

## **A Case Study of Implementing Quality Improvements in Inter – Departmental Activities at an Educational Institution**

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**Abstract:** We have seen note-worthy changes in different aspects related to Quality like definition of quality, tools & techniques used to achieve quality, role of different stakeholders etc. during last century and in particular during last three decades. Quality has become essential ingredient in any sector for survival in the era of globalization and technological advancements.

This paper is an attempt to showcase the quality improvements in activities related to examination at an Educational Institute as a case study. The first part describes the meaning of quality in general and historical development in the field of quality. The second part discusses the various activities / process related to examination at an educational institute and implementation of quality improvements in examination related activities through small group activities as a case study. It also highlights the outcomes and the benefits gained by implementation of quality improvements. The last part includes the concluding remarks.

**Key Words:** Quality Improvement, Kaizen, Small Task Group

### **1. Quality: An Introduction**

#### **1.1 General Background**

The world has witnessed two World Wars during the first half in the twentieth century resulting in to heavy damages not only in terms of human losses but also in the form of socio – economic point of view. Hence forth the countries involved in world wars had to re-build their nations through development with innovations resulting in competitions in various sectors / fields during which the “Quality” as concepts emerged. The concepts of Quality further understood, applied and innovated by various countries around the world and in particular by Japan because of the nuclear attack on it by USA in 1945.

Because of re-building and competition among the countries, numerous concepts, principles, tools & techniques were developed during the second half of the twentieth century leading to further competition. This forced the countries to change their strategies and to adopt the new tools & techniques and technological innovation for producing better quality products (Products & Services) for surviving the global competition particularly during the last two decades of the twentieth century.

## 1.1 What is Quality?

The meaning of Quality has been defined by different quality gurus and organizations since 1920s. The term Quality is many a time co-related with other terms like “excellence”, “wow”, “customer satisfaction” and “consistent”. The meaning of Quality has changed a lot since its origin with the advancement of technology and continued to change at present. There are many definitions of Quality quoted at different stages based on perception, innovations and competition. The few definitions of Quality are as follows.

***“Quality is fitness for use.”*** -- Joseph Juran (1974)

***“Quality is the total composite product and service characteristics of marketing, engineering, manufacture, and maintenance through which the product and service in use will meet the expectation by the customer.”*** – A. V. Feigenbaum (1983)

***“Quality is the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs.”*** -- International Organization for Standardization (ISO 8402:1986)

## 1. A Case Study

### 2.1 Introduction

Institute of Diploma Studies is a self financed institute established in 1997 (formerly known as Nirma Institute of Diploma Studies) by Nirma Education and Research Foundation. Since 2004, it is a constituent of Nirma University, Ahmedabad offering several Diploma Engineering programs like Mechanical, Electronics and Communication, Computer, Information Technology, Electrical, Chemical and Plastics Engineering.

The Institute has separate Examination Section for smooth conduction of different activities related to examination like conducting different examinations, preparing & declaring the results, preparing the examination related documents (Examination Programs, Mark sheets, Supervision Reports, Seating Arrangements etc), coordination with university’s examination section, procuring the necessary stationeries etc. The examination activities are greatly important and critical from institute’s perspective and from different stakeholder’s perspective. Hence the Quality in inter – departmental services (error – free and prompt services) are very much critical and need proper attention in performing various activities related to examination.

The author has understood the importance of quality in examination related services / activities and decided to implement Quality Improvement approach in the institute in August - 2011 after taking charge of Examination Section in the institute. The experience of two years (August – 2011 to August 2013) of implementation of Quality Improvement approach by using tools and techniques like small task group, kaizen, Brainstorming, Standardization, 5S, in different activities performed by Examination Section is presented as a case study.

## 2.2 Small Task Group

A Small Task Group is formed consisting of Director, Heads of Department, Section Head, and Coordinators, Examination Section at institute. This group interacts regularly to understand the different activities & issues concerned to examinations which are carried out in coordination with different departments of institute and university and to find solutions / improvements as a part of small group activities. Some of the activities carried out by the group with their impact are summarized in Table: 1

