

**Dr. J. J. Magdum Trust's
Dr. J. J. Magdum College of Engineering, Jaysingpur**

◆ Department of Electronics & Tele-Communication Engineering ◆



Student Information Manual (SIM)

Academic Year 2021-22 (Sem.-II)

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1. Institute Information

Dr J J Magdum College of Engineering was established by Dr J J Magdum Trust, Jaysingpur in the year 1992 with an objective to promote the cause of higher education. The institute is approved by All India Council of Technical Education (AICTE), New Delhi and Government of Maharashtra, affiliated to Shivaji University, Kolhapur. The college offers B. Tech program in Mechanical, Civil, Computer Science Engineering, Electronics & Tele-Communication, Information Technology and M. Tech program in Civil Engineering-Construction Management.

Our Management extends its fullest support in building the institution as a center of excellence with technically superior, ethically strong and competent engineers. The serene campus vibrant with aesthetic bliss in an exhilarating convenient location, well connected by road, rail and air is easily accessible. The eco-friendly ambience creates and bestows a healthy learning atmosphere.

The institution is meticulous with modern laboratory, workshop facilities and state of art computer center providing an excellent infrastructure.

The institution has spacious library with vast collection of Books, Newspapers, National & International Journals, Magazines, and Reference books, Encyclopedia, World of science, ASM hand books and course materials. E-learning through NPTEL Video course by NIT and IIT Professors are available.

The Teaching and Non-Teaching Staff of the institute is a blend of senior experienced and young dynamic faculty members devoted to the noble cause of education. Qualified, experienced, versatile and efficient faculty members mould the students diligently in ethical, moral and academic aspects.

We imparts technology based experiential learning through industry visits, live projects, expert talks, MOOC's, workshops, case studies, upscale labs, and virtual classroom sessions.

Industry-Institute interaction and real-time projects nurture and craft the budding engineers to bloom and flourish in the field with the prowess guidance in the campus.

The college equips the students with the latest skills which make them employable and future ready.

Due to able and proper guidance and motivation, many of our students have topped at University. Our training and placement works meticulously to improve and develop life skills to the students and tries hard to seek good jobs for our students. In addition to the academics, the students are engaged in sports and cultural activities which helps them to develop versatile personality. Various Club activities are conducted to encourage, motivate and inspire students from diverse culture to harness the talent through their perseverance.

The institute is having spacious ground and the modern facilities for both indoor and outdoor games and ultra-modern Gymnasium. Due to proper guidance and motivation, many of our students have grabbed prizes at University level and different sport events.

We are committed to stakeholders for best results and produced more than 10000+ engineers getting campus placements.

2. VISION

To be a leading academic organization, creating skilled and Ethical Human Resource by leveraging Technical Education for Sustainable Development of Society.

MISSION

- To promote learnability of all among stakeholders.
- To empower rural youth to be competent in technical education and imbibe ethical values.
- To contribute local social and economic context, leading to satisfied stakeholders.

QUALITY POLICY

We strive for continual improvement in our performance through methodical academic monitoring, student participation and use of innovative teaching-learning process.

3. DEPARTMENT VISION

To contribute the sustainable development by providing skilled technical manpower with ethical and moral values.

MISSION

To have holistic development of all the courses by following participating management methodology, healthy HR practices, strong industry participation and continuous development in physical resources.

WE ARE COMMITTED TO

We promise a conducive environment to our faculty, staff and students to realize the vision.

CORE VALUES

CORE VALUES

- Faculty & staff development.
- Transparency
- Equity

Program Educational Objectives (PEO)

1. To train students with good of knowledge in core areas of Information Technology and related engineering so as to analyze, design, and synthesize data and technical concepts.
2. To inculcate in students to maintain high professionalism and ethical standards, effective oral and written communication skills, to work as part of teams.
3. To provide our graduates with learning environment awareness of the life-long learning needed for a successful professional career and to introduce them to written ethical codes and guidelines, perform excellence, leadership and demonstrate good citizenship.
4. To provide students with academic environment that is aware of excellence, leadership, entrepreneurship, ethical responsibility and ability to work in multidisciplinary teams.
5. To train students with excellent scientific and engineering knowledge so as to understand, analyze, design and create products and solutions for Software engineering problems.

Program Outcomes (POs)

At the end of successful completion of program, the graduates will be able to,

1. **Engineering Knowledge:** Apply knowledge of mathematics, science, engineering Fundamentals and an engineering specialization to the solution of complex engineering pr
2. **Problem Analysis:** Identify, formulate, research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
3. **Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal and environmental
4. **Conduct investigations** of complex problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data and synthesis of information to provide valid
5. **Modern Tool Usage:** Create, select and apply appropriate techniques, resources and modern engineering and IT tools including prediction and modeling to complex engineering activities with an under-standing of the limitations.
6. **The Engineer and Society:** Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering
7. **Environment and Sustainability:** Understand and the impact of professional engineering solutions in societal and environmental contexts and demonstrates knowledge of and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering
9. **Individual and Teamwork:** Function effectively as in visual, and as a member or leader in diverse teams and in multidisciplinary s
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations and give and receive clear
11. **Project Management and Finance:** Demonstrate knowledge and understanding of engineering and management principles and apply these too noels on work, as a member and leader instead, to manage projects and in multidisciplinary environment.
12. **Lifelong Learning:** Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological

