power Electronic Control of DC Drives	1,2,3,6,12,PSO1,PSO2	4	-	-	4
04	21EEH44	Power Electronic Control of AC Drives	1,2,3,6,12,PSO1,PSO2	4	-	-	4
B. Tech. (Minors)							
Electrical and Electronics Engineering							
01	21EEM01	Electrical Machines	1,2	4	-	-	4
02	21EEM02	Power Systems	1,2,3,PSO1	4	-	-	4
03	21EEM03	Power Electronics and Drives	2,3,PSO1,PSO2	4	-	-	4
04	21EEM04	Electrical Measurements and Instrumentation	1,2,3	4	-	-	4

GMR Institute of Technology
An Autonomous Institute Affiliated to JNTUK, Kakinada

GMRIT Training Tomorrow's Engineers Today

MINUTES OF THE 18th ACADEMIC COUNCIL MEETING

Media : Zoom (Online Meeting)
Date : 13.07.2022 (Wednesday)
Time : 03:00 PM – 05:00 PM

MEMBERS PRESENT

Dr. C. L. V. R. S. V. Prasad	-	Chairman (Principal)
Dr. KVSG Murali Krishna	-	Member
Dr. B. Bala Krishna	-	Member
Dr. R.Rajeswara Rao	-	Member
Dr. A.Venugopal	-	Member
Dr. K. V. L. Subramaniam	-	Member
Dr. P. Mallikarjuna Rao	-	Member
Dr. P. K. Jain	-	Member
Chair Person (BoS : Civil Engg.)	-	Member
Chair Person (BoS : EEE)	-	Member
Chair Person (BoS : Mech Engg.)	-	Member
Chair Person (BoS : ECE)	-	Member
Chair Person (BoS : CSE)	-	Member
Chair Person (BoS : Chem Engg.)	-	Member
Chair Person (BoS : IT)	-	Member
Chair Person (BoS : BS&H)	-	Member
Dr.S.N.Dash(CDC-Head)	-	Member
Dr.G.Sasi Kumar(Asso.Dean-Student Affairs)	-	Member
Dr.P.S.Venkata Narayana(Asso.Dean-R&D)	-	Member
Dr.T.Prabhakar (Controller of Examinations)	-	Member
Dr. L.Govinda Rao(IQAC Coordinator)	-	Member
Dr. M.V.Nageswara Rao(Asso.Dean-Academics)	-	Member Secretary

GRANT OF LEAVE OF ABSENCE

Mr. V. Paradesi Naidu - Member

Chairman welcomed all the members of the academic council and requested for the grant leave of absence for the above referred members. **(Item #1).**

Subsequently, the Chairman presented the action taken report for the 17th academic council meeting and received the confirmation for the minutes of 17th academic council meeting held on 11th Sep 2021 from all the esteemed members. **(Item #2&3).**

Chairman presented the details of the overall Operations and performance of the Institution (Academic-Operations, Ranking, Achievements, Placements and Research) **(Item #4)**.

Academic council members appreciated the efforts and initiatives taken up by the institute for the overall development and the ranking achieved. Congratulated the students who achieved credential in curricular and co-curricular activities.

ITEM No.: 5

Ratification of Semester end result for regular and supplementary examination for the academic year 2020-21(II, IV, VI semesters) and 2021-22 (I, III, VI, VII, VII, VIII semesters) held during September 2021 to July 2022 for Students in B. Tech. Programs.

Chairman presented the results declared for the regular and supplementary examinations pertaining to semesters mentioned above for the students admitted during the different academic years under Academic Regulation AR16, AR19, AR20 and AR 21 and requested for the ratification of the results which were declared by the College academic committee in the presence of the JNTUK representative.

The members after the detailed review, ratified the results of all the regular and supply examinations declared by the college academic committee as per the **Annexure I.**

ITEM No.: 6

Ratification of results of 2nd phase semester end exams for all the COVID-19 infected students during 2021-22.

Chairman presented the list of students infected with COVID-19 and could not appear for the 7th semester examinations. These students were permitted to appear in the 2nd phase as per the university directions considering it as a first attempt.

The members after the detailed review, ratified the Class and CGPA declared by the college academic committee as per the **Annexure II.**

ITEM No.: 7

Ratification of the PC eligibility list of the students admitted during the Academic Year 2018-19 and earlier batches who have successfully acquired the graduation requirements for the award of B. Tech. Degree as per the respective academic regulations at the time of admission.

Chairman presented the (semester-wise & branch-wise) results of the 2018 admitted batch for all the semesters' i.e from 1st to 8th semesters under Academic Regulation AR16 and who have acquired the graduation requirements and eligible for the issue of Provisional certificate. Further, details of the students who have acquired graduation requirements and eligible for the issue of PCs pertaining to the batches admitted earlier to 2018 are presented.

The members reviewed the results (1st semester to 8th semester) of 2018 admitted batch students and approved the PC eligibility list of the student who will be getting graduated by July 2022 as per the academic regulations AR16. Apart from this, the PC eligible students from the earlier admitted students who have acquired graduation requirements were also approved as per the **Annexure III**.

ITEM No.: 8
Ratification of the AR21 regulations for UG and PG programs that are approved by circulation wide the circulars dated 15-11-2021, 30-12-2021 & 30-03-2022 (In compliance with the JNTUK common guidelines)

Chairman presented the Academic Regulations 2021 (AR21) and Curriculum recommended by the respective BoS and which are in line with JNTUK common guidelines majorly in the context of incorporating the changes relate to the marks division between internal and External marks (30+70), Absolute grading in the place of Hybrid grading and Award of Class of degree (Division/Class) for UG and PG programs.

The members after deliberation ratified the Academic Regulations 2021 (AR21), Curriculum for UG and PG programs as per **Annexure IV &V**.

ITEM NO.:9
Approval of course structure, 3rd & 4th semesters syllabus for the new programs B.Tech CSE(AIML) and B.Tech CSE(AIDS) as per Academic Regulations 2021.

