

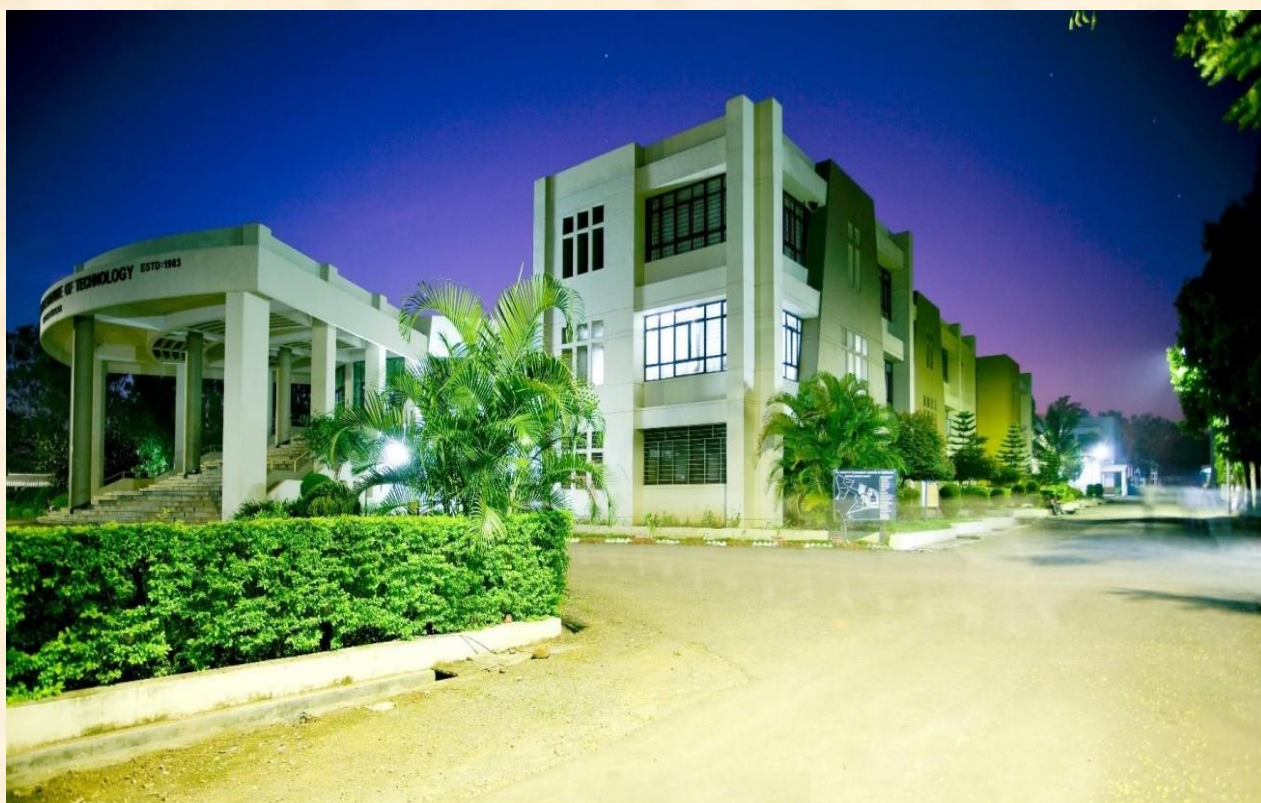
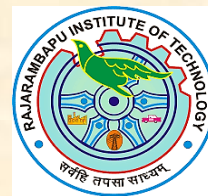


Kasegaon Education Society's

Rajarambapu Institute of Technology, Rajaramnagar

An Autonomous Institute,

(Approved by AICTE, Affiliated to Shivaji University, Kolhapur)



Quality Circle

Table of Content

Sr. No.	Contents	Page Number
1	Introduction	2
2	Methodology: Problem Solving Tools and Techniques	4
3	History of Quality Circle at RIT	6
4	Process of operation of QC at RIT	7
5	Sample Problems undertaken at RIT	8
6	Achievements, awards received	10
7	Glimpses of Success, Outcomes Achieved	11

Introduction

Quality Circle -A way to Quality Improvement

- Quality Circle is a small group of 6 to 12 employees doing similar work.
- voluntarily meet together on a regular basis to identify improvements in their respective work areas.
- Analyzing and solving work related problems using proven techniques for achieving and sustaining excellence leading to mutual upliftment of employees as well as the organization.

