MANONMANIAM SUNDARANAR UNIVERISTY,
TIRUNELVELI-12
SYLLABUS
UG - COURSES – AFFILIATED COLLEGES
Course Structure for B. Sc. Physics
(Choice Based Credit System)

(with effect from the academic year 2023-2024 onwards)

Part	Subject Status	Subject Title	Subject Code	Credit
**Semester-I**				
I	LANGUAGE I	TAMIL/MALAYALAM/HINDI		3
II	LANGUAGE II	ENGLISH		3
III	CORE	PROPERTIES OF MATTER AND ACOUSTICS		5
III	CORE	PHYSICS PRACTICAL I		3
III	ALLIED	ALLIED MATHEMATICS I		5
IV	SEC	SKILL ENHANCEMENT COURSE SEC-1 (NME)		2
IV	FC	INTRODUCTORY PHYSICS		2

Total Marks: 100   Internal Exam: 25 marks + External Exam: 75 marks

A. **Scheme for internal Assessment**:
Maximum marks for written test: **20 marks**
 3 internal tests, each of **I hour** duration shall be conducted every semester.
To the average of the **best two** written examinations must be added the marks scored in. The **assignment** for 5 marks.

The break up for internal assessment shall be:
Written test- 20 marks; Assignment -5 marks   Total - 25 marks

B. **Scheme of External Examination**
3 hrs. examination at the end of the semester
A – Part : 1 mark question two - from each unit
B – Part : 5 marks question one - from each unit
C – Part : 8 marks question one - from each unit

➢ **Conversion of Marks into Grade Points and Letter Grades**

S.No	Marks	Letter Grade	Grade point (GP)	Performance
1	90-100	O	10	Outstanding
2	80-89	A+	9	Excellent
3	70-79	A	8	Very Good
4	60-69	B+	7	Good
5	50-59	B	6	Above Average
6	40-49	C	5	Pass
7	0-39	RA	-	Reappear
8	0	AA	-	Absent

➢ **Cumulative Grade Point Average (CGPA)**

$$CGPA = \frac{\Sigma (GP \times C)}{\Sigma C}$$

- **GP** = Grade point, **C** = Credit
- CGPA is calculated only for Part-III courses
- CGPA for a semester is awarded on cumulative basis

➢ **Classification**
a) First Class with Distinction   : CGPA ≥ 7.5*
b) First Class   : CGPA ≥ 6.0
c) Second Class   : CGPA ≥ 5.0 and < 6.0
d) Third Class   :   CGPA< 5.0

Nesamony Memorial Christian College, Marthandam

பொதுத்தமிழ் – 1

Unit 1 - மரபுக் கவிதை
1. பெ. சுந்தரனார் - தமிழ்த் தெய்வ வணக்கம்
2. பாரதிதாசன் - சிறுத்தையே வெளியில் வா
3. கவிமணி - புத்தரும் சிறுவனும்
4. முடியரசன்-மொழி உணர்ச்சி
5. கண்ணதாசன் - ஆட்டனத்தி ஆதிமந்தி - ஆதிமந்தி புலம்பல்
6. சுரதா - துறைமுகம் தொகுப்புலிருந்து ஏதேனும் ஒரு கவிதை
7. தமிழ் ஒளி – கடல்

Unit II – புதுக்கவிதை
1. அப்துல் ரகுமான் - வீட்டுக்கொரு மரம் வளர்ப்போம்
2. ஈரோடு தமிழன்பன் - சென்றியூ கவிதைகள் (ஏதேனும் ஐந்து கவிதைகள்)
3. வைரமுத்து – பிற்சேர்க்கை
4. மு.மேத்தா – வாழைமரம்
5. அறிவுமதி - வள்ளுவம் பத்து
6. நா. முத்துக்குமார் - ஆனந்த யாழை மீட்டுகிறாய்
7. சுகிர்தராணி - சபிக்கப்பட்ட முத்தம்
8. இளம்பிறை - நீ எழுத மறுக்கும் எனது அழகு

