

	Nutan Maharashtra Vidya Prasarak Mandal's NUTAN MAHARASHTRA INSTITUTE OF ENGINEERING & TECHNOLOGY	 ESTD : 1906
Approved by AICTE	Accredited by NAAC & NBA	Affiliated to SPPU
"Samarth Vidya Sankul", Vishnupuri, Telegaon Dabhade, Pune - 410507		
Tel. No. 02114 – 231666	E-mail: nmietalegaon@gmail.com	Web : www.nmiet.edu.in

1.1.1.A Process of effective curriculum delivery through a well-planned documentation

The Institution ensures effective curriculum planning and delivery through a well-planned and documented process is shown in the below flowchart Fig 1.1.1.a which represents the process to improve the quality of Teaching & Learning

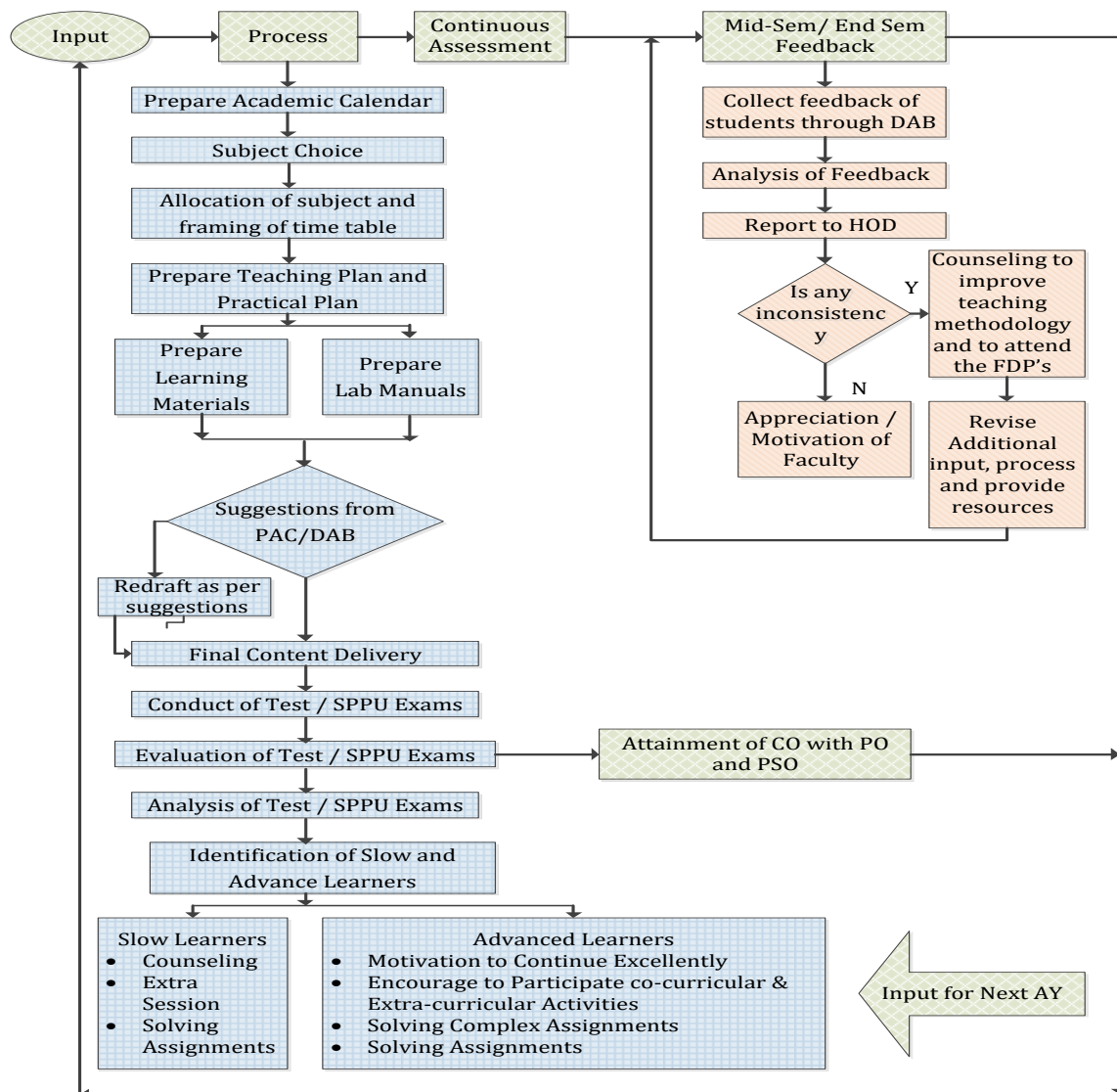


Fig. 1.1.1.a Teaching Learning Process

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Program Coordinator along with course coordinator prepares the academic calendar of the Program, which is in concurrence with the academic planner of the Institution and includes co-curricular activities, add-on courses, parent-teachers meet, Unit test schedule, practical/oral examination, university theory examination, etc.

The index of documents along with the case study of department of Electronics and Telecommunication Engineering is elaborated below.

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5	Course objectives, Outcome, and CO-PO Mapping	20
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Savitribai Phule Pune University
(Formerly University of Pune)



Circular No. 302 of 2022
Important Notification


Revised Dates of Commencement and Conclusion of terms of U.G. / P.G. Courses for the Academic Year 2022-23 for Affiliated Colleges / Recognised Institutes.


In reference to the earlier circular issued by the University bearing no. 173 dated 10.06.2022 the dates of commencement and conclusion of First Term and Second Term in the academic calendar for the academic year 2022-23, for the following courses are being revised as under.