Genesis of Quality Circles

- Quality circles were originally associated with Japanese management and manufacturing techniques.
- The introduction of quality circles in Japan in the post-war years was inspired by the lectures of W. Edwards Deming (1900- 1993), a statistician for the U.S. government.

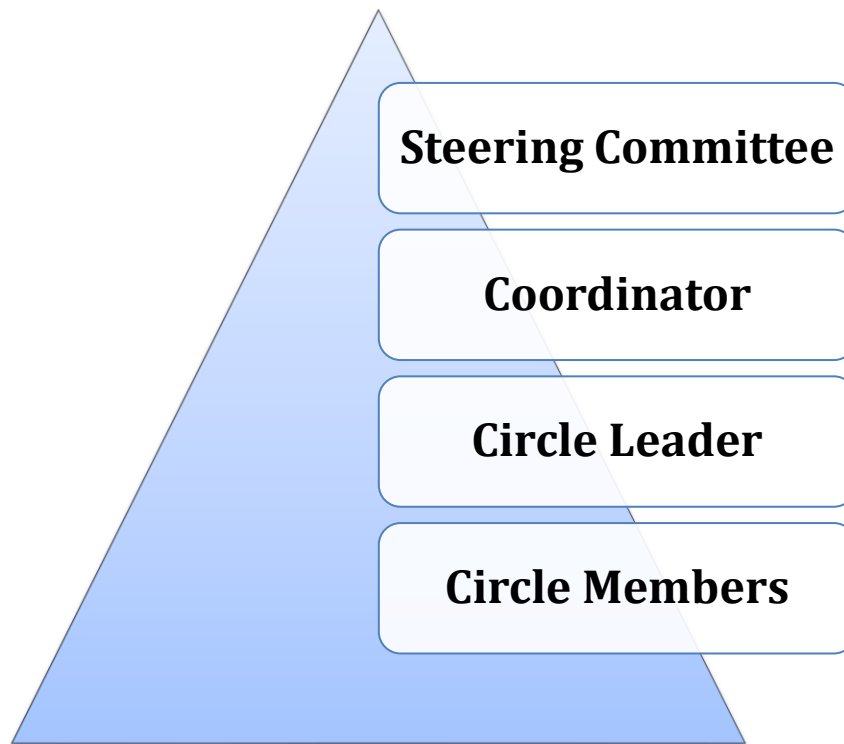
Characteristics of Quality Circle

- Quality circle is small primary groups of employees whose lower limit is three and upper limit twelve.
- The membership of quality circle is most voluntary.
- Each circle is lead by area supervisor.
- The member meets regularly every week or according to an agreed schedule.
- The circle members are specially trained in techniques of analysis and problem solving.
- The basic role of circles to identify and solve work related problems for improving quality and productivity.
- Quality circle enables their member to exercise their hidden talents for tackling challenging tasks.



Objectives of Quality Circle

- **Change in Attitude**
Continuous improvement in quality of work life through humanization of work
- **Self-Development**
Bring out 'Hidden Potential' of people, People get to learn additional skills.
- **Development of Team Spirit**
Eliminate inter departmental conflicts.
- **Improved Organizational Culture**
Positive working environment, Higher motivational level.

Who works for Quality Circles?