Unit III – சிறுகதைகள்
1. வாய் சொற்கள் - ஜெயகாந்தன் (மாலை மயக்கம் தொகுப்பு)
2. கடிதம் - புதுமைப்பித்தன்
3. கரு - உமாமகேஸ்வரி
4. முன்முடி - தி ஜானகிராமன்
5. சிதறல்கள் - விழி.பா.இதயவேந்தன்
6. காகித உறவு - சு. சமுத்திரம்
7. வீட்டின் மூலையில் சமையல் அறை - அம்பை
8. (மொழிபெயர்ப்புக் கதை) ஆண்டவன் செக்காவ் - நாய்க்காரய்ச் சீமாட்டி, சந்தியா பதிப்பகம்

Unit IV - பாடம் சார்ந்த இலக்கிய வரலாறு

Unit V - மொழித்திறன் போட்டி தேர்வு
1. பொருள் பொதிந்த சொற்றோடர் அமைத்தல்
2. ஓர் எழுத்து ஒரு மொழி
3. வேற்றுமை உருபுகள்
4. திணை, பால், எண், இடம்
5. கலைச்சொல்லாக்கம், மொழிபெயர்ப்பு

(குறிப்பு: அலகு 4,5 ஆகியன போட்டித் தேர்வு நோக்கில் நடத்தப்பட வேண்டும்)

MALAYALAM – I
PROSE, COMPOSITION AND TRANSLATION

Unit I
This unit focuses on Translation: Word level and syntactic level and also discuss the writing style of Essay. It introduces the proverbs, paraphrasing in Malayalam

Unit II
This units briefs the importance of Nalukettu in the history of Malayalam literature. The following unit examines thecharacteristics of the novel chapter ways. Chapter First to 10

Unit III
Remaining Chapters are introduced and discussed.

Unit IV This unit focuses on Marappavakalum Mattu Kadhakalum by Karur. It also introduces the story
       Story 1 Marappavakal- Discussion
       Story II Uthuppante Kirnar
       Story III Kalchakaram
       Story IV Poovamabhazham
       Story V Vallakkaran
       Story VI Chekuthan
       Story VII Mothiram
Unit V Story VIII Safety Pin
       Story IX Aranhaanam
       Story X Kuta nannakkaanuntoo
       Story XI Chudala thengu
       Story XII Ampala parmbil
       Story XIII Ezhunnallathu Duty
       Story XIV Pisachinte Kuppayam

Reading List (Print and Online)
1. Malayala Sahithya Charithram – Dr. K.M.George (Ed.)
2. Cherukadha Innale Innu - M.Achuthan
3. Kadha Thedunna Kadha - N.Prabhakaran
4. M.T. Vakkinte Vismayam – V.R.Sudheesh
5. Kadhayum Kalavum –K.S.Ravikumar
6. Malayala Novalilee Desakaalangal- E. Ramkrishnan
7. Maranunna Malayala Noval- K.P. Appan
8. Andhanaya Daivam- P.K.Rajasekharan
9. Shyalee shilppam- Dr.K.M. Prabhakra Varir
10. Bhasha gadhyam- C.V. Vasudeva Bhattathiri
11. Karur Kadha patanam- M.M.Basheer

Recommended Texts
1. NALUKKETTU (NOVEL) : M.T. VASUDEVAN NAIR
2. MARAPPAVAKALUM MATTU KADHAKALUM (SHORT STORIES): KAROOR

HINDI I

Unit I
Buniyadi Hindi
- Swar
- Vyanjan
- Barah Khadi
- Shabd aur
- Vakya Rachna

Unit II
Hindi Shabdavali
- Rishto ke Naam
- Gharelu padartho ke Naam

Unit III
Vyakaran
- Sadharan Vakya aur Sangya
- Sarvanam
- Visheshan
- Kriya aadi shabdo ka prayog

Unit IV
Chote Gadyansh ka Pathan
- Bacho ki Kahaniya
- Patra-Patrikao mein prakashit Gadyansho ka Pathan

Unit V
Nibandh
- Sant Tiruvalluvar
- E.V.R Thandai Periyar
- Naari Sashaktikaran
- Paryavaran Sanrakshan
- Vibhinna pratiyogi parikshao ke bare mein jaankari dena

Pratiyogi priksha par adharit nibandho dwara bhasha ki kshamta badhane vale prashikshan kary.

