Mahatma Gandhi College ,Thiruvananthapuram

Department of Mathematics

Starting an Add-on Course on

LaTex Programming

for the academic Year 2021-22

Interested students can join the Program

Contact —Dr K Radhakrishnan (9447018612)

Mahatma Gandhi College, Thiruvananthapuram
Department of Mathematics

Add-on Course on LATEX Programming
(Course Code : MGMM01, Program Code : AD02)
(2021-22)

Aim of the Course : To make awareness of LATEX documentation program toPG students of various Science department of the college.

Duration of the Course : 30 Hours

Total Intake : 18 Students

Mode of Selection : On merit basis (from the applicants)

Syllabus

Module 1
Introduction to UNIX Commands

Introduction to Linux Operating System, Basic UNIX commands – login, directory structure and commands, different file related commands, different file editors, related commands etc.

Module 2
Introduction to LATEX

Computer typesetting using LATEX,running LATEX, different fonts, alignments, setting tabs, underline, setting margins, different documentclasses, special symbols, footnotes, drawing tables, multi columns, multi rows, drawing lines, itemizing, enumerating

Module 3
Mathematical Symbols

Creating mathematical articles, different mathematical symbols and notations, fractions, matrices, arrays, equations, Greek symbols, defining commands, theorems.

Ramkumar R
(HoD, Maths)

Mahatma Gandhi College, Thiruvananthapuram
Department of Mathematics

Add-on Course on LATEX Programming
(2021-22)

List of Participants

Sl. No	Name	Phone No	Email-ID	Class
1	ABHIRAMI. A	9188010829	abhiramiammu2110@gmail.com	II MSc Physics
2	ADWAITHA J H	7306946887	adwaithahari12@gmail.com	II MSc Physics
3	ANAKHALEKSHMI V S	9526459721	anakhalekshmi8@gmail.com	II MSc Physics
4	APARNA SANKAR R S	8590602107	sankaraparna16.3@gmail.com	II MSc Physics
5	ARATHY AJ	6282323931	arathyaj3@gmail.com	II MSc Physics
6	ARDRA.A.K	8943850039	ardrachinnu2000@gmail.com	II MSc Physics
7	ASWIN R.L.	9633656070	aswinrlchempoor4@gmail.com	II MSc Physics
8	DEVIKA J A	7034063400	devikaja29@gmail.com	II MSc Physics
9	HARSHA S	9645416423	jharsha95@gmail.com	II MSc Physics
10	K A HARITHA	8075122646	haritha23hari@gmail.com	II MSc Physics
11	KASYAP S ASHTTAMAN	8606767095	ashttaman2@gmail.com	II MSc Physics
12	KEERTHANA P.S	8129136368	keerthanaps2016@gmail.com	II MSc Physics
13	KEERTHI VIKRAMAN	9061919135	keerthiv734@gmail.com	II MSc Physics
14	MEENAKSHI. C. S	9188494305	meenakshisanal013@gmail.com	II MSc Physics
15	NANDITHA M KESH	8590490118	nandithamurukesh@gmail.com	II MSc Physics
16	RESHMA SANTHOSH J.S	7593916171	reshmasanthoshjs2018@gmail.com	II MSc Physics
17	SALMA SURUMI	8086594232	salmasurumi99@gmail.com	II MSc Physics
18	VARSHA. R	9947130486	varshar1648@gmail.com	II MSc Physics

Signature of HOD

Ram Kumar. R

Signature of Course Coordinator

Dr. R. Radhakrishnan

Mahatma Gandhi College, Thiruvananthapuram
Department of Mathematics

Add-on Course on LATEX Programming
(2021-22)

Mark List of Examination

Maximum Marks : 25

Sl. No	Name	Marks
1	ABHIRAMI. A	22
2	ADWAITHA J H	23
3	ANAKHALEKSHMI V S	22
4	APARNA SANKAR R S	20
5	ARATHY AJ	21
6	ARDRA.A.K	24
7	ASWIN R.L.	23
8	DEVIKA J A	23
9	HARSHA S	20
10	K A HARITHA	22
11	KASYAP S ASHTTAMAN	~~20~~ Ab
12	KEERTHANA P.S	21
13	KEERTHI VIKRAMAN	23
14	MEENAKSHI. C. S	24
15	NANDITHA M KESH	24
16	RESHMA SANTHOSH J.S	22
17	SALMA SURUMI	20
18	VARSHA. R	21