TABLE: 1. SUMMARY OF EXAMINATION ACTIVITIES DONE BEFORE AND AFTER KAIZEN WITH ITS IMPACT

Before	After	Improvement / Change with Impact
No document to understand different the processes related to examination.	<ul style="list-style-type: none"> <li>➤ All the processes related to examination are defined, identified &amp; conveyed to all concerned.</li> <li>➤ Responsibility &amp; Accountability are fixed.</li> </ul> <p><b>(Annexure - I)</b></p>	<ul style="list-style-type: none"> <li>✓ Created awareness of Quality &amp; its importance amongst all.</li> <li>✓ Easy, Step by step visualization of interrelated processes.</li> <li>✓ Prompt actions from all the concerned, hence no delays in any activities.</li> <li>✓ Consistent approach from all.</li> </ul>
No uniform format / structure of Question Paper	<ul style="list-style-type: none"> <li>➤ A workshop organized on “How to set Question Papers” for faculty members including framing of questions.</li> <li>➤ Common format of question paper is designed.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Quality of Question paper improved.</li> <li>✓ Uniform question papers with no errors.</li> </ul>
Observation of errors in Registration Forms (RPR Registration) and Block Examination Form filled by students.	<ul style="list-style-type: none"> <li>➤ Registration Form (RPR) and Block Examination Form are modified with the provision of checking &amp; authorizing the form by department before paying the fees.</li> </ul> <p><b>(Annexure – II)</b></p>	<ul style="list-style-type: none"> <li>✓ No errors observed.</li> <li>✓ No delay in receipt of the forms.</li> <li>✓ Better coordination in different departments.</li> </ul>
No / poor communication regarding paper printing.	<ul style="list-style-type: none"> <li>➤ A circular designed with instructions for paper printing.</li> <li>➤ Scan copy of circular is sent through e-mail to all concerned in advance.</li> </ul> <p><b>(Annexure – III)</b></p>	<ul style="list-style-type: none"> <li>✓ Prompt &amp; effective communication.</li> <li>✓ Simultaneously conveyed to all.</li> <li>✓ No photocopy is required.</li> </ul>

Two column format mark - sheets used with two pages for 90 – 120 entries.	➤ Four column format mark – sheets designed with provision of 140 entries in as single page. <b>(Annexure -IV)</b>	✓ Approximately 300 pages saved per semester with less printing work. ✓ Saving of time as stapling activity is eliminated.
Photocopies of Seating Arrangement for Block Examination were given to all departments.	➤ Scan copy of Seating Arrangement for Block Examination is sent to all through e-mail as examination is conducted by examination section centrally.	✓ Saving in terms of efforts, papers (Approx. 50 pages per semester) and cost of photocopies.
No acknowledgement for submission of sealed packet/s of question papers for Block Examination.	➤ A receipt is designed issued upon submission. <b>(Annexure -V)</b>	✓ Trustworthy & systematic process. ✓ No ambiguity / doubts.
Answer books & Supplementary Answer Sheet.	➤ Modified the Answer Book & Supplementary Answer Sheet as per revised regulations. ➤ 20 Pages Main Answer Books are designed. ➤ Spelling and grammatical errors are corrected.	✓ Easy identification of Answer Book & Supplementary Answer Sheet. ✓ 20 Pages Main Answer Books are used for courses like mathematics, so that less supplementary answer sheets are required.
Grade Reports with previous (old) details were used.	➤ Grade Reports with previous (old) details were modified as per new requirements through printing & used.	✓ Logical action & effective communication.
Improper record keeping.	➤ Concepts of 5S explained to assistant & adopted.	✓ Good record keeping leading quick retrieval of records. ✓ Better housekeeping.
Two rubber stamps are used for drawing sheets with too small space to write the necessary details for conduction of examination.	➤ A new rubber stamp is designed with all necessary details of appropriate size. <b>(Annexure -VI)</b>	✓ Less time to put the stamp on Drawing Sheet only one stamp is used. ✓ Proper space to write the details which neat & clearly readable.

### **2.3 Outcomes / Benefits / Success Achieved:**

The outcomes / benefits / success achieved so far of implantation of Quality Improvement approach in different examination activities / services are summarized as follows.

