

**SGK GOVERNMENT DEGREE COLLEGE-  
VINUKONDAGUNTUR DIST.A.P:522647**

**Inter disciplinary Certificate Course**

**In**

**“Role of Mathematics, Physics, and Chemistry in Biology”**



**ORGANIZED BY**

**DEPARTMENT OF MATHEMATICS,  
PHYSICS & CHEMISTRY**

**DATE: 09-11-22 to 16-12-2022**

**A.Y- 2022-2023**

## ABOUT THE COLLEGE

Srimathi Gangineni Kalyani Government Degree College, Vinukonda was established in 1980 to serve the higher education needs of the academically backward Palnadu region. It is located on the outskirts of Vinukonda, a small town in Guntur district. It is the only Government Degree College catering the academic aspirations of the young in palnadu region. Till 1979, students who were desirous of pursuing higher education were moving to far off places. The philanthropic intervention of Sri Gangineni Venkateswara Rao, Ex- MLA, Sri O. Venkateswarlu, Ex- MLA and Dr. V. Adi Reddy could realize the higher education dreams of the students on 11th September 1980. Initially, it rendered its services in the name of Madala Satyanarayana and Manne Rathamma Government Degree College and later re-named after its donor and former Principal Srimathi Gangineni Kalyani (late). The college is sprawled out over 21 acres of vast land area and eco-friendly environment. It provides spacious and aerated classrooms, well equipped laboratories, library with 12,500 books and reading room, modern gymnasium, virtual lab, English language lab, Jawahar Knowledge Centre (JKC) for skill development, which are all well supported by serene and iconic ambience. The college achieved the status of 2(f) and 12(B) in 1994. For the quality education it has been imparting for the last 40 years, strictly adhering to the guidelines of UGC, it has been conferred with NAAC 'B' Grade twice (2006 & 2015). The college takes pride by offering quality education to students from the competent and qualified teaching faculty. The college has 20 sanctioned teaching posts, including Principal. Of them, six faculty members have Doctoral degrees in their respective subjects, one has M.Phil. Degree and all the lecturers have qualified in NET/SLET/SET. The college also provides opportunity for students to receive online certification from Spoken Tutorial maintained by IIT, Bombay and CISCO certified courses free of cost. Also imparting training in General knowledge and aptitude to prepare the students for competitive examinations and providing access to Jagananna Vidya Deevena and Vasthi Deevena scholarships given by Government of Andhra Pradesh to support students.

## **OUR VISION:**

The vision of the institution is to make available higher education to all the young aspirants of the region and to edify their overall personality, keeping the emerging trends of the society in the view.

## **OUR MISSION:**

To materialize the vision mentioned above, the mission is divided into the following achievable objectives.

- ☐ Catering to the academic needs of the rural poor students
- ☐ Imparting life skills to fit the students in the job market effectively
- ☐ Inculcating the spirit of diligence to achieve their goal and build their career
- ☐ Enriching the curriculum with value-based activities for the holistic development of the students
- ☐ Fostering the spirit of confidence and sportsmanship

## **OBJECTIVES:**

- ☐ Serving the needs of rural students
- ☐ To enable the poor and down-trodden/underprivileged sections of the society and access to gainful employment opportunities by imparting skill oriented education.
- ☐ To achieve the academic excellence
- ☐ To inculcate human values and social responsibilities

Course	Specialization	Intake	Medium
B.Sc	Mathematics, Physics, Chemistry	30	English
B.Sc	Mathematics, Physics, Computer Science	30	English
B.Sc	Botany, Zoology, Chemistry	40	English

#### FACULTY PROFILE:

Name of the Faculty	Qualifications	Position
Dr. K. V. S Koteswara Rao	Ph.D., M.Sc, NET	Lecturer in Chemistry
Sri B. Nageswara Rao	M. Sc, NET, A.P SET	Lecturer in Physics
Sri V. Bala Yesu	M. Sc, NET, A.P SET	Lecturer in Chemistry
Dr. Ch. Srimannarayana	M.Sc, M.Phil, Ph.D	Lecturer in Mathematics



## **Learning Objectives:**

- To create awareness of basic Mathematics required in Biology
- To learn Calculus is understanding dynamical systems in biology
- learn Physics to understand a huge myriad of biological events
- learning physical laws leads to understood how the human body works
- To understand chemistry of Photosynthesis
- To understand Structures of Nitrogen bases and hydrogen bond
- To understand Chemistry of Natural Products