Chairman presented the recommendations of the Board of Studies CSE(AIDS) and CSE (AIML)) with regard to the course structure and detailed Syllabi for 3rd and 4th semesters as per AR21 for the B. Tech. (Regular), B. Tech. (Honors) and B. Tech (Minor) Programs for the ratification of Academic Council

Members after deliberation ratified the syllabi for the 3rd and 4th semesters as per the **Annexure VI & VII.**

ITEM NO.:10

Ratification of the syllabus for the 7th and 8th semesters as per AR19 and AR20 academic regulations

Chairman presented the recommendations of all the seven Board of Studies with regard to the detailed Syllabi for 7th and 8th semesters under the Academic Regulation AR 19 and AR 20 for the B. Tech. (Regular), B. Tech. (Honors) and B. Tech (Minor) Programs for the ratification of Academic Council

Members after deliberation ratified the syllabi for the 7th and 8th semesters as per the **Annexure VIII to XIV**

ITEM NO.:11

Ratification for readmitted students under transitory Regulations

As per the transitory regulations, with regard to the students re-admitted under, AR19/AR20 moving from AR16/AR19, Board of Studies of the respective departments discussed the issues case to case and recommended the substitute courses balancing the credit requirements. The details of the students are presented by the chairman before the council for formal ratification

Members ratified the recommendations of the respective BoS as per the **Annexure XV**

PRINCIPAL

Encl. (a) Annexure A (b) Annexure B (c) Annexure C (d) Annexure D

Copy to:

- All Members of the Academic Council
- Autonomous Coordinator (Institute Level)
- Assoc.Dean(Academics)
- Controller of Examinations (CoE)
- File

MINUTES OF THE 18th ACADEMIC COUNCIL MEETING

Annexure IV:
http://www.gmrit.org/Autonomy_Regulations_UGPrograms_2021.pdf

Annexure V:
http://www.gmrit.org/Autonomy_Regulations_PGPrograms_2021.pdf

Annexure VI:
http://www.gmrit.org/resources/CSE-AI&DS_Course_Structure.pdf

Annexure VII:
http://www.gmrit.org/resources/CSE-AI&ML_Course_structure.pdf

Annexure VIII: CIVIL Engineering
http://www.gmrit.org/resources/B.Tech_Civil_Syllabus_AR19.pdf
http://www.gmrit.org/resources/B.Tech_Civil_Syllabus_AR20.pdf

Annexure IX: CHEMIAL Engineering
http://www.gmrit.org/resources/B.Tech_Chem_Syllabus_AR20.pdf
http://www.gmrit.org/resources/B.Tech_Chem_Syllabus_AR19.pdf

Annexure X: Computer Science Engineering
http://www.gmrit.org/resources/B.Tech_CSE_Syllabus_AR20.pdf
http://www.gmrit.org/resources/B.Tech_CSE_Syllabus_AR19.pdf

Annexure XI: Information Technology
http://www.gmrit.org/resources/B.Tech_IT_Syllabus_AR20.pdf
http://www.gmrit.org/resources/B.Tech_IT_Syllabus_AR19.pdf

Annexure XII: Electronics and Communication Engineering
http://www.gmrit.org/resources/B.Tech_ECE_Syllabus_AR20.pdf
http://www.gmrit.org/resources/B.Tech_ECE_Syllabus_AR19.pdf

Annexure XIII: Electrical and Electronics Engineering
http://www.gmrit.org/resources/B.Tech_EEE_Syllabus_AR20.pdf
http://www.gmrit.org/resources/B.Tech_EEE_Syllabus_AR19.pdf

Annexure XIV: Electrical and Electronics Engineering
http://www.gmrit.org/resources/B.Tech_Mech_Syllabus_AR20.pdf
http://www.gmrit.org/resources/B.Tech_Mech_Syllabus_AR19.pdf

Department of Electrical & Electronics Engineering
Minimum Credits to be earned: 160 (for Regular Students)
127 (for Lateral Entry Students)

S.No	Course Code	Course Name	POs	Contact Hours			
				L	T	P	C
First Semester							
1	23PYX01	Engineering Physics	1,2,7,10,12	3	0	0	3
2	23MAX01	Linear Algebra& Calculus	1,2,3,4,12	3	0	0	3
3	23BEX01	Basic Electrical and Electronics Engineering	1,2,3,6,12	3	0	0	3
4	23BEX03	Introduction to Programming	1,2,3,12	3	0	0	3
5	23BEX04	Engineering Graphics	1,5,10,12	2	0	2	3
6	23PYX02	Engineering Physics Lab	4,6,9,11,12	0	0	2	1
7	23BEX05	Electrical & Electronics Engineering Workshop	4,5,6,9,12	0	0	3	1.5
8	23BEX07	Computer Programming Lab	2,3,4,12	0	0	3	1.5
9	23BEX08	IT Workshop	1,2,3,4,9,12	0	0	2	1
			Total	**14**		**11**	**20**
Second Semester							
1	23CYX01	Chemistry (EEE, ECE, CSE, AIML, AIDS, IT)	1,2,6,7,12	3	0	0	3
2	23MAX02	Differential Equations and Vector Calculus	1,2,3,4,12	3	0	0	3
3	23BEX02	Basic Civil & Mechanical Engineering	1,2,3,6,7,8,12	3	0	0	3
4	23EE201	Electrical Circuit Analysis-I	1,2,3,12,PSO1,PSO2	3	0	0	3
5	23HSX01	Communicative English	1,9,10,12	2	0	0	2
6	23CYX03	Chemistry Lab (EEE, ECE, CSE, AIML, AIDS, IT)	1,6,7,9,12	0	0	2	1
7	23BEX06	Engineering Workshop	1,9,12	0	0	3	1.5
8	23EE202	Electrical Circuits Lab	1,2,4,5,9,12,PSO1	0	0	3	1.5
9	23HSX02	Communicative English Lab	1,9,10,11,12	0	0	2	1
10	23HSX11	Health And Wellness, Yoga And Sports				1	0.5
11	23HSX12	Nss/Ncc/Scouts & Guides/Community Service				1	0.5
			Total	**14**	**-**	**12**	**20**
Third Semester							
1	23MA302	Engineering Mathematics III	1,2,3,4,5,9,11,12,PSO1,PSO2	3	-	2	4
2	23EE302	DC Machines and Transformers	1,2,3,6,12,PSO1,PSO2	3	-	-	3
3	23EE303	Electrical Circuit Analysis-II	1,2,3,6,7,12,PSO1,PSO2	3	-	-	3
4	23EE304	Electromagnetic Field Theory	1,2,3,6,7,12,PSO1,PSO2	3	-	-	3
5	23EE305	Measurements and Instrumentation	1,2,3,6,12,PSO1,PSO2	3	-	-	3
6	23EE306	Semiconductor Devices and Circuits	1,2,3,4,5,6,12,PSO1,PSO2	3	-	2	4
7	23EE307	DC Machines Lab	1,2,3,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
8	23EE308	Python Programming lab	1,2,3,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
9	23ESX01	Employability Skills I	1,2,3,4,5,9,10,11,12	-	-	2	-
			Total	**18**	**-**	**12**	**23**
Fourth Semester							
1	23EE401	AC Machines	1,2,3,6,12,PSO1,PSO2	3	-	-	3
2	23EE402	Linear and Digital Integrated Circuits	1,2,3,4,5,6,9,11,12,PSO1,PSO2	3	-	2	4
3	23EE403	Power Electronics	1,2,3,6,12,PSO1,PSO2	3	-	-	3