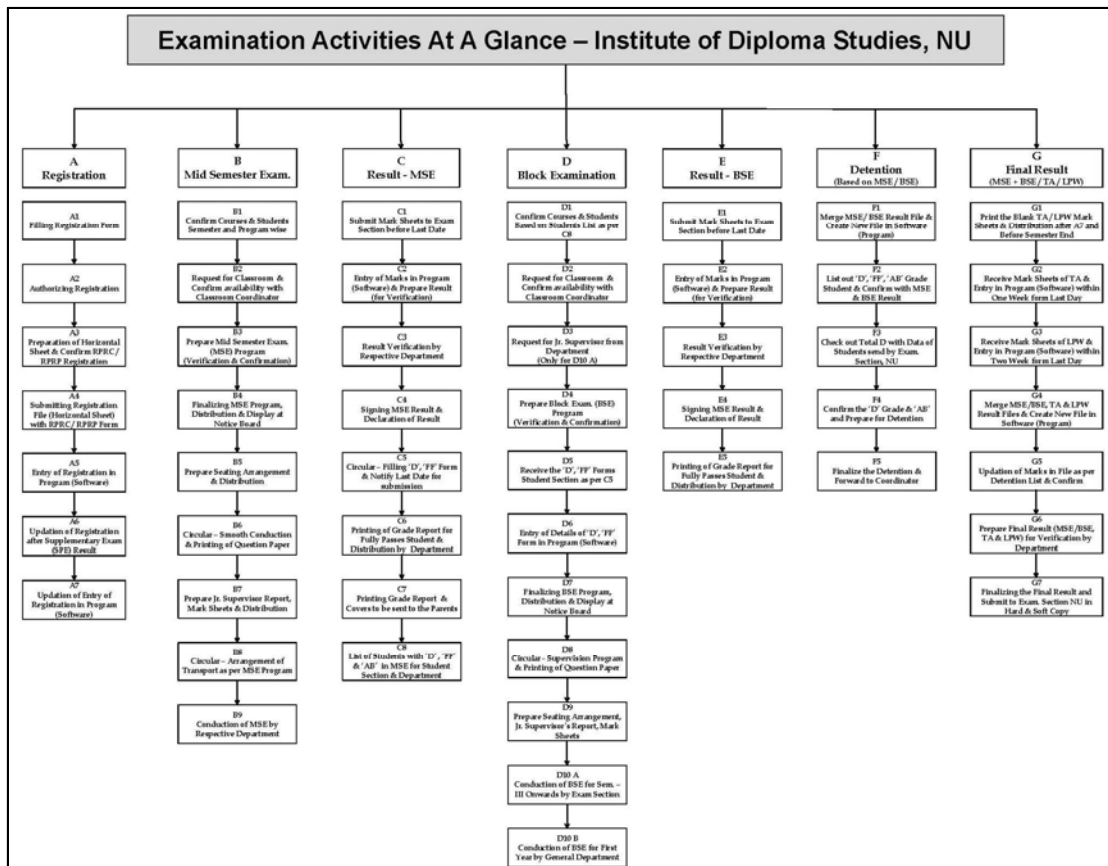
1. No delay has been observed in any activity / service of examination section.
2. Better coordination with all departments of institute and university.
3. There has been approximately saving of 110 pages per year (during two semesters) indirectly saving environment.
4. The suggestions / improvements given by department have been implemented showing involvement of all. i.e. showing teamwork in different activities.
5. There is reduction of time required to finish the examination activities by eliminating the unnecessary / repetitive activities because of process mapping & tree diagram.
6. The slow and steady change in mind set through awareness towards quality has been observed.
7. Some of the activities like seating arrangement, student detention are incorporated as examination activities as the data is available with examination section.
8. The benefits / success achieved so far with the same resources shows no increase in cost. Hence feasible at departmental level and at organizational level.

### **3. Conclusion**

The author strongly believes that constant Quality Improvement in all sphere of life is the only ingredient in the globalized world for the survival. The Quality Improvement approach is one of the simple, easy and economic options for betterment / innovations in any organization. The outcome / benefit of this case study justify implementation of Quality Improvement achieve better quality products / services with no requirement of addition resources. Hence the author suggest that it is essential and mandatory for various organizations in India to adopt such Quality Improvement approach in the 21<sup>st</sup> Century for surviving the global competition.

### **Acknowledgements**

I gratefully acknowledge the motivation, guidance and constant support of Prof. V R Iyer, Director, Institute of Diploma Studies, Nirma University, Ahmedabad during implantation of Quality Improvement approach in examination activities and in preparing this paper. I also acknowledge the support of all the Heads of Departments, Section Heads, as group to work and the faculty members and supporting staff of institute.