## **Learning Outcomes:**

- By learning fractions, decimals and percentages, through ratio and proportion, exponents and logarithms made easy to understand Genetics
- By learning Calculus will help students to understand dynamical changes in biological events, growth/decay problems in any organism population
- Learning units in physics will help students to understand the inner workings of the machinery found in living organisms on length scales ranging from the molecular to the macroscopic.
- Learning Significant figures help us to estimate uncertainty in the final result
- Learned role of carbon dioxide, water, and sunlight in Photosynthesis

# Syllabus

## Unit-1:

- Quadratic Equation
- Linear Equation in One Variable
- Linear Equation in Two Variable
- LCM and HCF

## Unit-II:

- Logarithms
- Graphs
- Derivations
- Integrations

## Unit- III:

- Unit Systems ( CGS, MKS, FPS & SI)
- Dimensional formulas
- Significant Figures

## Unit-IV:

- Vector – Subtractions, Multiplications, Dot Product, Cross Product

## Unit V:

- Chemistry of Photosynthesis ( C3 & C4 Cycles)
- Chemistry of Glycol sis, Krebs's Cycle

## Unit VI:

- Brief introduction to Alkaloids, Terpinoids,
- Chemistry of Purines, Pyramadines

Evaluation:

Written Examinations for 100 Marks

Written exam-1 20M

Written exam-2 20M

Written exam-3 20M

Final exam 40M

Assessment:

Students are assessed with a Written Exams conducted during and at the end of the course. The exams are conducted for 100 marks and the student has to score at least 50 marks to get the certificate. Three Written exams (each carries 20 M) are conducted in the middle of the course in order to assess the students and act according to their learning levels.

# **BROCHURE**

**SGK GOVERNMENT DEGREE COLLEGE**

**(AFFILIATED TO ACHARYA NAGARJUNA UNIVERSITY,GUNTUR A.P)**

**NAAC WITH 'B'**

**VINUKONDA, PALNADU DISTRICT,A.P**

**DEPARTMENT OF MATHEMATICS,PHYSICS AND CHEMISTRY**

**OFFERS**

**ROLLE OF MATHEMATICS,PHYSICS AND CHEMISTRY IN BIOLOGY**

**09-11-22 TO  
16-12-22**



S.No	Register No	Name of the Student	Group	Signature
1	Y223099001	ANNEPOGU NANI	I B. Sc (B.Z.C)	A. Nani
2	Y223099002	ARLAGADDA JANI	I B. Sc (B.Z.C)	A. Jani
3	Y223099003	ARUDRA VENKATA RAO	I B. Sc (B.Z.C)	A. Venkata Rao
4	Y223099004	BHAVANASI SUJATHA RANI	I B. Sc (B.Z.C)	B. Sujatha Rani
5	Y223099005	BILLA SRINIVASA RAO	I B. Sc (B.Z.C)	B. S. Rao.
6	Y223099006	KANCHARLA DHANA LAKSHMI	I B. Sc (B.Z.C)	Dhana Lakshmi. K
7	Y223099007	KESANAPALLI MANOHAR BABU	I B. Sc (B.Z.C)	K. MANOHAR BABU
8	Y223099008	KOYYALAMUDI SOWMYA	I B. Sc (B.Z.C)	K. Sowmya.
9	Y223099009	PALADUGU BRAHMESWARI	I B. Sc (B.Z.C)	Brahmeswari. P
10	Y223099010	PALLE SANDEEP	I B. Sc (B.Z.C)	P. Sandeep.
11	Y223099011	PALLE SANTHOSH	I B. Sc (B.Z.C)	P. Santhosh
12	Y223099012	PATRA GEORGE BABU	I B. Sc (B.Z.C)	P. George
13	Y223099013	SHAIK AMEERBASHA	I B. Sc (B.Z.C)	Shaik Ameerbasha
14	Y223099014	SHAIK HASEENA	I B. Sc (B.Z.C)	SK. Haseena
15	Y223099015	YEPURI SIVA NAGAMANI	I B. Sc (B.Z.C)	Y. Siva Nagamani

K.V.S. Koteswara

IQAC COORADINATOR  
SGK GOVT DEGREE COLLEGE, VINUKONDA  
PALNADU DIST - 522 647

Principal  
SGK Govt. Degree College  
Vinukonda - 522647  
Palnadu Dist., A.P.