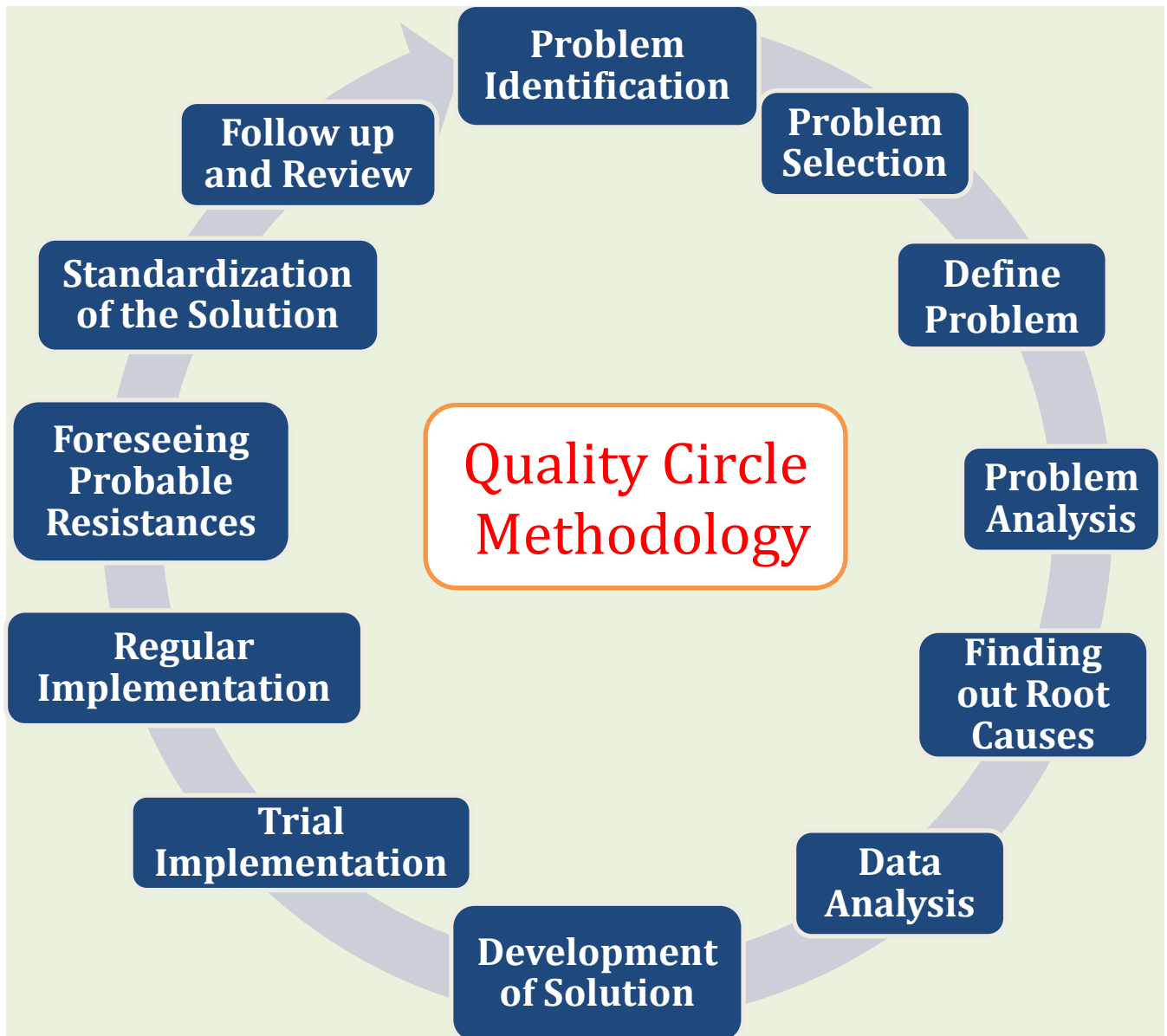
Steering committee: This is at the top of the structure. It is headed by a senior executive and includes representatives from the top management personnel and human resources development people. It establishes policy, plans and directs the program and meets usually once in a month.

Co-ordinator: He may be a Personnel or Administrative officer who co-ordinates and supervises the work of the facilitators and administers the program.

Circle leader: Circle leader may be from lowest level supervisors. A circle leader organizes and conducts circle activities.

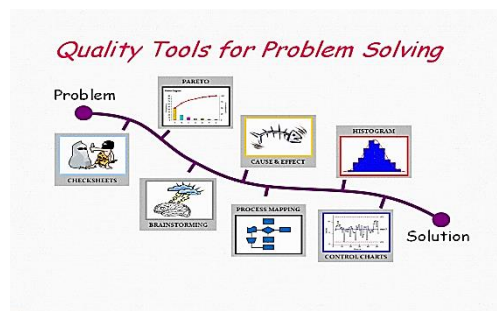
Circle members: They may be staff workers. Without circle members the program cannot exist. They are the lifeblood of quality circles. They should attend all meetings as far as possible, offer suggestions and ideas, participate actively in group process. The roles of Steering Committee and Circle members are well defined.

