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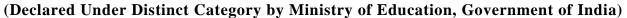
Department of Electronics Engineering



Online Board of Studies Meeting of Electronics and Telecommunication Engineering held on 11.09.2024



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Department of Electronics Engineering

The Board of Studies (BoS) meeting of the Electronics Engineering department was held on 11th Sept 2024 at 1:00 PM onwards. Following external and internal members have attended online meeting through google link: https://meet.google.com/eez-qinz-ukg.

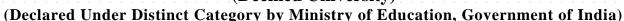
- 1. Dr. Aditya Trivedi, Professor, Department of Information Technology, ABV-IIITM, Gwalior, External Member.
- 2. Dr. Urmila Patil, Professor, Department of Electronics and Communication, Dr. D.Y.Patil Institute of Technology, Pune, External Member.
- 3. Dr. P. K Singhal, Professor
- 4. Dr. Vandana Vikas Thakare, Professor & Head
- 5. Dr. Laxmi Shrivastava, Professor
- 6. Dr. Karuna Markam, Associate Professor
- 7. Dr. R. P. Narwaria, Assistant Professor,
- 8. Prof Madhav Singh, Assistant Professor
- 9. Prof Pooja Sahoo, Assistant Professor
- 10. Prof D. K. Parsedia, Assistant Professor
- 11. Dr. Vikas Mahor, Assistant Professor
- 12. Dr. Rahul Dubey, Assistant Professor
- 13. Dr. Hemant Choubey, Assistant Professor
- 14. Dr. Deepak Batham, Assistant Professor
- 15. Dr. Varun Sharma, Assistant Professor
- 16. Dr. Shubhi Kansal, Assistant Professor
- 17. Dr. Himanshu Singh, Assistant Professor
- 18. Dr. Varun Mishra, Assistant Professor
- 19. Dr. Mukesh Kumar Mishra, Assistant Professor
- 20. Dr. Dablu Kumar, Assistant Professor
- 21. Prof. Prateek Bhadauria, Assistant Professor
- 22. Prof. Rachit Jain, Assistant Professor
- 23. Dr. R. Jenkin Suji, Assistant Professor
- 24. Dr. Jaydeep Parmar, Assistant Professor

Student Members

- 1. Priyal Saxena, EC-2nd Year
- 2. Divyansh Samadhiya, EC-2nd Year
- 3. Vandana Gurjar,EC-4th Year
- 4. Priyansi Singh, EC-4th Year
- 5. Mahak Jadhwani, EC-3rd Year
- 6. Nishkarsh Sharma, ET-3rd Year



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	BoS Agenda Items
Item 1	To propose the scheme structure for the Batch admitted in 2024-25 academic session under the Madhav Institute of Technology & Science-Deemed University (MITS-DU) (The total credits from I-VIII semester should not be less than 160 for this batch).
	The scheme structure of B.Tech. Ist Semester for the Batch admitted in 2024-25 under the Madhav Institute of
	Technology & Science-Deemed University (MITS-DU) has been discussed and finalized. AnnexureI
	To review & finalize the syllabi for all courses of B. Tech I Semester (for batch admitted in 2024-25) under the flexible
Item 2	curriculum along with their COs.
Titlii 2	The syllabi for all courses of B. Tech I Semester (for batch admitted in 2024-25) under the flexible curriculum along
	with their COs has been discussed and finalized. Annexure II
	To review and finalize the Experiment list/ Lab manual for all the Laboratory Courses and Micro Project-I to be offered in
T	B.Tech. I semester along with their COs.
Item 3	The Experiment list/ Lab manual for all the Laboratory Courses and Micro Project-I to be offered in B.Tech. I
	semester along with their COs has been discussed and finalized. Annexure III
	To discuss and recommend the scheme structure for the Batch admitted in 2024-25 academic session & syllabi of I semester
	PG Programme under the Madhav Institute of Technology & Science-Deemed University (MITS-DU)
Item 4	(M.E./M.Tech./MCA/MBA/MUP) along with their Course Outcomes (COs).
	NA
	To review and finalize the syllabus/module of Classified Novel Engaging Course to be offered in I semester of PG
Item 5	programme.
	NA
Item 6	Any other matter.

The following suggestions were provided by the external BOS members:

- 1. As per the suggestion given by external members, level of COs in few subject have been reconstructed.
- 2. M.Tech IIIrd and IVth semester scheme must include a MOOC course along with the dissertation work.
- 3. It has been suggested that Minor evaluation may be MCQ and Major Evaluation in PP mode.
- 4. For Specialisation Course the prerequisite must be taken care of in the scheme structure.





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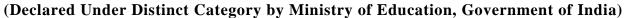
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Department of Electronics Engineering Annexure I

	To propose the scheme structure for the Batch admitted in 2024-25 academic session under the
Item 1	Madhav Institute of Technology & Science-Deemed University (MITS-DU) (The total credits from
	I-VIII semester should not be less than 160 for this batch).



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Department of Electronics Engineering

Scheme of Evaluation

B. Tech. I Semester (/ET)(for batch admitted in academic session 2024-25)

						Ma	aximum Ma	rks Allotte	ed			Con	tact H	ours				
- : - : -		-:-:-:-				Theory	Block		Practica	l Block	- : - : - : -	p	er wee	k			Mode	
S. No.	Course Co	ode	Category Code	Course Name	Cont	inuous Evalu	ation	Maine	Continuous Evaluation	- Major	Total Marks				Total Credits	Mode of	of Major	
					Minor Evaluation I	Minor Evaluation II	Quiz/ Assignment	- Major Evaluation	Lab Work & Sessional	Evaluation		L	T	P		Learning	ion.	t Evaluatio n.
1.	2024110	01	DC	Instrumentation & Sensors	20	20	30	30	·		100	. 3.			3	Face to Face	MCQ	2 Hrs
2.	2024110)2	ESC	Computer Programming	20	20	30	30	· · · · · · · · · · · · ·		100	2	- :- :	·	2	Face to Face	MCQ	2 Hrs
3.	2024110)3	DC	Electronic Devices	20	20	30	30		· · · · -	100	2	1		3	Face to Face	PP	2 Hrs
4.	2024110)4	DC	Network Theory	20	20	30	30	· . · . · . · . · . · .	· · · · · · · · · · · · · · · · · · ·	100	2.	1		3	Face to Face	PP	2 Hrs
5.	2024110)5	ESC	Basic Electrical & Electronics Engineering	20	20	30	30	: .		100	2			2	Face to Face	MCQ	2 Hrs
6.	2024110)6	DLC	Computer Programming Lab				- : - : - : - : : :	70	30	100	- [- [-		2	1	Experimental	AO	- : - : - : - : -
7.	2024110	07	DLC	Electrical & Electronics Engineering Lab	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		70	30	100	: -:		2	1	Experimental	AO	
8.	2024110)8	SP	Semester Proficiency [§]		.		- : - : - : - : : :	50		50	- [- [-		2	1	Face to Face	SO	<u></u>
9.	2024110)9	PBL	Micro Project-I	· · · · · - · · · · · ·	· · · · · - · · · ·	· . · . · · · . ·			30	100		· ·	2 .	1	Experiential	SO	
10.	2024111	10	ESC	Engineering Chemistry Lab	- : - : - - - : - : -			· · · · · · · · · · · · · · · · · · ·	70	30	100] -] - [2	1.	Experimental	AO	· · · · · · · · ·
11.	NECXXX	XX	NEC	Novel Engaging Course (Activity Based Learning)					50		50	: -: :	-1	-	1	Interactive	SO	
			То	tal	100	100	150	150	380	120	1000	11	03	10	19	.	.	· · · · · · · · · ·
12.	20241111	MAC	Universal (UHVPE)	Human Values & Professional Ethics	20	20	30	30	· · · · · · · · · · · · · · · · · · ·		100	2			GRADE	Blended	MCQ	1.5 Hrs
13.		MWS	Mandato	ry Workshop on Indian Constitution and T	raditional Kn	owledge at Dej	partment Level	(Duration:	Гwo Days)						GRADE	Interactive	MCQ	

Induction programme of three weeks (MC): Physical activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Visits to local Areas, Familiarization to Dept./Branch & Innovations.

Skill Internship Program (Soft Skill): Minimum 45 hours duration: To be credited in II Semester.

