

## Dr. N.G.P. ARTS AND SCIENCE COLLEGE (Autonomous)

### REGULATIONS 2024-25 for Under Graduate Programme (Outcome Based Education model with Choice Based Credit System)

#### B.Sc. Degree

(For the students admitted during the academic year 2024-25 and onwards)

#### Programme: B.Sc. Physics

#### Eligibility

A pass in Higher Secondary Examination in Academic stream or Vocational stream under Higher Secondary Board of Examination, Tamil Nadu with Physics as one of the subjects and as per the norms set by the Government of Tamil Nadu or an Examination accepted as equivalent there to by the Academic Council, subject to such conditions as may be prescribed thereto are permitted to appear and qualify for the **Bachelor of Physics Degree Examination** of this College after a program of study of three Academic years.

#### Programme Educational Objectives

The Curriculum is designed to attain the following learning goals which students shall accomplish by the time of their graduation:

1. Producing graduates who are well acquainted with the fundamentals of Physics and requisite skills, in order to use their knowledge in Physics in a wide range of practical applications.
2. Developing creative thinking and the power of imagination to enable graduates work in research in academia and industry for broader applications.
3. Relating the training of Physics graduates to the employment opportunities within the country.
4. To promote societal values through Physics related activities.



**PROGRAMME OUTCOMES:**

On the successful completion of the program, the following are the expected outcomes.

PO Number	PO Statement
PO1	Demonstrate an understanding of basic scientific principles, theories, and laws in Physics as well as an awareness of the changing nature of science.
PO2	Analyze, interpret, and evaluate scientific hypotheses and theories using rigorous methods use appropriate mathematical techniques and concepts to obtain quantitative solutions to problems in Physics.
PO3	Demonstrate basic experimental skills by the practice of setting up and conducting experiments with minimizing measurement errors.
PO4	Demonstrate a qualitative understanding of the core physics ideas and the relationship of this physics to the humanities through both written and oral communication.
PO5	Demonstrate an ability to recognize the need for life-long learning for sustaining professional career.



## UG - Credit distribution - Common for R6

For students admitted in AY 24-25 and onwards.

Part	Subjects	No. of Papers	Credit	Semester No.
<b>I</b> (12 Credits)	Tamil / Hindi / French/Malayalam	4	4 x 3 = 12	I & IV
<b>II</b> (12 Credits)	English	4	4 x 3 = 12	I & IV
<b>III</b> (108 Credits)	Core (Credits 2,3,4,5)	16-19	70	I to VI
	Inter Departmental Course (IDC)	4	16	I to IV
	Discipline Specific Elective (DSE)	3	3 x 4 =12	V & VI
	Skill Enhancement Course(SEC)	4	8	III,IV,V& VI
	Industrial Training	1	2	V
<b>IV</b> (8 Credits)	Environmental Studies(AECC)	1	2	I
	Basic Tamil/ Advance Tamil /Human Rights & Women's Rights(AECC)	1	2	II
	Innovation & IPR/Innovation, IPR & Entrepreneurship (AECC)	1	2	VI
	Generic Elective(GE) (AEEC)	1	2	V
<b>V</b> (2 Credits)	NSS/NCC/YRC/RRC/Yoga/Sports/Clubs	-	2	I -II
<b>TOTAL CREDITS</b>			<b>142</b>	



Dr. NGPASC

COIMBATORE | INDIA

*B.Sc. Physics (Students admitted during the AY 2024-25)*

**CURRICULUM**  
**PROGRAMME NAME – B.Sc., Physics**  
**A.Y:24-25**

Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
<b>First Semester</b>												
<b>Part- I</b>												
24TLU1TA	Language-I	Tamil-I	4	1	-	5	60	3	25	75	100	3
24TLU1HA		Hindi-I										
24TLU1MA		Malayalam-I										
24TLU1FA		French-I										
<b>Part- II</b>												
24ELU1EA	Language-II	English -I	4	-	1	5	60	3	25	75	100	3
<b>Part- III</b>												
24PYU1CA	Core- I	Properties of Matter and Sound	4	1	-	5	60	3	25	75	100	4
24PYU1CB	Core -II	Mechanics	4	-	-	4	48	3	25	75	100	3
24PYU1CP	Core Practical -I	Properties of matter and Mechanics	-	-	4	4	48	3	40	60	100	2
24MTU1IM	IDC -I	Fundamentals of Mathematics with MATLAB	3	-	2	5	60	3	40	60	100	3
<b>Part-IV</b>												
24MBU1AA	AECC-I	Environmental Studies	2	-	-	2	24		50	-	50	2
<b>Part - V</b>												
24PYU1XA	Extension Activity	NSS/NCC/ YRC/RRC/ Yoga/Sports/Clubs	-	-	-	-	-	-	50	-	50	1
<b>Total</b>			<b>21</b>	<b>2</b>	<b>7</b>	<b>30</b>	<b>360</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>700</b>	<b>21</b>



Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
<b>Second Semester</b>												
<b>Part-I</b>												
24TLU2TA	Language-I	Tamil-II	4	1	-	5	60	3	25	75	100	3
24TLU2HA		Hindi-II										
24TLU2MA		Malayalam-II										
24TLU2FA		French-II										
<b>Part- II</b>												
24ELU2EA	Language-II	English - II	4	-	1	5	60	3	25	75	100	3
<b>Part- III</b>												
24PYU2CA	Core- III	Heat and Thermodynamics	4	-	-	4	48	3	25	75	100	4
24PYU2CB	Core -IV	Atomic Physics	4	1	-	5	60	3	25	75	100	4
24PYU2CP	Core Practical- II	Heat and Thermodynamics	-	-	4	4	48	3	40	60	100	2
24MTU2IM	IDC- II	Statistical Analysis and Tools	3	-	2	5	60	3	40	60	100	4
<b>Part-IV</b>												
24TLU2AA/ 24TLU2AB/ 24CRU2AA	AECC-II	Basic Tamil/ Advance Tamil/ Human Rights and Women's Rights	2	-	-	2	24	2	50	-	50	2
<b>Part-V</b>												
24PYU2XA	Extension Activity	NSS/NCC/ YRC/RRC/ Yoga/Sports/Clubs	-	-	-	-	-	-	50	-	50	1
<b>Total</b>			<b>21</b>	<b>2</b>	<b>7</b>	<b>30</b>	<b>360</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>700</b>	<b>23</b>



Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
<b>Third Semester</b>												
<b>Part-I</b>												
24TLU3TA	Language-I	Tamil-III	3	1	-	4	48	3	25	75	100	3
24TLU3HA		Hindi-III										
24TLU3MA		Malayalam-III										
24TLU3FA		French-III										
<b>Part- II</b>												
24ELU3EA	Language-II	English -III	3	1	-	4	48	3	25	75	100	3
<b>Part- III</b>												
24PYU3CA	Core -V	Electricity and Magnetism	4	-	-	4	48	3	25	75	100	4
24PYU3CB	Core -VI	Nuclear Physics	3	-	-	3	36	3	25	75	100	3
24PYU3CP	Core Practical- III	Electricity and Magnetism	-	-	4	4	48	3	40	60	100	2
24CEU3IM	IDC -III	Chemistry-I	3	-	4	7	84	3	40	60	100	5
24PYU3SM	SEC-I	Basic Computer Skills	2	-	2	4	48	3	40	60	100	2
<b>Total</b>			<b>18</b>	<b>02</b>	<b>10</b>	<b>30</b>	<b>360</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>700</b>	<b>22</b>



Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
<b>Fourth Semester</b>												
<b>Part-I</b>												
24TLU4TA	Language-I	Tamil-IV	3	1	-	4	48	3	25	75	100	3
24TLU4HA		Hindi-IV										
24TLU4MA		Malayalam-IV										
24TLU4FA		French-IV										
<b>Part- II</b>												
24ELU4EA	Language-II	English -IV	3	1	-	4	48	3	25	75	100	3
<b>Part- III</b>												
24PYU4CA	Core- VII	Optics and Spectroscopy	4	-	-	4	48	3	25	75	100	4
24PYU4CB	Core -VIII	Principles of Electronics and Communication	4	-	-	4	48	3	25	75	100	4
24PYU4CP	Core Practical- IV	Optics and Spectroscopy	-	-	4	4	48	3	40	60	100	2
24CEU4IM	IDC -IV	Chemistry-II	3	-	4	7	84	3	40	60	100	5
24PYU4SA	SEC-II	Concepts and Programming in C	3	-	-	3	36	3	25	75	100	2
<b>Total</b>			<b>20</b>	<b>2</b>	<b>08</b>	<b>30</b>	<b>360</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>700</b>	<b>23</b>



Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
<b>Fifth Semester</b>												
<b>Part-III</b>												
24PYU5CA	Core- IX	Mathematical Physics	4	1	-	5	60	3	25	75	100	5
24PYU5CB	Core -X	Classical and Statistical Methods	4	-	-	4	48	3	25	75	100	4
24PYU5CC	Core -XI	Solid State Physics	4	1	-	5	60	3	25	75	100	5
24PYU5CP	Core Practical- V	Advanced Physics	-	-	4	4	48	3	40	60	100	2
24PYU5CQ	Core Practical -VI	C Programming	-	-	4	4	48	3	40	60	100	2
24PYU5SA	SEC-III	Fundamental of IoT	2	-	-	2	24	3	25	75	100	2
24PYU5DA	DSE -I	Renewable energy Sources	4	-	-	4	48	3	25	75	100	4
24PYU5DB		Laser Physics										
24PYU5DC		Physics of Devices and Instrumentation										
24PYU5TA	IT	Industrial Training							40	60	100	2
<b>Part IV</b>												
	GE		2	-	-	2	24	2	50	-	50	2
<b>Total</b>			<b>20</b>	<b>2</b>	<b>8</b>	<b>30</b>	<b>360</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>850</b>	<b>28</b>






Course Code	Course Category	Course Name	L	T	P	Instruction Hours		Exam (h)	Max Marks			Credits
						Week	Total		CIA	ESE	Total	
<b>Sixth Semester</b>												
<b>Part-III</b>												
24PYU6CA	Core -XII	Relativity and Quantum Mechanics	4	-	-	4	48	3	25	75	100	4
24PYU6CB	Core -XIII	Digital electronics and Microprocessors	3	-	-	3	36	3	25	75	100	3
24PYU6CP	Core Practical -VII	Electronics	-	-	4	4	48	3	40	60	100	2
24PYU6CV	Core -XIV	Project	-	-	7	7	84	3	40	60	100	4
24PYU6SA	SEC-IV	Fundamentals of AI	2	-	-	2	24	3	25	75	100	2
24PYU6DA	DSE -II	Nanophysics	4	-	-	4	48	3	25	75	100	4
24PYU6DB		Materials Science										
24PYU6DC		Radiation Physics										
24PYU6DD	DSE -III	Solar Photovoltaic Technology	4	-	-	4	48	3	25	75	100	4
24PYU6DE		Astrophysics										
24PYU6DF		Biomedical Instrumentation										
<b>Part-IV</b>												
24BCU6AA	AECC-III	Innovation, IPR & Entrepreneurship	2	-	-	2	24	-	50	-	50	2
<b>Total</b>			<b>19</b>	<b>-</b>	<b>11</b>	<b>30</b>	<b>360</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>750</b>	<b>25</b>
<b>Grand Total</b>											<b>4400</b>	<b>142</b>

Total Credit should not exceed 142 credits

Theory : CIA 25: ESE 75


Practical/ IT/ Project : CIA 40: ESE 60

  
 BoS Chairman/HoD  
 Department of Physics  
 Dr. N. G. P. Arts and Science College  
 Coimbatore - 641 048



Dr.NGPASC

COIMBATORE | INDIA

 Dr.N.G.P. Arts and Science College		
<b>APPROVED</b>		
BoS- 5/4/24	AC - 17/4/24	GB -



B.Sc. Physics (Students admitted during the AY 2024-25)

## DISCIPLINE SPECIFIC ELECTIVE

Students shall select the desired course of their choice in the listed elective course during Semesters V&VI

### Semester V (Elective I) List of Elective Courses

S.No.	Course Code	Name of the Course
1.	24PYU5DA	Renewable energy Sources
2.	24PYU5DB	Laser Physics
3.	24PYU5DC	Physics of Devices and Instrumentation

### Semester VI (Elective II) List of Elective Courses

S.No.	Course Code	Name of the Course
1.	24PYU6DA	Nanophysics
2.	24PYU6DB	Materials Science
3.	24PYU6DC	Radiation Physics

### Semester VI (Elective III) List of Elective Courses

S.No.	Course Code	Name of the Course
1.	24PYU6DD	Solar Photovoltaic Technology
2.	24PYU6DE	Astrophysics
3.	24PYU6DF	Biomedical Instrumentation



**GENERIC ELECTIVE COURSE (GE)**

The following course offered under Generic Elective Course

**Semester V (GE)**

S.No.	Course Code	Course Name
1.	24PYU5GA	Ecophysics

**EXTRA CREDIT COURSES**

The following are the courses offered under self-study to earn extra credits:

**Semester III**

S.No.	Course Code	Course Name
1.	24PYUSSA	Electrical and Electronic Appliances
2.	24PYUSSB	Biophysics



Dr.NGPASC

COIMBATORE | INDIA

*B.Sc. Physics (Students admitted during the AY 2024-25)*

Semester – I							
TAMIL - I							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	24TLU1TA	TAMIL - I	LANGUAGE-I	48	12	-	3

<b>Preamble</b>	மொழிப்பாடங்களின் வாயிலாக தமிழரின் பண்பாடுநாகரீகம், பகுத்தறிவு ஆகியவற்றை அறியச் செய்தல்
	கலை மற்றும் மரபுகளை அறியச் செய்தல்
	மாணவர்களின் படைப்பாக்கத்திறன்களை ஊக்குவித்தல்
<b>Prerequisite</b>	தமிழ் மொழி எழுதி படிக்கும் திறன்

Course Outcomes (Cos)		
CO.No.	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	வாழ்க்கைத்திறன்கள் (Life Skills)-மாணவர்களின் செயலாக்கத்திறனை ஊக்குவித்தல்	K2
CO2	மதிப்புக்கல்வி (Attitude and Value education)	K3
CO3	பாடஇணைச்செயல்பாடுகள் (Co-curricular activities)	K3
CO4	சூழலியல் ஆக்கம் (Ecology)	K4
CO5	மொழி அறிவு (Tamil knowledge)	K4

