

FACULTY OF APPLIED SCIENCE DEPARTMENT OF CHEMISTRY



Dr. OP BHALLA | Founder Visionary,
Manav Rachna Vidyanatariksha

Slowly but surely the society around is beginning to pay a lot of attention to quality education. Dr. O.P.Bhalla our founder Visionary who always looked much ahead of time. He sowed the seed of Vidyanatariksha which was meant to spread its branches and grow into a huge tree spreading education and knowledge.



Dr. Priti Gupta
Chief Editor

It is a moment of great pleasure to bring another edition of the newsletter encompassing the details of the department. This year while we continue to share intelligence, we are making it more interesting yet meaningful.

On this auspicious month of March when our country celebrates Holi, Pongal and Yoga we are celebrating thought leadership by bringing a lot of industry speakers to share their experience.

With heart felt wishes of colorful Holi, I wish happy reading to all our readers and patrons.

For any feedback or details about this newsletter
please contact

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Mission

The Chemistry Department at MRU is committed to excellence in education and research. Our mission is to create and sustain an environment for learning, enquiry and generation of new ideas to aid the education of future engineers and Science graduates.

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Message from Honorable Vice Chancellor

It is a great pleasure that Faculty of Applied Sciences, Manav Rachna University is moving ahead in their journey. It is an event of great delight and professional satisfaction. I sanguinely trust that with this type of commitment, assiduity and focussed sense of purpose, the faculty shall gather immense knowledge. I wish MRU all its success for their laudable endeavor.

Message from Pro-Vice Chancellor

Faculty of Applied Sciences has striven relentlessly ever since its inception to become a much preferred faculty. As MRU continues to grow in prestige and excellence, there has never been a better time to become a part of our distinctive learning community. Our new programs B.Sc. (H) and M.Sc. offered under three department Chemistry, Physics and Mathematics are doing exceptionally good. All the best for your journey ahead.

Message from the Dean Applied Sciences

Faculty of Applied Sciences is a linkage between all engineering disciplines and earlier was working as a supportive faculty. With the inception of new programs B.Sc.(H) and M.Sc. we are working in the domain area and students are highly interested to pursue research work in basic and applied sciences. This news letter shall work as a messenger to share our hard work, innovations and best practices with all. Wishing all the best to editorial team and department for this initiative.

Message from the Head of the Department

Department of Chemistry always thrust to provide quality education and bringing in various elements together to propose an outcome based learning.








The newsletter series is an initiative to share our best practices and with the same intensity receive valuable suggestions and feedbacks. With the support and team work of all we shall achieve new heights and take the department and University to next orbit.



Our Industrial Collaborators



DEPARTMENT AT A GLANCE

 11 Faculties	 80 Students
 91% Ph.D.	 6 Funded projects
 2700 Hours Training	 3 Guest Lectures
 100% Internship	 3 Workshops

Dr. Megha Mittal, Head of Department

Prof. (Dr.) A. K. Gupta , Proctor	Dr. Priti Gupta , Assistant Professor
Dr. S. K. Shukla , Associate Head	Dr. Prem Kishore , Assistant Professor
Prof. Sangeeta Banga , Director, Students Welfare	Dr. Roopa Rani , Assistant Professor
Ms. Meena Kapahi , Associate Professor	Dr. Vinayak Pathak , Assistant Professor
Dr. Ekta Rawat , Assistant Professor	Dr. Jaya Tuteja , Assistant Professor



Our Visiting Faculty Panel



Dr. A. S. Sarpal, Head,
Quality Control Lab Optical
Control System, Panipat



Dr. Avatar Matharu, Deputy
Director of the Green
Chemistry Centre of
Excellence, University of
York, UK



Prof. Dr. (Mrs.) Veena Choudhary, Emeritus
Professor, Centre for
Polymer Science & Engg. IIT,
Delhi

Left to Right

2nd Row : Sudhish Shukla, Vinayak Pathak, Prem Kishore, Roopa Rani, Jaya Tuteja, Ekta Rawat,
1st Row: Priti Gupta, Megha Mittal, Meena Kapahi, Sangeeta Banga, A.K. Gupta,

Invited Talks & Guest Lectures

Prof (Dr.) Veena Choudhary, Professor-Emeritus(IITD), has partnered and conducted a series of lectures on communication skills for research writing. The lectures cover a broader perspective of student development and shall provide an overview of research methodology along with in depth skills for writing research communications. Prof. Choudhary shared her learnings on the important features of report writing extensively, its significance; characteristics and structure. She mentioned that the most important part of any report writing is to write the Result and Discussion. In addition to that, she said that deriving conclusion is equally important. The conclusion should provide complete information.