MCQ: Multiple Choice Question AO: Assignment + Oral PP: Pen Paper SO: Submission + OralOB: Open Book

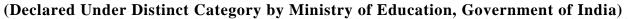
[#]Micro Project-I will be presented and evaluated through an interdisciplinary project evaluation committee.

. HS	SMC .	BSC	ESC	DC .	. DE	SPC	OC DLC	NEC	SP	. SIP	SLP	PDC	PBL	MAC	MWS	
	0	0	3	3	0	0	0 2	1	1	0	0	0	1	1	1	
				Mode of Le	earning					Mode of Exa	amination					
	Theo	ory	NEC			Lab			Theory		NEC		Lab	To	tal Credits	
	e to ice	Online	Interactive	Face to Face	Blended	Experiential	Experimental	PP	MCQ	ОВ	so	AO	so		iai Credits	
1	3	0	1	1	0	1	3.	6	7		1	3	3		39	
68.4	2%	0%	5.26%	5.26%	0%	5.26%	15.78%	31.57%	36.84 %	0%	5.26%	15.78%	15.78%	C	redits %	

Semester Proficiency- includes the weightage towards ability/ skill/ competency /knowledge level /expertise attained etc. in the semester courses



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Scheme of Evaluation

B. Tech. II Semester (ET) (for batch admitted in academic session 2024-25)

			D. Teen. II S				Iarks Allott										Duration
C NI.	Common Codo	Category	Garage Name		Theor	y Block		Practica	ıl Block	Total		itact H ber we		Total	Mode	Mode of	of Major Evaluatio n.
S. No.	Course Code	Code	Course Name	Con	tinuous Evalu	ation		Continuous Evaluation		Marks				Credits	of Learning	Major Evaluati	
				Minor Evaluation I	Minor Evaluation II	Quiz/ Assignment	Major Evaluation	Lab Work & Sessional	- Major Evaluation		L	Т	P			on.	
1.	20241201	DC	Communication Networks	20	20	30	30			100	3	- 1- 1	: - <u>-</u> - :	3	Face to Face	PP	2 Hrs
2.	20241202	DC	Electronic Circuits	20	20	30	30	- : - : - - - : - : -		100	2	1	- 1 - 1 -	3	Face to Face	MCQ	2 Hrs
3.	20241203	DC	Signals and Systems	20	20	30	30			100	2	1		3	Face to Face	MCQ	2 Hrs
4.	20241204	DC	Digital Circuits and Systems	20	20	30	30			100	2	1	· . <u>-</u> . ·	3	Face to Face	MCQ	2 Hrs
5.	20241205	BSC	Linear Algebra and Differential Equation	20	20	30	30			100	3		= :	3	Face to Face	PP	2 Hrs
6.	20241206	DLC	Digital Logic Design Lab	: · · · · · · · ·			: : : : : : : : : : :	70	30	100		- : :	2	1	Experimental	AO	· · · · · · ·
7.	20241207	DLC	Problem Solving through Python Programming	:				70	30	100	-		2	1	Experimental	AO	
8.	20241208	SP	Semester Proficiency ^{\$}	:		- : - : - : - : - : -	.	50	-	50			2	1.	Face to Face	SO	· . · . - . · . ·
9.	20241209	PBL	Micro Project-II#	· . · . · . · . · . ·	:	- : - : - : - : - :		70	30	100			2	1 1	Experiential	SO	: · : · : · : · :
10.	20241210	ESC	Engineering Physics Lab				.	70	30	100	:	· ·	2	1	Experimental	AO	· · · · · · ·
11.	20241211	HSMC	Language Lab	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	· . · . · . · . · . · . · . · . · . · .	70	30	100		- : - :	2	1	Blended	AO	· · · · · · · · · ·
12.	NECXXXXX	NEC	Novel Engaging Course (Activity Based Learning)					50		50		1		1	Interactive	so	
13.	SIP1XXXX	SIP	Skill Internship Program (Soft Skill)	· . · . · . · . · . ·	.			60	· <u>-</u>	60				2**	Experiential	so	: · : · : · : · :
		T-	otal	100	100	150	150	510	150	1160	12	04	12	24		· · ·	
14.	20241212	MAC	Sustainability & Environmental Science	20	20	30	30			100	2		· . - . ·	GRADE	Blended	MCQ	1.5Hrs
15.		MWS	Mandatory Workshop on Indian Knowle	<u> </u>										GRADE	Interactive	MCQ	
			Summer Sen	nester of six-eig	ht week duration	n will be conduc	ted for makeup	of I & II semeste	r examination.								

Semester Proficiency—includes the weightage towards ability/skill/competency/knowledge level/expertise attained etc. in the semester courses,

.** These credits will be transferred from Skill Internship Program (Soft Skill).

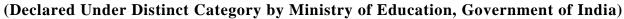
	HSMC	BSC	ESC	DC	· · DE · ·	SPC	OC DLC	NEC	SP	SIP	SLP	PDC	PBL	MAC MWS
-	1	1 1	1	4	0	0	0 2	1	1	1.	0	0	1 1	1 1 1
				Mode of Le	arning						Mode	of Examination	n · · · · · ·	
	The	ory	NEC			Lab			Theory		NEC	I	ab	Total Credits
- 1	Face to Face	Online	Interactive	Face to Face	Blended	Experiential	Experimental	PP	MCQ	ОВ	so	AO	so	Total Credits
	15	0 -	1 1	1	1	3	3	6	9	0	1	3	3	46
	62.5%	0%	4.16%	4.16%	4.16%	12.5%	12.5%	25%	37.5 %	0%	4.16%	12.5%	12.5%	Credits %

MCQ: Multiple Choice Question AO: Assignment + Oral PP: Pen Paper SO: Submission + Oral OB: Open Book

Micro Project-II will be presented and evaluated through an interdisciplinary project evaluation committee.



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Scheme of Evaluation

B. Tech. III Semester (ET)(for batch admitted in academic session 2024-25)

							Jaximum M	larks Allot	tted			Con	tact H	ours				
						Theor	y Block		Practica	al Block		. p	er wee	k		Mode	Mode of	Duration of
S. No.	Course	Code	Category Code	Course Name	Con	tinuous Eval	uation	Mojon	Continuous Evaluation	Major	Total Marks				Total Credits	of Learning	Major	Major iEvaluatio
					Minor Evaluation I	Minor Evaluation II	Quiz/ Assignment	- Major Evaluation	Lab Work & Sessional	Major Evaluation		. L	T	P			on.	n.
1.	202421	101	BSC	Probability and Random Processes	20	20	30	30	·		100	3		· · · · ·	3	Face to Face	PP	2 Hrs
2.	202421	102	DC	Data Structures	20	20	30	30	· · · · · · · · · · · · · · · · · · ·		100	2	1.	: i = i :	3	Face to Face	MCQ	2 Hrs
3.	202421	103	DC	Analog Communication	20	20	30	30	· · · · · · · · · · · · · · · · · · ·	- : - : - - - : - : -	100	2	1-1	- : - : -	3	Face to Face	MCQ	2 Hrs
4.	202421	104	DC	Analog Integrated Circuits	20	20	30	30	· · · · · · · · · · · · · · · · · · ·	.	100	2	1	: - <u>-</u> - :	3	Face to Face	PP	2 Hrs
5.	202421	105	DC	Linear Control Theory	20	20	30	30		- : : : <u>-</u> : : : :	100	2	1.	1.4	3	Face to Face	MCQ	2 Hrs
6.	202421	106	DLC	Analog Communication Lab	-		· · · · · · ·		70	30	100	- :		2	1::	Experimenta 1	AO	· · · · · · · · ·
7.	202421	107	DLC	Analog Integrated Circuits Lab					70	30	100			2	1	Experimenta 1	AO	
8.	202421	108	SP	Semester Proficiency ^{\$}	· · · · · · · · · ·		- : - : - - - : - : -		50		50	· : - : ·		2	1	Face to Face	SO	
9.	202421	109	PBL	Macro Project-I#	· · · · · · · · · · · · · · · · · · ·	· . · . · . <u>-</u> . · · . · .	· · · · · · · · · · · · · · · · · · ·		70	30	100	. · . · .		2	1	Experiential	SO	· · · · ·
10.	202421	110	SLP	Self-learning/Presentation ^{\$\$\$\$} (SWAYAM/NPTEL/MOOC)			· · · · · · · · · · · · · · · · · · ·		40		40	: :	: = :	2	1	Mentoring	so	
11.	NECXX	XXX	NEC	Novel Engaging Course (Activity Based Learning)		· · · · · · · · · · · · · · · · · · ·			50		50	- :	1		1	Interactive	so	
			To	otal	100	100	150	150	350	90	940	11	05	10	21	.		· · · · · · · · ·
12.	20242311	MAC	Cyber Se	curity	20	20	30	30	· · · · · · · · · · · · · · · · · · ·	- : : : - : : : :	100	2		-	GRADE	Blended	MCQ	1.5Hrs
13.		MWS	Mandato	ry Workshop on Internet of Things(IoT) a	t Department	Level (Durati	on: Two Days								GRADE	Interactive	MCQ	· · · · <u>-</u> · · · ·