4	23EE404	Power Generation, Transmission and Distribution	1, 2,3,6,7,8,12, PSO1,PSO2	3	-	-	3
5	23EE405	Signals and Systems Theory	1,2,3,6,12,PSO1,PSO2	3	-	-	3
6	23EE406	AC Machines Lab	1,2,3,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
7	23EE407	Measurements and Instrumentation Lab	1,2,3,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
8	23ESX01	Employability Skills I	1,2,3,4,5,9,10,11,12	-	-	2	2
			Total	**15**	**-**	**10**	**21**
Fifth Semester							
1	23IT306	Fundamentals of Object Oriented Programming	1,2,3,4,5,6,9,12	3	-	2	4
2	23EE502	Control Systems	1,2,3,4,5,6,9,12,PSO1,PSO2	3	-	2	4
3	23EE503	Electrical Drives	1,2,3,6,12,PSO1,PSO2	3	-	-	3
4	23EE504	Power System Protection	1,2,3,6,7,8,12,PSO1,PSO2	3	-	-	3
5		Elective I (Professional Elective)		3	-	-	3
6		Elective II (Open Elective I)		3	-	-	3
7	23EE507	Power Electronics and Drives Lab	1,2,3,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
8	23TPX01	Term Paper	1,2,4,5,8,9,10,11,12,PSO2	-	-	3	1.5
9	23ESX02	Employability Skills II	1,2,3,4,5,9,10,11,12	-	-	2	-
10	23SIX01	Summer Internship I	1,2,3,6,7,8,9,10,11,12,PSO1,PSO2				1
			Total	**18**	**-**	**12**	**24**
Sixth Semester							
1	23HSX10	Engineering Economics and Project Management	1,2,3,4,5,6,7,8,9,10,11,12	3	-	-	3
2	23EE602	Power System Analysis and Control	1,2,3 ,6,7,8,12,PSO1,PSO2	3	-	-	3
3	23EE603	Utilization of Electrical Energy	1,2,3 ,6,7,12,PSO1,PSO2	3	-	-	3
4		Elective III (Professional Elective)		3	-	2	4
5		Elective IV (Open Elective II)		3	-	-	3
6	23EE606	Power Systems Lab	1,2,3 ,4,5,9,11,12,PSO1,PSO2	-	-	3	1.5
7	23MPX01	Mini Project	1 to12,PSO1,PSO2	-	-	3	1.5
8	23ESX02	Employability Skills II	1,2,3 ,4,5,9,10,11,12	-	-	2	2
9	23ATX01	Environmental Studies	1,3,6,7	-	-	-	-
10	23ATX02	Professional Ethics and Human Values	-----	-	-	-	-
11	23ATX---	Audit Course	-----	-	-	-	-
			Total	**15**	**-**	**10**	**21**
Seventh Semester							
1		Elective V (Professional Elective)		3	-	-	3
2		Elective VI (Professional Elective)		3	-	-	3
3		Elective VII (Open Elective III)		3	-	-	3
4	23SIX02	Summer Internship II	1 to 12,PSO1,PSO2	-	-	-	1
5	23PWX01	Project	1 to 12,PSO1,PSO2	-	-	16	8
			Total	**9**	**-**	**16**	**18**
Eighth Semester							
1		Elective VIII (Professional Elective)		-	-	-	3
2		Elective IX (Open Elective IV)		-	-	-	2
3	23FIX01	Full Semester Internship (FSI)	1 to 12,PSO1,PSO2	-	-	-	8
			Total	**-**	**-**	**-**	**13**

List of Electives

No.	Course Code	Course	POs	Contact Hours L	T	P	C
Language Electives							
1	23HSX03	Advanced Communicative English	6,9,10,11,12	2	-	-	2
2	23HSX04	Communicative German		2	-	-	2
3	23HSX05	Communicative French		2	-	-	2
4	23HSX06	Communicative Japanese		2	-	-	2
5	23HSX07	Communicative Spanish		2	-	-	2
6	23HSX08	Communicative Korean		2	-	-	2
7	23HSX09	Communicative Hindi		2	-	-	2
Elective I							
Career Path I, II, III and Other Core Electives							
1	23EEC11	Electrical Vehicle Technologies	2,3,4,7,12,PSO1,PSO2	3	-	-	3
2	23EEC21	Green Energy Technologies	1,2,3,6,7,12,PSO1,PSO2	3	-	-	3
3	23EEC31	Micro and Smart Grid Technologies	2,3,6,7,12,PSO1,PSO2	3	-	-	3
4	23EE004	Electrical Machine Design	1,2,3,8,12,PSO1,PSO2	3	-	-	3
5	23EE005	High Voltage DC Transmission	1,2,3,6,7,12,PSO1,PSO2	3	-	-	3
6	23EE006	Special Electrical Machines	1,2,3,7,12,PSO1,PSO2	3	-	-	3
7		MOOCs		-	-	-	3
Elective III							
Career Path I, II, III and Other Core Electives							
1	23EEC12	Electric Vehicle Drive Train Systems	1,2,3 ,4,5,6,7,9,12,PSO1,PSO2	3	-	2	4
2	23EEC22	Power Electronic Applications to Green Energy Systems	1,2,3 ,4,5,6,7,9,12,PSO1,PSO2	3	-	2	4
3	23EEC32	Control and Instrumentation of Smart Grid Systems	1,2,3 ,4,5,6,7,12,PSO1,PSO2	3	-	2	4
4	23EE007	Advanced Control Systems	1,2,3 ,4,5,6,12,PSO1,PSO2	3	-	2	4
5	23EE008	Discrete Signal Processing	1,2,3 ,4,5,6,12,PSO1,PSO2	3	-	2	4
6	23EE009	Machine Modelling and Steady State Analysis	1,2,3 ,4,5,6,8,12,PSO1,PSO2	3	-	2	4
Elective V							
Career Path I, II, III and Other Core Electives							
1	23EEC13	Battery Management Systems	1,2,3,6,7,12, PSO1,PSO2	3	-	-	3
2	23EEC23	Hybrid Renewable Energy Systems Design	1,2,3,6,7,12, PSO1,PSO2	3	-	-	3
3	23EEC33	Communication and Security in Smart Grid	1,2,3,6,7,8,12, PSO1,PSO2	3	-	-	3
4	23EE010	Electrical Distribution Systems	1,2,3,6,7,8,12, PSO1,PSO2	3	-	-	3
5	23EC401	Analog and Digital Communications	1,2,3,6,7,12, PSO1,PSO2	3	-	-	3
6	23IT304	Database Management Systems	1,2,3,6,8,12	3	-	-	3
7		MOOCs		-	-	-	3
Elective VI							
1	23EE011	Energy Audit, Conservation and Managaement	1,2,3,6,7,8,12, PSO1,PSO2	3	-	-	3
2	23EE012	Microprocessors and Microcontroller Interfacing	1,2,3,6,12, PSO1,PSO2	3	-	-	3
3	23EE013	Programmable Logic Controllers	1,2,3,6,12, PSO1,PSO2	3	-	-	3
		MOOCs		-	-	-	3
Elective VIII (Professional Elective)							
1	23EE014	Power System Deregulation	2,3,PSO2	-	-	-	3
2	23EE015	Power System Dynamics & Control	2,3,PSO2	-	-	-	3
3	23EE016	High Voltage Engineering	2,3,PSO2	-	-	-	3
4		MOOCs		-	-	-	3
Elective II,IV,VII(List of Open Electives)							
1	23CE001	Disaster Management	2,7	3	-	-	3
2	23EE001	Electrical Installation, Safety and Auditing	1,2,3,6,7,8,12	3	-	-	3
3	23ME001	Fundamentals of Optimization Techniques	1,2,3,5	3	-	-	3
4	23EC001	Sensors for Engineering Applications	1	3	-	-	3
5	23CS001	Fundamentals of Artificial Intelligence	1,2,3	3	-	-	3
6	23CH001	Energy Conversion and Storage Devices	1,3,6,7	3	-	-	3

