Report on AICTE-GTU Jointly Sponsored

Online Faculty Development Programme on

"Recent Formulation Approaches for Improving the Dissolution Properties of Poorly Soluble Drugs"

Organized by B. K. Mody Government Pharmacy College, Rajkot

during 7-12 March, 2022

AICTE-GTU Jointly Sponsored Online Faculty Development Programme on "Recent Formulation Approaches for Improving the Dissolution Properties of Poorly Soluble Drugs" was Organized by B. K. Mody Government Pharmacy College, Rajkot during 7-12 March, 2022.

Total 94 participants registered for the course. Out of registered participants 74 participants, who were found eligible to join FDP as per rules laid down by AICTE and GTU, were sent confirmation mail, detailed schedule and link to join the online Faculty Development Programme.

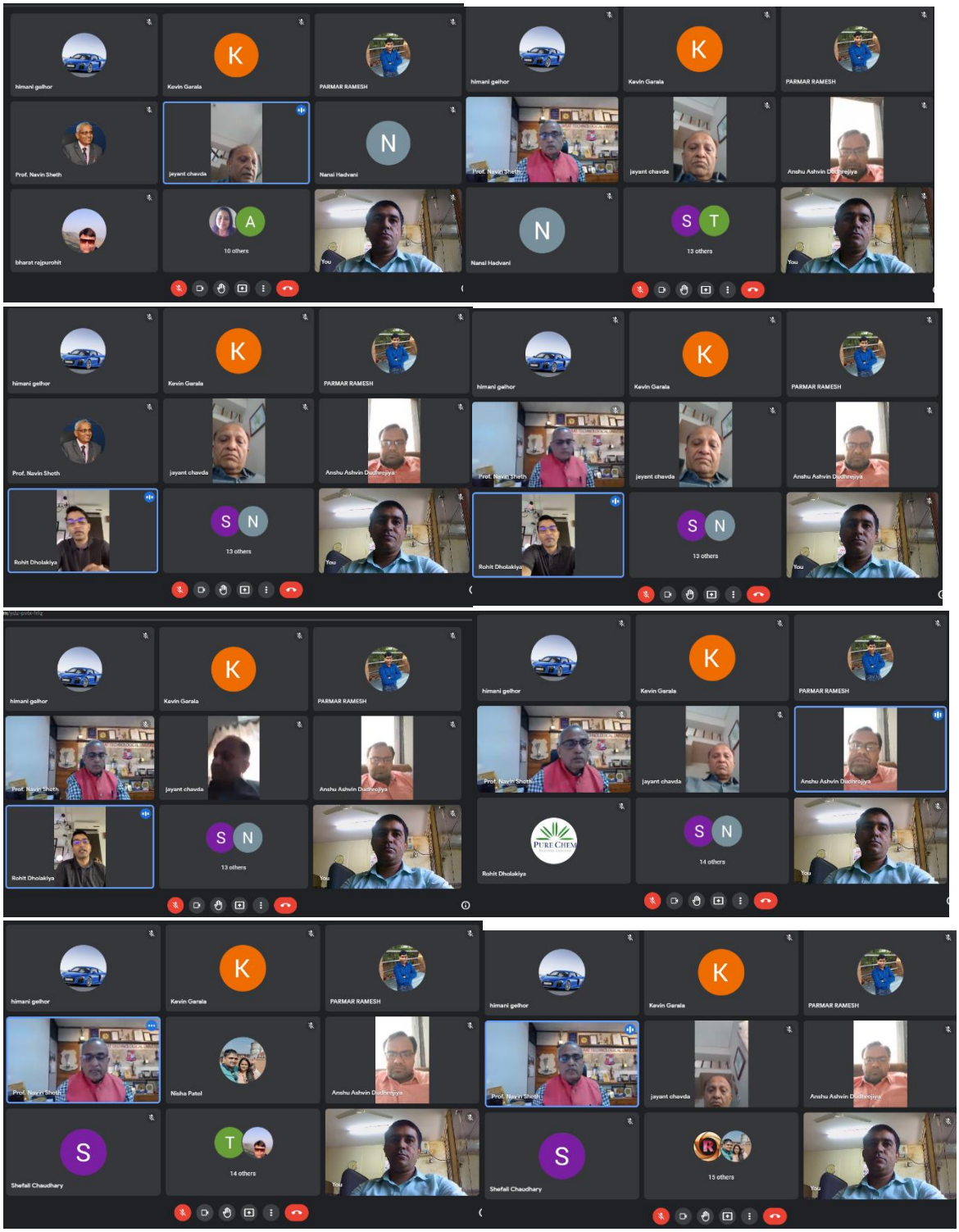
Inaugural session of the program was held on 7th March 2022, at 9:00 am in the august presence of Hon. Vice-chancellor Dr. N. R. Sheth sir as Chief Guest, Mr. Rohit Dholkiya, Director, Pure Chem Pvt. Ltd. as special guest, Dr. J. R. Chavda, Principal, B. K. Mody Government Pharmacy College, Rajkot, Dr. A. V. Dudhrejiya, Head Diploma, Dr. Lalji Baldaniya, Principal, Faculty of Pharmacy, Marwadi University and All participants.

Hon. Vice-Chancellor sir explained the need of the topic giving an outline of conventional dissolution and solubility enhancement techniques. Sir emphasized on the need dissolution enhancement techniques as a solution to biggest challenge of pharmaceutical industry and a great need of innovations in this area.

Mr. Rohit Dholakiya gave outline of API manufacturing and role of Indian Pharma sector as a potential growing market. He also encouraged the participants to contribute to research and putting their ideas to market. He also instructed participants to encourage their students for the same.