Methodology: Problem Solving Tools and Techniques



Methodology: Problem Solving Tools and Techniques

- 1. Problem Identification: Identify number of problems.** Brainstorming as a tool to be used to identify number of problems (51 minimum)
- 2. Problem Selection: Decide the priority and select the problem to be taken up first.** The problems categorized as student related, faculty related and institute facility related.
- 3. Problem Definition:** Problem is clarified and defined.
- 4. Problem Analysis:** The problem analysis involves data collection with regard to various aspects of the problem for converting the solution into reality which includes the consideration “who, what, when, where, why and how”.
- 5. Cause and Effect analysis:** Identify and evaluate causes and generate number of possible alternative solutions with the help of cause-and-effect diagram. (Ishikawa Diagram)
- 6. Data analysis for the root cause:** Which helps in finding out vital few causes from the trivial many. It enables to take a decision about measures to be taken to reduce occurrence of these vital few causes that are most critical towards the effect.
- 7. Finding Root Cause:** Why-Why analysis to be used as a tool wherein series of why-why questions are to be asked, starting with problem to the sub causes.
- 8. Development of Solution:** After finding root causes, brainstorming session to be conducted to arrive at possible alternative solutions and best solution amongst these.
- 9. Resistances Foreseen:** Some resistances are foreseen towards developing the solution and are to be taken care in advance due to strong willingness of the group members to implement the solution.
- 10. Trial Implementation:** Before final implementation, solution has to implement on trial basis and present solution for management approval.
- 11. Regular Implementation:** The management evaluates the recommended solution, and then it is implemented on full scale.
- 12. Follow up and Review:** After regular implementation, follow-up and review to be taken in the form of a feedback from the students/faculty/management by designing a questionnaire to be filled by them.

