



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 2024-2025 onwards )



Semester-I				
Part	Subject Status	Subject Title	Subject Code	Credit
I	LANGUAGE	TAMIL/MALAYALAM/HINDI	F1TL11/ F1MY11/ F1HD11	3
II	ENGLISH	ENGLISH	F2EN11	3
III	CORE	PROPERTIES OF MATTER AND ACOUSTICS	F1CPH11	5
III	CORE	PHYSICS PRACTICAL I	F1CPHP1	3
III	ELECTIVE	ALLIED MATHEMATICS I	F1FEMA11	5
IV	SEC 1	PHYSICS FOR EVERYDAY LIFE	F1FSPH11	2
IV	FC	INTRODUCTORY PHYSICS	F1FFPH11	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 **1 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**

- First Class with Distinction : CGPA  $\geq$  7.5\*
- First Class : CGPA  $\geq$  6.0
- Second Class : CGPA  $\geq$  5.0 and  $<$  6.0
- Third Class : CGPA  $<$  5.0



## பொதுத்தமிழ் 1

### தமிழ் இலக்கிய வரலாறு 1

அலகு 1: தமிழ் இலக்கிய, இலக்கண வரலாறு அறிமுகம்.

#### 1. இலக்கணம்:

அ. தொல்காப்பியம், இறையனார், களவியல் உரை, நம்பியகப் பொருள், புறப்பொருள் வெண்பா மாலை, நன்னூல் தண்டியலங்காரம், யாப்பருக்கலக்காரிகை- நூல்கள்

#### ஆ. மொழிப் பயிற்சி - ஒற்றுப்பிழை தவிர்த்தல்

- வல்லினம் மிகும் இடங்கள்
- வல்லினம் மிகா இடங்கள்
- ஈரொற்று வரும் இடங்கள்
- ஒரு, ஓர் வரும் இடங்கள்
- அது, அஃது வரும் இடங்கள்
- தான், தாம் வரும் இடங்கள்

பயிற்சி: வல்லினம் மிகும் இடங்கள், மிகா இடங்கள் தவறாக வரும்வகையில் ஒரு பத்தி கொடுத்து ஒற்றுப் பிழை திருத்தி எழுதச் செய்தல்.

2. சங்க இலக்கியம்-எட்டுத்தொகை, பாத்துப்பாட்டு
3. அற இலக்கியம்-பதினெண்கீழ்கணக்கு நூல்கள்
4. காப்பிய இலக்கியம் - ஐம்பெருங் காப்பியங்கள், ஐஞ்சிறு காப்பியங்கள், சமயக் காப்பியங்கள்
5. பக்தி இலக்கியமும் (பன்னிரு திருமுறைகள், நாலாயிர திவ்வியப் பிரபந்தம் - பகுத்தறிவு இலக்கியமும் (சித்தர் இலக்கியங்கள், புலவர் குழந்தையின் இராவண காவியம்)

#### அலகு 2: சங்க இலக்கியம்

##### எட்டுத்தொகை

1. நற்றிணை-முதல் பாடல் - நின்ற சொல்லர்
2. குறுந்தொகை 3 ஆம் பாடல் - நிலத்தினும் பெரிதே
3. ஐங்குறுநூறு-நெல் பல பொலிக! பொன் பெரிது சிறக்க! (முதல் பாடல்)-வேட்கைப் பத்து
4. கலித்தொகை -51 - சுடர்தொடிக் கேளாய் - குறிஞ்சிக் கலி
5. புறநானூறு-189 தெண்கடல் வளாகம் பொதுமையின்றி, நாடா கொன்றோ - 187

##### பத்துப்பாட்டு:

1. முல்லைப்பாட்டு (முழுவதும்)

#### அலகு 3: அற இலக்கியம்

1. திருக்குறள் - அறன் வலியுறுத்தல் அதிகாரம்
2. நாலடியார் -பாடல் 131 (கஞ்சியாழகும்)
3. நான்மணிக்கடிகை - நிலத்துக்கு அணியென்ப
4. பழமொழி நானூறு-தம் நடை நோக்கார்
5. இனியவை நாற்பது-37 இளமையை மூப்பு என்று