Skill Internship Program(Institute Level) (Qualifier): Minimum 30 hours duration: To be credited in IV Semester

SLP **HSMC** BSC **ESC** DC DE SPC OC DLC NEC SPSIP **PDC PBL** MAC MWS 0 0 4 0 0 0 2 0 0 0

				Mode of Le	earning					Mode of E	xamination			
	Theo	ry	NEC			Lab			Theory		NEC	T	ab	Total Credits
Fac Fa	ce to ace	Online	Interactive	Face to Face	Blended	Experiential	Experimental	PP	MCQ	OB	so	AO	so	Total Credits
	15	0	1	1	0	1	2	6	9	0	1	2	4	42
71.4	42%	0%	4.76%	4.76%	4.16%	4.76%	9.5%	28.57%	42.85 %	0%	4.16%	9.52%	19.04%	Credits %

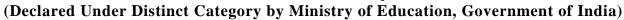
Semester Proficiency—includes the weightage towards ability/ skill/ competency /knowledge level /expertise attained etc. in the semester courses MCQ: Multiple Choice Question AO: Assignment + Oral PP: Pen Paper SO: Submission + Oral OB: Open Book

^{*}Macro Project-I will be presented and evaluated through an interdisciplinary project evaluation committee.

⁵⁸⁸ Compulsory registration for one online course using SWAYAM/NPTEL/MOOC, evaluation through attendance and presentation.



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Scheme of Evaluation

B. Tech. IV Semester (ET)(for batch admitted in academic session 2024-25)

					M	laximum M	arks Allot	ted			Con	tact H	ours				
					Theory	Block		Practical	Block		· · · p	er wee	ek		Mode	Mode of	Duration of
S. No.	Course Code	Category Code	Course Name	Cont	inuous Evalı	ation	Mojor	Continuous Evaluation	- Major	Total Marks				Total Credits	of Learning	Major	
				Minor Evaluation I	Minor Evaluation II	Quiz/ Assignment	- Major Evaluation	Lab Work & Sessional	Evaluation		L	T	P			ation.	n.
1.	20242201	DC	Linear Control Theory	20	20	30	30	-		100	.2.	. 1		3	Face to Face	MCQ	2 Hrs
2.	20242202	DC	Microprocessor and Interfacing	20	20	30	30			100	2	1.		3	Face to Face	MCQ	2 Hrs
3.	20242203	DC	Digital Communication	20	20	30	30	· · · · · · · · · · · · · · · · · · ·		100	2	1.		3	Face to Face	MCQ	2 Hrs
4.	20242204	DC	Electromagnetic Fields	20	20	30	30			100	2	1	1	3	Face to Face	PP	2 Hrs
5.	20242205	DC	VLSI Design	20	20	30	30			100	3			3	Face to Face	PP	2 Hrs
6.	20242206	DLC	Microprocessor and Interfacing Lab		· [• [•] •] • [•]			70	30	100		- :- :-	2	1 1	Experimental	AO	· · · · · · · · ·
7.	20242207	DLC	Digital Communication Lab	· · · · · · · ·	- : - : - - - : - : -	- : - : - - - : - : -		70	30	100	· - · · ·		2	1.1	Experimental	AO	- : - : - : - : -
8.	20242208	DLC	VLSI Design Lab		· · · · · · - · · · · ·	· · · · · · · · · · · · · · · · · · ·		70	30	100			2	1.	Experimental	AO	· . · . <u>-</u> . · · . ·
9.	20242209	SP	Semester Proficiency ^{\$}	· · · · · - · · · · ·	· . · . · . - . · · . · .	.		50	· . · . · <u>-</u> . · . · .	50		1 1	2 .	1	Face to Face	SO	
10.	20242210	PBL	Macro Project-II#			· · · · · · · ·		70	30	. 100	· . - . ·		2	1.	Experiential	. SO	· . · . · . · · . ·
11.	20242211	PC .	Professional Certification	· . · . · <u>-</u> . · . · .	· . · . · . . · . · . · .	. · . · . · . · .		50	· . · . · . · . · .	50	· · · · ·		. 2 .	1	Blended	SO	· · · · · · · · ·
12.	NECXXXXX	NEC	Novel Engaging Course (Activity Based Learning)					50		50	: : : :	1.		1.	Interactive	SO	
13.	SIP3XXXX	SIP	Skill Internship Program	- : - : - : : :				60	· [-] -] -] -]	60	· -		1	2**	Experiential	SO	
		To	otal	100	100	150	150	490	188	1110	11	05	12	24			
14.	20242212	MAC	Project Management, Economics & Financing	20	20	30	30	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	100	2	: -:		GRADE	Blended	MCQ	1.5 Hrs
15.	20242213	MWS	Mandatory Workshop on Computer Visio	on at Departr	nent Level (Du	ration: Two D	Days)							GRADE	Interactive	MCQ	.
16.		MWS	Mandatory Workshop on Life Skills at Do	epartment Le	evel (Duration:	Two Days)								GRADE	Interactive	MCQ	· . · . · . · · ·

Summer Semester of six-eight week duration will be conducted for makeup of previous semester examination.

Additional Course for Honours or Minor Degree: Permitted to opt for maximum two additional courses for the award of Honours or Minor Degree

These credits will be transferred from Skill Internship Program.

PC	BSC	ESC	DC	DE	SPC	OC	DLC	NEC	SP	SIP	SLP	PDC	PBL	MAC	MWS
1	0	0	5	0	0	0	3	1	1 1	1 1 1 1 1 1	0	0	1	1 1	2

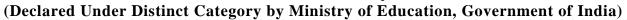
-				Mode of Le	earning					Mode of E	xamination			
	The	ory	NEC			Lab			Theory		NEC	I	ab	Total Credits
	Face to Face	Online	Interactive	Face to Face	Blended	Experiential	Experimental	PP	MCQ	ОВ	so	AO	so	Total Credits
	15	0	1	1	0	3	3	6	9	0	1	3	5	42
	62.5%	0%	4.16%	4.16%	0%	4.16%	9.5%	25%	37.5 %	0%	4.16%	12.5%	20.83%	Credits %

Semester Proficiency—includes the weightage towards ability/ skill/ competency /knowledge level /expertise attained etc. in the semester courses OB: Open Book

MCQ: Multiple Choice Question AO: Assignment + Oral PP: Pen Paper SO: Submission + Oral Macro Project-II will be presented and evaluated through an interdisciplinary project evaluation committee.