Sr No	Name of the Courses , Faculties & Year	2022 - 2023			
		First Term		Second Term	
		Commencement	Conclusion	Commencement	Conclusion
1	Science & Technology				
	Science	20/06/2022	30/11/2022	26/12/2022	04/05/2023
	B.Engineering : II	17/08/2022	10/12/2022	02/01/2023	29/04/2023
	B.Engineering : III IV	18/07/2022	30/11/2022	02/01/2023	29/04/2023
	M.Engineering : II	18/07/2022	12/11/2022	09/01/2023	06/05/2023
	B.Architecture : II	08/08/2022	04/12/2022	19/12/2022	04/05/2023
	B.Architecture : III IV V	20/06/2022	08/11/2022	30/12/2022	15/05/2023
	M.Architecture:II	19/09/2022	07/01/2023	23/01/2023	20/05/2023
	B. Pharmacy: II III	01/08/2022	10/12/2022	02/01/2023	10/05/2023
	B. Pharmacy: IV	15/07/2022	03/12/2022	02/01/2023	10/05/2023
M. Pharmacy : II	01/08/2022	10/12/2022	26/12/2022	30/06/2023	
2	Commerce & Management				
	Commerce	20/06/2022	30/11/2022	26/12/2022	04/05/2023
	MBA II (Including SIP project of 8	01/09/2022	30/01/2023	15/02/2023	26/05/2023
	MCA II	01/09/2022	16/12/2022	02/01/2023	15/04/2023
3	Humanities				
	Arts				
	Mental Moral and Social Sciences	20/06/2022	30/11/2022	26/12/2022	04/05/2023
	L.L.B. II	31/10/2022	31/01/2023	06/02/2023	15/05/2023
	L.L.B. III	04/07/2022	12/12/2022	08/01/2023	15/05/2023
	B.A. L.L.B. II	31/10/2022	31/01/2023	06/02/2023	15/05/2023
4	Inter-disciplinary Studies				
	Education : II	15/09/2022	06/01/2023	17/01/2023	10/05/2023
	Physical Education : II	15/09/2022	06/01/2023	17/01/2023	10/05/2023
	B.Lib & M.Lib	15/07/2022	30/11/2022	02/01/2023	04/05/2023
	Fine Arts & Performing Art	20/06/2022	30/11/2022	26/12/2022	04/05/2023
	Journalism PG	15/07/2022	30/11/2022	02/01/2023	04/05/2023

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"Samarth Vidya Sankul" Vishnupuri
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

Nutan Maharashtra VidyaPrasarakMandal's (NMVPM's)
NUTAN MAHARASHTRA INSTITUTE OF
ENGINEERING AND TECHNOLOGY (NMIET)
 Under Administrative Support - PimpriChinchwad Education Trust (PCET)



 ESTD : 1906

Approved by AICTE **Accredited by NAAC** **Affiliated to SPPU**
 Date : 07/07/2022


Ref. No. : **Academic Calendar AY 2022-23 (Semester I) FE/SE/TE/BE**

Sr. No.	Academic Activities	Scheduled Date/ Period	Scheduled Date/ Period	Scheduled Date/ Period
		TE & BE	SE	FE
1	Commencement of Classes	18/07/2022	17/08/2022	04.11.2022
2	Induction Programme	18/07/2022	17/08/2022	15.11.2022 to 26.11.2022
3	Seminar/Webinar for all Departments	August 2022, September 2022, October 2022, November 2022		
4	GFM Meeting	2nd Week of Every Month		
5	Display of Student's Monthly Attendance	1st week of Every Month		
6	Parents Meet	3 rd Week of Aug 2022	3 rd Week of Sept 2022	27/01/2023
7	Art Circle Program for Faculty	2 nd week of October		
8	Workshop for all Departments	Aug / Sep 2022		
9	Student Feedback - 1	2 nd Week of Sept 2022	3 rd Week Oct 2022	Last week of Jan 2023
10	Unit Test - I	3 rd Week of August 2022	3 rd Week of Sept 2022	3 rd Week of Dec 2022
11	Display of Unit Test - I Marks	4 th Week of August 2022	4 th Week of Sept 2022	4 th Week of Dec 2022
12	In-sem Exam (SPPU)	As per SPPU In-sem Exam Time Table		
13	Academic Review-1	1st week of OCT (SE/TE/BE) and 1st week of Jan (FE)		
14	Runanubandh - 2022 (Alumni Meet)	Last week of November 2022		
15	Student Feedback - 2	3 rd Week Nov 2022	2 nd Week of Dec 2022	Last Week of Feb 2023
16	Conclusion of Teaching	30/11/2022	10/12/2022	06/03/2023


 Principal
 Nutan Maharashtra Institute of Engineering & Technology
 "Samarth Vidya Sankul" Vishnupuri
 Telegaon Dabhade, 410507



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Academic Calendar AY 2022-23(Semester I)FE/SE/TE/BE


17	Pre End Sem Exam	4 th Week of Nov 2022	3 rd Week of Dec 2022	2 nd Week of Mar 2023
18	Academic Review - 2	3 rd week of December (SE,TE,BE) and 2 nd week of March (FE)		
19	Display of Pre End Sem Exam Marks	1 st Week of Dec 2022	4 th Week of Dec 2022	3 rd Week of Mar 2023
20	Submission of Term Work	1 st Week of Dec 2022	4 th Week of Dec 2022	3 rd Week of Mar 2023
21	SPPU PR/OR/TW Project Exam	As per SPPU Calendar		
22	End-Sem Exam (SPPU)	As per SPPU Calendar		
	Vacation	As per Polices		

Note:

1) This is tentative Academic Calendar any change in dates will be duly notified.


