PARAMPARA

2022-23

PARAMPARA 2022-23

THEME: SPECTRUM OF DEVELOPMENT INNOVATION AND CHALLENGES

Each year, Sree Narayana College, Nattika orchestrates the interdisciplinary seminar series "PARAMPARA" with the aim of fostering a collaborative platform for students and faculty to engage with esteemed scientists and experts. Sponsored annually by the college's PTA and Alumni, this series offers a unique opportunity for attendees to delve into insightful talks on diverse topics delivered by experts in their respective fields. Through "PARAMPARA," students across undergraduate and postgraduate levels showcase their research and presentation skills, receiving invaluable feedback and guidance from industry leaders. This exchange of knowledge not only enriches students' understanding within their disciplines but also cultivates essential traits such as research awareness, confidence, and leadership qualities. At the conclusion of the series, outstanding student presentations in each discipline are recognized during the Valedictory function, where recipients are honored with cash prizes and certificates, further motivating and inspiring excellence within the academic community.

PARAMPARA 2022-23

INVITED TALKS

INAGURATION

10th January 2023

Prof. Dr. SURESH C PILAI

Atlantic Technological university, Ireland

MATHEMATICS

23rd January 2023

Coordinator: Mrs.Anila A

“ The role of Discrete Logarithm Problem in Cryptography”

Dr.Saju M I

Assistant Professor&H.O.D. Of Mathematics, St. Thomas College(Autonomous),Thrissur

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CHEMISTRY

24th January 2023

Coordinator: Dr. Rajesh K M

"Materials Innovation for Next Generation Applications"

Dr Radhika T

Scientist, Center for Material for Electronic Technology (C-MET), Thrissur

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COMMERCE

25th January 2023. 10 A.M

Coordinator :Dr.Sreela Krishnan

"Research and Green Innovations for low impact development "

Dr G S Sandhya Nair

Assistant Professor of Department of Commerce, Sree Vivekananda College, Kunnamkulam

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ZOOLOGY

30th January 2023

Coordinator:Dr.Jipsa J R

"Barcoding of fishes using Molecular Markers".

Dr.V.S Basheer,

Principal Scientist of PMFGR Centre, ICAR-NBFGR CMRFI

BOTANY

30th January 2023

Coordinator :Dr. Sheeja P.

"Innovations and challenges in the field of Botany"

Dr. Sreedharan K

Research officer at the Kerala state biodiversity board

ECONOMICS

15th February 2023

Coordinator:Mrs. C. Sreelatha

"Gender neutrality"

Dr. Remya R

Associate Professor & Head

Sri C Achyutha Menon Government College Thrissur 14

PHYSICS

20th February 2023

Coordinator Dr. Siji Narendran N K

"Spectrum of Development: Innovations and Challenges in Physics"

Dr. K M Devadas

(Assistant Professor, Sri Vyasa NSS College Wadakkanchery

VALEDICTORY SESSION

MARCH 29, 2023

DR. SANDHYA SUKUMARAN

Principal Scientist

Central Marine Fisheries Research Institute

PARAMPARA 2022-23

INAGURATION

JANUARY 10, 2023-10AM

Prof. Dr. SURESH C PILAI

Atlantic Technological university, Ireland

In the academic year 2022-23, Research and Publication committee, Sree Narayana College Nattika organized PARAMPARA 2022-23 on a common theme "Spectrum of developments: Innovations and challenges" was inaugurated by Prof. Dr. SURESH C PILAI, Atlantic Technological university, Ireland, on 10th January 2023. He delivered inaugural address and key note address in the Technical session on the topic Innovations and Challenges in

Science. In his talk he discussed about various innovations that boost the development of humankind. He mentioned the importance of commercializing inventions to make them innovation and motivated the students to think about new ideas. He offered all sorts of academic help to the students and faculty members to incubate, expand and patent their ideas.

He said that we should move away from the time when research was confined to laboratories and it is time for scientists, social scientists and administrators to work together and take care to convert the research results to benefit the society.He reminded us that we live in a country where more than 800,000 people die every year due to diseases like diarrhea due to lack of clean water and more than 70,000 of them are children. In such a situation he shared his satisfaction that a patent of his research was released for international use.

Principal Dr P S Jaya presided over the inaugural session held at the college seminar hall. IQAC Coordinator Dr. K K Shankaran. Dr. G. Kalaprasad Union Vice Chairman Kumari Neha I N, Dr. C T Anita spoke with greetings. Research and Publications Committee convener Dr. Siji Narendran N K welcomed and Malayalam head of the department prof. V S Reji thanked.

SREE NARAYANA COLLEGE NATTIKA - THRISSUR

INAUGURATION CEREMONY OF

PARAMPARA 2022-23

10 JANUARY 2023

Chief Guest

PROF. (DR.) SURESH C. PILLAI
ATLANTIC TECHNOLOGICAL UNIVERSITY, IRELAND

ORGANIZED BY RESEARCH & PUBLICATION COMMITTEE, IQAC AND PTA

Event Schedule

10 JANUARY 2023
TUESDAY

2.30 PM - 4.00 PM

PRAYER	:	KEERTHANA BALAKRISHNAN (Ist YEAR M A MALAYALAM)
WELCOME SPEECH	:	Dr. SIJI NARENDRAN N K (COORDINATOR RESEARCH & PUBLICATION COMMITTEE)
PRESIDENTIAL ADDRESS	:	DR. P. S. JAYA PRINCIPAL (SREE NARAYANA COLLEGE NATTIKA)

INAUGURATION BY LIGHTING THE LAMP
PROF. (DR.) SURESH C. PILLAI,
PROFESSOR,
ATLANTIC TECHNOLOGICAL UNIVERSITY, IRELAND

INAUGURAL ADDRESS	:	PROF. (DR.) SURESH C. PILLAI, (ATLANTIC TECHNOLOGICAL UNIVERSITY, IRELAND)
FELICITATION	:	Sri. RANAJITH PRABHAKARAN (PTA VICE PRESIDENT)
	:	DR. C T ANITHA (MEMBER IQAC)
	:	MISS. NEHA I N (COLLEGE UNION VICE CHAIRPERSON)
VOTE OF THANKS	:	Sri. V S REJI (HOD, DEPARTMENT OF MALAYALAM)

NATIONAL ANTHEM

About the chief guest

Dr. Suresh C. Pillai is a prominent figure in the field of microbiology and food safety, serving as a distinguished faculty member at Atlantic Technological University in Ireland. With an extensive background in research and academia, Dr. Pillai has made significant contributions to the development of innovative technologies for food preservation and microbial safety.

His expertise lies in the application of novel approaches, such as irradiation and cold plasma technology, to enhance food safety and extend the shelf life of perishable food products. Dr. Pillai's research has had a profound impact on the food industry, providing practical solutions to mitigate microbial contamination and improve food quality.In addition to his scholarly achievements, Dr. Pillai is recognized for his commitment to education and mentorship. As a faculty member at Atlantic Technological University, he plays a pivotal role in shaping the academic and research landscape, inspiring students and colleagues alike with his passion for microbiology and food science.

Dr. Suresh C. Pillai's contributions to the field have earned him international recognition and accolades, solidifying his reputation as a leading authority in food safety and microbial technology. His work continues to drive innovation and excellence in both academia and industry, contributing to the advancement of food safety practices globally.

A glance through the inaugural session

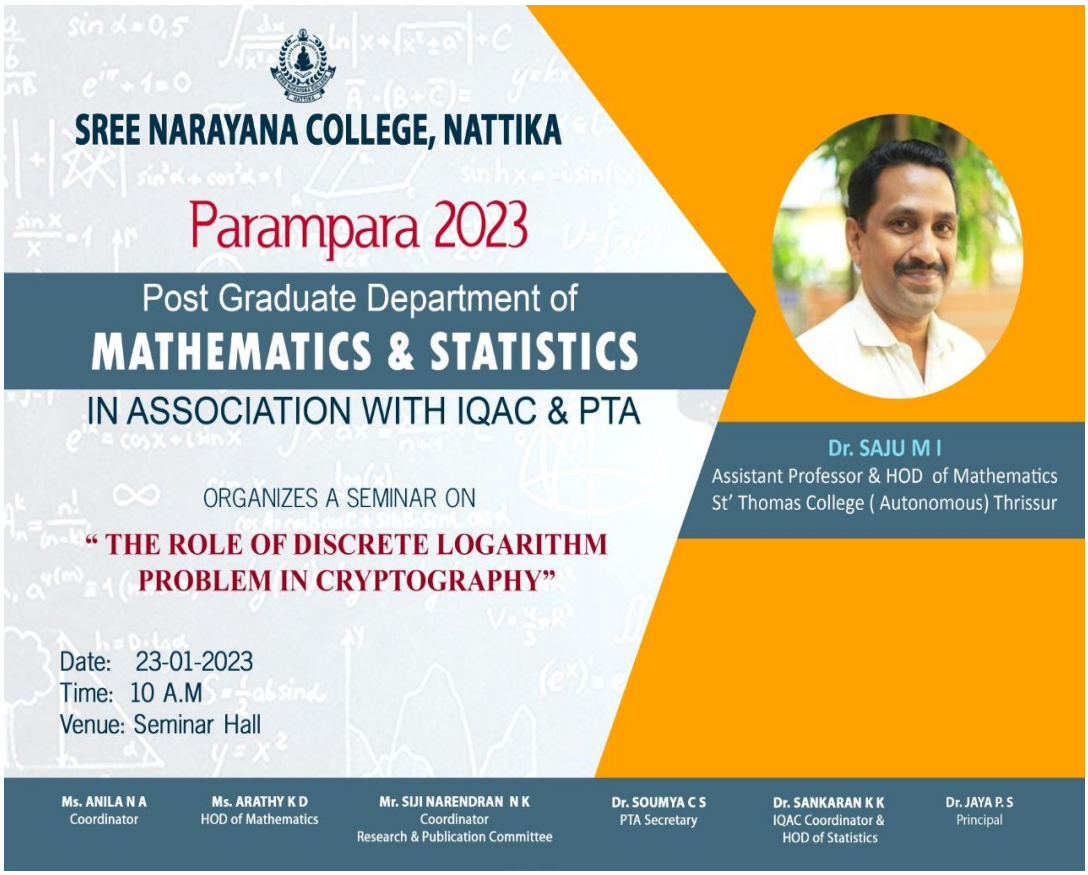
Department wise lectures

23rd January 2023 to 29 March 2023

Almost all the departments actively participated in the programme. All the invited talks and student's presentations were conducted during the period 23rd January 2023 to 29 March 2023.

Department of mathematics

The annual seminar series "Parampara" of Post Graduate Department of Mathematics & Statistics, Sree Narayana College, Nattika was conducted on 23rd January 2023 at seminar hall at 10 a.m.. It was conducted in two sessions. The morning session was a seminar and the afternoon session was the presentation competition of students. The first session starts with a prayer by Ms.Alaganandha V J and Ms. Krishna T S. Welcome speech was delivered by Dr.Sankaran K K (HOD, Department of Statistics) followed by a presidential address by Dr Jaya PS (Principal, Sree Narayana College Nattika).



Resource person of the event was Dr. Saju M I, Assistant Professor & HOD of Mathematics, St.Thomas College, Thrissur. Sir was a research guide too. In his keynote address Dr. Saju M I gave a wonderful lecture on the topic "The role of Discrete Logarithm Problem in Cryptography". Sir explained about DLP and its importance in Cryptography in a detailed manner.He points out the applications of DLP in our daily life like ATM Pin Number, message

transmission in army etc. and also mentioned about the current research works going on in DLP. The session was concluded by discussing different types of job oppurtunities in this field and he recommended to students to do projects in this topic. He grabbed the attention of the audience with an informative session. After the session there was an interactive session with the participants. The session ended with the vote of thanks by Ms.Anila N A, Programme Coordinator.The seminar session was attended by all the UG and PG students of Mathematics & Statistics department and faculty members from various departments of Sree Narayana College, Nattika.

SREE NARAYANA COLLEGE, NATTIKA

PG DEPARTMENT OF MATHEMATICS & STATISTICS

PARAMPARA 2023

Programme Schedule

DATE:23/01/2023

TIME : 10 A.M.

VENUE : SEMINAR HALL

Prayer	**: Ms. Alaganandha V J, Ms. Krishna T S**
Welcome Speech	**: Dr.Sankaran K K (H.O.D.,Statistics)**
Presidential Address	**: Dr. Jaya P S (Principal, Sree Narayana College,Nattika)**
Felicitation	**: Dr.Sankaran K K (H.O.D.,Statistics& IQAC Coordinator)**
Keynote Adress	**: Dr.Saju M I (Assistant Professor&H.O.D. Of Mathematics St. Thomas College(Autonomous),Thrissur)**
Vote of Thanks	**: Mrs. Anila N A (Coordinator)**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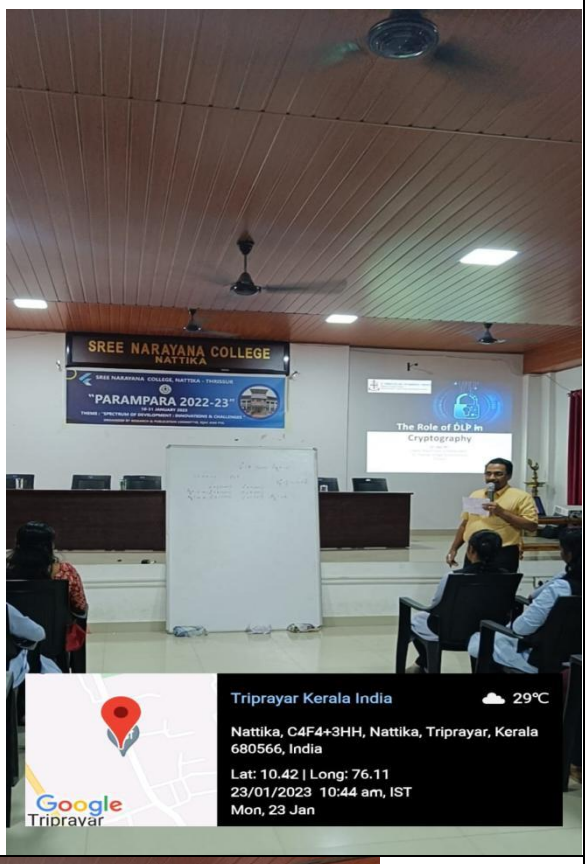
SREE NARAYANA COLLEGE
NATTIKA
"PARAMPARA 2022-23"
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SREE NARAYANA COLLEGE
NATTIKA
"PARAMPARA 2022-23"

Second Session starts at 1.30 p.m .with the Presentation competition which was held among the students of the Mathematics department as well as Statistics department. The session commenced with the welcome speech by Ms.Diviya K D, Assistant Professor of Department of Mahtematics. There were five students for the competition.The theme of the day was “Spectrum of Development: Innovations and Challenges”. Every team was given a time limit of 10 minutes for seminar presentation and five minutes for questioning session.The competition was judged by Dr. Devanarayanan V P (Department of Physics) & Ms. Anju Sundaran (Department of Mathematics) .The winner of the seminar competition was Akhila P S of I MSc. ,the second position was secured by Avanthika P U of III BSc and the third was for Sreelakshmi K P of II IP Statistics.The session ended with the vote of thanks by Anulakshmi V L of III BSc. Mathematics.

