



CERTIFICATE COURSE DETAILS

NAME OF THE COURSE

Basics of GeoGebra

COURSE CODE

CPCC44

COURSE DETAILS

Total hours: 30

COURSE COORDINATOR

Ms. Tintumol Sunny

PARTNERSHIP WITH

MATH Lab Cochin

ABOUT COLLEGE

Christ College (Autonomous) Irinjalakuda, established in the year 1956 by CMI fathers has always been place where young generations are moulded towards a bright future. College has excellent infrastructure, with state-of-the-art laboratories, seminar rooms and lecture halls. The campus is Wi-Fi enabled. Presently College is house for 4500+ students. 200 teaching staff and 45 supporting staff. The strength of the College lies in its hardworking and tech savvy teachers who are eager to involve in all matters of students. The lush green campus with gardens and open gym is moving towards the next phase on education both offline and online.

AIM OF THE COURSE

To understand the features and uses of the software 'GeoGebra'. To learn the different tools and their applications and various commands in GeoGebra. To create geometrical shapes and plot mathematical functions in GeoGebra. To depict the geometrical meaning of calculus using GeoGebra. To construct 3D shapes and objects in GeoGebra

PROGRAM SPECIFIC OUTCOME

- To learn the concepts of mathematics in an interesting way
- To Understand and present mathematical ideas using the GeoGebra software

- To visualize 3D functions and shapes and thus learn 3D related topics easily.

SUGGESTED METHODOLOGY OF TEACHING AND LEARNING

- Online/Offline classes
- Practical sessions on GeoGebra
- Practicing constructions in GeoGebra

COURSE OUTCOMES

C01	Understanding a new software and its interface
C02	Plotting lines, points, polygons and circles in GeoGebra
C03	Learn new tools and plot functions in GeoGebra
C04	Construct conics in GeoGebra, plot complex numbers in GeoGebra

SYLLABUS

Module 1: INTRODUCTION TO GEOGEBRA

Introduction to Euclid's Geometry- Euclid's axioms, Euclid's postulates.

Introduction to GeoGebra- GeoGebra Classic' features- How to install.

GeoGebra interface-Menu bar, Toolbar, input bar- Algebra View and Graphic's View.

Module 2: BEGINNING GEOGEBRA

Points and lines-plotting points, lines, line segments, point of intersection, mid-point, perpendicular and parallel lines.

Module 3: NEW TOOLS AND PLOTTING FUNCTIONS

Slider tool, Trace and Animation, Area using GeoGebra, Checkbox and Input box,

Plotting functions-Polynomial, modulus, rational, signum, greatest integer, square root.

Trigonometric functions.

Module 4: CONIC SECTIONS, SEQUENCE AND COMPLEX NUMBERS

Parabola, Ellipse, Hyperbola- Various commands to construct and tools for conics.

Sequences and Sum, Complex Numbers plotting, arithmetic operations, modulus, argument.

Certificate Course- Basics of Geogebra CPCC44

Assessment Procedure

Assignments : 40%

Examination (Theory and Practical) : 60%

Course Outcomes

Upon completion of the course, students will be able to:

1. Understand the new software Geogebra and its interface
2. Plotting lines, points, polygons and circles in Geogebra
3. Learn new tools and plot functions in Geogebra
4. Construct conics in Geogebra, Plot complex numbers in Geogebra

Certificate Course- Basics of Geogebra CPCC44

Teacher Coordinator Report

Number of students	34
Date of examination	20-7-2023
Total students who passed exam	32
Total course duration	30 hrs

Feedback analysis:

- Students found the course highly engaging and informative.
- The hands-on approach helped students gain practical knowledge in GeoGebra, enhancing their understanding of mathematical concepts.
- Participants reported increased confidence in applying GeoGebra for teaching and learning purposes.
- Many students expressed interest in advanced GeoGebra courses for further skill development.

Course Coordinator: Tintumol Sunny



CHRIST
COLLEGE (AUTONOMOUS)
IRINJALAKUDA, KERALA

Affiliated to University of Calicut and Reaccredited by NAAC with 'A++' & SAAC 'A+'
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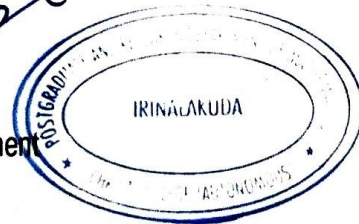
**POSTGRADUATE AND RESEARCH
DEPARTMENT OF MATHEMATICS**

Certificate

This is to certify that

Ms./Mr. ANAOKHA V B [CCAW&MT002]
has successfully completed the certificate course on Basics of Geogebra with
Grade A, conducted by Postgraduate and Research Department of Mathematics, Christ
College (Autonomous), Irinjalakuda during the academic year 2023-24.

Seena V
Dr. SEENA V
Head of the Department



Tintumol Sunny
Ms. TINTUMOL SUNNY
Course Coordinator



Jolly Andrews CMI
Fr. Dr. JOLLY ANDREWS CMI
Principal

Model Test Paper(Theory)

Certificate Course Exam in Basics of GeoGebra

Time: 20 minutes

Total Marks: 10

Instructions: Choose the most appropriate answer for each question.