#### அலகு 4: காப்பிய இலக்கியம்

1. சிலப்பதிகாரம் - வழக்குரைகாதை



2. மணிமேகலை - பாத்திரம் பெற்ற காதை
3. பெரியபுராணம்- பூசலார் நாயனார்புராணம்
4. கம்பராமாயணம்-குகப் படலம்
5. சீறாப்புராணம் - மாணுக்குப் பிணை நின்ற படலம்
6. இயேசு காவியம்-ஊதாரிப்பிள்ளை

**அலகு 5: பக்தி இலக்கியமும், பகுத்தறிவு இலக்கியமும்**

**பக்தி இலக்கியம்:**

1. திருநாவுக்கரசர் தேவாரம்-நாமார்க்கும் குடியல்லோம் எனத் தொடங்கும் பாடல் மட்டும்
2. மாணிக்கவாசகர் திருவாசகம் - நமச்சிவாய வா ஆழ்க நாதன்தான் வாழ்க முதல் சிரம்குவிவார் ஓங்குவிக்கும் சீரோன் கழல் வெல்க வரை
3. பொய்கையாழ்வார்-வையந் தகனியா வர்கடலே
4. பூதத்தாழ்வார் - அன்பே தகனியா
5. பேயாழ்வார் - திருக்கண்டேன் பொன்மேனி கண்டேன்
6. ஆண்டாள் - திருப்பாவை மார்களித் திங்கள் (முதல் பாடல் )

**பகுத்தறிவு இலக்கியம்;**

1. திருமூலர் - திருமந்திரம் (270,271,274,275 285)
2. பட்டினத்தார் - திருவிடை மருதூர் (காடே திரிந்து - எனத் தொடங்கும் பாடல் பா. எண்; 279,280)
3. கடுவெளி சித்தர் - பாபஞ்செய் எதிரி மனமே (பாடல் முழுவதும்)
4. இராவண காவியம் - தாய்மொழிப் படலம் 18 ஏடுகை இல்ல ரில்லை முதல் - 22 செந்தமிழ் வளர்த்தார் வரை

**Reference Books:**

- மு. வரதராசன், தமிழ் இலக்கிய வரலாறு, சாகித்ய அக்காதமி, புதுடெல்லி
- மது. ச. விமலானந்தன், தமிழ் இலக்கிய வரலாறு, மீனாட்சி புத்தக நிலையம், மதுரை.
- தமிழண்ணல், புதிய நோக்கில் தமிழ் இலக்கிய வரலாறு, மீனாட்சி புத்தக நிலையம், மதுரை;.
- தமிழ் இளகிய வரலாறு - முனைவர் சிற்பி பாலசுப்ரமணியன், முனைவர்.சொ. சேதுபதி
- புதி யதமிழ் இலக்கிய வரலாறு - முனைவர் சிற்பி பாலசுப்ரமணியன், நீல. பத்மநாபன்

**Web Sources:**

- [இணைய தமிழ் நூலகம் - சென்னை நூலகம் - Online Tamil Library - ChennaiLibrary.com](http://இணைய_தமிழ்_நூலகம்_-_சென்னை_நூலகம்_-_Online_Tamil_Library_-_ChennaiLibrary.com)
- [முகப்பு - சிறுகதைகள் \(sirukathaigal.com\)](http://முகப்பு_-_சிறுகதைகள்_(sirukathaigal.com))
- [www.tamilvirtualuniversity.org](http://www.tamilvirtualuniversity.org)
- [Buy tamil books online 10% to 50% discount, Tamil Novels, Tamil Audio Books online - Buy tamil books online - Established 2010 \(noolulagam.com\)](http://Buy_tamil_books_online_10%_to_50%_discount,_Tamil_Novels,_Tamil_Audio_Books_online_-_Buy_tamil_books_online_-_Established_2010_(noolulagam.com))
- [www.katuraitamilblogspot.com](http://www.katuraitamilblogspot.com)



# MALAYALAM

## PAPER I- PROSE, COMPOSITION AND TRANSLATION

### Unit 1

This unit focus on the importance of Malayalam fiction, -the origin and development of Malayalam Short story –renaissance in short story—Thakazhi-Basheer-Karoor- - Navothana katha:

For detailed study:

1. Marappavakal- Karoor Neelakantappilla.
2. Uthuppante kinar.-Karoor Neelakantappilla.
3. Ezhunnallathuduty-Karoor Neelakantappilla.