Commented [DG8]: Approved in 16th BoS

Commented [DG9]: Approved in 16th BoS

Commented [DG10]: Approved in 16th BoS

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Commented [DG12]: Approved in 16th BoS

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7	23IT001	Fundamentals of Multimedia	3,5,7	3	-	-	3
8	23BS001	Nano Materials and Technology	1,12	3	-	-	3
9	23DS001	Fundamentals of Data Science	1,2	3	-	-	3
10	23CE002	Air Pollution and Environmental Impact Assessment	6,7,12	3	-	-	3
11	23EE002	Renewable Energy Sources	1,2,3,6,7,12	3	-	-	3
12	23ME002	Principles of Entrepreneurship	1,5,8,11	3	-	-	3
13	23EC002	Electronics for Agriculture	1,2	3	-	-	3
14	23CS002	Fundamentals of Machine Learning	2,5	3	-	-	3
15	23CH002	Industrial Safety and Hazard Management	1,2,3,6,8	3	-	-	3
16	23IT002	Fundamentals of Cloud Computing	2,6,7,8,12	3	-	-	3
17	23BS002	Advanced Numerical Techniques	1,2	3	-	-	3
18	23BS003	Functional Materials and Applications	1,7	3	-	-	3
19	23CE003	Solid Waste Management	3,7,12	3	-	-	3
20	23EE003	Fundamentals of Electrical Vehicle Technology	1,2,3,6,7,12	3	-	-	3
21	23ME003	Industrial Engineering and Management	1,11	3	-	-	3
22	23EC003	Interfacing and Programming with Arduino	1,2	3	-	-	3
21	23CS003	Data Science for Engineering Applications	2,3,4	3	-	-	3
24	23CH003	Industrial Ecology for Sustainable Development	2,6,7	3	-	-	3
25	231IT003	Fundamentals of Mobile Computing	1,7	3	-	-	3
26	23BS004	Advanced Materials of Renewable Energy	1,7	3	-	-	3
27	23BS005	Applied Linear Algebra for Engineers	1,12	3	-	-	3
28	23CE019	Green Buildings	1,7,12	3	-	-	3
29	23EE017	Sustainable Energy	1,2,3,6,7,12	3	-	-	3
30	23ME019	Total Quality Management	1,11	3	-	-	3
31	23EC011	Communication Technologies	1,2	3	-	-	3
32	23CS020	Applications of Artificial Intelligence	2,3,6,7	3	-	-	3
33	23CH016	Green Technologies	2,6,7	3	-	-	3
34	23IT015	Human Computer Interaction	1,7	3	-	-	3
35	23BS006	Handling of Industrial waste and waste water	1,7	3	-	-	3
36	23OE001	Robotics and Automation	5,6,7	3	-	-	3
37	23OE002	Introduction to IoT	1,2	3	-	-	3
38	23OE003	Fundamentals of Image processing	1,2	3	-	-	3
39	23OE004	Fundamentals of Data Acquisition systems	1,2	3	-	-	3
40	23OE005	Airport Operations Management	2,4,11,12	3	-	-	3
41	23OE006	Fundamentals of Embedded Systems	1,2	3	-	-	3
42	23OE007	Remote Sensing and GIS	1,2,5,7,10	3	-	-	3
43	23OE008	Big Data Analytics	1,7	3	-	-	3
44	23OE009	Fundamentals of Cyber Security	3,6,8	3	-	-	3
45	23OE010	Smart Cities	7,12	3	-	-	3
46	23OE011	Nano Materials and Thin Film Technology	1,12				
47	23CSMC1	Cloud computing	2,3	3	-	-	3
48	23CSMC2	Ethical Hacking	1,2,3	3	-	-	3
49	23CSMC3	Fundamentals of Web Development	2,3,5	3	-	-	3
50	23OE012	Business Intelligence & Analytics	2,3,5	3	-	-	3
51	23OE013	Introduction To Industry 4.0 And Industrial IoT	2,3	3	-	-	3
52	23OE014	Natural Language Processing	2,3	3	-	-	3
53	23O0211	Fundamentals of VLSI Design	1,4,5	3	-	-	3
54	23O0212	Digital Design with Verilog	1,4,5	3	-	-	3
55	23O0213	Verification Using System Verilog	1,4,5	3	-	-	3
56	23O0214	VLSI Design Flow: RTL to GDS	1,4,5	3	-	-	3
Audit Course							
1	23AT001	Communication Etiquette in Workplaces	-	-	-	-	-
2	23AT002	Contemporary India: Economy, Policy and Society	-	-	-	-	-
3	23AT003	Design The Thinking	-	-	-	-	-
4	23AT004	Ethics and Integrity	-	-	-	-	-
5	23AT005	Indian Heritage and Culture	-	-	-	-	-
6	23AT006	Intellectual Property Rights and Patents	-	-	-	-	-
7	23AT007	Introduction to Journalism	-	-	-	-	-
8	23AT008	Mass Media Communication	-	-	-	-	-
9	23AT009	Science, Technology and Development	-	-	-	-	-