4. Students role and Responsibilities **Code of Conduct:-**

- Every student must carry his/her identity card while being present in the college premises.
- Use of cell phones is strictly prohibited during class/labs hour.
- Without the permission of the Principal, students are not allowed to circulate any printed materials within the college campus.
- Every student is expected to maintain the general cleanliness within the classrooms, laboratories and the campus in general.
- Students should handle the college properties with care. Damage to the furniture or any other materials may lead to penalty or suspension from the college.
- Intoxication or possession of narcotics and other dangerous material is strictly prohibited.
- Playing cards, spitting and loitering are strictly prohibited inside the college campus and shall invite severe punishment/disciplinary action.
- Attempted or actual theft of and or damage to property of the college, or property of a member of the college community, or other personal or public property, on or off campus will be considered as a punishable act.
- Every student will remain answerable to the college authority for his/her activity and conduct on the college premises.
- Any act which obstructs teaching, research, administrative activity and other proceedings of the college is strictly prohibited.
- Indulging, ragging, anti-institutional, anti-national, antisocial, communal, immoral or political expressions and activities within the campus and hostel are strongly prohibited as well as punishable.
- Students are required to check the notice board and also website of the college for important announcements.

5. Laboratory Instructions:

- Students must present a valid ID card before entering the laboratory.
- Mobiles are strictly restricted in the laboratories.
- Remove your shoes/chappels/sandals outside the lab.
- Handle all the equipment's such as CRO, Signal generator, educational kits with care.
- If any problem arises switch off the supply and inform the technical assistant, Lab on charge immediately.
- Before switching on power supply, get checked the connections from the technical assistant.
- Perform the practical and note the reading in notebook .Get checked with the reading from subject In charge.
- Switch off the mains, while leaving the lab.
- Playing of games on computer in the lab is strictly prohibited.

Classroom Instructions:-

- Students should know and obey rules and regulations of department as well as college.
- Mobiles are strictly restricted in the classroom.
- Students strive to meet Academic Expectations.
- Students are expected to take all tests at the scheduled times seriously.
- Maintain discipline in the class.
- A student should maintain at least 75% attendance in the Lectures of every subject and 100% overall performance. Otherwise, he or she will be debarred from the University Examination.
- Latecomers will not be entertained to enter into the classroom.
- Participate in the activities organized in the Department as well as in the College.
- While discussion, students should conduct and express themselves in a way that is respectful of all persons.
- Develop positive attitudes
- Be cooperative and considerate.
- Welcome challenges.
- Be helpful to others
- Be kind, polite, and courteous to others.
- Do the assigned work on time.
- Be prepared for classes with all necessary supplies.
- Be Respectful and Punctual.

➤ Be in the best of behaviors.

6. Academic Planner 2021-22 (Semester II)

March 2022

<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
		<i>1</i> <i>Mahashivr atri</i>	2	<i>3</i> <i>Commence ment of sem-II for TY and Btech</i>	4	5
<i>6</i>	<i>7</i> <i>CIE-2 for SY</i>	<i>8</i> <i>Women's day CIE-2 for SY</i>	<i>9</i> <i>CIE-2 for SY</i>	<i>10</i> <i>CIE-2 for SY</i>	<i>11</i> <i>CIE-2 for SY</i>	<i>12</i>
<i>13</i>	<i>14</i>	<i>15</i> <i>Proctor meet</i>	<i>16</i>	<i>17</i>	<i>18</i> <i>Dhulivandan</i>	<i>19</i> <i>EDC Expert lecture</i>
<i>20</i>	<i>21</i>	<i>22</i>	<i>23</i>	<i>24</i>	<i>25</i> <i>Commenceme nt of Value added course</i>	<i>26</i>
<i>27</i>	<i>28</i> <i>Commencem ent of sem-II for SY</i>	<i>29</i>	<i>30</i> <i>CMC Meeting</i>	<i>31</i> <i>Proctor meet</i>		

April 2022

<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
					<i>1</i>	<i>2</i> <i>Gudhipadwa</i>
<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i> <i>Expert lecture</i>	<i>9</i>

10	11	12	13 Proctor meet	14 Mahaveerj ayanti Dr.Babasa hebAmbedk arjayanti	15 Good friday	16 Industrial visit for TY
17	18 Student association Activitiy	19	20	21	22 Expert lecture	23
24	25 Alumni Interaction	26	27	28	29 CMC Meeting	30 Proctor meet

May 22

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3 Ramajan Eid	4	5	6	7 Industrial visit for SY
8	9	10 Student association Activitiy	11	15	13 Industrial visit for Btech	14
15	16 BudhaPorni ma	17 Proctor meet	18	19	20	21 Advisory board meeting
22	23	24	25 Expert lecture	26	27 Students training	28
29	30 CMC Meeting	31 Proctor meet				

June 22

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4 Parent meet

<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	<i>10</i>	<i>11</i>
<i>12</i>	<i>13</i>	<i>14</i>	<i>15</i> <i>Proctor</i> <i>meet</i>	<i>16</i>	<i>17</i>	<i>18</i>
<i>19</i>	<i>20</i>	<i>21</i>	<i>22</i>	<i>23</i>	<i>24</i>	<i>25</i>
<i>26</i>	<i>27</i>	<i>28</i>	<i>29</i>	<i>30</i>		