### Unit II

Kathayum adhunikathayum- To familiarize – Romanticism -Modernism, Plot and narration in modern short stories

For detailed study:

1. Neippayasam –Madhavikutty
2. Kadaltheerathu-.O.V.Vijayan
3. Radha radhamathram-M.Mukundan

### Unit III

Samakala katha– Post modernism- Globalization-Women –Dalit- Cyber – Environmental issues in short stories-

The theme, structure and narrative style of the authors -comparison-

For detailed study:

1. Viyarppadayalanganl-Sara Joseph
2. Jwala - Priya .A.S
3. Vartha sareeram –Santhosh Echikkanam
4. Otta vaikkol viplavam –V.J.James

### Unit IV

This unit briefs the history of Malayalm Novel- major works, romantic period- of M T Vasudevan Nair , narrative style of Nalukettu- craft and characterization in Nalukettu

### Unit V

This unit focus on Translation, Word level and syntactic level and also discuss the writing style of Essay- introduce proverbs and paraphrasing in Malayalam

### Recommended Texts

1. Marappavakalum mattu kathakalum – Karoor Neelakantapilla. (only 3 stories (a.)Marappavakal (b)Uthuppante kinar (c) Ezhunnallathuduty))
2. Nalukettu- .Novel -M.T.Vasudevan Nair

### Reading list (print and online)

1. Adhunika Malayala Sahithya Charithram Prasthanangalilude – 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 Desakaalanganl- E. Ramkrishnan
7. Maranunna Malayala Noval- K.P. Appan
8. Andhanaya Daivam- P.K.Rajasekharan
9. Shyalee shilppam- Dr.K.M. Prabhakra Warier
10. Bhasha gadhyam- C.V. Vasudeva Bhattathiri
11. Karur Kadha patanam- M.M.Basheer



# **HINDI - Hindi ka Samanya Gyan, Vyakaran aur Nibandh**

## **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 (1 to 5)
- 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 priksa par adharit nibandho dwara bhasha ki kshamta badhane vale prashikshan kary.

### **Reference Books**

1. Hindi ke Avyay Vakyansh – Chaturbhuji Sahay
2. Subodh Hindi Vyakaran – Phoolchand Jain
3. Sankshipt Hindi Vyakaran – Kamta Prasad
4. Vyavaharik Hindi – Nagappa
5. Abhinav Hindi Vyakaran – 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** (MOOCs, SWAYAM, NPTEL, YouTube, Websites, etc.)

1. [fr#oYyqoj%https://bharatdiscovery.org/india/%E0%A4%A4%E0%A4BF%E0%A4B0%E0%A581%E0%A4B5%E0%A4B2%E0%A58D%E0%A4B2%E0%A581%E0%A4B5%E0%A4B2%E0%A58D%E0%A4B2%E0%A581%E0%A4B5%E0%A4B020\(%E0%A485%E0%A482%E0%A497%E0%A58DE0%A4B0%E0%A587%E0%A49C%E0%A4BC%E0%A5803A%20Thiruvallur\)%20%E0%A4A6%E0%A495%E0%A58D%E0%A4B7%E0%A4BF%E0%A4A3,%E0%A4AA%E0%A4BF%E0%A4A4%E0%A4BE%20E0%A4AE%E0%A587%E0%A482%20%E0%A4B5%E0%A4BF%E0%A4B6%E0%A58D%E0%A4B5%E0%A4BE%E0%A4B8%20%E0%A4B0%E0%A496%E0%A4A4%E0%A587%20%E0%A4A5%E0%A587%E0%A5A4](https://bharatdiscovery.org/india/%E0%A4%A4%E0%A4BF%E0%A4B0%E0%A581%E0%A4B5%E0%A4B2%E0%A58D%E0%A4B2%E0%A581%E0%A4B5%E0%A4B2%E0%A58D%E0%A4B2%E0%A581%E0%A4B5%E0%A4B020(%E0%A485%E0%A482%E0%A497%E0%A58DE0%A4B0%E0%A587%E0%A49C%E0%A4BC%E0%A5803A%20Thiruvallur)%20%E0%A4A6%E0%A495%E0%A58D%E0%A4B7%E0%A4BF%E0%A4A3,%E0%A4AA%E0%A4BF%E0%A4A4%E0%A4BE%20E0%A4AE%E0%A587%E0%A482%20%E0%A4B5%E0%A4BF%E0%A4B6%E0%A58D%E0%A4B5%E0%A4BE%E0%A4B8%20%E0%A4B0%E0%A496%E0%A4A4%E0%A587%20%E0%A4A5%E0%A587%E0%A5A4)