## Detailed Pedagogical Plan

S.No.	Date	Name of the Topic	Taken By
1	09.11.2022	Introduction & Syllabus	Mr. B. Nageswara Rao
2	10.11.2022	Quadratic Equation-1	Dr. Ch. Srimannarayana
3	11.11.2022	Quadratic Equation-2	Dr. Ch. Srimannarayana
4	14.11.2022	Linear Equation in One Variable	Dr. Ch. Srimannarayana
5	15.11.2022	Linear Equation in Two Variable	Dr. Ch. Srimannarayana
6	16.11.2022	LCM, HCF	Dr. Ch. Srimannarayana
7	17.11.2022	Logarithms	Dr. Ch. Srimannarayana
8	18.11.2022	Graphs	Dr. Ch. Srimannarayana
9	21.11.2022	Derivations	Dr. Ch. Srimannarayana
10	22.11.2022	Integrations	Dr. Ch. Srimannarayana
11	23.11.2022	Written exam-1	Mr. B. Nageswara Rao
12	24.11.2022	Unit Systems ( CGS & MKS)	Mr. B. Nageswara Rao
13	25.11.2022	Unit Systems (FPS & SI)	Mr. B. Nageswara Rao
14	26.11.2022	Dimensional formulas	Mr. B. Nageswara Rao
15	28.11.2022	Significant Figures	Mr. B. Nageswara Rao
16	29.11.2022	Vector – Subtractions	Mr. B. Nageswara Rao
17	30.11.2022	Vector – Multiplications	Mr. B. Nageswara Rao
18	01.12.2022	Dot Product	Mr. B. Nageswara Rao
19	02.12.2022	Cross Product	Mr. B. Nageswara Rao
20	03.12.2022	Written exam -2	Mr. B. Nageswara Rao
21	05.12.2022	Chemistry of Photosynthesis	Dr. K. V. S Koteswararao
22	06.12.2022	( C3 & C4 Cycles)	Dr. K. V. S Koteswararao
23	07.12.2022	Chemistry of Glycol sis	Dr. K. V. S Koteswararao
24	08.12.2022	Krebs's Cycle	Dr. K. V. S Koteswararao
25	09.12.2022	Brief introduction to Alkaloids	Mr. V. Balayesu
26	12.12.2022	Terpinoids	Mr. V. Balayesu
27	13.12.2022	Chemistry of Purines	Mr. V. Balayesu
28	14.12.2022	Pyrimadines	Mr. V. Balayesu
29	15.12.2022	Written Exam-3	Mr. V. Balayesu
30	16.12.2022	Final Exam	Dr. K. V. S Koteswararao

Dr. Srimannarayana -  
V. Balayesu  
D. Nageswara Rao

K. V. S. Koteswararao  
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Vinukonda - 522647  
Palnadu Dist., A.P.



S. No	Name of the Student	09-11-2022	10-11-2022	11-11-2022	14-11-2022	15-11-2022	16-11-2022	17-11-2022	18-11-2022	21-11-2022	22-11-2022	23-11-2022	24-11-2022	25-11-2022	26-11-2022	28-11-2022	29-11-2022
1	ANNEPOGU NANI	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A
2	ARLAGADDA JANI	P	P	A	P	P	P	P	P	P	P	P	A	P	P	P	P
3	ARUDRA VENKATA RAO	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P
4	BHAVANASI SUJATHA RANI	P	P	P	P	A	P	P	P	P	P	P	P	P	P	A	P
5	BILLA SRINIVASA RAO	P	A	P	P	P	P	P	P	P	P	A	P	P	P	P	P
6	KANCHARLA DHANA LAKSHMI	P	P	A	P	P	P	P	P	P	P	P	A	P	P	P	P
7	KESANAPALLI MANOHAR	P	P	P	P	P	P	P	A	P	P	P	P	P	P	A	P
8	KOYYALAMUDI SOWMYA	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	A
9	PALADUGU BRAHMESWARI	P	P	P	A	P	P	P	P	P	A	P	P	P	P	P	P
10	PALLE SANSEEP	P	A	P	P	P	P	P	P	P	P	P	A	P	P	P	P
11	PALLE SANTHOSH	P	P	P	P	A	P	P	P	A	P	P	P	P	P	P	P
12	PATRA GEORGE BABU	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P
13	SHAIK AMEERBASHA	P	P	P	P	P	A	P	P	P	P	P	P	P	P	A	P
14	SHAIK HASEENA	A	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P
15	YEPURI SIVA NAGAMANI	P	P	P	P	A	P	P	P	P	P	P	P	A	P	P	P

