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# **T. K. M. COLLEGE OF ARTS AND SCIENCE**

NAAC RE-ACCREDITED "A++" GRADE

Kollam-691005, Kerala

Ref

Date

**Department of Mathematics**

**Certificate Course in**

## **DYNAMIC MATHEMATICS USING GEOGEBRA**

**2023-2024**

**Course Coordinator: Adersh V.K.**

**Assistant Professor**

**Department of Mathematics**

## Certificate Course on Dynamic Mathematics Using GeoGebra Curriculum

Instructional hours per week: 2

Total hours: 30

### Aims and Objectives

GeoGebra is one of the dynamic mathematics software for teaching and learning mathematics. It is an open source software under GNU General Public License and freely available at [www.geogebra.org](http://www.geogebra.org). The aim of this course is to demonstrate how GeoGebra can be used for gaining a better understanding of mathematical concepts.

### **Module I:** Introduction to GeoGebra

In this module we will see the basic tools of Geogebra.

### **Module II:** Geometry and Algebra using GeoGebra

Linear equations, Conic sections, Linear transformations,

### **Module III:** Analysis using GeoGebra

Understanding fundamentals of single and multi variable calculus using GeoGebra tools.

**Targeted Audience:** Under graduate students of any discipline.

**Prerequisites:** Basic computer knowledge and higher secondary level mathematics.

### Instructional Methods

- a. Online/Offline lectures
- b. Lab sessions for experiential learning
- c. Provides web resources in terms of videos and tutorials

### Week-wise plan

#### **Week 1:** Introduction to GeoGebra

- GeoGebra Interface
- Polygons and Angles
- Perpendicular and Parallel lines

#### **Week 2:** Geometry and Algebra using GeoGebra

- Drawing Graphs
- Use sliders to transform graphs

#### **Week 3 and 4:** Analytic geometry

- Points and line
- Using coordinates in Proofs
- Polar coordinates

## About the course

GeoGebra is one of the dynamic mathematics software for teaching and learning mathematics. It is open source software under the GNU General Public Licence and freely available at [www.geogebra.org](http://www.geogebra.org). The aim of this course is to demonstrate how GeoGebra can be used for gaining a better understanding of mathematical concepts.

## Targeted Audience

- Students with higher secondary mathematics background

## Duration

- 30 hours

## Instructional Methods

- Online/Offline lectures
- Lab sessions for experiential learning
- Provides web resources in terms of videos and tutorials

## Mode of Assessment

- Quiz (Oral/Written) based on the topic
- Practical examination at the end of the course
- Assignment/Record
- Attendance (Lecture+Lab)

Grades will be awarded on the following basis:

- 80% and above – A Grade
- 70-79 % – B Grade
- 60-69 % – C Grade
- Below 60% – D Grade

*A minimum of C Grade is necessary to provide the Certificate.*

# Certificate Course on Dynamic Mathematics Using GeoGebra

Offered by  
Department of Mathematics

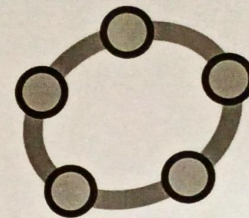


TKM College of Arts and Science,  
Kollam

Course start date: November 2023

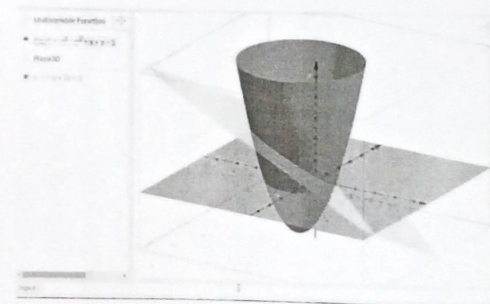
For further details contact:

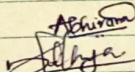
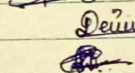
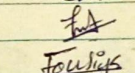
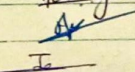
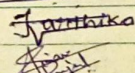
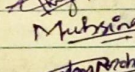
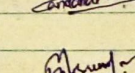
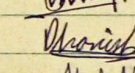
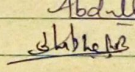
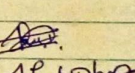
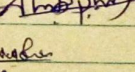
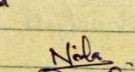
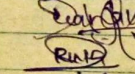
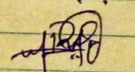
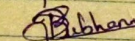
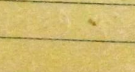
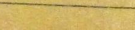
Adersh V K (Course facilitator)  
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E-mail: [adersh@tkmcas.ac.in](mailto:adersh@tkmcas.ac.in)



GeoGebra

- ★ GeoGebra is a dynamic and interactive software for Mathematics.
- ★ It brings together Geometry, Algebra, Calculus, spreadsheets, graphing, statistics and probability applications in a single package.
- ★ Students can use **GeoGebra** to make conjectures and to understand how to prove geometric theorems.
- ★ GeoGebra is available for Windows, Mac OS and Linux. GeoGebra has tablet apps for Android, iPad and Windows.
- ★ It is freely available for download at <http://www.geogebra.org>.