An expert lecture series on Carbon-13 NMR Spectroscopy was organized by Chemistry Department for Faculty of Chemistry and M.Sc. (Chemistry) students at Manav Rachna University, Faridabad. He covered Broad Band Decoupling, Nuclear Overhauser Effect (NOE), Relaxation Effects, DEPT Spectral Editing Techniques and 2DNMR in great details. On the last day, he emphasized on the fact that NMR Spectroscopy is a powerful technique with applications in almost all fields like medical diagnostics, pharmaceutical industry, pollution control, petroleum & petrochemicals, agriculture and food industry.

An Invited Lecture on "Agricultural straws to composites & extraction of pectin from mangoes" by Dr. Avtar Matharu, from university of York, U.K. Dr. Matharu explained the difference between brown & green chemistry and the five P's as the principles for sustainable development. He addressed about the problem of pollution caused by burning of wheat straws in agriculture fields and amendment of which can be done by de-waxing the straws and chipping them using aqueous silicates and forming a wood block which can bear large weights. He also talked about the acidic and microwave assisted extraction of pectin from mango peels which is mainly used for thickening of fat free mayonnaise.



Invited Talks & Guest Lectures

An Invited Lecture on "Carbon Nanostructures Based Polymer Composites for Electromagnetic Interference Shielding Applications" was organized by Department of Chemistry, Manav Rachna University on 3rd Nov, 2017. Dr Veena Choudhary, a distinguished professor of Polymer Science and Engineering covered the applications of carbon nanotubes towards the adverse effect of Electromagnetic interference (EMI). She discussed about the shielding effect of EMI and its mechanism, theory and measurements. She elaborated on the applications of graphene and its types i.e Single walled carbon nanotubes (SWCNT) and Multiwalled carbon nanotubes (MWCNT).



Workshops



One Day International Conference on Green Initiatives in Science & Technology was organized by the Department of Chemistry, MRCE in association with GCNC, New Delhi and ISST, Ghaziabad and sponsored by North India Section of Royal Society of Chemistry, London and Indian oil R&D, Faridabad. More than 100 delegates from different Universities, IITs, MNITs and abroad gathered to discuss the research in the field of green technology and its role in achieving a sustainable future worldwide. It was a platform where 40 delegates presented research work in oral and 25 posters were displayed.

An International RSC Workshop on 'Chemistry for Tomorrow's World' was jointly organized by Green Chemistry Network Centre (GCNC), Delhi University, Manav Rachna University, Faridabad and Shiv Nadar University, Greater Noida and sponsored by Indian Oil R&D Centre, Faridabad and Royal Society of Chemistry, London. There were 14 lectures from eminent experts invited from University of York, UK, Green Chemistry Institute, USA, IITs, Panjab University, IOCL R&D, NIPER Mohali & Hyderabad, Shiv Nadar University, DRDO, Delhi University and CDRI, Lucknow. 22 oral papers and 39 posters were presented on both the days.



Faculty Representation in Workshops and Conferences

- A senior faculty (Ms. Meena Kapahi) attended the International Summer School 'Co-designing Better Urban Living and Wellbeing', LUAS, Finland, as a visiting lecturer
- Dr. Megha Mittal attended three days advanced training program on "Advanced Training Program on Shodhganga" from December 13-15, 2017 at INFLIBNET Centre, Gandhinagar.
- Prof. A. K. Gupta & Dr. Roopa Rani attended International Conference on "Advancing Green Chemistry: Building a Sustainable Tomorrow", organized by GCNC, University of Delhi & Hindu College. Our faculties and students presented various papers on Green Synthesis, Degradation of Methyl Orange and Detection of Salicylic acid and Sudan dyes in Spices. Prof. A. K. Gupta can be contacted for more information.
- Dr. Prem Kishore attended 4th National workshop on Materials Chemistry from December 15-16th, 2017 at Mumbai organized by Society of Materials Chemistry (SMC) in association with University of Mumbai-Department of Atomic Energy, Centre for Excellence in Basic Sciences(UM-DAE-CBS).
- Dr. Megha Mittal attended 17th International Conference of Women Engineers & Scientists organized by International Network of Women Engineers and Scientist, WISE, DST and DTU
- Dr. Vinayak Pathak was invited to deliver a lecture on Bioenergy as a promising renewable energy source at Department of Energy Management, Shri Mata Vaishnodevi University, Jammu and Kashmir.
- Three members from Chemistry Department Dr. Megha Mittal, Associate Professor & Head, Dr. Vinayak Pathak, Assistant Professor and Dr. Prem Kishore, Assistant Professor attended WSDS, which was hosted on February 15-17, 2018 under the broadrubric of 'Partnerships for a Resilient Planet'.
- A team of three members visited Manav Rachna University on Feb 12, 2018: Dr Luca Nizzetto, Research Scientist, Norwegian Institute of Water Research (NIVA); Eirik Steindal, Researcher, NIVA; Dr Girija Bharat, Director, Mu Gamma Consultants Pvt. Ltd. The team met faculties of the Chemistry Department for a detailed discussion on mutual areas of interest and capacity building.



