



Tools and Techniques in STEM Education

Ajeenkya D. Y. Patil Engineering College, Pune.

Date: 27th May 2022, Time: 10 am to 4 pm



Organized By	Pune Knowledge Cluster (PKC)
Date	27th May 2022
Time	10 am to 4 pm
Location	Ajeenkya DY Patil University, Pune, Maharashtra. DY Patil Knowledge City Rd, Charholi Budruk, Pune, Maharashtra 412105
Who Should Attend	Under-graduate(UG) and Post-graduate(PG) college teachers
About the session	When questions demand of us that we engage creatively, respond innovatively, or to evaluate, then we need to engage in higher-order thinking. The workshop for teachers emphasises using Techniques and teaching tools to develop skills and deep content understanding. The session will focus on Creative thinking, higher order thinking skills that teachers can develop and use in their classroom teaching to improve the teaching learning process.
Potential Gains of the Event	Higher order thinking (HOT) is thinking on a level that is higher than memorising facts or telling something back to someone exactly the way it was told to you. HOT takes thinking to higher levels than restating the facts and requires students to do something with the facts — understand them, infer from them, connect them to other facts and concepts, categorise them, manipulate them, put them together in new or novel ways, and apply them as we seek new solutions to new problems. Teaching methodology learned by teachers can facilitate proper understanding in students. Make classroom teaching interesting, promote creative thinking and make learning fun.
Speaker(s)	Dr Anupma Harshal
PKC Contact information	Dr. Anupma Harshal, anupmas@pkc.org.in Dr. Shilpa Jain, shilpa.jain@pkc.org.in , Website: https://www.pkc.org.in/

Schedule


Time	Activity	Format
10.00-10:30	Introduction to Pune Knowledge Cluster and about the WEnyan scholarship program	Presentation
10.30-11.30	<p>The art of observation-engage in elaboration and explanation of facts and ideas</p> <p>Delegates will be provided 3 objects (1 chocolate, a flower and a candle) and will be drawing their observations in a format defined. They will list these down using pen and paper.</p>	<p>Introduction of participants</p> <p>Interactive activity</p>
11.30-12.30	<p>Creative thinking, higher order thinking skills analyzing, evaluating, and creating</p> <p>Activity 1- https://docs.google.com/document/d/1CSErxq0EB_bMmya3SJ3Jwv1kgonAnil/edit?usp=sharing&ouid=101884442798324971840&rt=pof=true&sd=true</p> <p>Activity 2- Design a logo (creative-for example, invent, imagine, design, show how)</p> <p>Activity 3- Connect concepts and teach to infer</p>	Interactive session
12.30 -1.00	<p>Data Management</p> <p>Activities that will help introduce them to data sorting, curation of datasets and mathematical equations</p>	Group Activity
1.00-1:30	Lunch	
1.30-2.45	<p>Learning with tools (eg.Foldscope)</p> <p>Activity-They will make paper slides and use an optical instrument to answer questions related to everyday life (Fibers, crystals, cells)</p>	Group Activity
2.45 -3.15	<p>Developing research perspective</p> <p>Activity-You need to attend a get together/a party where there is a theme that says you need to dress up as a character.</p> <p>Breaking it down as to how to develop a research mindset, ask questions and more</p>	Review of Delegates performance
3.15-3.45	Mentor-Mentee Relationship	Group Activity/Getting on with practical applications

	Activity-An infographic of what is an ideal mentor and outlining the expectations from a student	
3.45-4.00	Reflection, Feedback, Summary of the day	The session ends

- *The sessions include several ice breaker activities.*
- *There may be slight changes in the session schedule depending on the time of engagement of the participants.*

Profile of Trainers	
 Dr. Anupma Harshal Project Manager PKC	<p>Dr. Anupma Harshal W. is a Biochemist trained at Hindustan Lever Research Centre, Mumbai. She is a recipient of the prestigious Superheroes against Superbugs Fellowship and has 20 years of teaching expertise post Ph.D. She has 28 undergraduate research projects to her credit of which 11 has received funding from UGC, Mumbai University, Private labs and Ministry of Science & Technology. As a Consultant for Science Outreach and Public Engagement on DBT Sponsored, Project Manav she conducted 205 multilingual workshops. She developed content for Scientific Comprehension and several engaging activities for student engagement and retention. She has collaborated extensively with the NER for the foldscope Phase 1 Project and has contributed extensively to Research, STEM education, outreach, Teacher training and Pedagogy.</p>
 Dr. Shilpa Jain Program Manager PKC	<p>Dr. Shilpa Jain is a Ph.D. in Physics, from Savitribai Phule Pune University. She has worked as Program Officer at IITM Pune, Program Manager/Coordinator on various funded projects at IISER Pune. She also has corporate/industrial experience. She has interests in Program Management, Research, Data analysis, STEM education & outreach, Teacher training and Pedagogy. With more than 22 years of experience spanning through basic research, technical industry, academics, development of sensors, environmental sciences, program coordination and management, academics & industry collaborations, pedagogy, science popularisation/outreach, teacher enablement, she also has more than 09 international and 05 national research publications. She is presently working as Program Manager, Capacity building in various areas especially STEM education to empower teachers, students, working professionals to become more fulfilled & engaged citizens.</p>

About Organizers

	<p>The Pune Knowledge Cluster (PKC) has been established by the Office of the Principal Scientific Adviser to the Government of India. The aim is to bring together academia, R&D institutions, and the industry of Pune and its surrounding areas, to address the challenging problems of the region through innovative means, using scientific knowledge and engaging highly skilled human resources. Furthermore, PKC aims to foster capacity building</p>
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	<p>and promote skills development and entrepreneurship among the students and professionals of the city. All relevant organisations and experts will be partners and consulted to identify sustainable solutions to the problems of the city and improve its liveability and prosperity.</p> <p>While the PKC is administered by the Inter-University Centre for Astronomy and Astrophysics (IUCAA), it is a project for the whole city. In the initial phase, PKC would focus on air, water, health, and sustainable mobility. For more information, visit: https://www.pkc.org.in/</p>
	<p>The Ajeenkya DY Patil University is an Innovation University. We are a community of faculty, students, industry, and businesses who drive the culture of innovation. In a world that needs idea-generators, strategic thinkers, people with a creative mindset and passion for problem solving, the university is a powerhouse of talent and ideas. Further information is available on https://adypu.edu.in/</p>