

Report on One Week (Interdisciplinary) Faculty Development Programme (FDP)

“Empowering Teachers for Engaged Learning in Higher Education”

Organised by Cluster Innovation Centre

(4th Dec to 8th Dec 2023)

A one week (Interdisciplinary) Faculty Development Programme (FDP) was organised by the Cluster Innovation Centre in collaboration with Mahatma Hansraj Faculty Development Centre, Hansraj College, from 4th-8th December 2023. This was a blended programme where participants were provided with pre-recorded sessions and live online lectures along with offline interactions and hands-on learning experiences. The programme aimed to enhance the teaching capabilities of faculty members, promote interactive and student-centered learning, and provide insights into emerging innovative pedagogical practices. This program got an immense response from the participants from a variety of disciplines including Medicine, Sciences, Mathematics, Arts and Humanities.

The FDP was started on 4th December 2023 at 11:30 AM in the Seminar Hall of Cluster Innovation Centre building. The participants were welcomed by the Director, CIC and Patron of FDP, Prof. Shobha Bagai and the Coordinator of FDP, Prof. Jyoti Sharma. Participants were briefed about the program and the resource persons. They were introduced with the Organizing Committee and other faculty members of the Cluster Innovation Centre. After a healthy exchange of information and ideas lunch was served at 1:00 PM. Session-wise summary report of the programme is given as follows:

Day 1: 4th December 2023 (Monday)

Session 1 (2:00 PM – 3:00 PM): The first interactive session of the programme was delivered by Prof. Dinesh Singh, former Vice Chancellor, DU and currently serving as Vice Chairman, Higher Education Council, J&K. Prof. Singh talked about the need for a change of pedagogy in higher educational institutions and the importance of project-based learning. The necessity for project-based learning in higher education is paramount, aligning with the evolving demands of the workforce. He emphasized that this approach cultivates critical thinking, problem-solving, and collaboration skills essential for real-world applications. Project-based learning engages students in hands-on experiences, fostering a deeper understanding of course material and

promoting self-directed learning. It addresses the demand for graduates who possess practical skills, adaptability, and the ability to work in interdisciplinary settings. Furthermore, project-based learning enhances students' motivation, creativity, and prepares them for the complexities of a rapidly changing professional landscape, ensuring they graduate with not only knowledge but also valuable practical experience.

Session 2 (3:00 PM – 4:00 PM): The second technical session (3:00 PM to 4:00 PM) by Prof. Hina Nandrajog, Acting Principal Vivekananda College was titled “Education Beyond Walls: Reviving the Joy of Learning”. Prof. Hina through her presentation emphasized on cultivating a love for learning beyond the confines of traditional classrooms. Higher education institutions in India have to envision holistic learning environment that transcends physical walls, encouraging students to explore and learn in diverse settings. Emphasis should be placed on creating an inclusive and nurturing space that fosters creativity, critical thinking, and collaboration. The core philosophy revolves around reviving the joy of learning by incorporating experiential and hands-on activities. Learning is not confined to textbooks; instead, it extends to real-world experiences that make education more engaging and meaningful. Prof. Hina encouraged participants to prepare themselves for a paradigm shift in education, where the aim is to create a dynamic and inclusive learning environment that fosters a love for learning, embraces technology, and prepares students for the complexities of the interconnected world. There is an urgent need to break down traditional barriers and cultivate a holistic approach to education that goes beyond physical walls.

Day 2: 5th December 2023 (Tuesday)

Session 3 (11:30 AM): The recorded session on "Experiences with Project-Based Learning in an Innovative Degree Program" provided insights into the implementation and outcomes of project-based learning (PBL) within a unique academic curriculum. This 90-minute session was delivered by Prof. Alka Sharma, Director, Skill Incubation Innovation Entrepreneurship Development Centre (SIIEDC), University of Jammu. The session focused on a departure from traditional teaching methods, emphasizing hands-on, experiential learning through real-world projects. Prof. Alka narrated her own experiences with designing the innovative degree program at her University which is heavily project-based and is being designed to provide students with a dynamic and practical education, moving away from traditional lecture-based approaches. In this

program project-based learning is identified as a central pedagogical strategy, allowing students to apply theoretical knowledge to real-world scenarios. Faculty members who act as mentors, collaborate to design and implement projects that challenge students to solve complex problems, fostering critical thinking and creativity. Prof. Alka highlighted the increased level of student engagement and ownership observed within the project-based learning framework. Students get actively involved in the planning, execution, and evaluation of projects, promoting a sense of responsibility for their own learning. One of the key strengths identified is the alignment of projects with industry needs and trends. Students gain practical experience and develop skills that are directly transferable to their future careers, enhancing their employability. Project-based learning encourages interdisciplinary collaboration among students and faculty. In summary, the lecture on "Experiences with Project-Based Learning in an Innovative Degree Program" underscores the effectiveness of project-based learning in fostering student engagement, interdisciplinary collaboration, and industry relevance.