Copy to:

1. Executive Director
2. Registrar
3. All Head of Departments
4. All department Academic Coordinators



PRINCIPAL
Principal
Nutan Maharashtra Institute
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 Ref. No. : Date : 11/07/2022

Department Academic Calendar AY 2022-23 (Semester I)

Department of E&TC

Sr. No.	Academic Activities	Scheduled Date/ Period	
		TE & BE	SE
1	Commencement of Classes	18/07/2022	17/08/2022
2	Induction Programme	18/07/2022	17/08/2022
3	Departmental Meeting with HOD	On Wednesday of each week	
4	GFM Meeting	2 nd Week of Every Month	
5	Display of Student's Monthly Attendance	1 st week of Every Month	
6	Parents Meet	3 rd Week of Aug 2022	3 rd Week of Sept 2022
7	Unit Test - I	3 rd Week of August 2022	3 rd Week of Sept 2022
8	Display of Unit Test – I Marks	4 th Week of August 2022	4 th Week of Sept 2022
9	In-sem Exam (SPPU)	As per SPPU In-sem Exam Time Table	
10	IETE Inauguration and Poster Making Competition	25 AUG 2022	
11	Webinar on Higher study opportunities in India and Abroad (GATE)	First week of Sept. 2022	
12	EESA Event- Teachers Day	5 Sept 2022	
13	EESA Event- Engineers Day	15 Sept 2022	
14	"Code Genesis-Part I"-Workshop	20 Sept to 22 Sept.2022	
15	Career guidance in IT industry	23 Sept.2022	
16	EME Day celebration	28 Sept. 2022	
17	Student Feedback – 1	2 nd Week of Sept 2022	3 rd Week Oct 2022
18	Academic Review-1	1st week of OCT (SE/TE/BE)	
19	Art Circle Program for Faculty	2 nd week of October	
20	Induction Seminar of Campus Credential	18 Oct 2022	



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Ref. No. : _____ Date : 11/07/2022

Department Academic Calendar AY 2022-23 (Semester I)


Department of E&TC

21	Industrial Visit to Metro Station	19 Oct 2022
22	Workshop on Arduino	23 Nov 2022
23	Debate Competition "SANGHARSH" - ESSA Event	7 Dec 2022 and 8 Dec 2022
24	Runanubandh - 2022 (Alumni Meet)	Last week of November 2022
25	Student Feedback - 2	3 rd Week Nov 2022 2 nd Week of Dec 2022
26	Conclusion of Teaching	30/11/2022 10/12/2022
27	Pre End Sem Exam	4 th Week of Nov 2022 3 rd Week of Dec 2022
28	Display of Pre End Sem Exam Marks	1 st Week of Dec 2022 4 th Week of Dec 2022
29	Submission of Term Work	1 st Week of Dec 2022 4 th Week of Dec 2022
30	Academic Review - 2	3rd week of December (SE,TE,BE)
31	SPPU PR/OR/TW Project Exam	As per SPPU Calendar
32	End-Sem Exam (SPPU)	As per SPPU Calendar
33	Vacation	As per Policies

Note:

1) This is tentative Academic Calendar; any change in dates will be duly notified.


 Department Academic Coordinator



 HOD E&TC

Copy to:

1. Principal
2. All Staff
3. Notice Board



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Nutan Maharashtra Vidya Prasarak Mandal's		Nutan Maharashtra Inst. of Engg. & Tech.		Record No.: ACDM/R/11B			Revision: 00			Date: 15.06.16			
LOAD ALLOTMENT FOR SEM I - 2022-23													
DEPARTMENT : E&TC										Date: 24/06/2022			
Sr.No	Name of Staff	Subject	Class									Total Load	SIGN
			SE			TE			BE				
			TH	PR	Tut	TH	PR	Tut	TH	PR	Tut		
1	Dr.Deotare V	DS	3									3	<i>[Signature]</i>
2	Dr.Dhawas N	Cloud Computing							3			5	<i>[Signature]</i>
		DM				2							
3	Dr. Joshi S	RMT							3	6		9	<i>[Signature]</i>
4	Dr. Ambadkar	Electronic ckts	3	8								11	<i>[Signature]</i>
5	Neeta Karhadkar	SD					4					15	<i>[Signature]</i>
		DC				3	8						
6	Harsha Sarode	EL-1(DSP/CN)				3	8					17	<i>[Signature]</i>
		Cloud Computing							6				
7	Nutan Patil	EC	3	8								15	<i>[Signature]</i>
		ESD		4									
8	B Warhade	VLSI							3	6		9	<i>[Signature]</i>
9	Sarika N Patil	MC				3	8					15	<i>[Signature]</i>
		ESD		4									
10	Mahesh Chinchole	EFT				3		4				16	<i>[Signature]</i>
		DM				3	6						
11	Sarika B Patil	DS		8								15	<i>[Signature]</i>
		EPD						3					
		SD					4						
12	Balika Tawade	DC	3	6								15	<i>[Signature]</i>
		Project ph -I								6			
13	Sushma Bhosle	EL-3 (Mod-IOT)							3	6		11	<i>[Signature]</i>
		DC		2									
14	FE	M-III	4		4							8	<i>[Signature]</i>
15	Dr .Satyajit Chincholkar		Study Leave										
			60			59			45				
TOTAL LOAD											164		



