



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
AN AUTONOMOUS INSTITUTE

NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
Near Dighori Naka, Umrer Road, Nagpur - 440 034
Mob. : 9881014701, 9823464644, 8983550843
Email : admin@srpce.ac.in • website : www.srpce.ac.in

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING

VISION

To be a center of excellence in Electronics and Telecommunication Engineering by imparting quality education, fostering innovation and research, promoting industry collaboration, and nurturing ethically responsible professionals for global technological advancement.

MISSION

- 1. Deliver Quality Education:** Provide outcome-based, student-centric education through an updated curriculum, modern laboratories, and effective teaching-learning practices.
- 2. Strengthen Industry Interaction:** Establish strong partnerships with industries to enhance practical exposure through internships, industry projects, expert lectures, and collaborative activities.
- 3. Promote Research and Entrepreneurship:** Encourage innovation, interdisciplinary research, intellectual property creation, and entrepreneurial initiatives to address societal and industrial challenges.
- 4. Develop Professional Competence:** Enhance analytical thinking, problem-solving, communication, leadership, and lifelong learning skills to prepare graduates for successful careers and higher education.
- 5. Instill Ethics and Social Responsibility:** Cultivate professional ethics, environmental consciousness, teamwork, and social responsibility to develop competent and responsible engineers.

Sanam
Dr. Shilpa V. Male
BOS, Chairperson

Dr. P. Agarkar
Dr. P. Agarkar
Dr. K. G. Navale
Dr. K. G. Navale

Dr. P. S. Lanjewar
Dr. P. S. Lanjewar
Dean Academics
Dr. Anurag Deshpande
Dr. Anurag Deshpande



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
AN AUTONOMOUS INSTITUTE
NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
Near Dighori Naka, Umrer Road, Nagpur - 440 034
Mob. : 9881014701, 9823464644, 8983550843
Email : admin@srpce.ac.in • website : www.srpce.ac.in

**DEPARTMENT OF
ELECTRONICS & TELECOMMUNICATION ENGINEERING**

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1 – Technical Competence

Graduates will apply strong foundations in electronics, telecommunication, embedded systems, signal processing, networking and emerging technologies to solve complex engineering problems.

PEO2 – Innovation, Research and Entrepreneurship

Graduates will demonstrate innovation, research aptitude, creativity and entrepreneurial skills to develop technology-driven solutions for industrial and societal challenges.

PEO3 – Professional Career and Industry Readiness

Graduates will pursue successful careers in electronics, telecommunication, embedded systems, VLSI, IoT, automation, networking and allied sectors, contributing to regional, national and global technological development.

PEO4 – Higher Education and Lifelong Learning

Graduates will pursue higher education, research, professional certifications and lifelong learning to adapt to rapidly evolving technologies and professional requirements.

PEO5 – Ethics, Leadership and Social Responsibility

Graduates will demonstrate professional ethics, leadership, teamwork, effective communication, environmental consciousness and social responsibility in their professional and personal endeavors.

Smile
Dr. Shilpa V. Umale
BOS, Chairperson

Abhinav Deshpande

Dr. N. G. Navale

Dr. P. Agarkar

Dr. P. S. Lanjewar
Dean Aca.



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
AN AUTONOMOUS INSTITUTE
NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
Near Dighori Naka, Umrer Road, Nagpur - 440 034
Mob. : 9881014701, 9823464644, 8983550843
Email : admin@srpce.ac.in • website : www.srpce.ac.in

**DEPARTMENT OF
ELECTRONICS & TELECOMMUNICATION ENGINEERING**
PROGRAMME OUTCOMES (POs)

PO1 – Engineering Knowledge

Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization to develop solutions to complex engineering problems.

PO2 – Problem Analysis

Identify, formulate, review research literature and analyse complex engineering problems, reaching substantiated conclusions with consideration for sustainable development.

PO3 – Design/Development of Solutions

Design creative solutions for complex engineering problems and design/develop systems, components or processes to meet identified needs with consideration for public health and safety, whole-life cost, net-zero carbon, culture, society and environment.

PO4 – Conduct Investigations of Complex Problems

Conduct investigations of complex engineering problems using research-based knowledge, including design of experiments, modelling, analysis and interpretation of data to provide valid conclusions.

PO5 – Engineering Tool Usage

Create, select and apply appropriate techniques, resources and modern engineering and IT tools, including prediction and modelling, while recognizing their limitations to solve complex engineering problems.

PO6 – The Engineer and the World

Analyse and evaluate societal and environmental aspects while solving complex engineering problems for their impact on sustainability with reference to economy, health, safety, legal framework, culture and environment.

PO7 – Ethics

Apply ethical principles and commit to professional ethics, human values, diversity and inclusion, and adhere to national and international laws.

PO8 – Individual and Collaborative Teamwork

Function effectively as an individual and as a member or leader in diverse and multidisciplinary teams.

PO9 – Communication

Communicate effectively and inclusively within the engineering community and society at large through effective reports, design documentation, presentations and other appropriate forms of communication.

PO10 – Project Management and Finance

Apply knowledge and understanding of engineering management principles and economic decision-making to one's own work and to manage projects in multidisciplinary environments.

PO11 – Lifelong Learning

Recognize the need for and demonstrate the preparation and ability for independent and lifelong learning, adaptability to new and emerging technologies, and critical thinking in the context of technological change.

Dr. Shital V. Umekar
BOS, Chairperson

Dr. N. G. Naware

Dr. P. Agarkar

Dr. P. S. Lanjewar
Dean Aca.

Dr. P. S. Lanjewar
Dean Aca.



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
AN AUTONOMOUS INSTITUTE
NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
Near Dighori Naka, Umrer Road, Nagpur - 440 034
Mob. : 9881014701, 9823464644, 8983550843
Email : admin@srpce.ac.in • website : www.srpce.ac.in

**DEPARTMENT OF
ELECTRONICS & TELECOMMUNICATION ENGINEERING**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1 – Electronics and Communication Systems

Apply concepts of analog and digital electronics, communication systems, signal processing, microwave engineering, antennas and networking to analyse, design and implement efficient electronic and telecommunication systems.

PSO2 – Embedded, IoT and Intelligent Systems

Design and develop embedded systems, IoT applications, microcontroller/microprocessor-based systems, automation solutions and intelligent electronic systems using appropriate hardware, software and engineering tools.

PSO3 – Emerging Technologies and Industrial Applications

Apply knowledge of VLSI, wireless and optical communication, semiconductor technologies, AI/ML and other emerging technologies to develop innovative solutions for industrial and societal challenges.

Dr. Shital V. Umale
BOS, Chairperson

Dr. P. Agarwal

Dr. N. G. Navale

Dr. P. S. Lanjewar
Dean (Aca.)

Abhay Deshpande



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
 AN AUTONOMOUS INSTITUTE

NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
 Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
 Near Dighori Naka, Umrer Road, Nagpur - 440 034
 Mob. : 9881014701, 9823464644, 8983550843
 Email : admin@srpce.ac.in • website : www.srpce.ac.in

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING

Semester wise Credit Distribution Structure for Four Year UG Electronics & Telecommunication Engineering (Major) and Minor in Multidisciplinary

Semester	Category	I	II	III	IV	V	VI	VII	VIII	Credits
Basic Science Course	BSC	7	8	--	--	--	--	--	--	15
Engineering Science Course	ESC	9	6	--	--	--	--	--	--	15
Programme Core Course (PCC)	Program Courses	--	2	10	10	10	8	4	--	44
Programme Elective Course (PEC)	Program Courses	--	--	--	--	4	8	8	--	20
Multidisciplinary Minor (MDM)	Multidisciplinary Courses	--	--	2	2	3	3	--	4	14
Open Elective (OE) Other than a particular program	OE	--	--	3	3	2	--	--	--	8
Vocational and Skill Enhancement Course (VSEC)	Skill Courses	2	2	--	2	--	2	--	--	8
Ability Enhancement Course (AEC-01, AEC-02)	Humanities Social Science and Management (HSSM)	2	--	--	2	--	--	--	--	4
Entrepreneurship/Economics /Management Courses	(HSSM)	--	--	2	2	--	--	--	--	4
Indian Knowledge System (IKS)	(HSSM)	--	2	--	--	--	--	--	--	2
Value Education Course (VEC)	(HSSM)	--	--	2	2	--	--	--	--	4
Research Methodology	Experiential Learning Courses	--	--	--	--	--	--	4	--	4
Comm. Engg. Project (CEP)/Field Project (FP)	CEP	--	--	2	--	--	--	--	--	2
Project	Project	--	--	--	--	--	--	4	--	4
Internship/OJT	OJT	--	--	--	--	--	--	--	12	12
Co-curricular Courses (CC)	Liberal Learning Courses	2	2	--	--	--	--	--	--	4
Total Credits (Major)		22	22	21	23	19	21	20	16	164

Dr. Shital V. ...
BOS, Chairperson

Dr. N. G. ...

Dr. P. Agarkar

Dr. S. Lanjekar
3 can (AEC)



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
AN AUTONOMOUS INSTITUTE
NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
 Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
 Near Dighori Naka, Umrer Road, Nagpur - 440 034
 Mob. : 9881014701, 9823464644, 8983550843
 Email : admin@srpce.ac.in • website : www.srpce.ac.in

TEACHING SCHEME FOR

B.Tech. Semester-I Electronics and Telecommunication Engineering-Major (NEP) (Choice Based Credit System)

S. N.	Course Category	Course Code	Name of Course	BOS	Teaching Scheme (hrs/wk)				Total Credit	Examination Scheme						
					L	T	P	Total Hrs./ Week		Theory			Pract.		Min Pass- ing Marks	Total Marks
										Exam Hrs.	CIE	ESE	CIE	ESE		
01	BSC -I	BT1ET01T	Applied Mathematics- I	ASH	3	--	--	3	3	3	40	60	--	--	50	100
02	BSC-II	BT1ET02T	Engineering Physics	ASH	3	--	--	3	3	3	40	60	--	--	50	100
03	BSC-II	BT1ET02P	Engineering Physics Lab	ASH	--	--	2	2	1	--	--	--	25	25	25	50
04	ESC-I	BT1ET03T	Basics of Electrical Engineering	EE	3	--	--	3	3	3	40	60	--	--	50	100
05	ESC-I	BT1ET03P	Basics of Electrical Engineering Lab	EE	--	--	2	2	1	--	--	--	25	25	25	50
06	ESC -II	BT1ET04T	Fundamentals of C Programming	CSE	3	--	--	3	3	3	40	60	--	--	50	100
07	ESC -II	BT1ET04P	C Programming Lab	CSE	--	--	2	2	1	--	--	--	25	25	25	50
08	ESC-III	BT1ET05P	Engineering Graphics Lab	ME	--	--	2	2	1	--	--	--	25	25	25	50
09	VSEC-I	BT1ET06P	Electronics Components, Circuit & Instruments Lab	ETC	--	--	4	4	2	--	--	--	50	50	50	100
10	AEC-I	BT1ET07T	Communication Skill	ASH	2	--	--	2	2	2	20	30	--	--	25	50
11	CC -I	BT1ET08P	Refer CC Basket	ASH	--	--	4	4	2	--	--	--	100	--	50	100
TOTAL					14	--	16	30	22	--	180	270	250	150		850

VERSION 1.0

Session: 2026-27 Onwards

CC-I BASKET

- (1) National Social Services(NSS)
- (2) Games & Sports
- (3) Cultural Activities
- (4) Yoga
- (5) Elements of Japanese Language (NPTEL ONLINE)
- (6) Elements of German Language (NPTEL ONLINE)
- (8) Elements of Spanish Language (NPTEL ONLINE)

[Signature]
 Dr. P. S. Lanjar
 Dean (NCA)

[Signature]
 Dr. Shital V. Umale
 BOS chairperson

[Signature]
 Abhyash Deshpande

[Signature]
 Dr. N. G. Nawale

[Signature]
 Dr. P. Agarwal



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
AN AUTONOMOUS INSTITUTE
NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
 Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
 Near Dighori Naka, Umrer Road, Nagpur - 440 034
 Mob. : 9881014701, 9823464644, 8983550843

Email : admin@srpce.ac.in • website : www.srpce.ac.in

TEACHING SCHEME FOR

B.Tech. Semester-II Electronics and Telecommunication Engineering -Major (NEP) (Choice Based Credit System)

S. N.	Course Category	Course Code	Name of Course	BOS	Teaching Scheme (hrs/wk)				Total Credit	Examination Scheme						
					L	T	P	Total Hrs./ Week		Theory			Pract.		Min Pass- ing Marks	Total Marks
										Exam Hrs.	CIE	ESE	CIE	ESE		
01	BSC -III	BT2ET01T	Applied Mathematics- II	ASH	3	--	--	3	3	3	40	60	--	--	50	100
02	BSC -III	BT2ET01P	Applied Mathematics-II Lab	ASH	--	--	2	2	1	--	--	--	25	25	25	50
03	BSC-IV	BT2ET02T	Engineering Chemistry	ASH	3	--	--	3	3	3	40	60	--	--	50	100
04	BSC-IV	BT2ET02P	Engineering Chemistry Lab	ASH	--	--	2	2	1	--	--	--	25	25	25	50
05	ESC-IV	BT2ET03T	Electronics Measurement and Instrumentation	ETC	2	--	--	2	2	2	20	30	--	--	25	50
06	ESC-V	BT2ET04T	Object Oriented & Programming	CSE	3	--	--	3	3	3	40	60	--	--	50	100
07	ESC-V	BT2ET04P	Object Oriented & Programming Lab	CSE	--	--	2	2	1	--	--	--	25	25	25	50
08	PCC-I	BT2ET05T	Computer Architecture	ETC	2	--	--	2	2	2	20	30	--	--	25	50
09	VSEC-II	BT2ET06P	Electronic workshop	ETC	--	--	4	4	2	--	--	--	50	50	50	100
10	IKS-I	BT2ET07T	Refer IKS Basket	ASH	2	--		2	2	2	20	30	--	--	25	50
11	CC –II	BT2ET08P	Refer CC Basket	ASH	--	--	4	4	2	--	--	--	100	--	50	100
TOTAL					15	--	14	29	22	--	180	270	225	125		800

VERSION 1.0

Session: 2026-27 Onwards

IKS BASKET

- (1) Consciousness Studies
- (2) Preserving Art, Culture and Tradition
- (3) Wellness, Traditional Medicines and Yoga
- (4) Glimpses of Ancient Science and

CC-II BASKET

- (1) National Social Services(NSS)
- (2) Games & Sports
- (3) Cultural Activities
- (4) Yoga
- (5) Elements of Japanese Language (NPTEL ONLINE)
- (6) Elements of German Language (NPTEL ONLINE)
- (7) Elements of French Language (NPTEL ONLINE)
- (8) Elements of Spanish Language (NPTEL ONLINE)

Exit option: Award of UG Certificate in Major with 44 credits and an additional 8 credits in skill based courses, internship ,mini project etc

Dr. Shital V. Umale
BOS Chairperson

Aditya Deshpande

Dr. N. G. Naware

Dr. P. Agarkar

Dr. P. S. Lanjekar
Dean (Acad.)