Signature of HOD

Ram Kumar R

Signature of Course Coordinator

Dr. K. Radhika

Mahatma Gandhi College, Thiruvananthapuram
Department of Mathematics

Report on Add-on Course on LATEX Programming

2021-22

The Department of Mathematics invited application for the Latex program and 18 students of II year MSc Physics class were selected for the course. The Principal of the College inaugurated the programme on 08-06-2022. 30 hours of classes on LATEX programme were given to the participants. The classes wee taken by Dr. K. Radhakrishnan, Associate Professor, Department of Mathematics and Dr. Ullas Chandran, S V, Assistant Professor, Department of Mathematics, MG College, Thiruvananthapuram. The evaluation and feed back session was conducted on 26-08-2022. The certificates for the participants were issued on 29-08-2022 by the Principal.

Head of the Department

Ramkumar R

Course Coordinator

Dr. K. Radhakrishnan

MAHATMA GANDHI COLLEGE, THIRUVANANTHAPURAM

Kesavadasapuram, Pattom. P. O., Thiruvananthapuram - 695 004

Department of Mathematics

Certificate

Certified that Sri/Kum .....

has successfully completed the add-on course on 'Latex Programming' (Program Code : AD 02, Course Code : MGMM01) conducted by the Department of Mathematics, Mahatma Gandhi College, Thiruvananthapuram during the academic year 2021-22.

Dr. Ramkumar R
Head of the Department

Dr. K. Radhakrishnan
Course Coordinator

Dr. V. M. Anandakumar
Principal

Mahatma Gandhi College

Department of Mathematics

Add on Course on Latex Programming (2022-23)

Examination, August, 2022

Time: 3 Hours Max. Marks : 25

Answer all the questions
Each question carries 5 marks

1. Write a latex file to obtain the following output:

ABC College, Thiruvananthapuram
Sixth Semester BSc. Examination, February, 2021

Theory of Equations and Vector Analysis

Time : 1 hours Total Weights : 10

1. One root of $x^3 - 7x^2 + 17x - 11 = 0$ is $3 - \sqrt{-2}$. Find other roots.
2. If $\alpha_1, \alpha_2, \ldots \alpha_n$ are the roots of the equation $a_0x^n + a_1x^{n-1} + \cdots + a_{n-1}x + a_n = 0$, find the value of $\alpha_1 + \alpha_2 + \cdots + \alpha_n$
3. If α, β and γ are the roots of the equation $x^3 + px^2 + qx + r = 0$, form the equation whose roots are $\alpha - \frac{1}{\beta\gamma}$, $\beta - \frac{1}{\gamma\alpha}$ and $\gamma - \frac{1}{\alpha\beta}$.
4. Verify Green's theorem in the plane for

$$\int_C (xy\,dx + x^2\,dy)$$

where C is the curve enclosing the region bounded by the parabola $y = x^2$ and the line $y = x$.

5. (a) State Stoke's theorem.
   (b) State Descarate's rule of sign

II. Write a latex file to obtain the following output:

The following table gives the perimeter and area of some two dimensional structures.