Mapping with Program Outcomes:					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1		✓	✓		✓
CO2	✓			✓	
CO3		✓			✓
CO4			✓		
CO5	✓			✓	✓



## Syllabus:

Unit	Content	Hrs	Resources
1	<p><b>மறுமலர்ச்சிக் கவிதைகள்</b></p> <p>1. இலக்கிய வரலாறு -மறுமலர்ச்சிக் கவிஞர்களின்தமிழ்ப்பணிகள்</p> <p>2. பாரததேசம்- பாரதியார்</p> <p>3. படி - பாரதிதாசன்</p> <p>4. தமிழரின் பெருமை- நாமக்கல்கவிஞர்</p> <p>5. தமிழ்க் கொலை புரியாதீர்- புலவர் குழந்தை</p> <p>6. திரைத்தமிழ்</p> <p>அ) 'விஞ்ஞானத்த வளர்க்கப் போறண்டி' எனத்தொடங்கும் பாடல் - உடுமலை நாராயண கவி</p> <p>ஆ) 'சும்மா கிடந்த நிலத்தை' எனத்தொடங்கும் பாடல் - பட்டுக்கோட்டை கல்யாண சுந்தரனார்</p> <p>இ) 'சமரசம் உலாவும் இடமே' எனத்தொடங்கும் பாடல் - மருதகாசி</p> <p>ஈ) 'உன்னை அறிந்தால்' எனத்தொடங்கும் பாடல்-கண்ணதாசன்</p>	13	<p>தமிழ்மொழிப்பாடம் முதற்பருவம் 2024-2025 <a href="https://www.youtube.com/watch?v=Up55uhkk9zl">https://www.youtube.com/watch?v=Up55uhkk9zl</a></p>
2	<p><b>புதுக்கவிதைகள்</b></p> <p>1. இலக்கிய வரலாறு- புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்</p> <p>2. கடமையைச் செய்- மீரா</p> <p>3. ஓடு ஓடு சங்கிலி - சிற்பி பாலசுப்பிரமணியம்</p> <p>4. ஒப்பிலாத சமுதாயம் - அப்துல் ரகுமான்</p> <p>5. மரங்கள் - மு.மேத்தா</p> <p>6. கரிக்கிறது தாய்ப்பால்- ஆரூர் தமிழ்நாடன்</p> <p>7. ஐந்தாம் வகுப்பு 'அ' பிரிவு - நா. முத்துக்குமார்</p> <p>8. ஹைகூ கவிதைகள் - 10 கவிதைகள்</p>	13	<p>தமிழ்மொழிப்பாடம் முதற்பருவம் 2024-2025 <a href="https://www.youtube.com/watch?v=dX9ZaNJMac0">https://www.youtube.com/watch?v=dX9ZaNJMac0</a></p>
3	<p><b>பெண்ணியம்</b></p> <p>1. தொலைந்து போனேன் - தாமரை</p> <p>2. நீரில் அலையும் முகம் - அ. வெண்ணிலா</p> <p>3. தற்காத்தல் - பொன்மணி வைரமுத்து</p> <p>4. ஏனிந்த வித்தியாசங்கள்? - மல்லிகா</p> <p>5. புதையுண்ட வாழ்க்கை - சுகந்தி சுப்ரமணியன்</p>	10	<p>தமிழ்மொழிப்பாடம் முதற்பருவம் 2024-2025 <a href="https://www.youtube.com/watch?v=DLaBokqWEdg">https://www.youtube.com/watch?v=DLaBokqWEdg</a></p>
4	<p>1.இலக்கிய வரலாறு-சிறுகதையின் தோற்றமும் வளர்ச்சியும்</p> <p>2. கனகாம்பரம்- கு.ப.ராஜகோபாலன்</p> <p>3. கடிதம்- புதுமைப்பித்தன்</p> <p>4. பொம்மை - ஜெயகாந்தன்</p> <p>5. காய்ச்சமரம் - கி. ராஜநாராயணன்</p> <p>6. காட்டில் ஒருமான்- அம்பை</p> <p>7.வேட்கை - சூர்யகாந்தன்</p>	14	<p>தமிழ்மொழிப்பாடம் முதற்பருவம் 2024-2025 <a href="https://www.youtube.com/watch?v=78u7ITN3OU8">https://www.youtube.com/watch?v=78u7ITN3OU8</a></p>



5	<p><b>பயிற்சிப் பகுதி</b> <b>அ. இலக்கணம்</b></p> <p>1. வல்லின ஒற்று மிகும், மிகா இடங்கள் - ஒற்றுப்பிழை நீக்கிஎழுதுதல்</p> <p>2. ர,ற-ல,ழ,ள - ண,ந,னவேறுபாடு - ஒலிப்பு நெறி, சொற்பொருள் வேறுபாடு அறிதல்</p> <p><b>ஆ. படைப்பாக்கம்</b></p> <p>1. கவிதை- எழுதுதல் (15 வரிகள் முதல் 30 வரிகள் வரை)</p> <p>2. சிறுகதை - எழுதுதல் (குறைந்தது 3 பக்கங்கள்)</p>	10	<p>தமிழ்மொழிப்பாடம் முதற்பருவம் 2024-2025 <a href="https://www.youtube.com/watch?v=B3wFM0QL6N8">https://www.youtube.com/watch?v=B3wFM0QL6N8</a></p> <p><a href="https://www.youtube.com/watch?v=FchTlqAtwBU">https://www.youtube.com/watch?v=FchTlqAtwBU</a></p> <p><a href="https://www.youtube.com/watch?v=gCP3gC-JQU4">https://www.youtube.com/watch?v=gCP3gC-JQU4</a></p> <p><a href="https://www.youtube.com/watch?v=p9QOHD12Yeo">https://www.youtube.com/watch?v=p9QOHD12Yeo</a></p>
Total		60	

<b>Text book</b>	1.	தமிழ் மொழிப்பாடம் - 2024-2025 தொகுப்பு: தமிழ்த்துறை, டாக்டர் என்.ஜி.பி. கலை அறிவியல்கல்லூரி, கோயம்புத்தூர் - 641048.
<b>Reference Books</b>	1.	பேராசிரியர் புலவர் சோம. இளவரசு, தமிழ் இலக்கிய வரலாறு, எட்டாம் பதிப்பு - 2024, மணிவாசகர் பதிப்பகம், சென்னை - 600 108.
	2.	பேராசிரியர் முனைவர் பாக்கியமேரி, முதற் பதிப்பு - 2023, இலக்கணம், இலக்கியவரலாறு, மொழித்திறன் - பூவேந்தன் பதிப்பகம், சென்னை - 600 004.