2. [bZ-os-jkelkeh](https://hi.wikipedia.org/wiki/%E0%A4AA%E0%A587%E0%A4B0%E0%A4BF%E0%A4AF%E0%A4BE%E0%A4B0#:~:text=%E0%A487%E0%A4B0%E0%A58B%E0%A4A1%20%E0%A4B5%E0%A587%E0%A482%E0%A495%E0%A49F%20%E0%A4A8%E0%A4BE%E0%A4AF%E0%A495%E0%A4B0%20%E0%A4B0%E0%A4BE%E0%A4AE%E0%A4BE%E0%A4B8%E0%A4BE%E0%A4AE%E0%A58020(17.%E0%A4B5%E0%A4BE%E0%A4B2%E0%A587%20%E0%A4B9%E0%A4BF%E0%A4A8%E0%A58D%E0%A4A6%E0%A581%E0%A4A4%E0%A58D%E0%A4B5%20%E0%A495%E0%A4BE%20%E0%A4B5%E0%A4BF%E0%A4B0%E0%A58B%E0%A4A7%20%E0%A4A5%E0%A4BE%E0%A5A4)

3. [ukjh l'kfDrdj.k%](https://www.hindikiduniya.com/essay/women-empowerment-essayinhindi/#:~:text=%E0%A4AE%E0%A4B9%E0%A4BF%E0%A4B2%E0%A4BE%20%E0%A4B8%E0%A4B6%E0%A495%E0%A58D%E0%A4A4%E0%A4BF%E0%A495%E0%A4B0%E0%A4A3%20%E0%A495%E0%A58D%E0%A4AF%E0%A4BE%20%E0%A4B9%E0%A588%20%3F&text=%E0%A4AE%E0%A4B9%E0%A4BF%E0%A4B2%E0%A4BE%20%E0%A4B8%E0%A4B6%E0%A495%E0%A58D%E0%A4A4%E0%A4BF%E0%A495%E0%A4B0%E0%A4A3%20%E0%A495%E0%A58B%20%E0%A4AC%E0%A587%E0%A4B9%E0%A4A6%20%E0%A486%E0%A4B8%E0%A4BE%E0%A4A8,%E0%A4B8%E0%A495%E0%A58D%E0%A4B7%E0%A4AE%20%E0%A4AC%E0%A4A8%E0%A4BE%E0%A4A8%E0%A4BE%20%E0%A4AE%E0%A4B9%E0%A4BF%E0%A4B2%E0%A4BE%20%E0%A4B8%E0%A4B6%E0%A495%E0%A58D%E0%A4A4%E0%A4BF%E0%A495%E0%A4B0%E0%A4A3%20%E0%A4B9%E0%A588%E0%A5A4)

4. [i;kZoj.k laj{k.k%](https://hi.wikipedia.org/wiki/%E0%A4AA%E0%A4B0%E0%A58D%E0%A4AF%E0%A4BE%E0%A4B5%E0%A4B0%E0%A4A3_%E0%A4B8%E0%A488%E0%A4B0%E0%A495%E0%A58D%E0%A4B7%E0%A4A3#:~:text=%E0%A4AA%E0%A4B0%E0%A58D%E0%A4AF%E0%A4BE%E0%A4B5%E0%A4B0%E0%A4A3%20%E0%A4B8%E0%A482%E0%A4B0%E0%A495%E0%A58D%E0%A4B7%E0%A4A3%20%E0%A495%E0%A4BE%20%E0%A4B8%E0%A4AE%E0%A4B8%E0%A58D%E0%A4A4%20%E0%A4AA%E0%A58D%E0%A4B0%E0%A4BE%E0%A4A3%E0%A4BF%E0%A4AF%E0%A58B%E0%A482,%E0%A4AA%E0%A583%E0%A4A5%E0%A58D%E0%A4B5%E0%A580%20%E0%A4B8%E0%A4AE%E0%A58D%E0%A4AE%E0%A587%E0%A4B2%E0%A4A8'20%E0%A486%E0%A4AF%E0%A58B%E0%A49C%E0%A4BF%E0%A4A4%20%E0%A495%E0%A4BF%E0%A4AF%E0%A4BE%20%E0%A497%E0%A4AF%E0%A4BE%E0%A5A4)

