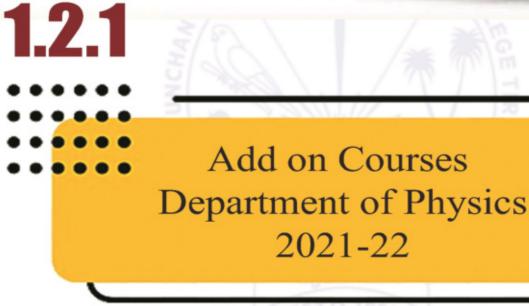




THUNCHAN MEMORIAL GOVT. COLLEGE, TIRUR

Vakkad P.O., Malappuram (Dist), Kerala India-676502, Ph: +91 494 2630027 Email:tmgctirur@gmail.com, Web:www.tmgctirur.ac.in

> Criterion 1 Curricular Aspects



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DEPARTMENT OF PHYSICS

T M GOVT COLLEGE, TIRUR

ADD ON COURSE 2021-22

Add on course on Energy Harvesting from	
Renewable resources	TMGCPHYAC2
Add on course on Introduction to Scientific	
Computing	TMGCPHYAC1
Certificate Course on Materials Science	TMGCPHYCC1

Prospectus and Syllabus of

Add on Course in

ENERGY HARVESTING FROM RENEWABLE RESOURCES

for

First year BSc Physics



Thunchan Memorial Govt. College, Tirur

Vakkad PO, Malappuram

THUNCHAN MEMORIAL GOVT. COLLEGE, TIRUR DEPARTMENT OF PHYSICS

ADD ON COURSE (TMGCPHY AC2)

ENERGY HARVESTING FROM RENEWABLE RESOURCES

Course objectives:

To provide an overview of the important renewable energy resources and harnessing technologies. Nowadays the energy requirement of the society is high but the conventional sources of energy is not enough for it. So this course is intended for first year BSc Physics students to understand the importance of non-conventional energy sources.

Duration of the course : 30 Hours Total Credits : 4

TOTAL MODULES: 4

TOTAL HOURS :30

MODULE 1 (8 HOURS)

Solar constants, Solar radiation measurements, solar energy collector, Physical principle of the conversion of solar radiation into heat, ,solar cookers, solar distillation, solar furnaces, solar greenhouses, solar electric power generation

MODULE 2 (6 hours)

Basic principle of wind energy conversion, basic components of wind energy conversion system, wind energy collectors. application of wind energy.

MODULE 3 (8 hours)

Geothermal sources, advantages and disadvantages of geothermal energy over other energy forms, application of geothermal energy. Biomass energy, Method of obtaining energy from biomass.



MODULE 4 (8 hours)

Ocean thermal electric conversion. Energy from tides, Basic principle of tidal power,advantages and limitations of tidal power generation. advantages and disadvantages of wave energy wave energy conversion devices.Advantages of battery for bulk energy storage

References:

1. Non- Conventional Energy Sources and Utilisation by R.K.Rajput, S.Chand Publishers

References

2. Non-Conventional Energy Resources by G. D. Rai, Khanna Publishers, 2008. 3. Solar Energy Fundamentals and application by H.P. Garg and J. Prakash, Tata McGraw- Hill Publishing company Ltd, 1997.

4. Solar Energy by S. P. Sukhatme, Tata McGraw- Hill Publishing company Itd, 1997.



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	RASMIA	I BSc PHYSICS
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	KAVYA M	I BSc PHYSICS
	APARA JANAKI T P	I BSc PHYSICS
E. S. C. S.	ARUN VP	I BSc PHYSICS
	ATHULYA PP	I BSc PHYSICS
	KEERTHANA K P	I BSc PHYSICS
	MEGHAAK	I BSc PHYSICS
	RDHIK BIBIN M	I BSc PHYSICS
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	DEESHNAV A	I BSc PHYSICS
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	SALMAN FARIS K SHAFEEL K P	I BSc PHYSICS

COURSE COORDINATOR

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THUNCHAN MEMORIAL GOVT. COLLEGE TIRUR DEPARTMENT OF PHYSICS

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T M GOVT COLLEGE TIRUR DEPARTMENT OF PHYSICS

ENERGY HARVESTING FROM RENEWABLE RESOURCES(TMGCPHY AC2) LIST OF STUDENTS COMPLETED THE COURSE

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	2 ASWIN K	COMPLETED
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	4 FATHIMA FIDA V P	COMPLETED
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	8 NANDHANA M	COMPLETED
	9 NITHYA A	COMPLETED
	10 RAENATH	COMPLETED
	11 RAHFATHU RAHMAN M	COMPLETED
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	12 RASMIA	COMPLETED
	13 SAHALA THASNI T P	COMPLETED
	14 SETHULAKSHMI K	COMPLETED
	15 VAFA THESNI T	NOT COMPLETED
	16 FATHIMA FARHANA P	
	17 RISHANA MOHAMMEDALI K	COMPLETED
	18 KRISHNA K M	COMPLETED
	19 VIVEK M	COMPLETED
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	22 KAVYA M	COMPLETED
	23 APARA JANAKI T P	COMPLETED
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	25 ATHULYA PP	COMPLETED
	26 KEERTHANA K P	COMPLETED
	27 MEGHAAK	COMPLETED
	28 RDHIK BIBIN M	COMPLETED
1	29 DEESHNAV A	COMPLETED
	30 SNEHA N P	NOT COMPLETED
	31 SALMAN FARIS K	COMPLETED
	32 SHAFEEL K P	MODIVITELIED

COURSE COORDINATOR

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Aboothahir Afzal And stant Professor in Pill 2018 T.M. Govt. College Valkad PO. Tirur. PiN-876502. Malappuram Dist.