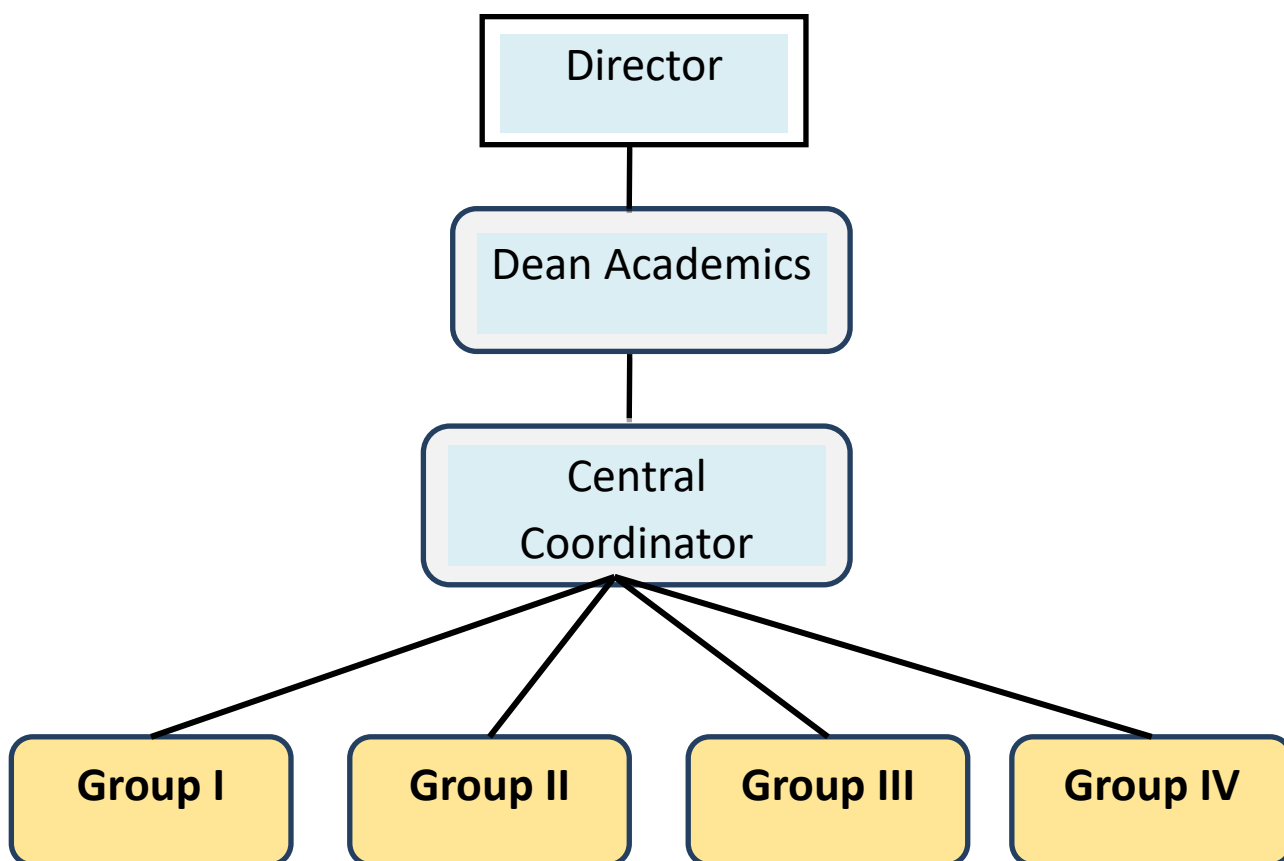


History of Quality Circle at RIT

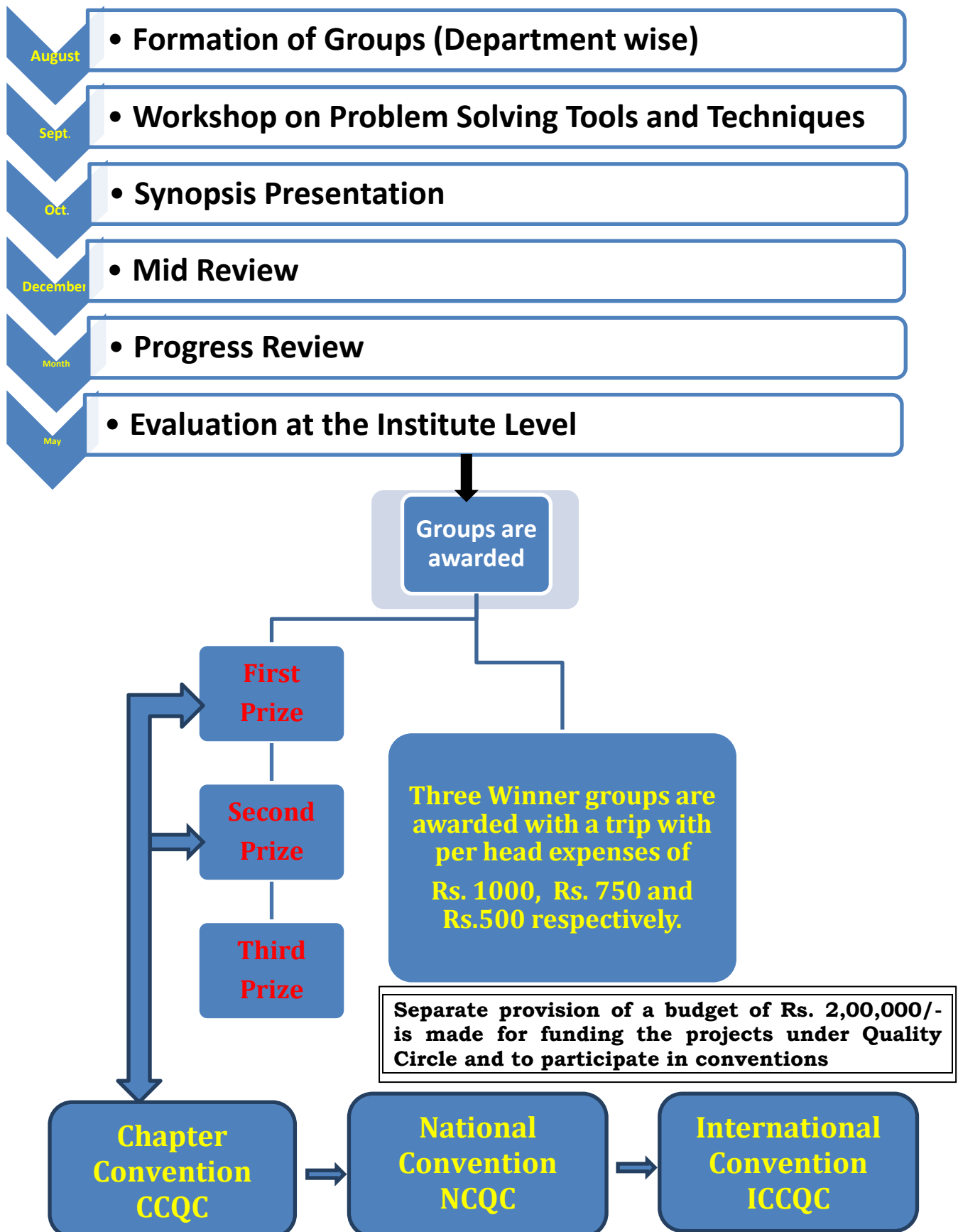
Rajarambapu Institute of Technology (R.I.T.) is continuously updating itself to achieve excellence through various academic practices and is one of those very few institutes implementing the methodology of Quality Circles in engineering education. The institute is devising and implementing number of practices with an objective to empower academics and one of such **'Best Practices'** is **'Quality Circle'** that is formed with faculty as its members. The institute has taken sincere efforts and proved over the years with the number of problems that are solved and the appreciation it has received.