HEAD OF THE DEPARTMENT
Electronics & Tele Communication
Nutan Maharashtra Inst. of Engg. & Tech.
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	Nutan Maharashtra Vidya Prasarak Mandal's Nutan Maharashtra Institute of Engineering and Technology		Record No.: ACDM/R/013				
			Revision: 00				
			Date: 15.06.16				
Class Time Table							
Department: E&TC			Academic Year: 2022-2023 (SEM I)				
W.E.F: 018/07/2022							
Name of the Class Teacher: Dr.Sagar Joshi			Class: BE (E&TC) (BE Lunch Break -12:55-1:25pm)				
Time	9:15AM-10.10AM	10:10AM-11:05AM	11:05PM-12:00PM	12:00PM-12:55PM	12:55PM-1:25PM	1:25PM-2:20PM	2:20PM-3:15PM
MON	MIOT (SSB) 207	RMT (SVJ) 207	MIOT(C)-SSB VLSI(A)-BAW CC(B)-HJS			Project	Project
TUE	VLSI (BAW) 207	MIOT (SSB) 207	MIOT(A)-SSB VLSI(B)-BAW RMT(C)-SVJ			EPD (SBP) 207	Library
WED		VLSI (BAW) 207	EPD (SBP) 207	MIOT (SSB) 207	Club Activity/GFM Meeting/Department Meeting		
THU	RMT (SVJ) 207	VLSI (BAW) 207	VLSI(C)-BAW RMT(B)-SVJ CC(A)-HJS			CC (ND) 207	Project
FRI	CC (ND) 207	RMT (SVJ) 207	MIOT(B)-SSB CC(C)-HJS RMT(A)-SVJ			EPD (SBP) 207	Project
SAT							
Prof. Neeta Karhadkar I/C Time Table		Dr. Nitin Dhawas HOD(E&TC)		Dr. Vilas Deotare Principal			
Sr.No	Name of staff & Abbreviation	Subject	Lab No.				
1	Dr.Sagar Joshi -SVJ	Radiation & Microwave Thoery -RMT	213				
2	Dr.Sushma Bhosle-SSB	Modernized IOT-MIOT	215				
3	Dr.Nitin Dhawas - ND	Cloud Computing-CC	214				
4	Prof.Sarika B Patil	Electronic Product Design-EPD	207				
5	Prof.Bhagyshri Warhade-BAW	VLSI	216				

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Lesson Plan			
Name of Department: E&TC			
Year: 22-23			
Subject: Radiation & Microwave Theory			
Semester: 7		Load per Week: 3 Hrs	
Sr.No	Topic	Planned date	Conducted Date
UNIT 1			
L1	Fundamental equations for free space propagation (Friis transmission equation)	18-Jul-22	21/7/22
L2	Fundamental equations for free space propagation (Friis transmission equation)	19-Jun-22	22/7/22
L3	Definition of antenna, Radiation mechanism and Types of antenna,	20-Jul-22	25/7/22
L4	Performance Parameters such as radiation pattern, directivity, gain, efficiency, half power beam width, bandwidth,	25-Jul-22	28/7/22
L5	Performance Parameters such as radiation pattern, directivity, gain, efficiency, half power beam width, bandwidth,	26-Jul-22	29/7/22
L6	polarization, input impedance, radiation efficiency, effective length, effective area, radiation sphere	27-Jul-22	1/8/22
L7	Numerical	01-Aug-22	
UNIT 2			
L8	Introduction to Microwave, Short History of Microwave Engineering, Frequency Band definitions, Advantages and Applications of Microwave (overall applications).	02-Aug-22	4/8/22
L9	Introduction to Wave Guides, Advantages of waveguides, Comparison of Waveguides and Co-axial cables	03-Aug-22	5/8/22
L10	Rectangular Waveguide, modes of propagation in waveguide, Cut off frequency, Dominant mode,	08-Aug-22	11/8/22
L11	Waveguide Characteristics and Parameters, Excitation in Waveguides, Coupling methods (probe, slot, loop)	09-Aug-22	12/8/22
L12	Cavity Resonator, Application of Re-entrant cavity, Coupling of cavities, Striplines: Structural details, types and applications.	10-Aug-22	13/8/22
L13	Cavity Resonator, Application of Re-entrant cavity, Coupling of cavities, Striplines: Structural details, types and applications.	16-Aug-22	18/8/22
		17-Aug-22	19/8/22



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UNIT 3			
L15	Construction, working principle and scattering analysis of passive microwave components such as E-plane, H-plane and Magic Tee.	22-Aug-22	25/8/22
L16	Construction, working principle and scattering analysis of passive microwave components such as E-plane, H-plane and Magic Tee..	23-Aug-22	26/8/22
L17	Construction, working principle and scattering analysis of passive microwave components such as E-plane, H-plane and Magic Tee..	24-Aug-22	29/8/22
L18	Ferrite composition, Characteristics and Faraday Rotation Principle. Construction, working principle and scattering analysis of Isolator, Circulator and Gyrotor	29-Aug-22	1/9/22
L19	Ferrite composition, Characteristics and Faraday Rotation Principle. Construction, working principle and scattering analysis of Isolator, Circulator and Gyrotor	30-Aug-22	2/9/22
L20	Construction and Operation of Directional Coupler, Microwave Filters, Phase Shifter, Microwave Attenuator	06-Sep-22	8/9/22
L21	Construction and Operation of Directional Coupler, Microwave Filters, Phase Shifter, Microwave Attenuator	07-Sep-22	9/9/22
UNIT 4			
L22	Limitations of Conventional Tubes, Classification of Microwave Tubes: O and M type,	12-Sep-22	19/9/22
L23	Classification of Microwave Tubes: O and M type, Re-entrant Cavity, Velocity Modulation.	13-Sep-22	22/9/22
L24	Construction, Operation, Performance Analysis and Applications of -Single cavity and Two Cavity Klystron,	14-Sep-22	23/9/22
L25	Construction, Operation, Performance Analysis and Applications of -Single cavity and Two Cavity Klystron,	19-Sep-22	26/9/22
L26	Cylindrical Wave Magnetron and Helix Traveling Wave Tube.	20-Sep-22	13/10/22
L27	Cylindrical Wave Magnetron and Helix Traveling Wave Tube, Numerical.	21-Sep-22	14/10/22