T M GOVT COLLEGE TIRUR DEPARTMENT OF PHYSICS ENERGY HARVESTING FROM RENEWABLE RESOURCES(TMGCPHY AC2) LIST OF STUDENTS COMPLETED THE COURSE

SL.NQ	NAME	MARKS/ GRADE
	ANAGHA V	A
	ASWIN K	A+
	DEVIKA K V	A
	FATHIMA FIDA V P	At
1	LUBNA SHERIN CC	At
	NAADHI RAHMAN P	A+
	NANDHA V P	A+
	NANDHANA M	At
		A
	NITHYAA	A+
	RAFNATH RAHFATHU RAHMAN M	A+
		A+
	RASMIA SAHALA THASNI T P	A+
1.11.2.4		A+
	SETHULAKSHMI K	A
15	VAFA THESNI T	NOT COMPLETED
17	RISHANA MOHAMMEDALI K	At
the second se	KRISHNA K M	A
	VIVEK M	A+
	ANAGHA K T	A +
	GAYATRI	A+
	KAVYA M	A
	APARA JANAKI T P	A+
	ARUN VP	A
	ATHULYA PP	A+
	KEERTHANA K P	A †
	MEGHAAK	A+
	RDHIK BIBIN M	A.
	DEESHNAV A	A
	SNEHA N P	A
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THUNCHAN MEMORIAL GOVT. COLLEGE, TIRUR

DEPARTMENT OF PHYSICS

ENERGY HARVESTING FROM RENEWABLE RESOURCES



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THUNCHAN MEMORIAL GOVERNMENT COLLEGE, TIRUR

VAKKAD PO, MALAPPURAM DT, KERALA , INDIA. PIN: 676 502 Email:tmgctirur@gmail.com, Website:www.tmgctirur.ac.in



It is certified by duly appointed examiners that

Sri/Smt. KEERTHANA KP I B Sc Physics Class (Admission No.9852) has qualified the Add on course on

Energy Harvesting from Renewable Resources

offered by the

DEPARTMENT OF PHYSICS.

He / She has scored 96 % Marks

and has been placed in A+ Grade

for the examination held in

MARCH 2022

Given under the Seal of the College.

Principal

of the Department

Tirur Date: 31/03/2022



THUNCHAN MEMORIAL GOVT. COLLEGE TIRUR DEPARTMENT OF PHYSICS

ENERGY HARVESTING FROM RENEWABLE RESOURCES

REPORT

Department of Physics of Thunchan Memorial Govt. College Tirur conducted an Add-on course "Energy harvesting from Renewable Resources" with 30 hours duration in the academic year 2021 - 22. Thirty two students were enrolled in the course. .Mrs. SOUMYA C was appointed as Course Coordinator. Out of the 32 registered students 30 students completed the course successfully.

Co-ordinator



Prospectus and Syllabus of

Add on Course in

Introduction to Scientific Computing

for

Second year BSc Physics



Thunchan Memorial Govt. College, Tirur

Vakkad PO, Malappuram

THUNCHAN MEMORIAL GOVT. COLLEGE TIRUR DEPARTMENT OF PHYSICS

Introduction to Scientific Computing

Prerequisites & Objectives

Prerequisites

The students should have studied any basic computer language as a prerequisite for the course

Course Objectives

This course is intended for Second year BSc Physics students. In this course students are introduced to use Python as a tool to solve Physics problems. The emphasis is to learn using a high level programming language without actually going through the logic behind the equations that are to be coded. A minimal understanding of the basic mathematics is assumed. This develops familiarity and equips them to code a large number of physics problems and learn how to obtain results and plots using the software

Duration of the course	: 30 Hours
Total Credits	: 5

Unit 1

Introduction to Python Programming

Features of Python, History of Python Programming Language, Comparison between C and Python, Thrust areas of Python in Physics, Writing and execution of Python programs, Integrated Development Environments, installation and use of python distributions

Unit 2

8 Hrs

7 Hrs

5 Hrs

Fundamental programming with Python:

Designing a Program, identifiers, keywords, operators, and expressions. Arithmetic, Logical and Assignment operators, Precedence, Data types: Basic data types: Strings and numbers, displaying an output, type conversion, basic string operations & methods, format specifiers

Unit 3

Control structures

Decision Structures: If, If —else, if ... elif.....else, nested if decision flow statements. Repetition Structures: condition controlled: while loop. Count controlled: for loop, sentinals, continue and break statements, try and except statements

Unit 4

Functions & Files

Built in function, modules, void function, flow charting, hierarchy charts, Loc and scope, passing an argument function, value returning functions; Randa

5 Hrs

Unit 5

Scientific computing packages

Numpy: -Array object, creating array, matrix, indexing, slicing, resizing, reshaping, arithmetic operations, functions, matrices and vector operations Matplotlib: basic plotting, Scipy. Linear algebra operations, equation solving.