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
AN AUTONOMOUS INSTITUTE
NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
 Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
 Near Dighori Naka, Umrer Road, Nagpur - 440 034
 Mob. : 9881014701, 9823464644, 8983550843
 Email : admin@srpce.ac.in • website : www.srpce.ac.in

TEACHING SCHEME FOR

B.Tech. Semester-III Electronics and Telecommunication Engineering-Major (NEP) (Choice Based Credit System)

S. N.	Course Category	Course Code	Name of Course	BOS	Teaching Scheme (hrs/wk)				Total Credit	Examination Scheme						
					L	T	P	Total Hrs./ Week		Theory			Pract.		Min Pass- ing Marks	Total Marks
										Exam Hrs.	CIE	ESE	CIE	ESE		
01	PCC-II	BT3ET01T	Electronics Devices and Circuits	ETC	3	--	--	3	3	3	40	60	--	--	50	100
02	PCC-II	BT3ET01P	Electronics Devices and Circuits Lab	ETC	--	--	2	2	1	--	--	--	25	25	25	50
03	PCC-III	BT3ET02T	Digital Circuits and Microprocessor	ETC	3	--	--	3	3	3	40	60	--	--	50	100
04	PCC-III	BT3ET02P	Digital Circuits and Microprocessor Lab	ETC	--	--	2	2	1	--	--	--	25	25	25	50
05	PCC-IV	BT3ET03T	Basics of Signal and System	ETC	2	--	--	2	2	2	20	30	--	--	25	50
06	MDM -I	BT3ET04T	Refer MDM Basket	ETC	2	--	--	2	2	2	20	30	--	--	25	50
07	OE-I	BT3ET05T	Refer OE Basket	MGT	3	--	--	3	3	3	40	60	--	--	50	100
08	VEC-I	BT3ET06T	Constitution of India	ASH	2	--	--	2	2	2	20	30	--	--	25	50
09	HSSM-I	BT3ET07T	Digital Marketing	ASH	2	--	--	2	2	2	20	30	--	--	25	50
10	CEP	BT3ET08P	Community Engg. Project	ETC	--	--	4	4	2	--	--	--	100	--	50	100
TOTAL					17	--	08	25	21	--	200	300	150	50	--	700

VERSION 1.0

Session: 2027-28 Onwards

OE-I	Stress Management	BT3ET05T
------	-------------------	----------

Dr. Shital V. Male
BOS Chairperson

Abhyash

Dr. N. G. Nawale

Dr. P. Agarkar

Dr. P. S. Lanjekar
Dean (A.C.)



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
 AN AUTONOMOUS INSTITUTE
 NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
 Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
 Near Dighori Naka, Umrer Road, Nagpur - 440 034
 Mob. : 9881014701, 9823464644, 8983550843
 Email : admin@srpce.ac.in • website : www.srpce.ac.in

TEACHING SCHEME FOR

B.Tech. Semester-IV Electronics and Telecommunication Engineering-Major (NEP) (Choice Based Credit System)

S. N.	Course Category	Course Code	Name of Course	BOS	Teaching Scheme (hrs/wk)				Total Credit	Examination Scheme						
					L	T	P	Total Hrs./ Week		Theory			Pract.		Min Passing Marks	Total Marks
										Exam Hrs.	CIE	ESE	CIE	ESE		
01	PCC-V	BT4ET01T	Microcontroller and Application	ETC	3	--	--	3	3	3	40	60	--	--	50	100
02	PCC-V	BT4ET01P	Microcontroller and Application Lab	ETC	--	--	2	2	1	--	--	--	25	25	25	50
03	PCC-VI	BT4ET02T	Analog and Digital Communication	ETC	3	--	--	3	3	3	40	60	--	--	50	100
04	PCC-VI	BT4ET02P	Analog and Digital Communication Lab	ETC	--	--	2	2	1	--	--	--	25	25	25	50
05	PCC VII	BT4ET03T	Electromagnetics Waves	ETC	2	--	--	2	2	2	20	30	--	--	25	50
06	MDM-II	BT4ET04T	Refer MDM Basket	ETC	2	--	--	2	2	2	20	30	--	--	25	50
07	OE-II	BT4ET05T	Refer OE Basket	MGT	3	--	--	3	3	3	40	60	--	--	50	100
08	VEC-II	BT4ET06T	Universal Human Value	ETC	2	--	--	2	2	2	20	30	--	--	25	50
09	VSEC-III	BT4ET07P	Software Workshop Lab	ETC	--	--	4	4	2	--	--	--	50	50	50	100
10	AEC-II	BT4ET08P	Technical Report Writing	ETC	--	--	2	2	1	--	--	--	25	25	25	50
11	AEC-III	BT4ET09P	Communication Skill Lab	ASH	--	--	2	2	1	--	--	--	25	25	25	50
12	HSSM-II	BT4ET10T	Business Management and Entrepreneurship	MGT	2	--	--	2	2	2	20	30	--	--	25	50
TOTAL					17	--	12	29	23	--	200	300	150	150	--	800

VERSION 1.0

Session: 2027-28 Onwards

OE-II	Principles of Management	BT4ET05T
-------	--------------------------	----------

Exit option : Award of UG Diploma in Major with 88 credits and an additional 8 credits in skill based courses, internship ,mini project etc

Dr. Shital B. Naware
 BOS, chairperson

Dr. N. G. Naware

Dr. P. S. Lanjekar
 Dean (Ac.)

Dr. P. Agarkar



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
 AN AUTONOMOUS INSTITUTE

NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
 Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
 Near Dighori Naka, Umrer Road, Nagpur - 440 034
 Mob. : 9881014701, 9823464644, 8983550843
 Email : admin@srpce.ac.in • website : www.srpce.ac.in

TEACHING SCHEME FOR

B.Tech. Semester-V Electronics and Telecommunication Engineering-Major (NEP) (CBCS)

S. N.	Course Category	Course Code	Name of Course	BOS	Teaching Scheme (hrs/wk)				Total Credit	Examination Scheme						
					L	T	P	Total Hrs./ Week		Theory			Pract.		Min Passing Marks	Total Marks
										Exam Hrs.	CIE	ESE	CIE	ESE		
01	PCC-VIII	BT5ET01T	Embedded System	ETC	3	--	--	3	3	3	40	60	--	--	50	100
02	PCC-VIII	BT5ET01P	Embedded System Lab	ETC	--	--	2	2	1	--	--	--	25	25	25	50
03	PCC-IX	BT5ET02T	Computer Communication Network	ETC	3	--	--	3	3	3	40	60	--	--	50	100
04	PCC-IX	BT5ET02P	Computer Communication Network Lab	ETC	--	--	2	2	1	--	--	--	25	25	25	50
05	PCC-X	BT5ET03T	Linear Electronics Circuits	ETC	2	--	--	2	2	2	20	30	--	--	25	50
06	PEC-I	BT5ET04T	Program Elective - I	ETC	2	--	--	2	2	2	20	30	--	--	25	50
07	PEC-II	BT5ET05T	Program Elective - II	ETC	2	--	--	2	2	2	20	30	--	--	25	50
08	MDM-III	BT5ET06T	Refer MDM Basket	ETC	3	--	--	3	3	3	40	60	--	--	50	100
09	OE-III	BT5ET07T	Refer OE Basket	MGT	2	--	--	2	2	2	20	30	--	--	25	50
TOTAL					17	--	4	21	19	--	200	300	50	50	--	600

VERSION 1.0

Session: 2028-29 Onwards

PEC-I	1.Wireless Sensor Network 2.Industrial Automation	BT5ET04T
PEC-II	1.Television Engineering 2.Waveguides and Antenna	BT5ET05T
Open Elective-III	IPR Development & Training	BT5ET07T

Dr. Shital V. Male
BOS, Chairperson

Dr. M. E. Nawale

Dr. P. S. Lamani
Dean (Ac.)

Dr. P. Agarwal



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
 AN AUTONOMOUS INSTITUTE

NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
 Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
 Near Dighori Naka, Umrer Road, Nagpur - 440 034
 Mob. : 9881014701, 9823464644, 8983550843
 Email : admin@srpce.ac.in • website : www.srpce.ac.in

TEACHING SCHEME FOR

B.Tech. Semester-VI Electronics and Telecommunication Engineering-Major (NEP) (CBCS)

S. N.	Course Category	Course Code	Name of Course	BOS	Teaching Scheme (hrs/wk)				Total Credit	Examination Scheme						
					L	T	P	Total Hrs./ Week		Theory			Pract.		Min Pass- ing Marks	Total Marks
										Exam Hrs.	CIE	ESE	CIE	ESE		
01	PCC-XI	BT6ET01T	Digital Signal Processing	ETC	3	--	--	3	3	3	40	60	--	--	50	100
02	PCC-XI	BT6ET01P	Digital Signal Processing Lab	ETC	--	--	2	2	1	--	--	--	25	25	25	50
03	PCC-XII	BT6ET02T	Internet of Things	ETC	3	--	--	3	3	3	40	60	--	--	50	100
04	PCC-XII	BT6ET02P	Internet of Things Lab	ETC	--	--	2	2	1	--	--	--	25	25	25	50
05	PEC-III	BT6ET03T	Program Elective - III	ETC	3	--	--	3	3	3	40	60	--	--	50	100
06	PEC-IV	BT6ET04T	Program Elective - IV	ETC	3	--	--	3	3	3	40	60	--	--	50	100
07	PEC-V	BT6ET05T	Program Elective - V	ETC	2	--	--	2	2	2	20	30	--	--	25	50
08	MDM-IV	BT6ET06T	Refer MDM Basket	ETC	3	--	--	3	3	3	40	60	--	--	50	100
09	VSEC-IV	BT6ET07P	Matlab Programming	ETC	--	--	4	4	2	--	--	--	50	50	50	100
TOTAL					17	--	8	25	21	--	220	330	100	100	--	750

VERSION 1.0

Session: 2028-29 Onwards

PEC-III	1.CMOS VLSI 2.Biomedical Signal Processing	BT6ET03T
PEC - IV	1.Digital Image Processing 2.5G/6G Communication Systems	BT6ET04T
PEC - V	1.Fuzzy Logic and Neural Network 2.PLC and SCADA	BT6ET05T

Exit option : Award of UG Degree B.Voc/B.Sc. in Major with 128 credits and an additional 8 credits in skill based courses, internship ,mini project etc

Small
Dr. Shital V. Vonnale
Bos, chairperson
H. H. H. H.
Dr. H. H. H. H.

Dr. H. H. H. H.
Dr. H. H. H. H.

Dr. S. L. L. L.
Dr. S. L. L. L.

Dr. P. A. A. A.
Dr. P. A. A. A.



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
 AN AUTONOMOUS INSTITUTE

NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
 Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
 Near Dighori Naka, Umrer Road, Nagpur - 440 034
 Mob. : 9881014701, 9823464644, 8983550843
 Email : admin@srpce.ac.in • website : www.srpce.ac.in

TEACHING SCHEME FOR

B.Tech. Semester-VII Electronics and Telecommunication Engineering-Major (NEP)(CBCS)

S. N.	Course Category	Course Code	Name of Course	BOS	Teaching Scheme (hrs/wk)				Total Credit	Examination Scheme						
					L	T	P	Total Hrs./ Week		Theory			Pract.		Min Pass- ing Marks	Total Marks
										Exam Hrs.	CIE	ESE	CIE	ESE		
01	PCC-XIII	BT7ET01T	Microwave and Radar Engineering	ETC	3	--	--	3	3	3	40	60	--	--	50	100
02	PCC-XIII	BT7ET01P	Microwave and Radar Engineering Lab.	ETC	--	--	2	2	1	--	--	--	25	25	25	50
03	PEC-VI	BT7ET02T	Program Elective - VI	ETC	3	--	--	3	3	3	40	60	--	--	50	100
04	PEC-VII	BT7ET03T	Program Elective - VII	ETC	3	--	--	3	3	3	40	60	--	--	50	100
05	PEC-VIII	BT7ET04T	Program Elective - VIII	ETC	2	--	--	2	2	2	20	30	--	--	25	50
06	RM	BT7ET05T	Research Methodology #	ETC	3	--	--	3	3	3	40	60	--	--	50	100
07	RM	BT7ET05P	Research Methodology Lab #	ETC	--	--	2	2	1	--	--	--	25	25	25	50
08	PROJ	BT7ET06P	Project	ETC	--	--	4	4	4	--	--	--	100	100	100	200
TOTAL					14	--	8	22	20	--	180	270	150	150	--	750

VERSION 1.0

Session: 2029-30 Onwards

PEC - VI	1.Wireless and Mobile Communication 2.Sensor and System	BT7ET02T
PEC - VII	1.Optical Fibre Communication 2.Drone Technology	BT7ET03T
PEC - VIII	1.Satellite Communication 2.Digital System Design with HDL	BT7ET04T

Indicates that, Online Courses to be done from NPTEL. Examination will be conducted by NPTEL /Institute

Dr. Shital V. Umale
Bos, chairperson

Dr. N. G. Pawale

Dr. P. S. Lanjkar
Dean Aca

Dr. P. Agarkar



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
 AN AUTONOMOUS INSTITUTE

NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
 Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
 Near Dighori Naka, Umrer Road, Nagpur - 440 034
 Mob. : 9881014701, 9823464644, 8983550843
 Email : admin@srpce.ac.in • website : www.srpce.ac.in

TEACHING SCHEME FOR

B.Tech. Semester-VIII Electronics and Telecommunication Engineering- Major (NEP) (CBCS)

S. N.	Course Category	Course Code	Name of Course	BOS	Teaching Scheme (hrs/wk)				Total Credit	Examination Scheme						
					L	T	P	Total Hrs./ Week		Theory			Pract.		Min Pass- ing Marks	Total Marks
										Exam Hrs.	CIE	ESE	CIE	ESE		
01	OJT	BT8ET01P	Internship	ETC	--	--	24	24	12	--	--	--	200	200	200	400
02	MDM-V	BT8ET02T	Refer MDM Basket #	ETC	2	--	--	2	2	2	20	30	--	--	25	50
03	MDM-VI	BT8ET03T	Refer MDM Basket #	ETC	2	--	--	2	2	2	20	30	--	--	25	50
TOTAL					4	--	24	28	16	--	40	60	200	200	--	500

VERSION 1.0

Session: 2029-30 Onwards

Indicates that, Online Courses to be done from NPTEL. Examination will be conducted by NPTEL /Institute

4-Years Bachelor's Degree (B.Tech.) in Electronics & Telecommunication Engineering with Multidisciplinary Minor

Dr. Shilpa V. Umale
Bos, Chakraperson

Abhay Deshpande

Dr. N. G. Narole

Dr. P. S. Laxman
Dean (Acad.)

Dr. P. Agarkar



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
AN AUTONOMOUS INSTITUTE

NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur

Near Dighori Naka, Umrer Road, Nagpur - 440 034

Mob. : 9881014701, 9823464644, 8983550843

Email : admin@srpce.ac.in • website : www.srpce.ac.in

Department of Electronics & Telecommunication Engineering.