Processes with Responsibility

<b>A. Registration Process:</b>				
Sr. No	Description	Responsibility	Duration (Approx. Day)	Remarks
A1	Fill the Reg. Form	Student	As per Academic Calendar	
A2	Authorizing the Registration	Registration – In charge & Head	As per Academic Calendar	
A3	Preparation of Horizontal Sheet	Registration – In charge	Two Day	
A4	Submission of Registration File / Horizontal Sheet	Registration – In charge	One Week	
A5	Entry of Registration Details from File in Program / Software	Exam Section	One Week	
A6	Updation of Reg. File after Supplementary Exam (SPE) Result	Registration – In charge	Within Two Days of Result Declaration	For Provisionally Registered Students
A7	Updation of Entry in Program / Software as per updation after SPE	Exam Section	One Week	For Provisionally Registered Students

RPR Form (Before)

Sr. No.	Course Code	Course Title	To be filled by student		Offered with	
			Write RPRP/RPRC as the case may be	Corresponding Semester	Division	Separately

Date: \_\_\_\_\_

\_\_\_\_\_  
Signature of Student

RPR Form (After)

Sr. No.	Course Code	Course Title	To be filled by student		Offered with	
			Write RPRP/RPRC as the case may be	Corresponding Semester	Division	Separately

Date: \_\_\_\_\_

\_\_\_\_\_  
Signature of Student

\_\_\_\_\_  
Verified by Student Section

\_\_\_\_\_  
Checked by Regn. Officer

\_\_\_\_\_  
Authorized by HoD

Circular (Newly Designed)

**NIRMA UNIVERSITY**  
**Institute of Diploma Studies**

CIRCULAR

August 25, 2011

Subject: Mid Semester Examination (MSE) [IR / Backlog IR], August / September 2011

Class : (i) Diploma, Semester - III, V & VII (All Programmes)

For the smooth conduct of above Mid-Semester Examinations, all HODs are informed to take note of the following in all respects:

1. All necessary arrangements i.e. paper setting, supervision, etc. for conducting the Mid Semester Examination of Diploma - Semester III, V & VII will be made by the respective department.
2. Department should conduct the Examination as per Seating Arrangement provided by Exam Section - IDS. For smooth conduct of the examination seating arrangement should be displayed at each examination hall by the department.
3. Paper setters should get photocopies of the papers from PG Block. The necessary instructions to be kept in mind while taking photocopies should be as per the instructions given by Exam Section, Nirma University which is as below. In this reference, they should contact Mr. Farukh Mansuri (Jr. Assistant – Chemical / Plastic Department).

Director

**Copy to:** Executive Registrar / HODs / Dy. Registrar (Exam) / Chief Coordinator (Exam.) / STS /  
Circulation to concern faculties.

**Instructions:**

1. The typing of manuscript should be done in the confidential area of the institution or those who have got the computer at their residence can prepare such manuscript at residence.
2. Before taking the final printing of question paper, the concerned paper setter should carefully verify the paper and correct the mistake like spelling mistake, grammatical mistake, total of marks etc. if any
3. Paper setter should type the paper himself / herself and no other person shall be involved in typing or getting copies.
4. As soon as typing on the computer is over and the manuscript is finalized, the material should be erased or removed from the computer.
5. Under no circumstances such work should be carried out on the computer, **which is on internet or intranet.**



Two Column Mark sheet (Before)

Course Code: 1MAF08		Max. Marks: 50	
Course Name: Mathematics I			
Exam / Roll No	Marks Obtained	Exam / Roll No	Marks Obtained
10DME001		10DME042	
10DME002		10DME043	
10DME003		10DME044	
10DME004		10DME045	
10DME005		10DME046	
10DME006		10DME047	
10DME007		10DME049	
10DME008		10DME051	
10DME009		10DME052	
10DME010		10DME054	
10DME011		10DME055	
10DME012		10DME056	
10DME013		10DME057	
10DME014		10DME058	
10DME015		10DME059	
10DME016		10DME060	
10DME017		10DME061	
10DME018		10DME062	
10DME019		10DME063	
10DME020		10DME064	

Four Column Mark sheet (After)

Course Code: 1MAF08				Max. Marks: 50			
Course Name: Mathematics-I							
Exam./ Roll No.	Marks Obtained	Exam./ Roll No.	Marks Obtained	Exam./ Roll No.	Marks Obtained	Exam./ Roll No.	Marks Obtained
12DME001		12DME035		12DME069		12DME103	
12DME002		12DME036		12DME070		12DME104	
12DME003		12DME037		12DME071		12DME105	
12DME004		12DME038		12DME072		12DME106	
12DME005		12DME039		12DME073		12DME107	
12DME006		12DME040		12DME074		12DME108	
12DME007		12DME041		12DME075		12DME109	
12DME008		12DME042		12DME076		12DME110	
12DME009		12DME043		12DME077		12DME111	
12DME010		12DME044		12DME078		12DME112	
12DME011		12DME045		12DME079		12DME113	
12DME012		12DME046		12DME080		12DME114	
12DME013		12DME047		12DME081		12DME115	
12DME014		12DME048		12DME082		12DME116	
12DME015		12DME049		12DME083		12DME117	
12DME016		12DME050		12DME084		12DME118	
12DME017		12DME051		12DME085		12DME119	