Text Books & References

Text Books

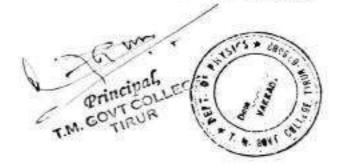
Mark Lutz, "Learning Python" O'Reilly Media, 2013

Core Python Programming -Dr Nageswara Rao, 2017, Dreamtech Press

Introduction to Computing and problem solving using Python -E Balagruswamy

References

- Robert Johansson, "Numerical Python: Scientific Computing and Data Science Applications with Numpy, SciPy and Matplotlib" Apress, 2019.
- Rubin H. Landu, Manuel J. Paez, and Cristian C.Bordeianu, "Computational Physics Problem solving with Python" – Third Edition, Wiley VCH, 2015.



STUD_LIST

T M GOVT COLLEGE TIRUR DEPARTMENT OF PHYSICS LIST OF STUDENTS ENROLLED IN INTRODUCTION TO SCIENTIFIC COMPUTING(2021-22)

SL NO.	REGISTER NO.	NAME
1	TMAUSPH001	ANNA JABIN PK
2	TMAUSPH002	DILSHADA JIBI
3	TMAUSPH003	MUNAVVIRA SHARIN V
4	TMAUSPH004	NAJMATH K
5	TMAUSPH005	NEDHA SOFI P
6	TMAUSPH006	RAMSEENA K
7	TMAUSPH007	MUHAMMED NASEEM CHEMBAN
8	TMAUSPH008	SALMANUL FARIS C
9	TMAUSPH009	ANAMIKA A
10	TMAUSPH010	ANJANA C
11	TMAUSPH011	ARYA A
12	TMAUSPH012	KRIPA P
13	TMAUSPH013	NOORA K
14	TMAUSPH014	RIFA NASARIN
15	TMAUSPH015	SHABOOMA NASRIN
16	TMAUSPH016	SHAHANA SHERI K
17	TMAUSPH017	SHEBEENA SHERI A P
18	TMAUSPH018	SOOFIYA YASMIN P M
19	TMAUSPH019	SREELAKSHMI A P
20	TMAUSPH020	SWARGA P
21	TMAUSPH021	ABHIJITH K M
22	TMAUSPH022	FAROOQ HASSAN M P
23	TMAUSPH023	GOWTHAM KRISHNA NAIR S
24	TMAUSPH024	HAREESH T V
25	TMAUSPH025	MOHAMMAD SAKEER A P
26	TMAUSPH026	SOURAV P
27	TMAUSPH027	VYSHNAV GANESH P
28	TMAUSPH028	AMITHA M P
29	TMAUSPH029	ANAMIKA T
30	TMAUSPH030	ANJANA V
31	TMAUSPH031	APARNA E
32	TMAUSPH032	ATHIRA P K
33	TMAUSPH033	FASNA P P
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T M GOVT COLLEGE TIRUR DEPARTMENT OF PHYSICS LIST OF STUDENTS ENROLLED IN INTRODUCTION TO SCIENTIFIC COMPUTING(2021-22)

STUD_LIST

SL NO.	REGISTER NO.	NAME
35	TMAUSPH035	HIBA K P
36	TMAUSPH036	SHALINI K
37	TMAUSPH037	SHAMIYANA M V
38	TMAUSPH038	SONA P
39	TMAUSPH039	VINAYA K

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T M GOVT COLLEGE THRUR DEPARTMENT OF PHYSICS

ATTENDANCE OF STUDENTS ENROLLED IN INTRODUCTION TO SCIENTIFIC COMPUTING(2021-22)

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ATTENDANCE OF STUDENTS ENROLLED IN INTRODUCTION TO SCIENTIFIC COMPUTING(2021-22)

1 TMAUSPHOI Annual JABIN PK × <th>SL NO.</th> <th>REGISTER NO.</th> <th>NAME</th> <th></th> <th>12-11-61</th> <th>2.11.22</th> <th>0.11.96</th> <th>2.11.02</th> <th>0.01.4</th> <th>17.71.4</th> <th></th> <th>2.21.51</th> <th>2.1.7</th> <th>2.1.9</th> <th>5.1.01</th> <th>12.1.2</th> <th>2-1-11</th> <th>2-1-61</th> <th>22-1-22</th> <th>2-1-52</th> <th>NUIS</th>	SL NO.	REGISTER NO.	NAME		12-11-61	2.11.22	0.11.96	2.11.02	0.01.4	17.71.4		2.21.51	2.1.7	2.1.9	5.1.01	12.1.2	2-1-11	2-1-61	22-1-22	2-1-52	NUIS
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# T M GOVT COLLEGE TIRUR DEPARTMENT OF PHYSICS