Multi- Disciplinary -Minor Basket

S.N.	Semester	Course Code	Track 1 ↓	Track 2 ↓	Track 3 ↓
			Analog and Digital Electronics	Communication System	VLSI
1	III	BT3ET04T	Analog Electronics	Analog Electronics	Analog Electronics
2	IV	BT4ET04T	Digital Circuits	Digital Circuits	Digital Circuits
3	V	BT5ET06T	Microprocessor and Mococontroller	Microprocessor and Mococontroller	Microprocessor and Mococontroller
4	VI	BT6ET06T	Electronics Measurement & Instrumentation	Basics of Signal & Systems	Digital System Design
5	VIII	BT8ET02T	Internet of Things #	Analog & Digital Communication #	HDL & FPGA Based Design #
6	VIII	BT8ET03T	Wireless & Mobile Communication #	Wireless & Mobile Communication #	CMOS VLSI Circuit Design #

Note:- Students should select one Track through out their Engineering (B. Tech) Course

* The above MDM basket is for other than Electronics and Telecommunication Engineering Students

Indicates that Online Courses to be done from NPTEL/SWAYAM. Examination will be conducted by NPTEL-SWAYAM/Institute.

Dr. Shital V. Umale
Bos, chair person
Akshay Patil

Dr. N. G. Hawale

Dr. P. S. Keshavn
Dem (HCA.)

Dr. P. Agarkar



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
AN AUTONOMOUS INSTITUTE

NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
Near Dighori Naka, Umrer Road, Nagpur - 440 034
Mob. : 9881014701, 9823464644, 8983550843
Email : admin@srpce.ac.in • website : www.srpce.ac.in

Department of Electronics & Telecommunication Engineering

List of Open Electives (OE) offered by Management BOS

Open Elective Basket

For Students of Electrical Engineering (EE), Civil Engineering (CV), Mechanical Engineering (ME) and Electronics & Telecommunication Engineering (ETC)

Course Category	Course Code	Name of Course	Credits	Semester
OE-I	BT3ET05T	Stress Management	3	III Semester
OE-II	BT4ET05T	Principles of Management	3	IV Semester
OE-III	BT5ET07T	IPR Development & Training	2	V Semester

[Signature]
Dr. A. S. Lawkar
Dean (Acad)

[Signature]
Dr. Shital V. Umale
BOS, Chairperson

[Signature]
Abhinav Mishra

[Signature]
Dr. N. G. Navale

[Signature]
Dr. P. Agarkar

**SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING, BAHADURA, UMRER
ROAD, NAGPUR**

An Autonomous Institute Affiliated to RTMNU, Nagpur

Faculty of Science & Technology

**B.Tech. Mechanical Engineering/Civil Engineering/Electronics & Telecommunication
/Electrical Engineering (NEP) (CBCS)**

Sem-I	Total Hours Distribution Per Week		
Total Credits : 3	Lecture (L) : 3 Hrs	Tutorial/Activity (T/A) : 0 Hr	
Subject Code	BT1ME01T/BT1CV01T/BT1ET01T/ BT1EE01T	Applied Mathematics-I	
Examination Scheme			
CIE	ESE	Minimum Passing Marks:	Examination Duration:
40 Marks	60 Marks	50	3 Hours

Course Objectives

1	Engineering Mathematics intent to equip first-year engineering students with fundamental mathematical tools.
2	To promote and develop the basic mathematics skills of engineering students that is essential for effective understanding of engineering subjects.

Course Outcomes

After completion of syllabus, students would be able to	
1	Learn the concept of successive differentiation; express the function in series form and evaluation of indeterminate forms.
2	Study the nature of linear system of equations using rank and identify the special properties of a matrix such as the eigen values, eigen vectors.
3	Understand the concept of Partial differentiation which is used to find the solution of real life problems.
4	Solve first-order ordinary differential equations applicable to engineering problems and apply it to formulate mathematical models for simple electrical circuits.
5	Understand and solve the different types of higher order differential equations by using various techniques and apply it to solve the problems in engineering field.

Dr. Yusuf Oluzi
09/07/2026

Dr. D. Khar
09/07/2026

Dr. D. P. Shastri
09/07/2026

Dr. Ranjana Harane
09/07/2026

Ms. M. S. Patel
09/07/2026

Contd.

SYLLABUS

Details of Topic	Allotment of Hours		Mapped with CO Number
	L	T/A	CO
Unit-1: Differential Calculus			
Successive differentiation: Leibnitz's Rule, Taylor's and Maclaurin's series for function of one variable, Indeterminate forms and L'Hospital's Rule.	7		1
Unit-2 Matrices			
Rank of a matrix, Consistency of linear system of non-homogeneous and homogeneous equations, Linear dependence of vectors, Eigen values and Eigen vectors, Cayley- Hamilton theorem (Statement only), Sylvester's theorem (Statement only).	8		2
Unit-3 Multivariable Calculus (Partial Differentiation)			
Functions of several variables, First and Higher order partial derivatives, Euler's theorem, Chain rule and Total differential coefficient, Jacobians, Lagrange's method of undetermined multipliers.	8		3
Unit-4 First Order Ordinary Differential Equations			
Review of Linear differential equations, Reducible to linear and Bernoulli's differential equations, Exact differential equations (Excluding the cases of integrating factors), Application of first order differential equation to simple electrical circuits.	5		4
Unit-5 Higher Order Ordinary Differential Equations			
Higher order ordinary linear differential equations with constant coefficients, Method of variation of parameters, Cauchy's and Legendre's homogeneous differential equations, Equations of the type $d^2y/dx^2 = f(y)$. Applications of higher order differential equations to simple electrical circuits.	8		5

Text/Reference Books:

- (1) Erwin Kreyszig, Advanced Engineering Mathematics, 9th Edition, John Wiley & Sons, 2006.
- (2) Ramana B.V., Higher Engineering Mathematics, Tata Mc-Graw Hill, New Delhi, 11th Reprint, 2010.
- (3) N.P. Bali and Manish Goyal, A Text Book of Engineering Mathematics, Laxmi Publications, Reprint, 2008.
- (4) B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36th Edition, 2010.
- (5) P. N. Wartikar and J. N. Wartikar, Applied Mathematics, Volume I and II.
- (6) H.K. Dass, Rama Verma, Rajnish Verma, V.J. Dagwal, Sajid Anwar and D.F. Shastrakar, Engineering Mathematics, Volume I and II, S. Chand.

Dr. R. S. Khun
09/07/2026

Dr. D. F. Shastrakar
09/07/2026

Mr. M. S. Paley
09/07/2026

Dr. S. Khun
09/07/2026

Dr. Rajana Harane
09/07/2026

**SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING, BAHADURA, UMRER
ROAD, NAGPUR**

An Autonomous Institute Affiliated to RTMNU, Nagpur

Faculty of Science & Technology

**B. Tech. First Semester Mechanical Engineering, Electrical Engineering, Electronics &
Telecommunication Engineering (NEP)**

Sem-I	Total Hours Distribution Per Week		
Total Credits : 3	Lecture (L) : 3 Hrs	Tutorial/Activity (T/A) : 0 Hr	
Subject Code	BT1ME02T/ BT1EE02T/ BT1ET02T	Applied/ Engineering Physics	
Examination Scheme			
CIE	ESE	Minimum Passing Marks:	Examination Duration:
40 Marks	60 Marks	50	3 Hours

Course Objectives

1	To Provide a Strong Foundation in physics to provide technical knowledge
2	To gain an understanding of the phenomenon of interference used for advanced applications in optics
3	To familiarize prospective engineers with fundamental concepts of semi-conductors and their applications in semiconductor technology
4	To make acquainted with the laser technology and the operations of Laser

Course Outcomes

After completion of syllabus, students would be able to

1	Learn the basic concepts of the dual nature of matter and wave packet and apply them to analyze various relevant phenomena and to solve related numerical problems.
2	Apply concepts in interference and diffraction to solve relevant numerical problems and to relate to relevant engineering applications
3	Identify and explain different types of diodes, transistors, and its applications.
4	Learn and explain quantum transitions and apply them to the working of lasers.
5	Learn Various types of Crystal structures and its dimensions.

[Signature]
Dr. D. P. Shandekar
09/07/2026

[Signature]
Santosh Kande
09/07/2026

Contd.

[Signature]
Dr. C. V. Phadnis
09/07/2026

[Signature]
Dr. D. K. Kulkarni
09/07/2026

[Signature]
Ashutosh Raut
09/07/26

[Signature]
Mrs. M. S. Palant
09/07/2026

SYLLABUS

Details of Topic	Allotment of Hours		Mapped with CO Number
	L	T/A	CO
Unit-1 Quantum Mechanics			
De-Broglie Hypothesis, Concept of wave-particle duality, Matter Waves, Davisson-Germer Experiment. Compton effect, Photo electric effect, , Concept of wave packets, Heisenberg Uncertainty Principle, Significance of Wave function Ψ and normalization condition, Schrodinger wave equation (Expression for time dependent and time independent), Application to one dimensional infinite potential well. . & Numericals	7		1
Unit 2: Wave optics			
Huygen's principle, superposition of waves and interference of light by wavefront splitting and amplitude splitting, Interference in thin films, Expression for Interference in Wedge-shaped thin film, Newton's rings, Expression for radii(for Dark & Bright Band) and Anti-reflection coating. And its Derivation Numericals	7		2
Unit 3: Semiconductor Devices			
Basic idea of free electron theory of metals ,expression of conductivity of a metals Semiconductor, Classification, Pure and doped semiconductors. Types of Semiconductor diodes - P-N junction Diode, Tunnel Diode, Zener Diode, Light Emitting Diode (LED). Transistors and it's type PNP and NPN transistors, Hall Effect, Hall voltage, and Hall coefficient; its applications. & Numericals	8		3
Unit 4: Lasers			
Quantum Transitions: Absorption, Spontaneous emission & stimulated Emission, Metastable states, Principle of laser, Laser characteristics, Coherence length and coherence time, Pumping schemes: Three level and Four level. components of laser system ,Construction & working of He-Ne laser, Ruby laser, Applications of laser in Engineering & Numericals	7		4
Unit 5: Crystal Structure			
Meaning of lattice and basic ,Unit Cell: Primitive and non primitive Unit cell Cubic Crystal structure: simple cubic and body centered cubic and face centre cubic structure Unit cell characteristics: effective no of atoms per unit cell, atomic radius, nearest neighbor distance, coordinate number, Relation for Density atomic Packing fraction, Expression for Interplaner Spacing Crystal plane and miller indices, Braggs law of x ray diffraction, & Numericals	7		5

Adp
09/07/26
Dr. C. L. Khosla

Blank
09/07/26

Asht
09/07/26
Ashutosh Raut

Dr. D. P. Shastri
09/07/26
Dr. D. P. Shastri

Dr. S. Khan
09/07/26
Dr. S. Khan

M. S. Palani
09/07/2026
Ms. M. S. Palani

Contd.

Text/Reference Books:

1. P. M. Mathews and K. Venkatesan, A Textbook of Quantum Mechanics, Tata Mc Graw Hill (1977).
2. J. L. Powell and B. Crasemann, Quantum Mechanics, Narosa Publishing House (1993).
3. Applied Physics, M. N. Avdhanulu, Shilpa A. Pande, Arti R. Golhar, Mohan Giriya, S. Chand
4. D. J. Griffiths, Quantum mechanics, Prentice Hall of India Private Limited, New Delhi
5. Charles Kittel, Introduction to Solid State Physics, Wiley Eastern, 5th edition, (1983).
6. Engineering Physics - Dr.N. S. Ugemuge, Dr. (Mrs.) S.U.Bhonsule and Dr.ShrutiPatle DNA Publication(2019)
7. David Halliday, Robert Resnick, Jearl Walker, Principles of Physics, 10th Edition, John Wiley and Sons (2017)
8. A. J. Dekker, Solid State Physics, Prentice Hall of India (1971).
9. A Textbook of Engineering Physics, Dr. M. N. Avdhanulu, Dr. P. G. Kshirsagar, S. Chand Publication
10. A Text Book of Engineering Physics Dr. DevashreeHardas & Dr. Ashish Panat, Das Ganu Publication ISBN-978-81-921757-7-5 (2011)
11. Applied Physics, - Dr. (Mrs)S.P. Wankhede, Dr.ShrutiPatle, Dr.(Mrs.)S.U.Bhonsule and Dr.N. S. Ugemuge DNA Publication ISBN-978-81-945174-6-7 (2020)
12. Quantum Physics of Atoms, Molecules, Solids, Nuclei, and Particles by R. Eisberg and R. Resnick, Wiley and Sons
13. Text book of Applied Physics, Dr. D. S. Hardas, Dr. D. S. Bhounik, Dr.S. Shastri, Das Ganu Publication ISBN-978-93-84336-59-2 (2021)
14. Engineering Physics, second edition, Sanjay Jain, G. Sahasrabudhe, University's Press(India) Pvt. Ltd.(2016)
15. L. I. Schiff, Quantum Mechanics, TMH Publications
16. Advanced Engineering Materials - Dr. Sangeeta G. Itankar, Dr. Manjusha Dandekar, Dr. Tushar R. Shelke, Dr. Swati Fartode, Alliance & Co. ISBN 978-93-91322-12-0 (2023)
17. Applied Physics- Dr. Sangeeta G. Itankar, Dr. Manjusha Dandekar, Dr. Tushar R. Shelke, Dr. Swati Fartode, Alliance & Co. ISBN 978-93-91322-97-7 (2023)
18. Advanced physics - Dr. Shruti Patle, Dr.(Mrs.)S.U.Bhonsule, Dr.Ashish N. Bodhaye, Dr.ManoharD.Mehare DNA Publication (2019)
19. Text book of Advanced Engineering Physics – Alliance & Company Publication by Dr. Chandrakant Khobragade (2025-26)

Dee
09/07/26
Ch. C. L. Khobragade

Dr. D. S. Shastri
09/07/2026
Dr. D. S. Shastri

Dr. S. K. Khur
09/07/26

Xant
09/07/26
Ashutosh Xant

Maths
Mrs. M. S. Palani
09/07/2026

Dr. S. K. Khur
09/07/26
Dr. S. K. Khur

**SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING, BAHADURA,
UMRER ROAD, NAGPUR**

An Autonomous Institute Affiliated to RTMNU, Nagpur

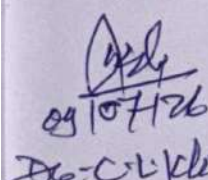
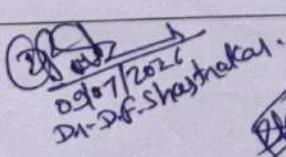
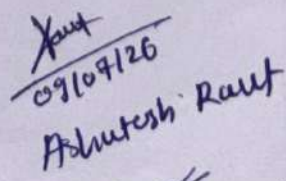
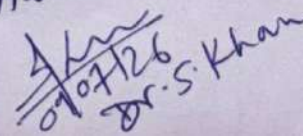
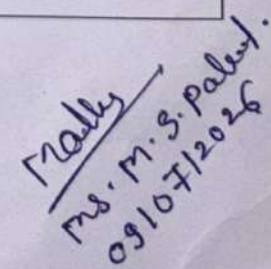
Faculty of Science & Technology

**B.Tech. First Semester Mechanical, Electrical, Electronics & Telecommunication
Engineering (NEP) (Practical) (CCESS)**

Sem-I	Total Hours Distribution Per Week		
Total Credits : 1	Lecture (L) : 0 Hrs	Tutorial/Activity (T/A) : 2 Hrs	
Subject Code	BT1ME02P/BT1EE02P /BT1ET02P	Applied/Engineering Physics Lab	
Examination Scheme			
CIE	ESE	Minimum Passing Marks:	Examination Duration:
25 Marks	25 Marks	25	3 Hours

List of Experiments: Performance of at least eight experiments is compulsory in a semester.

