5.5 Innovations by Faculties in teaching and learning [2019-20 to 2021-22]

The faculty of our college has adopted various innovative teaching and learning methods during their completion of the curriculum. The basis of most of the techniques adopted by our faculty is use of ICT as it opens up opportunities for learning by enabling the learners to access, extend, transform and share ideas in multi-modal communication forms.

I. The college has created YouTube channel for the students and learners.

Link of the channel: https://www.youtube.com/c/mcopnigdi

The educational videos and lectures by the faculty and invited experts were uploaded on the channel to facilitate student learning. The list of YouTube videos is attached.
Total 546 videos were uploaded on the college YouTube channel

II. List of few innovative methods adopted by our faculty in teaching and learning process:

The methods adopted by the faculty are uploaded on college website and social media for wide accessibility.

1. Student-centric learning

In this method, a student has been assigned topic included in the curriculum for preparation of summary presentation slide. In this regard the teacher gave detail inputs about the literature available, and also gave detailed information about the preparation and presentation of the subject in the class by using modern methods of presentation i.e. power point presentation (PPTs), video clip, animation, chart, graph etc. to make the presentation more effective, meaningful, interactive and understandable to the students. Besides, the other students of the class were informed to ask doubts and queries regarding the presentation. In other words, in this method, the student becomes a teacher and the teacher act as a facilitator. This exercise has been video recorded and uploaded on college website to motivate and inspire other learners.

Methods included in this innovative teaching practice are practiced by following faculty:

1. Description of method and program outcome: student centric learning by Prof. M. C. Kuchekar

2. Student-centric method: class seminars by Prof. U. S. Desai

3. Student-centric learning presentations by Prof. S. A. Vadje

4. Seminar pptn on allotted topic by Prof. P. P. Sarada

5. One-page tutorial on experiments by Prof. P. M. Patil

6. Seminar presentation on allotted topic by Prof. S. S. Bhosale

In fact, this method of learning has got overwhelming response from students since the process enables students to evaluate, analyze, apply and understand the concept clearly. The students do integrate, consolidate and simplify the concept to enhance their learning competencies. This method has also enhanced communication, confidence and interactive learning. The effectiveness of this method maps PO1, PO2, PO3, PO5, PO8, PO9, & PO11.

2. Learning by doing

This is a unique method of learning to enhance the hands-on experience and practical skills of the learner.

Methods included in this innovative teaching practice are practiced by following faculty:

1. by Prof. K. A. Kedar

2. Student-centric method: by Prof. P. S. Kore

In view of above facts, students develop hands-on experience, lateral thinking, multidimensional thinking, cognitive skills, and critical thinking with the help of learning by doing. In facts student are attracted to new challenges and get knowledge and skills to deal with real life solutions. The effectiveness of this learning method maps with PO1, PO2, PO3, PO6, PO9, PO10.

3. Blended Learning

Blended learning is an amalgamation of face to face learning, and use of multimedia to make the learning meaningful and understandable. In this exercise, a conventional face to face discussion method has been blended with video clips, animation and graphs as and when it is necessary to simplify the complex concept or mechanism for better clarity.

In industrial pharmacy certain concepts are more vivid with the help of video clips where student get utmost clarity and in depth understanding. The use of multimedia in combination with face to face method is more impactful where student are made aware of modern concept of industrial requirement.

Methods included in this innovative teaching practice are practiced by following faculty:

1. Blended learning by Prof. R. A. Jinturkar

2. Blended learning by Prof. M. T. Harde

This method also develops, critical thinking, lateral, thinking, conceptual understanding required for employability skills. The effectiveness of this method maps with PO1, PO3, PO4, PO6, PO9, PO11.

4. Developing 3 D Models

This is a unique teaching method used to study highly intricate concepts which is difficult to understand by the students. In order to make the complex methods, apparatus, processes simplified and understandable the inputs from students have been carefully studied and a 3-Dimensional model of the same has been conceptualized and subsequently developed.

This is a Unique method of learning which boost creativity, inquisitiveness, special visualization, perceptual speed, inductive learning and visual perception.

Methods included in this innovative teaching practice are practiced by following faculty:

1. Diffusion cell demonstration model by Prof. U. C. Galgatte

2. Spredability test apparatus by Prof. A. G. More

3. Digital Angle of repose model by Prof. N. M. Gaikwad

Moreover, these faculty members have filed design and copyright patents for the same.

This is an interdisciplinary work incorporating 3 Dimensional concepts to develop model of the method, apparatus or process. The effectiveness of this method maps with PO1, PO2, PO3, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11.