# LIST OF STUDENTS ENROLLED IN INTRODUCTION TO SCIENTIFIC COMPUTING(2021-22)

SL NO	REGISTER NO.	NAME	STATUS
1	TMAUSPH001	ANNA JABIN PK	COMPLETED
2	TMAUSPH002	DILSHADA JIBI	COMPLETED
3	TMAUSPH003	MUNAVVIRA SHARIN V	COMPLETED
4	TMAUSPH004	NAJMATH K	COMPLETED
5	TMAUSPH005	NEDHA SOFI P	COMPLETED
6	TMAUSPH006	RAMSEENA K	COMPLETED
7	TMAUSPH007	MUHAMMED NASEEM CHEMBAN	COMPLETED
8	TMAUSPH008	SALMANUL FARIS C	COMPLETED
9	TMAUSPH009	ANAMIKA A	COMPLETED
10	TMAUSPH010	ANJANA C	COMPLETED
11	TMAUSPH011	ARYA A	COMPLETED
12	TMAUSPH012	KRIPA P	COMPLETED
13	TMAUSPH013	NOORA K	COMPLETED
14	TMAUSPH014	RIFA NASARIN	COMPLETED
15	TMAUSPH015	SHABOOMA NASRIN	COMPLETED
16	TMAUSPH016	SHAHANA SHERI K	COMPLETED
17	TMAUSPH017	SHEBEENA SHERI A P	COMPLETED
18	TMAUSPH018	SOOFIYA YASMIN P M	COMPLETED
19	TMAUSPH019	SREELAKSHMI A P	COMPLETED
20	TMAUSPH020	SWARGA P	COMPLETED
21	TMAUSPH021	ABHIJITH K M	COMPLETED
22	TMAUSPH022	FAROOQ HASSAN M P	COMPLETED
23	TMAUSPH023	GOWTHAM KRISHNA NAIR S	COMPLETED
24	TMAUSPH024	HAREESH T V	COMPLETED
25	TMAUSPH025	MOHAMMAD SAKEER A P	COMPLETED
26	TMAUSPH026	SOURAV P	COMPLETE
27	TMAUSPH027	VYSHNAV GANESH P	COMPLETE
28		AMITHA M P	COMPLETE
29		ANAMIKA T	COMPLETE
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3	TMAUSPH031	APARNA E	COMPLETE



# T M GOVT COLLEGE TIRUR DEPARTMENT OF PHYSICS

## LIST OF STUDENTS ENROLLED IN INTRODUCTION TO SCIENTIFIC COMPUTING(2021-22)

SL NO.	REGISTER NO.	NAME	STATUS
32	TMAUSPH032	ATHIRA P K	COMPLETED
33	TMAUSPH033	FASNA P P	COMPLETED
34	TMAUSPH034	GREESHMA T	COMPLETED
35	TMAUSPH035	HIBA K P	COMPLETED
36	TMAUSPH036	SHALINI K	COMPLETED
37	TMAUSPH037	SHAMIYANA M V	COMPLETED
38	TMAUSPH038	SONA P	COMPLETED
39	TMAUSPH039	VINAYA K	COMPLETED

COORDINATOR

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Aboothahir Afzel

Assistant Professor in Physics T.M. Govt. College Vakkad PO. Tirur. PIN-976502. Malappuram Dist.



# T M GOVT COLLEGE TIRUR

# DEPARTMENT OF PHYSICS

# MARK LIST OF STUDENTS ENROLLED IN INTRODUCTION TO SCIENTIFIC COMPUTING 2021-22

SL NO.	REGISTER NO.	NAME	MADVALER
1	TMAUSPH001	ANNA JABIN PK	MARKS/GRADE
2	TMAUSPH002	DILSHADA JIBI	A+
3	TMAUSPH003	MUNAVVIRA SHARIN V	A+
4	TMAUSPH004	NAJMATH K	<u>A+</u>
5	TMAUSPH005	NEDHA SOFI P	<u>A+</u>
6	TMAUSPH006	RAMSEENA K P	A+
7	TMAUSPH007		At
8	TMAUSPH008	MUHAMMED NASEEM CHEMBAN SALMANUL FARIS C	A+
9	TMAUSPH009	ANAMIKA A	A+
10	TMAUSPH010	ANJANA C	A
11	TMAUSPH011	ARYA A	<u> </u>
12	TMAUSPH012	KRIPA P	At_
13	TMAUSPH013	NOORA K	At
14	TMAUSPH014	RIFA NASARIN	A+
15	TMAUSPH015	SHABOOMA NASRIN	A+
16	TMAUSPH016	SHAHANA SHERI K	At
17	TMAUSPH017	SHEBEENA SHERI A P	A+
18	TMAUSPH018	SOOFIYA YASMIN P M	<u>A+</u>
19	TMAUSPH019	SREELAKSHMI A P	A+
20	TMAUSPH020	SWARGA P	A+
21	TMAUSPH021	ABHIJITH K M	<u> </u>
22	TMAUSPH022	FAROOQ HASSAN M P	A+
23	TMAUSPH023	GOWTHAM KRISHNA NAIR S	<u>A+</u>
24	TMAUSPH024	HAREESH T V	A+
25	TMAUSPH025	MOHAMMAD SAKEER A P	<u>A+</u>
	TMAUSPH026	SOURAV P	A+
	TMAUSPH027	VYSHNAV GANESH P	A+
28	TMAUSPH028	AMITHA M P	A+
29	TMAUSPH029	ANAMIKA T	<u></u>
30	TMAUSPH030	ANJANA V	A+
31	TMAUSPH031	APARNA E	A+
32	TMAUSPH032	ATHIRA P K	<u> </u>