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UNIT 5			
L28	Introduction, Principle of Operation, Construction, Characteristics, Parameters with analysis of Microwave Transistors, MOSFET, Principle of Operation,	26-Sep-22	17/10/22
L29	Introduction, Principle of Operation, Construction, Characteristics, Parameters with analysis of Microwave Transistors, MOSFET, Varactor diode.	27-Sep-22	20/10/22
L30	Parametric amplifier, PIN diode, Tunnel diode: Application as amplifier, oscillator	28-Sep-22	3/11/22
L31	Parametric amplifier, PIN diode, Tunnel diode: Application as amplifier, oscillator	03-Oct-22	4/11/22
L32	Schottky Barrier Diode, Transferred Electron Devices: Gunn diode, Avalanche Transit Time devices :IMPATT diode, TRAPATT	04-Oct-22	7/11/22
L33	Schottky Barrier Diode, Transferred Electron Devices: Gunn diode, Avalanche Transit Time devices : IMPATT diode, TRAPATT diode.	10-Oct-22	10/11/22
UNIT 6			
L34	Microwave Terrestrial and Satellite Communication System, Fundamentals of RADAR and RADAR range equation.	11-Oct-22	11/11/22
L35	Industrial applications of microwaves such as microwave heating, medical application such as microwave diathermy.	12-Oct-22	14/11/22
L36	Microwave measurement devices: slotted line, tunable detector, VSWR meter, power meter, and their working principles.	17-Oct-22	17/11/22
L37	Power meter and their working principles.	18-Oct-22	18/11/22
L38	Microwave measurement techniques to measure Sparameters, frequency, power, attenuation, VSWR, impedance	19-Oct-22	21/11/22
L39	Radiation hazards and protection.	20-Oct-22	24/11/22
Extra Lectures			
L40	Unit-1 & Unit-2	12/9/22	
L41	Unit-3 & Unit-4	15/9/22	
L42	Unit-5 & Unit-6	25/11/22	



[Signature]
 Subject Teacher.



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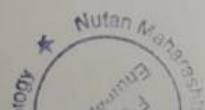
Tel. No. 02114 – 231666

E-mail: nmiettalegaon@gmail.com

Web : www.nmiet.edu.in




LAB Plan

Name of Department: E&TC			
Year: 2022-23			
Subject: RMT lab			
Semester: I		Batch: B	
Pr.No	Name Practical/Experiments	Planned date	Conducted Date
1	To study of different types of Microwave Components	21/7/22	28/7/22
2	To measure radiation pattern and gain of horn or parabolic antenna at microwave frequency	28/7/22	18/8/22
3	To measure V-I characteristics of Gunn Diode and study of PIN modulator.	4/8/22	11/9/22
4	To measure and verify port characteristics of microwave tees (E, H, E-H or magic planes)	18/8/22	15/9/22
5	To measure and verify port characteristics of directional coupler and calculate coupling factor, insertion loss and directivity	11/9/22	08/09/22
6	To measure and verify port characteristics of isolator and circulator and calculate insertion loss and isolation in dB.	15/9/22	20/09/22




G.M.
Teacher


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	Nutan Maharashtra VidyaPrasarak Mandal's Nutan Maharashtra Institute of Engineering & Technology Department of Electronics and Telecommunication Engineering		
Assignment 1			
Academic Year: 2022-23(Semester I)			
YEAR/ SEM-BE SEM-I	MAX.MARKS- 10		
SUBJECT: Radiation and Microwave Theory			
CO	Blooms Level (1-6)	Q.N.	Questions
Assignment 1			
2	L1	1	Derive fundamental equation of free space transmission
2	L1	2	Explain the details the radiation mechanism of antenna with suitable diagram.
  Subject Teacher			




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	Nutan Maharashtra VidyaPrasarak Mandal's Nutan Maharashtra Institute of Engineering & Technology Department of Electronics and Telecommunication Engineering		
Assignment 2			
Academic Year: 2022-23(Semester I)			
YEAR/ SEM-BE SEM-I	MAX.MARKS- 10		
SUBJECT: Radiation and Microwave Theory			
CO	Blooms Level (1-6)	Q.N.	Questions
Assignment 2			
2	L1	1	For an air filled rectangular waveguide of 2cm x 1cm, calculate the cut-off wavelength for TE ₁₀ & TM ₁₁ modes. Also calculate guide wavelength at 10 GHz.
2	L1	2	Give the comparison between co-axial cable and waveguide.


GN



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	Nutan Maharashtra Vidya Prasarak Mandal's Nutan Maharashtra Institute of Engineering & Technology Department of Electronics and Telecommunication Engineering		
Assignment 3			
Academic Year: 2022-23(Semester I)			
YEAR/ SEM-BE SEM-I	MAX.MARKS- 10		
SUBJECT: Radiation and Microwave Theory			
CO	Blooms Level (1-6)	Q.N.	Questions
Assignment 3			
3	L3	1	Explain the properties of E-plane Tee with the help of neat diagram. Also state its scattering matrix.
3	L3	2	With the help of constructional details explain the operating principle of Isolator.
			
