JSS MAHAVIDYAPEETHA
JSS COLLEGE OF ARTS, COMMERCE & SCIENCE
(An Autonomous College of University of Mysore)
OOTY ROAD, MYSURU-570 025 KARNATAKA
Re-accredited by NAAC with 'A+' grade (CGPA 3.30)
Recognized by UGC as "College with Potential for Excellence"

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Date: 05-04-2025

Report of
One Day National Seminar and Chem-Fair held
on
05 April 2025

One day National Seminar and Chem-Fair was organized by Department of Chemistry (UG & PG) in association with IQAC.

The programme was inaugurated by Senior Prof. K. N. Mohana, Chairman, DOS in Chemistry, University of Mysore, Mysuru, and delivered keynote address. The Seminar comprised of **Three technical** and **5 different events (for UG & PG Students)**.

Prof. Mohana stressed that the present generation must not lose interest in studying fundamental science subjects such as Chemistry, which continues to lead scientific revolutions and innovations. He pointed out that chemists are at the forefront of breakthrough developments, shaping the future of scientific progress. Highlighting a recent innovation, Prof. Mohana mentioned the development of a nuclear battery by a group of researchers from a South Korean institution—a testament to the kind of groundbreaking work being done globally. He expressed optimism about India's potential, noting that the country has the landscape, resources, and manpower needed for emerging innovations. However, he voiced concern over the declining number of students opting for basic science programmes over the past five years, calling it an alarming trend that needs urgent attention. To reverse this, he proposed a multi-faceted approach that includes enhancement of funding and creation of resources for scientific education and research, incentivizing eminent scientists and researchers, and strengthening collaborations between industry and academia. He emphasized the need for increased investments in building state-of-the-art infrastructure, the formulation and implementation of robust STEM policies, and the promotion of interdisciplinary research with clear, achievable goals. Additionally, he advocated for fostering global partnerships, integrating modern technologies into research

practices, actively engaging the public with scientific institutions and academia, and tackling climate change through investments in renewable energy, green technologies, and carbon emission reduction strategies.

In his presidential address, Prof. B.V. Sambashivaiah, Chief Executive of the College, highlighted that over the past century, chemistry has undergone remarkable advancements, significantly influencing healthcare, industry, and environmental sustainability. He noted that breakthroughs in quantum mechanics, polymer chemistry, nanotechnology, and computational methods have propelled the field into new frontiers. Advanced analytical techniques such as HPLC, GC-MS, and NMR have transformed chemical analysis, while innovations in organic, inorganic, and physical chemistry have greatly contributed to materials science, catalysis, and drug development. Prof. Sambashivaiah also acknowledged the foundational contributions of eminent chemists like Robert Burns Woodward, Linus Pauling, and E.J. Corey. He emphasized that modern advancements in artificial intelligence, green chemistry, and interdisciplinary research are now driving sustainable innovations and reshaping the landscape of scientific discovery. Prof. Sambashivaiah also commended the Chem-Fair held alongside the seminar as a dynamic and engaging platform for student participation. He appreciated the efforts of the

organizing departments in encouraging students through various chemistry-themed competitions such as quizzes, oration, pick-and-speak and periodic table filling. These events, he noted, not only enhanced critical thinking and communication skills but also fostered collaborative and experiential learning. The fair served as an avenue for young minds to explore the wonders of chemistry through hands-on experiments and creative displays. By inspiring scientific curiosity and passion among students, such initiatives, he said, play a vital role in nurturing future scientists and innovators in the field of chemical science.

The Principal of the College Dr. M. Prabhu welcomed. Dr. Mallesha L, Convener and Dr. N. Rajendraprasad, IQAC Coordinator, Dr. Vijendra Kumar N., Dr. H.V. Kavya were present. Ms. Shubhashree of MSc Chemistry compered. Mrs. Pushpa proposed vote of thanks.