Receipt for Submission of Examination Paper (Newly Designed)

<p style="text-align: center;"><b>Nirma University</b> <b>Institute of Diploma Studies</b></p> <p style="text-align: center;"><b>Receipt</b></p> <p>Exam. Section, IDS has received _____ sealed cover/s of Question Papers for Block Examination from ....</p> <p>Mr. / Ms.: _____</p> <p>Course Code &amp; Name: (1) _____ (2) _____ (3) _____</p> <p>Program: _____ On _____</p> <p style="text-align: right;">Receiver's Name &amp; Signature</p>	<p style="text-align: center;"><b>Nirma University</b> <b>Institute of Diploma Studies</b></p> <p style="text-align: center;"><b>Receipt</b></p> <p>Exam. Section, IDS has received _____ sealed cover/s of Question Papers for Block Examination from ....</p> <p>Mr. / Ms.: _____</p> <p>Course Code &amp; Name: (1) _____ (2) _____ (3) _____</p> <p>Program: _____ On _____</p> <p style="text-align: right;">Receiver's Name &amp; Signature</p>
<p style="text-align: center;"><b>Nirma University</b> <b>Institute of Diploma Studies</b></p> <p style="text-align: center;"><b>Receipt</b></p> <p>Exam. Section, IDS has received _____ sealed cover/s of Question Papers for Block Examination from ....</p> <p>Mr. / Ms.: _____</p> <p>Course Code &amp; Name: (1) _____ (2) _____ (3) _____</p> <p>Program: _____ On _____</p> <p style="text-align: right;">Receiver's Name &amp; Signature</p>	<p style="text-align: center;"><b>Nirma University</b> <b>Institute of Diploma Studies</b></p> <p style="text-align: center;"><b>Receipt</b></p> <p>Exam. Section, IDS has received _____ sealed cover/s of Question Papers for Block Examination from ....</p> <p>Mr. / Ms.: _____</p> <p>Course Code &amp; Name: (1) _____ (2) _____ (3) _____</p> <p>Program: _____ On _____</p> <p style="text-align: right;">Receiver's Name &amp; Signature</p>
<p style="text-align: center;"><b>Nirma University</b> <b>Institute of Diploma Studies</b></p> <p style="text-align: center;"><b>Receipt</b></p> <p>Exam. Section, IDS has received _____ sealed cover/s of Question Papers for Block Examination from ....</p> <p>Mr. / Ms.: _____</p> <p>Course Code &amp; Name: (1) _____ (2) _____ (3) _____</p> <p>Program: _____ On _____</p> <p style="text-align: right;">Receiver's Name &amp; Signature</p>	<p style="text-align: center;"><b>Nirma University</b> <b>Institute of Diploma Studies</b></p> <p style="text-align: center;"><b>Receipt</b></p> <p>Exam. Section, IDS has received _____ sealed cover/s of Question Papers for Block Examination from ....</p> <p>Mr. / Ms.: _____</p> <p>Course Code &amp; Name: (1) _____ (2) _____ (3) _____</p> <p>Program: _____ On _____</p> <p style="text-align: right;">Receiver's Name &amp; Signature</p>

Two Rubber Stamp (Before)

Que. No.	Marks
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
<b>Total</b>	
<b>Signature</b>	
<b>Name of Examiner</b>	

**Nirma University**  
**Institute of Diploma Studies**

Examination No.: \_\_\_\_\_ Date \_\_\_\_\_

Course Code and Name \_\_\_\_\_

Total Sheet used \_\_\_\_\_ Semester \_\_\_\_\_

Signature of Supervisor \_\_\_\_\_

One Rubber Stamp (After)

<i><b>NIRMA UNIVERSITY</b></i>		<b>Ques.</b>	<b>Marks</b>
<i><b>INSTITUTE OF DIPLOMA STUDIES</b></i>		1	
Reg. No.: _____ Program: _____		2	
Course Code & Name: _____		3	
Date: _____ Semester: _____ Sess./MSE / BSE / SEE		4	
Section: _____ Drg. Sheet No.: _____ Total sheet used: _____		5	
Name & Signature of Jr. Supervisor: _____		6	
Name & Signature of Examiner: _____		7	
		8	
		<b>TOTAL</b>	