10	23AT010	Social Responsibility	-	-	-	-	-
11	23AT011	The Art of Photography and Film Making	-	-	-	-	-
12	23AT012	Gender Equality for Sustainbility	-	-	-	-	-
13	23AT013	Women in Leadership	-	-	-	-	-
14	23AT014	Introduction to Research Methodology	-	-	-	-	-
15	23AT015	Climate Chnages and Circular Economy					
B. Tech. (Honors)							
Domain I: AI in Electrical and Electronics Engineering							
01	23EEH11	Computational Intellegence in Electrical Engineering	1,2,3,6,12,PSO1,PSO2	4	-	-	4
02	23EEH12	Data analytics in Electrical Engineering	1,2,3,6,7,12,PSO1,PSO2	4	-	-	4
03	23EEH13	Internet of Things in Electrical Engineering	1,2,3,6,7,12,PSO1,PSO2	4	-	-	4
04	23EEH14	Introduction to Smart Cities	1,2,3,6,7,12,PSO1,PSO2	4	-	-	4
Domain II: Power Systems							
01	23EEH21	Design and Layout of Power Systems	1,2,3,6,7,12,PSO1,PSO2	4	-	-	4
02	23EEH22	Distributed Generation Technologies	1,2,3,6,7,11,12,PSO1,PSO2	4	-	-	4
03	23EEH23	Distribution System Planning and Automation	1,2,3,6,7,8,12,PSO1,PSO2	4	-	-	4
04	23EEH24	Power Quality	1,2,3,6,7,8,12,PSO1,PSO2	4	-	-	4
Domain III: Control Systems							
01	23EEH31	Adaptive Control Systems	1,2,3,12,PSO1,PSO2	4	-	-	4
02	23EEH32	Introduction to Autonomous Vehicles	1,2,3,6,12,PSO1,PSO2	4	-	-	4
03	23EEH33	Introduction to Robust Control Systems	1,2,3,6,12,PSO1,PSO2	4	-	-	4
04	23EEH34	Optimal Control Systems	1,2,3,6,12,PSO1,PSO2	4	-	-	4
Domain IV: Power Electronics and Drives							
01	23EEH41	Advanced Power Electronics	1,2,3,6,12,PSO1,PSO2	4	-	-	4
02	23EEH42	Flexible AC Transimission Systems	1,2,3,6,12,PSO1,PSO2	4	-	-	4
03	23EEH43	Power Electronic Control of DC Drives	1,2,3,6,12,PSO1,PSO2	4	-	-	4
04	23EEH44	Power Electronic Control of AC Drives	1,2,3,6,12,PSO1,PSO2	4	-	-	4
B. Tech. (Minors)							
Energy Science & Technology							
01	23CHM11	Foundation of Energy Science and Technology	1,2,3,5,7,12	4	-	-	4
02	23CHM12	Energy Generation from Waste	1,2,3,4,5	4	-	-	4
03	23CHM13	Energy Storage Systems	1,2,3,6,7	4	-	-	4
04	23CHM14	Hydrogen Energy and Fuel Cells	1,2,3,7	4	-	-	4
Nano Science & Technology							
01	23CHM21	Introduction and Characterization of Nano Materials	1,2,3,7	4	-	-	4
02	23CHM22	Carbon Nanostructures and Applications	1,3,4,5	4	-	-	4
03	23CHM23	Energy, Environment & Biomedical Nanotechnology	1,2,3,7	4	-	-	4
04	23CHM24	Industrial Applications of Nano Technology	2,3,5,7	4	-	-	4
Environmental Engineering							
01	23CEM11	Watershed Management	6,7	4	-	-	4
02	23CEM12	Industrial Pollution Control and Engineering	3,6,7,12	4	-	-	4
03	23CEM13	Solid and Hazardous Waste Management	1,3,6,7	4	-	-	4
04	23CEM14	Ecology and Environmental Assessment	1,3,6,7	4	-	-	4
Artificial Intelligence & Machine Learning							
01	23CSM11	Fundamentals of AI & Machine Learning	1,12	4	-	-	4
02	23CSM12	Feature Engineering for Machine Learning	1,2,3	4	-	-	4
03	23CSM13	Exploratory Data Analytics	1,4	4	-	-	4
04	23CSM14	Deep Learning	1,2,4	4	-	-	4
Cyber Security							
01	23CSM21	Fundamentals of Security	1,2	4	-	-	4
02	23CSM22	Management of Information Security	3,6,7	4	-	-	4
03	23CSM23	Cyber Security	1,3,4	4	-	-	4
04	23CSM24	Cloud Security	2,3	4	-	-	4
Data Science & Analytics							
01	23CSM31	Data Cleaning	2,3,4	4	-	-	4
02	23CSM32	Data Engineering	1,2,3,4	4	-	-	4
03	23CSM33	Text Analytics	1,2,4	4	-	-	4
04	23CSM34	Social Network and Semantic Analysis	2,4	4	-	-	4
Computer Systems Programming							
01	23CSM41	Programming Fundamentals	1,2,3	4	-	-	4

02	23CSM41	Data Structures & Algorithms	1,2,3,4	4	-	-	4
03	23CSM41	Fundamentals of Databases	1,4	4	-	-	4
04	23CSM41	Fundamentals of Computer Networks & Operating Systems	1,2,3	4	-	-	4
Digital IC Design							
01	23ECM11	Fundamentals of VLSI Design	1,2,3	4	-	-	4
02	23ECM12	Digital Design using HDL	1,2,3	4	-	-	4
03	23ECM13	FPGA Technology	1,2	4	-	-	4
04	23ECM14	Analog and Mixed Signal Design	1,2	4	-	-	4
Industrial Automation							
01	23ECM21	Microcontrollers and Interfacing	1,2,3	4	-	-	4
02	23ECM22	Sensors and Data Acquisition System	1,2	4	-	-	4
03	23ECM23	Fundamentals of Labview	1,2	4	-	-	4
04	23ECM24	Medical Robotics	1,2,3	4	-	-	4
Communications and Networking							
01	23ECM31	Principles of Communications	1,2	4	-	-	4
02	23ECM32	Coding Theory and Practice	1,2	4	-	-	4
03	23ECM33	Ad-hoc and Wireless Sensor Networks	1,2,3	4	-	-	4
04	23ECM34	Fundamentals of Multimedia Networking	1,2,3	4	-	-	4
Avionics							
01	23ECM41	Principles of Aerodynamics	1,2	4	-	-	4
02	23ECM42	Aircraft Electrical Systems	1,2	4	-	-	4
03	23ECM43	Aircraft Instrument Systems	1,2	4	-	-	4
04	23ECM44	Aircraft Communication and Navigational Systems	1,2	4	-	-	4
Geographic Information System							
01	23ECM51	Sensors and Sensing Technology	1,2	4	-	-	4
02	23ECM52	Geographic Information Systems	1,2	4	-	-	4
03	23ECM53	Digital Image Processing	1,2	4	-	-	4
04	23ECM54	Lidar Systems	1,2	4	-	-	4
Cloud Application Development							
01	23ITM11	Introduction to Cloud Computing	6,7,12	4	-	-	4
02	23ITM12	Introduction to Web Development with HTML, CSS, JavaScript	1,2,3,9,12	4	-	-	4
03	23ITM13	Developing Cloud Native Applications	5,8,10	4	-	-	4
04	23ITM14	Introduction to Cloud Computing	6,7,12	4	-	-	4
Robotics and Automation							
01	23MEM11	Introduction to Robotics	1,2,3	4	-	-	4
02	23MEM12	Drives and Sensors	1,2,3,4	4	-	-	4
03	23MEM13	Control Systems for Robotics	1,2,3,4	4	-	-	4
04	23MEM14	Machine Learning for Robotics	2,5	4	-	-	4
Industrial Systems Engineering							
01	23MEM21	Industrial Management	1,10,11,12	4	-	-	4
02	23MEM22	Fundamentals of Operations Research	1,2,3,5	4	-	-	4
03	23MEM23	Enterprise Resource Planning	1,2,3,5,11,12	4	-	-	4
04	23MEM24	Production Planning and Control	1,2,3,5,11,12	4	-	-	4