Reference Books
1. Hindi ke Avyay Vakyansh – Chaturbhuj Sahay
2. Subodh Hindi Vyakaran – Phoolchand Jain
3. Sankshipt Hindi Vyakaran – Kamta Prasad
4. Vyavaharik Hindi – Nagappa
5. Abhinav Hindi Vyakran – Nagappa
6. Saral Hindi Vyakaran – Shyamchandra Kapur
7. Vyakaran Pradeep – Ramdev
8. Laghu Bal Kathaye – Ramashankar
9. Manoranjak Kahaniya – Premchand
10. CONCISE GRAMMAR OF THE HINDI LANGUAGE - H.C Scholberg
11. Hindi Grammar – Edwin Greaves

Related Online Contents for Hindi (MOOCs, SWAYAM, NPTEL, YouTube, Websites, etc.)

1. fr#oYyqoj%

https://bharatdiscovery.org/india/%E0%A4%A4%E0%A4%BF%E0%A4%B0%E0%A5%81%E0%A4%B5%E0%A4%B2%E0%A5%8D%E0%A4%B2%E0%A5%81%E0%A4%B5%E0%A4%B0#:~:text=%E0%A4%A4%E0%A4%BF%E0%A4%B0%E0%A5%81%E0%A4%B5%E0%A4%B2%E0%A5%8D%E0%A4%B2%E0%A5%81%E0%A4%B5%E0%A4%B0%20(%E0%A4%85%E0%A4%82%E0%A4%97%E0%A5%8D%E0%A4%B0%E0%A5%87%E0%A4%9C%E0%A4%BC%E0%A5%80%3A%20Thiruvalluvar)%20%E0%A4%A6%E0%A4%95%E0%A5%8D%E0%A4%B7%E0%A4%BF%E0%A4%A3,%E0%A4%AA%E0%A4%BF%E0%A4%A4%E0%A4%BE%20%E0%A4%AE%E0%A5%87%E0%A4%82%20%E0%A4%B5%E0%A4%BF%E0%A4%B6%E0%A5%8D%E0%A4%B5%E0%A4%BE%E0%A4%B8%20%E0%A4%B0%E0%A4%96%E0%A4%A4%E0%A5%87%20%E0%A4%A5%E0%A5%87%E0%A5%A4

2. bZ-os-jkelkeh

https://hi.wikipedia.org/wiki/%E0%A4%AA%E0%A5%87%E0%A4%B0%E0%A4%BF%E0%A4%AF%E0%A4%BE%E0%A4%B0#:~:text=%E0%A4%87%E0%A4%B0%E0%A5%8B%E0%A4%A1%20%E0%A4%B5%E0%A5%87%E0%A4%82%E0%A4%95%E0%A4%9F%20%E0%A4%A8%E0%A4%BE%E0%A4%AF%E0%A4%95%E0%A4%B0%20%E0%A4%B0%E0%A4%BE%E0%A4%AE%E0%A4%BE%E0%A4%B8%E0%A4%BE%E0%A4%AE%E0%A5%80%20(17,%E0%A4%B5%E0%A4%BE%E0%A4%B2%E0%A5%87%20%E0%A4%B9%E0%A4%BF%E0%A4%A8%E0%A5%8D%E0%A4%A6%E0%A5%81%E0%A4%A4%E0%A5%8D%E0%A4%B5%20%E0%A4%95%E0%A4%BE%20%E0%A4%B5%E0%A4%BF%E0%A4%B0%E0%A5%8B%E0%A4%A7%20%E0%A4%A5%E0%A4%BE%E0%A5%A4