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Department of Electronics Engineering

Scheme of Evaluation

B. Tech. V Semester (ET) (for batch admitted in academic session 2024-25)

						Ma	ximum M	arks Allotte	d				Con	tact H	ours				
		Catago			Theory	Block		Practical	Block	MOO	Cs		· · · p	er wee	ek			Mode	Duration
S. No.	Course Code	Catego ry Code	Course Name	Conti	nuous Eval	uation	Major	Continuous Evaluation	Major			Total Marks				Total Credits	Mode of Learning	of Major Evaluati	Major Evaluatio
				Minor Evaluation I	Minor Evaluation II	Quiz/ Assignment	Evaluation	Lab Work & Sessional	Evaluation	Assignment	Exam		L	T	P			on.	n.
1.	20243101	DC	Digital Signal Processing	20	20	30	30	· -	· · · · · · · · · · · · · · · · · · ·		· · · · · · · ·	100	2	1	- :- :	3	Face to Face	PP	2 Hrs
2.	20243102	DC	Antenna and Wave Propagation	20	20	30	30	· · · · · · · ·	· · · · · · · ·			100	2	1		3	Face to Face	PP	2 Hrs
3.	20243103	DC	Data Science	20	20	30	30		· . · · · . · . · · .		: : : : : : :	100	2	1		3	Face to Face	MCQ	2 Hrs
4.	202431XX	DE	Departmental Elective* (DE-1)		· · · · · · · · · · ·	· · · · · · · ·	· · · · · · ·	· · · · · · · · · · · · · · · · · · ·	- : : : <u>-</u> : : : :	25	75	. 100 .	. 3.			3	Online	MCQ	3 Hrs
5.	20243104	SPC	Specialization Course (SPC-1)	20	20	30	30	· · · · · · · · · · · · · · · · · · ·	· · · · · · ·	· · · · · · · · · · ·	· · · · - · · ·	100	. 2	1	·	3	Face to Face	MCQ	2 Hrs
6.	20243105	DLC	Digital Signal Processing Lab					70	30		· · · · · ·	100			2	1	Experimental	AO	
7.	20243106	DLC	Data Science Lab		<u>-</u>		· · · · · · · · · · · · · · · · · · ·	70	30	· · · · · · · · · ·	· . · . <u>-</u> . · .	100	· ; <u>-</u> ; ·	- 2- 1	2	1	Experimental	AO	- : - : - : :
8.	20243107	SP	Semester Proficiency ^{\$}		· . · . · . · . · . · . ·		· · · · · · <u>-</u> · · · · ·	50	-		- : - ; - : -	50			- 2	1	Face to Face	SO	
9.	20243108	PBL	Cornerstone Project					70	30		· · · · · · · ·	100	::		4	2	Experiential	SO	
		To	tal	80	80	120	120	260	90	25	75	850	11	04	10	20	·		· . · . · <u>-</u> . · · .
10.	20243109	MAC	Supply Chain Management	20	20	30	30	· . · . · . · . · . · . · . · . · . · .	· . · . · . · . · .			100	2	1.5	- :- :	GRADE	Blended	MCQ	1.5 Hrs
11.		MWS	Mandatory Workshop on Blocko	chain at Depa	rtment Leve	l (Duration:	Two Days)									GRADE	Interactive	MCQ	

Additional Course for Honours or Minor Degree: Permitted to opt for maximum two additional courses for the award of Honors or Minor Degree

Semester Proficiency—includes the Weightage towards ability/skill/competency/knowledge level/expertise attained etc. in the semester courses

MCQ: Multiple Choice Question AO: Assignment + Oral PP: Pen Paper S

PP: Pen Paper SO: Submission + Oral

OB: Open Book

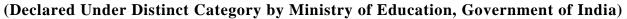
* Course run through SWAYAM/NPTEL/ MOOC Learning Based Platform

[SMC	BSC	ESC	DC	DE	SPC	OC	DLC	NEC	SP	SIP	SLP	PDC	PBL	MAC	MWS
	0	0	0	3	1	1	0	2		1	0	0	0	1	1	1

			Mode of Lo	earning					Mode of E	xamination			
	Theory	NEC			Lab			Theory		NEC	L	ab	Total Credits
Face Fac	Cinline	Interactive	Face to Face	Blended	Experiential	Experimental	PP	MCQ	OB	so	AO	so	Total Credits
12		0		0	2	2	6	9	0	0,	2	3	40
60%	6 15%	0%	5%	0%	10%	10%	30%	45 %	0%	4.16%	10%	15%	Credits %



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Department of Electronics Engineering

Scheme of Evaluation

B. Tech. VI Semester (ET)(for batch admitted in academic session 2024-25)

						N	Iaximum 1	Marks Allo	ted				Coı	ntact I	Iours				
					Theory	Block		Practical	Block	MO	OCs		1	er we	ek			Mode	Duration
S. No.	Course Code	Categ ory	Course Name	Contin	uous Eva	luation		Continuous Evaluation				Total Marks				Total Credits	Mode of	of Major	of Major
110.		Code		Minor Evaluation I	Minor Evaluatio n II	Quiz/ Assignment	Major Evaluation	Lab Work & Sessional	Major Evaluation	Assignment	Exam	IVIAIRS	L	T	P	Credits	Learning	Evaluat ion.	Evaluatio n.
1.	20243201	DC	Mobile Communication and 5G Networks	20	20	30	30	.		· · · · · · ·	· · · · · · · · · · · · · · · · · · ·	100	2	. 1	: : : : :	3	Face to Face	MCQ	2 Hrs
2.	20243202	DC	Artificial Intelligence & Machine Learning	20	20	30	30				::::: <u>:</u> ::::	100	2	1	: - :	3	Face to Face	MCQ	2 Hrs
3.	202432XX	DE	Departmental Elective* (DE-2)			· · · · · ·			· . · . · . · .	25	75	100	3		·	3	Online	MCQ	3 Hrs
4.	202432XX	OC	Open Category Course (OC-1)	20	20	30	30	<u>-</u>	: : : : <u>-</u> : : : :	-:-: <u>-</u> :-::	· . · . · . · . · . · . · . · . · . ·	100	2	. 1	- : - : -	3	Face to Face	PP	2 Hrs
5.	20243203	SPC	Specialization Course (SPC-2)	20	20	30	30			<u></u>	· · · · · <u>-</u> · · · ·	100	. 3			. 3 .	Face to Face	PP	2 Hrs
6.	20243204	DLC	Embedded System Lab			· · · · · · · · · · · · · · · · · · ·	· · · · · · ·	70	30	- : : : <u>-</u> : : : :	· · · · · · · · · · · ·	100			2	1	Experimental	AO	
7.	20243205	DLC	Artificial Intelligence & Machine Learning Lab				: : : : <u>-</u> : : : :	70	30			100		- :- :	2	1	Experimental	AO	
8.	20243206	SP	Semester Proficiency ^{\$}	· · · · · · - · · · ·		: .	· · · · · · ·	50	· · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	50		- :- :	2	1	Face to Face	SO	· · · · · · · · ·
9.	20243207	PBL	Capstone Project	- : - : - <u>-</u> - : - : -		- : - : - : - : - :	· . · . · . · . · .	70	30	- : - : - : - : :	· . · . · . · . · .	100	- 2-1	1-1-	4	2	Experiential	SO	- : - : - : - : -
- : - : -		Tota	al	80	80	120	120	260	90	25		850	12	03	. 10	20			· · ·
10.	20243208 MA	C Dis	saster Management	20	20	30	30	- · · · · · · - · · · · ·	.	· · · · · - · · · · ·	· · · · · - · · · ·	100	2	. <u>-</u> : . :		GRADE	Blended	MCQ	1.5 Hrs
11.	MW	VS Ma	andatory Workshop on Intellectua	l Property R	ights at De	partment Le	vel (Duratio	n: Two Days)								GRADE	Interactive	MCQ	

Skill Enhancement Program/Research Internship/On Job Training for Four weeks duration (Optional)

Summer Semester of six-eight week duration will be conducted for makeup of V & VI semester examination.

Additional Course for Honours or Minor Degree: Permitted to opt for maximum two additional courses for the award of Honours or Minor Degree

Semester Proficiency—includes the weightage towards ability/ skill/ competency /knowledge level /expertise attained etc. in the semester courses

MCQ: Multiple Choice Question **AO:** Assignment + Oral

PP: Pen Paper **SO:** Submission + Oral

OB: Open Book

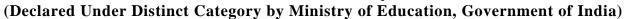
* Course run through SWAYAM/NPTEL/ MOOC Learning Based Platform.

-	HSMC	BSC	ESC	DC	DE	SPC	OC	DLC	NEC	SP	SIP	SLP	PDC	PBL	MAC	MWS
: [0	0	0	2	1 - 1 - 1 - 1 -	1	1	2	0	1 1 1 1	0	0	0	1	1	1.

