Objectives of the FDP:
- To enable the participants to gain the knowledge about 1D- and 2D-NMR spectroscopy.
- To enable the participants to teach the various experiments of NMR spectroscopy to simplify the complex spectra.
- To enable the participants to learn the new pedagogic approaches and using free and open source software for analyzing the NMR spectra.

Topics to be covered:
This FDP will focus on the effective teaching and learning of various experiments of NMR spectroscopy to determine the structure. The main topics are:
- Principles of NMR spectroscopy
- Spin-spin coupling and Coupling constant (J)
- Spin systems and Lanthanide shift reagents
- Double resonance and spin tickling
- $^{13}$C NMR spectroscopy and DEPT experiments
- 2D-NMR spectroscopy
- HOMO and HETEROCOSY
- 2D-J-resolved spectroscopy
- HMBC, HMQC and HSQC, TOCSY, ROSY
- Lectures on Pedagogy

Resource Persons:
Eminent Faculty from IITs, NITs, Central Universities, Teaching Learning Centres and Senior Faculty from NIT Warangal.

Mode of Delivery:
Resource Persons will deliver the online lectures and hands-on sessions through Google-Meet platform. The essence of the FDP is to improve the teaching ability of the teachers and enabling the learners to learn. The theme of the FDP is a way in building capacity of making better teachers. Lectures can be presentation mode, Discussions and hands-on sessions. Ultimate goal of the FDP is to develop the faculty members in the new pedagogy and emerging areas of science and technology.

Registration is open to:
The program is open to all NBA and AICTE approved Engineering/Polytechnic college teachers, All University teachers, Degree college lecturers, research scholars and P.G. students. The number of participants is approximately 100 and selection will be based on priority basis. The Brochure and details of the Registration Form can be downloaded from the institute website http://www.nitw.ac.in
How to Apply:
Eligible candidates may apply by submitting the scanned copy of the filled in registration form (attached with this mail/ brochure) by E-mail to nmrssd@gmail.com on or before 14-02-2021 along with the requisite Registration Fee.

Registration Form:
Faculty members can also complete their Registration Online by filling the Google Form given here under: https://docs.google.com/forms/d/1L0RYk6rrKhAn6ZvBB343WHy0xS4Pa373NvZAvHSoN8/edit

Note: Keep the payment receipt ready as a PDF file (size < 1 MB)

Registration Fee:

<table>
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<th>Category of Participants</th>
<th>Amount in Rs.</th>
</tr>
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<tr>
<td>Faculty Members</td>
<td>750/-</td>
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<tr>
<td>Research Scholars</td>
<td>400/-</td>
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Note: Registration fee for Faculty and Students of SC/ST category is half of the amounts mentioned above as applicable.

Bank Details:
Registration fee need to be remitted through On-line / NEFT to the Bank account given below. Scanned copy of the DD / Proof of remittance of the requisite registration fee (with transaction number if online transaction) shall be sent as attachment by E-mail to nmrssd2021@gmail.com

<table>
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<tr>
<th>Account Name</th>
<th>Director, Research Account, NITW</th>
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<tr>
<td>Bank</td>
<td>State Bank of India (SBI)</td>
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<tr>
<td>Branch</td>
<td>NIT Warangal Campus</td>
</tr>
<tr>
<td>IFSC code</td>
<td>SBIN0020149</td>
</tr>
</tbody>
</table>

Confirmation of Participation:
On receipt of the registration form along with proof of payment of registration fee, participants will be sent confirmation of their participation through E-mail by 15-02-2021. The number of participants for this

Brief profile of the Department:
The Department of Chemistry was established in the Year, 1959, as an integral part of the Regional Engineering College Warangal (RECW). Since its inception, the Department is geared as one of the most academically active Departments in the Institute. Department offers chemistry course to all engineering branches and two years M.Sc. Chemistry with specialization in Organic and Analytical Chemistry. The Department has been conducting cutting-edge research in contemporary topics of Organic, Inorganic, Physical and Analytical Chemistry. In the Department, various state-of-the-art facilities such as 400 MHz NMR, HRMS, gas chromatography, HPLC, FTIR, UV-VIS-NIR, fluorescence, electrochemical workstation, computational chemistry software, etc. are available. As a part of continuing education and outreach activities, Department organized several National and International Conferences, Seminars and Workshops.

Teaching Learning Centre of NIT Warangal:
The Teaching Learning Centre (TLC) is established at NIT Warangal with grants from the MHRD, under the scheme, ‘Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching’ (PMMMNMTT). Many senior and young faculty members across various Departments of the Institute are associated with this Center as the Core-Team. One of the important objectives of the center is to conduct training programs for aspiring, newly inducted and in-service faculty in Science, Engineering and Social Sciences disciplines in higher education. Other activities of the TLC include preparation of print and e-learning materials, offering courses on-line, curriculum development, carrying out research in educational technology and pedagogy and integrating with E&ICT into teaching-learning process. A permanent multi-floor establishment with Training Halls, Studio, MOODLE and MOOCs, etc. facilities is under construction. The TLC has special programmes of training for the marginalized and women-faculty.

About NIT Warangal:
National Institute of Technology Warangal, formerly known as Regional Engineering College was established in 1959. Over the years it has developed into a premier institute of higher learning and is ranked among the top technical education institutions in India. There are 14 Departments offering eight undergraduate and 31 postgraduate programs besides doctoral programmes. About 5000 students across the country and about 500 international students study on the campus. It is a fully residential campus sprawling over 250 acres with excellent infrastructure in the form of state of the art library, seminar halls, guest houses and research laboratories.

For any queries regarding the FDP, please contact the Programme Coordinators:

Dr. B. Srinivas, Asst. Prof., Dept. of Chemistry; 9703351571, nmrssd2021@gmail.com
Dr. K. Hari Prasad, Asst. Prof., Dept. of Chemistry; 9560803036 harikokatla@nitw.ac.in
Dr. K. Laxma Reddy, Professor, Dept. of Chemistry; 9490300457, laxma@nitw.ac.in

For further details about Teaching Learning Centre, please contact:
Prof. A. Ramachandraiah
Professor-in-Charge and Coordinator,
Teaching Learning Centre (TLC), NIT Warangal
E-mail: archem@nitw.ac.in; mtlc.nitw@nitw.ac.in
Office: 0870-2462686.