Students Presentations on 23/01/2023

1) THE STUDY ON GRAPH COLORING

AKHILA P S

Department of Mathematics, Sree Narayana College, Nattika, Thrissur, Kerala, India, 680566, Mob:7356627220 , Email: akkuakhilaa182002@gmail.com

Graph coloring is one of the best known, popular, and extensively researched subjects in the field of graph theory, having many applications and conjectures, which are still open and studied by various mathematicians and computer scientists along the world. In this paper, we are describing various method such as vertex coloring, edge coloring, path coloring, face and map coloring, and its applications in real life. Graph coloring is an assignment of labels, called colors, to the vertices of a graph such that two adjacent vertices share the same color. The chromatic number $\chi(G)$ of a graph G is the minimal number of colors for which such an assignment is possible. We gather various results in this field of study, providing the reader with an outline of graph coloring, its type, and properties.

Reference

1. **T.R. Jensen and B. Toft. Graph Coloring Problems. John Wiley and Sons, New York, 1995.**

2. **T.R. Jensen and B. Toft. 25 pretty graph coloring problems. Discrete Mathematics,** 229:167 169,February2001

3. **P. G. Tait. On the coloring of maps. Proc. Royal Soc. Edinburgh, 10:501 503, 1880.**

4. K. Appel and W. Haken. Every planar graph is four-colorable. Illinois. J. Math., 21:429 490, 1976

2) A STUDY ON COLLATZ CONJECTURE

Avanthika P U

Department of Mathematics, Sree Narayana College, Nattika, Thrissur, kerala, India-680566,mobile:9188746209,Email id: avanthika.unni11@gmail.com

Collatz conjecture is a conjecture in number theory-a branch of Mathematics, introduced in 1937 by the great mathematician lothar collatz. It is also known as 3n+1 conjecture which concerns a sequence as follows: if we start with any natural number we can obtain each term in the sequence by following two steps: if the natural number taken is even divide it by 2, and if it is odd multiply it with 3 and add 1. Repeat the process indefinitely. The conjecture is that no matter what value of n, the sequence will eventually reach to 1. In this paper we are studying about a new area of solving collatz conjecture, which is interesting and it still remains as math's biggest open problem which is unsolved. Some examples are also discussed.

References

1. "Solution to collatz conjecture" ph.d thesis, Porras, Jose, May 2018.
2. "A new approach on proving collatz conjecture", Wei Ren, Hindawi journal of Mathematics, Volume 2019.
3. "Collatz conjecture", Wikipedia.

3) NUMERICAL WEATHER PREDICTIONS

JAYALAKSHMI SANTHOSH

DEPARTMENT OF MATHEMATICS , SREENARAYANA COLLEGE NATTIKA THRISSUR KERALA – INDIA – 680566 . MOB : 6282659517

Email : jayalakshmisanthosh06@gmail.com

Mathematics plays a fundamental role in forecasting the weather. Numerical weather prediction uses mathematical models of the atmosphere and oceans to predict the weather based on current weather conditions. Since the advent of supercomputers, forecasting weather has become more accurate. Using observations of the atmosphere's current state mapped to a model grid, the equations help predict the formation, intensity and track of complex weather systems, which take into account how they influence each other and underlying atmospheric patterns driving their behavior. In the session the basic equations of weather prediction , uses of supercomputers , a mathematical model , various weather forecasting methods , errors in prediction , example of predicting weather of a particular location are also discussed

4) KNN ALGORITHM

Nandana V A

Department of Statistics , Sree Narayana College , Nattika, Thrissur , Kerala , India-680566

ABSTRACT

KEYWORDS: Lazy learner algorithm, Non-parametric algorithm

K-Nearest Neighbour (K-NN) is one of the simplest Machine Learning algorithms based on Supervised Learning technique. K-NN algorithm assumes the similarity between the new case/data and available cases and put the new case into the category that is most similar to the available categories. K-NN algorithm stores all the available data and classifies a new data point

based on the similarity. This means when new data appears then it can be easily classified into a well suited category by using K- NN algorithm.

How does K-NN work?

The K-NN working can be explained on the basis of the below algorithm:

Step-1: Select the number K of the neighbors

Step-2: Calculate the Euclidean distance of K number of neighbors

Step-3: Take the K nearest neighbors as per the calculated Euclidean distance.

Step-4: Among these k neighbors, count the number of the data points in each category.

Step-5: Assign the new data points to that category for which the number of the neighbor is maximum.

Step-6: Our model is ready.

Advantages of K-NN Alogorithm

No Training Period,Easy Implementation.

As there is no training period thus new data can be added at any time since it wont affect the model.

Disadvantages of K-NN Algorithm

Does not work well with large data set as calculating distances between each data instance would be very costly. Does not work well with high dimensionality as this will complicate the distance calculating process to calculate distance for each dimension. Sensitive to noisy and missing data.

5) MOOC PLATFORMS IN INDIA

SREELAKSHMI K.P

Department of Statistics , Sree Narayana College , Nattika, Thrissur , Kerala , India-680566 , Mob:9188746209 , Email Id- sudheersreelakshmi985@gmail.com

Keywords: MOOC (Massive Open Online Course),NPTEL(National programme on Technology Enhanced Learning),MHRD(Ministry of Human Resource Development),IIT(Indian Institute of Technology),IISC(Indian Institute of Science),IITK(Indian Institute of Kanpur),NME-ICT(National Mission on Education through Information and Communication Technology),SWAYAM(Study web of Active Learning for Young Aspiring Minds),NCERT(National Council of Educational Research and Training),NIOS(National Institute of Open Schooling),IGNOU(Indira Gandhi National Open University),CEC(Consortium for Educational Communication),UGC(University Grants Commission),IIMB(Indian Institute of Management Bangalore).

In recent years the enrolment in Massive Open Online Course (MOOC) has increased tremendously. India after US is dominating the global growth in enrolment. Seeing the growth of enrolment from the country and satisfy the need of education, India has started various projects for offering MOOC courses.Currently NPTEL,MOOKIT, IITBOMBAYX, and SWAYAM are the platforms used in India for offering courses. In this paper, a theoretical and technical background of these platforms is provided with a discussion of their features. Further a comparative analysis of the platform is provided, using web analysis .There are some challenges that are faced in implementing MOOC in India. With a launch of SWAYAM, some of these issues are already addressed.

Reference:

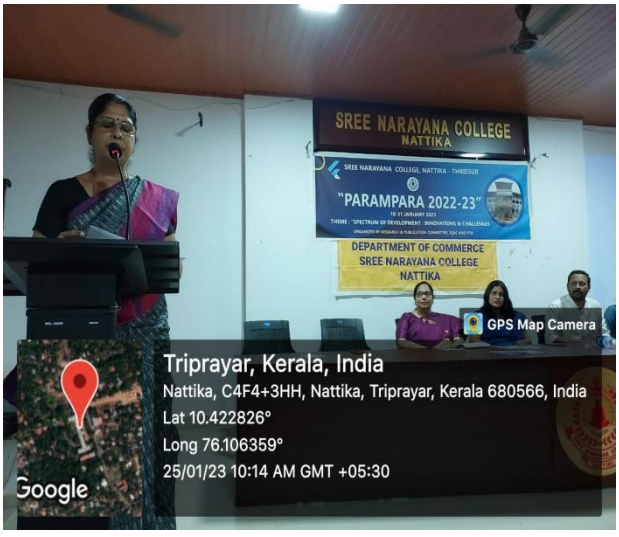
Professional Business Skills(B.Com/B.B.A 3rd Semester textbook from Calicut University,Dr.Abdul Assis Koroth(Author)

Winners list – Students Presentation - Parampara 2022-23

Name of Student	Class	Topic	Rank	Photo
Akhila P S	**I Year MSc Mathematics**	**The Study on Graph Colouring**	**First**	
Avanthika P U	**III Year BSc Mathematics**	**A Study on Collatz Conjecture**	**Second**	
Sreelakshmi K P	**II Year IP Statistics**	**MOOC Platforms in India**	**Third**	

Department of Commerce

The annual seminar series “Parampara“ of Department of commerce Sree Narayana College Nattika was conducted on 25th January 2023 at seminar hall. PARAMBARA was conducted in two sessions, wherein the first session was a talk by a guest followed by the ppt competition of students. The first session starts with a prayer by Sneha and Aparna K J (final year B Com). The welcome speech was delivered by Smt. Praveen Vijayan (HOD,Department of Commerce) followed by a presidential address by Dr Jaya PS (Principal, Sree Narayana College Nattika).



Resource person of the event was Dr G S Sandhya Nair, Assistant Professor of Department of Commerce, Sree Vivekananda College, Kunnamkulam. After the formal address, the session commenced with the keynote address by Dr G S Sandhya Nair, where she gave a wonderful lecture on the topic „Research and green innovations for low impact development“. She points out the importance of sustainable development in our life and also mentions the role of research and innovation in business. The key note speaker also elaborated the need and importance to create a green culture, the importance of social responsibility of business etc. The session was concluded by discussing different types of innovations for sustainable development like integrated farming and fishing etc. She grabbed the attention of the audience with an informative session. After the session there was a interactive session with participants. The session ended with the vote of thanks by Sayana (1st year M Com).The seminar session was attended by all the UG and PG students of our department and faculty members from various departments at Sree Narayana College, Nattika.

Second Session starts at 1 Pm with the ppt competition which was held among the students of the Commerce Department. The session commenced with the welcome speech by Vidya A, Assistant Professor of Department of Commerce (program coordinator). There were six teams for the competition, two teams each from first year B.com, third year B. Com and first year M.com. The theme of the day was „Spectrum of Development: Innovations and Challenges "Each and every participant contributed their best and it was very tight competition. Every team was given a time limit of 10 minutes for seminar presentation and five minutes for questioning session. The winner of the seminar competition was Anjana K & Nanma E of B.com Final Year students, the second position was backed by Sandra Shine & Athira KV of M.com First Year and the third position was for Arsha Ajay K & Ashmi M G of M.com First Year. The session ended with the vote of thanks by Anjana K. (B.com final year student).

1) INDIAN ECONOMY AND YOUTH MIGRATION

The presentation was on the most discussed topic and one of the biggest challenges facing our economy. The presentation mainly pointed out the reasons behind the migration of youth. This included the harsh realities of Indian economic conditions and the lack of opportunities in our economy. The better living conditions, education, availability of higher-paying jobs abroad, and differentiated demographic and income trends also contributed to the same. Not only was the presentation focused on the negatives, but it also enumerated the Indian economy and its most important and unique features. The loss of human capital, especially among young people, has adversely affected India, resulting in "brain drain" and inflation in the economy. The reasons behind this drain have been discussed, and the importance of the attractive salary packages abroad has been taken into consideration. The solutions were also presented, and the presentation was concluded by familiarising the audience with the initiatives taken by the government to reduce the outflow of our country's future.

1. STARTUP INDIA SCHEME

Startup India Scheme is an incubator, accelerator, and leadership springboard for social entrepreneurs. Through the scheme, the government works with early-stage social entrepreneurs to launch ventures that create deep impact, facilitate growth-stage social entrepreneurs to scale their models and drive large-scale systemic change, and train and coach leaders for the sector, who are as yet unrecognised and untapped. The Government of India's flagship program, Startup India, aims to create a robust ecosystem for fostering startups and innovation in the nation, fostering long-term economic growth, and creating significant employment possibilities. The government hopes that this effort will enable startups to develop through creativity and innovation. The Startup India campaign began on August 15, 2015. To encourage innovation and promote entrepreneurship, the start-up India programme was launched by the honourable prime minister of India, Shri Narendra Modi. Innovations are indispensable for the development of a nation, and so the importance of start-ups cannot be denied. The start-ups are the kind of companies that are innovative in their course of development, analysis, evaluation, and research for the target segment. This paper briefly discusses the various types of start-ups, their features,

and the eligibility for startup registration in India. The paper sheds light on some of the important statistics related to start-ups in India and makes a study of how successful the start-up programme has been so far in encouraging entrepreneurship and its contribution towards the development of the country. Examples of a few successful start-ups have been given. The reasons for start-up growth and failures in India have also been discussed.

2. DIGITAL INDIA PROBLEMS AND PROSPECTS

Digital India is a campaign launched by the Government of India to ensure that the government's services are made available to citizens electronically through improved online infrastructure and by increasing Internet connectivity, or by making the country digitally empowered in the field of technology. The initiative includes plans to connect rural areas with high-speed internet networks. It consists of three core components: the development of secure and stable digital infrastructure, delivering government services digitally, and achieving universal digital literacy. This study starts with three visions of digital India. The study mainly focuses on the nine pillars of digital India. And we also went over the significance, challenges, and impact of "Digital India." According to statistics, India is the second-fastest digital adopter, among the 17 major digital economies also shown. The "Digital India" programme has impacted the development of our nation hugely. The impacts can be classified as economic, environmental, or social. It is estimated that campaigns like digital India's economy can be boosted by $1 trillion, and the government is working towards transforming it into a $5 trillion economy. The digital, India’s literacy rate has also increased. This campaign has made the country digitally empowered in the area of technology.