<b>Journal and Magazines</b>	இலக்கிய இதழ்கள்
<b>E-Resources and Website</b>	<a href="https://www.tamilvu.org">https://www.tamilvu.org</a>

<b>Learning Method</b>	Lecture/ Tutorial / Student Seminar/GD/Assignment
------------------------	---

<b>Focus of the Course</b>	Skill Development / Employability
----------------------------	-----------------------------------



Dr.NGPASC

COIMBATORE | INDIA

B.Sc. Physics (Students admitted during the AY 2024-25)

Semester – I							
HINDI – I							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	24TLU1HA	HINDI – I	LANGUAGE- I	48	12	-	3

<b>Preamble</b>	The writing ability and develop reading skill
	The various concepts and techniques for criticizing literature
	The techniques for expansion of ideas and translation process
<b>Prerequisite</b>	To understand the language Hindi for communication

Course Outcomes (Cos)		
CO. No.	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Learn the fundamentals of novels and stories	K2
CO2	Understand the principles of translation work	K3
CO3	Expose the knowledge writing critical views on fiction	K3
CO4	Build creative ability	K3
CO5	Apply the power of creative reading	K4

Mapping with Program Outcomes:					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1		✓	✓		✓
CO2	✓			✓	
CO3		✓			✓
CO4			✓		
CO5	✓			✓	✓



**Syllabus:**

Unit	Content	Hrs	Resources
1	गद्य – नूतनगद्यसंग्रह (जयप्रकाश)पाठ1- रजियापाठ2- मक्रीलपाठ3- बहतापानीनिर्मला पाठ4- राष्ट्रपितामहात्मागाँधी	13	Text Book
2	कहानीकुंज- डॉ.वी.पी. 'अमिताभ'(पाठ 1-4)	13	Text Book
3	व्याकरण : शब्दविचार ( संज्ञा, सर्वनाम,विशेषण)	12	Text Book
4	अनुच्छेदलेखन	12	Text Book
5	अनुवादअभ्यास-III (केवलअंग्रेजीसेहिन्दीमें) (पाठ1 to 10)	10	Text Book
Total		60	

Text books	1.	प्रकाशक: सुमित्रप्रकाशन 204 लीलाअपाटूर्मेंट्स, 15 हेस्टिंग्सरोड'अशोकनगरइलाहाबाद-211001
	2.	प्रकाशक: गोविन्दप्रकाशनसदरबाजार, मथुराउत्तरप्रदेश-281001
	3.	पुस्तक: व्याकरण प्रदिप - रामदेवप्रकाशक: हिन्दी भवन 36 टेगोर नगर इलाहाबाद-211024
	4.	पुस्तक: व्याकरण प्रदिप - रामदेवप्रकाशक: हिन्दी भवन 36 इलाहाबाद-211024
	5.	प्रकाशक: दक्षिण भारत प्रचार सभा चेन्नई -17
Reference Books		-

Journal and Magazines	-
E-Resources and Website	-

Learning Method	Lecture/ Tutorial / Student Seminar/GD/Assignment
-----------------	---

Focus of the Course	Skill Development / Employability
---------------------	-----------------------------------





Semester – I							
MALAYALAM-I							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	24TLU1MA	MALAYALAM-I	LANGUAGE-I	48	12	-	3

<b>Preamble</b>	The writing ability and develop reading skill
	The various concepts and techniques for criticizing literature, to learn the techniques for expansion of ideas and translation process
	The competency in translating simple Malayalam sentences into English and vice versa
<b>Prerequisite</b>	To understand the language Malayalam for communication

Course Outcomes (Cos)		
CO. No.	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Learn the fundamentals of novels and stories	K2
CO2	Understand the principles of translation work	K3
CO3	Expose the knowledge writing critical views on fiction	K3
CO4	Apply creative ability	K3
CO5	Build the power of creative reading	K4

Mapping with Program Outcomes:					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1		✓	✓		✓
CO2	✓			✓	
CO3		✓			✓
CO4			✓		
CO5	✓			✓	✓



**Syllabus:**

Unit	Content	Hrs	Resources
1	Novel PathummayudeAdu	14	Text book
2	Novel PathummayudeAdu	10	Text book
3	Short Story Nalinakanthi	14	Text book
4	Short Story Nalinakanthi	10	Text book
5	Practical Application Expansion of ideas, General Essay and Translation	12	Text book
	Total	60	

<b>Text books</b>	1.	Vaikkam Muhammed Basheer, "PathummayudeAdu" (NOVEL), DC Books & Kottayam
	2.	T.Padmanabhan, "Nalinakanthi" (Short Story), DC Books & Kottayam.
<b>Reference Books</b>	1.	MalayalaNovel Sahithyam.
	2.	MalayalaCherukathaInnale Innu.

<b>Journal and Magazines</b>	-
<b>E-Resources and Website</b>	-

<b>Learning Method</b>	Lecture/ Tutorial / Student Seminar/GD/Assignment
------------------------	---

<b>Focus of the Course</b>	Skill Development / Employability
----------------------------	-----------------------------------



Semester – I							
FRENCH - I							
Semester	Course Code	Course Name	Category	L	T	P	Credits
I	24TLU1FA	FRENCH - I	LANGUAGE-I	48	12	-	3

<b>Preamble</b>	The competence in general communication skills with oral, written and comprehension & expression
	The culture, life style and the civilization aspects of the French people as well as of France
	The students to acquire competency in translating simple French sentences into English and vice versa
<b>Prerequisite</b>	To understand the language French for communication

Course Outcomes (Cos)		
CO. No.	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Learn the Basic verbs, numbers and accents	K2
CO2	Apply the adjectives and the classroom environment in France	K3
CO3	Select the Plural, Articles and the Hobbies	K3
CO4	Measure the Cultural Activity in France	K3
CO5	Evaluate the sentiments, life style of the French people and the usage of the conditional tense	K4

Mapping with Program Outcomes:					
Cos / POs	PO1	PO2	PO3	PO4	PO5
CO1		✓	✓		✓
CO2	✓			✓	
CO3		✓			✓
CO4			✓		
CO5	✓			✓	✓



## Syllabus:

Unit	Content			Hrs	Resources
1	<b>Objectifs de Communication</b> <ul style="list-style-type: none"> <li>• Saluer</li> <li>• Entrer en contact avec quelqu'un.</li> <li>• Se présenter.</li> <li>• S'excuser</li> </ul>	<b>Tâche</b> En cours de cuisine, premiers contacts avec les membres d'un groupe	<b>Activités de réception et de production orale</b> <ul style="list-style-type: none"> <li>• Comprendre des personnes qui se saluent.</li> <li>• Échanger pour entrer en contact, se présenter, saluer, s'excuser.</li> <li>• Communiquer avec <i>tu</i> ou <i>vous</i>.</li> <li>• Comprendre les consignes de classe</li> <li>• Épeler son nom et son prénom.</li> </ul> Computer jusqu'à 10	14	Text book Salut I Page 10
2	<ul style="list-style-type: none"> <li>• Demander de se présenter.</li> <li>• Présenter quelqu'un</li> </ul>	Dans la classe de français, se présenter et remplir une fiche pour le professeur.	<ul style="list-style-type: none"> <li>• Comprendre les informations essentielles dans un échange en milieu professionnel.</li> </ul> Échanger pour se présenter et présenter quelqu'un	12	Text book Enchanté I Page 20
3	<ul style="list-style-type: none"> <li>• Exprimer ses goûts.</li> </ul>	Dans un café, participer à une soirée de rencontres rapides et remplir de tâches d'appréciation	<ul style="list-style-type: none"> <li>• Dans une soirée de rencontres rapides comprendre des personnes qui échangent sur elles et sur leurs goûts</li> <li>• Comprendre une personne qui parle des goûts de quelqu'un d'autre</li> </ul>	14	Text book J'adore I Page 30
4	Demander à quelqu'un de faire quelque chose. Demander poliment. Parler d'actions passées. Tu veux bien?	Organiser un programme d'activités pour accueillir une personne importante	Comprendre une personne demande un service à quelqu'un. Demander à quelqu'un de faire quelque chose. <ul style="list-style-type: none"> <li>• Imaginer et raconter au passé à partir de situations dessinées.</li> </ul>	10	Text book Autoévaluation du module I Page 40 – Préparation au DELF A1 page 42 Tu veux bien page 46
5	<b>Practical Application</b> Make in Own Sentences			10	-
Total				60	