Sl.No.	Structure	Dimension	Perimeter	Area
1.	Triangle	Sides a, b, c	$a+b+c$	$\sqrt{s(s-a)(s-b)(s-c)}$
2.	Rectangle	Sides l, b	$2(l+b)$	lb
3.	Square	Side a	$4a$	a^2
4.	Circle	Radius r	$2\pi r$	πr^2

Remarks:

1. For triangle, $s = \frac{a+b+c}{2}$.
2. For circle, value of $\pi = \frac{22}{7}$.

III. Write a latex file to obtain the following output:

The Fourier integral representation of a function $f(x)$ is defined as

$$f(x) = \frac{1}{\pi}\int_0^\infty (A(s)\cos sx + B(s)\sin sx)\,ds$$

where

$$A(s) = \int_{-\infty}^{\infty} f(x)\cos sx\,dx$$

$$B(s) = \int_{-\infty}^{\infty} f(x)\sin sx\,dx$$

Note that this representation is possible if

1. $f(x)$ is piecewise continuous in every finite integral
2. $f(x)$ has right-hand derivative and left-hand derivative at every point
3. $f(x)$ is absolutely integrable

IV. Write a latex file to obtain the following output:

Diameters of different planets are given below:

No.	Planet	Diameter(km)
1	Mercury	4878
2	Venus	12104
3	Earth	12756
4	Mars	6794
5	Jupiter	142984

Based on this data, answer the following questions:

1. Find the average diameter of these planets. Use the formula

$$\bar{x} = \frac{x_1 + x_2 + \cdots + x_n}{n}.$$

2. If $r = \frac{d}{2}$ where r is radius and d is diameter, then find the radius of earth.

V. Write a latex file to obtain the following output:

The system of equations

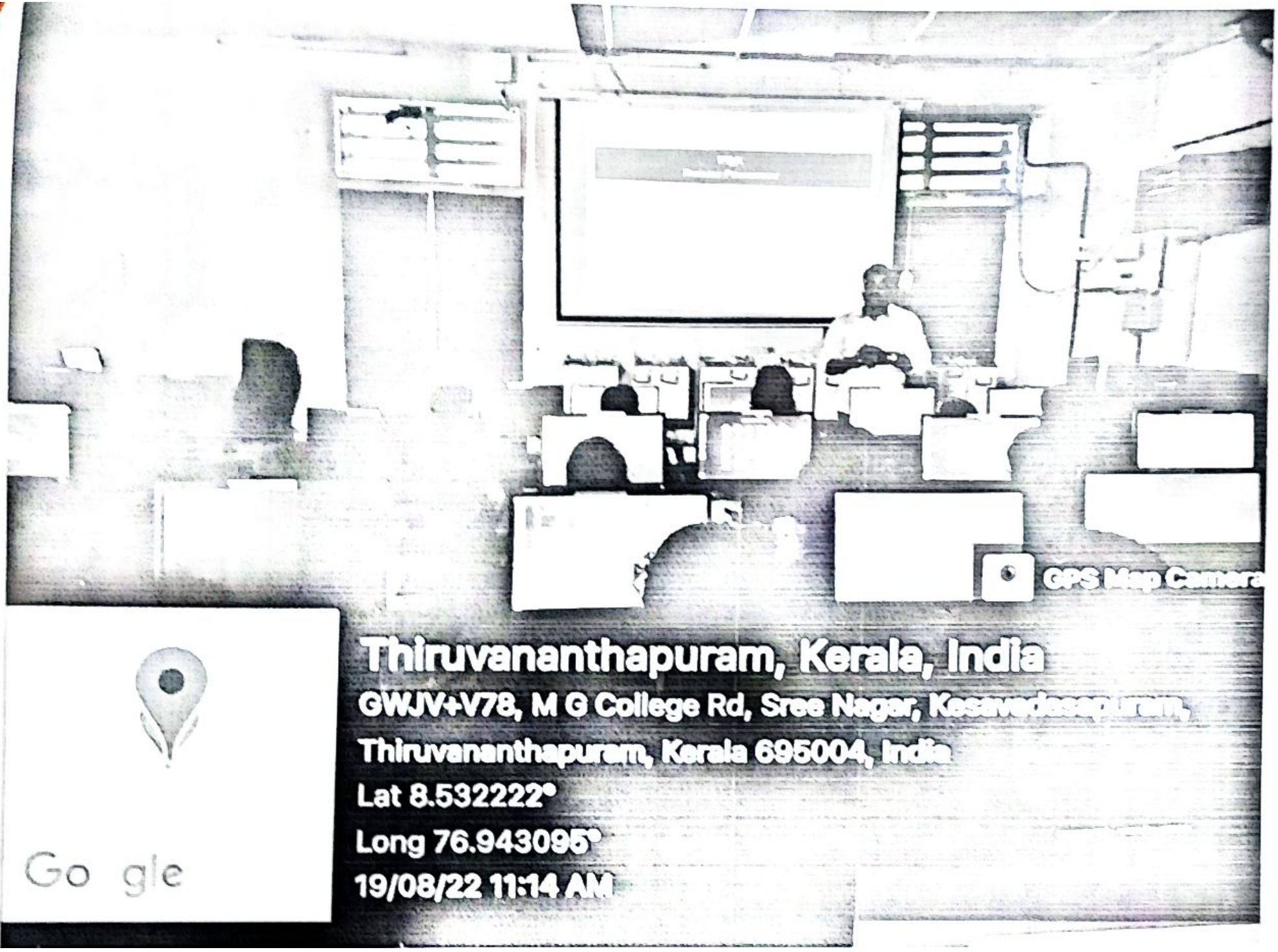
$$\begin{aligned} x + y - z &= 1 \\ x - y + z &= 1 \\ x + y + z &= 1 \end{aligned}$$