 Subject Teacher			

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Nutan Maharashtra VidyaPrasarak Mandal's

Nutan Maharashtra Institute of Engineering & Technology

Department of Electronics and Telecommunication Engineering


Assignment 4

Academic Year: 2022-23(Semester I)

MAX.MARKS- 10

YEAR/ SEM-BE SEM-I
SUBJECT: Radiation and Microwave Theory




CO	Blooms Level (1-6)	Q.N.	Questions
Assignment 4			
4	L2	1	What are the limitations of Conventional tubes. Explain re-entrant cavity.
4	L1	2	Distinguish between the Klystron tube and Travelling wave tube amplifier.




S-N


Subject Teacher

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	Nutan Maharashtra VidyaPrasarak Mandal's Nutan Maharashtra Institute of Engineering & Technology Department of Electronics and Telecommunication Engineering		
Assignment 5			
Academic Year: 2022-23(Semester I)			
MAX.MARKS- 10			
YEAR/ SEM-BE SEM-I			
SUBJECT: Radiation and Microwave Theory			
CO	Blooms Level (1-6)	Q.N.	Questions
Assignment 5			
5	L1	1	What are the avalanche transit time devices? Explain the working principle of TRAPATT Diode
5	L2	2	An IMPATT diode has a drift length of $2\mu\text{m}$. Determine 1. The Drift time of the carrier 2. The operating frequency of the Diode
		  Subject Teacher	

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	Nutan Maharashtra Vidya Prasarak Mandal's Nutan Maharashtra Institute of Engineering & Technology Department of Electronics and Telecommunication Engineering		
Assignment 6			
Academic Year: 2022-23(Semester I)			
YEAR/ SEM-BE SEM-I	MAX.MARKS- 10		
SUBJECT: Radiation and Microwave Theory			
CO	Blooms Level (1-6)	Q.N.	Questions
Assignment 6			
6	L3	1	Explain the working principle of VSWR Meter.
6	L1,L3	2	Explain radiation hazards & protection.



 subject Teacher *GM*



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Subject: Radiation And Microwave Techniques BE -2019 pat
 A.Y. (2022-23) SEM-I

COURSE Objectives:

C01	Apply the fundamentals of electromagnetic to derive free space propagation equation and distinguish various performance parameters of antenna.
C02	Identify various modes in the waveguide. Compare: coaxial line, rectangular waveguides & striplines and identify applications of the same
C03	Identify various modes in the waveguide. Compare: coaxial line, rectangular waveguides & striplines and identify applications of the same
C04	Explore construction and working of principles active microwave devices/components.
C05	Analyze the structure, characteristics, operation, equivalent circuits and applications of various microwave solid state active devices.
C06	Analyze the structure, characteristics, operation, equivalent circuits and applications of various microwave solid state active devices.

CO-PO Mapping

C01	3	3	2	2																2	
C02	3	3	3	2	2																
C03	3	3	3	2	2																
C04	3	3	3	2																	
C05	3	3	3	2																	
C06	3	2	3	2																	1



[Signature]
 Subject Teacher

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Innovating Teaching(Pedagogy) used

1) Online Demo on construction of Reflex Klystron:

Online demo on construction of Reflex Klystron has been conducted for BE students.

- **Objective:**

The objective of an online demo on the construction of a Reflex Klystron is to provide a clear and educational overview of how a Reflex Klystron, a type of microwave vacuum tube, is built and functions. This type of demonstration can be valuable for students, engineers, or anyone interested in learning about microwave technology and vacuum tubes. Here are the specific objectives:

1. **Introduction to Reflex Klystron:** Begin by introducing the concept of a Reflex Klystron, explaining its significance in microwave technology, and where it is commonly used.
2. **Components and Materials:** Show and describe all the major components and materials needed for building a Reflex Klystron. This includes the electron gun, cavity resonators, collector, and other supporting elements.
3. **Assembly Process:** Provide a step-by-step demonstration of how these components are assembled to create a functional Reflex Klystron. This should include explanations of the purpose and function of each component.
4. **Electron Beam Formation:** Explain how the electron gun works to produce a focused electron beam. Discuss the principles of electron emission, focusing, and velocity modulation.
5. **Cavity Resonators:** Detail how the cavity resonators are designed and tuned to interact with the electron beam, causing velocity modulation and amplification of microwave signals.
6. **Reflex Mode Operation:** Describe the specific mode of operation in which the electrons are reflected back by the collector to interact with the beam, leading to amplification.
7. **Control and Adjustment:** Explain how to control and adjust the various parameters of the Reflex Klystron to optimize its performance, such as cavity resonance frequency and electron beam current.
8. **Safety Precautions:** Emphasize safety precautions and best practices while handling vacuum tubes and high-voltage components.