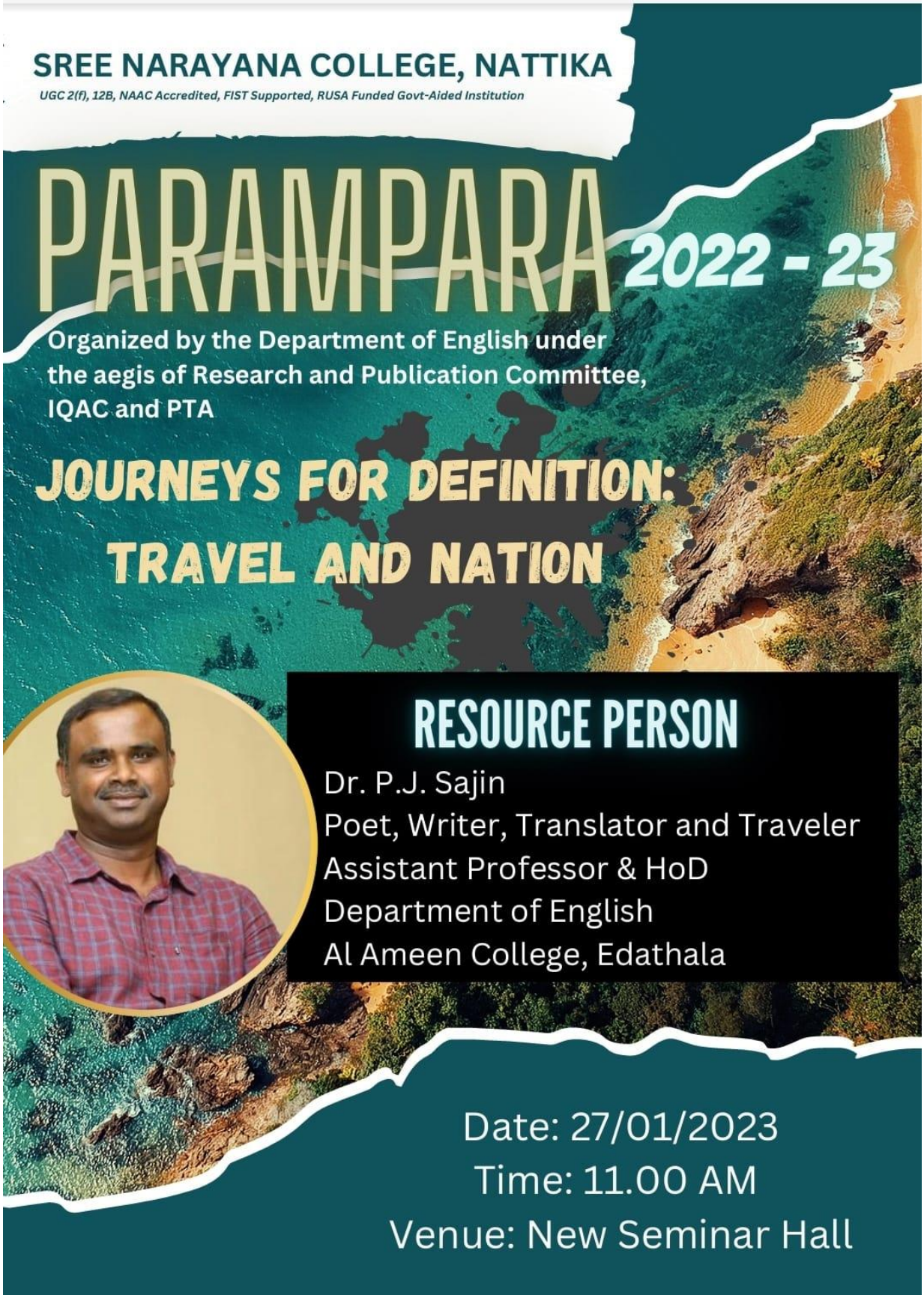
Sl no	**Name of students**	**Rank**	**lass**	**Topics**		
1	**Anjana K & Nanma E**	**Ist prize**	**B.com Final Year**	**Indian Economy and Youth Migration**		

2	**Sandra Shine & Athira KV**	**Second prize**	**M.com First Year**	**Digital India problems and prospects**		
3	**Arsaha Ajay K Ashmi M G**	**Third prize**	**M.com First Year**	**Start-up India scheme .**		

Department of English

The Department of English under the aegis of Research and Publication Committee, IQAC and PTA organized a seminar on the topic, “Journeys for Definition: Travel and Nation” on 27/01/2023 at New Seminar Hall, Sree Narayana College Nattika. Travel literature is a genre of writing about adventure, memoirs, and experiences. It encompasses fiction, nature writing and travel memoirs.

The event brought together scholars, students, and faculties to delve into the theme "Journeys for definition: Travel and Nation," exploring the intersection of travel experiences with the concept of national identity.The event commenced with a serene prayer offered by Miss. Krishnapriya M. J, a first-year B.Sc Mathematics student, setting a reflective ambiance for the proceedings. Mrs. Babitha B, Assistant Professor & HoD of the Department of English, extended a warm welcome, emphasizing the importance of scholarly dialogue and intellectual exchange.Dr. Jaya P.S., the esteemed Principal of Sree Narayana College, Nattika, delivered the presidential address, underlining the significance of academic endeavors in fostering a deeper understanding of societal dynamics and cultural complexities.The keynote address, delivered by Dr. P.J. Sajin, a multifaceted personality known for his prowess in poetry, writing, translation, and travel, centered around the theme "Journeys for definition: Travel and Nation." Dr. Sajin's insightful discourse illuminated the transformative power of travel experiences in shaping individual and collective perceptions of national identity.During the event, Dr. Reji V. S., Associate Professor & HoD of the Department of Malayalam, and Dr. Sankaran K.K., IQAC Coordinator & HoD of the Department of Statistics, were felicitated for their outstanding contributions to academia and the broader community. Dr. Sreedhanya R., Assistant Professor of the Department of English, expressed heartfelt gratitude to all participants, speakers, organizers, and attendees in her vote of thanks, acknowledging their invaluable contributions to making Parampara 2022-23 a meaningful and enriching experience.In conclusion, Parampara 2022-23 served as a platform for scholarly discourse and intellectual exploration, reaffirming the English Department's commitment to promoting academic excellence and cultural understanding within the academic community and beyond.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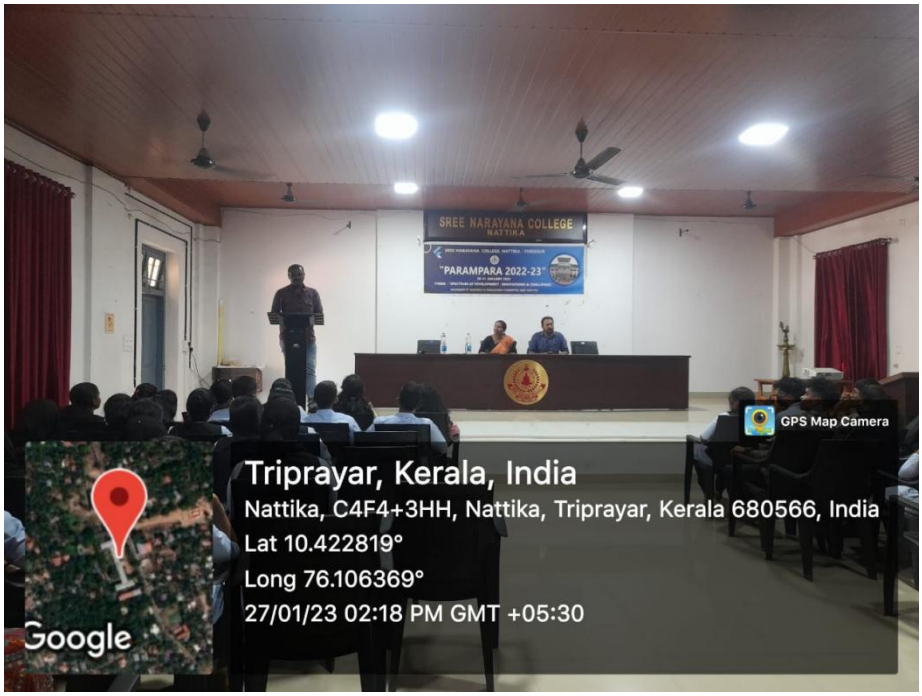
PARAMPARA 2022 - 23
Organized by the Department of English under the aegis of Research and Publication Committee, IQAC and PTA
JOURNEYS FOR DEFINITION: TRAVEL AND NATION
RESOURCE PERSON
Dr. P.J. Sajin
Poet, Writer, Translator and Traveler
Assistant Professor & HoD
Department of English
Al Ameen College, Edathala
Date: 27/01/2023
Time: 11.00 AM
Venue: New Seminar Hall

PROGRAMME

Prayer:	**Krishnapriya M. J** **(First year B.Sc Mathematics)**
Welcome :	**Babitha B** **(Assistant Professor & HoD** **Department of English)**
Presidential Address :	**Dr. Jaya P.S.** **(Principal,** **Sree Narayana College, Nattika)**
Keynote Address :	**Dr. P.J. Sajin** **(Poet, Writer, Translator and Traveler)**
Felicitation :	**Shri. Reji V. S.** **(Associate Professor & HoD,** **Department of Malayalam)**
	Dr. Sankaran K.K. **(IQAC Coordinator & HoD,** **Department of Statistics)**
Vote of Thanks :	**Dr. Sreedhanya R.** **(Assistant Professor,** **Department of English)**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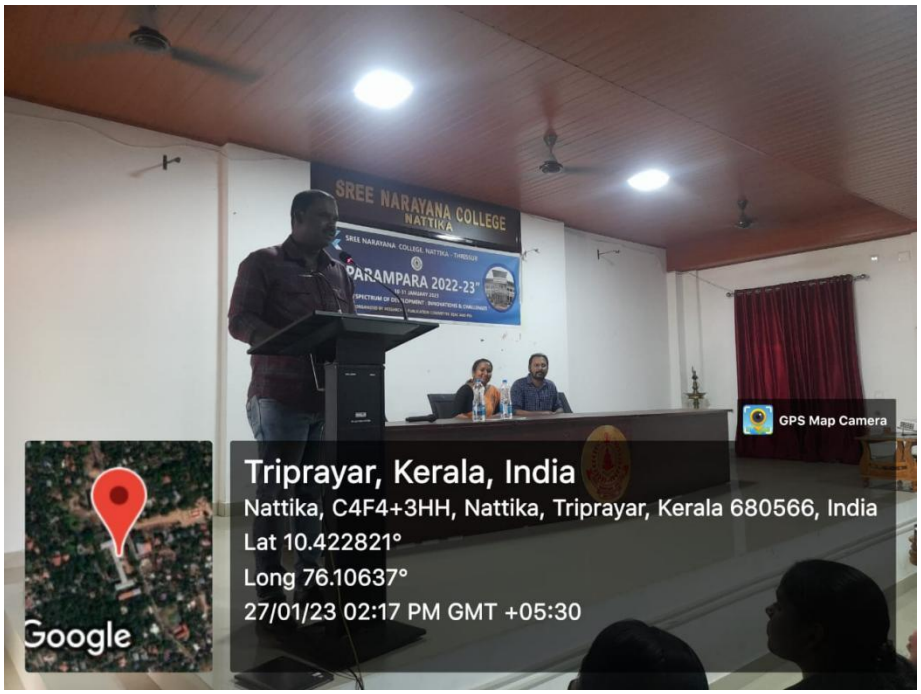
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Department of Botany

Event Schedule

Session I — 30th January 2023 Monday

Prayer	:	Kavya K Sasikumar & Sruthy E. P. M
Welcome	:	Hridhya M. J Research Scholar
Presidential Address	:	Dr. Jaya P S Principal, Sree Narayana College, Nattika
Inauguration & keynote Address	:	Dr. Sreedharan K Research officer, Kerala State biodiversity Board
Felicitations :	:	Dr. Sankaran K. K IQAC Coordinator
	:	Aswathy Surendran K Research Scholar
Vote of Thanks	:	Jiji. P. G Research Scholar

Session II — Paper presentation 30th January 2023

1. Sreejitha M. R - Lichen as pollution indicators (IInd Year M.Sc Botany.)
2. Keerthana K Education in India - Innovation & challenges (IInd year M.Sc Botany)
3. Krishnanjali B. S - Genetically modified crops (Ist year M.Sc Botany)
4. Archana P. S - Benefits & Impacts of invasive plants of Kerala (Ist year M. Sc Botany)

National Anthem

Botany, which is the science of plant life opens an elaborate world of plants on our earth. In the words of Chief seattle 'The earth does not belong to us; we belong to the earth. By realizing this importance, the Botany department of Sree Narayana College, Nattika in collaboration with the Research publication committee PTA and IQAC organized an event 'Innovations and challenges in the field of Botany' on 30th January 2023 at the seminar hall.The program started with the grace of God through the beautiful prayer from Miss.Sruthy and Miss.Geethu at 11.00 am. Dr. Anitha C.T. and Miss.Hridhya M.J. welcomed our resource person Dr. Sreedharan K who is the research officer at the Kerala state biodiversity board and all others into the program through their delightful words. Our beloved principal Dr. Jaya P.S. gave the presidential address.

The main fascinating moment, inauguration, and keynote address were done by our charming resource person Dr.Sreedharan K. According to him this, the day was the most cherishable day to him, because it has been 16 years since the young scientist award at Kerala science congress reached into him .it is not only with his hard work but also due to his passion. In his words, motivation is the only process that should come from our inner mind, not from the outer. He started his speech with a presentation with a quote from Albert Einstein 'Imagination is more important than knowledge'. He said that we must have good imaginations, which will lead to reading, reading acquiring knowledge, will help to discover good innovations. So it is a very good message to students who were the opening buds on our campus. His other words were about Universe. He briefly described the universe in a video made by NASA, it includes The big bang theory, cosmic inflation, the uniqueness of our planet, etc. The next interesting topic from his was 'evolution'. He can give the correct images of evolution in the words of Darwin and Shrodinger. The evolutionary process of mass extinction occurred due to climate fire, competition, disturbance, and adaptation. Biological diversity, biodiversity hotspots, and endemic species are the keywords coming through his speech. Western ghat is coming under the 8 hottest hot spots, revealing they need urgent protection. We should protect them because we are the people for the extinction of our biodiversity, Daudo bird and dinosaurs are the victims of the same. According to his words, humans are the most aggressive agent for the extinction of our ecosystem. If there have no humans, there have a sustainable ecosystem. Another interesting topic was the ecosystem, 'eco means home. Ecology deals with the study of an ecosystem. An ecosystem is a biological community of interacting organisms and their environment. But a

word starting with the same ‘eco’ destroys the ecosystem that is ‘Economy’ due to the ego of humans. So, for the next generation, we should conserve our ecosystem, not the economy, is there has to be stability in our environment we humans are only the victims of extinction, beware of that. He concluded his speech with an end slide denoted as ‘sustainable development’, sure we are very late in achieving that but we can try to put on our hands together. It was a very interesting and motivational presentation. Various presentations were done by our PG students.

The first presentation was about, the ‘benefits and impacts of invasive plants of Kerala’ done by Archana P.S . The main points from this topic were, invasive species are the species that are widespread outside and invasive in their new locations. they substitute the natural species. Many invasive plants are imported here for their medicinal, ornamental, and agricultural uses. Some of the invasive plants included, *Catharanthus roseus, Eichorrnia crassipes, Lantana camera, Mimosa diplotricha, Riccinus communis, Centrosema mole,* and *Tridax procumbens*. These invasive species have much economic importance but there will have some precautions for preventing the invasiveness over our native varieties.

The next presentation was done by Keerthana K with the topic ‘Education in India -Innovations and Challenges’. The education ecosystem currently is at the online and offline modes. Innovation is essential to introduce and improve the quality of education. Technology-based innovations are established in our schools and colleges by the government. This presentation highlights the innovations in Indian education and the challenges faced by it. By providing macroeconomic factors including gov. initiatives, disposable income, internet penetration, and rapid digitalization in education we can solve the challenges in our education system. Through this presentation, we will enable to focus more on the current scenario of Indian Education.

