

JAI SHREE KRISHNA

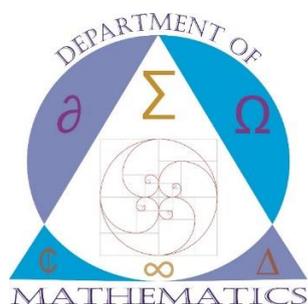


DWARAKA DOSS GOVERDHAN DOSS VAISHNAV COLLEGE

(AUTONOMOUS)

COLLEGE WITH POTENTIAL FOR EXCELLENCE

Linguistic minority institution
Affiliated to University of Madras



POST GRADUATE AND RESEARCH

DEPARTMENT OF MATHEMATICS

PROPOSED FIVE YEAR PLAN OF THE DEPARTMENT

2021-2026



About the Department:

In the year of its inception, the college under the stewardship and the Principal of Shri T. Totadri Iyengar, offered an Undergraduate course in Mathematics along with Pre - University courses. The department of Mathematics has been accredited as being the first UG department at the time of inception of the college in 1964. The University of Madras upgraded the department to the postgraduate status in the year 1980. M.Phil. course was started in the year 2001. B.Sc. Mathematics with Computer Applications was started in the year 2011. The Post Graduate and Research Department of Mathematics, DG Vaishnav College, Chennai has been vigorously engaged in both research and teaching. The Department has energetic and dedicated faculty members who actively involve in research areas like Complex Analysis, Number theory, Mathematical Analysis, Fuzzy sets, Fuzzy Optimization, Petrinets, Information Security, Differential equations, Wavelets and Numerical Methods.

Objective:

To Provide graduate students an opportunity to develop a deep understanding and enjoyment of Mathematics, to carry out original resech, to become effective teachers and communicators and to prepare themselves for their future careers.

Mission of the Department

To establish an atmosphere of creative endeavor that supports interdisciplinary collaborations, innovative projects, significant research and informal discussions that mutually benefit students, faculty and the community at large.

Vision of the Department

The vision of the department is to promote and support a comprehensive, innovative and dynamic learning environment. To assist students in acquiring a conceptual understanding of the nature and structure of Mathematics, its processes and applications.



PROPOSED FIVE YEAR PLAN

This Five year Plan presents a bold vision which will make the department intensely better in all aspects of its mission. A vibrant department of mathematics plays a critical role in a major research. Mathematics is the language of interdisciplinary collaboration in the sciences, engineering, and beyond. The activities of our Department are linked with disciplines across the scientific, engineering, and business communities. In order to meet the needs of students, faculty, administration, and communities served by the Department of Mathematics, the faculty has developed the following list of goals, objectives, and strategies.

Low lying fruit - Research Outputs:

Research in core areas of mathematics has historically anticipated important developments in other areas, often by decades. We are now seeing a more rapid interaction between research at the core of mathematics and applications in many fields. It is therefore critical that we remain committed to basic research in mathematics. Our First aim is to get the Affiliation for Ph.D from University of Madras to get the recognition for the following guides.

S.NO	NAME	DESIGNATION	AREAS OF INTEREST
1.	Dr. N. JayanthKarthik	Associate Professor	Fuzzy set theory and Graph theory
2.	Dr. R. Sivaraman	Associate Professor	Number Theory
3.	Dr. S. Radhakrishnan	Assistant Professor	Fuzzy Set theory
4.	Dr. B. Abirami	Assistant Professor	Fuzzy Set theory and its Applications



5.	Dr. S.P.Vijayalakshmi	Assistant Professor	Geometric Function Theory
6.	Dr. S. Hariharan	Assistant Professor	Wavelet Analysis, Fuzzy Optimization.
7.	Dr. P.Usha	Assistant Professor	Petri Nets
8.	Dr. S. Vaithyasubramanian	Assistant Professor	Authentication Process- Information Security
9.	Dr. S.Mayilvaganan	Assistant Professor	Geometric Function Theory
10.	Dr. S.U. Malini	Assistant Professor	Fuzzy set Theory
11.	Dr. R. Arundhadhi	Assistant Professor	Graph Theory
12.	Dr. P. Vijayalakshmi	Assistant Professor	Fuzzy graph and Graph Theory
13.	Dr. K.Priyadharshini	Assistant Professor	Algebra, Lie Superalgebra
14.	Dr. A. Rajkumar	Assistant Professor	Stochastic process

Two of the above faculties may get the guideship on or before the month of October 2021. As per the UGC norms Associate professor can have 6 scholars and Assistant professors can have 4 scholars.