Educational Trips and Student Development

Students of M.Sc. went for an Industrial Visit to IIT-Roorkee & Shreya Pharmaceuticals coordinated by Dr. Priti Gupta. The objective of visit was to ensure that students learn some practical concepts of Chemistry. During their visit to IITR Campus student got introduced to modern chemistry equipment available in the laboratory. Prof. Maurya spoke about how research related work can be taken forward by all the students. At Shreya Healthcare & Lifesciences students got introduced to various processes involved in tablet manufacturing like granulation, drying, lubrication, compression, packing in detail. The students were enriched to see large scale production and all quality parameters and safety measures.



Students and their participation

- Poster presentation by M.Sc. students in Indo-UK Scoping Workshop on 'Development of Rural Bio-refineries in India: From Waste to Wealth' organized by Green Chemistry Centre of Excellence, University of York & University of Delhi, Energy and Resources Institute, New Delhi
- Four Papers were presented by students in National Conference on New Horizons in Technology for Sustainable Energy and Environment (NHTSEE2017) organized by YMCA Univ. of Science & Technology
- A workshop on the topic "Innovations in Chemistry Laboratory Teachings" in collaboration with Zakir Hussain Delhi College, Delhi University was organized to train the M.Sc. Chemistry students of MRU aimed to impart the hands on skills in chemistry lab experiments.
- A series of sessions around interview and presentation skills for the M. Sc. Students was organized with collaborated efforts between Chemistry Department (under representation of Dr. Priti Gupta, member Manzil Team) and Career Resource Center, MREI.
- Akanksha Ahuja (CSE, MRCE) under guidance from Ms. Meena Kapahi and Mr. B. M. Bahal has qualified as one of top 14 candidates for the New Zealand India sustainability challenge. She submitted her idea to MIT Climate Co lab where she was a semi finalist.
- Four Research Papers were presented by the students in National Conference on New Horizons in Technology for Sustainable Energy and Environment (NHTSEE2017) organized by YMCA Univ. of Sci & Tech, Faridabad from March 9-10, 2017.
- A Team of three students from B.Sc. IV semester are participating in Anveshan 2018 for their project on "Waste to Energy"
- A team of two students from M.Sc. II semester are participating in Anveshan 2018 for their project on "Biomass to Biofuel"

Innovation at Department

At Chemistry Innovation Club, aimed to provide multidimensional skills to the high school and higher secondary students primarily at Delhi-NCR region of India students are encouraged to perform chemistry experiments in a fun filled environment with an ease to increase their understanding and interest in the chemistry subject. As a part of it, a workshop was conducted on "Innovations in Chemistry Laboratory Teachings" in collaboration with Zakir Hussain College, Delhi University to train the M.Sc. Chemistry students of Manav Rachna University. Experiments such as Enlightening the dark room based on the phenomenon of chemiluminescence, Elephant's toothpaste where a huge foamy mass explains the effect of trapped gases on liquid soap solution, Golden Rain - a demonstrations of stunning suspension of glistening of yellow crystals, Non-Burning Towel providing knowledge about thermodynamics, solvent and absorption were demonstrated.

A detailed report was published in QSWOW Newsletter and can be found here :
<http://qswownews.com/learning-with-innovation-re-think-chemistry/>

Social Responsibility - A Universe Initiative

Under its council of institution social responsibility a one day awareness camp on Gender Sensitization and Girl Education was organized at Mohna Girls Government School on Nov 20th 2017. Dr. Priti, Dr. Roopa & Dr Chhavi coordinated multiple activities along with 25 students. The objective was to make students understand that equality is the essence of democracy through various activities and posters. Gender Equality and Girl Education were presented through Nukkad Natak, Poems and Songs. Gifts were distributed to the winners to encourage them.



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