Sl No.	Candidate Code	Name	Ad. No.	Class & Batch	Ph. no.	email ID	Signature
1.	220231420 01	ABHIRAMI.A.M	59236	S. B. & Mathematics 2023-26 Batch	7907844149	abhiramiam005@gmail.com	
2	002	ADITHYA.D	59205	"	89212959627	adithyad736@gmail.com	
3	003	DEVIKAR.S	59219	"	9778756355	r.sdevika859@gmail.com	
4.	004	FATHIMA.T	59360	"	92077189972	fathimat963@gmail.com	
5	005	FIDHA.S	59562	"	9567530514	sheejashamou.1234@gmail.com	
6	006	FEUSIYA.N	59249	"	9061316383	raseerani@gmail.com	
7	007	Ijaskhan J	59511	"	8075012429	Ijaz Khan Ijaz2004@gmail.com	
8	008	Jeeva renkizeswari	59264	"	9895887644	Jeeva kpm234@gmail.com	
9	009	KARTHIKA.R.S	59421	"	6238106357	rskarthika13A@gmail.com	
10	010	Muhammed Suman.S	59357	"	8848496837	metaboy250@gmail.com	
11	011	MUHSINA.AH	59316	"	8891491513	hs.muhsina2005@gmail.com	
12	012	NANDANAMOHAN	59318	"	8129065903	nandanamohan05092005@gmail.com	
13	013	SREENA M	59247	"	7736770212	sreenam2004@gmail.com	
14	014	Dhanush Ajay	59362	"	8078490811	adhanushajay05@gmail.com	
15	015	Abdullah.A	59578	"	8589071357	abdullahkabeer01@gmail.com	
16	016	ABHISHEK.R.	59380	"	8075503787	abhishekapsana274@gmail.com	
17	018	Adithyan. A.	59609	"	9645922573	bb704282@gmail.com	
18	019	ALBIN PONNACHAN	59215	"	8943478962	albinalbin1213@gmail.com	
19	020	Deepthi Mohan	59599	" "	9526494187	Deepthimohan2005@gmail.com	
20	021	MEGHANA.M	59107	"	8901298302	mehanakuku@gmail.com	
21	022	NILA.S	59427	"	9746645925	nilasugesh072005@gmail.com	
22	023	PRANAV.V.S	59961	"	8848998258	pranavaunav1881@gmail.com	
23	024	RINTA.S	59237	"	9447562130	rinta.naina@gmail.com	
24	026	VIGNHESWAR.Y	59379	"	6238597742	Vgnesh2005marval@gmail.com	
25	027	BISMILLAH.SUBHANA.	59321	"	9495546758	Sheejanizam32@gmail.com	



# REGISTER OF ATTENDANCE & FEES

# FOR THE MONTH OF

December 2022, January, February, March 2024  
 Class B.Sc. Mathematics 2023-26 Batch

Candidate No.	Admission No.	Name of the Institute	NAMES	Section												No. of days Present	FEES		Date of Payment																	
				1	2	3	4	5	6	7	8	9	10	11	12		13	14		15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
220231630	59236		Abhisami A.M.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
02	59205		Adithya. D	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
03	59819		Devika R.S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
04	59360		Fathima T.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
05	59568		Fidha. S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
06	59349		Fousiya .N	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
07	59561		Ijaskhan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
08	59264		Jeeva venkites waran. R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
09	59421		KARTHIKA R.S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
10	59854		Muhammad Suroin.S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
11	59316		Muhsina.AH	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
12	59318		Namdama. Mohan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
13	59217		Sreena M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
14	59382		Dhanush Ajay	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
15	59578		Abdullah. A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
16	59380		Abhishek R	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
17																																				
18	59609		Adithyan. A	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
19	59215		Albin Ponnachan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
20	59599		Deepthi Mohan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
21	59107		Meghana. M	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
22	59427		Nira. S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
23	59318		Namdama Mohan	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
23	59961		Pranav. V.S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
24	59237		RINTA.S	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
25																																				
26	59379		VIGNANESWARV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
27	59321		BISMILLAH SUBHANA.N	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			

Number present M																			
Daily E																			

No. on roll at the beginning of month. Admitted during the month Left No. on Roll at end of month No. of Working days Average Attendance during the month. No. on Roll during month

## Certificate Course on Dynamic Mathematics Using GeoGebra Summary Report for 2023-24

**Instructional hours per week: 2**

**Total hours: 30**

The course commenced on 22 November, 2023. The course is provided to First semester B.Sc. students of the college. The programme aimed at equipping students studying for the first degree program in Mathematics with additional skills through computational and visual mathematical activities. Apart from the live classes through online sessions, students were provided with additional online material, like resources from spoken tutorials etc..

### Evaluation Method Adopted

The following three assessment methods were adopted.

1. Quiz (Oral/Written) based on the topic – 20 marks
2. Practical examination at the end of the course- 50 marks
3. Assignment/Record – 20 marks
4. Attendance (Lecture+Lab) – 10 marks

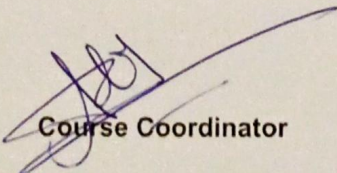
Grades were awarded on the following basis:

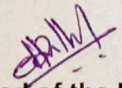
- 80% and above – A Grade
- 70-79 % - B Grade
- 60-69 % - C Grade
- Below 60 % - D Grade

*A minimum of C Grade is necessary to provide the Certificate.*

Classes were engaged by Prof. Adersh V K, Department of Mathematics, TKM CAS and Prof. Sumesh S S, Assistant Professor, Department of Mathematics, St. John's college, Anchal.

25 students enrolled in the course during the academic year 2023-24. All the 25 students attended the evaluation procedures and passed the course. 13 students secured A Grade and 6 secured B Grade.

  
**Course Coordinator**

  
**Head of the Department**