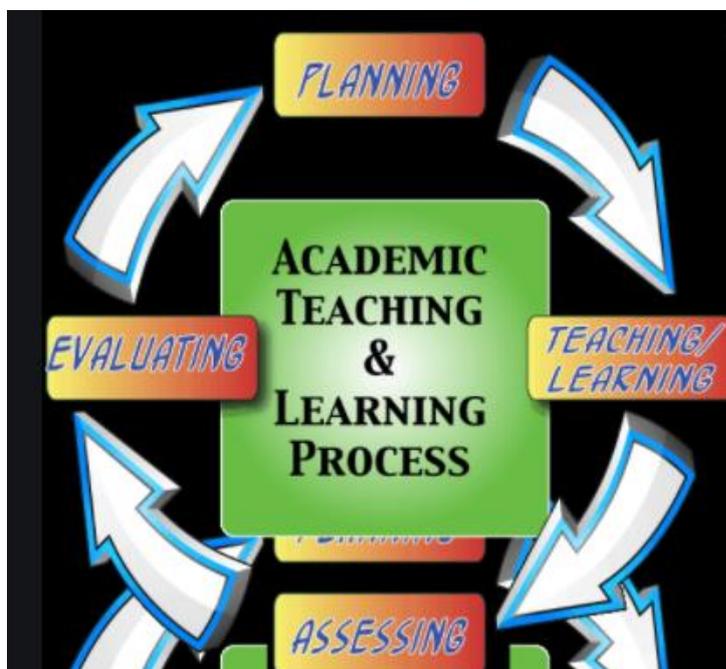
The rules for all the faculties is as follows:

- From the month of September to April Faculty should publish one paper in reputed journal.
- They must present a paper in anyone of the conference.
- From the second year onwards all Ph.D. scholars must publish at least one paper in the reputed journal and present at least one paper in any of the conference.
- Publication and presentation must be there for all Ph.D. scholars



- Three days on duty for the paper presenters will be given if necessary. Approval is needed at least three months before the conference date. Registration fee and conveyance fee will be borne by the institution

Teaching Learning Process



Teaching Learning Process is a Combined process where an educator assesses learning needs, establishes specific learning objectives, develops teaching and learning strategies, implements plan of work and evaluates the outcomes of the instruction.

The term “lecturing” refers to both planning and delivering a classroom presentation. While the lecture has certain elements in common with a formal speech, a classroom lecture places greater emphasis on the importance of presenter-audience (instructor-student) interaction

The comprehensive course outline enables the students to enhance Computational skills and Mathematical reasoning. The program develops the ability to think critically, logically



and analytically thereby preparing the students to enhanced career opportunities in Industries, Commerce, Education and Research. So, for all the course we have

- Learning outcomes and objectives of each course will be defined in the course handout with blooms taxonomy.
- Question papers as well as any components related to grading will be set against the learning outcomes defined in the course handout. In this regard one or two workshops will be organized in the month of July 2021.
- Course handouts delivery plan will be created by the following Faculty incharges.

S.NO	PROGRAMME	NAME
1.	B.Sc. Mathematics	Dr.S.P. Vijayalakshmi Mr. P.Thirumal
2.	B.Sc Mathematics with Computer Applications	Dr. B. Abirami Dr. S.Vaithesubramanian
3.	M.Sc Mathematics	Dr. M.Devika Dr. S. Hariharan

Contact between Teacher and students

The relationship between student and teacher plays a large role in the trajectory of a student academic success and social development.





Self-study and traditional classroom learning can be used together to help the student to get the most out of his or her learning experience. Together, these methods help students learn and retain information better, helping boost comprehension, grades, and motivation. Using self-study, students are able to go beyond simply learning what their class textbooks and instructors teach them. By practicing self-study, they are encouraged to further explore topics they are interested in, developing stronger study skills.

One of the major advantages of self-study is that students can take control over their own learning. And when students have control, they become even more interested in learning.

So, We are planning to have self-study from the next academic year 2022-2021, by assigning a homework from the self-learning component, giving test syllabus 5- 10% from the self-learning component and Identifying the application and specifying them.

Outreach or community services

Outreach for a mathematics department is an activity that enhances the teaching and learning of mathematics outside the department. We are planning to have the following outreach activities to enhance the practical knowledge of the students.