3. ukjh l"kfDrdj.k%

https://www.hindikiduniya.com/essay/women-empowermentessayinhindi/#:~:text=%E0%A4%AE%E0%A4%B9%E0%A4%BF%E0%A4%B2%E0%A4%BE%20%E0%A4%B8%E0%A4%B6%E0%A4%95%E0%A5%8D%E0%A4%A4%E0%A4%BF%E0%A4%95%E0%A4%B0%E0%A4%A3%20%E0%A4%95%E0%A5%8D%E0%A4%AF%E0%A4%BE%20%E0%A4%B9%E0%A5%88%20%3F&text=%E0%A4%AE%E0%A4%B9%E0%A4%BF%E0%A4%B2%E0%A4%BE%20%E0%A4%B8%E0%A4%B6%E0%A4%95%E0%A5%8D%E0%A4%A4%E0%A4%BF%E0%A4%95%E0%A4%B0%E0%A4%A3%20%E0%A4%95%E0%A5%8B%20%E0%A4%AC%E0%A5%87%E0%A4%B9%E0%A4%A6%20%E0%A4%86%E0%A4%B8%E0%A4%BE%E0%A4%A8,%E0%A4%B8%E0%A4%95%E0%A5%8D%E0%A4%B7%E0%A4%AE%20%E0%A4%AC%E0%A4%A8%E0%A4%BE%E0%A4%A8%E0%A4%BE%20%E0%A4%AE%E0%A4%B9%E0%A4%BF%E0%A4%B2%E0%A4%BE%20%E0%A4%B8%E0%A4%B6%E0%A4%95%E0%A5%8D%E0%A4%A4%E0%A4%BF%E0%A4%95%E0%A4%B0%E0%A4%A3%20%E0%A4%B9%E0%A5%88%E0%A5%A4

4. i;kZoj.k laj{k.k%

a. https://hi.wikipedia.org/wiki/%E0%A4%AA%E0%A4%B0%E0%A5%8D%E0%A4%AF%E0%A4%BE%E0%A4%B5%E0%A4%B0%E0%A4%A3_%E0%A4%B8%E0%A4%88%E0%A4%B0%E0%A4%95%E0%A5%8D%E0%A4%B7%E0%A4%A3#:~:text=%E0%A4%AA%E0%A4%B0%E0%A5%8D%E0%A4%AF%E0%A4%BE%E0%A4%B5%E0%A4%B0%E0%A4%A3%20%E0%A4%B8%E0%A4%82%E0%A4%B0%E0%A4%95%E0%A5%8D%E0%A4%B7%E0%A4%A3%20%E0%A4%95%E0%A4%BE%20%E0%A4%B8%E0%A4%AE%E0%A4%B8%E0%A5%8D%E0%A4%A4%20%E0%A4%AA%E0%A5%8D%E0%A4%B0%E0%A4%BE%E0%A4%A3%E0%A4%BF%E0%A4%AF%E0%A5%8B%E0%A4%82,%E0%A4%AA%E0%A5%83%E0%A4%A5%E0%A5%8D%E0%A4%B5%E0%A5%80%20%E0%A4%B8%E0%A4%AE%E0%A5%8D%E0%A4%AE%E0%A5%87%E0%A4%B2%E0%A4%A8'%20%E0%A4%86%E0%A4%AF%E0%A5%8B%E0%A4%9C%E0%A4%BF%E0%A4%A4%20%E0%A4%95%E0%A4%BF%E0%A4%AF%E0%A4%BE%20%E0%A4%97%E0%A4%AF%E0%A4%BE%E0%A5%A4

b.http://gadyakosh.org/gk/%E0%A4%86%E0%A4%88%E0%A4%AF%E0%A5%87!_%E0%A4%AA%E0%A4%B0%E0%A5%8D%E0%A4%AF%E0%A4%BE%E0%A4%B5%E0%A4%B0%E0%A4%A3_%E0%A4%AC%E0%A4%9A%E0%A4%BE%E0%A4%8F%E0%A4%81_/_%E0%A4%85%E0%A4%A8%E0%A5%8D%E0%A4%A4%E0%A4%B0%E0%A4%BE_%E0%

PART II ENGLISH

Unit 1- Poetry
1. A Patch of Land - Subramania Bharati
2. The Sparrow - Paul Laurence Dunbar
3. A Nation's Strength – Ralph Waldo Emerson
4. Love Cycle - Chinua Achebe