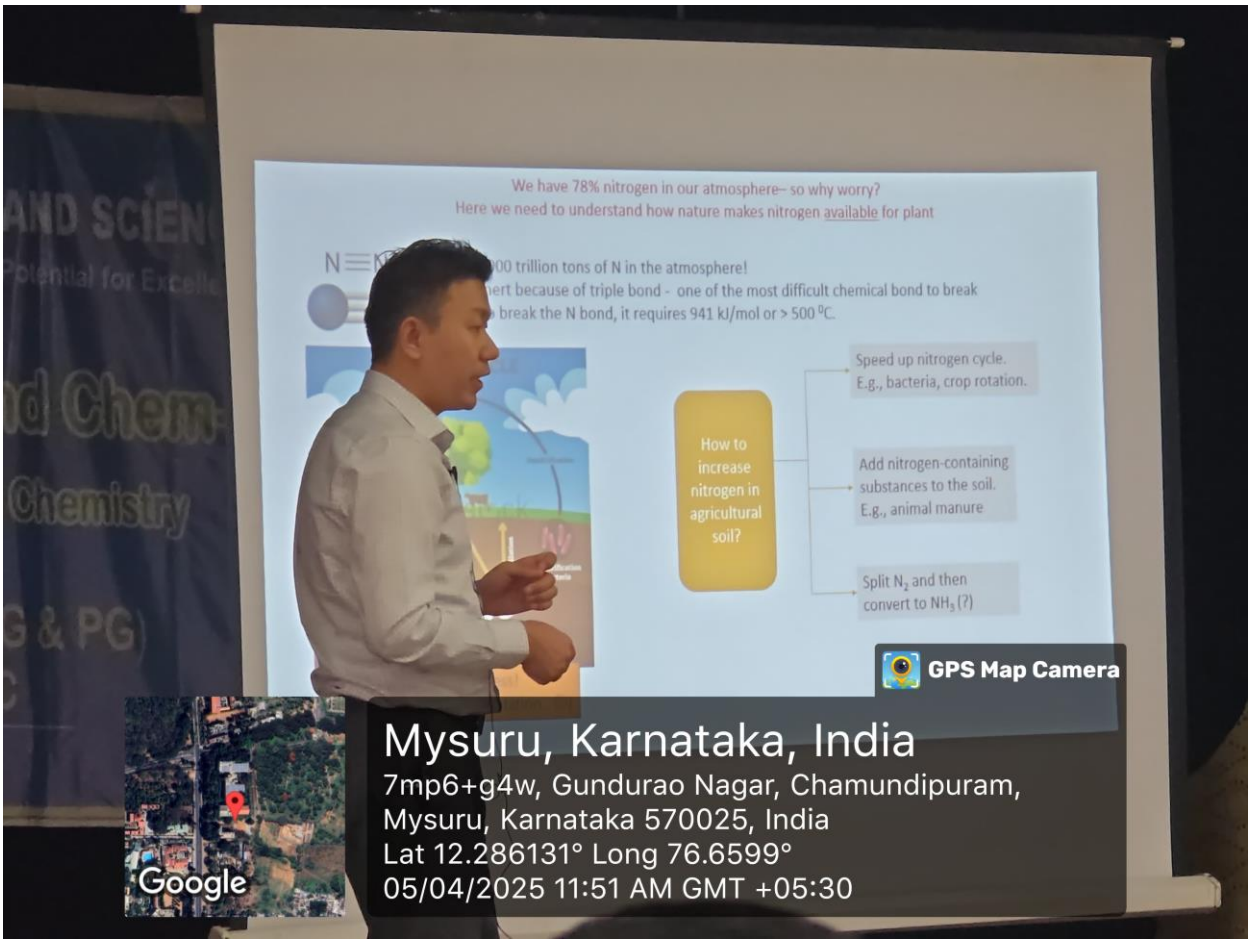
A total of 25 teachers and 208 students from different parts of the country took part in the Seminar and Chem-Fair. Dr. Kalsang Tharpa from Shell, Bengaluru, Dr. R Suhas, from CFTRI and Dr. Sharath S V from IISER Pune has delivered insightful talks in the seminar. The best performers of Chem-Fair events have been felicitated with cash prizes.

In the First technical session, **Dr. KALSANG THARPA, Researcher, Shell Technology Center, Bengaluru** gave talk on the topic "**The Chemist's Story: Mastering Nitrogen Fixation**".

Dr. Kalsang Tharpa reminded the students that every question is valuable, no matter how big or small. Some of the most impactful discoveries started with questions that seemed trivial at the time. What if nitrogen could be fixed naturally by plants? This question led to advances in agriculture, benefiting billions.

The story of nitrogen fixation in chemistry is a fascinating tale of discovery, collaboration, and scientific breakthroughs that has played a crucial role in shaping modern agriculture, ecology, and industry. In the early 19th century, chemists began to realize the importance of nitrogen for life. Nitrogen is a key element in amino acids, proteins, and DNA, yet it was largely unavailable to plants in its natural, gaseous form (N_2), which makes up about 78% of Earth's atmosphere. For plants and animals to thrive, nitrogen needed to be converted into more accessible forms, like ammonia (NH_3), nitrates (NO_3^-), or ammonium (NH_4^+). Justus von Liebig and other chemists began to explore the importance of nitrogen for plants, hypothesizing that nitrogen was absorbed from the soil in the form of nitrates and ammonium salts. Fritz Haber & Carl Bosch developed a method for synthesizing ammonia from nitrogen and hydrogen gas

under high temperature and pressure, using an iron catalyst. This process made it possible to produce ammonia fertilizers on an industrial scale, revolutionizing agriculture by increasing crop yields. Franz M. M. Moser and others helped identify the biochemical pathways through which nitrogenase catalyze the conversion of nitrogen gas (N_2) into ammonia (NH_3) in the anaerobic conditions within bacteria.



Dr. R SUHAS, Senior Scientist, CSIR-CFTRI Mysuru, presented his enlighten lecture on "**Chemistry as a potential choice for sustainable and rewarding career**" in the Second session. Dr. Suhas said that, Chemistry can be an excellent choice for a sustainable and rewarding career, offering numerous opportunities in various industries and addressing some of the world's most pressing challenges.

Dr. Suhas stressed on the Potential Career Paths in the field of Chemistry like:

Research Scientist: Working in academic, government, or industry labs to explore new chemical processes or materials.