a. [http://gadyakosh.org/gk/%E0%A486%E0%A488%E0%A4AF%E0%A587!\\_%E0%A4AA%E0%A4B0%E0%A58D%E0%A4AF%E0%A4BE%E0%A4B5%E0%A4B0%E0%A4A3\\_%E0%A4AC%E0%A49A%E0%A4BE%E0%A48F%E0%A481\\_/\\_%E0%A485%E0%A4A8%E0%A58D%E0%A4A4%E0%A4B0%E0%A4BE\\_%E0%A495%E0%A4B0%E0%A4B5%E0%A4A1%E0%A4BC%E0%A587](https://hi.wikipedia.org/wiki/%E0%A4AA%E0%A4B0%E0%A58D%E0%A4AF%E0%A4BE%E0%A4B5%E0%A4B0%E0%A4A3_%E0%A4B8%E0%A488%E0%A4B0%E0%A495%E0%A58D%E0%A4B7%E0%A4A3#:~:text=%E0%A4AA%E0%A4B0%E0%A58D%E0%A4AF%E0%A4BE%E0%A4B5%E0%A4B0%E0%A4A3%20%E0%A4B8%E0%A482%E0%A4B0%E0%A495%E0%A58D%E0%A4B7%E0%A4A3%20%E0%A495%E0%A4BE%20%E0%A4B8%E0%A4AE%E0%A4B8%E0%A58D%E0%A4A4%20%E0%A4AA%E0%A58D%E0%A4B0%E0%A4BE%E0%A4A3%E0%A4BF%E0%A4AF%E0%A58B%E0%A482,%E0%A4AA%E0%A583%E0%A4A5%E0%A58D%E0%A4B5%E0%A580%20%E0%A4B8%E0%A4AE%E0%A58D%E0%A4AE%E0%A587%E0%A4B2%E0%A4A8'20%E0%A486%E0%A4AF%E0%A58B%E0%A49C%E0%A4BF%E0%A4A4%20%E0%A495%E0%A4BF%E0%A4AF%E0%A4BE%20%E0%A497%E0%A4AF%E0%A4BE%E0%A5A4)

b. [http://gadyakosh.org/gk/%E0%A486%E0%A488%E0%A4AF%E0%A587!\\_%E0%A4AA%E0%A4B0%E0%A58D%E0%A4AF%E0%A4BE%E0%A4B5%E0%A4B0%E0%A4A3\\_%E0%A4AC%E0%A49A%E0%A4BE%E0%A48F%E0%A481\\_/\\_%E0%A485%E0%A4A8%E0%A58D%E0%A4A4%E0%A4B0%E0%A4BE\\_%E0%A495%E0%A4B0%E0%A4B5%E0%A4A1%E0%A4BC%E0%A587](http://gadyakosh.org/gk/%E0%A486%E0%A488%E0%A4AF%E0%A587!_%E0%A4AA%E0%A4B0%E0%A58D%E0%A4AF%E0%A4BE%E0%A4B5%E0%A4B0%E0%A4A3_%E0%A4AC%E0%A49A%E0%A4BE%E0%A48F%E0%A481_/_%E0%A485%E0%A4A8%E0%A58D%E0%A4A4%E0%A4B0%E0%A4BE_%E0%A495%E0%A4B0%E0%A4B5%E0%A4A1%E0%A4BC%E0%A587)



## **PAPER II –GENERAL ENGLISH - I**

### **Learning Objectives**

- To enable learners to acquire self awareness and positive thinking required in various life situations.
- To help them acquire the attribute of empathy
- To assist them in acquiring creative and critical thinking abilities
- To enable them to learn the basic grammar
- To assist them in developing LSRW skills