Dr. J. R. Chavda gave outline of various activities and novel practices carried out by B. K. Mody Government Pharmacy College.

Dr. A. V. Dudhrejiya gave vote of thanks.



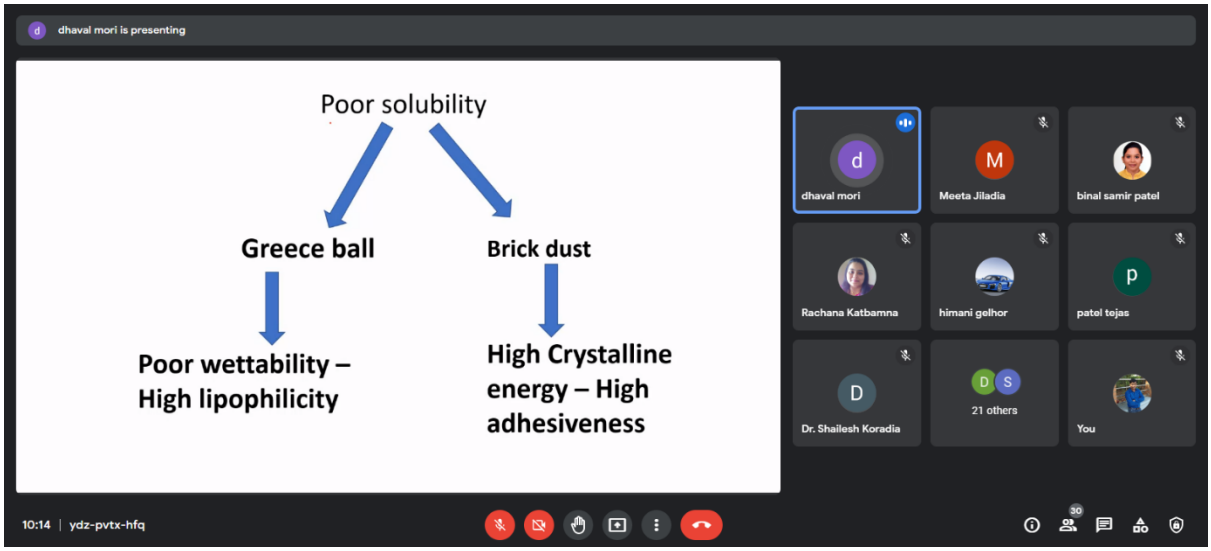
Inaugural Session, 07/03/2022, 9 am onwards

Inaugural session was followed by a session for briefing the participants regarding attending Faculty Development Programme, minimum attendance criteria and passing criteria in the final exam to earn certificate.

After briefing sessions for day 1 started at 10:30 am.

First session was conducted by Dr. D. Mori, Assistant Professor, B. K. Mody Government

Pharmacy College, Rajkot. The title of his talk was Salt formation and recent advances in salt formation: Amorphous salt formation. He discussed importance, techniques and recent innovations of salt formation.



Lecture 1: Dr. D. D. Mori

Second session was conducted by Dr. S. R. Shah, Assistant Professor, B. K. Mody Government

Pharmacy College, Rajkot on Recent advances in strategies to formulate poorly soluble drugs. He discussed different approaches for dissolution and solubility enhancement.

Lecture 2: Dr. S. R. Shah

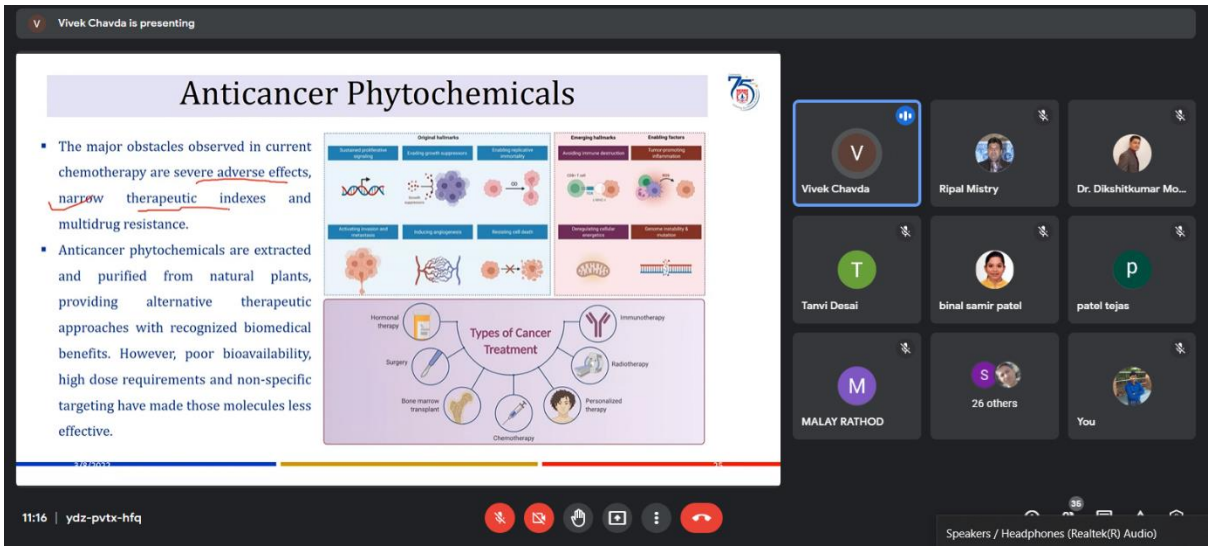
Third session was conducted by Dr. M.M Soniwala, Professor, B. K. Mody Government

Pharmacy College, Rajkot titled Liquisolid compact approach for improving the solubility of poorly soluble drugs. He discussed importance of liquid load factor, carrier to coating ration and selection of oils.