Pharmaceutical Chemist: Developing drugs and therapies to improve human health.

Environmental Chemist: Working to address environmental pollution and develop sustainable practices.

Industrial Chemist: Overseeing the production of chemicals, ensuring they meet safety, regulatory, and environmental standards.

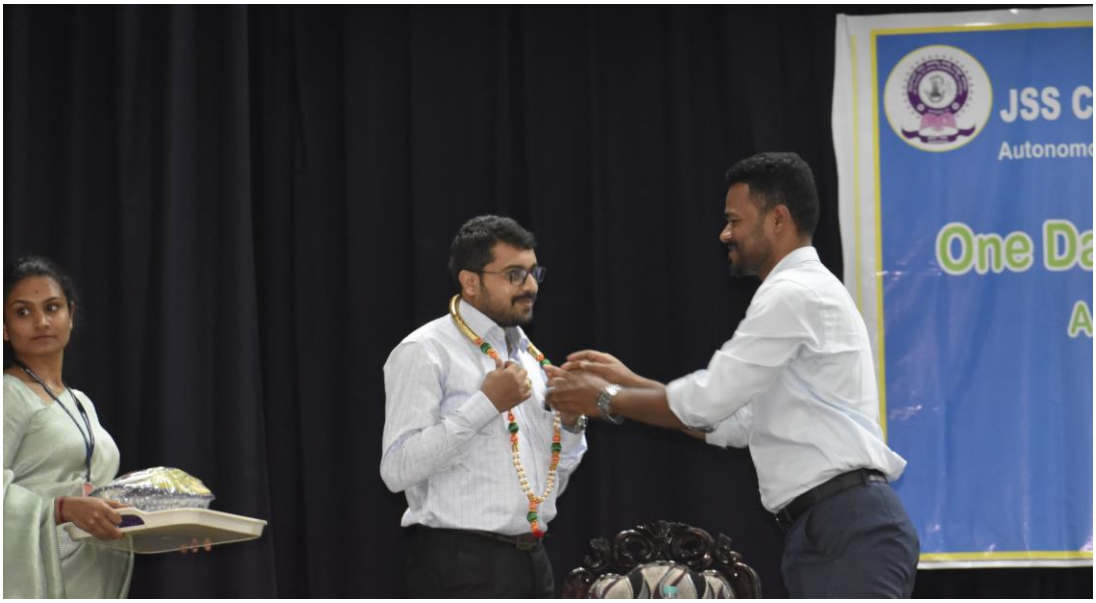
Forensic Chemist: Analyzing substances in criminal investigations.

Teachers: Building the budding Chemists by educating the future Chemists.

Chemical Engineer: Applying chemical principles to optimize industrial processes and design systems for large-scale manufacturing.

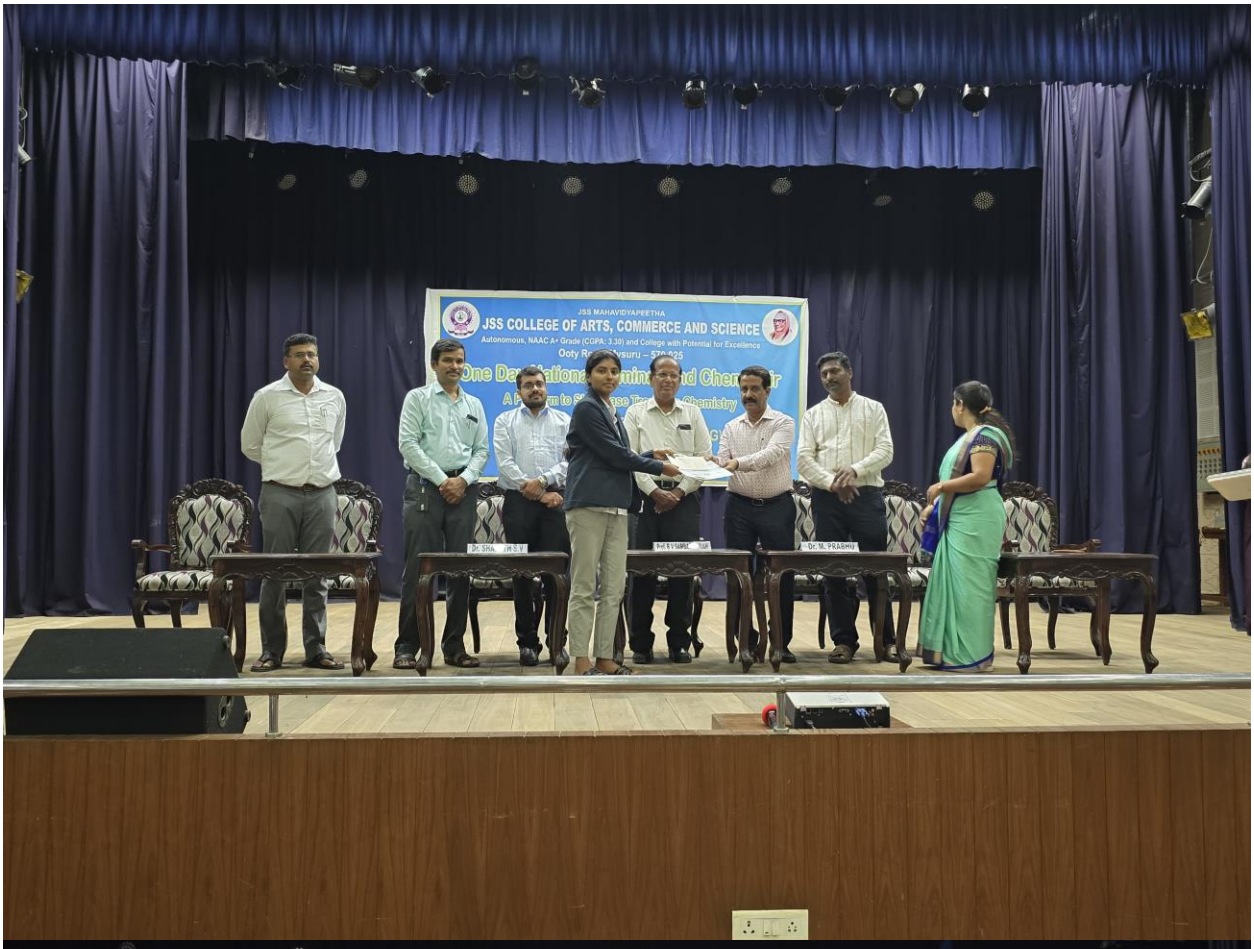
Finally Dr. Suhas concluded that chemistry is an essential field for a sustainable and rewarding future.