Session 4 (2:00 PM – 3:00 PM): ‘Project-based Learning in Higher Education: Some Case Studies’ was an offline session conducted by Prof. Pankaj Tyagi, Dr. J.S. Purohit and Dr. Saleem Mir, faculty members at the Cluster Innovation Centre. Prof. Tyagi showcased the projects that the students and faculty members of M.Sc. Mathematics Education at CIC have been engaged with. He highlighted the role that projects have played in developing theories and theorems. Dr. J.S. Purohit showcased the projects of B.Tech. programme of CIC and highlighted the outcome of such projects as research publications. He has been associated with interdisciplinary and collaborative projects with Humanities and through his own experience he emphasized the role of interdisciplinarity. Dr. Saleem showcased the B.A. Honours projects and narrated the success stories of some social intervention based projects. He further talked about the entrepreneurship opportunities that students get through these projects. There have been many successful start-ups created out of the innovation projects by the students of CIC

Session 5 (3:10 PM – 5:10 PM): The hands-on session on Blender in a flipped classroom mode provided an immersive learning experience to the participants. This session was conducted by a group of students of B.Tech. with the supervision of Ms. Shobha Rai, Assistant Professor, CIC. A video was shared with the participants a day before introducing them to the 3D modeling software, Blender. All participants were asked to install the software on their laptops. The in-

class session then focused on practical application, problem-solving, and collaborative work. The session highlighted the effectiveness of blending online resources with hands-on, in-class activities, fostering a dynamic and student-centered learning environment for mastering the intricacies of Blender's 3D modeling capabilities.

Day 3: 6th December 2023 (Wednesday)

Session 6 (9:30 AM – 11:00 AM): Live online session on "Projects for Everyone: Citizen Science in India" by Dr. Asani Bhaduri, Assistant Professor, CIC, explored the concept and impact of citizen science initiatives in the Indian context. The speaker introduced the audience to the concept of citizen science, emphasizing the active participation of the public in scientific research. It was noted that citizen science involves individuals contributing to scientific projects, often collecting data or assisting in various research activities. The talk highlighted the inclusive nature of citizen science, making it accessible to individuals from diverse backgrounds and expertise levels. Participation is not limited to professional scientists; it encourages involvement from students, educators, and the general public. The speaker discussed the range of projects encompassed by citizen science initiatives in India. Such projects span various disciplines, including astronomy, ecology, biodiversity, climate science, and more, providing opportunities for participants to contribute to a broad spectrum of research. Technology was identified as a key enabler of citizen science initiatives, facilitating data collection, sharing, and analysis. Mobile apps, online platforms, and other digital tools are utilized to streamline participation and enhance the impact of citizen science projects. The talk emphasized the importance of community engagement in citizen science, fostering a sense of ownership and collaboration. The speaker discussed how citizen science initiatives have significantly expanded the scope and scale of scientific research in India. Citizen science projects were highlighted as powerful tools for education and raising public awareness about scientific issues. The talk showcased success stories of impactful citizen science projects in India. Examples were provided to illustrate how citizen scientists have made meaningful contributions to research and conservation efforts. Challenges associated with citizen science, such as data quality and scalability, were acknowledged.

Session 7 (11:30 AM): Recorded session on "Project-Based Learning: A Spark in Students' Curiosity-Creativity & Education's Real-World Utility" by Mr. Anshumali Saxena, Senior Social

Innovation/CSR Consultant, explored the transformative impact of project-based learning (PBL) on students' engagement, creativity, and the practical applicability of education. PBL was highlighted as a catalyst for sparking students' curiosity and fostering creativity. Through hands-on projects, students are encouraged to ask questions, explore ideas, and develop a natural curiosity for the subjects they are studying. The lecture emphasized the shift from a teacher-centered to a student-centered learning approach with PBL. Students take ownership of their learning, actively participating in the design, execution, and evaluation of projects. PBL was positioned as a bridge between academic knowledge and real-world application. Students gain practical skills and insights that are directly applicable to challenges they may encounter in their future careers. Educators were encouraged to embrace PBL as it enhances their role as facilitators and mentors. The approach allows for more personalized guidance, tailored to individual student needs. Practical solutions, including collaborative planning and ongoing professional development, were presented. The call to action encouraged educators to embrace PBL as a powerful tool for transforming the learning experience and preparing students for success in a dynamic world.

Session 8 (2:00 PM – 3:00 PM): The session on Blender continued, with participants creating 3D models and understanding the importance of such tools in teaching-learning process.