# T M GOVT COLLEGE TIRUR

# DEPARTMENT OF PHYSICS

# MARK LIST OF STUDENTS ENROLLED IN INTRODUCTION TO SCIENTIFIC COMPUTING 2021-22

SL NO.	REGISTER NO.	NAME	MARKS/GRADE
33	TMAUSPH033	FASNA P P	At
34	TMAUSPH034	GREESHMA T	A±
35	TMAUSPH035	HIBA K P	At
36	TMAUSPH036	SHALINI K	A+
37	TMAUSPH037	SHAMIYANA M V	A+
38	TMAUSPH038	SONA P	Art
39	TMAUSPH039	γΙΝΑΥΑ Κ	A+

COORDINATOR

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HEAD OF DEPARTMENT

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No:TMPHYB21003



# THUNCHAN MEMORIAL GOVERNMENT COLLEGE, TIRUR

VAKKAD PO, MALAPPURAM DT, KERALA , INDIA. PIN: 676 502 Email:tmgctirur@gmail.com, Website:www.tmgctirur.ac.in



It is certified by duly appointed examiners that

Sri/Smt. APARNA E II B Sc Physics Class (Admission No.9409 ) has qualified the Add on course on

Introduction to Scientific Computing

offered by the

# DEPARTMENT OF PHYSICS.

He / She has scored 89 % Marks

and has been placed in A Grade

for the examination held in

# **MARCH 2022**

Given under the Seal of the College.

Sine -B

Principal

Head of the Department Tirur Date: 31/03/2022



# THUNCHAN MEMORIAL GOVT. COLLEGE TIRUR DEPARTMENT OF PHYSICS

# Introduction to Scientific Computing

## REPORT

Department of Computer Science and Physics of Thunchan Memorial Govt. college Tirur conducted an Add-on course "Introduction to Scientific Computing" with 30 hours duration in the academic year 2021 - 22. Thirty nine students enrolled in the course. .Mrs. Jayasree . K was appointed as Course Coordinator. All the 39 students completed the course successfully.

Co-ordinator

Phankubush P/321

Head of the department

ncipa

T.M. GOVT COLLECE TIRUR



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Prospectus and Syllabus of

**Certificate Course in** 

# **Materials Science**

for

Third year BSc Physics



# Thunchan Memorial Govt. College, Tirur

Vakkad PO, Malappuram

## T M GOVT COLLEGE TIRUR

## DEPARTMENT OF PHYSICS

## CERTIFICATE COURSE ON MATERIALS SCIENCE

#### **Course aims**

By the end of the course students will be expected to:

- Demonstrate a basic knowledge of the physical principles, mathematical methods and techniques appropriate for solving nanotechnology problems and be able to apply them to industrial problems through a critical comprehension of the relative advantages and disadvantages of these methods;
- Demonstrate an understanding of some of the most common applications of nanoscale phenomena and how these relate to the solution of nanotechnology problems in industry;
- Manage their learning and research and conduct independent and effective study;
- Apply skills gained in analytical techniques from across the physical sciences.
- The role of materials in the contemporary world.
- Crystal Structures, Mechanical Properties of Metals, Nano materials, dielectric materials
- Describe the different types of material analysis techniques
- Describe crystalline and non crystalline materials

Duration of the course	: 30 Hours
Total Credits	: 4

#### SYLLABUS

#### Unit 1

#### Introduction

What is material science, Classification of materials-metals, ceramics, polymers, composites, Advanced materials, smart materials.

#### Unit 2

#### Material Analysis Techniques

Single crystal and powder diffraction techniques with diffractometer, Laue's technique and rotating crystal method, Microscopic techniques-Optical microscopy, electron microscopy, transmission electron microscopy, scanning electron microscopy, Scanting probe microscopy, construction and working of each device,



#### 9 Hrs

3 Hrs

#### Unit 3

## Nanotechnology

Nanotechnology: Foundation & Application, Why nanostructure materials?,Different Approaches and its significance,Classification of nanostructure materials: composition and dimension-wise, Nano Science: the driving force for nanotechnology, Synthesis of nanomaterials

#### Unit 4

#### 5 Hrs

#### Broadband dielectric spectroscopy

Principle of dielectric spectroscopy, Working arrangement of broadband dielectric spectroscopy, Application of BDS in plastic crystals and ionic liquids.