In the Third technical session, **Dr. SHARATH S. V., Researcher, IISER, Pune, Maharashtra**, gave talk on the topic "**Chemistry of Carbohydrates**". His talk was really informative for researches and students.



Initially Dr. Sharath gave a basic introduction of of carbohydrates. Carbohydrates are one of the four major classes of biomolecules (along with proteins, lipids, and nucleic acids) and play a central role in many biological processes. They are composed primarily of carbon, hydrogen, and oxygen atoms and their basic building blocks are simple sugars (monosaccharides). The chemistry of carbohydrates encompasses their structure, classification, and biological functions. Let's dive deeper into the chemistry of carbohydrates. The chemistry of carbohydrates is integral to life, with these molecules acting as energy sources, structural elements, and key players in cellular recognition and signaling. The diversity in carbohydrate structure, from simple sugars to complex polysaccharides, reflects their versatile biological roles. Understanding carbohydrate chemistry provides insights into nutrition, disease mechanisms, and a range of biological functions that sustain life.

Sl. No.	Event Name	1st Prize	2nd Prize	3rd Prize
1	**Quiz**	Mr. Kiran R M.Sc. Chamaraja Nagara University, Chamaraja Nagara	Ms. Sobiya Naaz B.Sc. , JSSCACS, Mysuru	Ms. Jahnavi, B.Sc., Bishop College, Trichy, Tamilnadu
2	**Building Periodic Table**	Pradeep C.U. M.Sc., JSSCACS, Mysuru	Mr. Nikhilesh M. JSSCACS, Mysuru	
3	**ChemRangoli**	Ms. Sindhu M. M.Sc., Davangere University Davangere	Ms. Sangeetha M. MMK & SDM College, Mysuru	
4	**Pick and Speak**	Mr. Kishore K. M.Sc., JSSCACS, Mysuru	Ms. KeerthanaM.N. B.Sc., JSS, Nanjangud	
5	**Structural Elucidation**	Mr. Shankar Raj S. M.Sc., JSSCACS, Mysuru	Ms. manasaK.J. M.Sc., JSSCACS, Mysuru	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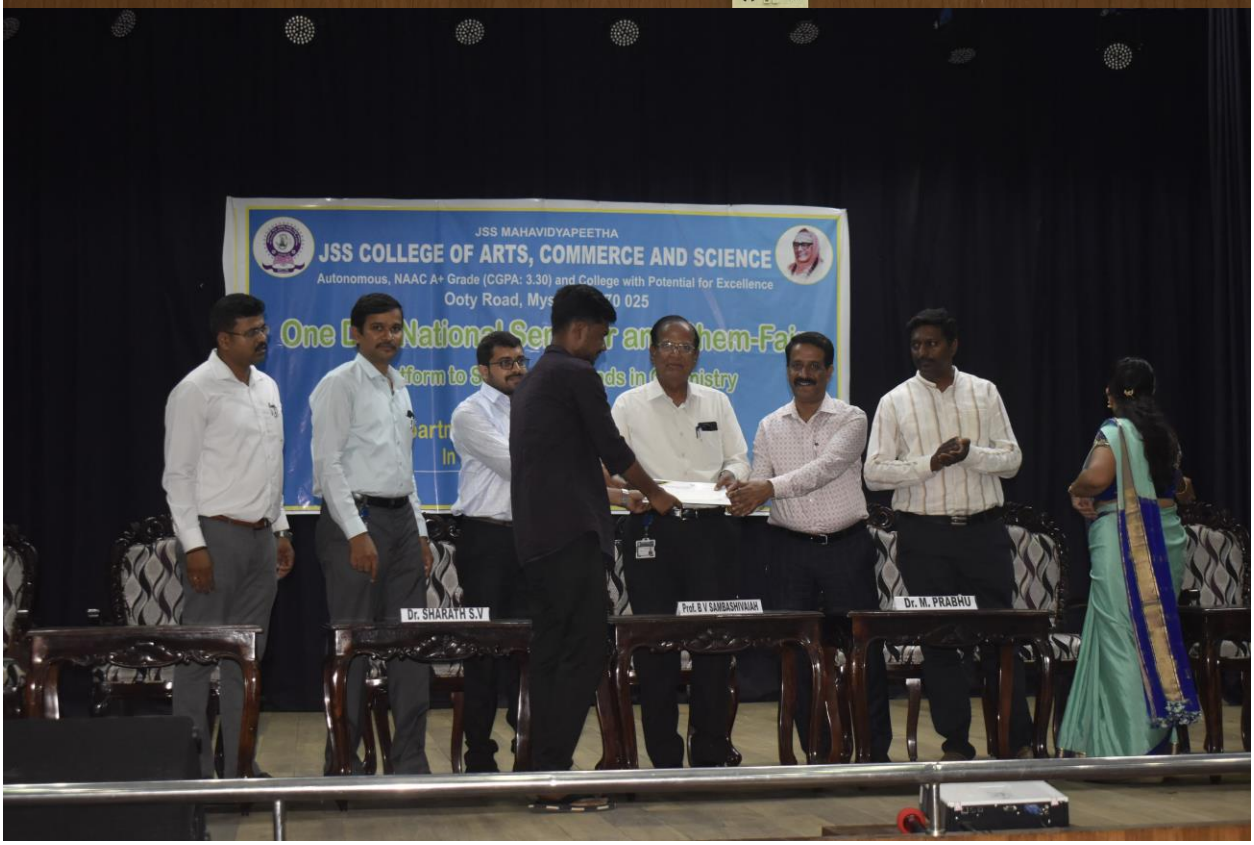
