

QUALITY CIRCLE: AN APPROACH TO EMPOWER ENGINEERING EDUCATION

A quality circle is a volunteer group composed of faculty members, who are trained to identify, analyze and solve work-related problems and present their solutions to the management in order to improve performance of the organization.

Rajarambapu Institute of Technology (R.I.T.), Islampur, Maharashtra, India is successfully implementing this activity. As a part of quality circle, all the departments in the institute participate in this activity. The activity starts in the month of August with group formation and ends in May with final presentations and evaluation of the groups. Faculty members identify work related problem, solve the problem as per 12 step quality circle methodology and develop as well as implement the solutions in order to contribute to the academic empowerment.

Theme for 2021-22 was 'Development of Virtual Laboratory'. The aim of development of virtual laboratory was to provide students a chance to perform experiments using the internet and visual aids without having the equipment's at their end. The Virtual lab program presents a unique opportunity to boost the quality of engineering education, deepen understanding, and provide the necessary practical skills to young minds through cost effective outreach and distance learning activities. These VLS provide access to video lectures of the experiments, animation related to experiments, additional web resources and self-evaluation.

In the first semester, a team of faculty members from all the departments in the institute had identified a laboratory course and designed a detailed laboratory plan to provide all resources virtually. The team members initially identified various ICT tools and selected appropriate ones according to suitability and need of the experiments. In the second semester, virtual lab platform was implemented, which consisted of theory, introduction, a pre-lab quiz, a lab video and notes, simulations, a post-lab quiz, recording of readings, conclusion, applications, discussion board and feedback etc.

Virtual Lab developed under Quality Circle for the academic year 2021-22 (Table 1) are listed below gives an idea about the contribution of the activity in improvement in teaching-learning.

Table 1: Virtual Lab developed under Quality Circle for the academic year 2021-22

Sr. No.	Title of the Problem
1	Automobile Engineering Lab.
2	Strength of Material Lab.
3	Basic Electrical Engineering mobile-based Lab.
4	C++ Programming Language Lab.
5	Computer Network Lab.
6	C++ Programming Language Lab.
7	Engineering Chemistry Lab.
8	CAD Modelling Lab.
9	RIMS Virtual BIZ and Investment Lab.
10	Electrical Engineering Lab.
11	Web Domain Barrier for development of virtual lab

Achievements of Quality Circle

The institute is a regular member of Quality Circle Forum of India (QCFI), Secunderabad and takes part in competitions organized by it at chapter and national level every year. The following Table No 2 shows the awards received in various conventions for the academic year 2021-22.

Table 2

Name of Department/ Team	Awards received at Chapter and National Convention on Quality Circle
Quality Circle Team, "Frugal Innovations" from Electronics and Telecommunication Engineering Department	Received Funds of Rs. 75000/- for Design and develop low-cost sun tube for metal sheet roof. by Shivaji University, Kolhapur, July 2022.
Quality Circle Team "VANQUISHERS" from Computer Science and Engineering Department	Gold Award at 36 th Annual Chapter Convention CCQC 2021, at Quality Circle Forum of India, Pune chapter through virtual mode which was held on 23 rd October 2021.
Quality Circle Team "VANQUISHERS" from Computer Science and Engineering Department	Excellent Award at the 35 th National Convention on Quality Concepts (NCQC 2021) through virtual mode organized by QCFI in collaboration with PSG Institute of Technology and Applied Research (PSG iTech) Coimbatore and hosted by QCFI Coimbatore Chapter from 27th to 30th December, 2021.
Quality Circle Team "ELITE" from Mechanical Engineering Department (Diploma Wing)	GOLD Award in the 36 th Annual Chapter Convention CCQC 2021, at Quality Circle Forum of India, Pune chapter through virtual mode which was held on 23 rd October 2021.
Quality Circle Team "ELITE" from Mechanical Engineering Department (Diploma Wing)	Distinguish Award at the 35 th National Convention on Quality Concepts (NCQC 2021) through virtual mode organized by QCFI in collaboration with PSG Institute of Technology and Applied Research (PSG iTech) Coimbatore and hosted by QCFI Coimbatore Chapter from 27th to 30th December, 2021.

Outcomes Achieved: This kind of activity gives the faculty members an opportunity to

- Work together, work collaboratively towards a common goal and understand systematic methodology for problem solving of any type.
- Be recognized at institute; state, national and international levels organized by Quality Circle Forum of India (QCFI) and gives them a chance to experience joy of learning.
- Develop learning resource material and experimental setup
- Create research culture in the institute.

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