Name of the Experiments	
1	Energy gap of semiconductor /thermistor.
2	To Study the V-I characteristics of PN junction diode.
3	To Study the V-I characteristics of Zener diode.
4	To Study the Input/Output of PNP/NPN transistor in CB and CE mode
5	To Study the V-I Characteristics of Tunnel diode..
6	To Study V-I Characteristics of Light Emitting Diodes/ Determination of Plank's constant by using LEDs.
7	Study the Diode rectification
8	Study of Hall Effect and determination of Hall Voltage of a given sample.

 09/07/26
 09/07/2026
 09/07/26
 09/07/26
 09/07/26
 09/07/2026

SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING NAGPUR
AN AUTONOMOUS INSTITUTE
AFFILIATED TO RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR
FACULTY OF SCIENCE & TECHNOLOGY
B.TECH. ELECTRONICS AND TELECOMUNICATION ENGINEERING

Course Category	Engineering Science Course (ESC-I)		
Sem.: I	Total Hours Distribution per week		
Total Credit: 3	Lecture (L): 3 Hrs.	Tutorial/Activity(T/A):Hr.	
Subject Code	BT1ET03T (Theory)	Basics of Electrical Engineering	
Examination Scheme			
Continuous Internal Evaluation (CIE)Marks	Semester End Exam(SEE)Marks	Minimum Passing Marks	Examination Duration
40	60	50	3 Hours

Course Objectives	
1	Understand the basic concepts of electrical circuits and circuit elements.
2	Learn the principles of DC and AC circuits and solve simple electrical problems.
3	Understand the fundamentals of magnetic circuits and transformers.
4	Explain the basic working principles of electrical machines such as DC machines, induction motors, and stepper motors.
5	Develop the ability to apply basic electrical engineering concepts in engineering practice.

Course Outcomes	
After successful completion of this course the student will be able to:	
CO1	Explain the basic electrical circuit elements, sources, and laws, and analyze simple DC circuits
CO2	Apply the concepts of magnetic circuits to calculate magnetic quantities in simple magnetic circuits.
CO3	Analyze basic AC circuits, calculate voltage, current, power, power factor, and solve RL, RC, and RLC circuits.
CO4	Explain the construction, working, performance, and applications of single-phase transformers.
CO5	Describe the working principles and basic characteristics of DC machines, induction motors, and stepper motors.

S. Bhuyal

SYLLABUS	
Contents	No. of hours
Unit I: Basic Electric Circuit: Types of sources (Current & Voltage), Ideal and Practical Sources (Independent Sources only), Source Conversion, Circuit element resistance, Inductor, capacitor, series & parallel combination of resistances, Kirchhoff's Laws (KVL, KCL) statement, Star/Delta transformation..	8 HRS
Unit II: Magnetic Circuits: Ampere's law, Magnetic field intensity, Magnetic flux and flux density, MMF, Magnetic circuit, Permeability, Reluctance and Permeance, Leakage, similarity between electric and magnetic circuit, Series & Parallel magnetic circuits, numerical on series magnetic circuit.	8 HRS
Unit III: AC Circuits & Fundamentals: Generation of single-phase voltage, average and RMS value for sinusoidal waveform, phasor representation of sinusoidal electrical quantities, reactance, impedance, power and energy in AC circuit, simple RL, RC, RLC Series and parallel circuit AC circuit, and concept and importance of power factor.	10 HRS
Unit IV: Single Phase Transformer: Transformer: Basic Principles, Construction, Phasor Diagram for Transformer under no load conditions, OC and SC Test (Theory Only) Voltage, Regulation and Efficiency, Auto transformer.	8 HRS
Unit V: Introduction to Rotating Machines: DC Machines: Introduction and types, Working Principle, simple mathematical equations, Other types of machines: Induction Motor, Stepper Motors (Only Working Principle)	8 HRS

Text Books:

1. **V.K. Mehta & Rohit Mehta**, *Principles of Electrical Engineering*, S. Chand & Company Ltd.
2. **D.P. Kothari & I.J. Nagrath**, *Basic Electrical Engineering*, McGraw Hill Education.
3. **B.L. Theraja & A.K. Theraja**, *A Textbook of Electrical Technology (Vol. I & II- Basic Electrical Engineering)*, S. Chand & Company Ltd.
4. **Ashfaq Husain**, *Fundamentals of Electrical Engineering*, Dhanpat Rai Publications.
5. **S.K. Bhattacharya**, *Basic Electrical Engineering*, Pearson Education
6. **S. A. Katre & V. A. Katre**, *Basic Electrical Engineering*, Tech-Max Publications.
7. **D. C. Kulshreshtha**, *Basic Electrical Engineering*, McGraw Hill Education (India).

Reference Books:

1. **Edward Hughes**, *Hughes Electrical and Electronic Technology*, Pearson Education.
2. **Charles K. Alexander & Matthew N.O. Sadiku**, *Fundamentals of Electric Circuits*, McGraw Hill Education.
3. **J.B. Gupta**, *Basic Electrical Engineering*, S.K. Kataria & Sons.
4. **M.S. Naidu & S. Kamakshaiah**, *Basic Electrical Engineering*, Tata McGraw Hill.

B. P. Bhargava

D. A. M. H. H.

Dr. V. A. Huchhe

A. V. Wanjari

Dr. P. S. Lenjwani
Dean Academics

SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING NAGPUR**AN AUTONOMOUS INSTITUTE****AFFILIATED TO RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR****FACULTY OF SCIENCE & TECHNOLOGY****B.TECH. ELECTRONICS AND TELECOMUNICATION ENGINEERING**

Course Category	Engineering Science Course - (ESC-I)		
Sem.: I	Total Hours Distribution per week		
Total Credit :1	Practical(P): 2 Hrs.	Tutorial/Activity(T/A):Hr.	
Subject Code	BT1ET03P (Practical)	Basics of Electrical Engineering Lab.	
Examination Scheme			
Continuous Internal Evaluation (CIE)Marks	End Semester Exam. (ESE) Marks	Minimum Passing Marks	Examination Duration
25	25	25	--

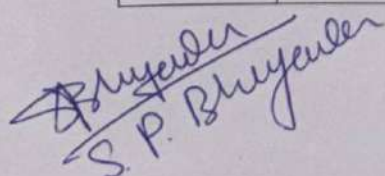
Practical Course Objectives:

1	Understand basic electrical circuit laws and principles through experiments.
2	Study the performance of AC and DC circuits and electrical machines.
3	Perform basic tests on single-phase transformers.
4	Learn the working and speed control of electrical machines.

Practical Course Outcomes:

After successful completion of this course the student will be able to:

CO1	Verify KVL, KCL, and study the B-H curve of magnetic material.
CO2	Study and analyze R-L-C series and parallel circuits with phasor diagrams.
CO3	Measure voltage, current, and power in a single-phase circuit.
CO4	Perform basic tests on a single-phase transformer and determine its transformation ratio, efficiency, and regulation.
CO5	Study the speed control of a DC shunt motor and understand the working of induction and stepper motors.
CO6	Perform virtual laboratory experiments and record observations correctly.


S. P. Bhuyander

SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING NAGPUR
AN AUTONOMOUS INSTITUTE

AFFILIATED TO RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR

FACULTY OF SCIENCE & TECHNOLOGY

B.TECH. ELECTRONIC AND TELE COMMUNICATION ENGINEERING

Course Category	Engineering Science Course –II (ESC-II)		
Sem:I	Total Hours Distribution per week - 3		
Total Credit: 3	Lecture (L): 3Hrs	Tutorial/Activity(T/A): --	
Subject Code	BT1ET04T(Th)	Fundamentals of C Programming	
Examination Scheme			
Continuous Internal Evaluation (CIE)Marks	Semester End Exam(SEE)Marks	Minimum Passing Marks	Examination Duration
40	60	50	3 Hours

Course Objectives

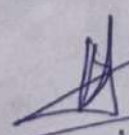
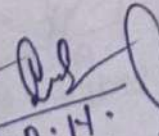
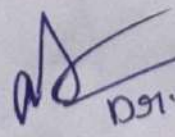
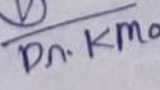
1	To understand the basics, history, and structure of the C programming language
2	Develop simple C programs to illustrate the applications of different data types such as arrays, pointers, functions

Course Outcomes

After successful completion of this course the student will be able to:

CO1	Understand the fundamentals of C programming and apply algorithms, flowcharts, data types, operators, and expressions to solve basic programming problems. Mapped with Unit-1
CO2	Design and implement C programs using conditional and iterative control structures to solve complex computational problems efficiently. Mapped with Unit-2
CO3	Analyze and develop optimized C solutions using arrays, matrices, and string manipulation techniques for computational and data-processing applications. Mapped with Unit-3
CO4	Use and create functions for modular programming. Mapped with Unit-4
CO5	Design and implement efficient C programs using pointers and file handling techniques for effective memory management and persistent data processing. Mapped with Unit-5

SYLLABUS	
Contents	No. of hours
Unit I introduction to C: History of C, Features of C, Structure of C program, Character Set, C Tokens, Keywords, Identifiers, Constants, Variables, data types, Operators, variable declaration, Assigning Value to variable, Introduction to Computing: Algorithm, Flowchart, Representation of Algorithm and Flowchart with examples. Operator and Expression: Arithmetic, Relational, Logical, Assignment, Increment and Decrement, Conditional operator, Bitwise operators, sizeof operator, Arithmetic Expression, Evaluation expression. Expressions, Precedence and Associativity, Expression Evaluation, Type conversion.	9
Unit II: Conditional Statements 'if' Statement, 'if..else' statement, Nested if Statements, ladder if ... else, Ternary operator, switch case. Control Flow Statements The while Statement, The do .. while Statement, The for Statement, The break, continue Statements and goto Statement	8
Unit III One-dimensional Arrays, Declaration of One-dimensional Arrays, Initialization of One-dimensional Arrays, Example programs- Linear search, Binary search, Bubble sort, Selection sort. Two-dimensional Arrays, Declaration of Two-dimensional Arrays, Initialization of Two-dimensional Arrays, Example programs – Matrix Addition, Multiplication, Transpose of a matrix, Character Arrays and Strings: Declaring and Initializing String, String-handling Functions (strlen(), strcpy(), strcmp(), strcat(), strrev()), Example Programs(with and without using built-in string functions), Two-dimensional character arrays.	9
Unit IV Function: Syntax and Declaration of Function, Type of Function, Create a function, Scope of function ,return function, call by reference. Recursion: Recursion as a different way of solving problems.. Structure: Defining structures and Array of structures, Declaration and Initialization of structure. Unions: Union Declaration, Initializing Unions	8
Unit V Pointers: Idea of pointers, defining pointers, Declaration and Initialization of pointer, Type of pointer, Pointer using Array, pointer to pointer ,Function pointer. File handling Basics Of File Handling In C,, Types of Files, File Input/ Output Operations: Modes of file opening, Reading and writing the file, Closing the files, .	8

 P.B. Jaipure
 Dr. A.H. Thakur
 Dr. N.T. Gole
 Dr. Kmalpe

References –

Text Book-

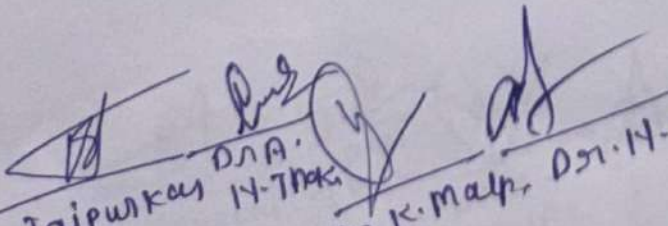
- 1 B. W. Kernighan and D. M. Ritchie, The C Programming Language , Second Edition, Pearson, June 2015
2. E.Balagurusamy Programming in ANSI C, 5th Edition, Tata McGraw-Hill Publications
3. Yashwant Kanetkar Letus C, 6th Edition, BPB publication
4. H. Schildt, Turbo C: The Complete Reference, 4th Edition, 2000, McGraw Hill Education.

Reference Book

1. An Introduction to Data Structure with Applications, Trembly J.P. and Sorenson P.G, Tata McGraw Hill Pub Co. Ltd
2. Programming in ANSI C: E. Balguruswami McGraw Hill
3. Understanding Pointers in C, Yashwant P. Kanetkar 4th Edition, 2013 BPB publication.

URL –

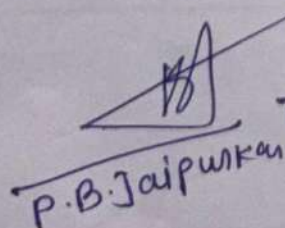
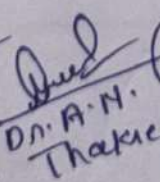
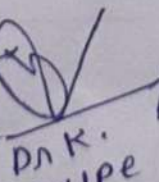
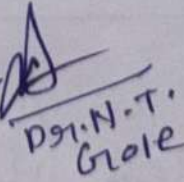
- 1 <https://www.w3schools.com/c/>
- 2 <https://www.geeksforgeeks.org/c/c-programming-language/>


P.B. Jaipurkar D.A. N. Thakur D.K. Malp.
D.K. Malp. D.K. N. Thakur

SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING NAGPUR
AN AUTONOMOUS INSTITUTE
 AFFILIATED TO RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR
FACULTY OF SCIENCE & TECHNOLOGY
B.TECH. ELECTRONICS AND TELE COMMUNICATION ENGINEERING

Course Category	Engineering Science Course –II(ESC-II)		
Sem:I	Total Hours Distribution per week- 2		
Total Credit: 1	Practical(P): 2.Hrs	Tutorial/Activity(T/A):	
Subject Code	BT1ET04P (Practical)	C Programming (Lab)	
Examination Scheme			
Continuous Internal Evaluation (CIE)Marks	Semester End Exam(SEE)Marks	Minimum Passing Marks	Examination Duration
25	25	25	–

Course Outcomes	
After successful completion of this course the student will be able to:	
CO1	Write simple programs using input and output functions, decision making and looping constructs.
CO2	Implement various concepts of arrays and strings and pointers.
CO3	Create programs using user defined data types and functions in C.
CO4	Develop, Debug and Execute programs to demonstrate the basic concepts of pointers in C
CO5	Implement various concepts of files.

List of Practical's

Minimum Eight out of the following practical's shall be performed:

Sr. No.	List of Practical's
01	Execute a program to swap two variables values with and without using third variable.
02	Develop a C Program to implement a simple calculator to perform addition, subtraction, multiplication and division operations using switch construct.
03	Develop a C Program to find the roots of quadratic equation for non-zero co- efficient using if-else ladder construct.
04	Program to calculate the factorial of given number.
05	Program to generate Fibonacci sequence upto n terms.
06	Develop a recursive C function to find the factorial of a number, $n!$, defined by $\text{fact}(n)=1$, if $n=0$. Otherwise $\text{fact}(n)=n*\text{fact}(n-1)$. Using this function, develop a C program to compute the Binomial coefficient nCr . Perform input validation as well.
07	Develop a C program to find the smallest and largest elements in an array using pointers and then swap these elements and display the resultant array
08	Develop a C program to count the vowels & consonants in a given string.
09	Write a C program with a recursive function to calculate the factorial of a given positive integer.
10	Program to create and display employee details using structures.
11	Program to write text to a file.
12	Program to copy contents from one file to another file.