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MINUTES OF THE 20th ACADEMIC COUNCIL MEETING

Media : Zoom (Online Meeting)
Date : 15.06.2024 (Saturday)
Time : 03:00 PM – 05:00 PM

MEMBERS PRESENT

Dr. C. L. V. R. S. V. Prasad	-	Chairman (Principal)
Dr. D. Rajya Lakshmi	-	Member
Mr.B.Chandra Bhushana Rao	-	Member
Dr. G. Jayasuma	-	Member
Dr. A. Venu Gopal	-	Member
Dr. P. Mallikarjuna Rao	-	Member
Dr. P. K. Jain	-	Member
Chair Person (BoS : Civil Engg.)	-	Member
Chair Person (BoS : EEE)	-	Member
Chair Person (BoS : Chem &Mech Engg.)	-	Member
Chair Person (BoS : ECE)	-	Member
Chair Person (BoS : CSE)	-	Member
Chair Person (BoS : IT)	-	Member
Chair Person (BoS : BS&H)	-	Member
Chair Person (BoS : AIML,AIDS)	-	Member
Dr.S.N.Dash(CDC-Head)	-	Member
Dr.V.Rambabu (Asso.Dean-Student Affairs)	-	Member
Dr. K.Ravindranadh (Asso.Dean-R&D)	-	Member
Dr.T.Prabhakar (Controller of Examinations)	-	Member
Dr.P.N.L.Pavani (Head -IQAC)	-	Member
Dr. M.V.Nageswara Rao(Asso.Dean-Academics)	-	Member Secretary

GRANT OF LEAVE OF ABSENCE

Dr. K. V. L. Subramaniam	-	Member
Mr. V. Paradesi Naidu	-	Member

Chairman welcomed all the members of the academic council and requested for the grant leave of absence for the above referred members. **(Item #1)**.

Member Secretary presented the action taken report for the 19th academic council meeting and received the confirmation for the minutes of 19th academic council meeting held on 06th June 2023 from all the esteemed members.

Also presented the action taken report for the approvals taken by circulation on 20.11.2023 and received the confirmation from all the esteemed members. **(Item #2 &3).**

Member Secretary presented the details of the overall Operations and performance of the Institution (Academic-Operations, Ranking, Achievements, Placements and Research) **(Item #4).**

Academic council members appreciated the efforts and initiatives taken up by the institute for the overall development and the ranking achieved. Congratulated the students who achieved credential in curricular and co-curricular activities.

ITEM No.: 5

Ratification of Semester end result for regular and supplementary examination for the academic year 2023-24 (II, IV, VI, VIII semesters) and 2023-24 (I, III, V, VII semesters) held during June 2023 to June 2024 for Students in B. Tech. and M.Tech Programs.

Member Secretary presented the results declared for the regular and supplementary examinations pertaining to semesters mentioned above for the students admitted during the different academic years under Academic Regulation AR16, AR19, AR20, AR21 and AR 23 and requested for the ratification of the results which were declared by the College academic committee in the presence of the JNTUGV representative.

- The members, after the detailed review, ratified the results of all the regular and supply examinations declared by the college academic committee as per the **Annexure I.**

ITEM No.: 6

Ratification of the PC eligibility list of the UG students admitted during the Academic Year 2020-21 & earlier batches who have successfully acquired the graduation requirements for the award of B. Tech. Degree with Honours , B.Tech. Degree with Minors in Computer Science and Engineering , and B.Tech. Degree as per the respective academic regulations at the time of admission.

Ratification of the PC eligibility list of the PG students admitted during the Academic Year 2021-2022 who have successfully acquired the graduation requirements for the award of M.Tech. Degree as per the respective academic regulations at the time of admission.

Member Secretary presented the (semester-wise & branch-wise) UG results of the 2020 admitted batch for all the semesters i.e from 1st to 8th semesters under Academic Regulation AR20 and who have acquired the graduation requirements and eligible for the issue of Provisional certificate.
Further, details of the students who have acquired graduation requirements and eligible for the issue of PCs pertaining to the batches admitted earlier to 2020 are presented.

The members reviewed the results (1st semester to 8th semester) of 2020 admitted batch students and approved the PC eligibility list of the student who will be graduating by June 2024 as per the academic regulations AR20. Apart from this, the PC eligible students from the earlier admitted students who have acquired graduation requirements were also approved as per the **Annexure II**.

Member Secretary also presented the (semester-wise & Specialisation-wise) results PG students admitted in the academic year 2021-22 for all the semesters' i.e from 1st to 4th semesters and who have fulfilled the M.Tech requirements and eligible for the issue of Provisional certificate.

The members reviewed the results (1st semester to 4th semester) of 2021 admitted batch PG students and approved the PC eligibility list of the students who will be graduating by June 2024 as per the **Annexure II.**

ITEM NO.:7

Ratification of the syllabus for the 7th & 8th semesters of CSE-AIML & CSE-AIDS as per AR21 academic regulations

HOD-CSE presented the recommendations of the Board of Studies (meeting held on 16th March 2024) of CSE-(Artificial Intelligence and Machine Learning) and CSE-(Artificial Intelligence and Data Science) regarding the detailed Syllabi for 7th & 8th semesters for AR21 regulations B. Tech. (Regular), B. Tech. (Honors) and B. Tech (Minor) Programs requesting for the ratification from the members of Academic Council

Members after deliberation ratified the syllabi for the 7th and 8th semesters as per the **Annexure III.**

ITEM NO.:08

Approval of the AR-23 Academic Regulations for 3rd, 4th, 5th, 6th ,7th and 8th semesters.

The member secretary presented the detailed course structure and syllabus from III to VIII semesters of AR23 regulations. The syllabus and course structure of I and II semesters are in line with the common guidelines suggested by JNTUGV.

However, keeping in view the following points related the JNTUGV suggested course structure:

1. More academic load during 7th semester (21 credits)
2. Mandated FSI during 8th semester for all the students
3. No clear separation of credits for project work and FSI in 8th semester
4. Suggested FSI through online/virtual mode

All the respective BoS have recommended implementing the course structure of III to VIII semesters of AR21 which was Approved and ratified by AC during the meeting dated 13th July 2022 with the following changes to have credit balance.

- CC&EC activities which were available from III to VI semesters are removed as CC&EC activities were already pursued in the I and II semesters.
- One credit is reduced in the Open Elective of VIII semester
- Minor modifications in the syllabus in a few courses.