#### Book for study

1. Material Science and Engineering by William D. Callister, Adapted by R.

Balasubramanyam (IIT, Kanpur), Published by Wiley India Pvt Ltd (Reprint 2011)

#### **Book for reference**

1. Materials science and engineering- Vth Edn- V Raghavan( PHI)

 Material science by S.L.Kakani & Amit Kakani, 2nd edition 2010, reprint 2011

3. Material Science & Engineering, R.K. Rajput (Jain Book Agency)

4. Material Science and Engineering, I. P. Singh, & Subhash Chander (Jain

Book Agency)

 Christopher Toumey, Reading Feynman Into Nanotechnology: A Text for a New Science, Techné 12:3 Fall 2008.

6. Pulikel M. Ajayan, Nanocomposite Science and Technology, Wiley-VCH, 2005.

7. H. S. Nalwa (Ed.), "Encyclopedia of Nanoscience & Nanotechnology", American Scientific Publishers, California, 2004.

8. Broadband dielectric spectroscopy / F. Kremer, A. Schönhals (eds.)





#### 13 Hrs

No:TMPHYC21001



# THUNCHAN MEMORIAL GOVERNMENT COLLEGE, TIRUR

VAKKAD PO, MALAPPURAM DT, KERALA , INDIA. PIN: 676 502 Email:tmgctirur@gmail.com, Website:www.tmgctirur.ac.in



It is certified by duly appointed examiners that

Sri/Smt. MIDHUN T III B Sc Physics Class (Admission No.9027 ) has qualified the Add on course on

**Materials Science** 

offered by the

# DEPARTMENT OF PHYSICS.

He / She has scored 90 % Marks

and has been placed in A+ Grade

for the examination held in

## MARCH 2022

Given under the Seal of the College.

Head of the Department Tirur Date: 31/03/2022



Principal

# THUNCHAN MEMORIAL GOVT. COLLEGE TIRUR DEPARTMENT OF PHYSICS CERTIFICATE COURSE ON MATERIAL SCIENCE LIST OF STUDENTS FOR THE YEAR 2021-2022

	REG.NO	NAME	1
1	TMATSPH001	LIBA MARIYAM K	CLASS
2	TMATSPH002	AJMAL M P	III BSc PHYSICS
3	TMATSPH003	MISHAB A	III BSc PHYSICS
4	TMATSPH004		III BSc PHYSICS
5	TMATSPH005	MUHAMED MARSHAD	III BSc PHYSICS
6	TMATSPH006	MUHAMMED SAFWAN	III BSc PHYSICS
7	TMATSPH007	NIBIL MUHAMMED N V	III BSc PHYSICS
8	TMATSPH008	ADITHYA P V	III BSc PHYSICS
9	TMATSPH009	AMRUTHA HARIDAS	III BSc PHYSICS
10	TMATSPH010	ANJITHA PRABHAKARAN E K	III BSC PHYSICS
11	TMATSPH011	BHAVANA C	III BSC PHYSICS
12	TMATSPH012	JINEESA P P	III BSc PHYSICS
13	TMATSPH012	KEERTHANA V	III BSc PHYSICS
14	TMATSPH013	NAJIYA NAZRIN V	III BSc PHYSICS
15		NANDANA M	III BSc PHYSICS
16	TMATSPH015	NUBAINA V V	III BSc PHYSICS
17	TMATSPH016	SHAFNA ALPARAMBIL	III BSc PHYSICS
18	TMATSPH017	SHONIMA A	III BSc PHYSICS
	TMATSPH018	ADARSH A	III BSc PHYSICS
19	TMATSPH020	MIDHUN T	III BSc PHYSICS
20	TMATSPH021	MOHAMED SIBILI P P	III BSC PHYSICS
21	TMATSPH022	MOHAMMED AMEEN V V	III BSc PHYSICS
22	TMATSPH023	MOHAMMED SALIM N K	III BSc PHYSICS
23	TMATSPH024	SHIBINLAL K K	III BSc PHYSICS
24	TMATSPH025	VINAYAK P	III BSc PHYSICS
25	TMATSPH026	ANARGHA C P	III BSC PHYSICS
26	TMATSPH027	DEVIKA A V	III BSC PHYSICS
27	TMATSPH028	GADHA C	III BSc PHYSICS
28	TMATSPH029	SREELAKSHMI V P	III BSC PHYSICS
29	TMATSPH030	ABHIJITH C	III BSc PHYSICS
30	TMATSPH031	ANAT MATHEW	III BSC PHYSICS
31	TMATSPH032	DALWIN ALDO DAISON	III BSC PHYSICS
32	TMATSPH033	MOHAMMED MIDULAJ K	III BSc PHYSICS
33	TMATSPH035	SHIJIL K T	III BSC PHYSICS
34	TMATSPH036	FIDHA NASSAR PALAKKAL	III BSC PHYSICS