Dr. Mrs. S. S. Kulkarni, Director of the institute had taken initiative to introduce the concept in order to develop team-building approach amongst the faculty members. The activity that was initially addressing general problems at the institute or department level had shifted its focus from last few years on problems related to academics only. Number of problems solved till date have contributed its share either through technology development, laboratory development, resource material for critical subjects or solutions on the problems related to society.

A quality circle is a volunteer group composed of faculty (or even students and staff), usually under the leadership of their facilitator (or an elected team leader), 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 and enrich the work of employees. It is also proved over the years that Quality Circle approach is not only useful in the industries but it also works in the field of education.



Process of operation of QC at RIT



Sample Problems undertaken at RIT

Department	Problem Undertaken
2020-21	
Automobile Engg.	Enhance consultancy projects to develop research environment in Automobile Engineering Department
Civil Engg	Difficulty in setting QP of good quality open ended questions for Theory & numerical based courses
Computer Sci. & Engg.	RIT Hostel Management
Electrical Engg.	Poor vocabulary of the students
Electronics & Tele. Engg.	Improve the H-index paper publication in department
Computer Science & Information Technology	Improving Research and Consultancy work of CSIT Department
Mechanical Engg.	Innovative Practices in Laboratories
Management Studies	Enhancing Student Competencies for Successful Career in Financial Management
2019-20	
Automobile Engg.	Burden of multiple ISEs on student
Civil Engg.	Improving Placements of UG & PG students
Computer Sci.& Engg	Implementation of E-Token Management system for RIT Central Library
Electrical Engg.	To improve consultancy work of the department
Electronics & Tele. Engg.	Design and develop day, night sun tube for metal sheet roofs.
Computer Science & Information Tech.	Strengthening students in identified weak areas.
Mechanical Engg.	Performance of students in practical/oral examination of some critical courses in mechanical engineering department
Management Studies	Refinement in consultancy strategies by adopting promotion schemes.
2018-19	
Automobile Engg.	Development of Project Laboratory in AED with additional support from Industry
Civil Engg	Slope Stability Analysis of soil using Model Study
Computer Sci &	Implementation of Automated System for NBA-SAR