### **Unit I**

#### **SELF-AWARENESS (WHO)&POSITIVE THINKING (UNICEF)**

##### **Life Story**

- 1.1 Chapter 1 from Malala Yousafzai, I am Malala
- 1.2 An Autobiography or The Story of My Experiments with Truth (Chapters 1, 2 & 3) M.K.Gandhi

##### **Poem**

- 1.3 Where the Mind is Without Fear – Gitanjali 35 – Rabindranath Tagore
- 1.4 Love Cycle – Chinua Achebe

### **Unit II**

#### **EMPATHY**

##### **Poem**

- 2.1 Nine Gold Medals – David Roth
- 2.2 Alice Fell or poverty – William Wordsworth

##### **Short Story**

- 2.3 The School for Sympathy – E.V. Lucas
- 2.4 Barn Burning – William Faulkner

### **Unit III**

#### **CRITICAL & CREATIVE THINKING**

##### **Poem**

- 3.1 The Things That Haven't Been Done Before – Edgar Guest
- 3.2 Stopping by the Woods on a Snowy Evening – Robert Frost

##### **Readers Theatre**

- 3.3 The Magic Brocade – A Tale of China
- 3.4 Stories on Stage – Aaron Shepard (Three Sideway Stories from Wayside School" by Louis Sachar)

### **Unit IV**

#### **Part of Speech**

- 4.1 Articles
- 4.2 Noun
- 4.3 Pronoun
- 4.4 Verb
- 4.5 Adverb
- 4.6 Adjective
- 4.7 Preposition





**Unit V****Paragraph and Essay Writing**

- 5.1 Descriptive
- 5.2 Expository
- 5.3 Persuasive
- 5.4 Narrative

**Text books (Latest Editions)**

1. MalalaYousafzai. I am Malala, Little, Brown and Company, 2013.
2. M.K. Gandhi. An Autobiography or The Story of My Experiments with Truth (Chapter – I), Rupa Publications, 2011.
3. Rabindranath Tagore. "Gitanjali 35" from Gitanjali (Song Offerings): A Collection of Prose Translations Made by the Author from the Original Bengali. MacMillan, 1913.
4. N.Krishnasamy. Modern English: A Book of Grammar, Usage and Composition Macmillan, 1975.
5. Aaron Shepard. Stories on Stage, ShepardPublications, 2017.
6. J.C. Nesfield. English Grammar Composition and Usage, Macmillan, 2019.

**Web Resources**

1. MalalaYousafzai. I am Malala (Chapter 1) <https://archive.org/details/i-am-malala>
2. M.K Gandhi. An Autobiography or The Story of My Experiments with Truth(Chapter-1)- Rupa Publication, 2011 <https://www.indiastudychannel.com/resources/146521-Book-Review-An-Autobiography-or-The-story-of-my-experiments-with-Truth.aspx>
3. Rabindranath Tagore. "Gitanjali 35" from Gitanjali (Song Offerings)<https://www.poetryfoundation.org/poems/45668/gitanjali-35>
4. Aaron Shepard.Stories on Stage, Shepard Publications, 2017 <https://amzn.eu/d/9rVzINv>
5. JC Nesfield. Manual of English Grammar and Composition. <https://archive.org/details/in.ernet.dli.2015.44179>

**PROPERTIES OF MATTER AND ACOUSTICS****COURSE OBJECTIVES**

- Study of the properties of matter leads to information which is of practical value to both the physicist and the engineers. It gives us information about the internal forces which act between the constituent parts of the substance. Students who undergo this course are successfully bound to get a better insight and understanding of the subject.

**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 a wire –Twisting couple on a cylinder – Rigidity modulus by torsion pendulum (with and without masses).



**UNIT-II**

**BENDING OF BEAMS:** Expression for the bending moment – Expression for depression at the loaded end of the cantilever–Experiment to determine Young's modulus by cantilever depression. Experiment to find Young's modulus by non-uniform bending. Uniform bending – Expression for elevation – Experiment to determine Young's modulus by uniform bending method using microscope.