‘Genetically modified crops’ were the third presentation done by Krishnajali B.S. Desirable Plants made by genetically modified techniques not naturally. It involves the insertion of DNA into the genome. The seeds were inherited with a new genome. The department of agriculture(USDA), Environmental protection agency(EPA), and Food and drug administration(FDA) are the three authorities for the regulation of GM crops.GM crops have many applications, including Nutritional enhancements, stress tolerance, disease resistance,

biofuel efficiency. Flavr savr tomatoes, alfalfa,canola, golden rice are some examples of GM crops. This presentation helps us know more about GM crops.

Sreejitha M.R. presented on the topic of 'Lichen as a pollution indicator'. Lichen pioneer species are organisms that consist of a symbiotic relationship between algae and fungi. They are the pollution indicators. They lack roots as plants for absorption, but they can prepare food by photosynthesis. They cover about 7% of the planet's surface and grow on a wide range of substrates. Not all lichens are equally sensitive to air pollutants, it is directly related to the energy needed by the mycobiont. Consequently, many environmental studies on lichen emphasize their feasibility as an effective biomonitor of atmospheric quality. So in this worst condition of our world, lichens are used as a bioindicator.

Sandra N.R presented about the topic Waste management.Anisha P.C and Sangeeth K.M give a brief idea about the importance and preservation of coral reef andeffect of climate change in spreading disease and crop production. Krishnedu B.S presented on the topic Single cell protein.

The best presentation award was goes to Sreejitha M.R and Keerthana K. Second and third prizes were achieved by Archana P.S and Krishnajali B.S respectively.

Felicitation speeches were given by Dr.SankaranK K and Miss. Aswathy Surendran K. for felicitating our botany department, our resource person, and all other participants. With a grateful vote of thanks from Miss Jiji P.G. wind up our Parampara event.


COLLEGE, NATTIKA - THRISSUR
2022-23"
INNOVATIONS & CHALLENGES "
TTEE, IQAC AND PTA


AYANA COLLEGE, NATTIKA - THRISSUR
AMPARA 2022-23"


SREE NARAYANA COLLEGE, NATTIKA - THRISSUR
"PARAMPARA 2022-23"


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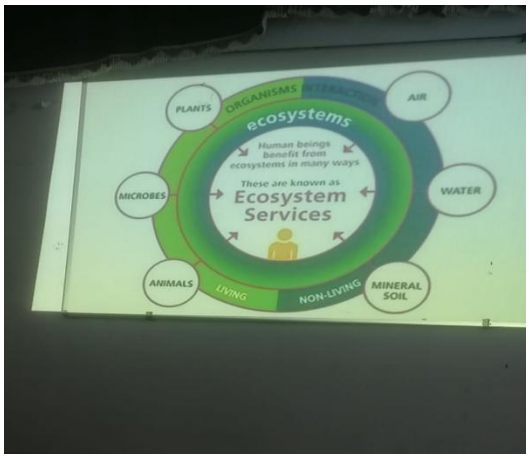
<td> 
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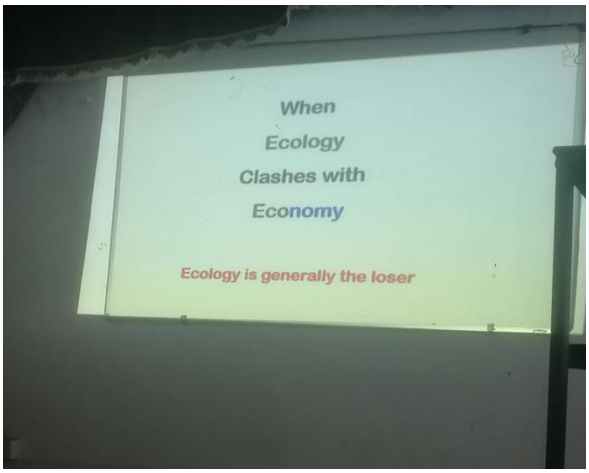
<td> 
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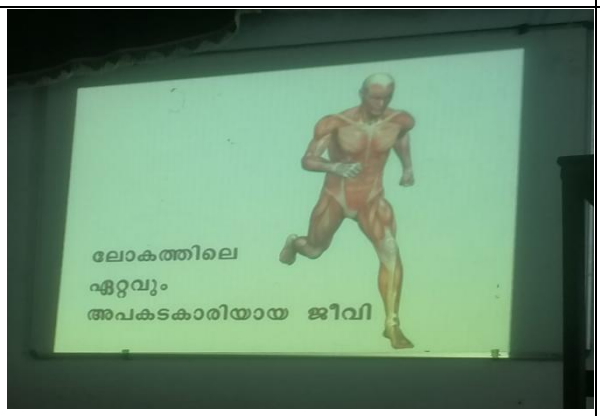
<td> 
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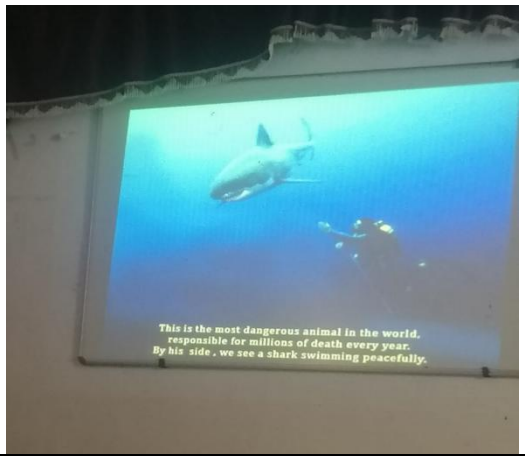
<td> 
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1) Education in India- Innovations and Challegnes (KEERTHANA.K SECOND YEAR MSC.BOTANY)

Education in India stands at a critical juncture, characterized by a blend of innovation and challenges. As the world's second-most populous country with a diverse socio-economic landscape, India's education system plays a pivotal role in shaping its future. While innovative initiatives have emerged, numerous challenges persist, reflecting the complex nature of the educational landscape.

Innovation in Education:

India has witnessed a surge in educational innovation across various domains. The proliferation of digital technology has spurred the growth of online learning platforms, providing accessible and flexible learning opportunities. Initiatives like the National Education Policy (NEP) 2020 aim to revamp the education system by emphasizing critical thinking, creativity, and holistic development.

Moreover, the integration of emerging technologies such as artificial intelligence (AI), virtual reality (VR), and augmented reality (AR) is transforming traditional teaching methods. These technologies facilitate immersive learning experiences, enhancing student engagement and comprehension. Furthermore, collaborative efforts between the government, private sector, and non-profit organizations have led to the establishment of innovation hubs and incubators focused on education. These platforms foster entrepreneurship and experimentation, nurturing novel approaches to address educational challenges.

Challenges Facing Education:

Despite the strides made in educational innovation, India grapples with multifaceted challenges that hinder equitable access and quality education delivery. One of the foremost challenges is the digital divide, with rural and marginalized communities lacking access to adequate infrastructure and internet connectivity. This disparity exacerbates existing inequalities, widening the education gap between urban and rural areas.

Additionally, the quality of education remains a concern, with outdated curricula and rote learning prevalent in many institutions. There is a pressing need to modernize pedagogical approaches, emphasizing skill development, critical thinking, and problem-solving abilities.

Teacher shortages and inadequate training further impede the delivery of quality education. Addressing these issues requires comprehensive reforms in teacher education programs and professional development initiatives. Moreover, socio-economic factors such as poverty, gender disparities, and societal attitudes towards education pose significant barriers to educational attainment, particularly for marginalized communities.

Conclusion:

Education in India stands at a crossroads, marked by innovation and challenges. While strides have been made towards fostering educational innovation and inclusivity, persistent disparities and structural impediments hinder progress. Addressing these challenges necessitates a concerted effort from stakeholders across sectors to foster an inclusive, equitable, and quality education system.Through collaborative partnerships, policy reforms, and investment in infrastructure and human capital, India can harness the transformative power of education to propel socio-economic development and foster a brighter future for generations to come.

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2) **Lichen as Pollution Indicator: Nature's Silent Messenger(SREEJITHA.M. R SECOND YEAR MSC BOTANY)**

Lichens, a symbiotic association between fungi and algae or cyanobacteria, serve as valuable indicators of environmental health and pollution levels. These remarkable organisms thrive in diverse ecosystems, from pristine forests to urban landscapes, making them ideal bioindicators for monitoring air quality and pollution levels.

Lichens' sensitivity to air pollutants, particularly sulfur dioxide (SO2), nitrogen oxides (NOx), heavy metals, and particulate matter, makes them reliable sentinels of environmental contamination. As lichens absorb nutrients and moisture directly from the atmosphere, they readily accumulate pollutants present in the air.

The presence, abundance, and diversity of lichen species can indicate the extent of air pollution in a given area. Lichen communities exhibit characteristic responses to varying pollution levels, with certain species thriving in unpolluted environments while others decline or disappear in polluted regions.

Lichen biomonitoring surveys, conducted globally, have provided valuable insights into air quality trends and pollution hotspots. By assessing lichen diversity and health, scientists and environmentalists can identify areas prone to high pollution levels and advocate for remedial actions and policy interventions.

Furthermore, lichens' ability to bioaccumulate heavy metals like lead, cadmium, and mercury makes them useful indicators of industrial pollution and heavy metal contamination in terrestrial ecosystems. Monitoring changes in heavy metal concentrations in lichens can help assess the effectiveness of pollution control measures and inform conservation efforts.

In conclusion, lichens serve as nature's silent messengers, offering a unique and cost-effective means of monitoring air quality and pollution levels. Their sensitivity, ubiquity, and ecological

significance underscore the importance of incorporating lichen biomonitoring into environmental monitoring programs and policy frameworks.

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3) **Benefits and Impacts of Invasive Plants in Kerala(ARCHANA. P. S FIRST YEAR MSC BOTANY**)

Invasive plants, though often overlooked, wield significant influence on ecosystems, biodiversity, and human well-being in Kerala, India. While some invasive species offer apparent benefits, their overall impacts on native flora, fauna, and ecosystems can be detrimental.

Kerala, known for its rich biodiversity and unique ecosystems, faces a growing challenge from invasive plants. Some of these invasive species exhibit certain benefits, such as rapid growth rates, high reproductive capacities, and resilience to environmental stresses. Additionally, some invasive plants may provide ecosystem services, such as erosion control, soil stabilization, and habitat provision for certain wildlife species.

However, the introduction and spread of invasive plants in Kerala can have far-reaching negative impacts. Invasive species often outcompete native vegetation for resources such as water, nutrients, and sunlight, leading to a decline in native plant diversity and altering ecosystem composition and structure. This, in turn, can disrupt ecological processes, including pollination, seed dispersal, and nutrient cycling, thereby threatening overall ecosystem health and resilience.

Furthermore, invasive plants can adversely affect agricultural productivity and human livelihoods in Kerala. Species like Lantana camara and Mikania micrantha invade agricultural lands, smothering crops and reducing yields. Additionally, invasive plants may contribute to increased fire risks, especially during the dry season, posing threats to human settlements, forests, and wildlife habitats.

Efforts to manage invasive plants in Kerala require a multidisciplinary approach, encompassing ecological research, community engagement, policy interventions, and active management strategies. Collaboration between government agencies, environmental organizations, research institutions, and local communities is essential to effectively address the challenges posed by invasive species.

In conclusion, while some invasive plants in Kerala may offer certain benefits, their overall impacts on native ecosystems, biodiversity, and human well-being underscore the need for proactive management and conservation measures. By raising awareness, implementing sustainable practices, and fostering collaboration, Kerala can mitigate the negative effects of invasive plants and safeguard its precious natural heritage for future generations.

References:

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C) Lazer, R., P., et al. (2020). Impacts of Invasive Alien Plants on Biodiversity: A Review. Journal of Biodiversity and Environmental Sciences.

D) Vijayan, L. (2016). Invasive Plants in Kerala: Threats and Management Strategies. Journal of Tropical Agriculture.fc

4) **Genetically Modified Crops: Enhancing Agriculture Through Biotechnology (KRISHNANJALI. B. S FIRST YEAR MSC BOTANY)**

Genetically modified (GM) crops represent a significant advancement in agricultural biotechnology, offering the promise of increased yields, improved resistance to pests and diseases, and enhanced nutritional content. These crops are the result of genetic engineering techniques that introduce specific genes into plant genomes to confer desired traits.

GM crops have been developed to address various challenges facing agriculture, including food insecurity, environmental sustainability, and climate change. By incorporating genes for traits such as herbicide tolerance, insect resistance, and drought tolerance, GM crops offer farmers enhanced productivity and reduced reliance on chemical inputs. One of the most widely cultivated GM crops is Bt cotton, engineered to produce proteins toxic to certain insect pests, thus reducing the need for synthetic insecticides and minimizing crop damage. Similarly, herbicide-tolerant crops, such as soybeans and maize, enable farmers to control weeds more effectively, improving overall crop management practices.

Moreover, GM crops hold promise for addressing malnutrition and improving food security in developing regions. Biofortified crops, such as Golden Rice, enriched with provitamin A, offer a sustainable solution to combat vitamin A deficiency, a prevalent health issue in many parts of the world.

Despite the potential benefits of GM crops, concerns regarding environmental impacts, food safety, and socioeconomic implications persist. Critics argue that the widespread adoption of GM crops may lead to the development of herbicide-resistant weeds and insect pests, posing long-term ecological risks.

Furthermore, issues surrounding intellectual property rights, corporate control of seed markets, and the socio-economic impacts on small-scale farmers raise questions about equity and access to agricultural innovation.

As the debate over GM crops continues, it is imperative to adopt a science-based approach that considers both the potential benefits and risks associated with their cultivation. Rigorous risk assessment protocols, transparent regulatory frameworks, and stakeholder engagement are essential for informed decision-making and responsible deployment of GM technologies.

In conclusion, genetically modified crops have the potential to revolutionize agriculture and address key global challenges. However, their widespread adoption must be accompanied by robust regulatory oversight, transparent communication, and equitable access to ensure sustainable and inclusive agricultural development.

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PRESENTATION AWARDS

- KEERTHANA.K
  SECOND YEAR MSC.BOTANY

- **FIRST PRIZE**

- SREEJITHA.M. R
  SECOND YEAR MSC BOTANY

- **FIRST PRIZE**

- ARCHANA. P. S
  FIRST YEAR MSC BOTANY

- **SECOND PRIZE**

- KRISHNANJALI. B. S
  FIRST YEAR MSC BOTANY

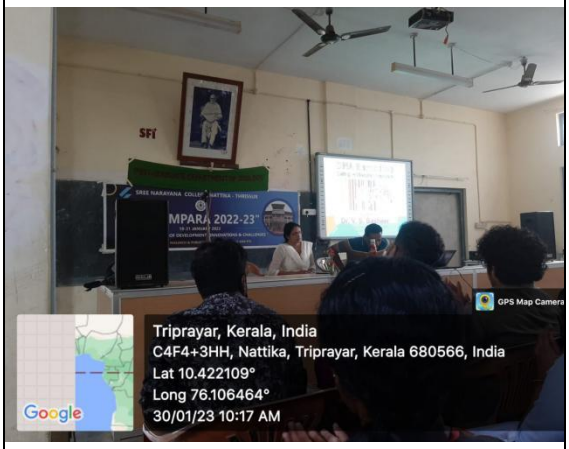
- **THIRD PRIZE**

Department of Zoology

As a part of PARAMPARA 2022-2023 Multidisciplinary Seminar Series, Department of Zoology organised a seminar on 30th January 2023 on the topic "Barcoding of fishes using Molecular Markers". Dr.V.S Basheer, the Principal Scientist of PMFGR Centre, ICAR-NBFGR CMRFI campus was the chief guest. The program was officially inaugurated by our respected Principal Dr. Jaya P.S. The section was compeered by Ms. Saveria Ashok and Ms. Asla Sherin K.A from B.Sc .Zoology.