Note:

1. Conduct minimum 08 practical's out of above list and practical no. 1 is mandatory.
2. Viva-voce question should be included in each of the practical.
3. During Continuous Internal Evaluation (CIE) practicalMarks, regular performance of practicals for 10 marks, 05 Marks for Journal submission and 10 Marks for internal viva-voce examination.
4. During Semester End Exam(SEE)practicalMarks,external practical examination performance must be conducted for 15 marks and 10 Marks for viva.
5. For Eligibility of SEE Practical examination, Internal submission of Journal (Practical File)is mandatory.

SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING NAGPUR

AN AUTONOMOUS INSTITUTE

AFFILIATED TO RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR

FACULTY OF SCIENCE & TECHNOLOG

B.TECH. ELECTRONICS AND TELECOMMUNICATION ENGINEERING

Course Category	Engineering Science Course -III (ESC-III)			
Sem:I	Total Hours Distribution per week			
Total Credit: - 01	Practical(P): - 02 Hrs	Tutorial/Activity(T/A): - ----Hr.		
Course Code	BT1ET05P	Course :- Engineering Graphics		
Examination Scheme				
Continuous Internal Evaluation (CIE)Marks	End Semester Exam(ESE)Marks	Total Marks	Minimum Passing Marks	Examination Duration
25	25	50	25	-----Hours

Course Outcomes

After successful completion of this course the student will be able to:

CO1	Draw various engineering curves such as ellipse, parabola, and hyperbola, cycloid and involutes using standard construction methods and also draw types of scales.
CO2	Draw projections of straight lines in different positions with respect to the principal planes. And Draw projections of plane surfaces inclined to one or both reference planes.
CO3	Draw projections of various solids such as cube, prisms, pyramids, cylinders, and cones in different orientations.
CO4	Prepare accurate front, top, and side views of machine components.
CO5	Convert orthographic views into isometric views, Construct accurate isometric projections using the isometric scale and Use the CAD interface efficiently by applying basic drawing and editing commands.

Sr. No.	Drawing sheet Practice Guidelines
1	Follow BIS/IS standards for line types, dimensioning, lettering, and first-angle projection.
2	Use proper drawing instruments to ensure neatness, accuracy, and clarity
3	Each drawing sheet should include the student's name, roll number, assignment number, date, and title.
4	Submit assignments on or before the specified deadline.
5	Evaluation will be based on accuracy, neatness, correct construction, proper dimensioning, and adherence to engineering drawing standards.

Version:-1

Effective from session 2026-27

PRINCIPAL
SMT. RADHIKATAI PANDAV COLLEGE
OF ENGINEERING
(NAGPUR)

List of Practical's

All the following practicals shall be performed:

Sr. No.	List of Practical's
01	SHHET NO :- 01: SCALES
02	SHHET NO :- 02: ENGINEERING CURVES-01
03	SHHET NO :- 03: ENGINEERING CURVES-02
04	SHHET NO :- 04: PROJECTION OF STRAIGHT LINES
05	SHHET NO :- 05: PROJECTION OF PLANES
06	SHHET NO :- 06: PROJECTION OF SOLIDS
07	SHHET NO :- 07: ORTHOGRAPHIC PROJECTION
08	SHHET NO :- 08: ISOMETRIC VIEWS & PROJECTION.
09	SHHET NO :- 09: CAD -01
10	SHHET NO :- 10: CAD -02.

Note:

1. Conduct all practical's from the above list.
2. Viva-voce question should be included in each of the practical.
3. Continuous Internal Evaluation (CIE) 25 internal practical marks will be distributed as a 10 marks for regular drawing sheets, 10 marks for final submission of portfolio with viva-voce and 05 marks for attendance.
4. End Semester Examination (ESE) 25 external practical marks are distributed as a external practical performance must be for 15 marks and 10 Marks for viva-voce.
5. For Eligibility of ESE Practical examination, internal submission of drawing sheets with Portfolio is mandatory.

References:

Text Books Recommended:

- 1 Bhatt .N.D. and Panchal V.M. (2016) "Engineering Drawing", Charotar Publications Anand, India
2. Dhawan R.K. (2000) "A Textbook of Engineering Drawing", S.Chand, New Delhi.

Reference Books Recommended:

1. Jolhe D.A. (2015) ,"Engineering Drawing", Tata McGraw Hill, New Delhi. 2. Shah P.J., (2012), "Basics of Engineering Graphics", S.Chand, New Delhi 3. P.S.Gill, (2015), "Engineering Drawing", S.K.Kataria and Sons.



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
AN AUTONOMOUS INSTITUTE

NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
Near Dighori Naka, Umrer Road, Nagpur - 440 034
Mob. : 9881014701, 9823464644, 8983550843
Email : admin@srpce.ac.in • website : www.srpce.ac.in

FACULTY OF SCIENCE & TECHNOLOGY

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING

B.TECH. I SEMESTER ELECTRONICS & TELECOMMUNICATION ENGINEERING
-Major (NEP) (CBCS)

Course Category:	Vocational and Skill Enhancement Course (VSEC-I)		
Semester: I	Total Hours Distribution per week		
Total Credit: 02	Lab (P): 4 Hrs.	Tutorial (T): 0 Hr.	
Subject Code & Subject Name:	BT1ET06P	Electronics Components, Circuits and Instruments	
EXAMINATION SCHEME			
Continuous Internal Evaluation (CIE)Marks	End Semester Examination (ESE) Marks	Minimum Passing Marks	Examination Duration
50	50	50	-----

COURSE OBJECTIVES:

1. Identify and recognize passive and active electronic components and their basic functions.
2. Identify the laboratory equipment such as Digital Multimeter (DMM), DC Regulated Power Supply, Function Generator, CRO/DSO, and LCR Meter and recall their basic functions.
3. Identify fundamental electrical circuit laws and network theorems and recall their basic principles.
4. Identify basic analog and digital electronic circuits and recall their fundamental components and functions.
5. Identify basic experimental procedures, measurement techniques, documentation methods, and technical reporting requirements in electronics engineering.

COURSE OUTCOMES:

1. Identify the basic functionality of passive and active electronic components.
2. Identify laboratory instruments and recall their basic functions for measuring electrical and electronic parameters.
3. State basic electrical circuit laws and network theorems and identify their applications in electronic circuits.
4. Recognize basic analog and digital electronic circuits and identify their components and functions.
5. Recognize experimental observations, measurement methods, and basic elements of technical laboratory reports.

SRPCE-ETC

Version-01 (2026-27)

Page: 1

Dr. Shital B. Chaitapkar
Dr. N. G. Nawale
Dr. P. S. Langekar
Dr. P. Agarkar

SYLLABUS

LIST OF EXPERIMENTS

1. **Identification and testing of passive components (Resistors, Capacitors, Inductors)-** Structure, Symbolic Representation, Component identification, color coding, and testing methods.
2. **Identification and testing of Diodes, Transistor, LEDs, Zener Diodes, BJTs, MOSFETs-** Understand device structures, symbols, terminals, and testing.
3. **Identification and Testing of LED Photodiode & Photo Transistor.** - Understand device structures, symbols, terminals, and testing.
4. **Familiarization with laboratory instruments** - Learn the operation of DC power supply, Digital Multimeter (DMM), CRO/DSO, function generator, and LCR meter.
5. **Measurement of voltage, current, and resistance using DMM** - Develop proficiency in electrical measurements.
6. **Verification of Ohm's Law-** Understand the relationship between voltage, current, and resistance.
7. **Verification of Kirchhoff's Voltage Law (KVL) and Kirchhoff's Current Law (KCL)-** Verify fundamental circuit laws experimentally.
8. **Verification of Thevenin's Theorem-** Simplify complex circuits using equivalent circuits.
9. **Study of series and parallel resistor-capacitor networks-** Analyze equivalent resistance and capacitance.
10. **Measurement of Frequency, Time period, Amplitude, and Phase using Function Generator and CRO/DSO-** Develop practical skills in signal measurement.
11. **Study of Transformer, Switches and Relays.**
12. **Mini Project on Bread board.**

Dr. Shital V. Wankar
BOS, Chavhanpessa
PCCETC

Dr. P. S. Naware
HOD, Deshpande

Dr. M. G. Naware
Version-01 (2026-27)

Dr. P. S. Naware
HOD (Acad.)

Dr. P. Agarkar

**B. Tech. Mechanical Engineering/Civil Engineering/Electrical Engineering/
Electronics & Telecommunication/ Computer Engineering/ Computer Science &
Engineering (NEP) (CBCS)**

Sem-I	Total Hours Distribution Per Week		
Total Credits : 2	Lecture (L): 2Hrs	Tutorial/Activity (T/A) : 0 Hr	
Subject Code	BT1ME06T/BT1CV06T/BT1EE05T /BT1ET07T/BT1CE07T/BT1CS07T	Communication Skill	
Examination Scheme			
CIE	ESE	Minimum Passing Marks:	Examination Duration:
20 Marks	30 Marks	25	2 Hours

Course Objectives	
1	To apply tools and techniques for better communication.

Course Outcomes	
After completion of syllabus, students would be able	
1	To apply grammatically correct formation of sentences.
2	To make use of verbal and non verbal communication effectively.
3	To identify and overcome barriers to communication.
4	To apply Public speaking and extempore skills.

09/07/2026

On 8/11/2006
09/07/2006

Dr. D. R. Shastri
09/07/2026.

2 Gene
Ex. AMOL. MUSCLE

Acc: (S. A. E. H.) 09/07/2002

Level
(Dr. Monsumi Aich)
9/7/2016

SYLLABUS

Details of Topic	Allotment of Hours		Mapped with CO Number
	L	T/A	CO
Unit-1 : Grammar & Composition			
Subject-Verb Agreement <u>Types Of Tenses</u> & Question Tags, <u>Voice</u> : Active & Passive. <u>Narration</u> : Direct & Indirect. <u>Types Of Sentences</u> : Simple, Compound & Complex Sentences Imperative, Affirmative, Negative & Interrogative. <u>E-Mail Etiquettes, Paragraph & Letter Writing.</u>	6		1
Unit 2:			
Communication Nature & Process, Types Of Communication (Verbal & Non-Verbal), Effective Communication, Types Of Verbal (Written & Oral), Types Of Non-Verbal Communication (Kinesics, Vocalics, Paralanguage, Chronemics, Haptics, Proxemics)	6		2
Unit 3			
Barriers To Communication, Types Of Barriers & Remedies. 7 C's Of Communication (Clear, Concise, Correct, Coherent, Complete & Courteous)	6		3
Unit 4:			
Public Speaking, Necessary Components, Do's & Don'ts, Reading, Hearing, Listening & Debating Skills. Group Discussion: Necessary Components, Do's & Don'ts.	6		4

Text/Reference Books: -

- 1) High School English Grammar & Composition by Wren & Martin. S. Chand & Company Ltd.
- 2) Professional Communication Skills. Dr. A.K. Jain, Dr. Pravin S.R. Bhatia Dr. A. M. Sheikh. S. Chand & Company Ltd.
- 3) Functional English. Dr. M. Sabir. Das Ganu Prakashan,
- 4) Functional English For Technical Students. Dr. Pratibha Mahato, Dr. Dora. Thompson. Himalaya Publishing House.

(Dr. Yash Quazi)

09.07.26
DR. Anmol V. Musale

09/07/2026
Dr. D. F. Shastri

09/07/26
Dr. S. Khan

M. S. Palani
09/10/2026

(SUPRIYO AICH)
09/7/2026
(Dr. Moumuni Aich)

**SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING, BAHADURA, UMRER
ROAD, NAGPUR**

An Autonomous Institute Affiliated to RTMNU, Nagpur

Faculty of Science & Technology

**B.Tech. Mechanical Engineering/Civil Engineering/Electronics & Telecommunication
/Electrical Engineering/**

Computer Science & Engineering/Computer Engineering (NEP) (CBCS)

Sem-I	Total Hours Distribution Per Week		
Total Credits : 2	Lecture (L) :	Tutorial/Activity (T/A) : 4Hrs	
Subject Code	BT1ME08P/BT1CV08P/ BT1ET08P/BT1EE08P/BT1C S08P/BT1CE08P	CC Basket-I (Games & Sports)	
Examination Scheme			
CIE	ESE	Minimum Passing Marks:	Examination Duration:
100 Marks	-	50	-

Course Objectives

1	Improved knowledge of rules and strategies of particular games and sports.
2	To develop physical fitness, strength, flexibility, and coordination.

SYLLABUS

•**Basics of Games and Sports:** History of games, Classification of games, Importance of games.

•**Indoor Games:** Chess, Carrom, Table-Tennis and Badminton.

•**Outdoor Games:** Cricket, Football, Volleyball, Athletic (track and field), Kabaddi, Tug of war.

•**Role of Sports in Education and Society:** Physical benefits, Safety measure and Injury prevention, Emotional & Mental health.

[Signature]

[Signature]
Dr. D. K. Khar
09/07/2026

[Signature]
Dr. D. F. Shetye
09/07/2026

[Signature]
Sandeep R. Grandhe

[Signature]
Mr. M. S. Patil
09/07/2026

**SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING, BAHADURA, UMRER
ROAD, NAGPUR**

An Autonomous Institute Affiliated to RTMNU, Nagpur

Faculty of Science & Technology

B.Tech. Electronics and Telecommunication/Electrical Engineering (NEP) (CBCS)

Sem-II	Total Hours Distribution Per Week		
Total Credits : 3	Lecture (L) : 3 Hrs	Tutorial/Activity (T/A) : 0 Hr	
Subject Code	BT2ET01T/BT2EE01T	Applied Mathematics-II	
Examination Scheme			
CIE	ESE	Minimum Passing Marks:	Examination Duration:
40 Marks	60 Marks	50	3 Hours

Course Objectives

1	To develop advanced analytical skills for calculating accumulated totals (such as areas, volumes, and mass), and to model multidimensional real-world problems in engineering using multivariable calculus.
2	To solve multi-variable differentiation (like gradients and directional derivatives), evaluating multiple integrals, and applying fundamental integral.

Course Outcomes

After completion of syllabus, students would be able to	
1	Understand the methods of evaluating improper integrals and tracing of curves.
2	Understand the method of finding the area mass and volume by using multiple integral.
3	Understand the application of vector calculus in extending single-variable calculus into multi-dimensional spaces.
4	Understand the application of Laplace Transform & Fourier Transform in solving Differential and Integral Equations.
5	Describe the specific skills in students to formulate & solve Algebraic, Transcendental and Linear Equations.

Dr. S. V. Kulkarni
09/07/2026

Dr. D. F. Shastri
09/07/2026

Tranthy
ms. M. S. Palani • Contd.