Ch. Sriman Narayan  
V. B. Reddy  
D. Reddy

K.V.S. KOTESWAR  
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S. No	Name of the Student	30-12-2022	01-12-2022	02-12-2022	03-12-2022	05-12-2022	06-12-2022	07-12-2022	08-12-2022	09-12-2022	12-12-2022	13-12-2022	14-12-2022	15-12-2022	16-12-2022		
1	ANNEPOGU NANI	P	P	A	P	A	P	P	P	a	P	P	P	P	P		
2	ARLAGADDA JANI	P	P	P	a	P	P	P	P	P	a	P	P	P	a		
3	ARUDRA VENKATA	P	a	P	P	P	P	a	P	P	P	P	P	P	P		
4	BHAVANASI SUJATHA	a	P	P	P	P	P	P	P	a	P	P	P	a	P		
5	BILLA SRINIVASA	P	P	a	P	P	P	P	P	P	P	P	a	P	P		
6	KANCHARLA DHANA	P	P	P	a	P	P	P	a	P	P	P	P	P	P		
7	KESANAPALLI	a	P	P	P	P	P	P	P	P	a	P	P	P	P		
8	KOYYALAMUDI	P	P	P	P	a	P	P	P	P	P	P	a	P	P		
9	PALADUGU	P	a	a	P	P	P	P	P	P	P	P	P	P	P		
10	PALLE SANSEEP	P	P	P	P	a	P	P	P	P	P	P	a	P	P		
11	PALLE SANTHOSH	P	P	P	P	P	a	P	P	P	P	P	P	P	a		
12	PATRA GEORGE BABU	a	P	P	P	P	P	a	P	P	P	P	P	P	P		
13	SHAIKAMEERBASHA	P	a	P	P	P	P	P	a	P	P	P	P	P	P		
14	SHAIK HASEENA	P	P	P	P	a	P	P	P	P	P	P	a	P	P		
15	YEPURI SIVA	a	P	P	P	P	a	P	P	P	P	P	P	P	P		

K.V.S. Kotchawa

IQAC COORADINATOR  
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Palnadu Dist., A.P.

Dr. Srima Narayan  
V. B. S.  
D. N.



### Assessment

S.LNo	Name of the Student	Marks	Result
1	ANNEPOGU NANI	75	PASS
2	ARLAGADDA JANI	75	PASS
3	ARUDRA VENKATA RAO	70	PASS
4	BHAVANASI SUJATHA RANI	65	PASS
5	BILLA SRINIVASA RAO	80	PASS
6	KANCHARLA DHANA LAKSHMI	69	PASS
7	KESANAPALLI MANOHAR BABU	71	PASS
8	KOYYALAMUDI SOWMYA	80	PASS
9	PALADUGU BRAHMESWARI	60	PASS
10	PALLE SANSEEP	65	PASS
11	PALLE SANTHOSH	70	PASS
12	PATRA GEORGE BABU	75	PASS
13	SHAIK AMEERBASHA	65	PASS
14	SHAIK HASEENA	80	PASS
15	YEPURI SIVA NAGAMANI	70	PASS

*Dr. Srinivasan*  
*V. B. M.*  
*D. N.*

*K. V. S. Koteshwari*  
 IQAC COORDINATOR  
 SGK GOVT DEGREE COLLEGE, VINUKONDA  
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*K. N.*

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**SGK GOVERNMENT DEGREE COLLEGE  
VINUKONDA  
PALNADU DISTRICT – 522647**  
(Affiliated to Acharya Nagarjuna University)



**Brief Report**

Department of Mathematics has organized a certificate course in “**Role of Mathematics, Physics and Chemistry in Biology**”. The duration of the course is one month (30 hours) and the course was conducted from **09-11-2022 to 16-11-2022**. This course is designed for people who want to learn the knowledge and skills they need to work in **Role of Mathematics, Physics and Chemistry in Biology**. **15** students of **I B.Sc (BZC)** registered in the course. Dr. K.V.S Koteswararao Lecturer in Chemistry, Dr. Ch.Srimannarayana Lecturer in Mathematics, Sri,V.Balayesu Lecturer in Chemistry and Sri.B.Nageswararao Lecturer in Physics acted as the resource persons for this course. During the course students are evaluated using assignment, Quizzes, and final exam. All the **15** students successfully completed the course and received certificates for completion.

Ch. Srimannarayana

N. Balayesu

B. Nageswararao

K.V.S. Koteswararao

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Principal

Principal  
SGK Govt. Degree College  
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Palnadu Dist., A.P.



Estd:1980

# SGK GOVERNMENT DEGREE COLLEGE VINUKONDA

(Affiliated to Acharya Nagarjuna University, Guntur)  
Guntur District, Andhra Pradesh, India-522647



## CERTIFICATE

This Certificate is awarded to K DHANA LAKSHMI, I B.Sc (B.Z.C), with Registration No. Y223099006, SGK Govt. Degree College, Vinukonda for completed and passed the ROLE OF MATHEMATICS, PHYSICS AND CHEMISTRY IN BIOLOGY Interdisciplinary certificate course during 09.11.2022 to 16.12.2022 Conducted by Department of Mathematics, Physics and Chemistry, SGK Government Degree College, Vinukonda.

**Dr.K.V.S.Koteswararao**  
**CONVENER**

**Dr.K.Srinivasa Rao**  
**PRINCIPAL**