Lecture 3: Dr. M. M. Soniwala

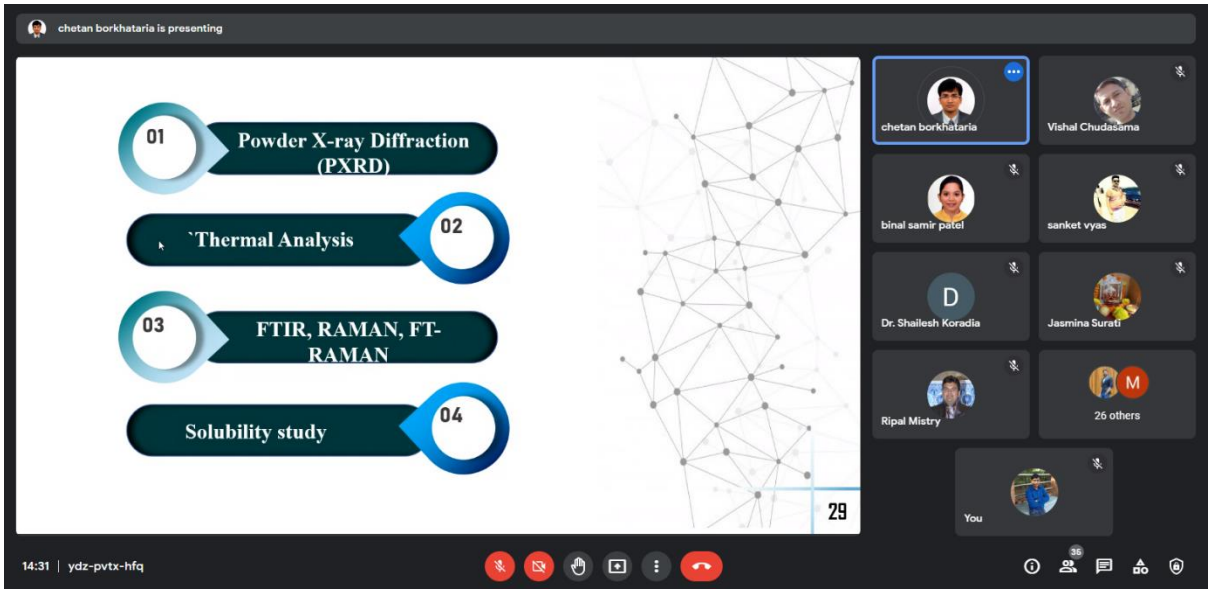
On second day three sessions were conducted. Session started at 10:30 am with first lecture of the day and fourth of the Faculty Development Programme.

First session was conducted by Mr. Vivek Chavda, Assistatant Professor, L. M. College of Pharmacy, Ahmedabad on Phytochemicals-loaded liposomes for anticancer therapy. He gave outline of discovery of vesicular DDS and ended with marketed formulation containing vesicular DDS.



Lecture 4: Mr. Vivek Chavda

Second session of the day was conducted by Dr. C. H. Borkhataria, Assistant Professor, B. K. Mody Government Pharmacy College, Rajkot. Topic of his talk was Co-crystals for improving the solubility of poorly soluble drugs. He discussed application of cocrystal formation for solubility and dissolution enhancement. He also outlined the techniques used to evaluate cocrystals.



Lecture 5: Dr. C. H. Borkhataria

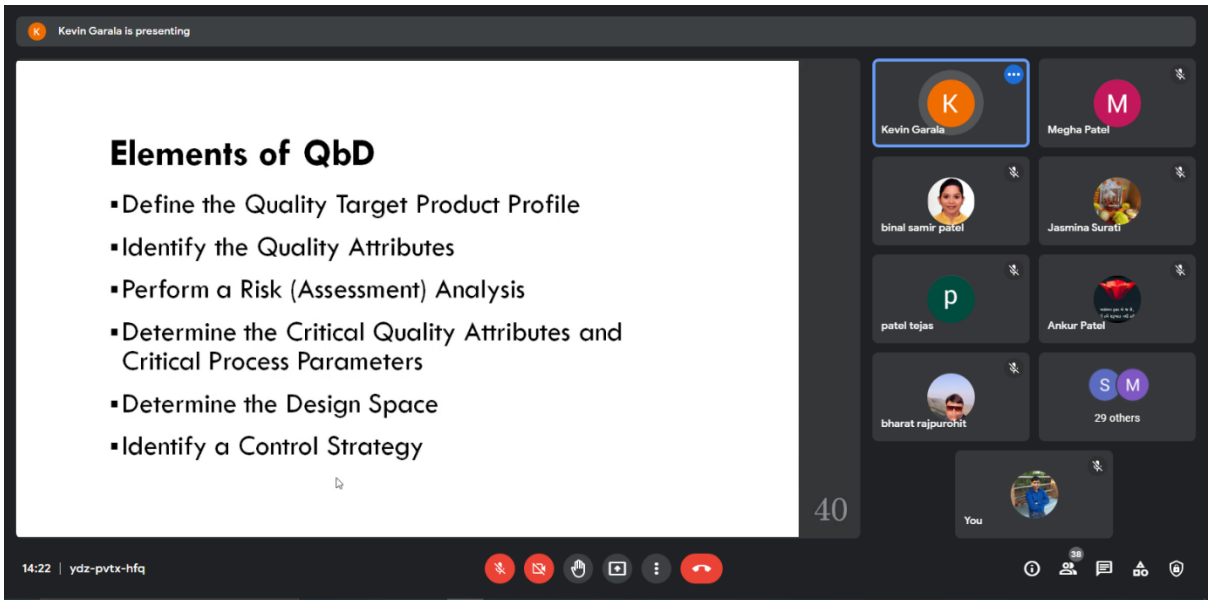
Third session was conducted by Dr. D. M. Patel, Associate Professor, Graduate School of Pharmacy, GTU titled Solid Dispersions: Past, Present and Future. He described generations of solid dispersions, methods of preparation, polymers, salts and other materials used for preparing solid dispersions.