Dr. Ranjana Harane
09/07/2026

SYLLABUS

Details of Topic	Allotment of Hours		Mapped with CO Number
	L	T/A	CO
Unit-1: Integral Calculus			
Evaluation of Definite and Improper Integrals: Beta and Gamma functions and their properties, Mean value, Mean square value and Root mean square value, Tracing of curves (Cartesian), Applications of definite integrals to find length of curve, area, volume.	7		1
Unit 2: Multivariable Calculus (Integration)			
Multiple Integration: Double integrals (Cartesian), Change of order of integration in double integrals, Change of variables (Cartesian to Polar). Applications on Area, Mass, Volume	8		2
Unit 3: Vector Calculus			
Vector Calculus: Vector triple product, Product of four vectors, Scalar point function, Vector point function, Vector differentiation, Gradient, Divergence and Curl, Directional derivatives, Solenoidal and Irrotational motions.	7		3
Unit 4: Laplace Transform & Fourier Transform			
Laplace Transform: Definition and Properties with examples, Inverse Laplace Transform, Convolution theorem (Statement only), Unit step function and Periodic Function, Application of Laplace Transform to solve Ordinary Differential Equation, Integral and Integro-Differential Equations. Fourier Transform: Definition & Properties, Fourier Integral, Application of Fourier Transform to solve Integral Equation.	8		4
Unit-5: Numerical Methods:			
Solution of Algebraic and Transcendental Equations: Method of False position, Newton-Raphson method and its convergence, Solution of system of simultaneous linear equations: Crout's method (LU decomposition Method), Gauss-Seidel method.	6		5

Text/Reference Books:

- (1) Erwin Kreyszig, Advanced Engineering Mathematics, 9th Edition, John Wiley & Sons, 2006.
- (2) Ramana B.V., Higher Engineering Mathematics, Tata Mc-Graw Hill, New Delhi, 11th Reprint, 2010.
- (3) N.P. Bali and Manish Goyal, A textbook of Engineering Mathematics, Laxmi Publications, Reprint, 2008.
- (4) B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36th Edition, 2010.
- (5) P. N. Wartikar and J. N. Wartikar, Applied Mathematics, Volume I and II.
- (6) H.K Dass, Rama Verma, Rajnish Verma, V.J. Dagwal, Sajid Anwar and D.F. Shastrakar, Engineering Mathematics, Volume II, S. Chand.

Dr. Yashpal
09/07/2026

Dr. D.F. Shastrakar
09/07/2026

Manish
Mrs. M.S. Patel

Dr. R.V. Harne
09/07/2026

**SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING, BAHADURA, UMRER
ROAD, NAGPUR**

An Autonomous Institute Affiliated to RTMNU, Nagpur

Faculty of Science & Technology

B. Tech. Electronics and Telecommunication/Electrical Engineering (NEP) (CBCS)

Sem-II	Total Hours Distribution Per Week		
Total Credits : 1	Practical (P) : 2Hrs	Tutorial/Activity (T/A) : 0 Hr	
Subject Code	BT2ET01P/BT2EE01P	Applied Mathematics-II Lab	
Examination Scheme			
CIE	ESE	Minimum Passing Marks:	Examination Duration:
25 Marks	25 Marks	25 Marks	3 Hours

Practical Course Objectives

Solving problems using Open-Source Software Programming Language

Practical Course Outcomes

After completing the practical course, students will be able to solve the following using Open-Source Software Programming Language.

- 1 Problems on Definite & Improper Integral.
- 2 Problems by using the different methods to solve Multiple Integration.
- 3 Problems on Vector Calculus.
- 4 Problems based on Laplace & Fourier Transform.
- 5 Problems on the Algebraic, Transcendental and simultaneous linear equations.

Sr. No.	List of the Practical: Performance of at least SIX practical is compulsory in a semester.
Unit-1: Integral Calculus(6 Hours)	
1	Write a Program to solve Definite and Improper Integrals.
2	Write a Program to find Mean value, Mean square value and Root mean square value.
Unit 2: Multivariable Calculus (Integration) (04 Hours)	
3	Write a Program to solve Double integrals (Cartesian).
4	Write a Program to solve the Area, Mass, Volume.
Unit 3: Vector Calculus (04 Hours)	
5	Write a Program to solve Vector triple product, Product of four vectors.
6	Write a Program to find Vector differentiation, Gradient, Divergence and Curl.
7	Write a Program to solve find Directional derivatives.
Unit-4 Laplace Transform & Fourier Transform	
9	Write a Program to find the Laplace transform and Inverse Laplace transform of different functions.
10	Write a Program to find the Fourier transform of different functions.
Unit-5: Numerical Differentiation and Integration	
11	Write a Program to find the solution of Algebraic and Transcendental Equations by using the method of False position and Newton-Raphson method.
12	Write a Program to find the solution of system of simultaneous linear equations by using Crout's method (LU decomposition Method), Gauss-Seidel method.

*Copy of file
09/07/2026*

*09/07/2026
D.F. Shandekar
09/07/2026*

R.V. Hanane

M.S. Patel

**SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING, BAHADURA, UMRER
ROAD, NAGPUR**

An Autonomous Institute Affiliated to RTMNU, Nagpur

Faculty of Science & Technology

**B.Tech. Mechanical Engineering/Electrical Engineering/ Electronics & Telecommunication
Engineering (NEP) (CBCS)**

Sem-II	Total Hours Distribution Per Week		
Total Credits : 3	Lecture (L) : 3 Hrs	Tutorial/Activity (T/A) : 0 Hr	
Subject Code	BT2ME02T/BT2EE02T/BT2ET02T	Applied/Engineering Chemistry	
Examination Scheme			
CIE	ESE	Minimum Passing Marks:	Examination Duration:
40 Marks	60 Marks	50 Mark	3 Hours

Course Objectives

1	To provide fundamental knowledge of electrochemistry necessary to understand the function of batteries and understanding of the rare earth metals
2	To make students learn about the environment and ensuring sustainable development.
3	To develop analytical problem-solving and laboratory skills for applying chemical concepts.

Course Outcomes

After completion of syllabus, students would be able to	
1	Students will inculcate the use of instrumentation techniques and interpret its applications in material characterization.
2	Know about fuels and lubricants and analyze the situation for their appropriate applications
3	Analyze the various industrial problems arising due to water quality and their remediation.
4	Develop the environmental awareness from the basics of green chemistry and its application
5	Students will able to solve problems regarding rare earth elements, the correct disposal methods of e-wastes and while creating any tool they will keep this environmental aspect in mind.

*Dr. Aravind
09/07/2026*

*Dr. S. S. Chaudhary
09/07/2026
Dr. D. P. Shastri
09/07/2026*

*Dr. D. P. Shastri
09/07/2026
(Ms. D. P. Shastri)*

Trs. M. S. Patil

*P. A. Patil
09/07/2026*

Contd.

SYLLABUS

Details of Topic	Allotment of Hours		Mapped with CO Number
	L	T/A	CO
Unit-1: Fundamentals of Spectroscopy and instrumentation			
UV-visible Spectroscopy (Beer-Lambert's law and its numerical), (IR) Infrared spectroscopy and (NMR) Nuclear Magnetic Resonance spectroscopy, (XRD) X-ray Diffraction Analysis, Gas Chromatography.	7		1
Unit-2: Fuels & Lubricants			
A] Fuels: Introduction: HCV & LCV, numerical based on calorific value determination by Bomb and Boy's calorimeter; Liquid fuels – fractional distillation of crude petroleum. B] Lubricants: Mechanism of lubrication, types of lubricants and its properties (viscosity & viscosity index, flash & fire point, aniline point).	8		2
Unit 3: Water Chemistry			
Introduction, potable water quality parameter, types of hardness sterilization desalination of water by RO softening of water by zeolite process and ion exchange, demineralization of water, numerical based on Zeolite process, boiler trouble –Scale and sludge.	7		3
Unit- 4: Electrochemical Power system			
Battery: Introduction, characteristic and general application, H ₂ -O ₂ fuel cells, Lithium ion battery. Super capacitors: Definition, types, characteristics and application. amorphous Si and quantum dye sensitized solar cells. Corrosion: Definition cause & Theories of Corrosion (Dry, Wet and Differential Aeration), Pilling-Bedworth Rule & Numerical, Types of Corrosion (Intergranular & Stress), Corrosion Protection methods.	7		4
Unit 5: Sustainable material and E-waste			
Introduction, source, composition characteristic and need of E waste management, E- waste environmental and health risks, Extraction of rare earth and precious metals from e-wastes, Twelve principles of Green Chemistry. Green Computing, Role of Green Computing in Environment and Research, Green devices and Green data Servers.	7		5

(Dr. A. Vaidya)
09/07/2026

(Dr. D. P. Shrivastava)
09/07/2026

(Dr. S. K. Sharma)
09/07/2026

(Mrs. M. S. Patil)

(Mr. D. P. Chaudhary)
09/07/26

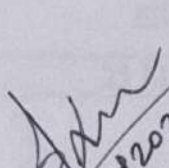
Contd.

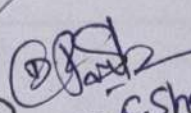
(P. A. Patil)
09/07/26

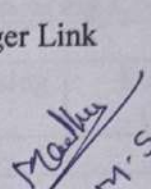
Text/Reference Books:

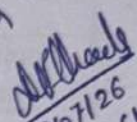
1. M Afshar Alam, Sapna Jain, HenaParveen, Green Computing Approach Towards Sustainable Development, Wiley Interscience Publications.
2. S. S. Dara, A Textbook of Engineering Chemistry, S. Chand Publications
3. ShikhaAgrawal, Engineering Chemistry: Fundamentals and Applications, Cambridge University Press.
4. Supercapacitors and Their Applications Fundamentals, Current Trends, and Future Perspectives, Edited By Anjali Paravannoor, Baiju K.V, CRC Press
5. The Rare Earth Elements: An Introduction, JHL Voncken, Springer Link

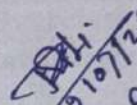

09/10/2026
Dr. A. Vaidya


09/10/2026
Dr. S. Khari


Dr. D. F. Shastri
09/10/2026


Mrs. M. S. Pal


09/10/2026
Mr. D. P. Chatterjee


09/10/2026
P. A. Patle

**SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING, BAHADURA, UMRER
ROAD, NAGPUR**

An Autonomous Institute Affiliated to RTMNU, Nagpur

Faculty of Science & Technology

**B.Tech. Mechanical Engineering/Electrical Engineering/ Electronics & Telecommunication
Engineering (NEP) (CBCS)**

Sem-II	Total Hours Distribution Per Week		
Total Credits : 1	Lecture (L) : 0 Hrs	Practical/Activity (P/A) : 2 Hr	
Subject Code	BT2ME02P/BT2EE02P/BT2ET02P	Applied/Engineering Chemistry Lab	
Examination Scheme			
CIE	ESE	Minimum Passing Marks:	Examination Duration:
25 Marks	25 Marks	25	3 Hours

Practical Course Objectives

1	Analyze experimental data, interpret results and draw scientifically valid conclusion.
2	Use modern laboratory techniques analytical tools for the characterization of chemical system and materials.

Practical Course Outcomes

After completion the Practical course, students would be able to

1	Estimate the concentration soluble impurities present in the given water sample.
2	Operate laboratory instrument safely and accurately to evaluate fuel and lubricant.
3	Perform quantitative chemical analysis using standard laboratory Procedure with accuracy.

Sr. no.	List of Practical (Any 6 performance based and 1 virtual lab experiment)
1	Proximate Analysis of coal.
2	Estimation of viscosity of oil by Redwood Viscometer 1 or 2.
3	Estimation of Flash point of lubricating oil by open/ closed cup apparatus.
4	Estimation of Hardness of water (Total, Permanent & Temporary) by complexometry.
5	Estimation of Alkalinity of water (Warder's Method).
6	Estimate the amount of dissolved oxygen present in water sample.
7	Estimation of Ni by complexometry.
8	Fe (II)/ (III) estimation by redox titration.
9	Virtual Lab: Experiment on Calorimetry.
10	Virtual Lab: Beer's Law verification by spectrophotometer.

(Signature)
09/07/26
A. Vaidya

(Signature)
09/07/2026
D. P. Shastri
09/07/2026

(Signature)
09/07/26
P. A. Patil

(Signature)
09/07/26
M. S. Patil
(Ms. D. P. Chaudhary)



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
AN AUTONOMOUS INSTITUTE

NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
Near Dighori Naka, Umrer Road, Nagpur - 440 034
Mob. : 9881014701, 9823464644, 8983550843
Email : admin@srpce.ac.in • website : www.srpce.ac.in

FACULTY OF SCIENCE & TECHNOLOGY

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING

B.TECH. II SEMESTER ELECTRONICS & TELECOMMUNICATION ENGINEERING
-Major (NEP) (CBCS)

Course Category:	Engineering Science Course (ESC-1V)		
Semester: II	Total Hours Distribution per week		
Total Credit: 02	Lecture (L): 2 Hrs.	Tutorial (T): 0 Hr.	
Subject Code & Subject Name:	BT2ET03T	Electronics Measurement and Instrumentation	
EXAMINATION SCHEME			
Continuous Internal Evaluation (CIE)Marks	End Semester Examination (ESE) Marks	Minimum Passing Marks	Examination Duration
20	30	25	2 Hours

COURSE OBJECTIVES:

1. Understand the fundamental concepts, standards, and units of measurement.
2. Explain the working principles and components of measurement systems, including sensors, transducers, signal conditioning, and display units.
3. Analyze the different types of bridges.
4. Identify different types of Sensors and oscilloscopes.

COURSE OUTCOMES:

1. Evaluate the static and dynamic characteristics of measuring instruments such as accuracy, precision, sensitivity, hysteresis, repeatability, drift, response time, fidelity, lag, time constant, and bandwidth.
2. Measure and analyze single-phase and three-phase electrical power using appropriate measuring techniques and instruments.
3. Analyze and apply DC and AC bridge circuits for the accurate measurement of electrical parameters such as resistance, inductance, capacitance, and frequency, and explain the applications of bridge circuits in strain gauge, RTD, and thermistor-based measurement systems.
4. Explain the working principles and applications of CRO, DSO, signal analyzers, generators, and sensors/transducers, and use them to measure and analyze electrical, electronic, and physical parameters.

SYLLABUS

Unit I: Fundamentals of Measurement: Definition, significance and purpose of measurement, Measurement Standards and units, Types of measurement (Direct and Indirect).

Measurement System: Elements of measurement system Sensor, Transducer, Signal Conditioning and Display Sensor, Transducer, Signal Conditioning and Display. Accuracy, Precision, Resolution, Sensitivity, Repeatability, Hysteresis, Drift.

Dynamic Characteristics: Speed of response, Fidelity, Lag, Time constant, Bandwidth.

Errors in Measurement: Gross errors, Systematic errors, Error analysis, Calibration Technique.

Unit II: Electrical & Electronic Instruments:

Analog Instruments: PMMC Instrument, Moving Iron Instrument, Electrodynamometer Instrument.

Digital Instruments: Digital Voltmeter (DVM), Digital Multimeter (DMM), Digital Ammeter,

Comparison of Analog and Digital Instruments.

Power and Energy Measurement: Single Phase Power Measurement, Three Phase Power Measurement, Induction Type Energy Meter, Electronic Energy Meter.

Instrument Transformers: Current Transformer (CT), Potential Transformer (PT).

Unit III: AC & DC Bridge Circuits:

DC Bridges: Wheatstone Bridge, Kelvin Double Bridge, Carey Foster Bridge.

AC Bridges: Maxwell Bridge, Hay Bridge, Anderson Bridge Schering, Bridge Wien Bridge.

Measurement of Resistance, Inductance, Capacitance, Frequency. Applications, advantages and limitations of bridge circuits.

Bridge Application: - Resistance Inductance and Capacitance Measurement, Strain Gauge using Wheatstone Bridge, RTD and Thermistor Measurement using Bridge Circuits.

Unit IV: Oscilloscopes and Signal Analyzers:

Cathode Ray Oscilloscope (CRO): Block diagram, working principle, Dual Trace, Dual Beam and Storage CRO, CRO Probes and Calibration. Measurement of Voltage, Current, Time Period, Frequency, Phase Difference and Time Delay.