5. Molecular Modeling of Desired Drugs (AST)

This is a unique method of learning which boosts creativity, inquisitiveness, spatial visualization, perceptual speed, inductive learning, and visual perception. Molecular structure of different drug is highly intricate and available only in 2D form which is a major hurdle in understanding the 3D structure of drug specially in understanding stereo chemistry. In this method, an attempt has been made to design and developed 3D models of drug in order to understand the structural arrangement in space, bond, bond distance, angle, orientation, configuration, confirmation and proper dimension which is highly difficult to explain and elaborate with the help of 2D model. in this exercise student are given detail input regarding the designing of molecular model by using Darling Flexible Molecular Model Kit which has an interesting arrangement of push and pull coupling system. The students of Final Year B Pharm. have been assigned a drug to design and develop its 3D molecular model by using molecular model kit.

This method has generated interest in student by getting better context, a greater sense of perfection, visualization, conceptual understanding, and more engaging activity. This allows student to better connect with learning material. This technique has sharpened critical thinking, problem, solving, conceptual understanding, application skill which is a basis for the development of analytical reasoning and decision making.

Methods included in this innovative teaching practice are practiced by following faculty:

Preparation of 3 D model for stereochemistry by Prof. A. S. Tapkir

This method also enable student to develop self-directed learning skills. Students do develop feeling of accomplishment for getting in depth knowledge and skills. In this method student are more focused engaging self-motivated for getting insight knowledge of the subject. the effectiveness of this method maps with PO1, PO2, PO3, PO4, PO7, PO9, PO11

6. Creative Learning

This method of learning has been used in pharmacognosy laboratory practicals to study macro and micro morphological characters of crude drugs for authentication. In this exercise, students have been given detail inputs about the significance of micro morphological characters such as trichomes, stomata's, tracheae's, vessels, leaf architecture and type of calcium oxalate crystals which are highly constant, consistent and characteristic of a crude drug. Students have been asked to craft the acrylic models of above-mentioned parts of the plants to develop creativity, imagination, multidimensional thinking, ingenuity and conceptual understanding.

Methods included in this innovative teaching practice are practiced by following faculty:

Creative learning method by Prof. B. P. Pimple

This method also boosts insight of the subject. The effectiveness of this method maps with PO1, PO2, PO4 and PO11.

7. Experiential Learning

In this exercise, a group of 3-4 students have been identified and assigned experiment incorporated in the curriculum. The students are given detail inputs about the theory, logic and significance of the experiment. Subsequently student experiment, reflect and conceptualize during the experimentation. One participant of the group elaborates the protocol, requirements. The second participant explains about the working and handling of the equipment, while the third participant elaborates about the reflective ideas and, the fourth participant highlights the conclusion of experiment.

This method has holistic perspectives which include experience, perception, cognition, collaboration, coordination and cooperation. In fact, this learning method basically encompasses concrete learning, reflective observation, abstract conceptualization and active experimentation. The learners are attracted to new challenge and solve the problem intuitively.

Methods included in this innovative teaching practice are practiced by following faculty:

Practical steps in graphical abstract form by Prof. S. A. Vadje

Demonstration of videos of experiments by students by Prof. K. S. Kore

The effectiveness of this learning method maps with PO1, PO2, PO3, PO5, PO9, PO10, PO11.

8. Project based learning

It is a unique method of student centric pedagogy where students integrate their finding by knowing and doing. In fact, this activity involves either assignment of small project or field work. Project based learning is a collaborative activity which involves planning, designing, analyzing, drawing conclusion, and lastly sharing the ideas within a team. The team comprises of slow and advanced learner. In this method projects are assigned to a group of 2-3 students including slow learners and advanced learners in order to inspire and motivate slow learner for the improvement of overall performance. This method is applied for environmental studies where students have been assigned project of major environmental issues which have profound impact on sustainable life.

The students have explored the major issues like water pollution, solid waste management, hospital waste management and water harvesting in which students have complied and consolidated exhaustive information by the way and field observation, data collection related to the current scenario. In this activity student acquires deeper knowledge exploration, field collection, data collection, and meticulous observation in order to acquire knowledge of real-world challenges and problem.

Methods included in this innovative teaching practice are practiced by following faculty:

1. Project based learning by Prof. N. M. Gaikwad

2. Project based learning by Prof. R. M. Gurav

The effectiveness of this learning method maps with PO1, PO2, PO3, PO5, PO9, PO10, PO11.