Lecture 6: Dr. D. M. Patel

Day three started with a lecture by Dr. Jaydip Vasoya, Scientist, Formulations-Catalent Pharma Solutions, USA. His topic was Early Drug Development for New Molecules-Delivering Poorly Soluble Drugs

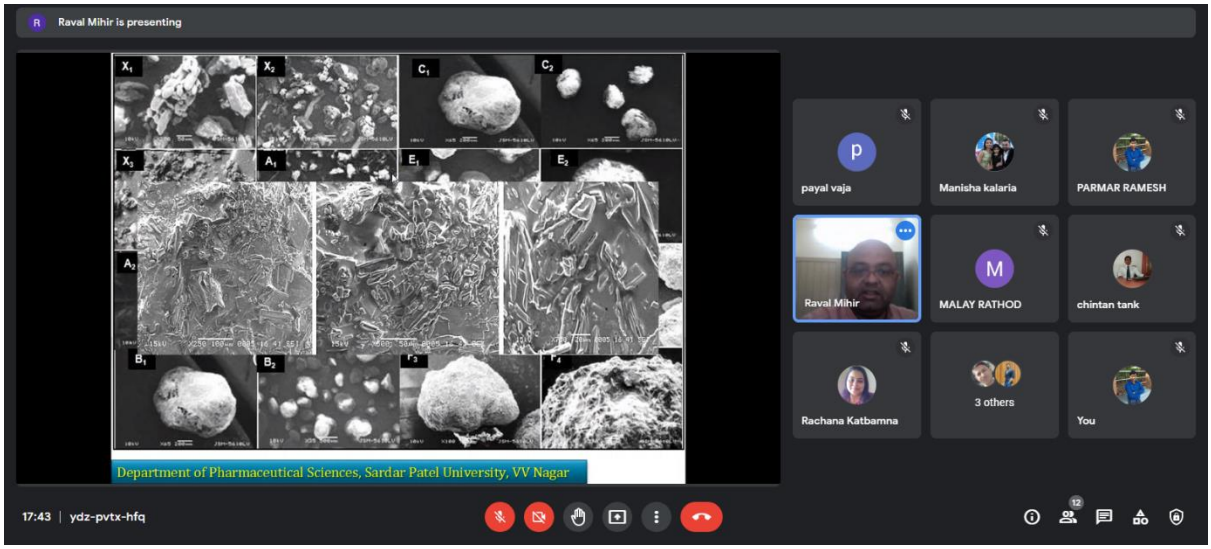
Lecture 7: Dr. Jaydip Vasoya

Second lecture of day three was conducted by Dr. Kevin Garala, Assistant Professor, School of Pharmaceutical Sciences, Atmiya University, Rajkot. He discussed Application of DoE in solubility improvement. He emphasized on application of quality by design approach for dissolution enhancement.



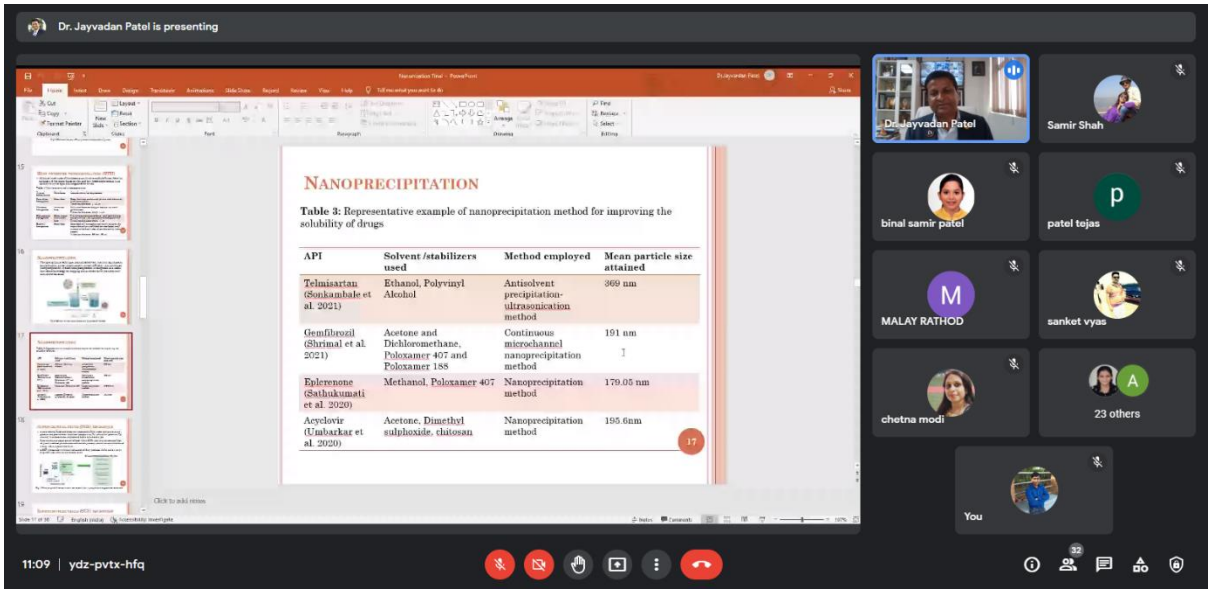
Lecture 8: Dr. Kevin Garala

Third session of the day 3 was on Crystallo-co-agglomeration: a particle engineering approach for manufacturability improvement delivered by Dr. Mihir Raval, PG Department of Pharmaceutical Sciences, Sardar Patel University, Vallabh Vidyanagar, Gujarat, India.