			Mode of Le	earning					Mode of E	xamination			
 The	ory	NEC			Lab			Theory		NEC	L	ab	Total Credits
Face to Face	Online	Interactive	Face to Face	Blended	Experiential	Experimental	PP	MCQ	ОВ	so	AO	so	Total Credits
. 12	3	0	1	0	2	2	6	9	0	0	2	3	40
60%	15%	0%	5%	0%	10%	10%	30%	45 %	0%	4.16%	10%	15%	Credits %



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Department of Electronics Engineering

Scheme of Evaluation

B. Tech. VII Semester (ET)(for batch admitted in academic session 2024-25)

						Ma	ximum Ma	rks Allotted					Con	tact H	ours				
		- : - : - : - :			Theory	Block		Practical	Block	MOC	OCs		p	er wee	k			Mode	Duration
S. No.	Course Code	Category Code	Course Name	Conti	inuous Evalu	ation	Major	Continuous Evaluation	Major			Total Marks				Total Credits	Mode of Learning	of Major Evaluat	of Major Evaluatio
				Minor Evaluation I	Minor Evaluation II	Quiz/ Assignment	Evaluation	Lab Work & Sessional	Evaluation	Assignment	Exam		L	T	P		Learning	ion.	n.
1.	202441XX	DE	Departmental Elective (DE-3)	20	20	30	30	- : - : - : - : - : - :	- : - : - <u>-</u> - : - :		: : : : : : :	100	3			3.	Face to Face	PP	2 Hrs
2.	202441XX	DE	Departmental Elective* (DE-4)		· · · · · · · · · · · · · · · · · · ·	: .	: .		- : - : - : : : :	25	75	100	3	. : - : .		3	Online	MCQ	3 Hrs
3.	202441XX	OC	Open Category Course (OC-2)	20	20	30	30	<u></u>		25	75	100	2	1.		3	Face to Face	PP	2 Hrs
4.	20244101	SPC	Specialization Course [#] (SPC-3)	20	20	30	30	- : : : - : : : : : : : : : : : : : : :	· . · . · . · . · . · . · . · . · . · .	· . · . · . · . · . ·	.	100	2	1.		3	Face to Face	MCQ	2 Hrs
5.	20244102	SEP	Skill Enhancement Program/Research Internship/ On Job Training						50		- : : <u>-</u> : : :	50		:	2	1**	Face to Face	so	<u>-</u>
6.	20244103	DLC	Creative Problem Solving	· · · · · · · · · · · · · · · · · · ·	- : : : : : : : : : :				50	· · · · · · · · · · · · · · · · · · ·	- : - : - : : :	50	- : - : -	: -: :	2 .	. 1	Experiential	AO	- : . : : : : :
			Total	60	60	90	90	120	100	50	150	500	10	02	04	14	· · · · · · · · · · · · · · · · · · ·	. : . . . : .	: .

Additional Course for Honours or Minor Degree: Permitted to opt for maximum two additional courses for the award of Honours or Minor Degree

MCQ: Multiple Choice Question AO: Assignment + Oral

PP: Pen Paper

SO: Submission + Oral

OB: Open Book

^{*}Course run through MITS-DU MOOCs

HSMC	BSC	ESC	DC .	DE	SPC	OC .	DLC	NEC	SP	SIP	SLP	PDC	PBL	MAC	MWS	ľ
0	0	0	0	2	1	1	1	0	1	0	0	0	0	0	1	Ė

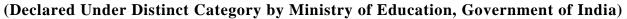
			Mode of Le	earning					Mode of E	xamination			
· . · . · . ·	Theory	NEC			Lab			Theory		NEC		ab	Total Credits
Face t	Online	Interactive	Face to Face	Blended	Experiential	Experimental	PP	MCQ	ОВ	so	AO	so	Total Credits
12	3	0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	1	0	1	0,	6	6	0	0	1	1	31
85.179	6 21.42%	0%	7.14%	0%	7.14%	0%	42.85%	42.85 %	0%	0%	7.14%	7.14%	Credits %

^{*} Course run through SWAYAM/NPTEL/ MOOC Learning Based Platform.

^{**} These credits will be transferred from Skill Enhancement Program/Research Internship/On Job Training









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Department of Electronics Engineering

Scheme of Evaluation

B. Tech. VIII Semester (ET)(for batch admitted in academic session 2024-25)

						Max	imum Ma	rks Allotte	ed				Con	ntact I	Iours				
		A :			Theory	Block		Practica	l Block	MOO	Cs		p	er we	ek		Mode	Mode of	Duration of
S. No.	Course Code	Category Code	Course Name	Conti	nuous Eval	uation						Total Marks		- : - : -		Total Credits	of	Major	Major
				Minor Evaluation I	Minor Evaluation II	Quiz/ Assignment	Major Evaluation	Continuous Evaluation		Assignment	Exam		L	Т	P		Learning	Evaluat ion.	Evaluatio n.
1.	202442XX	DE	Departmental Elective* (DE-5)	· · · · · · · · · ·	· · · · · · · · · ·	· · · · · · · · · ·	· · · · · · ·	· · · · · · · · · · · · · · · · · · ·		25	75	100	3		- : - : :	3	Online	MCQ	3 Hrs
2.	202442XX	oc	Open Category Course* (OC-3)	- : : : - : : : :						25	75	100	3	: - : :		3	Online	MCQ	3 Hrs
3.	202442XX	PBL	Industry Internship/Research Internship/ Innovation & Start-up	: : : : : : : : :	· · · · · · ·	· · · · · ·	: : : : <u>-</u> : : : :	280	120		: : : : :	400		: - - : :	20	10	Experiential	SO	· · · · · · · · · · · · · · · · · · ·
4.	20244202	PDC	Professional Development##	· · · · · · · ·	: · · · · - · · · ·	- : · : - : · : · :	· · · · · · · · · · · · ·	:	50	- : · : - : · : · :	: : : : :	50	- : - : -		4	2	Interactive	SO	· : · : - : · : ·
			Total	.	::::: : :::::			280	170	50	150	650	06	: -: :	24	18	::::: <u>-</u> :::::		· · · · · · · · · · · · · · · · · · ·

Summer Semester of six-eight week duration will be conducted to complete any backlog courses.

Additional Course for Honours or Minor Degree: Permitted to opt for maximum two additional courses for the award of Honours or Minor Degree

MCQ: Multiple Choice Question **AO:** Assignment + Oral

PP: Pen Paper

SO: Submission + Oral

OB: Open Book

*Course run through SWAYAM/NPTEL/ MOOC Learning Based Platform

^{**}Evaluation will be based on participation/laurels brought by the students to the institution in national/state level technical and other events during the complete tenure of the UG programme (participation in professional chapter activities, club activities, cultural events, sports, personality development activities, collaborative events, MOOCs, technical events, institute/department committees, etc.)

	HSMC	BSC	ESC	DC	DE	SPC	OC	DLC	NEC	SP	SIP	SLP	PDC	PBL	MAC	MWS
٠.	0	0	0	0	1	0	1	0	0	0	0	0	- 1 - 1	1	0	0

				Mode	e of Learning	Ç					Mode of E	xamination			
	The	ory	NEC			Lab				Theory	7	NEC	· · · · · · · L	ab	Total Cuadita
	_ Online _ Blended 1 . 1 .						Interact ive	PP	MCQ	ОВ	so	AO	so	Total Credits	
- [0	6	0	0	0	10	0	2	0	6	0	0	0	12	36
-	0%	33.33%	0%	0%	0%	55.55%	0%	11.11%	0%	33.33 %	0%	0%	. 0%	7.14%	Credits %





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(Declared Under Distinct Category by Ministry of Education, Government of India)

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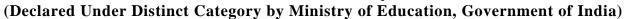
Department of Electronics Engineering

Annexure II

Itom 2	To review & finalize the syllabi for all courses of B. Tech I Semester (for batch 2024-25) under the flexible curriculum along with their COs.	admitted in
Item 2	2024-25) under the flexible curriculum along with their COs.	