The program started at 10.15am with an invocation by Ms. Sneha N.P. (1st year M. Sc Zoology) followed by welcome speech by Ms. Sandra (3rd year Bsc Zoology). After the presidential address by Principal Dr. Jaya P.S, Dr. Sankaran K.K, IQAC coordinator devoted his felicitation. The core session started at 10 .19 am. The Seminar mainly focused on the spectrum of development, innovation and challenges in Zoology. He grabbed the attention of teachers and students by his informative talk on barcoding of fish and its various aspects. Teachers from various departments also participated in the same. The Section ends with a 15 minute discussion at 11.45 am.

After that session, selected UG and PG students of Zoology department delivered talks on recent trends in Science. All presentations were excellent and informative. Dr. Anabha Joyson (Head of the Department, Chemistry), Ms. Srindha and Ms. Keerthana (Faculties of English) were the judges. Ms. Vishnupriya, Ms. Vismaya and Ms. Shafeekha grabbed the first 3 prizes respectively. Finally, Ms. Sneha. K delivered the vote of thanks. The programme came to an end at 1.00 pm.



Students Presentations

1) **3D Bioprinting: Revolutionizing Life Sciences(VISMAYA SANTHOSH 1st UG Botany)**

3D bioprinting has emerged as a transformative technology in the field of life sciences, offering unprecedented opportunities for tissue engineering, regenerative medicine, drug discovery, and personalized healthcare. This cutting-edge approach allows for the precise deposition of living cells, biomaterials, and bioactive molecules to fabricate complex three-dimensional structures that mimic native tissues and organs.

One of the key advantages of 3D bioprinting is its ability to recreate the intricate microarchitecture and cellular composition of native tissues, enabling the fabrication of customized constructs tailored to specific patient needs. Researchers can utilize a variety of biomaterials, including hydrogels, biodegradable polymers, and extracellular matrix components, to create bioinks that provide structural support and facilitate cellular adhesion, proliferation, and differentiation.

In tissue engineering and regenerative medicine, 3D bioprinting holds promise for generating functional tissues and organs for transplantation, bypassing the limitations associated with traditional donor-based approaches. Researchers have successfully bioprinted complex structures such as vascular networks, cardiac patches, and skin substitutes, offering hope for patients in need of organ replacement therapies.

Furthermore, 3D bioprinting has revolutionized drug discovery and development by enabling the fabrication of physiologically relevant tissue models that recapitulate the complex microenvironments found in vivo. These organ-on-a-chip platforms allow researchers to study disease mechanisms, screen drug candidates, and evaluate drug efficacy and toxicity in a more predictive and cost-effective manner.

Despite its immense potential, 3D bioprinting still faces several challenges, including scalability, vascularization, and immune compatibility. The development of bioinks with optimal mechanical properties, biofunctionalization strategies, and bioreactor systems will be crucial for advancing the field and translating bioprinted constructs from the laboratory to the clinic.

In conclusion, 3D bioprinting represents a paradigm shift in the life sciences, offering novel approaches for tissue engineering, regenerative medicine, and drug discovery. With continued research and innovation, 3D bioprinting holds the promise of revolutionizing healthcare by

providing personalized therapies and advancing our understanding of human biology and disease.

References:

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2) Artificial Womb Technology: Bridging the Gap in Perinatal Care

Artificial womb technology, also known as ectogenesis, represents a revolutionary approach in perinatal care, offering the potential to support the development of premature infants outside the maternal womb. This cutting-edge technology aims to address the challenges associated with preterm birth and improve outcomes for neonates born prematurely.

The concept of artificial womb technology involves creating an environment that mimics the conditions of the maternal uterus, providing optimal temperature, humidity, oxygenation, and nutrient supply to support fetal growth and development. Researchers have made significant strides in developing biocompatible materials and perfusion systems capable of sustaining fetal life ex vivo.

One of the primary goals of artificial womb technology is to extend the gestational period for preterm infants, allowing them to complete critical stages of organ development in a controlled environment. By providing a more physiologically relevant milieu than traditional incubators, artificial wombs have the potential to reduce the risk of complications associated with preterm

birth, such as respiratory distress syndrome, intraventricular hemorrhage, and developmental delays.

Moreover, artificial womb technology holds promise for improving outcomes in high-risk pregnancies, including those complicated by intrauterine growth restriction, placental insufficiency, and congenital anomalies. By offering a means to bypass maternal factors that may compromise fetal health, artificial wombs could provide a lifeline for fetuses facing adverse intrauterine conditions. While the concept of artificial womb technology is still in its infancy, recent advancements in tissue engineering, biomaterials, and bioreactor design have propelled the field forward. Animal studies have demonstrated the feasibility of sustaining fetal lambs and other mammalian species in artificial womb environments, paving the way for human clinical trials in the future. However, ethical considerations surrounding the use of artificial womb technology, including questions about fetal rights, maternal autonomy, and societal implications, warrant careful deliberation and engagement with stakeholders. Addressing these ethical concerns will be essential for the responsible development and implementation of artificial womb technology in clinical practice.

In conclusion, artificial womb technology holds tremendous potential to revolutionize perinatal care and improve outcomes for premature infants and high-risk pregnancies. By providing a supportive environment for fetal development outside the maternal womb, artificial wombs offer hope for a future where every infant has the opportunity for a healthy start in life.

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3) Black Biotechnology: Empowering Diversity in Biomedical Innovation

Black biotechnology, a subset of biotechnology focused on addressing health disparities and promoting diversity in biomedical research and innovation, is gaining recognition for its potential to advance healthcare equity and social justice. Rooted in the contributions of Black scientists, researchers, and entrepreneurs, this burgeoning field encompasses a wide range of disciplines, including pharmaceuticals, medical devices, diagnostics, and healthcare delivery.

Historically, Black individuals have been underrepresented in biomedical research and clinical trials, leading to disparities in healthcare outcomes and access to innovative treatments. Black biotechnology seeks to address these disparities by fostering diversity and inclusion in all aspects of the biomedical ecosystem, from research and development to commercialization and patient care.

One of the key areas of focus in black biotechnology is the development of therapeutics and medical technologies that target diseases disproportionately affecting Black and minority populations. From treatments for sickle cell disease to precision medicine approaches tailored to genetic variations within diverse communities, black biotechnology aims to provide personalized and culturally sensitive healthcare solutions. Moreover, black biotechnology emphasizes community engagement, education, and capacity-building initiatives to empower underrepresented minorities to participate in and benefit from biomedical innovation. By promoting STEM education, mentorship programs, and entrepreneurship opportunities, black biotechnology seeks to cultivate a diverse pipeline of talent and leadership within the biotech industry.

Entrepreneurship and economic empowerment are also central to the mission of black biotechnology. By supporting Black-owned biotech startups, venture capital investment, and technology transfer initiatives, black biotechnology aims to create pathways for economic advancement and wealth generation within minority communities.

While black biotechnology holds immense promise, it also faces challenges related to funding disparities, institutional barriers, and systemic inequities within the healthcare system. Addressing these challenges will require collaborative efforts among stakeholders, including government agencies, academic institutions, industry partners, and community organizations, to dismantle structural barriers and promote inclusivity and equity in biotechnology innovation.

In conclusion, black biotechnology represents a transformative force for advancing healthcare equity, diversity, and social justice. By leveraging the expertise, talents, and perspectives of Black scientists and entrepreneurs, black biotechnology has the potential to drive meaningful change and improve health outcomes for all communities.

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Sl.No.	Name of Participant	Class	Topic	Prize	Photo
1	VISMAYA SANTHOSH	1st UG	3D BIOPRINTING	2nd Prize	
2	MAHESH K.M	2nd UG	ARTIFICIAL WOMB TECHNOLOGY	-	
3	VISHNUPRIYA C.J	3rd UG	BLACK BIOTECHNOLOGY	1st Prize	
4	SHAFEEKHA	1st PG	FISH FACE TECHNOLOGY: AN INNOVATION THAT CHANGING THE CONSERVATION.	3rd Prize	

Department of Chemistry

Department of Chemistry
S N College, Nattika

Students Presentations

1
Anjali Krishna V M
I Year M.Sc Chemistry
"Artificial Intelligence in Chemistry"

2
Jyothilakshmi D A
I Year M.Sc Chemistry
"Role of Dust and Gas Particles in the Interstellar Space"

1.30 pm

31.01.2023

3
Sivani Shivdas A
III Year BSc Chemistry
"Click Chemistry and Bio-Orthogonal Chemistry"

4
Swetha P S and Plency Mariya M S
II Year B.Sc Chemistry
"Ocean Acidification and its Impact on Marine World"

Seminar Hall

5
Sogna P M
I Year B.Sc Chemistry
"Sodium - Ion Battery"

6
Malavika K M
I Year B.Sc Chemistry
" Nano Catalyst"

Parampara 2022-23

Multidisciplinary Seminar Series
Jointly organised by Research Publication Committe, IQAC and PTA

In connection with “Parampara 2022-23”, the Post graduate and Research department of Chemistry organised a talk on innovation area and power point presentation by graduates and post graduates students of chemistry on related area. We conducted the program on two sessions wherein the first session was a talk by a guest and the second one by the power point competition of students.

The annual seminar series “Parampara 2022-23 “of Post Graduate and Research Department of Chemistry Sree Narayana College Nattika was conducted on 24th January 2023 at seminar hall at 10.30 am. The welcome speech was delivered by Dr. Anabha E R (HOD, Department of Chemistry) and felicitated by Dr. Rajesh K M. (Department Coordinator). Resource person of the event was Dr. Radhika T, Scientist, Center for Material for Electronic Technology (C-MET), Thrissur. After the formal address, the session commenced with the keynote address by Dr Radhika T about the topic “Materials Innovation for Next Generation Applications”. During the session, he covered the brief introduction about C-MET. She also points out the importance of sustainable development of new innovative materials in the field sensors, piezo material, energy reservoir, aerogels, graphene etc. The topic is very informative for students. The speakers also motivate students about the new era in the research area of Chemistry. She very well interacts with students. The session ended with the vote of thanks by Amutha (1st year M Sc Student).The seminar session was attended by all the UG and PG students of our department and faculty members from various departments at Sree Narayana College, Nattika.

Second Session conducted on 31st January 2023 at Seminar Hall. The Program starts at 1 Pm with the ppt competition which was held among the students of the both UG and PG students of Chemistry department. The session commenced with the welcome speech by Dr. Rajesh K M, Assistant Professor of Department of Chemistry (program coordinator). There were six teams for the competition, two teams each from first year BSc, and first year M.Sc; and one team from each II B.Sc and III BSc. Every team was given a time limit of 10 minutes for seminar presentation and five minutes for questioning session. The competition was juddged by Dr. Vivek B (Department of Chemistry), Smt. Babitha B (Department of English) and Dr. Devanarayan V. P (Department of Chemistry). The winner of the seminar competition was Jyothilakshmi D A of I M.Sc, the second position was backed by Sogna P M of First Year B.Sc

and the third position was for Shivani Shivdas Aruketty of III B.Sc. The session ended with the vote of thanks by Anjali P S (I MSc student).

Students Presentations

Students Presentation on 31/01/2023			
Sl. No	**Name of Student**	**Class**	**Topic**
1	**Anjali Krishna V M**	**I Year MSc Chemistry**	**Artificial Intelligence in Chemistry**
2	**Jyothilakshmi D A**	**I Year MSc Chemistry**	**Role of Dust and Gas particles in the Interstellar Spaces**
3	**Shivani Shivdas Aruketty**	**III Year BSc Chemistry**	**Click Chemistry and Bio-Orthogonal Chemistry**
4	**Swetha P S and Plency Mariya M S**	**II Year BSc Chemistry**	**Ocean Acidification and its Impact on marine World**
5	**Sogna P M**	**I Year BSc Chemistry**	**Sodium-Ion Battery**
6	**Malavika K M**	**I Year BSc Chemistry**	**Nano Catalyst**

1) ROLE OF ARTIFICIAL INTELLIGENCE IN CHEMISTRY

Anjali Krishna V M, I Year MSc Chemistry and Dr. Rajesh K M

ABSTRACT

Recently, artificial intelligence is one of the most cited areas in chemistry to perform various tasks such as in prediction of molecular properties, for designing the new molecules, in validation of the proposed retrosynthesis, reaction conditions Predictions and reaction outcomes predictions etc. The use of AI in chemistry, particularly in organic chemistry, has inflamed the research related to new drug discovery and reduces the huge costs and time related problem of the market. It has made significant progress towards the acceleration of drug discovery R&D. However, the concept of AI is not explored much till date. In this review article, we tried to provide an overview of how AI assists scientists in demonstrating their usefulness and applicability in drug developments and delivery processes.

Keywords: Artificial intelligence; retrosynthesis; reaction predictions; molecular properties; drug developments

AI IN CHEMISTRY

John MC Carthy was the first who coined the term artificial intelligence in 1956. Artificial intelligence is the branch of computer science that deals with the machine learning process, which is capable of performing different tasks that typically require human intelligence. This is the replication of human intelligence in the machine.It is most important part of the technology industry because it helps in collecting and analysing data at a low cost and having a safe working environment. Artificial intelligence has many applications like it is used in natural language processing, reasoning problems and in making strategy etc. It can modify the objects based on its requirement.Artificial intelligence is not only useful in engineering field, but also have many applications in chemical field. It is helpful to design a molecule and also in the prediction of its various properties like melting point, solubility, stability, HOMO/LUMO etc.Artificial intelligence is also helpful in drug discovery and its structure determination in lesser time which is also a cost- effective. As we know the synthesis of organic molecule is most the important task in organic chemistry. For the synthesis purpose, scientists used this computer-aided software for many years. For the generation of new product, a large amount of data set based on artificial intelligence is used by a scientist in which starting material is known and only focus is on the target molecule. The combination of artificial intelligence with biology is useful to synthesize a new molecule that will be useful to cure a disease. Based on goals and data available, all types of artificial intelligence may find applicability in chemistry. Artificial intelligence is helpful to identify the patterns and correlations in data and provide a solutions to many problem. Artificial intelligence can also provide the reaction outcomes from the previously available data..Artificial intelligence is also playing an important role in retrosynthesis. Retrosynthesis process is starting from the target molecule and is continue until getting the starting precursors of that molecule and with the help of this simple precursor, it is possible to synthesize a new molecule. Artificial intelligence is also useful in wastewater treatment.