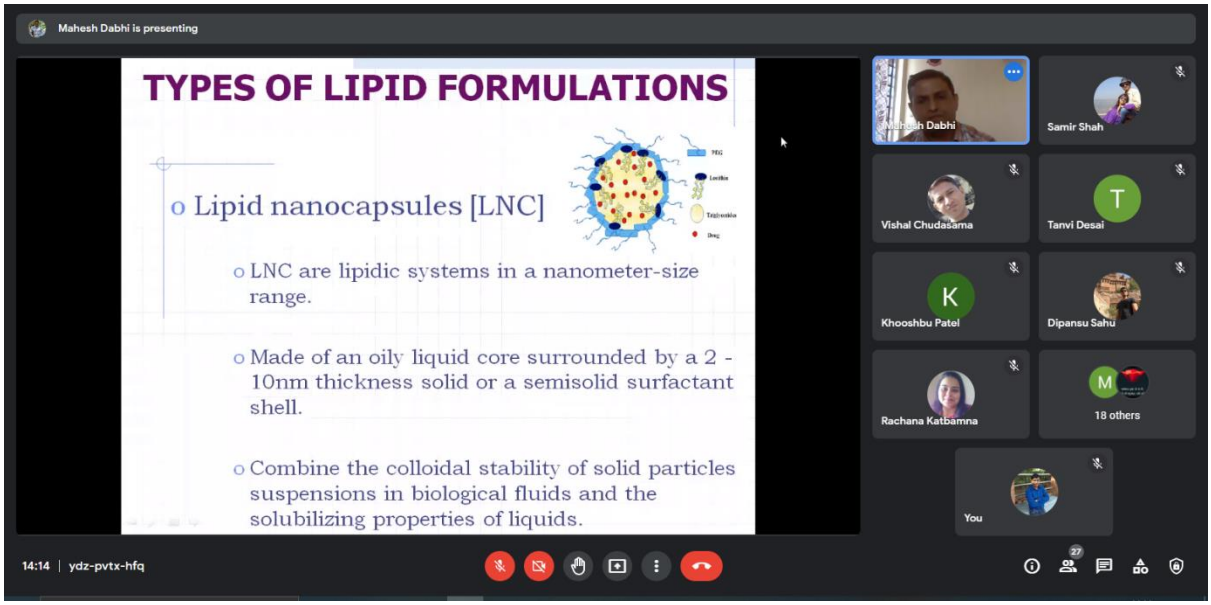
Lecture 9: Dr. Mihir Raval

Day 4 started with a lecture by Dr. J.K Patel, Principal, Nootan Pharmacy college, Gujarat. He discussed Micronization/Nanonization for improving the solubility. He explained supercritical fluid techniques like rapid expansion of supercritical solution for generation of micro and nanoparticles by bottom-up technique. this technique is organic solvent free techniques hence its eco-friendly.



Lecture 10: Dr. J. K. Patel

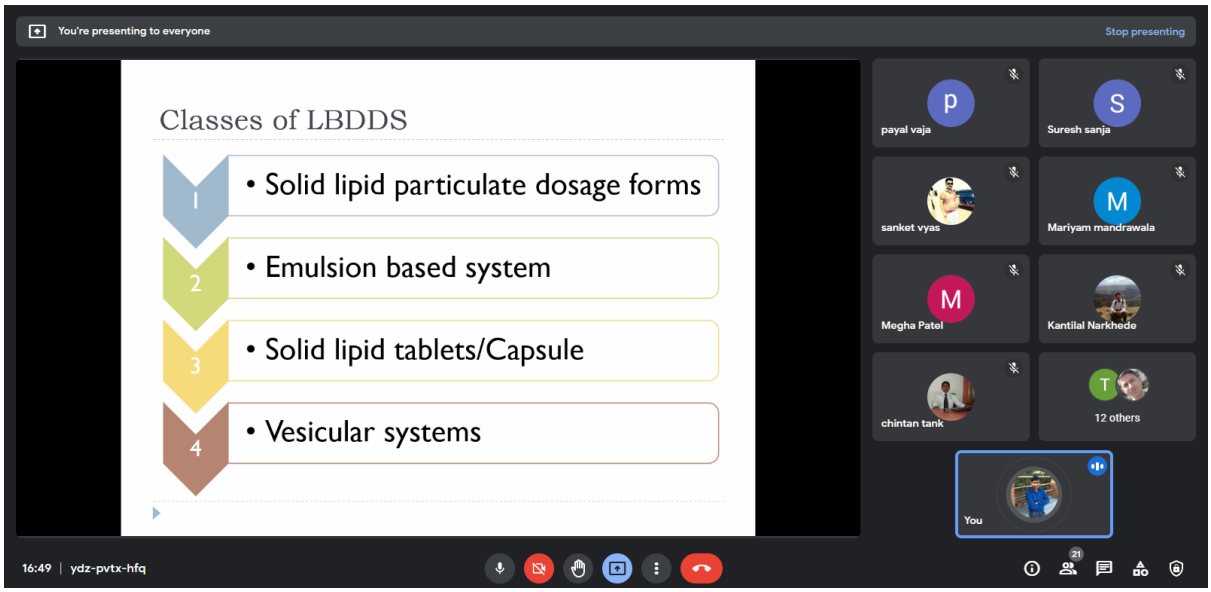
Second session of the day was titled Critical differences and similarities between various lipid-based drug delivery system by Dr. Mahesh Dabhi, Drug inspector, Food and Drug administration, Government of Gujarat. He outlined critical differences between various lipid-based systems like liposomes, SLNs, Lipospheres, SEDDS etc.