<b>Text book</b>	1.	Regine Merieux, Yves Loiseau. 2012. LATITUDES – 1: Méthode de français (Page No: 9-55) Les Editions Dider, Paris, Imprimee en Roumanie par Canale en Janvier
<b>Reference Book</b>	1.	-

<b>Journal and Magazines</b>	-
<b>E-Resources and Website</b>	-

<b>Learning Method</b>	Lecture/ Tutorial / Student Seminar/GD/Assignment
------------------------	---

<b>Focus of the Course</b>	Skill Development / Employability
----------------------------	-----------------------------------



## Semester – I

## ENGLISH – I

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	24ELU1EA	ENGLISH - I	LANGUAGE- II	48	-	12	3

<b>Preamble</b>	This course has been designed for students to learn and understand <ul style="list-style-type: none"> <li>the effect of dialogue, imagery and varied genres</li> <li>any spontaneous spoken discourse and respond to them with proper sentence structure</li> <li>the transactional concept of English language</li> </ul>	
<b>Prerequisite</b>	Basic comprehension of Language Skills	
<b>Course Outcomes (COs)</b>		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Identify the various aspects in poetry	K2
CO2	Infer linguistic and non-linguistic features of the context for understanding and interpreting	K3
CO3	Construct sentences and convey messages effectively in real life situations	K3
CO4	Apply different reading strategies with varying speed	K3
CO5	Prepare modules with their own ideas and present them coherently in a grammatically correct form	K3

## Mapping with Program Outcomes:

COs / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓	✓		
CO2		✓	✓		
CO3	✓		✓	✓	✓
CO4		✓		✓	
CO5	✓		✓		✓



Dr. NGPASC

COIMBATORE | INDIA

B.Sc. Physics (Students admitted during the AY 2024-25)

## Syllabus

Unit	Content	Hours	E-Contents / Resources
I	<p><b>Genre Studies</b></p> <p>Mathew Arnold: Dover Beach- Author's Biography- title indications- outline- paraphrasing the poem- context of poem- form- poetic devices- enjambment- techniques- Annotations</p> <p>Niyi Osundare: Our Earth Will Not Die- Author's Biography- title indications- outline- paraphrasing the poem- context of poem- form- poetic devices- enjambment- techniques- Annotations</p> <p>Charles Lamb: Christ's Hospital Five and Thirty Years Ago- Author's biography- Narrative structure- Exploration of the text- passage analysis- insight of ideas- cohesion and context- style- language techniques- Annotation</p> <p>James Hanson: A Famed Life - Ten Minute Comedy for Two Women - Author's Biography- Plot Summary- Detailed summary and Analysis- Themes- Important Quotations- Characters- Description - analysis- Terms- Symbols- Critical analysis</p> <p>Sheila Nayampalli Baruna: Alone - Author's Biography- narrative structure- passage analysis- insight of ideas- cohesion and context- style- language techniques</p>	12	Text Book
II	<p><b>Listening Skills</b></p> <p>Listening vs. hearing- Types of listening, Tips to enhance Listening Skills, Non-verbal and Verbal signs of active listening- Comprehensive Listening- Listening to pre-recorded audios on speeches, interviews and conversations- Listening Activities- Listening and responding to complaints (formal situation), Listening to problems and offering solutions (informal)</p>	13	britishcouncil.org cambridgeenglish.org
III	<p><b>Speaking Skills</b></p> <p>Formal occasions- Introducing oneself, Introducing others, Enquiries and Seeking permission, neural speaking -Making short presentations- Informal occasions- Requests, Offering help, Congratulating, Farewell party, graduation speech- Giving instructions to do a task and to use a device, Giving and asking directions</p>	11	britishcouncil.org cambridgeenglish.org
IV	<p><b>Reading Skills</b></p> <p>Study Skills: Skimming and Scanning- Reading different kinds of texts- Types of reading-Developing a good</p>	12	britishcouncil.org cambridgeenglish.org



	reading speed, reading aloud, Referencing skill- Word Power (Denotation and Connotation) - Reading comprehension, Data interpretation –Charts, Graphs, Advertisements - Cognitive Skills- Inference Making - Interpretation		
V	<b>Writing Skills</b> Sentence patterns, Note- making and note taking- Strategies - Paragraph writing: Structure and Principles - Academic Writing - Formal and Informal Letters, Report, Book /Movie Review - Infographics Writing	12	britishcouncil.org cambridgeenglish.org
	<b>Total</b>	60	

<b>Text Books</b>	1.	<a href="https://www.poetryfoundation.org/poems/43588/dover-beach">https://www.poetryfoundation.org/poems/43588/dover-beach</a> .
	2.	<a href="https://portal.abuad.edu.ng/lecturer/documents/1586771577our_earth_will_not_die.doc">https://portal.abuad.edu.ng/lecturer/documents/1586771577our_earth_will_not_die.doc</a>
	3.	<a href="http://l-adam-mekler.com/chucktwo.pdf">http://l-adam-mekler.com/chucktwo.pdf</a> .
	4.	<a href="https://offthewallplays.com/wp-content/uploads/2017/04/1_pdfsam_A-famed-life-full-with-title-page.pdf">https://offthewallplays.com/wp-content/uploads/2017/04/1_pdfsam_A-famed-life-full-with-title-page.pdf</a> .
	5.	Nation, I. S. P and Jonathan Newton. 2009. Teaching ESL/EFL Listening and Speaking. Routledge, New York, United States of America.
	6.	Prabha, Dr. R. Vithya& S. Nithya Devi. 2019. Sparkle. (1st Edn.) McGraw - Hill Education, Chennai, India.
<b>Reference Books</b>	1.	Rudzka, Brygida -Ostyn, 2003. Word Power: Phrasal Verbs and Compounds: A Cognitive Approach, Mouton de Gruyter, New York, United States of America..
	2.	Swales, John M. & Feak, Christine B. 2012. Academic Writing for Graduate Students: Essential Tasks and Skills, University of Michigan Press, Michigan, United States of America.
	3.	Sen, Leena. 2007. Communication Skills, Second Edition, Prentice Hall India Learning Private Limited, New Delhi, India.
	4.	O. Greene, John. 2021. Essentials of Communication Skill and Skill Enhancement: A Primer for Students and Professionals, Routledge publishers, United Kingdom.