ARTIFICIAL INTELLIGENCE IN DRUG DISCOVERY

It is very difficult to make a drug with the help of complex molecule that contains more than 1060 molecule. Thus, The drug development process is limited because of the absence of

advanced technologies. Artificial intelligence plays a crucial role in the structure validation of the target drug and in

optimizing the structure of a drug.The machine learning model has been trained with various data set of existing molecules. This machine learning model is useful in encoding the higher dimensional representation to lower dimensional representation.

ARTIFICIAL INTELLIGENCE IN NANO TECHNOLOGY

The combination of artificial intelligence with nanotechnology provides a new tools for information and communication technology that has a great impact on our society. The various machine learning process like decision tree, vector machine that has been applied to the association, prediction, data mining in the context of nanotechnology research. Scanning probe microscopy is the most commonly used techniques in nanotechnology in which interaction between tip and sample which is very difficult to understand and involves many parameters. To

overcome this problem we can use the artificial intelligence technique. The combination of an artificial neural network (ANN) with a principle component analysis provides simplified input data by de-correlating the data and decrease the number of independent variables. The ANN is trained with a numerical result that is useful to find out the dielectric constant value.

ARTIFICIAL INTELLIGENCE IN WASTE WATER TREATMENT

A wastewater treatment plant has been designed that use the treatment property of effluents and also uses some biological, physical and chemical properties for the treatment of water Pollutants. This artificial intelligence based system is more efficient then the human understanding in waste- water treatment plant. This technique implements some algorithms for waste- water treatment plant to make the analysis more intelligible. The activated study model (ASM2d – guided) QL (Q- learning) algorithm contain its self- learning mechanism that is used to optimizing the control strategies like hydraulic retention time and internal recycling ratio for waste- water treatment plant system. Artificial neural network is used to find out the content of nitrogen in waste- water treatment by using contact aeration process. Artificial intelligence is useful in the recovery of clean water during waste- water treatment. The reuse of waste- water

helps to increase the quality of environment and the water saving is also increased, for this use rainfall water index is an input in the model.

CONCLUSION

Artificial intelligence plays an important role in chemistry. This review focus on the various aspects of artificial intelligence in chemistry. This machine based system is more efficient and solve the chemistry problems within lesser periods of time. Artificial intelligence is very helpful in the retrosynthesis of large complex molecules. By using some database and the artificial intelligence based algorithm it is very easy to design a new molecule and to determine the various properties of these molecules. The water pollutants in water can also be removed by using this machine learning based technologies. It is also useful in nanomaterial. The main role of artificial intelligence is in drug discovery by evaluating the structure of a drug.

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2) Role of gas and dust particles in the interstellar space (Jyothilakshmi D A, I Year MSc Chemistry and Dr. Rajesh K M)

About 15% of the visible matter in the Galaxy is in the form of gas and dust, serving as the raw material for new stars. About 99% of this interstellar matter is in the form of gas—individual atoms or molecules. The most abundant elements in the interstellar gas are hydrogen and helium. Although these tiny grains only make one per cent of the mass of interstellar material, these dust grains have a very vital role in the creation of structures in the Universe. The dust grains surfaces act as chemical factories; catalyse reactions of atoms to form molecular clouds.

dust is now recognised as playing a fundamental role in the evolution and current state of the Universe.The molecules formed are important coolants, affecting the dynamical and thermal evolution of the gas in star formation. Dust grains, too, radiate at long wavelengths the UV and optical radiation they have absorbed, and contribute thereby to the cooling species than H2, too, must form similarly in reactions at the surfaces of dust grains; in low density regions of space these species may be mainly simple hydrides.

In denser regions, the dust grains provide a substrate on which molecular ices can form. These ices also remove molecules other than molecular hydrogen from the gas phase, and evidence for gas depleted of its heavy molecules is common. Such regions, therefore, have rather different and less effective cooling functions. These ices act as reservoirs of molecules that can be released back to the gas phase in warmer regions. Thus, dust grains can act both as sources and sinks of molecules.

Dust grains generally carry electrical charges. In low density regions, the photoelectric effect may dominate, in which case the grains are positively charged. When starlight is suppressed by extinction, then dust grains tend to be a sink for electrons, and become negatively charged. In very dark clouds grains may become the main charge carrier, and therefore the main coupling agent between the interstellar magnetic field and the interstellar medium. The direct interaction of gas and dust is one of the most important microscopic processes in regions of high density. This interaction is now developing rapidly, and makes possible the application of the science of surfaces and the solid-state to star-forming regions.

It also help scientists to gain better control over the nanoparticles they are use in many fields , including solar energy, chemical catalysis , sensors and nanomedicine.

Reference

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2) https://en. m. Wikipedia.org>

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4) Click and Bio-orthogonal Chemistry Win 2022 Nobel Prize In Chemistry Shivani Shivdas Aruketty, III Year BSc Chemistry and Dr. Anabha E R

Three scientists have won the 2022 nobel prize in chemistry:Carolyn R Bertozzi of standford University, Morten Meldal of the University of Copenhagen and K. Barry sharpless of the scripps Research in California share the prize for their work on click chemistry and bio-orthogonal reactions. Click chemistry involves reaction that unites two synthetic molecules quickly and reversibly. Some of these reactions can be performed inside living cell without disrupting biochemical processes making them bio-orthogonal.

This approach is used to tag biomolecules with fluorescent probes that illuminate the inner workings of cellular biochemistry, for example it also offers a way to produce antibody drug conjugates. Click chemistry is even being directly applied inside patients, in clinical trails of powerful cancer therapy. “I truly believe that the potential applications of click chemistry are unlmitted from materials science of life saving drugs, click chemistry is here to stay”said john moses

Reference :

1. C and en chemical and engineering news

2. Annie porter, Liyun Wang, Linttan, x lucasLi Bio-orthogonal click chemistry methods to evaluatr metabolism

5) Ocean Acidification and it's impacts on Marine World(Swetha P S and Plency Mariya M S, II Year BSc Chemistry, Jyothimol K P and Soumya P K)

The Ocean water has a pH of approximately 8.0. Since industrial revolution it has dropped from 8.2 to 8.1.Ocean water has become 30% more acidic. By 2100, the pH of ocean could decrease about 7.8, affecting half of the marine life.

Chemistry of acidification :-

Carbon dioxide from the atmosphere dissolves in sea water to form carbonic acid (weak acid). Carbonic acid dissociates to form hydrogen and bicarbonate ions. As the CO2 level increases , the concentration of dissolved hydrogen ions also increases which cause reduction in pH of ocean water and leads to ocean acidification.

Imapcts on shell animals:-

Ocean acidification decreases the amount of carbonate ions which are used to make the calcuim carbonate shells and skeletons by calcifying organisms. Increased Hydrogen ions react with carbonte ions to form bicarbonate ions. Hence the unavailability of carbonate ions in acidified ocean will make it harder for calcifying organisms to build their shells.
Due to this reason many shell animals have weak shells which make them susceptible to predation and less able to survive.

Impacts of animlas without shell:-

Increased ocean acidity inhibits squids ability to transport large amount of oxygen and and inhibit serious activities like hunting,and avoiding predators.
The smell related defence system of clownfish will be disrupted under acidified condition . Due to this reason most clownfish larvae are no longer able to differentiate between predator and non-predator. In the case of damselfish the acidified conditions make them unable to locate appropriate reef habitat which will result in their population declines.

Threat to largest coral reefs:-

If carbon dioxide emmisions reamin unabated, coral reefs could be eroding through natural processes faster due to combined pressures of increasing acidity and global warming.

These coral reefs are probably home to atleast a quarter of the entire biological diversity of the ocean.

Ocean acidification has become a threat to the organisms that are dependent on coral reef for shade, protection from predators ,reproduction,feeding etc.. THE GREAT BARRIER REEF OF AUSTRALIA is the world largest coral reef is currently experiencing degradation due to ocean acidification.

Food web disruption :-

The marine food web is highly interconnected. While some species like shelled organisms are directly affected by ocean acidification, other species are affected indirectly because they eat shelled organisms or live in habitat they create.Ocean acidification threatens the well being of a variety of species & impacts to these species wil likely ripple throughout tge food web.

It will have great impact on marine people that is tourism, health, fisheries etc. all will be affected.

The ecological winners are JELLYFISH, ALGAE AND SEA GRASS.

Conclusion :-

Ocean acidification is expected to have negative overall effects on many marine species. This could alter marine food chains&food supply to humans. Acidification could also decrease storm protection from reefs, tourism opportunities & other benefits that are difficult to value.

Ocean acidification is happening now & will continue as more CO2 is emitted to the atmosphere. Already, the mean ocean PH has decreased by 30% since the industrial revolution & if we keep on emitting CO2 at the same rate PH could decrease by a further 150-200% this century.

Reference :-

1) Elen Barla, 2012, Ocean Acidification, slideshare

2)The National Oceanic & Atmosphere, 2010

3) Bankoku Shinryokan, 2011,IPCC workshop on impacts of ocean acidification on marine Biology & ecosystem, Intergovernmental panel on climate change.

6) Sodium-Ion Battery (Sogna P M, I Year BSc Chemistry, Remya L and Janeena K B)

Sodium ion batteries are the type of rechargeable battery that uses sodium ion as charge carriers. Here we discus about the advantages and disadvantages of sodium ion battery. As per the study Sodium has many more positive sides than lithium ion battery. Sodium ion battery works as same as lithium ion battery the difference is sodium is used in the place of lithium .Sodium ion batteries are the future . as it is more safe and has greater life span . Research are ongoing to produce good reliable sodium ion batteries, as it cost less than lithium it can make a big impacts in the future .

Sodium-ion batteries (SIBs) are currently evolving as a viable substitute for lithium-ion batteries (LIBs) because of the abundant availability and reasonable cost of sodium. As Na is thrice heavier and possesses a lower standard electrochemical potential than Li, it makes the built-in SIBs difficult to outclass the LIBs in terms of energy density, specific capacity, or rate capability. In SIBs, thus far investigation of cathode materials such as polyanionic compounds and layered transition metal oxides has been the center of attention in the ongoing research and very limited emphasis is paid to anodes materials. Generally, assessment of SIB anode materials needs an adequate correlation with the analogue reaction in LIBs. Hence, recent researches are directed toward the advancement of worthy anode materials for SIBs, which can enable the overall reactions at large energy densities with reasonable cost. In the same vein, metal sulfides and their composites with carbon have lately attracted a good deal of attention as high-performance anode to the development of SIBs. Therefore, in this chapter we have systematically discussed the different reaction mechanisms and accounted the development of metal sulfide–based materials and their challenges in SIB anodes.

The sodium-ion battery (NIB or SIB) is a type of rechargeable battery that uses sodium ions (Na+) as its charge carriers. Its working principle and cell construction are almost identical with those of lithium-ion battery (LIB) types, but replace lithium with sodium.

Sodium-ion batteries are a potential alternative to lithium-based battery technologies, largely due to sodium's lower cost and greater availability.[1] Since SIBs use abundant and cheap materials, they are expected to be less expensive than LIBs. The environmental impacts of SIBs are also lower. Although SIBs are heavier and larger than LIBs, they are feasible for stationary energy storage systems where the weight and volume are less crucial.[2]

SIBs received academic and commercial interest in the 2010s and 2020s, largely due to the uneven geographic distribution, high environmental impact and high cost of many of the materials required for lithium-ion batteries. Chief among these are lithium, cobalt, copper and nickel, which are not strictly required for many types of sodium-ion batteries.[3] The largest advantage of sodium-ion batteries is the natural abundance of sodium.[4] Challenges to adoption of SIBs include low energy density and insufficient charge-discharge cycles.[5]

As of 2022, sodium-ion batteries had not become commercially significant, but this might change as CATL, the world's biggest battery manufacturer, announced of starting mass production of SIBs in 2023. The technology is unmentioned in a United States Energy

Information Administration report on battery storage technologies.[6] Furthermore, no electric vehicles use sodium-ion batteries.

Competing battery technologies. Compared to lithium-ion batteries, sodium-ion batteries have somewhat lower cost, slightly lower energy density, better safety characteristics, and similar power delivery characteristics.

Sodium-ion batteries have been identified as appealing alternatives to lithium-ion batteries because they are made from raw materials that are less expensive, more

abundant and less toxic. However, the frequently discussed cost advantage of sodium-ion batteries has, so far, not been examined in detail. In this Perspective, we use the Battery Performance and Cost (BatPaC) model to undertake a cost analysis of the materials for sodium-ion and lithium-ion cells, as well as complete batteries, and determine the effect of exchanging lithium with sodium, as well as the effect of replacing the material used for the anode current collector foil, on the cost. Moreover, we compare the calculated production costs of exemplary sodium-ion and lithium-ion batteries and highlight the most relevant parameters for optimization. Finally, the major raw materials for lithium-ion cathodes are examined in terms of potential supply risks because supply issues may lead to increased costs. Through the use of a scenario-based supply and demand analysis, the risks to the supply of lithium and cobalt are assessed, and implications for battery research are discussed. Overall, we provide a broad and interdisciplinary perspective on modern batteries and future directions for this field, with a focus on sodium-ion batteries.

With its low redox potential, abundant resource, and low cost, metallic sodium is a favorable material for battery anodes. These types of batteries are typically called sodium batteries. The electrolyte materials for sodium batteries can be organic solvents or inorganic solids. Similar to lithium-ion batteries, using organic solvents in sodium batteries may cause serious safety issues such as fire or explosion due to the high flammability of organic solvents. Replacing the flammable organic liquid electrolytes with nonvolatile, nonflammable, dense solid-state electrolytes can fundamentally resolve the safety problems. Materials for solid electrolytes can be crystalline, glassy, ceramic, polymeric, or composite. Beta-alumina has been widely used as the electrolyte material for sodium batteries. Beta-alumina solid electrolyte (BASE) has excellent electrochemical performance (with excellent Na+ conductivity particularly at elevated temperatures, negligible electronic conduction, and a wide electrochemical window) and good chemical and physical properties (good compatibility with electrode materials, good thermal stability, and adequate mechanical strength). These types of batteries are called sodium-beta alumina batteries (NBBs).The cathode materials for NBBs can be either sulfur or transition metal halides. If sulfur is selected as the cathode, this type of NBB is called a sodium-sulfur (Na-S) battery.

Sodium-ion batteries are also safer because they are nonflammable and less susceptible to temperature changes than lithium-ion batteries. The biggest downside is that sodium-ion batteries have a lower energy density than lithium-ion batteries.

7)NANOCATALYSTS IN REMOVAL OF HEAVY METALS (Malavika K M, I Year BSc Chemistry, Remya L and Janeena K B)

A catalyst is a substance that enhances a reaction rate without being consumed. With an introduction to nano-catalvsts and nanoparticles for water and wastewater treatment.Several nanomaterial's of aluminium, iron, titanium dioxide, and silica are utilized as catalysts. The large surface-to-volume ratio, small size, and varied shapes of nanomaterial's are highly beneficial to catalytic reactions. Ultimately, this can aid in improving existing catalytic materials and processes as well as assist withthe developmentof moreinnovative and effective catalysts.