Engineering	
Electrical Engg.	Improving Verbal & Written Communication of students
Electronics & Tele. Engg.	Energy Saving through reflectors
Computer Science & Information Technology	Adoption of new Industry oriented Software Engineering practices for Improving Students Academic projects.
Mechanical Engg.	Enhancement of Industrial consultancy of Mechanical Engineering Department
Management Studies	Improving the contribution of Research Publications for Professional Development
2017-18	
Automobile Engg.	Implementation of Project Based Learning (PBL) to enhance course deliverables and learning of students
Civil Engg	Improvement in revenue generation through consultancy for civil engg. Dept.
Computer Sci & Engineering	Ecosystem for unsafe of open-source technology in computer science and engineering department
Electrical Engg.	Mobile Application for Departmental Time Table
Electronics & Tele. Engg.	Effective Implementation of laboratory sessions
Computer Science & Information Technology	Lab automation using IOT
Mechanical Engg.	Incite research culture in Mechanical Engg. Dept.
Management Studies	Need of Industry Institute Interaction cell for Dept. of Mgt. studies.
2016-17	
Automobile Engg.	Lack of high merit students admitted in Automobile Engg. Dept.
Civil Engg	Restructuring & designing of parking spaces for RIT campus
Computer Sci.& Engineering	Social and Collaborative Learning in Computer Engineering
Electrical Engg.	Enhancing Industry –Institute Interaction of Electrical Engineering Dept.
Electronics & Tele. Engg.	Effective Implementation of Laboratory sessions
Computer Science & Information Technology	3D Course plan
Mechanical Engg.	Smart models to balance administrative and academics work
Management Studies	Promoting Research culture in Department

Achievements of Quality Circle at RIT

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. From last few years, several groups from R.I T. have represented the institute at the chapter (CCQC) and national conventions on quality circles (NCQC) organized by Quality Circle Forum of India (QCFI) and won awards such as excellence and par excellence in Chapter, National and International level conventions. This activity is the unique feature of the institute and it has shown useful results in terms of solution to several problems that are addressed last five years (2016-2021). Some of the problems (Table 1) are listed below gives an idea about the contribution of the activity in various competitions.

Table 1

Department	Problems undertaken	Awards Bagged	Year
Mechanical Engineering (Diploma Wing)	Enhancement of student approach for analytical courses in Online teaching - learning	Gold Medal Award at Chapter Convention Distinguished award in National Convention	2020-21
Computer Science & Engineering	Enhance and Nurture R& D Culture in CSE Department	Gold Medal Award at Chapter Convention Excellent award in National Convention	2020-21
Computer Science & Engineering	Quality Circle: A Case Study on Automatic Token Generation System for RIT Library	Presented and published research paper in, National Symposium on the theme, "Enhancing Quality & Driving change in Higher & Technical Education through NEP 2020	2019-20
Mechanical Engineering (Diploma Wing)	Case Study to Improve the growth of RIT Auto-Care	Presented and published research paper in, National Symposium on the theme, "Enhancing Quality & Driving change in Higher & Technical Education through NEP 2020	2019-20
Electronics Engineering	Implementation of project-based learning for best practices activities: A case study	Published research paper in AIP Conference Proceedings Cite as: AIP Conference Proceedings 2341, 020045 (2021); https://doi.org/10.1063/5.0049975	2019-20
Computer Science & Engineering	Implementation of Automated System for NBA-SAR	Gold Medal Award at Chapter Convention Excellent award in National Convention	2018-19
Information Technology	Adoption of new Industry oriented Software Engineering practices for Improving Students Academic projects	Gold Medal Award at Chapter Convention Excellent award in National Convention	2018-19
Mechanical Engineering	Incite research culture in Mechanical Engineering Department	Gold Medal Award at Chapter Convention Excellent award in National Convention	2017-18
Electrical Engineering (Diploma wing)	Inappropriate usage of electricity in college campus.	Gold Medal Award at Chapter Convention Excellent award in National Convention	2017-18

Glimpses of Quality Circle Success



Workshop on Quality Circle Methodology



Quality circle teams from all departments presenting their case studies at institute level



Quality circle case study presentation at institute level in front of panel of judges



**CCQC 2019 Computer Science Department
Quality Circle team receiving award in Chapter
Convention on Quality Concepts at Pune**



**CCQC 2019 Computer Science & Information Technology
Quality Circle team receiving award in Chapter
Convention on Quality Concepts at Pune**



**NCQC 2019 Computer Science Department
Quality circle team presenting their case study in
National Chapter convention on Quality Concepts**



**NCQC 2019 CSIT
Quality Circle team receiving award in National
Convention on Quality Concepts at Varanasi**



National Symposium on the theme, "Enhancing Quality & Driving change in Higher & Technical Education through NEP 2020 organized by Internal Quality Assurance Cell of Thakur College of Engineering and Technology, Mumbai