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Department of Electronics Engineering Syllabus (EL/ET)

				Theory Slo	ot		Prac	tical Slot		Con Hr./v		
Subject Code	Category Code	Subject Name	Minor Evaluation	Minor Evaluation	Quiz/ Assign ment Marks	Major Evaluation	Continuous Evaluation/ Lab work & Sessional	Major Evaluation	Total Marks	L	P	Total Credits
20241101	DC	Instrumentation & Sensors	20	20	30	30	· · · · · · · · · · · · · · · · · · ·		100	3 -		3

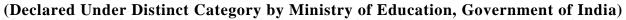
Instrumentation & Sensors (20241101)

Course Objective:

- To understand the significance of measurement techniques, errors in measurement, and statistical analysis process, sensors, classification, operating principles, and their practical use to design smart electronic systems.
- **Unit 1: Measurement Systems:** Introduction, Significance of measurement, block diagram of measurement system, methods of measurements, elements and their functions of measurement systems, applications, characteristics of measurement systems-static and dynamic, Static characteristics- accuracy, precision, sensitivity, reproducibility, drift, static error, dead zone, linearity, resolution, hysteresis, loading effects, Dynamic characteristics- Speed of response, measuring lag, fidelity, dynamic error, calibration.
- Unit 2: Errors in Measurement and their Statistical Analysis: Types of Error- Gross, Systematic (Instrumental, Environmental, Observational error), and random error, Statistical treatment of data-measurement tests, histogram, arithmetic mean, dispersion measurement, range, deviation, average deviation, standard deviation, variance, Noise, signal to noise ratio.
- **Unit 3: Thermal Sensors:** Introduction, Sensor Classifications, Sensors Parameters, Selection criterion of Sensors, General requirements for interfacing, Temperature sensors, Thermo resistive sensors- Resistance Temperature Detectors, Thermoelectric sensors- Thermocouple, Electric Sensors- Capacitive position, proximity, and displacement sensors, LVDT.
- Unit 4: Force and Pressure Sensors: Introduction, Force sensor- Strain gauge, Semiconductor strain gauge, Strain gauge accelerometers, Pressure sensors. Mechanical pressure sensors, Piezoresistive pressure sensor, Capacitive pressure sensor.
- Unit 5: Humidity and Moisture Sensors: Humidity and moisture sensors- Resistive humidity sensor, capacitive moisture sensors, Thermal conduction moisture sensors, Light dependent resistor (LDR).



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Text Book:

- 1. A.K. Sawhney: "A Course in Electrical and Electronic Measurements and Instrumentation", 18th Edition, Dhanpat Rai Publications, 2001.
- 2. Nathan Ida, "Sensors, Actuators and Their Interfaces, A multidisciplinary introduction", 2nd Edition, IET Publication.

Reference Books:

- 1. Subhash Chanda Mukhopadhyay, "Intelligent Sensing, Instrumentation and Measurements," Springer Publication.
- 2. Sanjay N. Talbar, Akhilesh R. Upadhyay, Instrumentation and Measurement, Dhanpat Rai Publishing Company. Third Edition 2004.
- 3. Process Control Instrumentation Technology, Curtis D. Johnson, PHI
- 4. A Hands-On Course in Sensors Using the Arduino and Raspberry Pi, Volker Zeimann, CRC Press.

Course Outcomes (COs):

After completion of this course students will be able to:

CO1. Examine the measurement systems, significance, and their characteristics.

CO2. Evaluate the errors in measurement systems.

CO3: Analyse the selection criteria and parameters for various sensors.

CO4: Describe the working of force, pressure, humidity and moisture sensors.

CO5: Differentiate sensors based on their applications.

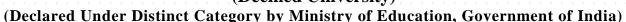
Course Articulation Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	1	2	2	2	2	2	1:	1	1	3	3	3
CO2	3	3	1	3	2	2	2	2	. 1.	1.	1:	3	3	3
CO3	3	3	1.	1::1::	3	2	2	2	1.	1	1	3	3	3
CO4	3	2	1.	1.	3	2	2	2	1	1	1	3	3	3
CO5	3	2	1	1	3	2	2	2	1	1	1	3	3	3

1 - Slightly; 2 - Moderately; 3 – Substantially



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Department of Electronics Engineering

				Theory Slo	ot		Prac	etical Slot			ntac /weel			
Subject Code	Category Code	Subject Name	Minor Evaluation	Minor Evaluation	Quiz/ Assign ment Marks	Major Evaluation	Continuous Evaluation/ Lab work & Sessional	Major Evaluation	Total Marks	L	Т	P	Total Credits	
20241103	DC	Electronics Devices	20	20	30	30		· · · · · · · · ·	100	2	1		3	

Electronics Devices (20241103)

Course Objective: To understand of the fundamental principles and operational characteristics of electronic devices, and apply this knowledge in practical electronic applications and further advanced studies in electronics.

Unit I: Semiconductor Physics: Elemental & Compound Semiconductor Materials, Bonding Forces and Energy Bands in Intrinsic and Extrinsic Silicon, Charge Carrier in Semiconductors, Carrier Concentration, Extrinsic Semiconductor, Hall Effect, Mechanism of Current Flow, Drift Current, Diffusion Current, Einstein Relation, Continuity Equation.

Unit II: Semiconductors Diodes: P-N Junction properties, Diode Characteristics, Equilibrium condition, biased junction, Steady state condition, P-N Junction breakdown mechanism, Capacitance of junction barrier, Diode circuit parameters, Basic circuits of Rectifier, Clippers and Clampers.

Unit III: Types of Diodes: Basic operation and characteristics of; Zener diode, Zener diode as a voltage regulator, Tunnel diode, Varactor diode, Schottky diode, Light emitting diode, Photo-diode.

Unit IV: Transistors (BJT & FET): Bipolar Junction Transistors; Construction, basic operation, current components and equations, CB, CE and CC configuration, input and output characteristics, Early effect, Region of operations: active, cut-off and saturation region. Field effect transistors; Construction and characteristics of JFET, working principle of JFET.MOSFET construction and characteristics, MOSFET enhancement and depletion mode.

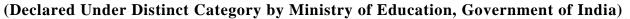
Unit V: Power Electronics Devices: Basic principle and working of SCR, IGBT, Uni-junction Transistor (UJT) and Thyristors. UJT: Principle of operation, characteristics.

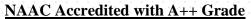
Text Books:

- 1. Electronics Devices and Circuits: Boylested & Nashelsky, 11th Edition, Pearson Education India
- 2. Electronic devices and circuits: S. Salivahanan, 2nd Edition, Tata McGraw-Hill Education, 2011.



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Department of Electronics Engineering

3. Microelectronic Circuits: Theory and Application: Sedra & Smith, 7th Edition, Oxford University Press.

Reference Books:

- 1. Micro Electronics: Millman, & Grabel, 2nd Edition, McGraw Hill Education
- 2. Integrated Electronics: Millman & Halkias, McGraw Hill Education.

Course Outcomes

After the completion of this course students will be able to:

- **CO1. Explain** the semiconductor materials with their importance.
- **CO2. Design** the circuits using diodes.
- **CO3. Analyze** the construction, operation, and characteristics of various diodes.
- **CO4.** Compare the characteristics of Bipolar Junction Transistors (BJT) and Field Effect Transistors (FET).
- **CO5. Explain** the working and characteristics of power electronics devices.

Course Articulation Matrix

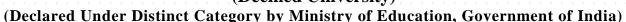
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	1	2	1	1	2	2	1	2	<u>-</u>	3	2	2
CO2	3	3	3	3	2	2	2	2	2	2	2	3	3	3
CO3	3	3	2	3	3.	3	2	1:::::	2	2	3	3	3	3
CO4	3	3	3	3	3	3	2	1:::::	2	2	3	3	3	3
CO5	3	3	2	. 1	2	.3.	2	1	2	2	1	3	2	2

1 - Slightly; 2 - Moderately; 3 – Substantially





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				Theory Slo	ot .		Prac	tical Slot			ntact week	
Subject Code	Category Code	Subject Name	Minor Evaluation	Minor Evaluation	Quiz/ Assign ment Marks	Major Evaluation	Continuous Evaluation/ Lab work & Sessional	Major Evaluation	Total Marks	L	ГР	Total Credits
20241104	DC	Network Theory	20	20	30	30	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	100	2	i :	3

Network Theory (20241104)

Course objective: To understand basic electric circuits, study of network theorems, transient analysis, analysis of two port networks.

Unit-I Introduction – Basics of Circuit Elements, Characteristics of Independent & Dependent Sources, KCL & KVL for circuits with dependent & independent sources, Dot convention for coupled inductor and their characteristics, co-efficient of coupling.

Unit-II Network theorems: Superposition theorem, Thevenin theorem, Norton theorem, Millman theorem, Reciprocity theorem and Maximum Power Transfer theorem for various types of dependent and independent power source networks.