<b>Journal and Magazines</b>	<a href="https://academic.oup.com/journals">https://academic.oup.com/journals</a>
<b>E-Resources and Website</b>	<a href="https://learnenglish.britishcouncil.org/">https://learnenglish.britishcouncil.org/</a> <a href="https://www.cambridgeenglish.org/learning-english/activities-for-learners/">https://www.cambridgeenglish.org/learning-english/activities-for-learners/</a>
<b>Learning Method</b>	Chalk and Talk/Assignment/Seminar/ Interactive session
<b>Focus of the Course</b>	Skill Development/Employability





**Semester – I**  
**CORE: PROPERTIES OF MATTER AND SOUND**

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	24PYU1CA	PROPERTIES OF MATTER AND SOUND	CORE	48	12	-	4

<b>Preamble</b>	This course has been designed for students to learn and understand <ul style="list-style-type: none"> <li>• The basic principles, theory and concepts of Properties of Matter and Sound.</li> <li>• The elastic properties of matter and the limits of elastic behavior.</li> <li>• The nature and production of sound waves.</li> </ul>	
<b>Prerequisite</b>	Knowledge On Basic Mathematics and Properties of Matter and Sound	
<b>Course Outcomes (COs)</b>		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Explain the importance and applications of elastic modulus	K2
CO2	Utilize the basic properties of matter and do the experiments in laboratory to evaluate the properties.	K2
CO3	Explain the basics of viscosity and compare it using different methods.	K3
CO4	Show experiments in explaining basics of sound waves using sonometer.	K2
CO5	Summarize the production, detection, properties and uses of ultrasonic waves.	K3

<b>Mapping with Program Outcomes:</b>					
COs / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓		✓	✓	
CO2		✓			✓
CO3	✓	✓	✓	✓	✓
CO4	✓	✓	✓	✓	✓
CO5	✓	✓	✓	✓	✓



## Syllabus

Unit	Content	Hours	E-Contents / Resources
I	<b>Elasticity</b> Relation between angle of shear and linear strain - Work done in strain - Relation between the elastic moduli - Bending of beams - Expression for the bending moment - Determination of young's modulus by uniform bending method - Torsion of a body - Expression for torque per unit twist - Torsional oscillations of a body - Rigidity modulus by dynamic torsion method (Torsional pendulum)..	14 h	Text Book
II	<b>Surface Tension and Determination</b> Molecular forces - Explanation of surface tension on kinetic theory - Work done in increasing area of a surface - Pressure difference across a liquid surface - Jaegar's method - Variation of surface tension with temperature - Experimental study of variation of surface tension with temperature	12 h	Reference Book
III	<b>Viscosity</b> Poiseuille's formula for the flow of a liquid through capillary tube - Ostwald's viscometer - Stokes method for coefficient of viscosity of a viscous liquid - Friction and lubrication - Modification of Poiseuille's formula for gases - Rankine's method for determination of $\eta$ of a gas.	11 h	Text Book
IV	<b>Oscillation</b> Simple harmonic motion - Free vibration of a body - Damped vibration - Force vibrations - Saw tooth wave - Square wave - Composition of two simple harmonic motion in straight line - Lissajous figure - Experimental methods for obtaining Lissajous figure and uses.	11 h	NPTEL
V	<b>Ultrasonics and Acoustics</b> Ultrasonics - Piezoelectric effect - Piezoelectric crystal method - Magnetostriction method - Applications - Acoustics of building - Sabine's Reverberation formula (No derivation) - Factors affecting acoustics of building - Sound distribution in an auditorium - Requisites for good acoustics.	11h	You Tube Videos
	<b>TOTAL</b>	<b>60 h</b>	



<b>Text Book</b>	1.	Murugesan R, 2021, "Properties of matter", 3 <sup>rd</sup> Edition, S. Chand & Co, New Delhi. (Unit 1, 2 & 5.
	2.	BrijLal and Subrahmanyam N, 2017, "Properties of Matter", 7 <sup>th</sup> Edition, S. Chand and Co, New Delhi.
<b>Reference Books</b>	1.	Subramanyam N, 2019,"Text book of Sound", 3 <sup>rd</sup> Edition, Vikas publications, New Delhi.
	2.	Gupta A. B, 2019, "Classical mechanics and properties of matter", 4 <sup>th</sup> Edition,S. Chand & Co, New Delhi. (Unit 3 & 4.
	3.	Murugesan R, 2016, "Properties Of Matter And Acoustic", 2 <sup>nd</sup> Edition, Chand and Co, New Delhi.
	4.	Mathur D S, 2014," Elements of Properties of Matter", 3 <sup>rd</sup> Edition, S. Chand and Co, New Delhi.

<b>Journal and Magazines</b>	<a href="https://archive.nptel.ac.in/courses/105/105/105105177/">https://archive.nptel.ac.in/courses/105/105/105105177/.</a>
<b>E-Resources and Website</b>	<a href="https://kanchiuniv.ac.in/coursematerials/Physics%20book_Final%20(1).pdf">https://kanchiuniv.ac.in/coursematerials/Physics%20book_Final%20(1).pdf</a>
<b>Learning Method</b>	Chalk and Talk/Assignment/Seminar
<b>Focus of the Course</b>	Skill Development/ Entrepreneurial Development/ Entrepreneurial Development/ Innovations/ Intellectual Property Rights



**Semester – I**  
**CORE: MECHANICS**

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	24PYU1CB	MECHANICS	CORE	48	-	-	3

<b>Preamble</b>	This course has been designed for students to learn and understand, <ul style="list-style-type: none"> <li>• The basic laws and principles of Newtonian mechanics.</li> <li>• The Central forces and Conservative nature of central forces.</li> <li>• Apply the laws of mechanics in various application.</li> </ul>	
<b>Prerequisite</b>	Knowledge on Basic Mathematics and Mechanics	
<b>Course Outcomes (COs)</b>		
CO Number	Course Outcomes (COs) Statement	Bloom's Taxonomy Knowledge Level
CO1	Summarize the fundamental laws of mechanics and Apply them to solve problems.	K2
CO2	Utilize the principles of Moment of Inertia and do Experiments in laboratories.	K3
CO3	Illustrate gravitational field, potential and Kepler's Law.	K2
CO4	Solve the problems in central force motions and interpret it through derivational values.	K3
CO5	Demonstrate the importance of hydro dynamical Functions and its applications.	K2

**Mapping with Program Outcomes:**

COs / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓		✓	✓	✓
CO2					
CO3	✓	✓	✓	✓	✓
CO4		✓			
CO5	✓	✓			✓