7. Departmental Time-Table

Academic Year: 2021-22

Department: Electronics & Telecommunication Engineering

Revision:

001

Class Coordinator: Prof. N. S. Nadaf

Semester: II

Class: B.Tech Div-A

Class Room No.: GF

W.e.f.: 08/03/2022

TIME	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
09.30 am – 10.30 am	WCOM(CSP)	E1- WCOM(CSP)	MW(PPB)	PROJECT	WCOM(CSP)	PROJECT
10.30 am – 11.30 am	VE(DUC)	E2- VE(DUC) E3- ELE(TUT)(A)	VE(DUC)	ELE	MW(PPB)	
11.30 am – 11.40 am						
11.45 am – 12.40 pm	PROJECT	MW(PPB)	E1- VE(DUC) E2- ELE(TUT)(A)	MW(PPB)	VE(DUC)	
12.45 pm – 01.40 pm		ELE	E3- MW(PPB)	VE(DUC)	WCOM(CSP)	
01.40 pm – 02.30 pm						
02.30 pm – 03.30 pm	E1-MW(PPB) E2- WCOM(CSP)	PROJECT	WCOM(CSP)	E1- ELE(TUT)(A) E2- MW(PPB)	PROJECT	
03.30 pm – 04.30 pm	E3-VE(DUC)		ELE	E3- WCOM(CSP)		

Name of Subject	Batches	Name of Faculty Member	NAME OF LAB
Microwave	E1,E2,E3	Prof.P.P.Belagali	Control/EMI -ETRX
Video Engg.	E1,E2,E3	Prof.D.U.Chavan	DCOM/AUDIO & VIDEO ENGG.
Wireless Communication	E1,E2,E3	Prof.C.S.Patil	TAM/Analog comm.-ETC
ELECTIVE-II	E1,E2,E3(TUT)	Prof. Karadge	-

Prof. R. V. Kaulgud
Academic coordinator

Prof. M.M. Kolap
Head (Dept. of ETC & ETRX
Engg.)

Prof. A. S. Sajane
Dean, Academics

Dr. S. B. Patil
Principal

8. Structure of Syllabus:

SEMESTER –VII																					
Sr. No	Course (Subject Title)	TEAETING SETEME									EXAMINATION SETEME										
		THEORY			TUTORIAL			PRACTICAL			THEORY				PRACTICAL		TERM WORK				
		Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Hours	Mode	Marks	Total Marks	Min	Hours	Max	Min			
1	PCC-ETC701	3	3	3	1	1	1	-	-	-	-	CIE	30	100	40	As per BOS Guidelines	-	-	2	25	10
2	PCC-ETC702	4	4	4	-	-	-	1	2	2	ESE	70	40				50	20	2	25	10
3	PCC-ETC703	4	4	4	-	-	-	1	2	2	CIE	30	100	40	50		20	2	25	10	
4	PCC-ETC704	4	4	4	-	-	-	1	2	2	ESE	70			40		-	-	2	25	10
5	PCE-ETC701	3	3	3	1	1	1	-	-	-	CIE	30	100	40	-		-	2	25	10	
6	PW-ETC701	-	-	-	-	-	-	2	4	4	ESE	70			-		-	25	10	2	50
	TOTAL	18	18	18	2	2	2	5	10	10			500			125			175		
SEMESTER –VIII																					
1	PCC-ETC801	4	4	4	-	-	-	1	2	2	CIE	30	100	40	As per BOS Guidelines	50	20	2	25	10	
2	PCC-ETC802	4	4	4	-	-	-	1	2	2	ESE	70				40	-	-	2	25	10
3	PCC-ETC803	4	4	4	-	-	-	1	2	2	CIE	30	100	40		50	20	2	25	10	
4	PCE-ETC801	3	3	3	1	1	1	-	-	-	ESE	70				40	-	-	2	25	10
5	PW-ET801	-	-	-	-	-	-	6	8	8	CIE	30	100	40		150	60	2	50	20	
	TOTAL	15	15	15	1	1	1	9	14	14	ESE	70				400		250			150
	TOTAL	33	33	33	3	3	3	14	24	24			900			375			325		

- | | |
|---|---|
| <ul style="list-style-type: none"> ● Candidate contact hours per week : 30 Hours (Minimum) | <ul style="list-style-type: none"> ● Total Marks for B.E. Sem VII & VIII : 1600 |
| <ul style="list-style-type: none"> ● Theory and Practical Lectures : 60 Minutes Each | <ul style="list-style-type: none"> ● Total Credits for B.E. Sem VII & VIII : 50 |
| <ul style="list-style-type: none"> ● In theory examination there will be a passing based on separate head of passing for examination of CIE and ESE. | |
| <ul style="list-style-type: none"> ● There shall be separate passing for theory and practical (term work) courses. | |

Note:

1. **PCC-ET:** Professional Core course –Electronics & Telecommunication Engineering is compulsory.
2. **PCE-ET:** Professional Core Elective –Electronics & Telecommunication Engineering is compulsory.
3. **SI-ET:** Summer Internship-Electronics & Telecommunication Engineering is compulsory.