Nanomaterial's are constantly studied, and numerous applications are continuously developed in different fields, such as: catalysis, medicine, sensing, bio-labeling, textile industry, etc.

WHAT ARE NANOCATALYST :

Nano-catalysts are the second class of nanomaterial's used with goodresults in wastewater treatment and it mainly includes metal-oxides and semiconductors. The degradation process of pollutants in wastewater employs using different types on nano-catalvsts such as Electro catalysts, Fenton-based catalysts and catalysts that possess antimicrobial activity.Nano-catalysts in wastewater treatment are focused mainly on inorganic materials such as semiconductors and different metal oxides. Different types of Nano-catalysts are used such as photo catalysts, electro catalysts and Fenton Based catalysts that increase the chemical oxidation of organic pollutants.

In the present are, some nanomaterial's were described for their application in water treatment. Conventional water treatment sometimes is not very effective in removing some pollutants, such as, heavy metals, oil and microorganism.

Some methodologies are used to remove heavy metals from water such as ion exchange, chemical precipitation, membrane filtration, coagulation, biological or electrochemical remediation and adsorption .Among these processes, adsorption demonstrated to be more flexible in design and operation, and can generate treated water with high-quality .

Nano sized metal oxides are important adsorbents which includes iron oxides, manganese oxides, aluminium oxides, and titanium oxides. The size and shape of these materials are important factors to the adsorption performance. The use of iron oxides nanomaterial's in water treatment can occur from two different applications:

(i) using iron nanomaterial as a kind of Nano adsorbent and

(ii) using as a photo catalysts, converting the contaminants to less toxic substances

In conclusion, many nanomaterials have been demonstrating their effectiveness in removing contaminants from water, being a possible alternative for water treatment in the future…

Winners List

Winners list – Students Presentation - Parampara 2022-23

Name of Student	Class	Topic	Rank	Photo
Jyothilakshmi D A	I Year MSc Chemistry	Role of Dust and Gas particles in the Interstellar Spaces	First	
Sogna P M	I Year BSc Chemistry	Sodium-Ion Battery	Second	
Shivani Shivdas Aruketty	III Year BSc Chemistry	Click Chemistry and Bio-Orthogonal Chemistry	Third	

Department of Economics

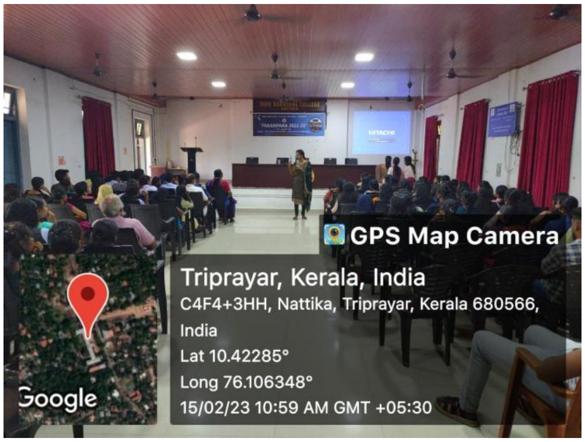
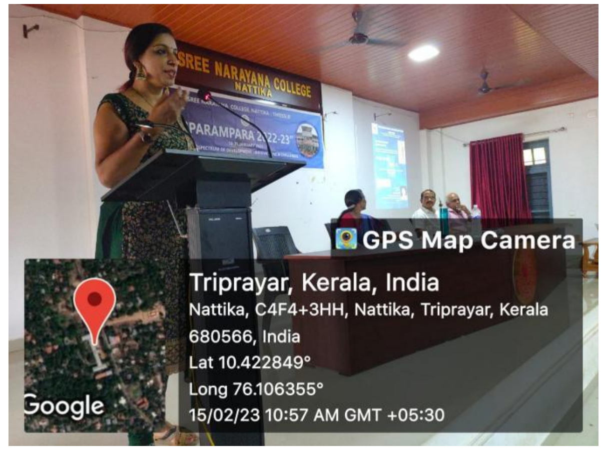
The seminar hall at Sree Narayana College Nattika buzzed with anticipation as students and faculty members gathered for an enlightening discussion on gender neutrality by Dr. Remya R. The event aimed to foster awareness and promote dialogue on gender equality within the academic community.

The seminar began with a warm welcome speech by Mr. Sreelatha, who extended a heartfelt greeting to all attendees. He emphasized the importance of creating inclusive spaces where individuals of all genders feel respected and valued. Mrs. Sreelatha set the tone for the seminar by highlighting the significance of addressing gender issues in contemporary society.

Dr. Sankaran K K, the IQAC coordinator, then took the stage to felicitate Dr. Remya R for her outstanding contributions to the discourse on gender equality. He commended her dedication to promoting inclusivity and emphasized the college's commitment to fostering an environment that values diversity and equality. Following the felicitation, Dr. Remya R delivered an engaging and thought-provoking speech on gender neutrality. She provided insights into the complexities of gender identity and discussed the challenges faced by individuals who do not conform to traditional gender norms. Dr. Remya underscored the importance of advocating for gender equality and creating inclusive communities where everyone feels respected and accepted.

The seminar concluded with a vote of thanks by Mrs. Vidya A, who expressed gratitude to Dr. Remya R for her enlightening discourse. Mrs. Vidya also thanked all participants for their active engagement and contributions to the seminar. She reiterated the importance of continuing conversations on gender equality and encouraged attendees to apply the knowledge gained to promote inclusivity within the college and beyond.

In summary, the seminar on gender neutrality by Dr. Remya R at Sree Narayana College Nattika provided a platform for meaningful dialogue and reflection on gender issues. Through insightful speeches, expressions of gratitude, and calls to action, the event inspired attendees to champion inclusivity and equality in their academic and social spheres.

Students Presentations

1) GENDER DISPARITY IN THIRD WORLD TECHNOLOGICAL SOCIAL AND ECONOMIC DEVELOPMENT(ATHULYA P S 1st Year MA ECONOMICS)

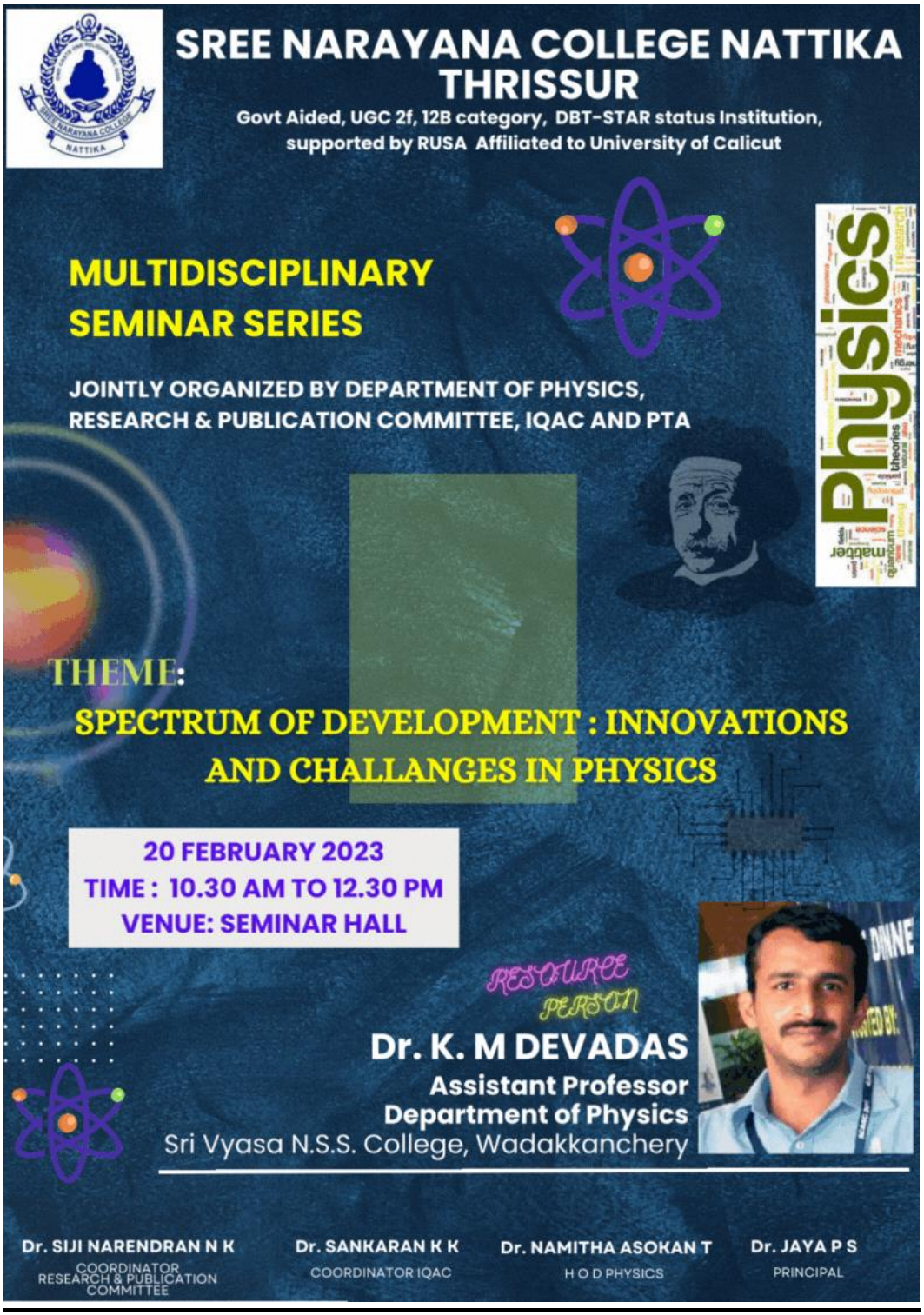
Third world countries have made remarkable progress in improving the welfare of their people in the past decades. People are living longer, and the death rate and illiteracy rate have dropped significantly. However, the gains from progress are not equally beneficial for the sexes. Women and girls in Third World societies have less access to technology, education, and technical training than men and boys. In fields such as engineering and science the importance of women is much less than that of men and boys.Third world countries are finding reasons why women stay away from these fields and are preparing ways to bring them into these fields. Construction, industry, modern technological developments in the industrial sector have opened various employment opportunities for women in third world countries.

2) ENVIRONMENT AND ECONOMIC DEVELOPMENT (SREELEKHA P P 1st Year MA Economics)

Economic development is very much essential for the growth of a nation. Environment plays an important role in the economic development of a nation. A large part of the development of a nation is related to production in different sectors. The environment and the economy are very closely related. The Environment provides the resources for production and consumption in the

economy and receives the waste from these activities. Natural resources are limited. So adverse usage of natural resources has negative effect on Environment. Environment means the surroundings or conditions in which a person, animal or plant lives or operate. Maintaining a proper balance between environment and economic growth will keep on running the cycle of growth whose benefits will be not only is limited to the current generation but also for the future generations.

Department of Physics



In connection with “Parampara 2022-23”, the Post graduate department of Physics organised a talk on innovation area and power point presentation by graduates and post graduates students of physics on related area. We conducted the program on two sessions wherein the first session was a talk by a guest and the second one by the power point competition of students.

The annual seminar series “Parampara 2022-23 “of Post Graduate and Research Department of Physics Sree Narayana College Nattika was conducted on 20th February 2023 in the seminar hall at 10.30 am. The welcome speech was delivered by Dr. Namitha Asokan T (HOD, Department of Physics) and felicitated by Dr. K K Sankaran. (IQAC Coordinator) and Dr. Jaya P S (Principal). Resource person of the event was Dr. K M Devadas (Assistant Professor, Sri Vyasa NSS College Wadakkanchery). After the formal address, the session commenced with the keynote address by Dr K M Devadas about the topic “Spectrum of Development: Innovations and Challenges in Physics”. During the session, he covered the briefly about the history and development of physics throughvarious inventions. He also pointed out few recent innovations in physics such as James Web Telescope, LHC etc. The topic is very informative for students. The speaker also motivated students about the new era in the research area of Physics.. The session ended with the vote of thanks by Miss. Anusree M Nathan (Final year BSc Physics Student).The seminar session was attended by all the UG and PG students of our department and faculty members from various departments at Sree Narayana College, Nattika.

Second Session conducted on the same day at the Physics Smart classroom. The Program started at 1 Pm with the ppt competition which was held among the students of the both UG and PG students of Physics department. The session commenced with the welcome speech by Dr. Siji Narendran N K, Assistant Professor of Department of Physics (program coordinator). There were six members for the competition, Three from first year MSc, Two from II year M.Sc; and one from each II B.Sc Physics. Each candidate was given a time limit of 10 minutes for seminar presentation and five minutes for questioning session. The competition was juddged by Smt. Jyothi B (Department of Chemistry), and Dr. Devanarayan V. P (Department of Physics). The winner of the seminar competition was Miss. Darsana Das of I M.Sc, the second position was backed by Mr. Sreerag P S of Second Year MSc Physics and the third position was for Hitha Asokan of I MSc Physics.


SREE NARAYANA COLLEGE
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GPS Map Camera
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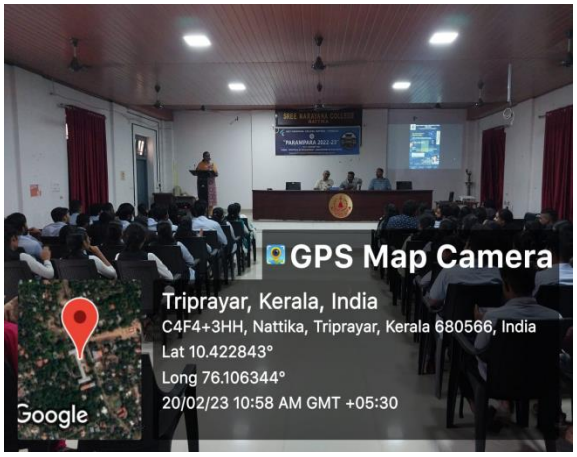
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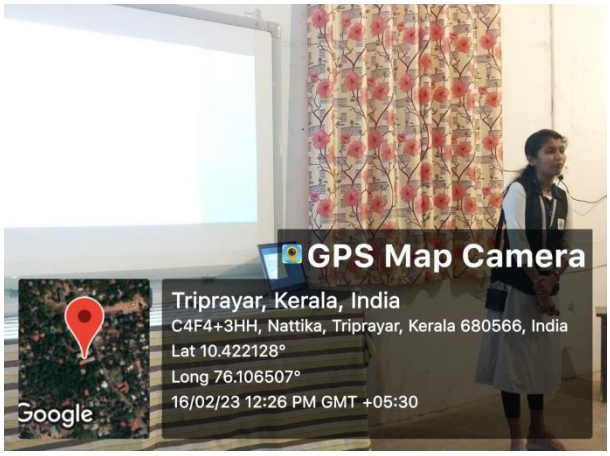
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What is meant by optical communication ?
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Winners list – Students Presentation - Parampara 2022-23

Name of Student	Class	Topic	Rank	Photo
Darshana K M	**I Year MSc Physics**	**Innovations and Reliability in the Field of Nuclear Physics**	**First**	
Sreerag P S	**II Year MSc Physics**	**Silicon Industry – India's Potential and Challenges**	**Second**	
Hitha Asokan	**I Year MSc Physics**	**Charge Your Future: New Dimensions and Innovations in Energy Storage**	**Third**	

1) **Innovations and Reliability in the Field of Nuclear Physics (Darshana K M, I Year MSc Physics**)

Nuclear physics stands at the forefront of scientific innovation, offering insights into the fundamental forces and interactions that govern the universe. From unlocking the mysteries of the atomic nucleus to harnessing nuclear energy for practical applications, advancements in nuclear physics have revolutionized our understanding of the natural world and transformed

various industries. In this article, we explore the latest innovations and the unwavering reliability achieved in the field of nuclear physics.