## Syllabus

Unit	Content	Hours	E-Contents / Resources
I	<b>Collisions</b> Collisions - Calculation of final velocities of colliding particle - Elastic collision in two or three dimensions - Collisions - Elastic one-dimensional collision - Impulse of a force - Value of the scattering angle - Impulse and linear momentum - Newton's law of impact - Co-efficient of restitution - Motion of two smooth bodies perpendicular to the line of impact - Definitions for direct and oblique impact	10 h	Text Book
II	<b>Rigid Body dynamics and Applications</b> Moment of inertia - Theorems of perpendicular and parallel axes - Calculation of M.I for Rectangular, Cylindrical and Spherical Bodies - Compound pendulum - Theory - Determination of g and k..	8 h	Reference Book
III	<b>Gravitation and Applications</b> Newton's law of gravitation - G by Boy's method - Acceleration due to gravity - Motion of a planet in an elliptical orbit around the sun - Mass and density of earth - Conservation of angular momentum of a system, a consequence of a rotational invariance of potential energy of the system - Motion of a planet or a satellite in its orbit - Applications: Scattering of a positive particle by a massive nucleus - Effect on linear and angular speeds of a particle on contraction of its orbit - The shape of the galaxy	11 h	Text Book
IV	<b>Central Force Motion</b> Torque and angular acceleration - Acceleration of two objects connected by a cord - Acceleration of two connected objects when friction is present - Automobile Antilock Braking Systems (ABS) - Determination of motion of individual particle - System of variable mass.	9 h	NPTEL
V	<b>Statics and Hydrodynamics</b> Friction - Laws of friction - Experimental method for determining coefficient of friction - Hydrodynamics - Equation of continuity of flow - Bernoulli's theorem and its applications - Venturi meter - Pitot tube	10 h	You Tube Videos
	<b>TOTAL</b>	<b>48 h</b>	



<b>Text Book</b>	1.	Mathur D S,2014. &quot;Mechanics, 4 th Edition,S. Chand and Co, New Delhi.
	2.	Halliday, D., Resnick, R., and Walker, J. Fundamentals of Physics, 9th edition. Wiley.
<b>Reference Books</b>	1.	Duraipandian P,2005, &quot;Mechanics&quot;, 6th edition, S. Chand and Co, New Delhi
	2.	Murugesan P, 2014, &quot;Properties of matter&quot;, S.Chand and Co, New Delhi.
	3.	Murugesan R, 2014, &quot;Mechanics and Mathematical Physics&quot;, S.Chand and Co, New Delhi.
	4.	<a href="https://www.youtube.com/watch?v=C1XuwhLacao">https://www.youtube.com/watch?v=C1XuwhLacao</a>

<b>Journal and Magazines</b>	Charles Kittel, Walter Knight, Malvin Ruderman, Carl Helmholz, Burton Moyer, 2007, &quot;Mechanics Berkeley Physics Course&quot;, Volume 1, Tata McGraw-Hill,NewDelhi.
<b>E-Resources and Website</b>	<a href="https://www.youtube.com/watch?v=C1XuwhLacao">https://www.youtube.com/watch?v=C1XuwhLacao</a>
<b>Learning Method</b>	Chalk and Talk/ Assignment/Seminar
<b>Focus of the Course</b>	Skill Development/ Entrepreneurial Development/ Entrepreneurial Development/Innovations/ Intellectual Property Rights



**Semester – I**  
**CORE PRACTICAL: PROPERTIES OF MATTER AND MECHANICS**

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	24PYU1CP	PROPERTIES OF MATTER AND MECHANICS	CORE PRACTICAL	-	-	48	2

1	Determination of 'g' and 'K' by compound pendulum.
2	Finding Young's Modulus-Uniform Bending (Microscopic Method)- Under DBT Star college Scheme
3	Determination of Rigidity Modulus - Static Torsion
4	Determination of the Coefficient of Viscosity of water by Capillary Flow Method (Poiseuille's Method).
5	Determination of Frequency of a tuning fork by Sonometer.
6	Determination of Rigidity modulus of a string.
7	Calculation of the Coefficient of Viscosity of the liquid by Stoke's Method
8	Study of the rate of flow of water through a capillary tube under different pressure heads.- Under DBT Star college Scheme
9	Determination of Surface tension of a liquid by drop weight method.
10	Finding Young's Modulus - Cantilever Depression.
11	Determination of Young's Modulus-Uniform Bending (Koenig's Method)
12	Determination of Young's Modulus-Non-uniform Bending (Microscopic Method) - Under DBT Star college Scheme

Text Book		
	1.	Ouseph C C, 2014, "Practical Physics and Electronics", Vishwanathan Publications, Chennai.
	2.	Samir Kumar Ghosh. Textbook of Advanced Practical Physics, NCBA Publishers.
	3	Chattopadhyay .D, 2015, "Advanced Course in Practical Physics", NCBA Publications, Kolkata.
	4	Murughesan R, 2014, "Thermal Physics", S Chand and Co, New Delhi.



**Semester - I**  
**IDC : FUNDAMENTALS OF MATHEMATICS WITH MATLAB**

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	24MTU1IM	FUNDAMENTALS OF MATHEMATICS WITH MATLAB	IDC	36	-	24	3

<b>Preamble</b>	This course has been designed for students to learn and understand <ul style="list-style-type: none"> <li>• the techniques to solve Mathematical problems using programming knowledge</li> <li>• the applications of maxima and minima of functions</li> <li>• the method of constructing definite integrals</li> </ul>	
<b>Prerequisite</b>	Knowledge on Basic Mathematics	
<b>Course Outcomes (COs)</b>		
<b>CO Number</b>	<b>Course Outcomes (COs) Statement</b>	<b>Bloom's Taxonomy Knowledge Level</b>
CO1	Understand the basic concept of MATLAB	K1
CO2	Describe the vector and matrix	K2
CO3	Identify the maxima and minima of functions	K1
CO4	Describe first order and first degree differential equations	K2
CO5	Recognize the integration by parts	K2

**Mapping with Program Outcomes:**

COs / POs	PO1	PO2	PO3	PO4	PO5
CO1	✓		✓	✓	
CO2		✓			✓
CO3	✓	✓	✓	✓	✓
CO4	✓	✓	✓	✓	✓
CO5	✓	✓	✓	✓	✓





## Syllabus

Unit	Content	Hours	E-Contents/ Resources
I	<p><b>Creating Arrays:</b></p> <p>Creating a one-dimensional array (vector) - creating a two-dimensional array (matrix) - variables in MATLAB - transpose operator - array addressing - adding elements to existing variables - deleting elements - built in functions - strings and strings as variables - problems</p> <ol style="list-style-type: none"> <li>1. Creation of vector and matrix</li> <li>2. Usage of zeros, ones and eye commands</li> <li>3. Transposing a vector and matrix by transpose operator</li> <li>4. Adding element to a vector and matrix</li> </ol>	09	Text Book
II	<p><b>Mathematical operations with arrays:</b></p> <p>Addition and subtraction - array multiplication - array division - element by element operations - using arrays in MATLAB - built in functions for analyzing arrays - generation of random numbers - MATLAB applications</p> <ol style="list-style-type: none"> <li>5. Matrix operations such as addition, subtraction and multiplication</li> <li>6. Inverse of a matrix</li> <li>7. Solving three linear equations (array division method)</li> <li>8. Built in functions for analyzing arrays</li> </ol>	09	Reference Books 3 & 4
III	<p><b>Differential Calculus:</b></p> <p>Maximum and minimum value of a function- necessary conditions for extreme values - sufficient condition - use of second order derivative- applications</p> <ol style="list-style-type: none"> <li>9. Derivative of symbolic expressions</li> <li>10. Evaluate the derivative at some particular point</li> <li>11. Finding maxima and minima for a function</li> </ol>	14	Text Book
IV	<p><b>Differential equations of first order and first degree:</b></p> <p>Introduction - separation of variables - transformation of some equations in the form in which variables are separable -homogeneous equations - working rule - equations reducible to homogeneous form - Pfaffian differential equation - exact differential equation - Necessary and sufficient condition for a differential equation of first order and first degree to be exact - working rule - solved examples</p> <ol style="list-style-type: none"> <li>12. Solve the Pfaffian differential equation</li> <li>13. Solve the homogeneous differential equation</li> </ol>	14	Text Book & NPTEL