4. **PW-ET:** Project work- Electronics & Telecommunication Engineering is compulsory.
5. **MC-ET:** Mandatory Course- Electronics & Telecommunication Engineering is compulsory

9. Subject Details

Dept of E&TC Engineering (B-Tech Sem II 2021-22)	
Lecture Plan: VIDEO ENGINEERING	
Lecture No	UNIT NO. 1 - Fundamentals of Television System
01	Picture and sound transmission and reception,
02	CCIR-B standards ,aspect ratio
03	Horizontal and vertical resolution,
04	video bandwidth and
05	interlaced scanning
06	Composite video, signal,
07	H & V sync details
08	VSB transmission
09	Channel bandwidth.
	<u>UNIT NO. 2 - – Colour Signal Transmissions And Reception</u>
10	Color TV camera, color Picture tubes,
11	Picture Tubes purity and convergence automatic degaussing
12	Composite color signals
13	Compatibility considerations, frequency interleaving process
14	Color mixing theory, characteristics of color.
15	Color difference signals, chromaticity diagram.
16	Color signal transmission- bandwidth
17	Modulation of color difference signals
18	Color TV system: NTSC, PAL – D & SECAM
	<u>UNIT NO. 3 - – Digital TV Transmission and Reception</u>
19	Digital system hardware
20	Signal quantization

21	Encoding
22	Digital signals and parameters
23	Digital Satellite Television,
24	Digital T.V.
25	Receiver system,
26	Merits of Digital TV receiver
	UNIT NO. 4- – <u>High Definition TV</u>
27	Component coding
28	MAC signals
29	MAC encoding format
30	Scanning frequencies
31	Duo-binary Coding D2-MAC Packet Signal.
32	HDTV Standards & compatibility.
33	Colorimetric characteristics.
34	Parameters of HDTV systems
	UNIT NO. 5- – <u>Digital video system</u>
35	Introduction of Digital Video System
36	Video conferencing
37	Interactive video
38	Multimedia
39	Videophone
40,41	3D TV
	UNIT NO. 6 - – <u>Advanced TV Systems</u>
42	LCD TV system: LCD technology
43	LCD matrix types & operations,
44	Plasma TV system: Plasma & conduction of charge,
45	Plasma TV screen

46	Signal processing in plasma TV, Plasma color receiver
47	LED TV, DTH Receiver system, CCTV
48	Working of block converter : IR Remote control.

Text Books:

- 1) Monochrome and Color TV – R.R. Gulati, 2nd revised edition, New Age International Publication
- 2) Modern Television Practice – Principles, Technology and Service – R.R. Gulati, 4th edition, New Age International Publication
- 3) Television and Video Engineering - A.M. Dhake, 2nd Edition.

Reference Books

- 1) Digital Video Processing-A. Murat Tekalp, Prentice Hall Signal Processing Series, BS publications.
- 2) Audio-Video Engineering – R.C. Jaiswal.
- 3) Consumer Electronics – S P Bali, Pearson

List of experiments

1	To Study H sync and V sync details.
2	To Study color composite video signal.
3	To Study RF tuner section
4	To Study horizontal section of color TV receiver.
5	To Study vertical section of color TV receiver.
6	To Study chroma section of color TV receiver.
7	To Study VIF section of color TV receiver.
8	To Study SIF section of color TV receiver.
9	To Study sync separator.
10	To Study digital TV receiver.
11	To Study CCTV.
12	To Study theory of LCD, LED, and Plasma technology.

Assignment No.1

- 1.Explain Picture and sound transmission and reception,
- 2.Explain CCIR-B standards ,aspect ratio
- 3.Explain Horizontal and vertical resolution,
- 4.explain video bandwidth and interlaced scanning
- 5.explain Composite video, signal,
- 6.explain H & V sync details
7. explain VSB transmission
- 8.what is Channel bandwidth.

Assignment No.2

- 1.explain Color TV camera, color Picture tubes,
2. Explain Picture Tubes purity and convergence automatic degaussing
- 3.Explain in details Composite color signals
- 4.what is Compatibility considerations, frequency interleaving process Color mixing theory, characteristics of color.
- 5.explain Color difference signals, chromaticity diagram.
- 6.explain in details Color signal transmission- bandwidth Modulation of color difference signals
- 7.write a note on Color TV system: NTSC, PAL – D & SECAM

Assignment No.3

- 1.Explain Digital system hardware
- 2.Write a note on a)Signal quantization
b)Encoding
- 3.write down Digital signals and parameters
- 4.ExplainDigital Satellite Television,
- 5.Explain Digital T.V.
- 6.write a note on Receiver system,
- 7.Explain Merits of Digital TV receiver

Assignment No.4

- 1.Explain Component coding
- 2.explain MAC signals & MAC encoding format
- 3.explain Scanning frequencies
- 4.explain Duo-binary Coding D2-MAC Packet Signal.