Unit II - Prose
1. JRD - Harish Bhat
2. Us and Them - David Sedaris From Dress Your Family in Corduroy and Denim
3. Uncle Podger Hangs a Picture - Jerome K Jerome

Unit III- Short Stories
1. The Faltering Pendulum- Bhabani Bhattacharya
2. How I Taught my Grandmother to Read- Sudha Murthy
3. The Gold Frame- R.K. Laxman

Unit IV - Language Competency
1. Vocabulary : Synonyms, Antonyms, Word Formation
2. Appropriate use of Articles and Parts of Speech
3. Error correction

Unit V English for Workplace
1. Self - introduction, Greetings
2. Introducing others
3. Listening for General and Specific Information
4. Listening to and Giving Instructions /Directions

Text books (Latest Editions)
1. Steel Hawk and other stories by Bhattacharya, Bhabani, New Delhi: Sahitya Akademi, 1967
2. How I taught my Grandmother to Read and other Stories, Murthy, Sudha,Penguin Books, India, 2004

Web Resources
1. A patch of land by Subramania Bharati translated by Usha Rajagoplan : https://books.google.co.in/books?id=iSHvOmXuvLMC&printsec=frontcover&dq=subramania+bharati+poems&hl=en&newbks=1&newbks_redir=0&source=gb_mobile_search&sa=X&redir_esc=y#v=onepage&q=subramania%20bharati%20poems&f=false
2. The Sparrow by Paul Laurence Dunbar https://poets.org/poem/sparrow-0
3. A Nation's Strength by Emerson https://poets.org/poem/nations-strength
4. Love cycle by Chinua Achebe : https://www.best-poems.net/chinuaachebe/ love-cycle.html
5. JRD by Harish Bhat https://www.tata.com/newsroom/heritage/coffee-tea-jrd-tata-stories
6. Us and Them by David Sedaris From Dress Your Family in Corduroy and Denimhttps://legacy.npr.org/programs/morning/features/2004/jun/sedaris/usandthem.html
7. Uncle Podger Hangs a Picture: http://rosyhunt.blogspot.com/2013/01/unclepodger-hangs-picture.html
8. The Gold Frame: https://fybaenglish.blogspot.com/2018/12/the-gold-frame-r-klaxman.html

Reference Books
(Latest Editions, and the style given must be strictly adhered to)
1. English in use - A textbook for College Students (English ,Paper back, - T.Vijay Kumar, KDurga Bhavani, YL Srinivas
2. Practical English Usage - 4th Edition By Michael Swan
3. The Art of Civilized Conversation: A Guide to Expressing Yourself with Style and
4. Grace -Margaret Shepherd, Penny Carter, (Illustrator), Sharon Hogan, 2005.

PROPERTIES OF MATTER AND ACOUSTICS

UNIT-I
ELASTICITY: Hooke's law – stress-strain diagram – elastic constants –Poisson's ratio – relation between elastic constants and Poisson's ratio – work done in stretching and twisting a wire – twisting couple on a cylinder – rigidity modulus by static torsion– torsional pendulum (with and without masses)

UNIT-II
BENDING OF BEAMS: cantilever– expression for Bending moment – expression for depression at the loaded end of the cantilever– oscillations of a cantilever – expression for time period – experiment to find Young's modulus – non-uniform bending– experiment to determine Young's modulus by Koenig's method – uniform bending – expression for elevation – experiment to determine Young's modulus using microscope

UNIT-III
FLUID DYNAMICS: Surface tension: definition – molecular forces– excess pressure over curved surface – application to spherical and cylindrical drops and bubbles – determination of surface tension by Jaegar's method–variation of surface tension with temperature Viscosity: definition – streamline and turbulent flow – rate of flow of liquid in a capillary tube – Poiseuille's formula –corrections – terminal velocity and Stoke's formula– variation of viscosity with temperature

UNIT-IV
WAVES AND OSCILLATIONS: Simple Harmonic Motion (SHM) – differential equation of SHM – graphical representation of SHM – composition of two SHM in a straight line and at right angles – Lissajous's figures- free, damped, forced vibrations – resonance and Sharpness of resonance. Laws of transverse vibration in strings – sonometer – determination of AC frequency using sonometer–determination of frequency using Melde's string apparatus