	14. Solve the exact differential equation.		
V	<b>Integral Calculus:</b> Properties of definite integral - integration by parts - reduction formula - Bernoulli's formula. 15. Definite integrals of symbolic expressions 16. Integrals of matrix elements 17. Method of integration by parts	14	Text Book & You Tube Videos
	<b>Total</b>	60	

<b>Text Book</b>	1.	Amos Gilat, 2007, "MATLAB An Introduction with applications ", Wiley India Pvt. Ltd., New Delhi..
	2.	Shanti Narayan, 2003, "Differential Calculus", Eleventh Edition, S.Chand and Company Limited, New Delhi
	3.	Raisinghania M D, 2012,"Ordinary and Partial Differential Equations", S.Chand & co, New Delhi.
	4.	Narayanan S and Pillai T.K.M, 2008, "Calculus", Vol 2, Viswanathan Publishers, Chennai
<b>Reference Books</b>	1.	Narayanan S and Pillai T.K.M 2008, "Calculus", Vol 1, Viswanathan Publishers, Chennai.
	2.	Shanti Narayan, 2003, "Integral Calculus", Eleventh Edition, S Chand and Company Limited, New Delhi.
	3.	Rudra Pratap, 2017, "Getting started with MATLAB 7, A Quick Introduction for Scientists and Engineers", Oxford University Press, UK.
	4.	William J. Palm III, 2005, "Introduction to MATLAB for Engineers", The McGraw-Hill Companies, Inc., New York.

<b>Journal and Magazines</b>	<a href="https://oa.mg/journals/open-access-matlab-journals">https://oa.mg/journals/open-access-matlab-journals</a>
<b>E-Resources and Website</b>	<a href="https://www.mathworks.com/help/matlab-online-server/ug/matlab-online.html">https://www.mathworks.com/help/matlab-online-server/ug/matlab-online.html</a> <a href="https://nptel.ac.in/courses/111102137">https://nptel.ac.in/courses/111102137</a>
<b>Learning Method</b>	Chalk and Talk/Assignment/Seminar
<b>Focus of the Course</b>	Skill Development/Employability



## Semester – I

## AECC I: ENVIRONMENTAL STUDIES

Semester	Course Code	Course Name	Category	L	T	P	Credits
I	24MBU1AA	ENVIRONMENTAL STUDIES	AECC	24	-	-	2

<b>Preamble</b>	This course has been designed for students to learn and understand <ul style="list-style-type: none"> <li>• Multi-disciplinary aspects of Environmental studies</li> <li>• Importance to conserve the biodiversity</li> <li>• Causes of Pollution and its control</li> </ul>	
<b>Prerequisite</b>	Aware the basics of environmental components	
<b>Course Outcomes (Cos)</b>		
<b>CO Number</b>	<b>Course Outcomes (Cos) Statement</b>	<b>Bloom's Taxonomy Knowledge Level</b>
CO1	To understand the importance of natural resources in order to conserve for the future	K1
CO2	To impart knowledge on Natural resources and its conservation	K2
CO3	To impart knowledge on Biodiversity and its conservation	K3
CO4	To create awareness on effects, causes and control of air, water, soil and noise pollution etc.,	K4
CO5	To build awareness about sustainable development and Environmental protection	K1

<b>Mapping with Programme Outcomes</b>					
Cos/POs	PO1	PO2	PO3	PO4	PO5
CO1	✓	✓	✓	✓	✓
CO2	✓	✓	✓	✓	✓
CO3	✓	✓	✓	✓	✓
CO4	✓	✓	✓		
CO5	✓	✓	✓	✓	✓



## Syllabus

Unit	Content	Hours	E-Contents / Resources
I	Introduction to Environmental studies & Ecosystems: components of environment – atmosphere, hydrosphere, lithosphere and biosphere. Scope and importance - Energy flow in an ecosystem: food chain, food web and ecological succession.	5	Text book and Website
II	Natural Resources: Renewable and Non-renewable Resources: Land Resources and land use - Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Conflicts over water (international & inter-state). Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs.	5	Text book and Website
III	Biodiversity and Conservation: Global biodiversity hot spots. India as a mega-biodiversity nation; Endangered and endemic species of India. Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.	4	Text book and Website
IV	Environmental Pollution: types, causes, effects and controls; Air, water, soil, chemical and noise pollution. Nuclear hazards and human health risks. Environment Laws: Environment Protection Act; Prevention & Control of Pollution Act – Air & Water. Wildlife Protection Act; Forest Conservation Act;	5	Text book and Website
V	Environmental ethics: Role of Indian and other religions and cultures in environmental conservation. Role of Information Technology in Environment and human health. Role of the Colleges, Teachers and Students in village adoption towards clean, green and make in villages in various aspects.	5	Text book and Website
	<b>Total</b>	<b>24</b>	



Dr.NGPASC

COIMBATORE | INDIA

*B.Sc. Physics (Students admitted during the AY 2024-25)*


Text Book	1.	<i>Carson, R.</i> 2002. <b>Silent Spring.</b> Houghton Mifflin Harcourt
	2.	<i>Gadgil, M., &amp; Guha, R.</i> 1993. <b>This Fissured Land: An Ecological History of India.</b> Univ. of California Press.
Reference Books	1.	<i>Gleeson, B. and Low, N. (eds.)</i> 1999. <b>Global Ethics and Environment,</b> London, Routledge.
	2.	<i>Gleick, P.H.</i> 1993. <b>Water in Crisis. Pacific Institute for Studies in Dev., Environment &amp; Security.</b> Stockholm Env. Institute, Oxford Univ. Press.
	3.	<i>Groom, Martha J. Gary K. Meffe, and Carl Ronald carroll.</i> 2006, <b>Principles of Conservation Biology.</b> Sunderland: Sinauer Associates.
	4.	<i>Grumbine, R. Edward, and Pandit, M.K.</i> 2013. <b>Threats from India's Himalaya dams.</b> Science, 339: 36-37.

Journal and Magazines	<a href="https://www.hzu.edu.in/bed/E%20V%20S.pdf">https://www.hzu.edu.in/bed/E%20V%20S.pdf</a>
E-Resource and Websites	<a href="https://www.ugc.gov.in/oldpdf/modelcurriculum/env.pdf">https://www.ugc.gov.in/oldpdf/modelcurriculum/env.pdf</a>

Learning Methods	Chalk and Talk/ Seminar/ Assignment
------------------	-------------------------------------

Focus of the Course	Skill Development/Employability/Social Awareness and Environment
---------------------	--

*Dr. N. G. P. Arts and Science College*  
 BoS Chairman/HoD  
 Department of Physics  
 Dr. N. G. P. Arts and Science College  
 Coimbatore – 641 018

 <b>Dr.N.G.P Arts and Science</b>		
<b>APPROVED</b>		
BoS- 5/4/24	AC - 17/4/24	GB -



Dr.NGPASC  
 COIMBATORE | INDIA

*B.Sc. Physics (Students admitted during the AY 2024-25)*