Digital Storage Oscilloscope (DSO): Block diagram and working Sampling techniques, Signal Acquisition and storage Display functions, Comparison of CRO and DSO.

Advanced Instruments: Spectrum Analyzer, Logic Analyzer, Signal Generator, Function Generator.

Sensors & Transducers: LVDT Potentiometer, Capacitive Sensor, Hall effect Sensor, Ultrasonic Sensor, Piezoelectric, Optical sensors.

Text Books:

1. A.K. Sawhney, 'A Course in Electrical and Electronic Measurements and Instrumentation', 20th Edition, Dhanpat Rai & Co. (P) Ltd., New Delhi.
2. Ernest O. Doebelin & Dhanesh N. Manik, 'Measurement Systems: Application and Design', 6th Edition, McGraw-Hill Education.
3. H.S. Kalsi, 'Electronic Measurement and Instrumentation' 4th Edition, Tata McGraw-Hill

Dr. Shital V. Joshi
Dr. B. S. Chatterjee
Dr. H. S. Kalsi
Dr. N. G. Nandke
Dr. P. S. Agarkar
Dr. P. Agarkar

SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING NAGPUR
AN AUTONOMOUS INSTITUTE
 AFFILIATED TO RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR
FACULTY OF SCIENCE & TECHNOLOGY
B.TECH. ELECTRONICS AND TELECOMMUNICATION ENGINEERING

Course Category	Engineering Science Course -IV :ESC-IV		
Sem: II	Total Hours Distribution per week		
Total Credit: 3	Lecture (L): 3 Hrs	Tutorial/Activity T/A :- -	
Subject Code	BT2ET04T	Object Oriented & Programming	
Examination Scheme			
Continuous Internal Evaluation (CIE)Marks	Semester End Exam(SEE)Marks	Minimum Passing Marks	Examination Duration
40	60	50	3 Hours
Course Objectives			
1	To develop a strong foundation in OOPS concept & apply them using C++ to design basic programs.		
2	To enable students to use OOP principles such as inheritance, polymorphism, abstraction, and data hiding for building efficient & reusable applications.		

Course Outcomes	
After successful completion of this course the student will be able to:	
CO1	Understand the fundamentals of Object-Oriented Programming and apply basic C++ constructs like data types, operators, & control statements. Mapped with Unit-1
CO2	Design & implement programs using classes and objects, demonstrating constructors, access control, and static members. Mapped with Unit-2
CO3	Apply inheritance concepts to develop reusable and extensible C++ programs using different types of inheritance & function overriding. Mapped with Unit-3
CO4	Implement polymorphism using function overloading, operator overloading, virtual functions. Mapped with Unit-4
CO5	Utilize pointers & dynamic memory allocation techniques to efficiently manage memory & handle object relationships. Mapped with Unit-5

SYLLABUS	
Contents	No. of hours
Unit I: Introduction to OOPS Procedure-Oriented vs Object-Oriented programming, Features of OOP, Structure of C++ program, data types, Variables, constants, operators & expression, Control Statements(if, switch, loops), Input/Output using cin, cout.	09
Unit II: Classes and Objects Class & object concepts, defining member functions, Access specifier (Public, Private, protected), Objects as function arguments, constructors(default, parameterized), inline functions, Static data members & functions.	08
Unit III: Inheritance: Concept and types of inheritance (single, multiple, multilevel, hierarchical), visibility mode, constructor in inheritance, function overriding, virtual base class.	07
Unit IV: Polymorphism, Abstraction & Encapsulation: Compile time(function overloading, operator overloading), Run time polymorphism(Virtual function), early binding Vs late binding, Concepts of abstraction, Abstract classes Encapsulation and data hiding, Friend function and friend class	09
Unit V Pointers & Memory management: Pointers and objects, "this" pointer, Dynamic memory allocation(new, delete), pointer to derived classes.	08

References

Text Books Recommended:

1. Bjarne Stroustrup, "The C++ Programming Language", Third Edition, Pearson Education, 2000.
2. Robert Lafore, "Object Oriented Programming in C++", Fourth Edition, Sams Publishers, 2001.
3. P.J. Deitel, "C++ How to Program", Prentice-Hall of India Pvt Ltd., Sixth edition, 2013.

Reference Books Recommended:

1. E. Balagurusamy, "Object Oriented Programming with C++", McGraw Hill Company Ltd., 2013
2. B. Trivedi, "Programming with ANSI C++", Oxford University Press, 2012.
3. Ira Pohl, "Object Oriented Programming using C++", Pearson Education, Second Edition, Reprint 2013.

[Handwritten signatures and names]
 B. B. Talwar, Dr. A. N. T. Inde

SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING NAGPUR
AN AUTONOMOUS INSTITUTE
 AFFILIATED TO RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY, NAGPUR
FACULTY OF SCIENCE & TECHNOLOGY
B.TECH. ELECTRONICS AND TELE COMMUNICATION ENGINEERING

Course Category	Engineering Science Course -IV :ESC-IV		
Sem: II	Total Hours Distribution per week		
Total Credit: 01	Practical(P): 02 Hrs	Tutorial/Activity(T/A): - -	
Subject Code	BT2ET04P (Practical)	Object Oriented & programming(Lab)	
Examination Scheme			
Continuous Internal Evaluation (CIE)Marks	Semester End Exam(SEE)Marks	Minimum Passing Marks	Examination Duration
25	25	25	-

Course Outcomes

After successful completion of this course the student will be able to:

CO1	Understand the fundamentals of Object-Oriented Programming and apply basic C++ constructs like data types, operators & control statements.
CO2	Design & implement programs using classes and objects, demonstrating constructors, access control, and static members.
CO3	Apply inheritance concepts to develop reusable and extensible C++ programs using different types of inheritance & function overriding
CO4	Implement polymorphism using function overloading, operator overloading, virtual functions.
CO5	Utilize pointers & dynamic memory allocation techniques to efficiently manage memory & handle object relationships.

List of Practical's

Minimum Eight out of the following practical's shall be performed:

Sr. No.	List of Practical's
01	Write a C++ program to demonstrate the basic structure of a C++ program using cin and cout.
02	Write a program to perform arithmetic, relational, logical, and bitwise operations using operators.
03	Create a class to store and display student details using member functions.
04	Write a program demonstrating public, private, and protected access specifiers.
05	Write a program demonstrating single inheritance.
06	Write a program demonstrating multilevel inheritance.
07	Write a program demonstrating function overloading.
08	Write a program demonstrating operator overloading (e.g., +, ==).
09	Write a program demonstrating runtime polymorphism using virtual functions.
10	Write a program to demonstrate early binding and late binding.
11	Write a program demonstrating pointers to objects.
12	Write a program demonstrating the use of the this pointer.



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
AN AUTONOMOUS INSTITUTE
NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
Near Dighori Naka, Umrer Road, Nagpur - 440 034
Mob. : 9881014701, 9823464644, 8983550843
Email : admin@srpce.ac.in • website : www.srpce.ac.in

FACULTY OF SCIENCE & TECHNOLOGY

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING

B.TECH. II SEMESTER ELECTRONICS & TELECOMMUNICATION ENGINEERING
-Major (NEP) (CBCS)

Course Category:	Program Core Course (PCC-1)		
Semester: II	Total Hours Distribution per week		
Total Credit: 02	Lecture (L): 2 Hrs.	Tutorial (T): 0 Hr.	
Subject Code & Subject Name:	BT2ET05T	Computer Architecture	
EXAMINATION SCHEME			
Continuous Internal Evaluation (CIE)Marks	End Semester Examination (ESE) Marks	Minimum Passing Marks	Examination Duration
20	30	25	2 Hours

COURSE OBJECTIVES:

1. Understand Computer System structures, learn Hardware Component Design and analyze system Performance
2. Learn how Basic Computer Systems work. Study Internal Hardware parts and their links. Understand Instruction Sets and Data Paths.
3. Learn about Memory Hierarchies and Cache Design. Understand Virtual Memory and Storage Systems.
4. Explore how Input and Output Devices connect to the Processor.

COURSE OUTCOMES:

1. Understanding system hardware operations and Computer Architecture Input-Output Systems.
2. Understand System Components, analyzing Hardware performs and designing basics computer operation.
3. Understand the Function of Cache Memory, Main Memory, And Virtual Memory.
4. Understand Interrupts, Programmed I/O, and Direct Memory Access (DMA).
5. Understand Control Units & Computer Peripherals.

Computer Architecture, Von
Neumann, Difference Between Von
Neumann and Harvard, Basic operation concept, Bus
Architecture, Datapath, types of operands,

ization, Primary & Secondary
Secondary Memory, RAM, ROM,
Advantages & disadvantages
between Cache and Virtual

: (08 Hrs.)
Control Unit, I/O Mapped I/O
Memory Access.
Magnetic Disk, Magnetic Tape

Advantages of Multiprocessor, Coupled, and Tightly Coupled, y.

Text books:

1. John P. Hayes, "Computer Organization", 5th edition, McGraw-Hill Education.
2. David A. Patterson & John L. Hennessy, "Computer Organization and Design (The Hardware/Software Interfaces)", 5th Edition, Morgan Kaufmann.
3. V. C. Hamacher, Z. G. Vranesic and S. G. Zaky, Computer Organization, 5th Edition, McGraw-Hill Education.
4. John P. Hayes, "Computer Architecture & Organization", 3rd Edition, McGraw-Hill Education.

Reference books:

- reference books:
1. William Stalling, "Computer Architecture Organization and Architecture: Design for Performance", 10th Edition, Pearson Education.
 2. Hwang Kai, Computer architecture and parallel processing, McGraw-Hill Education.
 3. Vincent P. Heuring, Harry F. Jordan, Miles Murdoeca, "Computer System Design and Architecture", 2nd Edition, Person Education.
 4. Andrew S. Tanenbaum, "Structured Computer Organization", 6th edition, Pearson Education.

4. Andrew S. Tanenbaum, "Structured Computer Organization", 6th edition, Pearson Education.



Sanmarg Shikshan Sanstha's
SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING
AN AUTONOMOUS INSTITUTE
NAAC ACCREDITED

Recognized by Government of Maharashtra & AICTE New Delhi
Affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur
Near Dighori Naka, Umrer Road, Nagpur - 440 034
Mob. : 9881014701, 9823464644, 8983550843
Email : admin@srpce.ac.in • website : www.srpce.ac.in

FACULTY OF SCIENCE & TECHNOLOGY

DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING

B.TECH. II SEMESTER ELECTRONICS & TELECOMMUNICATION ENGINEERING
-Major (NEP) (CBCS)

Course Category:	Vocational and Skill Enhancement Course (VSEC-II)		
Semester: II	Total Hours Distribution per week		
Total Credit: 02	Lab (P): 4 Hrs.		Tutorial (T): 0 Hr.
Subject Code & Subject Name:	BT2ET06P		Electronic Workshop
EXAMINATION SCHEME			
Continuous Internal Evaluation (CIE)Marks	End Semester Examination (ESE) Marks	Minimum Passing Marks	Examination Duration
50	50	50	-----

COURSE OBJECTIVES:

1. To familiarize students with the identification, testing, and troubleshooting of electronic components, semiconductor devices, sensors, switches, relays, and power supply circuits using standard electronic instruments.
2. To develop practical skills in soldering, PCB assembly, circuit construction, measurement, fault diagnosis, and implementation of basic electronic projects using electronic components and test equipment.

COURSE OUTCOMES:

1. Identify, test, and evaluate passive components, semiconductor devices, transistors, switches, Relays, power supply components, and optoelectronic devices using appropriate testing methods and instruments.
2. Perform soldering, desoldering, PCB inspection, and assemble electronic circuits on a breadboard while diagnosing wiring faults, defective components, and circuit errors.
3. Use electronic measuring instruments such as Digital Multimeter, Oscilloscope, Function Generator, Regulated Power Supply, LCR Meter, and Logic Probe to measure, analyze, and verify electrical and digital circuits.
4. Design, assemble, test, and demonstrate simple sensor-based and electronic mini-projects by applying basic electronic principles and troubleshooting techniques.

Dr. Shiksha V. Undale
Dr. B. S. Jadhav
Dr. H. G. Pawale
Dr. P. S. Laxman
Dr. P. Agarwal

SYLLABUS

LIST OF EXPERIMENTS

1. **Identification and Testing of Passive Components:** Resistors, Capacitors, Inductors.
2. **Identification and Testing of Semiconductor Devices:** PN diode, Zener diode, LED, Photodiode, Varactor, Schottky diode using multimeter.
3. **Identification and Testing of Transistors:** BJT, FET.
4. **Identification and Testing of Electronic Switches and Relays:** Test push buttons, Toggle switches, DIP switches, Reed switches and Relays for continuity and faulty contacts.
5. **Identification and Testing of Power Supply Components:** Transformer, Rectifiers, Voltage regulators (78xx, 79xx, LM317), fuse, SMPS output, batteries and chargers.
6. **Identification and Testing of Optoelectronic Devices:** LED, Seven-segment display, Opto-coupler, LDR, Phototransistor and Infrared sensors.
7. **Soldering, Desoldering and PCB Assembly:** Practice soldering, desoldering, PCB inspection and identification of dry solder joints, track damage and short circuits.
8. **Measurement using Electronic Instruments:** Digital Multimeter, Oscilloscope, Function Generator, Regulated Power Supply and LCR Meter.
9. **Breadboard Circuit Assembly and Fault Diagnosis:** Assemble basic resistor, diode and transistor circuits; Identify wiring mistakes and faulty components.
10. **Digital Logic Circuit Verification:** Verification of Truth Tables of AND, OR, NOT, NAND, NOR, XOR gates; Identification of faulty ICs and wiring errors using logic probe.
11. **Sensor Interface and Testing:** Interface temperature, light, proximity and IR sensors; Identification of faulty sensors and incorrect connections.
12. **Mini Project:** LED Running Light, Automatic Night Lamp, Clap Switch, Water Level Indicator, Rain Alarm, Fire Alarm, Door Bell with Melody IC, Mobile Charger Tester, Traffic Light Controller, Power Supply (5 V/12 V), Burglar Alarm, Digital Quiz Buzzer, Touch Switch, Electronic Voting Machine, Automatic Fan Controller, Smart Dustbin (Basic) and Others.

Dr. Shital V. Sonale
Dr. B.S. Chapperson
Dr. P. S. Laxman
Dr. P. Agarkar
SRPCE-ETC

Dr. P. S. Laxman
Dr. P. Agarkar
Version: 01 (2026-27)

Dr. P. S. Laxman
Dr. P. Agarkar
(A.C.)

Dr. P. Agarkar
Dr. P. Agarkar

**SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING, BAHADURA, UMRED
ROAD, NAGPUR**

An Autonomous Institute Affiliated to RTMNU, Nagpur

Faculty of Science & Technology

**B. Tech. Mechanical Engineering/Civil Engineering/Electrical Engineering/
Electronics & Telecommunication/Computer Sci. Engineering/Computer Engineering
(NEP) (CBCS)**

Sem-II	Total Hours Distribution Per Week		
Total Credits : 2	Lecture (L): 2Hrs	Tutorial/Activity (T/A) : 0 Hr	
Subject Code	BT2ME06T/BT2CV06T/BT2EE06T /BT2ET07T/BT2CS06T/BT2CE06T	REFER TO IKS (Preserving Art, Culture and Traditions)	
Examination Scheme			
CIE	ESE	Minimum Passing Marks:	Examination Duration:
20 Marks	30 Marks	25 Marks	2 Hours

Course Objectives	
1	To recognize the perspective of Indian Knowledge System v(IKS) for national pride.
2	Sensitize the students to the contributions made by Indians in the field of philosophy, art and health.