Session 9 (3:30 PM to 5:00 PM): Interactive online session on "Teaching in a Post-GPT World - The Way Ahead" by Prof. Kavi Arya, Professor of Computer Science & Engineering at IIT Mumbai, delved into the evolving landscape of education in the context of advanced artificial intelligence, particularly focusing on the impact of models like GPT (Generative Pre-trained Transformer). The speaker provided an overview of GPT and similar AI models, emphasizing their ability to generate human-like text and assist in various language-related tasks. Prof. Arya then explored the potential role of AI in educational contexts, ranging from content creation to personalized learning experiences. The talk highlighted the necessity for educators to adapt their teaching methods in response to the capabilities of advanced AI models. Emphasizing the importance of focusing on skills that AI may not replicate easily, such as critical thinking, creativity, and emotional intelligence the speaker encouraged participants for a collaborative approach where teachers and AI work together to enhance the learning experience for students. AI can be a valuable tool for automating routine tasks, providing instant feedback, and

personalizing educational content, allowing educators to focus on more nuanced aspects of teaching. Finally, he addressed ethical considerations related to AI in education, including concerns about bias, privacy, and the responsible use of AI technologies and advocated for a framework that prioritizes ethical considerations and transparency in the integration of AI in education. Prof. Arya further emphasized on the need for ongoing professional development for teachers to stay informed about AI advancements and incorporate them effectively into their teaching practices. In summary, the talk explored the intersection of education and advanced AI, discussing the evolving role of educators, the collaborative potential between teachers and AI, ethical considerations, and the importance of fostering future-ready skills in students. It provided insights into the way forward for education in a world influenced by transformative AI technologies.

Day 4: 7th December 2023 (Thursday)

Session 10 (11:00 AM): The recorded session on ‘Effective Use of Media Tools in Classroom’ by Prof. Krishna Shankar Kusuma, professor at the AJK Mass Communication Research Centre, JMI, emphasized the impactful integration of media tools in the classroom to enhance teaching and learning. Talking about the diverse array of tools available, the speaker highlighted the importance of engaging multimedia presentations, real-world examples, and visually compelling content to capture students' attention. Prof. Kusuma advocated accessibility and inclusivity, and underscored the role of technology in facilitating collaborative learning experiences. The speaker introduced a variety of media tools available for educational purposes, including audio, video, interactive presentations, and multimedia content. Visuals, including diagrams, infographics, and videos, were discussed as effective tools for conveying complex concepts and making the learning experience more accessible. He then discussed strategies for creating impactful multimedia presentations as the effective use of slides, images, and multimedia elements convey information in a compelling and memorable way.

Session 11 and 12 (2:00 PM – 5:00 PM): These two sessions on ‘Collaborative Development of PBL Modules’ involved participants and resource persons – Prof. Shobha Bagai, Dr. Geetanjali Kala, Dr. Dorje Dawa and Dr. Saleem Mir – in ideating and designing projects of social significance. The collaborative development of PBL modules harnesses the collective expertise and creativity of educators, fostering a student-centered, inquiry-driven learning environment. It

emphasizes the practical application of knowledge, critical thinking, and teamwork, aligning education with real-world challenges and preparing students for future success. The participants were divided into three groups of 5-6 members each. They were instructed to design projects keeping in mind the real-world scenarios. After brainstorming sessions following three project ideas evolved. 1. Assessment of Psychological, Pathological and Socioeconomic Outcome of Spitting at Public Place; 2. Public Washrooms in Delhi: Sanitation and the Scope for Smartness; and 3. Impact of Smoking in Teachers & Students on Academic Performances in Higher Education Set-up.

Day 5: 8th December 2023 (Friday)

Session 13 (2:00 PM – 3:30 PM): Assessment in Project-Based Learning (PBL) modules is multifaceted, emphasizing continuous evaluation, feedback, and real-world application. Different modes and methods of assessment and evaluation of projects were discussed. Participants were provided with the experience of assessing projects at CIC, the challenges faced and the innovative assessment modes evolved over time. Formative assessment, peer assessment, self-assessment, feedback and continuous evaluation methods were discussed by the instructors Prof. Shobha Bagai and Dr. Saleem Mir. The assessment methods for project-based learning were discussed, emphasizing a comprehensive evaluation that goes beyond traditional exams. Continuous feedback loops are integrated, allowing students to reflect on their progress and make improvements. Common challenges associated with implementing PBL, such as resource constraints and assessment methods, were also discussed. Incorporating diverse assessment modes, providing continuous feedback, and embracing a holistic approach to evaluation ensure that PBL modules foster deep learning, critical thinking, and real-world application of knowledge. Eventually, the project ideas developed by groups were presented by the respective groups and were evaluated by the resource persons.

Valedictory session was held at 3:30 PM which was followed by high tea.

Dr. Mohd Saleem Mir
(Convener)

Date: 11.12.2023