5. write down HDTV Standards & compatibility.
6. Explain Colorimetric characteristics.
7. Explain Parameters of HDTV systems

Assignment No.5

1. Explain Introduction of Digital Video System
2. Explain Video conferencing
3. what is Interactive video
4. write a note on -1)Multimedia
 - 2)Videophone
 - 3)3D TV

Assignment No.6

1. write a note on LCD TV system, LCD technology
2. Explain in detail LCD matrix types & operations,
3. explain Plasma TV system, Plasma & conduction of charge,

Plasma TV screen
4. explain Signal processing in plasma TV, Plasma color receiver
5. write a note on LED TV, DTH Receiver system, CCTV
6. Explain Working of block converter : IR Remote control.

SUBJECT NAME: MICROWAVE ENGINEERING

LECTURE PLAN:

Unit No: - 1. Wave guides and microwave components

1. Rectangular wave guides: TE and TM mode wave,
2. Power transmission in wave guide, Power losses in wave guide,
3. Excitation of modes in wave guide.
4. Microwave cavities, Microwave hybrid circuits,
5. Directional coupler, Circulators and Isolators,
6. Microwave attenuators. **(Numerical Expected)**

Unit No: - 2. Microwave Tubes

7. Microwave linear beam Tubes: Klystrons, Reentrant Cavities,
8. Velocity-Modulation Process, Bunching Process in Klystrons, reflex klystron,
9. Slow wave structures, principle of operation of Helix Traveling-Wave Tubes (TWTs).
10. Microwave CROSSED-FIELD TUBES: Magnetron Oscillators,
11. Cylindrical Magnetron , Forward wave crossed field amplifier(CFA),.

12. Backward wave crossed field amplifier(CFA),.

Unit No: - 3. Monolithic Microwave Integrated Circuits and Hazards

13. Materials: substrate, conductor dielectric & resistive MMIC growth, thin film formation,

14. Hybrid microwave I.C. fabrication,

15. Electromagnetic compatibility, plane wave propagation in shielded rooms, anechoic chambers, microwave clean rooms,

16. Microwave hazards.

Unit No: - 4. Microwave Solid State Devices

17. Microwave bipolar transistor, microwave FETs, Microwave tunnel diodes

18. Gunn effect diodes, RWH Theory ,LSA diodes, InP diodes,

19. CdTe diodes, IMPATT diodes, PIN diodes

20. MESFETs

21. HEMT

Unit No: - 5 Microwave Measurements and Microwave Applications

22. Detection of microwave power: measurement of microwave Power bridge circuit

23. Thermistor parameters, waveguide Thermister mounts, barreters

24. Theory of operation of barreters, Direct reading barreters bridges

25. Measurement of wavelengths: single line cavity coupling System

26. Transmission cavity wavemeter & reaction Wavemeter, Measurement of VSWR, Measurements of attenuation, Free space attenuation

Unit No: - 6 Microwave Antennas

27. Antenna parameters: antenna gain, directivity and beam width,

28. Horn antenna, parabolic reflector with all types of feeding methods, slotted antenna, Lens antenna,

29. Microstrip antennas, Corner reflector. Equations for antenna gain,

30. Directivity and beam width of all above antenna types. **(Numerical Expected)**

TEXT BOOKS:

1	Samuel Liao, "Microwave Devices and Circuit", Prentice Hall of India
2	Annapurna Das & Sisir K Das, "Microwave Engineering", Tata Mc-Graw Hill.
3	G.S.N. Raju, "Antennas and wave propagation", Pearson Education

REFERENCE BOOKS:

1	K. T. Matthew, "Microwave Engineering", Wiley India, 2011
2	Shrushut Das, "Microwave Engineering", Oxford Press.
3	M. Kulkarni, "Microwave and Radar Engineering", Umesh Publications.

LIST OF EXPERIMENTS:

1.	Study of Microwave components in detail
2.	Study of V-I Characteristics of GUNN Diode
3.	Study of Reflex Klystron Characteristics

4.	Study of E plane and H plane
5.	Study of Characteristics of Magic Tee
6.	Study of Frequency and wavelength measurement
7.	Study of VSWR Measurement (Using V_{max} / V_{min} Method).
8.	Study of Characteristics of Attenuators

SUBJECT NAME: WIRELESS COMMUNICATION

TEACHING PLAN

LECTURE NO	CONTENTS
1	Wireless communication system, wireless media, Frequency spectrum,
2	Technologies in digital wireless communication, WCOM channel specifications,
3	Types of wireless communication, challenges in WC. Cellular concept: Introduction, frequency reuse
4	Channel Assignment strategies
5	Handoff strategies, interface and system capacity
6	Trunking & grade of service
7	Improving coverage & capacity in cellular system
8	Introduction to Radio Wave propagation,
9	Free Space propagation model,
10	Relating Power to Electric Field, The three Basic Propagation Mechanisms
11	Reflection, Ground Reflection (Two-Ray) Model
12	Diffraction
13	Scattering
14	Outdoor Propagation Models
15	Indoor Propagation Models
16	Small-Scale Multipath Propagation,
17	Impulse Response Model of a Multipath Channel
18	Small-Scale Multipath Measurements
19	Parameters of Mobile Multipath Channels
20	Types of small-Scale Fading.
21	Difference Between Wireless and Fixed Telephone Networks
22	Development of Wireless Networks
23	Fixed Network Transmission Hierarchy
24	Traffic Routing in Wireless Networks
25	Common Channel Signaling (CCS)
26	Architecture of B-ISDN & services
27	Introduction
28	Infrared radio transmission infrastructure and adhoc networks
29	Detailed study of IEEE 802.11
30	Bluetooth, Wireless ATM.