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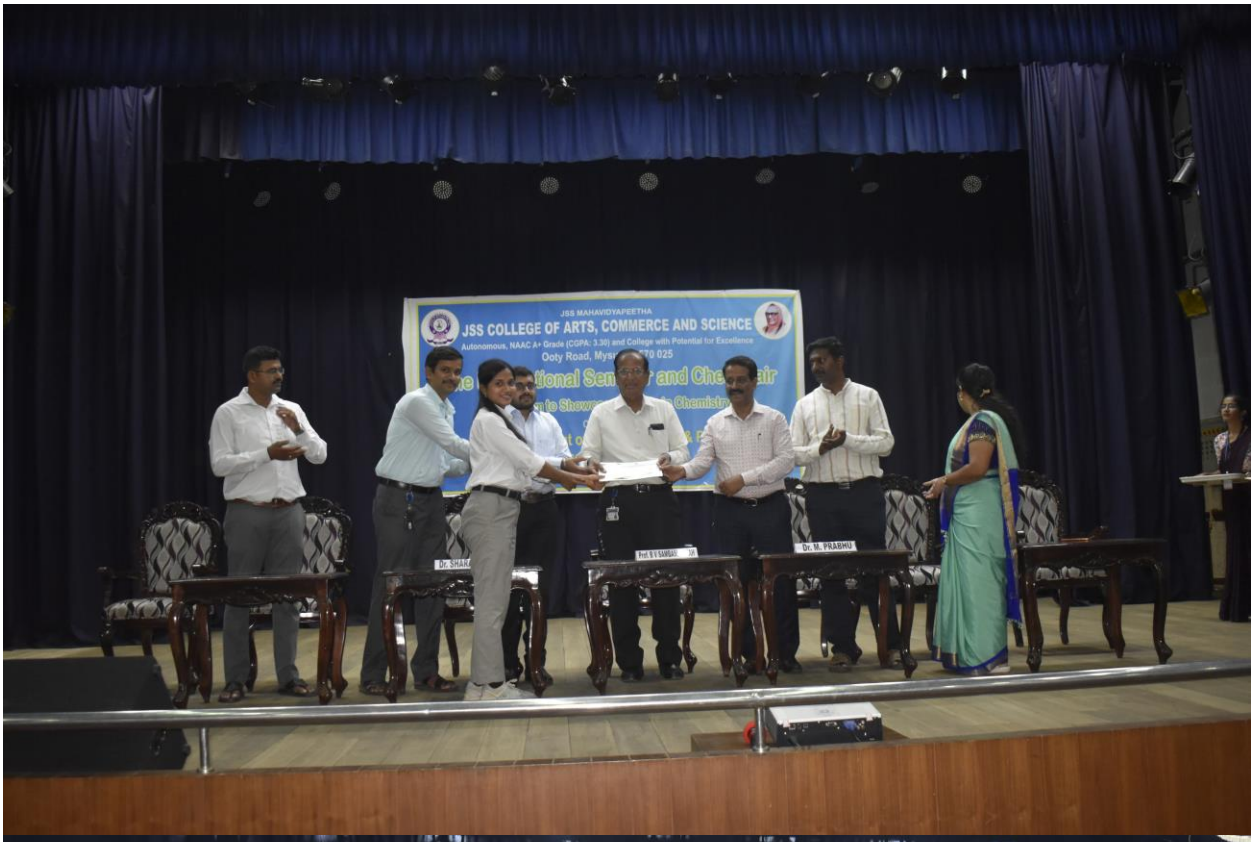
Dr. SHARATH S.V
Prof. B V SAMBASHIVAIAH
Dr. M. PRABHU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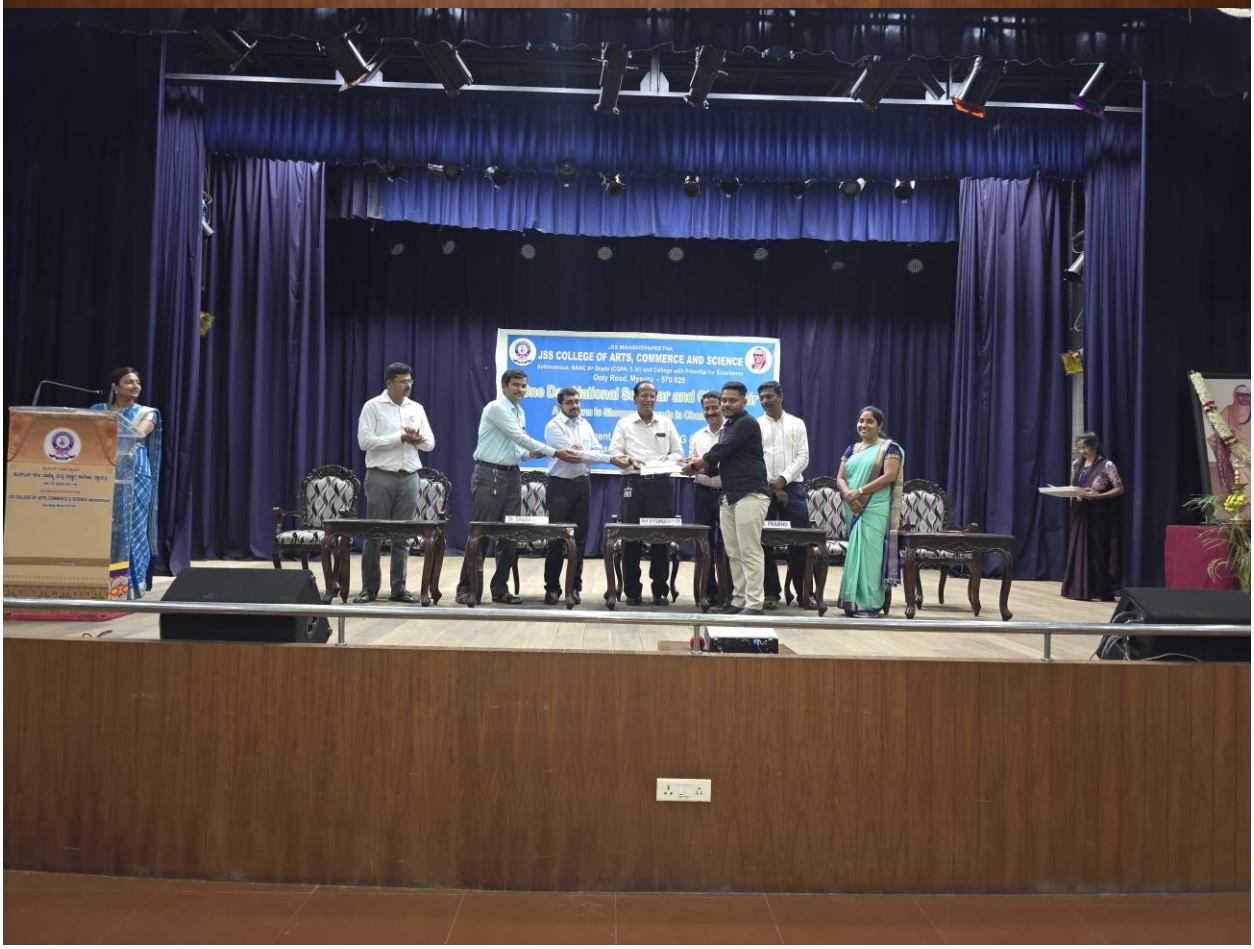
Dr. M. PRABHU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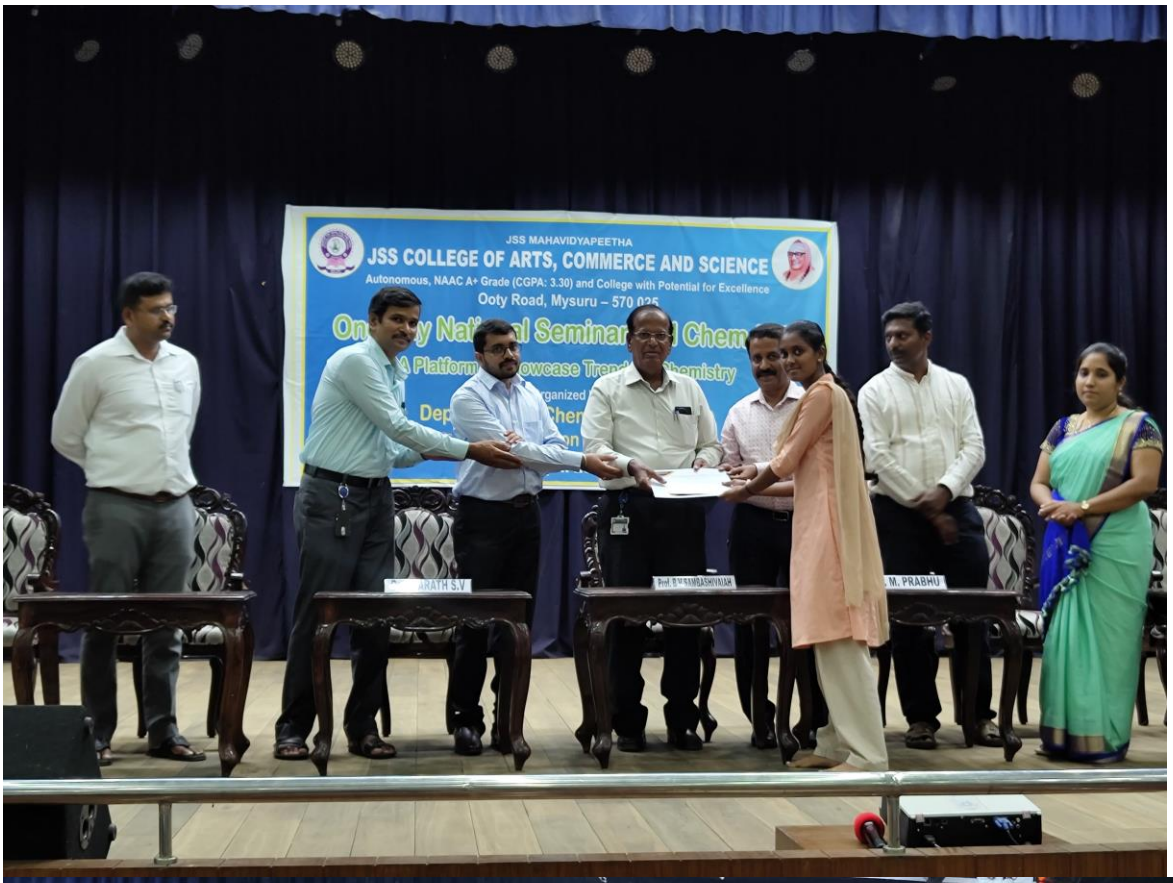
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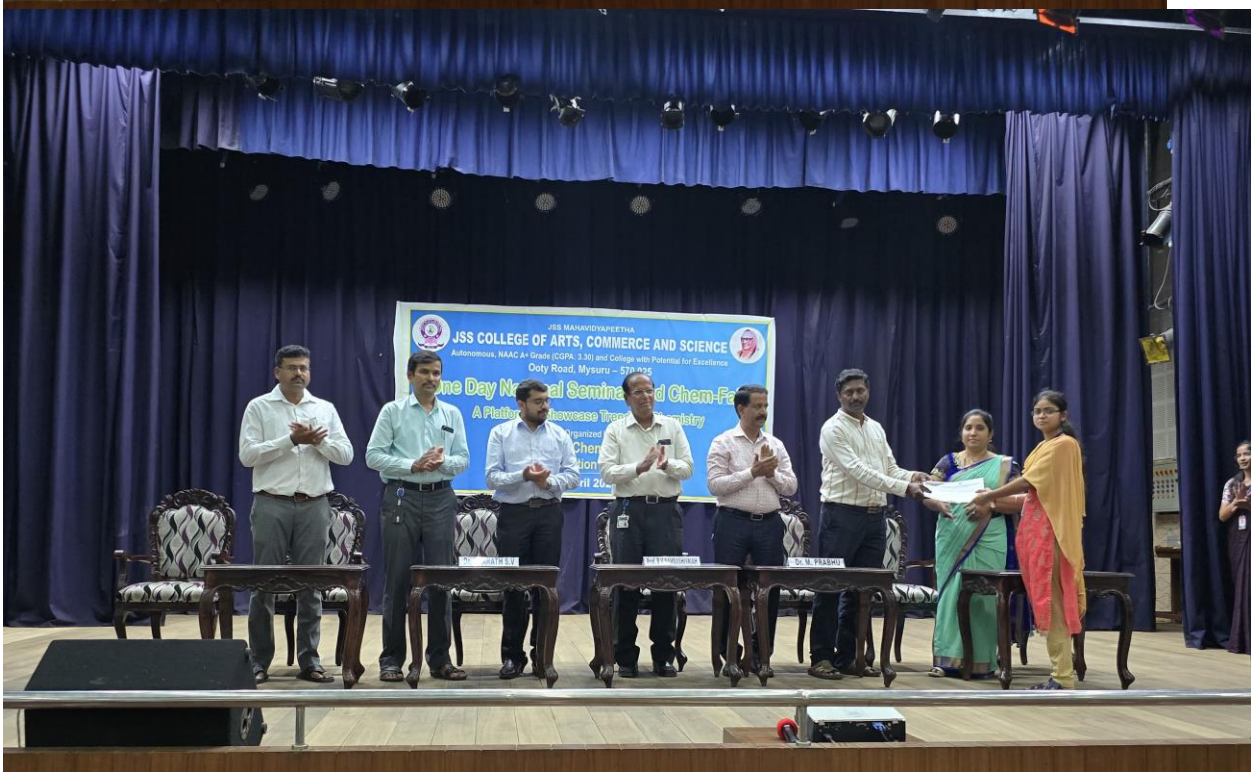
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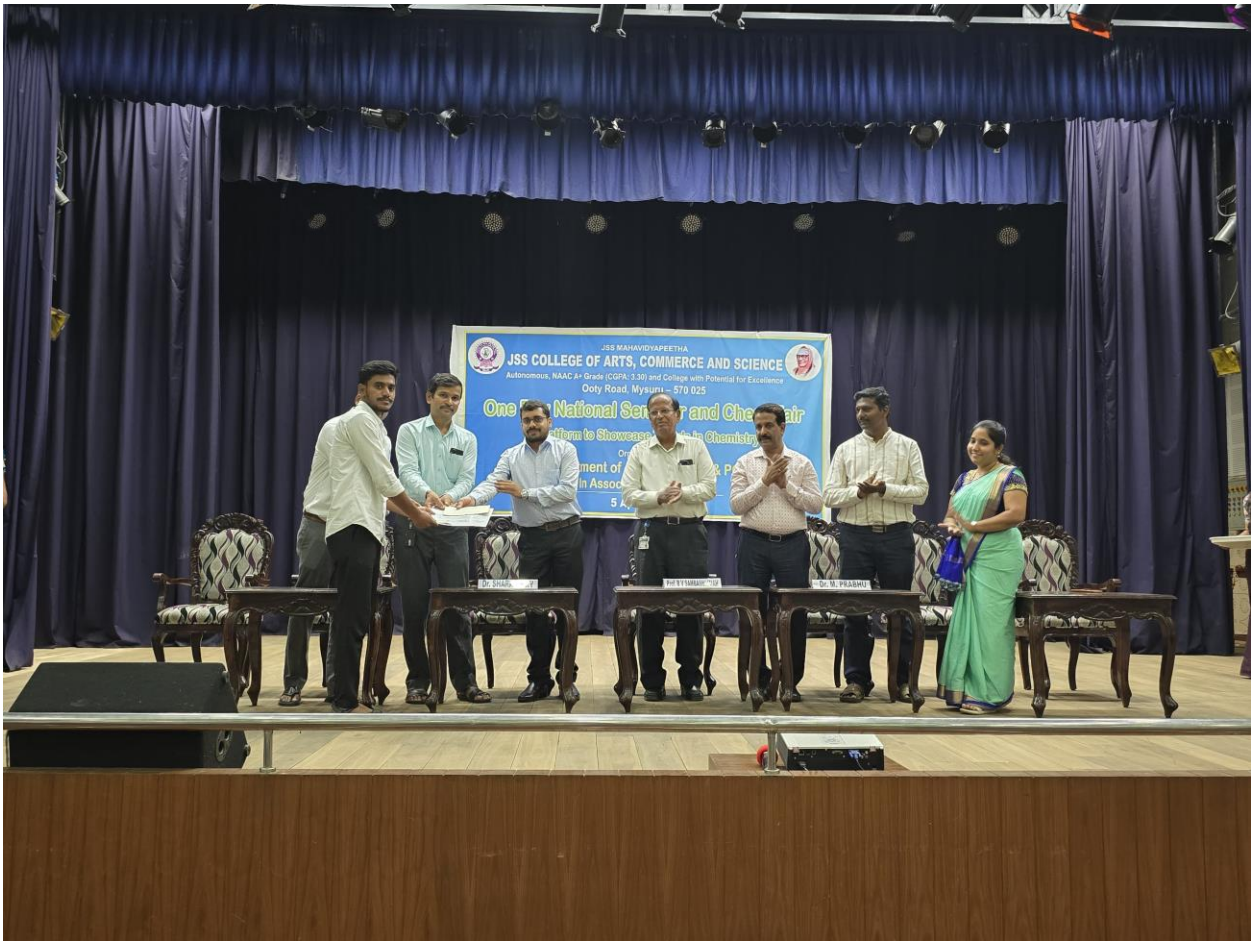

We trust that the knowledge of chemistry has been thoroughly conveyed and meaningfully shared with each participant. After the events, above Students won prize in the different events conducted by the Department of Chemistry. In the formal valedictory function the delegates and students shared their opinions. The above Five 1st & 2nd Prize Certificates and cash Rs.750/- for the first prize winner and Rs. 500/- for the second prize winner were given to the winners & Participation certificates were given to the students and Seminar and Chem-fair event was concluded.

Dr. Vijendra Kumar
Organizing Secretary

Dr. H.V. Kavya
Organizing Secretary