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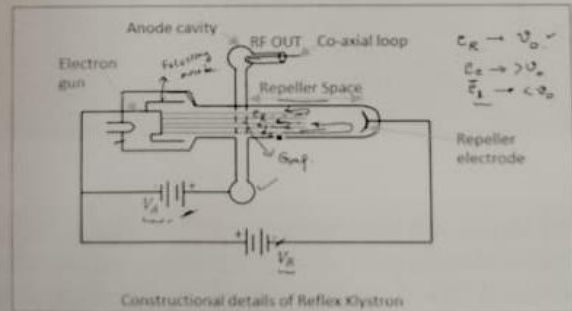
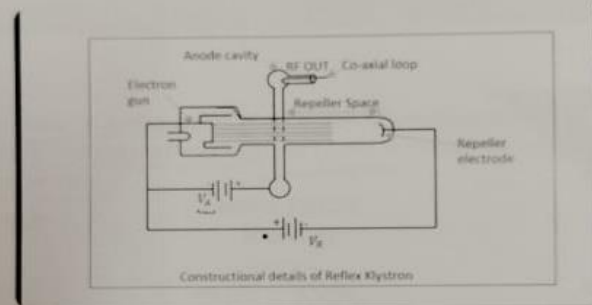
9. **Applications:** Discuss real-world applications of Reflex Klystrons, such as in radar systems, communication equipment, and particle accelerators.

• **Link: -**

https://www.google.com/search?q=Online+Demo+on+construction+of+Reflex+Klystron&rlz=1C1CHBD_enIN979IN979&oq=Online+Demo+on+construction+of+Reflex+Klystron&aqs=chrome..69i57j33i160l2.2885j0j15&sourceid=chrome&ie=UTF8#fpstate=ive&vld=cid:777f8caa,vid:5GQjGdOmmtw,st:0

Reflex klystron oscillator | Construction | Microwave ...

YouTube · Education 4u · 54 KB, 2:02"





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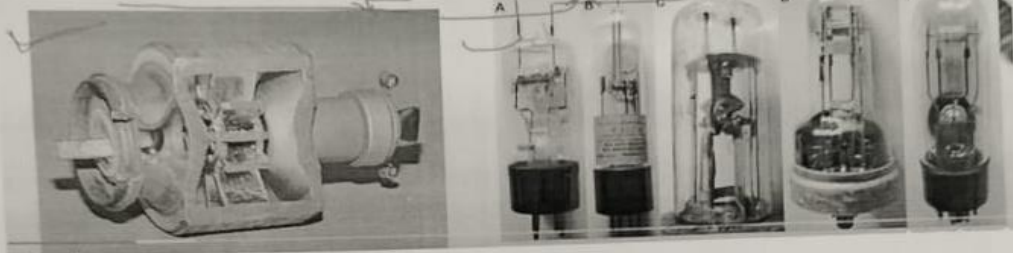
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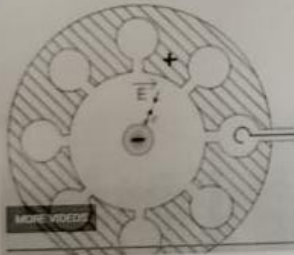
2) Online Demo on Construction of Magnetron: -

- The **cavity magnetron** is a high-powered vacuum tube that generates microwaves using the interaction of a stream of electrons with a magnetic field.

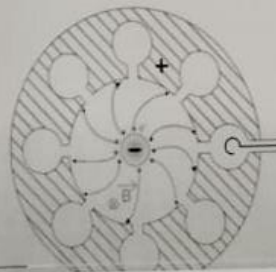


The operating principle of a magnetron is such that when electrons interact with electric and magnetic field in the cavity then high power oscillations get generated.

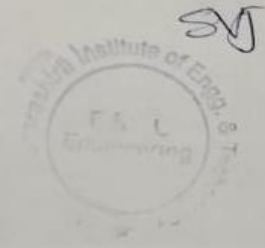
ONLY ELECTRIC FIELD
($B=0$)



BOTH FIELDS
(E and B)



- Outcome:** - the outcome of the online demo on the construction of a Reflex Klystron & Magnetron should aim to learn students about the device's construction, operation, and practical applications, while ensuring safety and fostering engagement through interactive elements.





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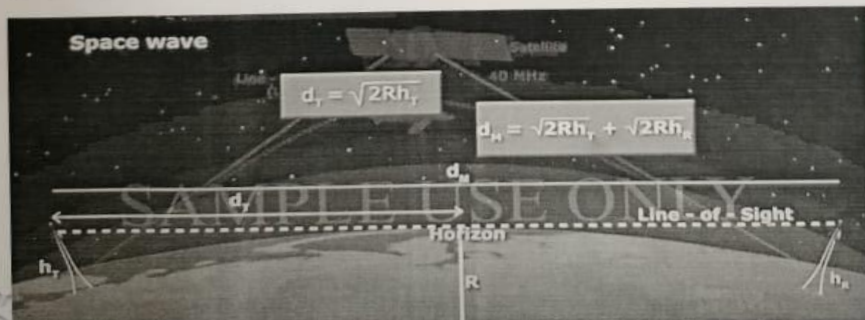
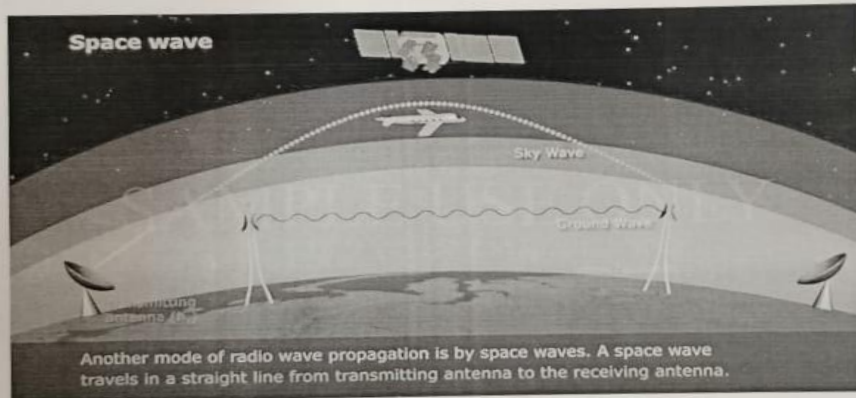
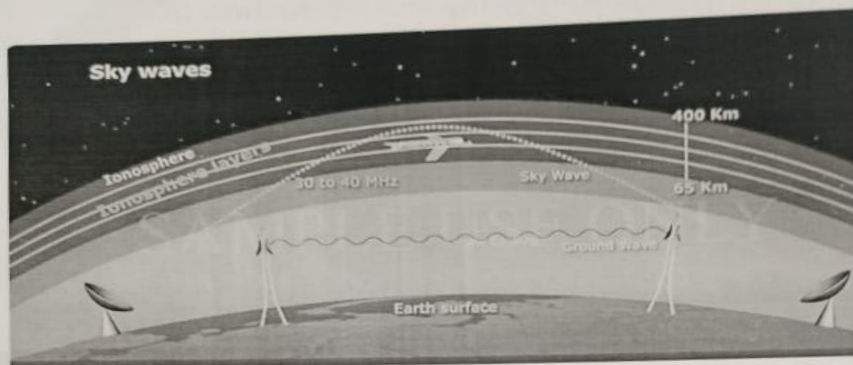
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3. Animated Videos: -