Research Paper
published a research paper titled "**Case Study to Improve the Growth of RIT Auto-Care**" in Scopus indexed journal "**Journal of Engineering Education Transformations (JEET)**" Volume No 35, August 2021, Special issue (Enhance Quality Education through NEP 2020) eISSN 2394-1707



**NCQC 2018
Quality Circle team Felicitated
by Hon. Director**



**NCQC 2018
Quality Circle team receiving
award at Varanasi**

SHIVAJI UNIVERSITY, KOLHAPUR-416 004, MAHARASHTRA
 (PHONE : 02131-240000, 2400145)
 E-MAIL : shivaji@shivaji.ac.in, shivaji@rediffmail.com
 Website : www.shivaji.ac.in, www.shivajiuniversity.org
 Shivaji Bhawan, Shivajinagar, 416 004, KOLHAPUR, (MAHARASHTRA) 416 004, 2400000, 2400145

Ref No.: SU/C&U.D.S/18/10/ P.C.S. Date: 15 JUL 2022

To,
 Dr. Jayashree Sudhir Awar, Rajarambapu Institute of Technology Rajaramnagar, Tal: Walwa, Dist: Sangli

Sub: Your project entitled, "Design and develop low cost sun tube for metal sheet roof"

Ref: Our Office Circular No: SU/C&U.D. Section/300, dt. 01/11/2021.

Sir/Madam,

With reference to your application for financial assistance for scheme under Research Initiation Scheme 2021-2022, I am directed to inform you that the research project entitled "Design and develop low cost sun tube for metal sheet roofs" has been accepted for the financial support under the scheme for the period of two years from the date of sanction. The total grant for the projects will be ₹. 750000. The first installment (i.e. advance) of ₹. 575000. The second installment of remaining grants will be released after submission of Final Report, Utilization Certificate, and Statement of Expenditure & Two Years Original Bills.

The Details of the funds sanctioned: -

Sr. No	Item	Amount sanctioned in Rs.			Grant released as First installment
		1 st Year	2 nd Year	Total	
A)	Recurring				
	1) Books and Journals	₹. 25000/-	₹. 25000/-	₹. 50000/-	₹. 25000/-
	2) Hiring services/Internship	₹. 50000/-	₹. 50000/-	₹. 100000/-	₹. 50000/-
	3) Field Work and Travel	₹. 50000/-	₹. 50000/-	₹. 100000/-	₹. 50000/-
	4) Chemical and Glassware	₹. 0/-	₹. 0/-	₹. 0/-	₹. 0/-
	5) Contingency	₹. 50000/-	₹. 50000/-	₹. 100000/-	₹. 50000/-
B)	Non-recurring				
	Equipment	₹. 40000/-	₹. 0/-	₹. 40000/-	₹. 40000/-
	Total	₹. 575000/-	₹. 175000/-	₹. 750000/-	₹. 575000/-

* Name of the Equipment: Electronic Components, Small Solar Panel, Glass, All Types of Metal Sheets, Reflector, diffuser.

Once the Project grant is approved, No Charges can be made to the funding.

After the one year complete of the Project, PI must be submitting his Midterm report with formatted Utilization Certificate, Statement of Expenditure & Original bills with Xerox copy set.

Thanking you,

Yours faithfully,
 Deputy Registrar,
 C&U.D. Section
 Shivaji University, Kolhapur

Encl. :- As above
 Copy to:-
 • Account (P.G. Bill) Section
 The Head/ Principal, Rajarambapu Institute of Technology Rajaramnagar, Tal: Walwa, Dist: Sangli

**Received Funds by Shivaji
University, Kolhapur
Design and develop low-cost sun
tube for metal sheet roof**

Outcomes Achieved

- An opportunity to work together, work collaboratively towards a common goal and understand systematic methodology for problem solving of any type.
- Awareness about academic problems and their solutions.
- Developed experimental setup and learning resource material.
- Create research culture in the institute.
- Recognition to team members and the institute at national and international levels through participation in several competitions



Kasegaon Education Society's

Rajarambapu Institute of Technology, Rajaramnagar

Post – Sakharale (Islampur), Tal. Walwa, Dist. Sangli

Maharashtra, India – 415 414.

E-mail: director@ritindia.edu

Tel. +91 2342 – 220329, 9970700700

Fax +91 2342 - 220989