**UNIT-III**

**FLUID DYNAMICS:** Surface tension: definition –molecular forces -Excess pressure over curved surface – application to spherical and cylindrical drops and bubbles. Viscosity: definition – streamline and turbulent flow – rate of flow of liquid in a capillary tube – Poiseuille's formula –terminal velocity and Stoke's formula.

**UNIT-IV**

**WAVES AND OSCILLATIONS:** Simple Harmonic Motion (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 – factors affecting the acoustics of buildings.Ultrasonic waves: Production of ultrasonic waves – Piezoelectric crystal method – Detection of ultrasonic waves-application of ultrasonic waves.

**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. R.Murugesan, 2012, Properties of Matter, S.Chandand 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.



## CORE PRACTICAL 1

### COURSE OBJECTIVES

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

### Minimum of Six Experiments from the list:

1. Determination of rigidity modulus without mass using a Torsional pendulum.
2. Determination of rigidity modulus with masses using a Torsional pendulum.
3. Determination of moment of inertia and  $g$  using a Bifilar pendulum.
4. Determination of Young's modulus by uniform bending using pin and microscope.
5. Determination of Young's modulus by non-uniform bending using scale and telescope.
6. Determination of Young's modulus by the cantilever depression method.
7. Determination of rigidity modulus by static torsion.
8. Determination of  $Y$ ,  $n$  and  $K$  by Searle's double bar method.
9. Determination of the frequency of AC by using a sonometer.
10. Determination of surface tension and interfacial surface tension by the drop weight method.
11. Determination of the co-efficient of viscosity by Stokes' method.
12. Determination of Poisson's ratio of a rubber tube.
13. Determination of viscosity by Poiseuille's flow method.
14. Determination of frequency of an electrically maintained tuning fork.
15. Determination of  $g$  using a compound pendulum.

## ALLIED MATHEMATICS I ALGEBRA AND DIFFERENTIAL EQUATIONS

### Objectives of the Course

- 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 and A. Thangapandi Isaac–Allied Mathematics Paper-I, New Gamma Publishing House, 2012.

**Reference Books**

1. S.Narayanan.S and T.K.Manikavachagom Pillay -Differential Equations and its applications, S.Viswanathan Printers Pvt.Ltd,2006.
2. T.Veerarajan-Algebra and Trigonometry-YesDee Publishing Pvt.Ltd.,2009.

**Website and e-Learning Source**

1. <https://nptel.ac.in>

## **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– bicycles –rockets and space travel.

**UNIT-II**

**OPTICAL INSTRUMENTS AND LASER:** vision corrective lenses – Polaroid glasses – UV protective glass – holography and laser.



### **UNIT-III**

**PHYSICS OF HOME APPLIANCES:** filament bulb – ceiling fan – hair drier – refrigerator – wet grinder

### **UNIT-IV**

**SOLAR ENERGY:** Solar constant – General applications of solar energy – Solar water heaters – Solar Photovoltaic cells – online- offline solar power system.

### **UNIT-V**

**INDIAN PHYSICIST AND THEIR CONTRIBUTIONS:** C.V.Raman, Homi Jehangir Bhabha, Vikram Sarabhai, Subrahmanyan Chandrasekhar, Dr. APJ Abdul Kalam and their contribution to science and technology.

### **TEXT BOOKS**

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

## **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 forces –Mechanical Forces like, centripetal, centrifugal forces.

### **UNIT-III**

#### **Work, Power and Energy:**

Work done by the force Power Kinetic energy – potential energy – work energy theorem – principle of conservation of Energy Work-Energy Theorem - Conservation laws of momentum,–angular momentum.



## UNIT-IV

### Types of motion:

Linear, Projectile, Circular, Angular, Simple Harmonic motions – stream line and turbulent motions – wave motion – comparison of light and sound waves .

## UNIT-V

**Properties and types of materials:** Conductors, Semi-Conductors and Insulators – Thermal And Electric Properties – Introduction to Super Conductors.

## 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.

## REFERENCE BOOKS

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

## WEBLINKS

1. <http://hyperphysics.phy-astr.gsu.edu/hbase/permot2.html><https://science.nasa.gov/ems/>
2. [https://eesc.columbia.edu/courses/ees/climate/lectures/radiation\\_hays/](https://eesc.columbia.edu/courses/ees/climate/lectures/radiation_hays/)