1. PROPAGATION OF ELECTROMAGNETIC WAVES; -

<https://youtu.be/gSSTgjXPD2M>




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<p>Tel. No. 02114 – 231666</p>	<p>E-mail: nmiettalegaon@gmail.com</p>	<p>Web : www.nmiet.edu.in</p>

Outcome of Animated Videos on propagation of electromagnetic waves: -

- Animated videos can help students and learners understand this topic more easily and retain the information better.
- By showing how electromagnetic waves move and interact with their environment, students can gain a deeper understanding of the topic.
- Students will be getting the concepts like wave fronts, polarization, and the behaviour of electromagnetic waves in different mediums. This can lead to a clearer understanding of how these waves propagate.

SJ



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Department of Electronics & Telecommunication Engineering

Faculty Appreciation/Improvement Letter

Date: 12/09/2022

To,

Dr. Sagar V. Joshi,

NMIET,

Samarth Vidya Sankul, Vishnupuri, Talegaon Dabhade, Pune – 410507,

Subject: - Your Contribution Performance in Teaching during academic year 2022-23

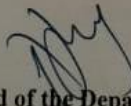
The Students Feedback in the subject being taught by you in the term of **2022-23, Sem. I** are analyzed. The feedback analysis reports are already given to you. The feedback analysis index in the respective subjects is once again given below.


Year Div.	Subject and / OR Practical Batch	% Feedback Performance
BE E&TC	Radiation & Microwave Theory	86.00

We understand that you must have put efforts in the teaching assignments throughout the year. On the basis of the student's feedback analysis and overall general observation during **Semester-I, year 2022-23**, we rate your contribution/performance in teaching as **VERY GOOD**

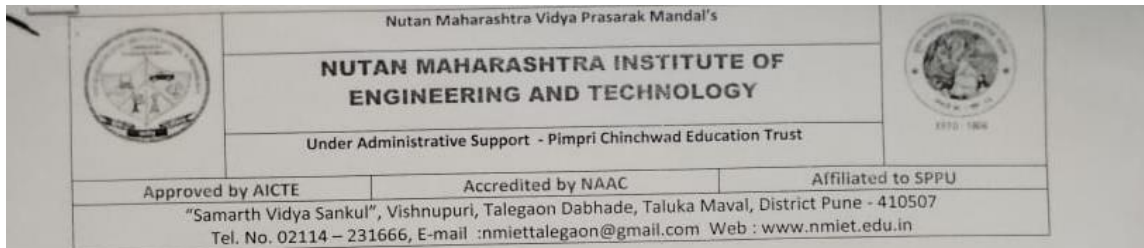
We are happy to note that your contribution/ performance is rated to be **VERY GOOD**. However, we strongly feel that you can still perform better by putting more efforts. You are advised to positively think of possible improvements and implement those with initiative, care, and concern to make bright career, in teaching.

We wish you good luck.


Head of the Department
 HEAD OF THE DEPARTMENT


Principal

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Department of Electronics & Telecommunication Engineering

Faculty Appreciation/Improvement Letter

Date: 18/11/2022

To,

Dr. Sagar V. Joshi,

NMIET,

Samarth Vidya Sankul, Vishnupuri, Talegaon Dabhade, Pune – 410507,

Subject: - Your Contribution Performance in Teaching during academic year 2022-23

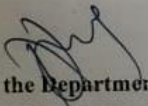
The Students Feedback in the subject being taught by you in the term of 2022-23, Sem. I are analyzed. The feedback analysis reports are already given to you. The feedback analysis index in the respective subjects is once again given below.

Year Div.	Subject and / OR Practical Batch	% Feedback Performance
BE E&TC	Radiation & Microwave Theory	91.80

We understand that you must have put efforts in the teaching assignments throughout the year. On the basis of the student's feedback analysis and overall general observation during Semester-I, year 2022-23, we rate your contribution/performance in teaching as **EXCELLENT**

We are happy to note that your contribution/ performance is rated to be EXCELLENT. However, we strongly feel that you can still perform better by putting more efforts. You are advised to positively think of possible improvements and implement those with initiative, care, and concern to make bright career, in teaching.

We wish you good luck.


Head of the Department
 HEAD OF THE DEPARTMENT
 Electronics & Tele Communication


Principal
 Nutan Maharashtra Institute
 of Engg. & Technology