Lecture 11: Dr. M. R. Dabhi

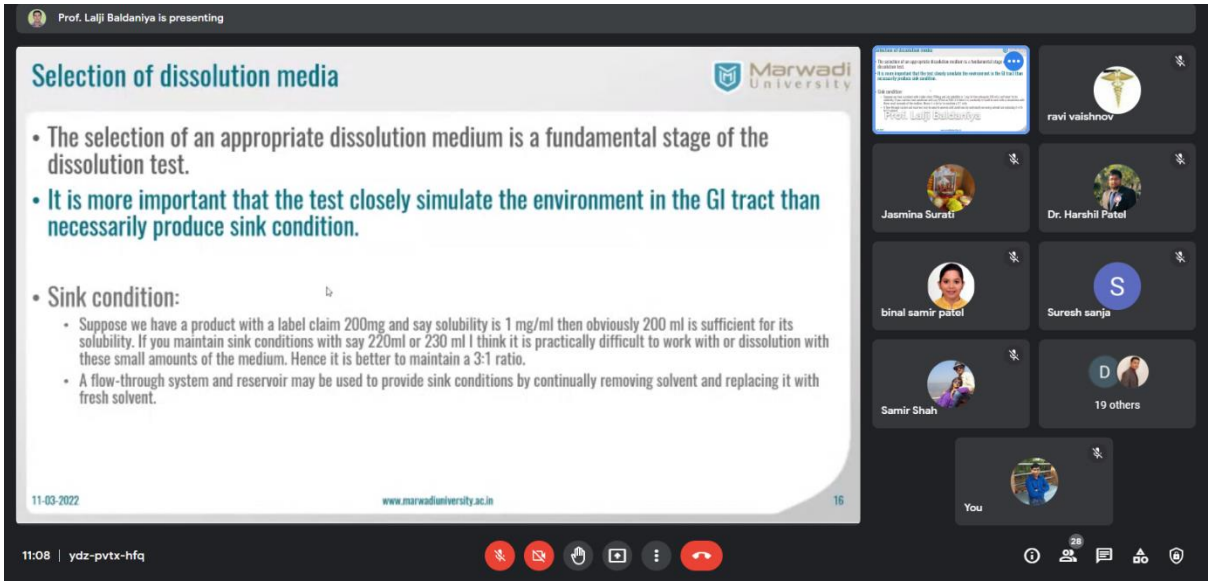
Third session of the day was conducted by Dr. R. D. Parmar, Lecturer, B. K. Mody Government

Pharmacy College, Rajkot. He discussed Recent advances in lipid-based drug delivery system. He emphasized on the ability of lipid based drug delivery systems in delivery of vaccines, targeting brain and 3D printing for lipid based DDS.



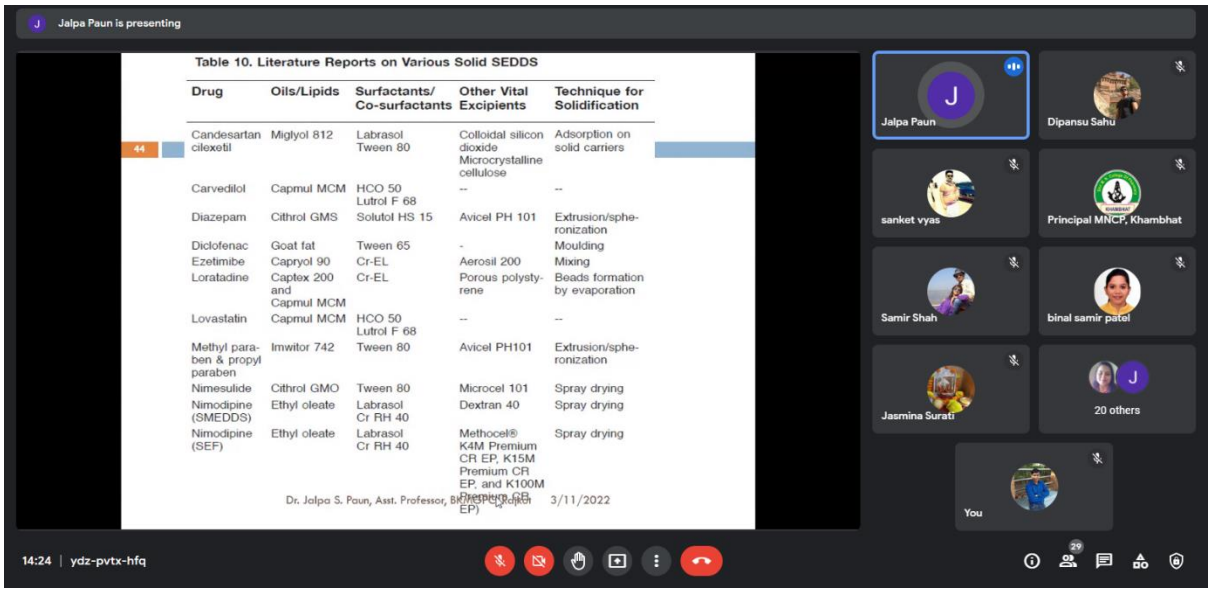
Lecture 12: Dr. R. D. Parmar

First lecture of day 5 was titled Particle size manipulation for improving the dissolution of the poorly soluble drugs by Dr. Lalji Baldaniya Principal, Faculty of Pharmacy, Marwadi University, Rajkot. He discussed the changes in the dissolution media needed for dissolution study of poorly soluble drugs and regulatory guidelines pertaining to it.