31	WAP (Wireless Application Protocol) architecture
32	Wireless Datagram, Wireless Transport layer security
33	wireless transaction
34	Wireless Session
35	Wireless Application Environment
36	WML

TEXT BOOKS:

1	Wireless Communications Principals & Practice- Theodore S. Rappaport, (P.E.)
2	Mobile Communications: Jachen Schiller (Addison Westy)
3	Wireless and Mobile Networks Concept and protocols – Dr. Sunil kumar S Manvi Wiley India

REFERENCE BOOKS:

1	Wireless Networks by P. Nicopolitidis, M. S. Obaidat, G. I. Papadimitriou, A. S.Pomportsis; Wiley Pub.
2	Wireless Communication & Networks by William Stallings(Pearson Edition)
3	Wireless communication and Networks by Upena Dalal(Oxford)

LIST OF EXPERIMENTS: (ANY 8 EXPERIMENTS)

1	Study of ISDN Trainer kit Hardware & Software Setup.
2	Study of Architecture of ISDN kit.
3	Study of Analog & Digital Subscriber Link establishment using ISDN trainer kit.
4	Study of numbering plans in ISDN trainer kit.
5	Study of Establishment point to point & Multidraft Links using ISDN.
6	Study of Protocol Analysis (based on any protocol).
7	Study of Mobile Communication Set up (Study of Link Mobile Trainer Kit , Handset).
8	Study of Multiple Access Techniques (Any one).
9	Visit to Mobile Company Like BSNL , AIRTEL , Idea.

10	Implementation of outdoor propagation Model (Any one) using Matlab.
11	Implementation of Free Space propagation model using Matlab

Question Bank

1. Explain Personnel Communication Services(PCS) Architecture with block diagram
2. Explain Free Space Propagation Model in wireless Communication
3. Explain two ray Ground Reflection model in wireless Communication
4. Explain Cellular Packet Switched Architecture with block diagram and also explain interface units in detail with block diagram
5. Give the details of frequency reuse.
6. Explain Indoor & Outdoor propagation model in detail.
7. Explain parameters of mobile multipath channels.
8. Explain free space propagation model.
9. Explain Rayleigh & Ricean fading distribution.
10. Determine maximum & minimum spectral frequencies received from stationary GSM transmitter that has central frequency of 1950 MHz, assuming that the receiver is travelling with the speed of
 - i) 1 km/hr
 - ii) 5 km/hr
 - iii) 100km/hr&
 - iv) 1000 km/hr.
11. Explain 2G & 3G wireless networks
12. Discuss capacity of cellular system
13. Explain architecture of SS7.
14. Explain IS-54 & IS-36 digital cellular standard
15. Explain IEEE 802.11 standard
16. Write a note on
 - United states digital Cellular
 - ISDN
 - CCS
 - Personnel Communication System (PCS)

TEXT BOOKS:

SUBJECT NAME: HIGH PERFORMANCE COMMUNICATION NETWORKS (HPCN)	
Lecture No.	Unit 1: HISTORY OF COMMUNICATION NETWORK
01	History of Communication Networks, Networking principles,
02	Review of TCP/IP,
03	Switching, Routing.
04	Future networks Internet,
05	FDDI-DQDB- SMDS
06	Overview of ISDN & BISDN
	Unit 2: NETWORK SERVICES AND LAYERED ARCHITECTURE
07	Traffic characterization and quality of services,
08	Network services, High performance networks,
09	Network Elements., Layered applications,
10	Open data network model
11	Network architectures,
12	Network bottlenecks.
	Unit 3 : ATM
13	Main features of ATM
14	Addressing, signaling and Routing
15	ATM header structure,
16	ATM AAL,
17	Internetworking with ATM.
	Unit 4: ADVANCED NETWORKS CONCEPTS
18	VPN-Remote-Access VPN, site-to-site
19	Tunneling to PPP, Security in VPN.
20	MPLS -operation, Routing, Tunneling and use of FEC,
21	VPN Traffic Engineering,
22	MPLS based VPN,
23	overlay networks P2P connections.
	Unit 5: OPTICAL NETWORKS
24	Optical Links, WDM system,
25	Optical cross-connects,
26	Optical LANs,
27	Optical paths and networks
	Unit 6: VEHICULAR NETWORKS
28	Basic Principles and Challenges, Enabling Technologies - Communication requirements,
29	Vehicular positioning, Vehicle sensors,
30	Cooperative System Architecture,
31	Routing Protocols for VANET,
32	VANET-enabled Active Safety Applications
33	Infrastructure-to-vehicle applications,
34	Vehicle-to-vehicle applications
35	Pedestrian-to-vehicle applications

1	William Stallings, “ ISDN and Broadband ISDN with Frame Relay and ATM ”, 4th Edition Pearson.
2	Leon Gracia, Indra Widjaja, “ Communication Networks- Fundamental concepts and Key architectures ”, McGraw Hill Companies.
3	H. Hartenstein and K. P. Laberteaux, “ VANET: Vehicular Applications and Inter Networking Technologies ”, Wiley, 2010.