Nuclear Fusion: Unlocking the Power of the Sun - Nuclear fusion, the process that powers the sun and stars, holds the promise of clean, abundant energy for humanity's future. While achieving controlled fusion reactions on Earth remains a formidable challenge, researchers and engineers worldwide are making significant strides towards this goal. Projects such as the International Thermonuclear Experimental Reactor (ITER) aim to demonstrate the feasibility of fusion power on a commercial scale. By harnessing the immense power of nuclear fusion, scientists seek to address the world's energy needs while mitigating the environmental impacts associated with traditional fossil fuel-based energy sources.

Advanced Reactor Technologies: Enhancing Safety and Efficiency - In the realm of nuclear fission, advanced reactor technologies are driving innovation in reactor design, safety, and efficiency. Generation IV reactors, characterized by their advanced passive safety features and reduced proliferation risks, offer a glimpse into the future of nuclear energy. Molten salt reactors, high-temperature gas-cooled reactors, and small modular reactors represent promising avenues for enhancing the reliability and sustainability of nuclear power generation. These innovative reactor designs prioritize safety, minimize nuclear waste generation, and enable flexible deployment options to meet diverse energy demands.

Nuclear Astrophysics: Exploring the Cosmos - Nuclear physics plays a crucial role in understanding the origin, evolution, and composition of celestial bodies and the universe itself. Nuclear astrophysics explores the nuclear reactions that power stars, drive stellar evolution, and produce the elements essential for life. Through experimental and theoretical studies, scientists unravel the mysteries of supernovae, neutron stars, and the synthesis of heavy elements in cosmic environments. Nuclear astrophysics not only enriches our understanding of the cosmos but also provides valuable insights into the fundamental properties of matter and the forces that govern the universe.

Particle Accelerators: Probing the Subatomic Realm - Particle accelerators serve as indispensable tools for nuclear physics research, enabling scientists to study the properties of

subatomic particles and the fundamental forces of nature. From the Large Hadron Collider (LHC) to cutting-edge facilities like the Facility for Rare Isotope Beams (FRIB), particle accelerators push the boundaries of scientific discovery and technological innovation. These accelerators facilitate experiments in nuclear structure, particle interactions, and cosmology, shedding light on the fundamental building blocks of matter and the origins of the universe.

Reliability and Safety: Ensuring Public Confidence - Innovation in nuclear physics is accompanied by a steadfast commitment to safety, reliability, and regulatory compliance. Stringent safety standards, rigorous quality control measures, and continuous monitoring and maintenance protocols are integral to ensuring the safe operation of nuclear facilities and mitigating potential risks. Moreover, advancements in reactor design, materials science, and computational modeling contribute to enhancing the resilience and robustness of nuclear infrastructure. By prioritizing safety and reliability, the nuclear industry fosters public confidence and underscores its commitment to responsible stewardship of nuclear technology.

In conclusion, the field of nuclear physics continues to push the boundaries of scientific knowledge and technological innovation. From the quest for controlled nuclear fusion to the exploration of the cosmos and the development of advanced reactor technologies, nuclear physics holds immense promise for addressing global energy challenges and unraveling the mysteries of the universe. Through sustained investment in research, collaboration, and education, we can harness the transformative potential of nuclear physics to build a sustainable and prosperous future for generations to come.

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2) Silicon Industry – India's Potential and Challenges (Sreerag P S, II Year MSc Physics)

The silicon industry holds immense potential for India's economic growth and technological advancement. Silicon, a crucial component in semiconductor manufacturing and electronics production, underpins the development of cutting-edge technologies such as smartphones, computers, and renewable energy systems. India, with its skilled workforce, growing consumer market, and emphasis on digitalization, is poised to become a key player in the global silicon industry.

India's potential in the silicon industry is underscored by its strong presence in semiconductor design, software development, and IT services. With a burgeoning startup ecosystem and government initiatives like the Make in India program, India aims to bolster domestic manufacturing capabilities and reduce reliance on imports of silicon and semiconductor components.

Furthermore, India's focus on renewable energy and electric mobility presents opportunities for silicon-based technologies, particularly in the production of solar cells, batteries, and electric vehicles. As the world transitions towards sustainable energy solutions, India has the potential to emerge as a leading manufacturer and exporter of silicon-based renewable energy technologies.

However, India's silicon industry also faces several challenges that must be addressed to realize its full potential. Limited availability of high-purity silicon, inadequate infrastructure, and complex regulatory frameworks pose hurdles to domestic silicon production and manufacturing competitiveness. Additionally, the global semiconductor supply chain disruptions highlighted

the vulnerability of India's electronics industry to external shocks, necessitating strategic investments in domestic capacity-building and resilience measures.

Moreover, intellectual property rights issues, skilled labor shortages, and the need for continuous innovation present ongoing challenges for India's silicon industry to remain globally competitive. Collaborative efforts between government, industry, academia, and research institutions are essential to address these challenges and foster a conducive environment for silicon industry growth and innovation.

In conclusion, India's silicon industry holds significant promise as a driver of economic growth, innovation, and technological progress. By leveraging its strengths in research and development, fostering an enabling ecosystem for entrepreneurship, and addressing key challenges, India can position itself as a leading player in the global silicon landscape, contributing to sustainable development and prosperity.

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6) Charge Your Future: New Dimensions and Innovations in Energy Storage (Hitha Asokan I Year MSc Physics)

In our quest for sustainable energy solutions, the role of energy storage has become increasingly crucial. As the world transitions towards renewable energy sources, efficient and scalable energy storage systems are essential for managing fluctuations in supply and demand, optimizing grid operations, and ensuring reliable power delivery. In this article, we explore the latest innovations and emerging trends in energy storage that are reshaping the future of our energy landscape.

1. Lithium-Ion Batteries: Driving the Energy Revolution - Lithium-ion batteries have revolutionized the way we store and utilize energy. With their high energy density, long cycle life, and rapid charge/discharge capabilities, lithium-ion batteries power everything from smartphones and laptops to electric vehicles and grid-scale storage systems. Manufacturers are continually refining lithium-ion technology, pushing the boundaries of performance while driving down costs. The widespread adoption of electric vehicles and the integration of renewable energy sources into the grid are driving the demand for lithium-ion batteries, making them a cornerstone of our energy future.

Solid-State Batteries: Pioneering the Next Generation - Solid-state batteries represent a promising advancement in energy storage technology. By replacing the liquid electrolyte found in traditional lithium-ion batteries with a solid electrolyte, solid-state batteries offer enhanced safety, higher energy density, and longer lifespan. Research and development efforts in solid-state battery technology are underway worldwide, with companies and research institutions striving to overcome technical challenges and bring this technology to market. Solid-state batteries hold the potential to revolutionize energy storage, enabling new applications and accelerating the transition to a low-carbon economy.

Redox Flow Batteries: Scaling Up for Grid Integration - Grid-scale energy storage solutions are essential for balancing supply and demand, integrating renewable energy sources, and enhancing grid stability. Redox flow batteries (RFBs) have emerged as a promising option for large-scale energy storage applications. Unlike conventional batteries, which store energy in electrode materials, RFBs store energy in external tanks of electrolyte solution. This design allows for flexible scaling of energy storage capacity, making RFBs well-suited for grid-scale deployments and integration with renewable energy sources. Research and development efforts

in RFB technology are focused on improving efficiency, reducing costs, and enhancing performance for widespread adoption.

Advanced Materials and Nanotechnology - Advancements in material science and nanotechnology are driving innovation in energy storage technology. Researchers are exploring novel materials and manufacturing techniques to improve the performance and efficiency of batteries and supercapacitors. From silicon-based anodes to graphene-enhanced electrodes, these innovations hold the promise of higher energy densities, faster charging rates, and longer cycle life. By harnessing the unique properties of nanomaterials, scientists aim to overcome existing limitations in energy storage technology and unlock new possibilities for sustainable energy storage solutions.

Integration with Renewable Energy - Energy storage plays a pivotal role in unlocking the full potential of renewable energy sources such as solar and wind power. By storing excess energy during periods of high generation and discharging it during periods of high demand, energy storage systems help to balance supply and demand, optimize grid operations, and maximize the utilization of renewable resources. Furthermore, energy storage enables the integration of distributed energy resources, empowering consumers to generate, store, and manage their own energy supply. As renewable energy penetration continues to grow, the importance of energy storage as a complementary technology will only increase.

In conclusion, energy storage represents a linchpin in the transition towards a sustainable and resilient energy future. From lithium-ion batteries to solid-state batteries, redox flow batteries, and advanced materials, innovation in energy storage technology is driving unprecedented advancements in efficiency, reliability, and scalability. By embracing these new dimensions and innovations in energy storage, we can accelerate the transition to a cleaner, more sustainable energy system.

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VALEDICTORY SESSION

MARCH 29, 2023

DR. SANDHYA SUKUMARAN

Principal Scientist

Central Marine Fisheries Research Institute

SREE NARAYANA COLLEGE NATTIKA THRISSUR

Govt Aided, UGC 2f, 12B category, DBT-STAR status Institution, supported by RUSA Affiliated to University of Calicut

THE VALEDICTORY FUNCTION

MULTIDISCIPLINARY SEMINAR SERIES

JOINTLY ORGANIZED BY
RESEARCH & PUBLICATION COMMITTEE, IQAC AND PTA

THEME:

SPECTRUM OF DEVELOPMENT : INNOVATIONS AND CHALLANGES

29 MARCH 2023
TIME : 11.30 AM
VENUE: SEMINAR HALL

Chief guest

Dr. Sandhya Sukumaran
Principal Scientist
CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
INDIAN COUNCIL OF AGRICULTURAL RESEARCH
KOCHI- 682018

Dr. SIJI NARENDRAN N K
COORDINATOR R P C

Dr. SANKARAN K K
COORDINATOR IQAC

Dr. JAYA P S
PRINCIPAL

Event Schedule

29 MARCH 2023
WEDNESDAY

11.30 AM – 1.00 PM

PRAYER

WELCOME SPEECH : Ms. Babitha B
(MEMBER RESEARCH & PUBLICATION COMMITTEE)

PRESIDENTIAL ADDRESS : DR. P. S. JAYA
PRINCIPAL (SREE NARAYANA COLLEGE NATTIKA)

INAUGURATION BY LIGHTING THE LAMP
Dr. Sandhya Sukumaran
Principal Scientist
CENTRAL MARINE FISHERIES RESEARCH INSTITUTE

KEYNOTE ADDRESS : Dr. Sandhya Sukumaran
Principal Scientist
CENTRAL MARINE FISHERIES RESEARCH INSTITUTE

PRIZE DISTRIBUTION : CHIEF GUEST

FELICITATION : DR. C T ANITHA
(HOD OF BOTANY)
: DR. SANKARAN K K
(IQAC COORDINATOR)

VOTE OF THANKS : DR SIJI NARENDRAN N K
COORDINATOR RESEARCH & PUBLICATION COMMITTEE)

NATIONAL ANTHEM

The validatory function of Parmpara 2022-23 at Sree Narayana College Nattika held on March 29, 2023, was a resounding success. The event commenced with a warm welcome extended by Ms. Babitha B, a valued member of the Research and Publication Committee. Dr. Jaya P S, the esteemed Principal of Sree Narayana College Nattika, delivered an insightful Presidential Address, setting the tone for the event.

The highlight of the occasion was the keynote address delivered by Dr. Sandhya Sukumaran, the Principal Scientist at CMFRI. The inauguration, marked by the lighting of the lamp, symbolized the enlightenment and progressive spirit embraced by the institution.

Dr. C T Anitha, the Head of the Botany Department, was felicitated for her remarkable contributions to academia and the institution. Her acknowledgment served as a testament to her dedication and expertise.

The event concluded with a gracious Vote of Thanks delivered by Dr. Siji Narendran N K, the Coordinator of the Research and Publication Committee, expressing gratitude to all participants and attendees for their invaluable contributions.

The function concluded on a patriotic note with the rendition of the National Anthem, resonating with the spirit of unity and pride.

About the chief guest

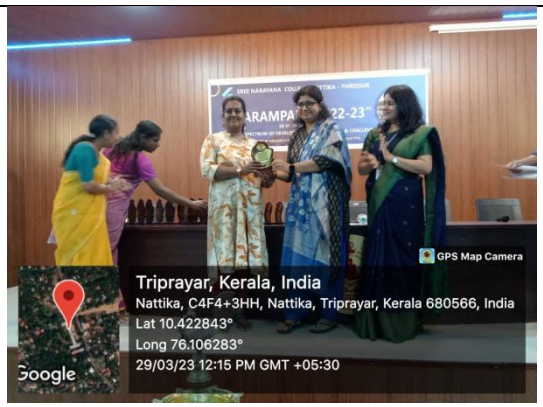
Dr. Sandhya Sukumaran is a distinguished Principal Scientist at the Central Marine Fisheries Research Institute (CMFRI). With a deep-rooted commitment to marine research, Dr. Sukumaran has contributed significantly to the understanding and sustainable management of marine ecosystems, particularly focusing on fisheries and aquaculture.

Her research spans various aspects of marine biology, including the ecology of marine organisms, conservation strategies, and the socio-economic dimensions of fisheries. Dr. Sukumaran's work is characterized by its interdisciplinary nature, bridging the gap between scientific research and practical application in fisheries management.

Throughout her career, Dr. Sukumaran has been actively involved in initiatives aimed at the conservation of marine biodiversity and the promotion of sustainable fishing practices. Her expertise and leadership have been instrumental in guiding research projects and policy interventions that address the challenges facing marine ecosystems and coastal communities.

As a Principal Scientist at CMFRI, Dr. Sandhya Sukumaran plays a pivotal role in shaping the institute's research agenda and mentoring the next generation of marine scientists. Her dedication to advancing knowledge in marine science and her advocacy for sustainable marine resource management continue to inspire colleagues and stakeholders alike.

SOME GLIMPSES ON THE PROGRAMME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