1. Which window in GeoGebra shows the algebraic representation of objects?
 - a) Graphics window
 - b) Spreadsheet view
 - c) Algebra window
 - d) CAS view
2. What is the default color of points in GeoGebra?
 - a) Red
 - b) Blue
 - c) Green
 - d) Black
3. Which tool is used to create a perpendicular line in GeoGebra?
 - a) Parallel Line
 - b) Angle
 - c) Perpendicular Line
 - d) Normal Line
4. What keyboard shortcut is used to open a new GeoGebra window?
 - a) Ctrl + N
 - b) Ctrl + O
 - c) Ctrl + W
 - d) Ctrl + S
5. Which of these is NOT a view option in GeoGebra?
 - a) Graphics View
 - b) Algebra View
 - c) Programming View
 - d) Spreadsheet View
6. When creating a slider in GeoGebra, what is the default minimum value?
 - a) 0
 - b) -5
 - c) -10
 - d) 1
7. Which tool would you use to measure the distance between two points?
 - a) Angle Tool
 - b) Distance or Length Tool
 - c) Area Tool
 - d) Circle Tool
8. What type of file extension does GeoGebra primarily use for saving files?
 - a) .geo
 - b) .ggb
 - c) .gbr
 - d) .gsp
9. Which of these transformations is NOT available in GeoGebra?
 - a) Reflection
 - b) Rotation
 - c) Morphing
 - d) Translation

10. What happens when you right-click on an object in GeoGebra?
- a) The object is deleted
 - b) Properties dialog opens
 - c) The object is copied
 - d) The object becomes hidden
-

Answer Key:

1. c) Algebra window
2. b) Blue
3. c) Perpendicular Line
4. a) Ctrl + N
5. c) Programming View
6. b) -5
7. b) Distance or Length Tool
8. b) .ggb
9. c) Morphing
10. b) Properties dialog opens

Marking Scheme:

- Each question carries 1 mark
- No negative marking
- Total marks: 10

Model Test Paper(Practical)

1. Plot the function $f(x) = 3x^2 + 2x - 3$.
2. Make a point A and type $(x(A) + 3, y(A) + 2)$ in the input bar. What is the speciality of the coordinates of the new point? Change the position of A and check.
3. Enter the equations $5x + 4y = 40$ and $5x + 4y = 9$ in the input bar. Do these lines intersect?
4. Using an input box, find $f(0), f(1), f(-1)$ and $f(2)$ where $f(x) = \sqrt{x}$.
5. Draw a circle in GeoGebra and join two points on it to draw a chord. Mark its midpoint and enable Trace on. Also enable Animation for end points of the chord. What is the path of midpoint of the chord? Enable Trace on for the chord also. Change the colour of the chord.

Student List	
Reg. No.	Student Name
CCAWSMT001	ATHIRA RANJEETH
CCAWSMT002	ANAGHA V B
CCAWSMT003	SWEETY K S
CCAWSMT005	ATHULYA KRISHNA K U
CCAWSMT006	NISMA K S
CCAWSMT007	HENA JOBY
CCAWSMT008	BHADRA A M
CCAWSMT009	DEVIKA A V
CCAWSMT010	ADITH V
CCAWSMT012	NAVYA K B
CCAWSMT013	ATHUL KRISHNA K S
CCAWSMT014	ABHAY SANKAR C
CCAWSMT015	LEON C. LIJU
CCAWSMT016	BHAMA A M
CCAWSMT017	DEVANANDA T S
CCAWSMT018	HARISANKAR V T
CCAWSMT019	AKSHAY P.S
CCAWSMT020	SREENANDAN A
CCAWSMT021	SABARINADH P S
CCAWSMT022	ANANTHAKRISHNA K A
CCAWSMT023	ANGEL SABU
CCAWSMT025	HRIDHYA M M
CCAWSMT026	NANDANA JAYADEVAN
CCAWSMT027	SANIYA P A
CCAWSMT028	HASHMIYA K H
CCAWSMT029	SAYANTH . V . M
CCAWSMT030	JOHN JOSEPH V
CCAWSMT031	AMAL JAYADEV
CCAWSMT032	ADITHYA E S
CCAWSMT033	ASHAMZ M BABU
CCAWSMT034	ANASWARA I V
CCAWSMT035	VISHNU RAJESH
CCAWSMT036	ADHARSH BABU
CCAWSMT037	BHAGYALAKSHMI P V

Report on Certificate Course: Basics of GeoGebra - CPCC44

This certificate course aims to introduce students of B.Sc Maths to the fundamental concepts and applications of GeoGebra, an interactive mathematics software that combines geometry, algebra and graphing.

Course Objectives

- Familiarize students with the GeoGebra interface and basic tools.
- Enable students to create geometric constructions and mathematical visualizations.
- Develop skills in solving mathematical problems using GeoGebra.
- Enhance understanding of mathematical concepts through dynamic visualization.