COURSE COORDINATOR

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# THUNCHAN MEMORIAL GOVT. COLLEGE TIRUR DEPARTMENT OF PHYSICS CERTIFICATE COURSE ON MATERIALS SCIENCE MARK LIST OF STUDENTS COMPLETED THE COURSE

L NO	REG.NO	NAME	MARKS/GRADE
1	TMATSPH001	LIBA MARIYAM K	A
2	TMATSPH002	AJMAL M P	A+
3	TMATSPH003	MISHAB A	A
4	TMATSPH004	MUHAMED MARSHAD	A+
- 5	TMATSPH005	MUHAMMED SAFWAN	A+
6	TMATSPH006	NIBIL MUHAMMED N V	A+
7	TMATSPH007	ADITHYA P V	A+
8	TMATSPH008	AMRUTHA HARIDAS	A+
9	TMATSPH009	ANJITHA PRABHAKARAN E K	A+
10	TMATSPH010	BHAVANA C	A+
11	TMATSPH011	JINEESA P P	A+
12	TMATSPH012	KEERTHANA V	A+
13	TMATSPH013	NAJIYA NAZRIN V	A+
14	TMATSPH014	NANDANA M	A
15	5 TMATSPH015	NUBAINA V V	At
16	5 TMATSPH016	SHAFNA ALPARAMBIL	A+
1	7 TMATSPH017	SHONIMA A	A+
1	B TMATSPH018	ADARSH A	A+
1	9 TMATSPH020	MIDHUN T	A+
2	0 TMATSPH021	MOHAMED SIBILI P P	A+
2	1 TMATSPH022	MOHAMMED AMEEN V V	At
2	2 TMATSPH023	MOHAMMED SALIM N K	A
2	3 TMATSPH024	SHIBINLAL K K	At
2	4 TMATSPH025	VINAYAK P	A+
2	5 TMATSPH026	ANARGHA C P	At
2	6 TMATSPH027	DEVIKA A V	A+
2	7 TMATSPH028	GADHA C	A+

28	TMATSPH029	SREELAKSHMI V P	A+
29	TMATSPH030	ABHIJITH C	A+
30	TMATSPH031	ANAT MATHEW	A+
31	TMATSPH032	DALWIN ALDO DAISON	A+
32	TMATSPH033	MOHAMMED MIDULAJ K	A+
33	TMATSPH035	SHIJIL K T	A <b>+</b>
34	TMATSPH036	FIDHA NASSAR PALAKKAL	A+

COURSE COORDINATOR

OD

Aboothahir Afzal Assistant Professor in Ptr 2005 T.M. Govt. Collage Vorkad PO. Tirur. PIN-676502. Malappuram Dist.

# THUNCHAN MEMORIAL GOVT. COLLEGE TIRUR DEPARTMENT OF PHYSICS CERTIFICATE COURSE ON MATERIALS SCIENCE LIST OF STUDENTS COMPLETED THE COURSE

SL.NO	REG.NO	NAME	CLASS
1		LIBA MARIYAM K	COMPLETED
2		AJMAL M P	COMPLETED
3		MISHAB A	COMPLETED
4		MUHAMED MARSHAD	COMPLETED
6		MUHAMMED SAFWAN	COMPLETED
1 e		NIBIL MUHAMMED N V	COMPLETED
-	7 TMATSPH007	ADITHYA P V	COMPLETED
-	B TMATSPHO08	AMRUTHA HARIDAS	COMPLETED
-	9 TMATSPH009	ANJITHA PRABHAKARAN E K	COMPLETED
1	0 TMATSPH010	BHAVANA C	COMPLETED
1	1 TMATSPH011	JINEESA P P	COMPLETED
1	2 TMATSPH012	KEERTHANA V	COMPLETED
	13 TMATSPH013	NAJIYA NAZRIN V	COMPLETED
	14 TMATSPH014	NANDANA M	COMPLETED
	15 TMATSPH015	NUBAINA V V	COMPLETED
	16 TMATSPH016	SHAFNA ALPARAMBIL	COMPLETED
-	17 TMATSPH017	SHONIMA A	COMPLETED
-	18 TMATSPH018	ADARSH A	COMPLETED
-	19 TMATSPH020	MIDHUN T	COMPLETED
	20 TMATSPH021	MOHAMED SIBILI P P	COMPLETED
-	21 TMATSPH022	A CONTRACTOR AND TAXABLE IN CONTRACTOR OF A CO	COMPLETED
-	22 TMATSPH02	3 MOHAMMED SALIM N K	COMPLETED
-	23 TMATSPH024	4 SHIBINLAL K K	COMPLETED
-	24 TMATSPH02		COMPLETED

2	5 TMATSPH026	ANARGHA C P	COMPLETED
2	6 TMATSPH027	DEVIKAAV	COMPLETED
2	7 TMATSPH028	GADHA C	COMPLETED
20		SREELAKSHMI V P	COMPLETED
29	TMATSPH030	ABHIJITH C	COMPLETED
30	TMATSPH031	ANAT MATHEW	COMPLETED
- 31	TMATSPH032	DALWIN ALDO DAISON	COMPLETED
32	TMATSPH033	MOHAMMED MIDULAJ K	COMPLETED
33	TMATSPH035	SHIJIL K T	COMPLETED
34	TMATSPH036	FIDHA NASSAR PALAKKAL	COMPLETED

COURSE GOORDINATOR

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Aboothahir Afzal Aris fant Professor in Pfr. 565 11 Govt. College Vuest Firur, Pire 576502, Indexpresent Dist.