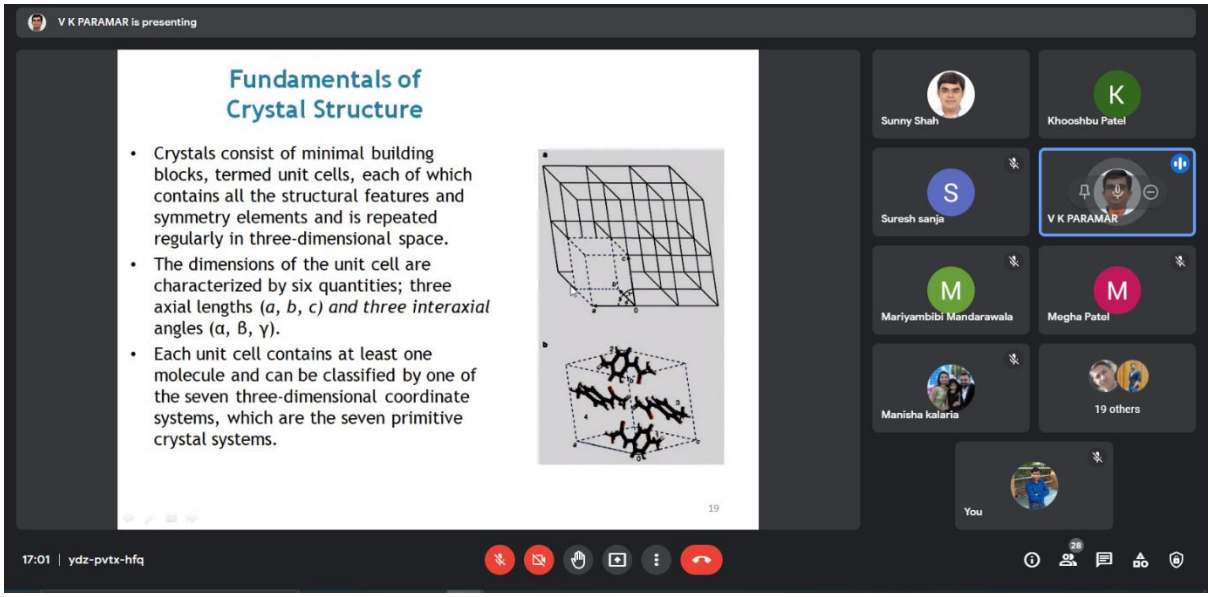
Lecture 13: Dr. Lalji Baldaniya

Second lecture of day was conducted by Dr. J. S. Paun, Assistant Professor, B. K. Mody Government Pharmacy College, Rajkot. She talked on Self-Emulsifying Drug Delivery Systems. She emphasized on different natural oils, lipids and surfactants as a promising alternative for dissolution and solubility enhancement.



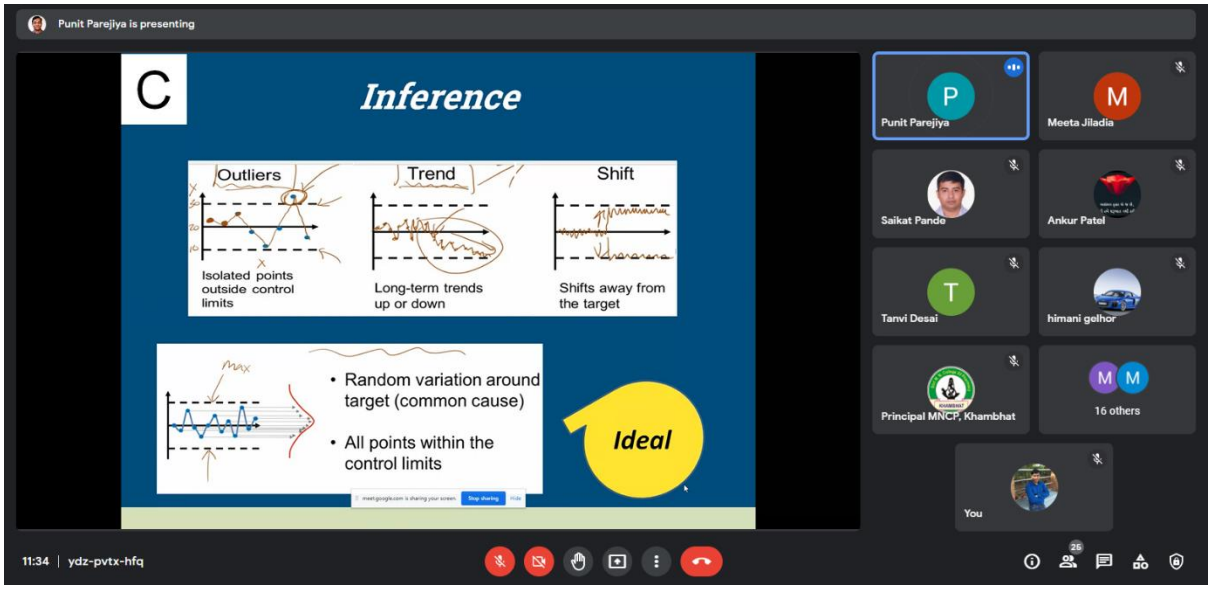
Lecture 14: Dr. J. S. Paun

Third lecture of fifth day was conducted by Dr. Vijay Parmar, Head, PG Department of Pharmaceutical Sciences, Sardar Patel University, Vallabh Vidyanagar, Gujarat, India. He discussed pharmaceutical co-crystals as a tool to enhance dissolution and solubility. He also described different crystal structures and their impact on dissolution and solubility. He also discussed ways to modify crystal structure.