UNIT-V
ACOUSTICS OF BUILDINGS AND ULTRASONICS:
Intensity of sound – decibel – loudness of sound –reverberation – Sabine's reverberation formula – acoustic intensity – factors affecting the acoustics of buildings. Ultrasonic waves: production of ultrasonic waves – Piezoelectric crystal method –magnetostriction effect – application of ultrasonic waves
UNIT-VI
PROFESSIONAL COMPONENTS: expert lectures –seminars — webinars – industry inputs – social accountability – patriotism
TEXT BOOKS
1. D.S.Mathur, 2010, Elements of Properties of Matter, S.Chand and Co.
2. BrijLaland N. Subrahmanyam, 2003, Properties of Matter, S.Chand and Co
3. D.R.Khanna andR.S.Bedi, 1969, Textbook of Sound, AtmaRamand sons
4. BrijLal and N.Subrahmanyam, 1995, A Text Book of Sound, Second revised

edition,Vikas Publishing House.
5. 5R.Murugesan, 2012, Properties of Matter, S.Chand and Co.

REFERENCE BOOKS
1. C.J. Smith, 1960, General Properties of Matter, Orient Longman Publishers
2. H.R. Gulati, 1977, Fundamental of General Properties of Matter, Fifth edition,R. Chand and Co.
3. A.P French, 1973, Vibration and Waves, MIT Introductory Physics, Arnold-Heinmann India.

WEB RESOURCES
1. https://www.biolinscientific.com/blog/what-are-surfactants-andhow- do-they-work
2. http://hyperphysics.phy-astr.gsu.edu/hbase/permot2.html
3. https://www.youtube.com/watch?v=gT8Nth9NWPM
4. https://www.youtube.com/watch?v=m4u-SuaSu1sandt=3s
5. https://www.biolinscientific.com/blog/what-are-surfactants-andhow-do-they-work
6. https://learningtechnologyofficial.com/category/fluid-mechanicslab/
7. http://www.sound-physics.com/
8. http://nptel.ac.in/courses/112104026/

PRACTICAL 1

COURSE OBJECTIVES
Apply various physics concepts to understand Properties of Matter, set up experimentation to verify theories, quantify and analyse, able to do error analysis and correlate results

Properties of Matter
Minimum of Eight Experiments from the list:
1. Determination of rigidity modulus without mass using Torsional pendulum.
2. Determination of rigidity modulus with masses using Torsional pendulum.
3. Determination of moment of inertia of an irregular body.
4. Verification of parallel axes theorem on moment of inertia.
5. Verification of perpendicular axes theorem on moment of inertia.
6. Determination of moment of inertia and g using Bifilar pendulum.
7. Determination of Young's modulus by stretching of wire with known masses.
8. Verification of Hook's law by stretching of wire method.
9. Determination of Young's modulus by uniform bending – load depression graph.
10. Determination of Young's modulus by non-uniform bending – scale and telescope.
11. Determination of Young's modulusby cantilever – load depression graph.
12. Determination of Young's modulus by cantilever – oscillation method
13. Determination of Young's modulus by Koenig's method – (or unknown load)
14. Determination of rigidity modulus by static torsion.
15. Determination of Y, n and K by Searle's double bar method.
16. Determination of surface tension and interfacial surface tension by drop weight method.
17. Determination of co-efficient of viscosity by Stokes' method – terminal velocity.
18. Determination of critical pressure for streamline flow.
19. Determination of Poisson's ratio of rubber tube.
20. Determination of viscosity by Poiseullie'sflow method.
21. Determination radius of capillary tube by mercury pellet method.
22. Determination of g using compound pendulum.

ALLIED MATHEMATICS I
ALGEBRA AND DIFFERENTIAL EQUATIONS

Objectives

- To explain the simple concepts of the theory of equations and to find the roots of the equations by using techniques in various methods.

UNIT-I:

Theory of Equations – Formation of Equations – Relation between roots and coefficients – Reciprocal equations.