THUNCHAN MEMORIAL GOVT. COLLEGE TIRUR	
DEPARTMENT OF PHYSICS	
CERTIFICATE COURSE ON MATERIAL SCIENCE	
ATTENDANCE OF STUDENTS FOR THE YEAR 2021-2022	4

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2	TMATSPH002	AJMAL M P	×	×	×	×	a	X	K	×	×	X	×	4	X	1	×	×	X	11	K
3	TMATSPH003	MISHAB A	×	×	1	×	×	×	×	a	×	X	1	×	×	X	a	×	X	11	+
4	TMATSPH004	MUHAMED MARSHAD	×	×	×	×	×	×	V	×	×	X	×	*	*	×	1	r	X	X.	1
5	TMATSPH005	MUHAMMED SAFWAN	×	×	*	×	×	x	X	×	×	×	X	×	×	×	*	1	×	X	10
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7	TMATSPH007	ADITHYA P V	×	×	×	×	1	X	×	×	×	x	×	×	*	x	×	×	< 1	1	6
8	TMATSPH008	AMRUTHA HARIDAS	×	×	×	×	1	X	×	×	×	X	×	a	×	r	×	*	×	1	£
9	TMATSPH009	ANJITHA PRABHAKARAN E K	×	×	×	×	a		x	×	×	×	×	×	x	8	8	×	4	1	6
10	TMATSPH010	BHAVANA C	×	×	×	×	1	×	×	×	X	X	1	×	×	X	*	*	×		
11	TMATSPH011	JINEESA P P	×	×	*	×	X	v	×	x	×	X	a	×	×	x	×	4	x	×	14
12	TMATSPH012	KEERTHANA V	×	×	×	×	×	x	x	×	x	x	×	×	×	4	Y	1	1	<	14
13	TMATSPH013	NAJIYA NAZRIN V	×	Y	*	×	X	a	×	x	×	×	1	x	1	x	×	×	21		in
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19	TMATSPH020	MIDHUN T	×	×	×	×	×	X	X	X	X	X	K	-	X	-	1	Y	×	12	N
20	TMATSPH021	MOHAMED SIBILI P P	×	X	x	a	×	X	X	X	X	×	×	×	X	X	+	×	1	12	1
21	TMATSPH022	MOHAMMED AMEEN V V	×	V	×	×	×	×	×	×	X	X	1	1	X	1	×	1	×	X	
22	TMATSPH023	MOHAMMED SALIM N K	×	X	<	×	×	×	×	X	×	×	×	×	×	X	X	X	X	+	10.
23	TMATSPH024	SHIBINLAL K K	×	×	×	×	K	×	×	×	×	×	×	×	×	*	×	×	X	X	0
24	TMATSPH025	VINAYAK P	×	Y	×	×	×	a	×	X	×	×	×	1	×	a	×	×	×	X	D'
25	TMATSPH026	ANARGHA C P	×	×	X	×	×	×	×	X	x	x	×	×	×	×	×	×	×	×	44
26	TMATSPH027	DEVIKA A V	×	X	×	×	×	×	×	×	×	1	×	×	×	*	1	×	×	×	13
27	TMATSPH028	GADHA C	×	×	×	×	×	x	x	x	×	x	×	×	×.	X	×	×	×	1	5
28	TMATSPH029	SREELAKSHMI V P	×	a	×	×	×	×	×	×	×	×	×	a	×	×	×	×	×	1	14
29	TMATSPH030	ABHIJITH C	X	×	×	×	×	X	x	×	×	×	×	x	×	×	×	×	×	1	AF
30	TMATSPH031	ANAT MATHEW	×	X	×	x	×	X	x	×	×	×	×	×	x	x	X	×	×	×	t.
31	TMATSPH032	DALWIN ALDO DAISON	×	×	×	X	a	x	x	×	×	×	x	X	×	x	×	a	×	×	P
32	TMATSPH033	MOHAMMED MIDULAJ K	×	×	×	×	×	y	x	×	a	×	×	,	×	×	x	×	X	×	14
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# THUNCHAN MEMORIAL GOVT. COLLEGE TIRUR DEPARTMENT OF PHYSICS

# MATERIALS SCIENCE (TMGCPHY CC 1)

## REPORT

Department of Computer Science and Physics of Thunchan Memorial Govt. College Tirur conducted a certificate course on "Materials Science" with 30 hours duration in the academic year 2021 - 22. Thirty four students were enrolled in the course. Dr.Aboothahir Afzal was appointed as Course Coordinator. All the 34 students completed the course successfully.

COURSE COORDINATOR