Unit-III Laplace Transform & Passive Filters: The Laplace transform, Properties of Laplace transform, Initial and final value theorem. Waveform synthesis & Laplace Transform of various waveform function, Low pass, high pass, band pass and band elimination filters,

Unit-IV Transient analysis: Transients in RL, RC and RLC circuits, initial conditions, time constants, Steady state analysis, Node and mesh analysis of RL, RC and RLC networks with sinusoidal sources.

Unit-V Two Port Network: Concept of Ports, Calculation of network functions for one port and two port, Two port parameters – Z, Y, hybrid and chain Parameters, Relationship between two port network parameters, T and π networks, Characteristics impedance & propagation constant.

Text Books:

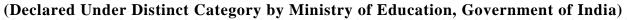
- 1. Network Analysis: M.E. Van Valkenberg, 3rd Edition, Prentice Hall of India.
- 2. Network and Systems: D. Roy Chaudhary, 2nd Edition, New Academic Science Ltd.

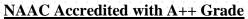
Reference Books:

- 1. Introduction to Modern Network Synthesis: M.E. Van Valkenberg, Prentice Hall of India.
- 2. Network Analysis & Synthesis: F. Kuo, 2nd Edition, Wiley & Sons.
- 3. Network Analysis & Synthesis: Ravish R Singh, 1st Edition, McGraw Hill Education.



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After the completion of this course students will be able to:

- CO1. Analyze the circuits using Kirchoff" s laws.
- CO2. Apply Network theorems for the simplification of circuits.
- CO3. Apply the Laplace transform to linear circuits and systems.
- CO4. Evaluate transient response and steady state response.
- CO5. Determine ABCD, Z,Y and h parameters of an electrical circuit.

Course Articulation Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	[1:]:	2	1 ::::	-1-[-[-	2	[1]	2	1.	2	2	3	3	3
CO2	3	3	3	3	2	3	1	2	2	1	3	3	2	2
CO3	3	3	3	3	2	2	1:::::		11::::	2	1	2	3	3
CO4	3	3	2	2	2	2	2		2	1:	1	2	3	3
CO5	3	3	3	2	3	3	.1	1	1	1:	2	3	2	3

1 - Slightly; 2 - Moderately; 3 – Substantially



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				Theory Slo	ot .		Prac	tical Slot		Con Hr./v			
Subject Code	Category Code	Subject Name	Minor Evaluation	Minor Evaluation	Quiz/ Assign ment Marks	Major Evaluation	Continuous Evaluation/ Lab work & Sessional	Major Evaluation	Total Marks	L	r P	Total Credits	
					Walks								
20241102	ESC	Computer Programming	20	20	30	30	: .		100	2 -	: -	2	

Computer Programming (20241102)

Course Objectives: Equip students with the skills to design and implement programming solutions in C++ using fundamental algorithms, approaches, and documentation techniques.

Unit I: Introduction to Programming: Types of computer programming languages, Program Execution and Translation Process, Problem solving using Algorithms and Flowcharts. Introduction to C++ Programming: Data Types, Constants, Keywords, variables, input/output, Operators & Expressions, Precedence of operators.

Unit II: Control Statements and Decision Making: Conditional statements: if, if-else, nested if, Switch statement with break and default, Loops: while, do-while, for, nested for, Loop control: break, continue, return, Decision making using logical operators, Real-world examples and applications of control structures.

Unit III: C++ Functions: Function Declaration and Definition, Function syntax, Parameter types and names, Return types and values, Function Types, Function Scope and Lifetime, Function Templates, Recursion, Recursive function definition.

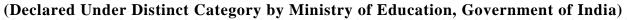
Unit III: Strings and Arrays: C-style strings (character arrays), C++ string class, Declaring and initializing strings, String operations: concatenation, comparison, String manipulation functions: strlen(), strcpy(), strcat(). One-dimensional and multi-dimensional arrays, Array declaration and indexing, Array-based operations: sorting, searching.

Unit IV: C++ Pointers: Basics of Pointers & Addresses, reference variable, Pointer to Pointer, Pointer to Array, Array of Pointers, Pointer to Strings. Dynamic memory allocation using new and delete operators.

Unit V: Object Oriented Programming: Features of OOPS, Comparison of Procedural Oriented Programming with Object Oriented Programming, Abstract Data Types, Specification of Class, Visibility Modes, Defining Member Functions, Scope Resolution Operator, Creating of Objects, Static Data Member, Static Member Function, Array of Objects, Object as Arguments, Inline Function, Friend Function.



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- 1.C++ How to Program, H M Deitel and P J Deitel, Prentice Hall.
- 2.Programming with C++, D Ravichandran, T.M.H.
- 3. Computing Concepts with C++ Essentials, Horstmann, John Wiley.

Reference Books:

- 1. The Complete Reference in C++, Herbert Schildt, TMH.
- 2. Object-Oriented Programming in C++, E Balagurusamy.
- 3. Fundamentals of Programming C++, Richard L. Halterman.

COURSE OUTCOMES:

After the completion of the course, the student will be able to:

CO1: Design algorithms and flowchart for a given problem.

CO2: Implement the concepts of procedural programming with control statement.

CO3: Develop optimized recursive functions and function templates to solve challenging computational tasks.

CO4: Implement the pointer concept for effective C++ programming.

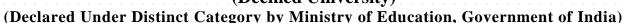
CO5: Design object-oriented programs that effectively model real-world scenarios with encapsulation and abstraction.

Course Articulation Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	1	1	1.	3	1	1	1	1	1	3	2	2
CO2	2	2	2	2	4	2	1	2	2	11	1	2	2	2
CO2	,		2		1		1			1		3		2
CO3	3	2	2	2	2	2	. 1	2	2	.1	1	3	2	2
CO4	3	. 2	1 : . : .	11	2	.3.	1	2	2	.1	11	3	.2	2
CO5	3	2	1	1	1	2	1	1	1	1	1	3	2	2



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				Theory Slo	ot .		Prac	tical Slot		Cor Hr./	tact week	
Subject Code	Category Code	Subject Name	Minor Evaluation	Minor Evaluation	Quiz/ Assign ment	Major Evaluation	Continuous Evaluation/ Lab work & Sessional	Major Evaluation	Total Marks	L	ГР	Total Credits
					Marks		CC Sessional					
20241105	ESC	Basic Electrical and Electronics Engineering	20	20	30	30		.	100	3		3

Basic Electrical & Electronics Engineering (2024105)

Course Objectives: Equip students with foundational knowledge of DC/AC circuits, magnetic circuits, transformers, electrical machines, and electronic circuits in electrical engineering.

Unit I:D.C. Circuits Analysis: Voltage and Current Sources: Dependent and independent source, Source conversion, Kirchhoff" s Law, Mesh and Nodal analysis. Network theorems: Superposition theorem, Thevenin" s theorem & Norton" s theorem and their applications.

Unit II :Single-phase AC Circuits: Generation of sinusoidal AC voltage, definitions: Average value, R.M.S. value, Form factor and Peak factor of AC quantity, Concept of Phasor, analysis of R-L, R-C, R-L-C Series and Parallel circuit, Power and importance of Power factor.

Unit III- Magnetic Circuits: Basic definitions, AC excitation in magnetic circuits, self-inductance and mutual inductance, Induced voltage, laws of electromagnetic Induction, direction of induced E.M.F. Flux, MMF and their relation, analysis of magnetic circuits.

Unit IV:Single-phase Transformer &Rotating Electrical Machines: Single phase transformer, Basic concepts, construction and working principal, Ideal Transformer and its phasor diagram at No Load, Voltage, current and impedance transformation, Equivalent circuits and its Phasor diagram, voltage regulation, losses and efficiency, testing of transformers, Construction & working principle of DC and AC machine.

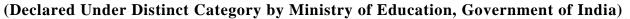
Unit V - Digital Electronics, Devices & Circuits: Number systems used in digital electronics, decimal, binary, octal, hexadecimal, their complements, operation and conversion, Demorgan's theorem, Logic gates- symbolic representation and their truth table, Introduction to semiconductors, Diodes, V-I characteristic, Bipolar junction transistors and their working, Introduction to CB, CE & CC transistor configurations.