Course Structure

Total Duration: 30 Hours

Syllabus :

Module 1: Introduction to GeoGebra Introduction to Euclid's Geometry- Euclid's axioms, Euclid's postulates. Introduction to GeoGebra- 'GeoGebra Classic' features- How to install. GeoGebra interface- Menu bar, Toolbar, input bar- Algebra View and Graphics View

Module 2- Beginning GeoGebra Points and lines- plotting points, lines, line segments, point of intersection, mid-point, perpendicular and parallel lines. Polygons- Regular polygons, Rigid Polygon Circles- Tool and commands

Module 3- New tools and Plotting Functions Slider tool, Trace and Animation, Area using GeoGebra, Checkbox and Input box, Plotting functions- Polynomial, modulus, rational, signum, greatest integer, square root. Trigonometric functions.

Module 4- Conic Sections, sequence and complex numbers Parabola, Ellipse, Hyperbola- Various commands to construct and tools for conics. Sequences and Sum, Complex Numbers- plotting, arithmetic operations, modulus, argument

Assessment Procedure

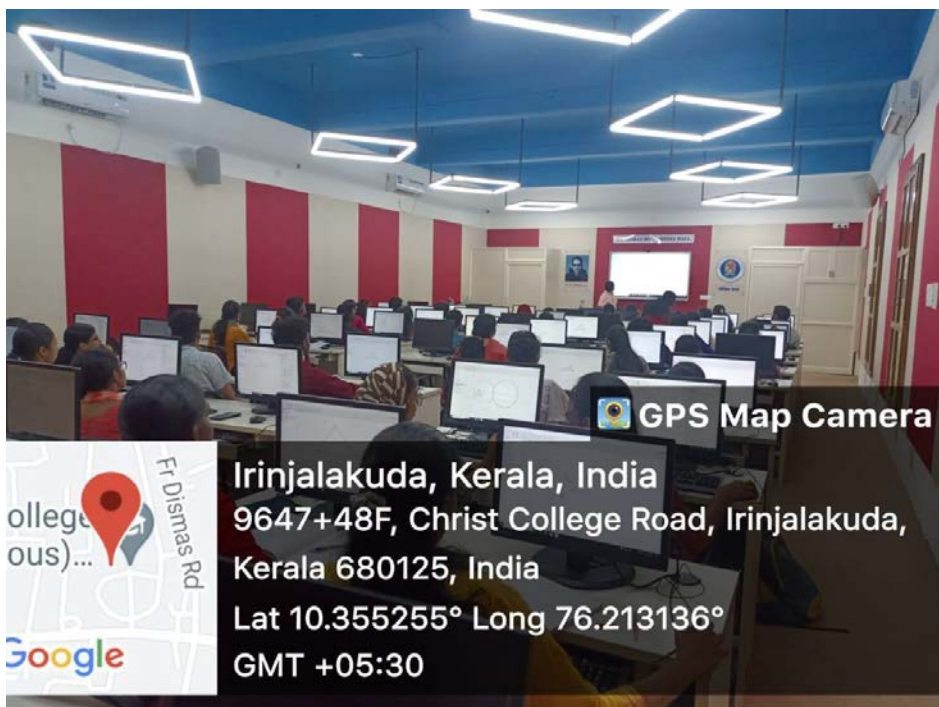
Assignments : 40%

Examination (Theory and Practical) : 60%

Course Outcomes

Upon completion of the course, students will be able to:

1. Understand the new software Geogebra and its interface
2. Plotting lines, points, polygons and circles in Geogebra
3. Learn new tools and plot functions in Geogebra
4. Construct conics in Geogebra, Plot complex numbers in Geogebra



Attendance

Basics in Creole 2023

Sl. No.	Name	27/12/2023	28/12/2023	01/01/2024	07/01/2024	14/01/2024	21/01/2024	28/01/2024	04/02/2024	11/02/2024	18/02/2024	25/02/2024	03/03/2024	10/03/2024	17/03/2024	24/03/2024	31/03/2024	07/04/2024	14/04/2024	21/04/2024	28/04/2024	05/05/2024	12/05/2024	19/05/2024	26/05/2024		
34	Devika A.V.	X	X	a	a	a	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
35	Harisankar V.T.	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
36	Hashmiya K.H.	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
37	Hena Joby	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
38	Hridhya M.M.	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
39	John Joseph V	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
40	Leon C Lijn	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
41	Adith V	X	X	X	a	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
42	Nandana Jayadevan	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
43	Navya K.B.	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
44	Nisma K.S.	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
45	Sabarinadh P.S.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
46	Soniya P.A.	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
47	Soyanth V.M.	X	X	X	X	X	a	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
48	Sreenandan A	X	X	X	a	a	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
49	Sweety K.S.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
50	Adithya E.S.	X	a	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
51	Vishnu Rajesh	X	X	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
52	Akshay P.S.	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
53	Amal Jayadev	a	X	a	X	X	a	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
54	Anagha V.B.	X	a	X	X	a	a	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
55	AnanthaKrishna K.A.	X	a	X	X	X	X	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
56	Anaswara J.V.	X	X	X	X	X	a	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X