can be written in matrix form as

$$\begin{bmatrix} 1 & 1 & -1 \\ 1 & -1 & 1 \\ 1 & 1 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}.$$

Note that the system of equations $AX = B$ has

1. solution if and only if $\text{rank}(A) = \text{rank}(AB)$
2. unique solution if $\text{rank}(A) = \text{rank}(AB) = n$, the number of variables
3. many solutions if $\text{rank}(A) = \text{rank}(AB) < n$, the number of variables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Thiruvananthapuram, Kerala 695004, India
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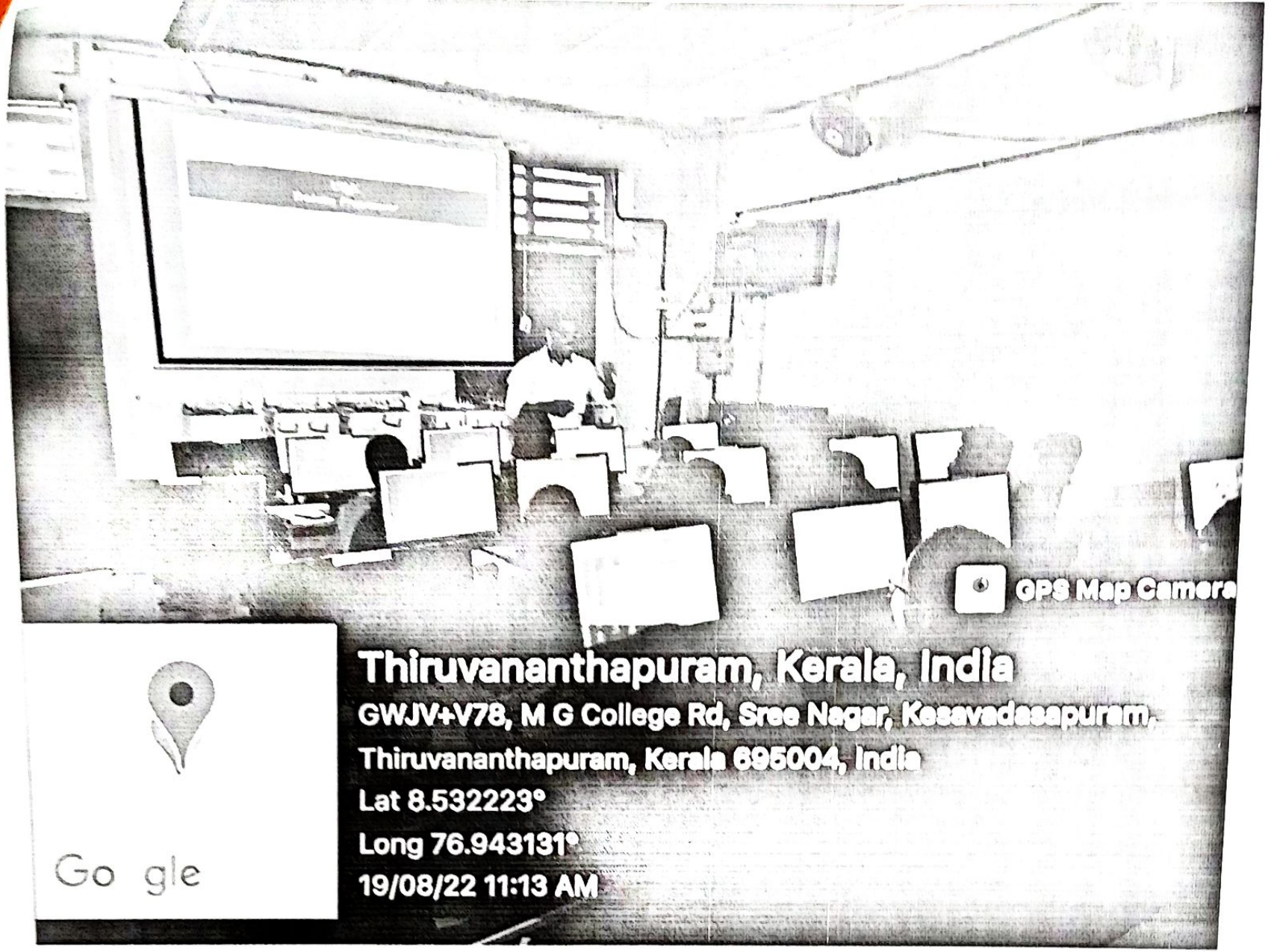
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Thiruvananthapuram, Kerala 695004, India
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DEPT OF MATHEMATIS, MAHATMA GANDHI COLLEGE, THIRUVANANTHAPURAM