UNIT-II:

Transformation of Equations –Approximate solutions to equations –Newton‟s method and Horner‟s method.

UNIT-III:

Matrices – Characteristic equation of a matrix – Eigen values and Eigen vectors – Cayley Hamilton theorem and simple Problems.

UNIT-IV:

Differential equation of first order but of higher degree – Equations solvable for p, x, y – Partial differential equations –formations – solutions –Standard form Pp+Qq=R.

UNIT-V:

Laplace transformation–Inverse Laplace transform.

Recommended Text

1. Dr.S.Arumugam & Isaac – Allied Mathematics Paper- I, New Gamma Publishing House (2012), Palayam Kottai.

Reference Books

1. Narayanan.S and T.K.Manikavachagam Pillai-Differential Equations and its applications, S.Viswanathan Printers Pvt.Ltd,2006.
2. T.Veerarajan-Algebra and Trigonometry- Yes Dee Publishing Pvt.Ltd.,(2009)

Website and e-Learning Source

1. https://nptel.ac.in

FC - INTRODUCTORY PHYSICS

COURSE OBJECTIVES:
- To help students get an overview of Physics before learning their core courses.
- To serve as a bridge between the school curriculum and the degree programme

Unit I:
Vectors, scalars –examples for scalars and vectors from physical quantities – addition, subtraction of vectors – resolution and resultant of vectors – units and dimensions– standard physics constants

Unit II:
Different types of forces–gravitational, electrostatic, magnetic, electromagnetic, nuclear –mechanical forces like, centripetal, centrifugal, friction, tension, cohesive, adhesive forces

Unit III :
Different forms of energy– conservation lawsof momentum, energy – typesof collisions –angular momentum– alternate energy sources–real life examples

Unit IV:
Types of motion– linear, projectile, circular, angular, simple harmonic motions – satellite motion – banking of a curved roads – stream line and turbulent motions – wave motion – comparisonof light and sound waves – free, forced, damped oscillations

Unit V:
Surface tension – shape of liquid drop – angle of contact – viscosity –lubricants – capillary flow – diffusion – real life examples– properties and types of materials in daily use- conductors, insulators – thermal and electric

Unit VI:
PROFESSIONAL COMPONENTS: Expert lectures –seminars —webinars – industry inputs – social accountability – patriotism

TEXT BOOKS
1. D.S. Mathur, 2010, Elements of Properties of Matter, S. Chand & Co
2. BrijLal & N. Subrahmanyam, 2003, Properties of Matter, S.Chand & Co.

REFERENCEBOOKS
1. H.R. Gulati, 1977, Fundamental of General Properties of Matter, Fifth edition, S.Chand & Co.

SEC - PHYSICS FOR EVERYDAY LIFE

Learning Objective:

To know where all physics principles have been put to use in daily life and appreciate the concepts with a better understanding also to know about Indian scientists who have made significant contributions to Physics

UNIT-I

MECHANICAL OBJECTS: spring scales – bouncing balls –roller coasters – bicycles –rockets and space travel.

UNIT-II

OPTICAL INSTRUMENTS AND LASER: vision corrective lenses – polaroid glasses – UV protective glass – polaroid camera – colour photography – holography and laser.

UNIT-III

PHYSICS OF HOME APPLIANCES: bulb – fan – hair drier –television – air conditioners – microwave ovens – vacuum cleaners

UNIT-IV

SOLAR ENERGY: Solar constant – General applications of solar energy – Solar water heaters – Solar Photo – voltaic cells – General applications of solar cells.

UNIT-V

INDIAN PHYSICIST AND THEIR CONTRIBUTIONS:

C.V. Raman, Homi Jehangir Bhabha, Vikram Sarabhai, Subrahmanyan Chandrasekhar, Venkatraman Ramakrishnan, Dr. APJ Abdul Kalam and their contribution to science and technology.

TEXT BOOKS

1. The Physics in our Daily Lives, Umme Ammara, Gugucool Publishing, Hyderabad, 2019.
2. For the love of physics, Walter Lawin, Free Press, New York, 2011.