

physical hazards
foreign bodies
intoxication
ISO 22000
cGMP
allergens
parasites
eColi
mycotoxins
hazards
HACCP
FOOD SAFETY
antibiotics
biological residues
pesticides
heavy metals
virus
chemical residues
salmonella

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President's Message | Santosh Khadagade



A large population today is at a very high health risk as a result of consumption of unsafe food. Numerous incidents of human tragedies and disasters are reported due to consumption of contaminated food, water and other intakes. There is a serious need to look into the entire food chain; starting from farming, food processing and transportation to safe-keeping and consumption. At each stage, there is a risk of the food becoming unsafe as a result of challenges related to chemical, environmental, personal and microbial nature.

Essentially, food needs to be nutritious and tasty; but if it is not safe, both the attributes would suffer. All activities in the food chain need to be carried out carefully to ensure that the nutritious value is not compromised. Use of inferior quality seeds, excessive fertilizers and pesticides adversely affects the nutritious value and leads to contamination of the produce, making it unsafe. Also, the use of excessive preservatives and artificial flavors induces harmful chemicals in the food. In addition to that, contamination due to hazardous substances is also a big challenge, especially in a country like ours where most of the activities in the food chain are carried out by the unorganized sector. It is therefore necessary that the entire food chain is improved through a multi-prong strategy with active involvement of government regulatory bodies and enforcement agencies, social groups, education and training organizations and vigilant citizens.

Govt. of India has established FSSAI to regulate the food chain under Food Safety and Standards Act 2006. ISO 22000 Food Safety Management System (FSMS) provides requirements for food safety management that covers the entire food chain. Organizations operating in any part of the food chain must adopt this standard to provide confidence to the customer about safety of food in their operations. NCQM has the necessary expertise to provide training and advisory services for implementing ISO 22000 FSMS.

At NCQM, this quarter is full of activities like the President's Best Educational Quality Enhance Team Competition (BEQET) and the D. L. Shah Memorial Lecture. Another key development is the transformation of our diploma program in Quality Management into an online program. The program will have two modules that suit the requirements of two distinct segments- i. Professionals seeking a diploma, and ii. Professionals seeking a post graduate diploma. More information on this will be made available shortly.

I thank the Board for approving special membership benefits. The number of free seminars for members has been increased from four to six per year and organizational members can now avail a free half-day seminar at their premises on one of the twenty relevant topics identified to suit the current industry requirements.

I wish all the NCQM Members and well-wishers a very successful Year 2020 along their journey to excellence in all the areas of their endeavor. Looking forward to your participation and feedback and suggestions for improving NCQM activities to serve you better! Please feel free to contact me on 9323177009 or president@ncqm.com

11th D. L. Shah Memorial Lecture

22nd Feb. 2020, 3:00 PM, Nehru Centre, Worli Mumbai

Block Your Calendar



Call for Articles

Quality : The only Strategy

Dear Members,

The new digital era is about connectivity and collaboration. Collaboration is a new skill we need to learn since we have all been mostly working in “separate” teams or “silos” within organizations. At NCQM, we are making an attempt to use our quality newsletter as an instrument for collaboration amongst our members and also the larger quality fraternity.

As a first step in collaboration, we request you to collaborate by contributing your knowledge and experience with your fellow members and quality fraternity. This could be in the form of articles or small write-ups on quality aspects within your organization or industry. Your thoughts and opinions matter more than information gleaned from the internet.

Please pen down your thoughts on matters that excite you, your organization's achievements, your personal achievements in quality, issues that concern you, etc. Your write-ups can range from 0.5 page to 3 pages along with diagrams. Please do not forget to add copyright information for any copyrighted materials that you have used.

So, grab your pens or fingers and write out or type out your thoughts and opinions on quality matters and send it us at ncqm2013@gmail.com.

Chairman
Publication Committee
NCQM, Mumbai

Two days workshop on Statistical Process Control - February 14 - 15, 2020 Organized by National Centre for Quality Management, Mumbai

Program Objective: To understand Statistical Process Control (SPC) methodology based on analysis of process data. SPC has powerful tools to truly understand the process behaviour and enables an Organisation to plan and manage processes effectively, thus preventing any product or service quality issues. Participants would get a hands on experience on implementation of SPC in their environment.

Coverage:

- Overview of Statistical Process Control: What is SPC and Why SPC,
- Basics of Statistics: Importance of Data, Data Collection and Data Presentation Tools,
- Concept of variation, Central Tendency and Dispersion, Probability, Probability distributions, Central Limit Theorem
- Process Capability, Process variation, Rational sub grouping, interpretation of control, Statistical state of control, Cp, Cpk
- Process Control Charts: - Variables, X Bar – R Chart, Continuous process control charts
- Process Control Charts for Attributes- p, np, c and u charts
- Control Chart Analysis, Interpretation and Patterns
- SPC Implementation

Who should attend: IMS Coordinators, Internal Auditors for IMS and Functional Managers/ Executives/ Supervisors

Timing: Registration at 9.30 a.m. **Session:** 10.00 a.m. to 5.30 p.m.

Fees: Rs. 7,500 + 18% GST per participant. **Discount:** 15% discount for Patron, Life Patron and Corporate Life Members and 10% for other members and group registration of 3 or more participants.

Venue: NCQM Learning Centre, G-501, Kailas Industrial Complex, Vikhroli-Hiranandani Link Road, Vikhroli (W), Mumbai 79.