ADD-ON COURSE ON LATEX PROGRAMMING

ATTENDANCE REGISTER FOR THE MONTH OF June, July, August 2022

Sl No	Name	Designation	JUNE - 2022												JULY - 2022												AUGUST - 2022											Working Days	Days present
			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						
			8/6	13/6	15/6	17/6	20/6	22/6	24/6	27/6	29/6	1/7	4/7	7/7	11/7	13/7	15/7	18/7	20/7	22/7	25/7	27/7	1/8	5/8	8/8	11/8	16/8	19/8	22/8	24/8	26/8	29/8						
1	ABHIRAMI A		P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	A	P	P						
2	ADVAITHA. J. H		P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	A	P	P	A	P	P	P	P	P	P	P	P						
3	ANAKHA LEKSHMI. V.S		P	P	P	P	P	A	P	P	A	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P						
4	APARNA SANKAR. R.S		P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	A	P	P	P	P	P	P	P	P						
5	ARATHY AJ		P	P	A	P	P	P	P	P	P	P	P	A	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P						
6	ARDRA A.K		P	P	P	P	P	A	P	P	P	A	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P						
7	ASWIN. R.L		P	P	P	P	P	A	P	P	P	P	A	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P						
8	DEVIKA J.A		P	P	A	P	P	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P						
9	HARSHA S		P	P	P	P	P	A	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P						
10	K.A. HARITHA		P	P	P	A	P	P	A	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P						
11	KASYAP S. ASHTTAMAN		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A						
12	KEERTHANA P.S		P	P	P	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P						
13	KEERTHI VIKRAMAN		P	P	P	P	P	A	P	A	P	P	P	P	P	A	P	P	P	P	P	P	A	P	P	P	A	P	P	P	P	P						
14	MEENAKSHI. C.S		P	P	P	A	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P						
15	NANDITHA M. KESH		P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	A	P	P	P	A	P	P	P	P	P						
16	RESHMA SANTHOSH T.S		P	P	A	P	P	P	P	A	P	P	P	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P						
17	SALMA SURUMI		P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	A	P	P	A	P	P	P	P	P	P						
18	VARSHA P		P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	A	P	P	P	P	P	P	P	P	P						