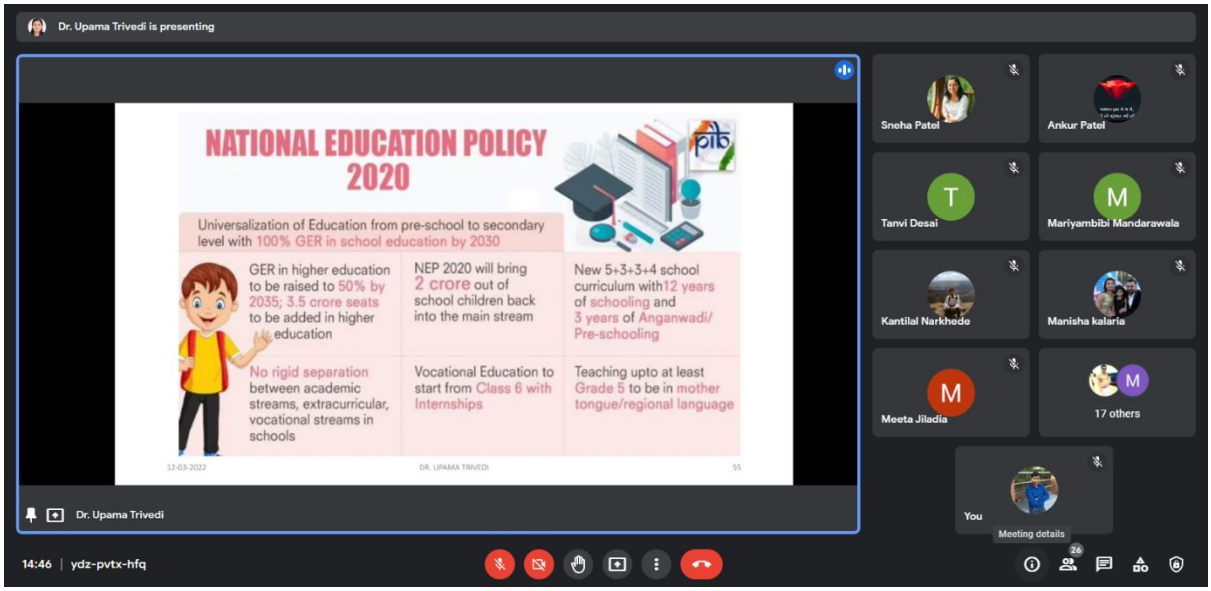
Lecture 15: Dr. Vijay Parmar

There were two sessions on last day of the Programme. First lecture was delivered by Dr. Punit Parejiya, Associate Professor, Dept. Pharmaceutics, KB Institute of Pharmaceutical Education and research, Ghandhinagar. He elaborated Six sigma methodology for formulation approaches. He discussed different ways of minimizing errors and producing products with minimum defects leading to increased customer satisfaction and reduced recalls, leading to reduction in overall production cost.



Lecture 16: Dr. Punit Parejiya

Second session was on national education policy- 2020 by Dr. Upama N. Trivedi, Professor, Sardar Patel College of Pharmacy, Bakrol, Anand, Gujarat. She explained various aspects of new education policy, entry level, education pattern, diploma, certificate, graduation etc. she also explained the flexibility provided by NEP with respect to study and its impact on reducing dropouts.



Lecture 17: Dr. Upama N. Trivedi

Valedictory function of the Faculty Development Programme was conducted after second session. Chief guest of the session was Chief Guest Mr. Hitesh Dholariya, Owner, Erva Healthcare Pvt. Ltd., Rajkot. He discussed problems faced by industries due to improper dissolution characteristics and a strong need of improving dissolution.

Valedictory Function

An Online MCQ based Examination was conducted covering topics discussed during the Faculty Development Programme. 49 participants attended the exam out of which 46 successfully cleared the examination. Attendance was recorded for all sessions through google forms. Considering the attendance and marks secured in the MCQ based examinations, 44 participants were found eligible for certificate and they were awarded e-certificates. The certificates were sent through e-mail to all successful participants.

Verbal and online form-based feedback was collected from all participants covering questions related to quality of sessions, content, schedule, duration etc.

Outcome of the Faculty Development Programme

Participants were sensitized with need of dissolution enhancement using statistical data published by different regulatory agencies and different approaches used for dissolution enhancement. Participants gained in depth knowledge of salt formation, solid dispersions, co-amorphous systems, liposomes, nanoparticles, self-emulsifying drug delivery systems, micronisation, cocrystals, quality by design approaches, 3D printing for soft materials, modifications of dissolution studies needed for poorly soluble drugs etc. The sessions will help the participants to find solutions for dissolution problems faced by pharmaceutical industries and will open new avenues for research in the field of dissolution enhancement. The faculty may encourage their students to work upon dissolution enhancement research projects further widening the knowledge and availability of data on dissolution and solubility.

The session on national education policy helped participants to know about the important provisions of new national education policy viz. entry age, multiple entry points, multiple exit points without loss of the years spent in study due to graded systems and earning of credits that may help if a student changes mind and switches to another course.