- organizing locally and regionally funded outreach activities such as K–12 school visits and summer programmes by the following faculty members.



S.No	Programmes	Name
1.	School Visit	Dr. P.Usha
2.		Mr. Krishna
3.		Mr. Rajasekar
4.	Summer Programmes	Dr. B.Abirami
5.		Dr. S. Vaithyasubramanian
6.		Dr. S.Mayilvaganan

- Conducting free Coaching classes JEEE for 12th std students by the following faculty in charges
 - Dr.S.P.Vijayalakshmi
 - Dr. S. Hariharan
 - Mr. P. Thirumal
- Conducting civic awareness programme for village people in the month of November by the following faculty incharges.
 - Dr. P.Usha
 - Dr. S. Somasundara Ori
 - Mr. Krishna
 - Mr. Rajasekar
- Teaching Robotics for school from 8th standard by the following faculty incharges
 - Dr. S.Hariharan
 - Dr. S. Vaithesubramanian
 - Dr. S. Mayilvaganan
 - Mr. Krishna
 - Mr. Rajasekar
- Conducting programmes in orphanage and old age homes with the following faculty incharges.



- Dr. M. Devika
 - Dr.B.Abirami
 - Dr. S.P.Vijayalakshmi
- Conducting Blood donation and eye donation camp will be organized with the support of Multi-National companies.
- Conducting workshop for working people and preferably for industry people and SHG under the following faculty incharges.
- Dr. S.Hariharan
 - Dr. S.Vaithesubramanian
 - Dr. S.Mayilvaganan
 - Mr. Somasundara ori
 - Mr. P.Thirumal
 - Mr.Krishna
 - Mr. Rajasekar

To increase the admission:

To effectively attract new students, it's important to first identify prospective student. Introducing the scholarships to the meritorious students as

- 50% for the rank holders in UG for the first semester and remaining semesters will be given provided if the student maintains 75 % or CGPA 2.
- Our own college student will get 20% for the semester and students consistently maintains 60 % then he/she will get the scholarship in the subsequent semester.
- Quiz programme for UG students with a prize of 25,000 for the winners and Rs. 10,000 for the runners, this will be conducted every year on the Founder's Day.



Introduction of new courses:

The Department of Mathematics intended to introduce the Post Graduate courses in the following disciplines from the academic year 2022- 2023

M.Sc., in Mathematics, Industrial Mathematics with OR Specialization, Mathematics with Computer Science, Mathematics with Information Security, Mathematics with Quantitative finance and M.Sc., Mathematics with honors in the above-mentioned special fields. In order to get honors degree, a student has to do minimum of 4 and maximum of 6 papers in the specialized field apart from the regular papers in the Post Graduate Program.

Department is also planning to introduce the Post graduate programme diploma courses from the next academic year in statistics quality control and the classes will be conducted in the evening hours or Saturdays and Sundays.

Create Faculty Infrastructure Requirements

- Adequate class rooms has are needed according to the number of new program introduced in the Department. Separate computer lab is needed to train the students in programming and to teach Lab oriented courses.
- The department primarily focuses on introducing the add on courses in open-source programming such as Python, R, SAGE and LATEX for documentation. These software's can be taught as standalone subject or with implementation of Mathematical Applications. In addition to open-source software, it is also necessary to have licensed software such as MATLAB and Mathematica. Faculty in charge for the above add on courses are as:
 - LaTeX – Dr. S.P. Vijayalakshmi
 - R- Dr. S. Hariharan



- Python – Dr. S. Vaithesubramanian
- SAGE – Mr. P. Thirumal
- The department is also focussing on having Smart Classrooms for enhanced teaching and flipped class room for group discussing and research level discussions.

Department Activities:

- Mapping of Course Outcomes and Program Outcomes will be taken care for all under graduate and post graduate level courses.
- Webinars on alternate Saturday will be conducted to enhance the knowledge of students as well as faculties in emerging fields of research.
- C4 Classes will be conducted regularly to encourage the post graduate students to get eligibility in CSIR exam and GATE exam for higher education and research.
- National level Conference will be conducted every year during the month of October to share the knowledge on research updates and to establish research collaboration with other institute faculty members and researchers.
- FDP will be conducted every year to enhance the knowledge of the faculties related to the updates in the subject domain.
- Once in two years, during the month of February, one International conference will be conducted.