Members deliberated and ratified the course structure and syllabus for AR23 regulations as recommended by the respective BoS for all the eight UG programs. Details are attached in **Annexure-IV**

PRINCIPAL

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Encl. Annexure I to IV

Copy to:

- All Members of the Academic Council
- Assoc.Dean(Academics)
- Controller of Examinations (CoE)
- File

PC Eligibility for
B.Tech Degree with Minors in Computer Science and Engineering

S.No	Department	Registered	Eligible for B.Tech Degree with Minors in Computer Science and Engineering
1	Civil Engineering	13	9
2	Electrical and Electronics Engineering	10	10
3	Mechanical Engineering	9	9
4	Electronics and Communication Engineering	30	26
5	Chemical Engineering	3	2
	Total	65	56

PC Eligibility - PG Students 2021 Admitted Batch

S.No.	Admitted Batch	PC Eligible Students	Eligibility Academic Year
1	2021 Admitted Batch	08	2023-24

Annexure – III

Syllabus for 7th & 8th semesters of CSE-AIML & CSE-AIDS

https://gmrit.edu.in/PDFs/curriculum/B.Tech_AIDS_Syllabus_AR21.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_AIML_Syllabus_AR21.pdf

Annexure – III

Academic Regulations (AR-23) for 3rd, 4th, 5th, 6th ,7th and 8th semesters

https://gmrit.edu.in/PDFs/curriculum/B.Tech_AIDS_Syllabus_AR23.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_AIML_Syllabus_AR23.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_Civil_Syllabus_AR23.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_EEE_Syllabus_AR23.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_CSE_Syllabus_AR23.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_ECE_Syllabus_AR23.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_Mech_Syllabus_AR23.pdf

https://gmrit.edu.in/PDFs/curriculum/B.Tech_IT_Syllabus_AR23.pdf

Department of Electrical & Electronics Engineering
Power and Industrial Drives
[Minimum Credits to be earned: 68]

S. No	Course Code	Course	Periods			
			L	T	P	C
First Semester						
1	21MEX101	Advanced Optimization Techniques	4	-	-	4
2	21PID101	Analysis of Power Electronic Converters	4	-	-	4
3		Elective I	4	-	-	4
4		Elective II	4	-	-	4
5		Elective III	4	-	-	4
6	21PID102	Power Electronics and DC Drives Lab		-	3	1.5
7	21PID103	Term Paper		-	3	1.5
		Total	20	-	6	23
Second Semester						
1	21PID201	Electrical Machine Modeling and Analysis	4	-	-	4
2	21PID202	Switched Mode Power Conversion	4	-	-	4
3		Elective IV	4	-	-	4
4		Elective V	4	-	-	4
5		Elective VI	4	-	-	4
6	21PID203	Advanced Electrical Drives Lab		-	3	1.5
7	21PID204	Power Electronic Systems Simulation Lab		-	3	1.5
		Total	20	-	6	23
Third Semester						
1	21PID301	Internship	-	-	-	4
2	21PID302	Project	-	-	-	-
3	21PID303	Research Methodology and IPR (Audit Course)	-	-	-	0
		Total	-	-	-	4
Fourth Semester						
1	21PID302	Project	-	-	-	18

List of Elective Courses

S.No.	Course Code	Course Name	Periods			
			L	T	P	C
Elective I						
1	21PID001	DSP Applications to Drives	4	-	-	4
2	21PID002	Modern Control Theory	4	-	-	4
3	21PID003	Power Electronic Applications to Power Systems	4	-	-	4
Elective II						
4	21PID004	Power Electronics Applications for Renewable Energy Systems	4	-	-	4
5	21PID005	Power Semiconductor Devices & Protection	4	-	-	4
6	21PID006	Special Machines and Controls	4	-	-	4
Elective III						
7	21PID007	Power Electronic Control of DC Drives	4	-	-	4
8	21PID008	Industrial Sensors and Actuators	4	-	-	4
9	21PID009	Advanced Power Electronics	4	-	-	4
Elective IV						
10	21PID010	Computer Control of Industrial Drives	4	-	-	4
11	21PID011	Intelligent applications to Electric Drives	4	-	-	4
12	21PID012	PLCs & SCADA	4	-	-	4
Elective V						
13	21PID013	HVDC Transmission	4	-	-	4
14	21PID014	Modeling & Simulation of Power Electronic Systems	4	-	-	4
15	21PID015	Power Quality Issues & Mitigation	4	-	-	4
Elective VI						
16	21PID016	Power Electronics Control of AC Drives	4	-	-	4
17	21PID017	Flexible AC Transmission Systems	4	-	-	4
18	21PID018	Electrical Drives and Controllers for Electric Vehicles	4	-	-	4

Commented [DG1]: Approved in the 18th Academic Council Meeting

Commented [DG2]: Approved in the 18th Academic Council Meeting

Commented [DG3]: Approved in the 18th Academic Council Meeting

Commented [DG4]: Approved in the 18th Academic Council Meeting

Commented [DG5]: Approved in the 18th Academic Council Meeting

Commented [DG6]: Approved in the 18th Academic Council Meeting

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MINUTES OF THE 18th ACADEMIC COUNCIL MEETING

Media : Zoom (Online Meeting)
Date : 13.07.2022 (Wednesday)
Time : 03:00 PM – 05:00 PM

MEMBERS PRESENT

Dr. C. L. V. R. S. V. Prasad	-	Chairman (Principal)
Dr. KVSG Murali Krishna	-	Member
Dr. B. Bala Krishna	-	Member
Dr. R.Rajeswara Rao	-	Member
Dr. A.Venugopal	-	Member
Dr. K. V. L. Subramaniam	-	Member
Dr. P. Mallikarjuna Rao	-	Member
Dr. P. K. Jain	-	Member
Chair Person (BoS : Civil Engg.)	-	Member
Chair Person (BoS : EEE)	-	Member
Chair Person (BoS : Mech Engg.)	-	Member
Chair Person (BoS : ECE)	-	Member
Chair Person (BoS : CSE)	-	Member
Chair Person (BoS : Chem Engg.)	-	Member
Chair Person (BoS : IT)	-	Member
Chair Person (BoS : BS&H)	-	Member
Dr.S.N.Dash(CDC-Head)	-	Member
Dr.G.Sasi Kumar(Asso.Dean-Student Affairs)	-	Member
Dr.P.S.Venkata Narayana(Asso.Dean-R&D)	-	Member
Dr.T.Prabhakar (Controller of Examinations)	-	Member
Dr. L.Govinda Rao(IQAC Coordinator)	-	Member
Dr. M.V.Nageswara Rao(Asso.Dean-Academics)	-	Member Secretary

GRANT OF LEAVE OF ABSENCE

Mr. V. Paradesi Naidu - Member

Chairman welcomed all the members of the academic council and requested for the grant leave of absence for the above referred members. **(Item #1)**.

Subsequently, the Chairman presented the action taken report for the 17th academic council meeting and received the confirmation for the minutes of 17th academic council meeting held on 11th Sep 2021 from all the esteemed members. **(Item #2&3).**

Chairman presented the details of the overall Operations and performance of the Institution (Academic-Operations, Ranking, Achievements, Placements and Research) **(Item #4)**.