Course Outcomes	
After completion of syllabus, students would be able	
1	Interpret basics of Indian Knowledge system.
2	Integrate the teaching of Indian culture and civilization.
3	Appreciate Indian artistic tradition.
4	Analyze Indian health and wellness system for healthy living.

DR. AMAL MUSALE

Dr. D. P. Shastri
09/07/2026

Supriya May
09/07/2026

Ms. M. S. Patel

SYLLABUS (REFER TO IKS)

DETAILS OF TOPIC	Allotment of Hours		Mapped with CO Number
	L	T/A	CO
Unit-1			
Introduction to Indian Knowledge System: Introduction and overview of Indian Knowledge Sysatem , Vedic Corpus-Vedas, Types of Vedas, Upvedas, Types of Upvedas.	6		1
Unit-2			
Indian Culture and Civilization: Indian Culture and Civilization, Its characteristics, Difference between Culture and Civilization, Indus Valley Civilization, Vedic Civilization.	6		2
Unit-3			
Indian Artistic Traditions: Indian Artistic Traditions, Chitrakala- Indian Style Painting (Madhubani, Warli, Phad, Kalamkari, Gond, Mandana), Nritya: Indian Dance Forms(Bharat natyam , Kathak, Kathakali, Kuchipudi, Manipuri, Mohiniattayam). Sangeet: Carnatic Music & Hindustani Music.	6		3
Unit-4			
Health And Wellness: Wellbeing, Mental And Physical, Dimensions of Wellness, Concept of Healthy Living In Ayurveda, Tri-Doshas-Relationship To Health.	6		4

Text/Reference Books: -

- 1) Indian Knowledge Systems Ancient Wisdom For The Modern World, Dr. Madhukar Nikam, DATTSONS.
- 2) Indian Knowledge Systems Concepts And Applications. B. Mahadevan, Vinayak Rajat Bhat, Nagendra Pavana R.N.PHI Learning Private Limited.
- 3) Indian Knowledge Systems. Dr. Vilas Gajbe. Dr. Sanjiv Khondekar. Dr. Vinay Upadhayay. Dr. Prashant Raut. Nutan Akash Publication.

[Signature]

DR. AMOL MUSACE

[Signature]
09/07/2026
Dr. S. K. Nikam

[Signature]
09/07/2026
Dr. D. F. Shastri

[Signature]
09/07/2026
Supriya Meni

[Signature]
Ms. M. S. Palani

**SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING, BAHADURA, UMRED
ROAD, NAGPUR**

An Autonomous Institute Affiliated to RTMNU, Nagpur

Faculty of Science & Technology

**B. Tech. Mechanical Engineering/Civil Engineering/Electrical Engineering/
Electronics & Telecommunication/Computer Sci. Engineering/Computer Engineering
(NEP) (CBCS)**

Sem-II	Total Hours Distribution Per Week		
Total Credits : 2	Lecture (L): 2Hrs	Tutorial/Activity (T/A) : 0 Hr	
Subject Code	BT2ME06T/BT2CV06T/BT2EE06T /BT2ET07T/BT2CS06T/BT2CE06T	REFER TO IKS (Consciousness Studies)	
Examination Scheme			
CIE	ESE	Minimum Passing Marks:	Examination Duration:
20 Marks	30 Marks	25	2 Hours

Course Objectives	
1	To recognize the perspectives of Consciousness Studies

Course Outcomes	
After completion of syllabus, students would be able	
1	To define the primary fundamentals of Consciousness Studies.
2	To explain the pros and cons of the effects of Consciousness Studies.
3	To classify the consequences of Consciousness studies to promote behavioural science.
4	To relate the basics of Consciousness Studies to better understanding the problems of individual and society.

maulvi
Mrs. M. S. Patel.

Dr. D. F. Shastri
09/07/2026

Supriya
09/07/2026

DR. AMOL MURAGE

09/07/2026
(Dr. Shastri)

SYLLABUS (REFER TO IKS)

DETAILS OF TOPIC	Allotment of Hours		Mapped with CO Number
	L	T/A	CO
Unit-1			
Introduction to Psychology: An introduction to Psychology, Definition of Psychology, History of Psychology, Psychological methods, Sub-divisions of Psychology, Application of Psychology.	6		1
Unit-2			
Basic Cognitive Processes Sensory Process-general characteristics of senses, visual sense, auditory sense, other senses, Perpetual organization-principles of Perceptual organization, object perception and perceptual, object perception and perceptual constancies, influences upon perception, extra sensory perception.	6		2
Unit-3			
Classical conditioning, theories about classical conditioning, Reinforcement and Punishment.	6		3
Unit-4			
Theories about memory, brain and memory, long term memory, forgetting.	6		4

Text/Reference Books: -

1. Clifford T Morgan, King, Weiss and Schopler, Introduction to Psychology, McGraw Hill Education (India) Private Limited.
2. Hilliard Atkinson and Atkinson, (1977) Introduction to Psychology, Tatty McGraw Hill.
3. Kao H.S.R. & Sin had. (Ends) (1977) Asian Perspectives on Psychology

DR. AMOL MUSALE

Mrs. M.S. Paley

*09/07/2026
(Dr. S. K. Kulkarni)*

*Dr. D. F. Shambekar
09/07/2026*

*Supriyo Achen
09/07/2026*

**SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING, BAHADURA, UMRED ROAD,
NAGPUR**

An Autonomous Institute Affiliated to RTMNU, Nagpur

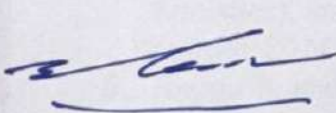
Faculty of Science & Technology

**B. Tech. Mechanical Engineering/Civil Engineering/Electrical Engineering/
Electronics & Telecommunication/Computer Sci. Engineering/Computer Engineering
(NEP) (CBCS)**

Sem-II	Total Hours Distribution Per Week		
Total Credits : 2	Lecture (L): 2Hrs	Tutorial/Activity (T/A) : 0 Hr	
Subject Code	BT2ME06T/BT2CV06T/BT2EE06T /BT2ET07T/BT2CS06T/BT2CE06T	REFER TO IKS (Glimpse of Ancient Science & Technology)	
Examination Scheme			
CIE	ESE	Minimum Passing Marks:	Examination Duration:
20 Marks	30Marks	25 Marks	2 Hours

Course Objectives	
1	To recognize the Glimpse of Ancient Science & Technology

Course Outcomes	
After completion of syllabus, students would be able	
1	To understand about great mathematicians and to help students to trace, indentify, practice, and develop the significant Indian mathematics
2	To understand the concept of motion and its application in Indian ancient physics literature.
3	To understand the concept of basic chemicals & metallurgical process of ancient and medieval India.


DR ANURAG
 Mrs. M. S. Patel
 09/07/2026
 Dr. D. G. Shastri
 09/07/2026
 (SUPRIYA) 09/07/2026
 Dr. A. B. Sharma
 09/07/2026
 Dr. A. B. Sharma

SYLLABUS (REFER TO IKS)

DETAILS OF TOPIC	Allotment of Hours		Mapped with CO Number
	L	T/A	CO
Unit-1			
Mathematics in India: Introduction of inception of Mathematics from Vedic periods. Great mathematician and their contribution (e.g. Aryabhatta, Bhaskara, Bhramagupta, Ramanujan, Pingala, Bhaskara-II, Sulabhasutras (Pythagoras theorem), Square, Square root of imperfect squares, Value of Pi.	6		1
Unit-2			
India: Vaisheshikadarshan Atomic Theory & law of motion, Theory of Panchamahabhoota, BrihatShathaka (division of time, unit of distance), Bhaskaracharya (Introduction to theory of gravity, Suryasidhanta & Sidhantasjhiromani), Lilavati (Gurutvakarshan shakti)	6		2
Unit-3			
Chemistry of India: Vatsyayana, Nagarjuna, Vagbhata – building of Theras-Shala (laboratory), working arrangements of Ras-Shala, material and equipment, YashoDharaBhatta-process of distillation, apparatus. Metallurgy in India, Suvarna(gold) and its different types of properties, Rajata (Silver), Tamra (Copper), Loha (Iron), Jasta (Zinc) Naga/Sisa (lead), Pittala (brass)	6		3
Unit-4			
Medicines and yog in India : Importance and benefits of yoga purpose of yoga traditional knowledge of medicinal plant, use of home available herbs and spices.	6		4

Text/Reference Books: -

1. R. P Kularani, Glimpse of Indian Engineering and Technology (Ancient & Medieval period, Munshiram Manoharlal Publishers Pvt. Ltd, 2018
2. A.K. Pathak, Science and Technology in India, Anshikaparakashnpratapgarh ,2016.
3. PB Sharma, S Narnia, Doctors Scientists and Engineers of Ancient India, Kalpaz Publications 2017.
4. NVP, Unithiri.Indian Scientific Traditions(Professor K.N. NeelkantanElayath Felicitation Volume), publication division, University of Calicut,2006.
5. Anonymous, History of Science in India-Volume-I, Part-I(Physics, Mathematics & Statistics), the national academy of science, India & the Ramakrishna Mission Institute of culture, 2014.
6. Kaptur K and Singh A.K.(Eds 2005), Indian Knowledge Systems, Vol-1, Indian Institute of Advanced Study, Shimla. Tatvabodh of Snakaracharya, Central Chimney Mission Trust, Bombay, 1995.
7. Dharmpal, Indian Science & Technology in the 18th century, Rashtrottahanasahitya, 1983.
8. S Biswal, B L Ray, Vedic Science and Technology, DK Porint world, 2009.

DR. AMULMUSACE

ms. M. S. Paley

Dr. D. R. Shastri
09/07/2026

(Supriya Aien)
09/07/2026

(Dr. Monummi Aich)
09/07/26

9. A. K. Bag, History of technology in India, (Set 3 vol), Indian Nation Science Academy, 1997.
10. A Gosh, History of Science in India (Volume-I Part-II Astronomy), the national academy of science, India & the Ramakrishna mission institute of culture, 2014.

la

Months
Mrs. M. S. Palmer

DR. AMOL MUSACE

Members
Mrs M. S. Palmer

Dr. D. R. Shastri
09/07/2026

Supriyo Hen
09/07/2024

linch
(Dr. Monumitch)
09/07/2026

**SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING, BAHADURA, UMRED
ROAD, NAGPUR**

An Autonomous Institute Affiliated to RTMNU, Nagpur

Faculty of Science & Technology

**B. Tech. Mechanical Engineering/Civil Engineering/Electrical Engineering/
Electronics & Telecommunication/Computer Sci. Engineering/Computer Engineering
(NEP) (CBCS)**

Sem-II	Total Hours Distribution Per Week		
Total Credits : 2	Lecture (L): 2Hrs		Tutorial/Activity (T/A) : 0 Hr
Subject Code	BT2ME06T/BT2CV06T/BT2EE06T /BT2ET07T/BT2CS06T/BT2CE06T		REFER TO IKS (Wellness, traditional medicines & yoga)
Examination Scheme			
CIE	ESE	Minimum Passing Marks:	Examination Duration:
20 Marks	30 Marks	25 Marks	2 Hours

Course Objectives	
1	To recognize the perspective

Course Outcomes	
After completion of syllabus, students would be able	
1	To define the primary fundamentals Wellness, Traditional Medicines & Yoga.
2	To relate the overall elements of nature around human life & livelihood.
3	To classify and rectify the problems related to body .
4	To explain benefits of wellness.

*DR. ANNA
MUSACE*

*Dr. D. F. Shastri
09/07/2026*

*Supriyo Acharya
09/07/2026*

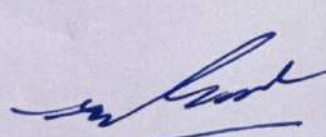
Ms. M. S. Palani

SYLLABUS (REFER TO IKS)

DETAILS OF TOPIC	Allotment of Hours		Mapped with CO Number
	L	T/A	CO
Unit-1			
Importance of health and wellness, Essential components of balance diet for healthy living, Processed foods and unhealthy eating habits.	6		1
Unit-2			
Body systems and common disease, Sedentary lifestyle and its risk of disease, Stress, Anxiety and depression, Factors affecting mental health.	6		2
Unit-3			
Importance and benefits of Yoga, Purpose of Yoga, traditional knowledge of medicinal plant, use of home available herbs and spices.	6		3
Unit-4			
Vedas and its types, Social change in Indian society, Social stratification and class conflicts.	6		4

Text/Reference Books:

1. Sociology in India- Surendra Sharma, Rawat Publication.
2. Bradford B, Strand and Others, Fitness Education Arizona GorsuchSeani; sbrick Publishers, 1997.
3. Scott K Powers and Stephen L Dodd. Total Fitness; Exercise; Nutrition and wellness Boston: Ally and Bacon, 1999.
4. RigvedaSamhita with SayanaBhashya, VaidikSamshodhanMandal, Pune.
5. Riksuktashati, H. D. Velankar, Bharatiya VidyaBahavan, Mumbai.


 09/07/2026
 DR. D. P. SHASTRI
 09/07/2026
 (SUPRIYO HEN)
 09/07/2026
 Ms. M. S. Patel

DR. AMRUMISALE

**SMT. RADHIKATAI PANDAV COLLEGE OF ENGINEERING, BAHADURA, UMRER
ROAD, NAGPUR**

An Autonomous Institute Affiliated to RTMNU, Nagpur

Faculty of Science & Technology

**B.Tech. Mechanical Engineering/Civil Engineering/Electronics & Telecommunication
/Electrical Engineering/**

Computer Science & Engineering/Computer Engineering (NEP) (CBCS)

Sem-II	Total Hours Distribution Per Week		
Total Credits : 2	Lecture (L) :	Tutorial/Activity (T/A) : 4Hrs	
Subject Code	BT2ME08P/BT2CV08P/ BT2ET08P/BT2EE08P/BT2CS08P/ BT2CE08P	CC Basket-II (Yoga & Cultural Activities)	
Examination Scheme			
CIE	ESE	Minimum Passing Marks:	Examination Duration:
100 Marks	-	50	-

Course Objectives	
1	To understand the fundamental and benefits of yoga and cultural activities.
2	To develop physical fitness, strength, flexibility, and coordination.

SYLLABUS

1. **Yoga Practices:** Importance and types of yoga, Warm up and stretching exercise, Pranayam techniques, Suryanamaskar, safety precaution during yogapractice.

2. **Health and Wellness:** Stress management through yoga, Healthy lifestyle and nutrition, mindfulness and emotional balance.

3. **Cultural Activities:** Meaning and importance of culture activities, Indian art, music, dance, drama, folk tradition.

4. **Cultural Excellence and Creative Expression:** National festival, Regional festivals, college cultural festivals and competitions and Innovation.

Trashe
Mrs. M. S. Palani

Dr. S. K. Vasa
Dr. D. F. Shinde
09/07/2026

Grandhe
Sandesh R. Grandhe
09/07/2026