Text Books:

- 1. Basic Electrical and Electronics Engineering, D.P. Kothari & I.J. Nagrath-Tata McGraw Hill
- 2. Basic Electrical and Electronics Engineering, S. K Bhattacharya -Pearson
- 3. Electrical Machinery- A.E. Fitzgerald, C. Kingsley and Umans TMH
- 4. Principles of Electrical Engineering- Vincdent Del Toro- Prentice Hall.
- 5. Basic Electrical Engineering -A,E. Fitzgerald, Higginbotham and Grabel -TMH
- 6. Integrated Electronics-Millmann & Halkias



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Reference Books

- 1. Principles of Electrical Engineering- Vincdent Del Toro- Prentice Hall.
- 2. Basic Electrical Engineering -A,E. Fitzgerald, Higginbotham and Grabel -TMH
- 3. Integrated Electronics-Millmann & Halkias

Course Outcomes

After the completion of the course, the student will be able to –

- CO 1. Solve dc &ac circuits by applying fundamental laws & theorems
- CO 2. Compare the behavior of electrical and magnetic circuits for given input
- CO 3. Explain the working principle, construction, applications of rotating electrical machines
- **CO 4. Explain** the working principle, constructional details, losses & applications of single phase transformer.
- CO 5. Select the logic gates for various applications in digital electronic circuits.
- **CO 6. Explain** characteristics of Diode and Transistor.

Course Articulation Matrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	1	1		3		-:::	: -: : :	.1		3	2	2
CO2	3	2	2	2	1	2	1	2	2	-1	1	3	2	2
CO3	3	2	2	2	2	2	1	2	2	1:	. 1	3	2	2
CO4	3	2	1	1	2	3	1	2	2	1		3	2	2
CO5	3	2	1	: 1: . : .		2	1	:1:	1	.1	-::::	3	2	2

1 - Slightly; 2 - Moderately; 3 - Substantially





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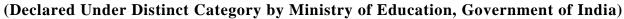
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Department of Electronics Engineering Annexure III

Itom 3	To review and finalize the Experime	nt list/ La	b manual	for all th	e Laboratory	Courses and	l Micro F	Project-I to 1	be offered in
mem 3	B.Tech. I semester along with their C	Os.							



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				Theory Slo	t		Prac	ctical Slot		Cor Hr./	tact week	
Subject Code	Category Code	Subject Name	Minor Evaluation	Minor Evaluation	Quiz/ Assign ment Marks	Major Evaluation	Continuous Evaluation/ Lab work & Sessional	Major Evaluation	Total Marks	L	ГР	Total Credits
20241109	DLC	Micro Project- I [#]					70	30	100		2	1

Micro Project-I[#] (20241109)

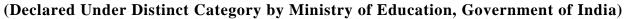
Course Objectives: To Fabricate Electronic Circuits on PCB.

List of Microprojects

- 1. Design a half and full wave rectifier circuits.
- 2. Design hardware model for Simple Rain Water Alarm System.
- 3. Design hardware model for Flashing Lamps Using 555 Timer.
- 4. Design hardware model for DC Power Supply.
- 5. Design hardware model for Simple Light Sensitivity Metronome Using Transistors.
- 6. Design hardware model for Simple Temperature Monitor.
- 7. Design hardware model for Invisible Burglar Alarm.
- 8. Design hardware model for Automatic Door Bell Ringer.
- 9. Design hardware model for Electronic Fuse.
- 10. Design hardware model for Geyser timer circuit
- 11. Design hardware model for Water Sensor Alarm.
- 12. Design a circuit for BJT as a Touch Switch.
- 13. Design a circuit for Water Level Indicator.
- 14. Design a circuit for LED Blinker Circuit.
- 15. Design a circuit for Automatic Night Light.
- 16. Design a circuit for Fire Alarm Detector.
- 17. Design a circuit for Automatic Smoke Detector.
- 18. Design a circuit for Laser-based Security System.
- 19. Design a circuit for Auto Water Pump Switcher.
- 20. Design a circuit for wireless Power Transfer System.
- 21. Design a Clap Circuit for Controlling Home Automation (light & fan).



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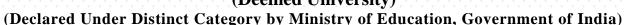
Course Outcomes

- CO1: Analyze the electronic components, measuring instruments, and tools.
- CO2. **Design** and simulate the schematic, layout using CAD software.
- CO3. **Design** and fabricate PCBs for various electronic circuits individually and in a team.
- CO4. **Troubleshoot** the fabricated circuit individually and in a team.
- CO5. **Implementation** of electronic mini project that benefits society.





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				Theory Slot			Practical Slot			Contact Hr./week				
Subject Code	Category Code	Subject Name	Minor Evaluation	Minor Evaluation	Quiz/ Assign ment Marks	Major Evaluation	Continuous Evaluation/ Lab work & Sessional	Major Evaluation	Total Marks	L	ТР	Т	otal Credits	
20241107	DLC	Electrical and Electronics Lab					70	30	100		- 2		1	

Electrical and Electronics Lab (20241107)

Course Objective: Develop skills in designing and testing electrical and electronic circuits.

List of Experiment

- **1.** To determine the volt –ampere characteristics of diode in forward bias & reverse bias condition.
- 2. Verification of Kirchhoff's Current Law & Kirchhoff's Voltage Law.
- **3.** Verification of Superposition Theorem.
- **4.** To determine resistance & inductance of a choke coil.
- **5.** To determine active & reactive power in a single phase A.C circuit.
- **6.** To determine voltage ratio & current ratio of a single phase transformer.
- 7. To determine the polarity of a single phase transformer.
- **8.** To perform open circuit & short circuit test on a single phase transformer.
- **9.** Measurement of various Electrical Quantities using multimeter.
- 10. Study of construction details of D.C machine.

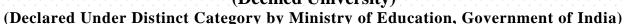
Course Outcomes:

After the completion of the lab, the student will be able to -

- 1. Verify circuit theorems.
- 2. Perform tests on transformer for determination of losses, efficiency & polarity.
- 3. Demonstrate the constructional features of electrical machines
- **4.** Acquire teamwork skills for working effectively in groups
- **5.** Prepare an organized technical report on experiments conducted in the laboratory.



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							0	0					_
				Theory Slot			Prac		Contact Hr./week				
Subject Code	Category Code	Subject Name	Minor Evaluation	Minor Evaluation	Quiz/ Assign ment Marks	Major Evaluation	Continuous Evaluation/ Lab work & Sessional	Major Evaluation	Total Marks	L	ГР	Total Credits	
20241106	DLC	Computer Programming Lab					70	30	100	-	2	1	

Computer Programming Lab (20241106)

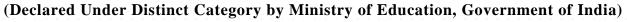
Course Objectives: Develop skills in modular programming by writing reusable functions and dividing the code into logical modules.

List of Experiments

- 1. WAP to perform addition, subtraction, multiplication and division of integer and floating values.
- 2. WAP to perform swapping between two user entered values without using third variable.
- 3. WAP to take temperature from the user in Fahrenheit, then convert and display the temperature in Celsius and Kelvin.
- 4. WAP to calculate and display Simple Interest where the principle, rate and time are given by the user.
- 5. WAP to calculate and print the values of $\sin\theta$, $\cos\theta$ and $\tan\theta$ using math.h library.
- 6. WAP to implement Pythagoras Theorem. 7. WAP to display whether a user entered number is even or odd.
- 7. WAP to check and display whether a user entered number is divisible by 30 or not (using nested if).
- 8. WAP to find and display the greatest number among the three numbers entered by the user.
- 9. WAP to check and print whether a user entered number is negative, positive or zero.
- 10. WAP to print whether a user entered character is vowel or consonant using switch-case.
- 11. WAP to print mathematical table of a user entered number (example, 5*1=5) (for loop).
- 12. WAP to find factorial of a user entered number using while loop.
- 13. WAP to print all the numbers between 1 to 100 whose sum of the is even (do-while loop).
- 14. WAP to find factorial of a user entered number using recursion.
- 15. WAP to print the maximum and minimum element of a user entered 1D array and sort the array elements in ascending and descending order.
- 16. WAP to search an element and print its position in a user entered 2D array.
- 17. WAP to take enrollment number, name, 5 subject marks form students and calculate and print percentage along with their respective enrollment numbers using structure.



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After completing the lab, students will be able to:

CO1 Demonstrate the computer programming concepts data types, sizes, variable name, declaration and statements using C++.

CO2 Implement the programming of string and arrays using C++.

CO3 Implement the use of functions in C++.