Academic council members appreciated the efforts and initiatives taken up by the institute for the overall development and the ranking achieved. Congratulated the students who achieved credential in curricular and co-curricular activities.

ITEM No.: 5

Ratification of Semester end result for regular and supplementary examination for the academic year 2020-21(II, IV, VI semesters) and 2021-22 (I, III, VI, VII, VII, VIII semesters) held during September 2021 to July 2022 for Students in B. Tech. Programs.

Chairman presented the results declared for the regular and supplementary examinations pertaining to semesters mentioned above for the students admitted during the different academic years under Academic Regulation AR16, AR19, AR20 and AR 21 and requested for the ratification of the results which were declared by the College academic committee in the presence of the JNTUK representative.

The members after the detailed review, ratified the results of all the regular and supply examinations declared by the college academic committee as per the **Annexure I.**

ITEM No.: 6

Ratification of results of 2nd phase semester end exams for all the COVID-19 infected students during 2021-22.

Chairman presented the list of students infected with COVID-19 and could not appear for the 7th semester examinations. These students were permitted to appear in the 2nd phase as per the university directions considering it as a first attempt.

The members after the detailed review, ratified the Class and CGPA declared by the college academic committee as per the **Annexure II.**

ITEM No.: 7

Ratification of the PC eligibility list of the students admitted during the Academic Year 2018-19 and earlier batches who have successfully acquired the graduation requirements for the award of B. Tech. Degree as per the respective academic regulations at the time of admission.

Chairman presented the (semester-wise & branch-wise) results of the 2018 admitted batch for all the semesters' i.e from 1st to 8th semesters under Academic Regulation AR16 and who have acquired the graduation requirements and eligible for the issue of Provisional certificate. Further, details of the students who have acquired graduation requirements and eligible for the issue of PCs pertaining to the batches admitted earlier to 2018 are presented.

The members reviewed the results (1st semester to 8th semester) of 2018 admitted batch students and approved the PC eligibility list of the student who will be getting graduated by July 2022 as per the academic regulations AR16. Apart from this, the PC eligible students from the earlier admitted students who have acquired graduation requirements were also approved as per the **Annexure III**.

ITEM No.: 8

Ratification of the AR21 regulations for UG and PG programs that are approved by circulation wide the circulars dated 15-11-2021, 30-12-2021 & 30-03-2022 (In compliance with the JNTUK common guidelines)

Chairman presented the Academic Regulations 2021 (AR21) and Curriculum recommended by the respective BoS and which are in line with JNTUK common guidelines majorly in the context of incorporating the changes relate to the marks division between internal and External marks (30+70), Absolute grading in the place of Hybrid grading and Award of Class of degree (Division/Class) for UG and PG programs.

The members after deliberation ratified the Academic Regulations 2021 (AR21), Curriculum for UG and PG programs as per **Annexure IV &V**.

ITEM NO.:9

Approval of course structure, 3rd & 4th semesters syllabus for the new programs B.Tech CSE(AIML) and B.Tech CSE(AIDS) as per Academic Regulations 2021.

Chairman presented the recommendations of the Board of Studies CSE(AIDS) and CSE (AIML)) with regard to the course structure and detailed Syllabi for 3rd and 4th semesters as per AR21 for the B. Tech. (Regular), B. Tech. (Honors) and B. Tech (Minor) Programs for the ratification of Academic Council

Members after deliberation ratified the syllabi for the 3rd and 4th semesters as per the **Annexure VI & VII.**

ITEM NO.:10

Ratification of the syllabus for the 7th and 8th semesters as per AR19 and AR20 academic regulations

Chairman presented the recommendations of all the seven Board of Studies with regard to the detailed Syllabi for 7th and 8th semesters under the Academic Regulation AR 19 and AR 20 for the B. Tech. (Regular), B. Tech. (Honors) and B. Tech (Minor) Programs for the ratification of Academic Council

Members after deliberation ratified the syllabi for the 7th and 8th semesters as per the **Annexure VIII to XIV**

ITEM NO.:11

Ratification for readmitted students under transitory Regulations

As per the transitory regulations, with regard to the students re-admitted under, AR19/AR20 moving from AR16/AR19, Board of Studies of the respective departments discussed the issues case to case and recommended the substitute courses balancing the credit requirements. The details of the students are presented by the chairman before the council for formal ratification

Members ratified the recommendations of the respective BoS as per the **Annexure XV**

PRINCIPAL

Encl. (a) Annexure A (b) Annexure B (c) Annexure C (d) Annexure D

Copy to:

- All Members of the Academic Council
- Autonomous Coordinator (Institute Level)
- Assoc.Dean(Academics)
- Controller of Examinations (CoE)
- File

MINUTES OF THE 18th ACADEMIC COUNCIL MEETING

Annexure IV:
http://www.gmrit.org/Autonomy_Regulations_UGPrograms_2021.pdf

Annexure V:
http://www.gmrit.org/Autonomy_Regulations_PGPrograms_2021.pdf

Annexure VI:
http://www.gmrit.org/resources/CSE-AI&DS_Course_Structure.pdf

Annexure VII:
http://www.gmrit.org/resources/CSE-AI&ML_Course_structure.pdf

Annexure VIII: CIVIL Engineering
http://www.gmrit.org/resources/B.Tech_Civil_Syllabus_AR19.pdf
http://www.gmrit.org/resources/B.Tech_Civil_Syllabus_AR20.pdf

Annexure IX: CHEMIAL Engineering
http://www.gmrit.org/resources/B.Tech_Chem_Syllabus_AR20.pdf
http://www.gmrit.org/resources/B.Tech_Chem_Syllabus_AR19.pdf

Annexure X: Computer Science Engineering
http://www.gmrit.org/resources/B.Tech_CSE_Syllabus_AR20.pdf
http://www.gmrit.org/resources/B.Tech_CSE_Syllabus_AR19.pdf

Annexure XI: Information Technology
http://www.gmrit.org/resources/B.Tech_IT_Syllabus_AR20.pdf
http://www.gmrit.org/resources/B.Tech_IT_Syllabus_AR19.pdf

Annexure XII: Electronics and Communication Engineering
http://www.gmrit.org/resources/B.Tech_ECE_Syllabus_AR20.pdf
http://www.gmrit.org/resources/B.Tech_ECE_Syllabus_AR19.pdf

Annexure XIII: Electrical and Electronics Engineering
http://www.gmrit.org/resources/B.Tech_EEE_Syllabus_AR20.pdf
http://www.gmrit.org/resources/B.Tech_EEE_Syllabus_AR19.pdf

Annexure XIV: Electrical and Electronics Engineering
http://www.gmrit.org/resources/B.Tech_Mech_Syllabus_AR20.pdf
http://www.gmrit.org/resources/B.Tech_Mech_Syllabus_AR19.pdf