REFERENCE BOOKS:

1	Behrouz Forouzan, “ Data Communications and Networking ”, 4th Edition, McFrawHill Companies.
2	Forouzan, “ TCP/IP Protocol Suite ”, III rd Edition Tata Mc-Graw Hill publication.
3	P. H.-J. Chong, I. W.-H. Ho, “ Vehicular Networks: Applications, Performance Analysis and Challenges ”, Nova Science Publishers, 2019.

Question Bank

1. Explain with diagram 10 Base and 10 Base 2 networks of IEEE (802.3)
2. Draw and explain frame format for IEEE (802.5) Token Ring.
3. Draw and explain FDDI network.
4. Explain ISDN addressing mechanism.
5. Explain in details SONET.
6. Draw and explain ATM cell header for NNI.
7. Explain ATM switching building blocks.
8. Explain ATM signalling.
9. With neat diagram explain optical LANs.
10. What is WDM Explain WDM system with neat diagram.
11. Explain optical paths in details.
12. Explain with neat diagram Data transfer phase in frame relay.
13. With neat diagram compare X.25 and Frame Relay Protocol stacks.
14. Draw and explain Broadband ISDN protocols and architecture.
15. State and explain AAL layers in ATM.
16. Draw and explain VP and VC switching in ATM.

SUBJECT NAME: BIG DATA ANAYLITICS (Elective -II)

LECTURE PLAN:

Unit No: - 1. INTRODUCTION TO BIG DATA ANALYTICS	
1.	Introduction to Big Data, Big Data characteristics, types of Big Data,
2.	Traditional vs. Big Data business approach.
3.	Technologies Available for Big Data, Infrastructure for Big Data,
4.	Big Data Challenges, Case Study of Big Data Solutions.
Unit No: - 2 INTRODUCTION TO HADOOP:	
5.	Introduction to Hadoop.,
6.	Core Hadoop Components
7.	Hadoop Ecosystem.,
8.	Physical Architecture,
9.	Hadoop limitations
Unit No: - 3 NOSQL:	
10.	Introduction to NoSQL, NoSQL business drivers, NoSQL case studies.
11.	NoSQL data architecture patterns: Key-value stores,
12.	Graph stores, Column family (Big table) stores, Document stores,
13.	Variations of NoSQL architectural patterns.Using NoSQL to manage big data:
14.	What is a big data NoSQL solution?
15.	Understanding the types of big data problems; Analyzing big data
Unit No: - 4 MAP REDUCE:	
16.	Map Reduce and The New Software Stack: Distributed File Systems,
17.	Physical Organization of Compute Nodes,
18.	Large Scale File-System Organization .Map Reduce: The Map Tasks,
19.	Grouping by Key, The Reduce Tasks, Combiners, Details of
20.	Map Reduce Execution, Coping with Node Failures.
21.	Algorithms Using Map Reduce: Matrix-Vector Multiplication
Unit No: - 5 TECHNIQUES IN BIG DATA ANALYTICS:	
22.	Finding Similar Item: Nearest Neighbor Search, Documents, Mining Data Streams: Similarity of Data Stream Management
23.	Systems, DataStream Model, Examples of Data Stream

24.	Applications: Sensor Networks, Network Traffic Analysis, Link Analysis: Page Rank Definition, Structure of the web,
25.	dead ends, Using Page rank in a search engine, Efficient computation of Page Rank: Page Rank Implementation Using Map Reduce Frequent Item set Mining
26.	: Market-Basket Model, Apriori Algorithm, Algorithm of Park-Chen-Yu
Unit No: - 6 BIG DATA ANALYTICS APPLICATIONS:	
27.	Recommendation Systems: Introduction,
28.	A Model for Recommendation Systems, Collaborative-Filtering System:
29.	Nearest Neighbor Technique, Example. Mining Social-Network
30.	Graphs: Social Networks as Graphs, Types of Social-Networks.
31.	Clustering of Social Graphs: Applying Standard Clustering Techniques, counting triangles using Map Reduce.
32. 33.34.	Revision, solving university question papers

TEXT BOOKS:

1	Radha Shankarmani and M Vijayalakshmi —Big Data Analytics, Wiley
2	Alex Holmes —Hadoop in Practice, Manning Press, Dreamtech Press
3	Dan McCreary and Ann Kelly —Making Sense of NoSQL – A guide for managers and therest of us, Manning Press

REFERENCE BOOKS:

1	Bill Franks , —Taming The Big Data Tidal Wave: Finding Opportunities In Huge DataStreams With Advanced Analytics, Wiley
2	Chuck Lam, —Hadoop in Action, Dreamtech Press

LIST OF TUTORIALS:

9.	Tutorial number 1
10.	Tutorial number 2

11.	Tutorial number 3
12.	Tutorial number 4
13.	Tutorial number 5
14.	Tutorial number 6
15.	Tutorial number 7
16.	Tutorial number 8

1. Seminar Evaluation Sheet

Name of Student:-

Class:

Roll No.:

Name of Seminar Topic:

Name of Guide:

Academic Year:

Semester:

Marking Scheme:

Sr. No.	Details	Max. Marks		Valuated Marks
		For 25 Marks	For 50 Marks	
1.	Selection of Seminar Topic (Scope, Relevance)	2	5	
2.	Literature Survey	3	10	
3.	Presentation	5	10	
4.	Understanding of Subject	3	5	
5.	Seminar Report	4	5	
6.	Question Answer	3	5	
7.	Interaction with Guide	5	10	

Total:

Sign of Guide:

Date:

Sr. No.	Details	Max. Marks		Valuated Marks
		For 25 Marks	For 50 Marks	
1.	Selection of Seminar Topic (Scope, Relevance)	2	5	
2.	Literature Survey	3	10	
3.	Presentation	5	10	
4.	Understanding of Subject	3	5	
5.	Seminar Report	4	5	
6.	Question Answer	3	5	

Total:

Name and Sign of Judge:

Sr. No.	Details	Max. Marks		Valuated Marks
		For 25 Marks	For 50 Marks	
1.	Selection of Seminar Topic (Scope, Relevance)	2	5	
2.	Literature Survey	3	10	
3.	Presentation	5	10	
4.	Understanding of Subject	3	5	

5.	Seminar Report	4	5	
6.	Question Answer	3	5	

Total:

Name and Sign of Judge:

Total Marks: Details of sr. no. 7+ Average of sr.no.1 to 6

Total Marks	Details of sr.no. 7	Average of sr.no.1 to 6

RUBRICS B. TECH PROJECT EVALUATION

PROJECT MARKING SCHEME (Semester-I)

Activity	Nature of Activity	Total Marks for Activity	Rubric for Activity			
			Unsatisfactory	Developing	Satisfactory	Excellent
A1	Submission of Project Topic with names of group member	A1= 0.08* TM1	0.00*A1	0.40*A1	0.80*A1	1.00*A1
A2	Presentation of Synopsis in front of DRC	A2= 0.08* TM1	0.00*A2	0.40*A2	0.80*A2	1.00*A2
A3	Introduction and literature Review presentation	A3= 0.24* TM1	0.25*A3	0.60*A3	0.85*A3	1.00*A3
A4	Methodology and future work presentation	A4= 0.30* TM1	0.25*A4	0.60*A4	0.90*A4	1.00*A4
A5	Guide Marks	A5= 0.30* TM1	0.25*A5	0.60*A5	0.90*A5	1.00*A5

PROJECT MARKING SCHEME (Semester-II)

Activity	Nature of Activity	Total Marks for Activity	Rubric for Activity			
			Unsatisfactory	Developing	Satisfactory	Excellent
A6	Progress presentation 1	A6= 0.20* TM2	0.20*A6	0.65*A6	0.90*A6	1.00*A6
A7	Progress presentation 2	A7= 0.20* TM2	0.20*A7	0.65*A7	0.90*A7	1.00*A7
A8	Final presentation in front of DRC along with submission of spiral bound copy	A8= 0.30* TM2	0.25*A8	0.70*A8	0.95*A8	1.00*A8
A9	Guide Marks	A9= 0.30* TM2	0.25*A9	0.70*A9	0.95*A9	1.00*A9

***TM1:- Term Work Marks in Sem-I for Project**

***TM2:- Term Work Marks in Sem-II for Project**

10. Departmental Faculty Details

Sr. No.	Name of Faculty
1	Dr. (Mrs.) S. B. Patil
2	Mr. M. M. Kolap
3	Dr. (Mrs.) S. R. Mahadik
4	Mrs. P. P. Belagali
5	Mrs. T. H. Mohite
6	Mrs. M. U. Phutane
7	Mrs. R. V. Kaulgud
8	Mr. N.S.Nadaf
9	Mr.V.T.kamble
10	Mrs. D. U. Chavan
11	Ms. C. S. Patil
12	Mr. A. S. Sutar
13	Mrs.S.S.Karadge

Department Staff

Sr. No.	Name of Faculty
1	Mr. P. K. Upadhye
2	Mr. K. M. Kulkarni
3	Mrs. H. S. Swami

11. Activity Record:

2021-2022		
Sr. No.	Name of Event/Activity	Planned / Conducted
1	IGNITION 2k22	Planned
2	Junior College Activity	Planned
2020-2021		
1	Vande Matram(video making contest	Conducted for all
2	SUBH-AARAMBH(Paper presentation contest)	Conducted for all
3	NTD 2k21 Quiz contest	Conducted for all
4	Farewell Party BE students	Conducted for BE
2019-2020		
1	VLSI Back End Programming	Conducted TE
2	Python Programming	Conducted SE
3	Arts Club Inauguration (Kalavishkar 2k19)	Conducted for all
4	GD Club Inauguration	Conducted for all
5	BOX Cricket	Conducted for all
6	IGNITION 2k19	Conducted for Degree & Diploma students
7	Colour code Activity	Conducted for SE
8	English Spelling Activity	Conducted for TE
9	Drishti Online Context By Texas Instrument Bangalore.	Conducted for all
10	Inauguration of EESA and IOE 2019-20	Conducted for all
11	Industry 4.0.Workshop	Conducted for all
12	Fresher's Party	Conducted for all