HACCP - The 'Ubiquitous' Food Safety System

Today, in this fast changing world, the pace of change is extremely impacting all spheres of life and irrespective of industry, the element of uncertainty has increased. Whether it is IT, electronics, automobile, FMCG, Food & Beverage, Medicine, Hospitality, Transportation, Infrastructure or others. The uncertainties and vulnerability has to be dealt with, specially in the Food Industry. However, for food safety system, many more perspectives have been included like, fraud, vulnerability, food defence plan, allergen control, zoning etc.

HACCP was developed in the late 1950s by a team of food scientists and engineers from The Pillsbury Company, the Natick Research Laboratories, and the National Aeronautics and Space Administration (NASA). The team developed a system designed to build quality into the product to ensure food safety for the manned space program although it was not available to the industry then. There is enough historical data that will tell us when and how HACCP was developed. It is interesting to note that over a period of time it was certainly realized that if food safety is to be achieved, then application of the GMPs and the principles.

In 1971, Pillsbury presented this concept at the National Conference on Food Protection sponsored jointly by the Food and Drug Administration (FDA) and the American Public Health Association. Initially, HACCP consisted of three principles:

- identification and assessment of hazards associated with food from farm to fork;
- determination of the critical control points to control any identified hazard; and
- establishment of a system to monitor the critical control points.

HACCP since then has been modified and simplified to make the concept easier to implement and maintain a Food Safety Management System and make it more effective.

About the Author

Kailash B. Ashar

Principal Thought Leader

DEEP Training & Consultancy

References:

The Evolution of HACCP – Feb.1, 2009 By John G. Surak

Safefood 360 – Where now for HACCP ? – July 22, 2019 By George Howlett

HACCP in the 21st Century – Blog by Clarkston Consulting



The original concept of HACCP, however, remains unchanged.

By the late 1970s HACCP was used by many small, medium and large food processing companies. HACCP was more like a Tool than a system, to begin with. Till this time HACCP was used mainly to ensure safety of the US food supply.

It was in 1989 that National Advisory Committee on Microbiological Criteria for Foods (NACMCF) published the first HACCP document. It was this standard that codified the practice of HACCP to date, including the seven principles of HACCP. Also in the same year International Commission on Microbiological Specifications for Foods (ICMSF) published a book which described the application of HACCP to the entire food chain from the farm through food preparation in the restaurant and home. Hazard analysis was based on a combination of risk and the severity of the hazard. As part of the hazard analysis process, the microbiologist was to ask a number of critical questions related to the product's manufacture, composition, and distribution. The role of a Microbiologist was very critical and prominent in identifying, defining and conducting a Hazard Analysis

In 1993, the Codex Alimentarius Commission issued its first HACCP standard, which provided the first international definition of HACCP. In the same year, NACMCF revised its guidance standard, thus codifying the currently used five preliminary steps and seven principles of HACCP. The 5-preliminary steps were a critical addition to HACCP. Then in 1997, both Codex and NACMCF revised their standards. NACMCF harmonised the US definition of HACCP with the Codex definition.

PRPs were identified as necessary for the successful implementation and maintenance of the HACCP process.

The third party audit systems changed with the acceptance of HACCP internationally. In the US, the "sanitation audit" was expanded to include PRPs and HACCP. In Europe, private food safety audit schemes were developed.

Millennium

By the year 2000, there were many private and national food safety standards. HACCP is now the core of most food safety standards and legal acts. It is cited in GFSI standards, EU and USA legislation.

However, in recent years there has been a shift and steady undermining of HACCP and its status. In some ways, HACCP has been found to be limited to only production due to which its use as a System is limited. However, it is still forms an important element of other Food Safety Management Systems as a framework to conduct a systematic and scientific assessment of hazards.

The prominent weakness of HACCP was the risk assessment and CCP decision tree. When applied according to the rules it often yielded too many or too few CCPs. The decision tree worked well with some hazards but failed for others. It was applied to develop some sort of workable HACCP plan needed to 'make it fit' for the company or auditor. This led to proliferation of other risk-based models and systems which many food companies now have to address food safety hazards – independent and in addition to HACCP.

For example, frameworks provided by FSMA and the GFSI require PRPs to be risk assessed,



controlled and planned like CCPs. Allergic hazards are now addressed separately from HACCP study. FSMA now requires vulnerability assessments (VA) and food safety defence plans to be put in place. The problem is that the FDA's FSMA rule for Preventive Controls for Human Food, doesn't recognise HACCP. Which means, because HACCP is based on the Codex principles, that the FDA don't recognise Codex. These are all risk-based systems, like HACCP, but additional in their requirement. The Principles and methods are common but systems are separate.

This has resulted in different risk-based models for different types of food safety hazards resulting in a situation where practitioners are being exposed to an inconsistent and fluid framework to identify, assess and control what are essentially food safety hazards. HACCP is now more focusing on specific hazards at the process level.

External threats and specific hazards which produce an allergic reaction in the consumer now have their own specific approach and as this takes place no one is asking – WHY ? It appears that HACCP, its principles, scope of application and steps have long since been unable to address all the hazards which can potentially enter into the food and the industry, and regulators have begun to abandon it in practice.

Codex has not undertaken the required revisions, re-development or redesign of HACCP which would have allowed it to become a robust and useful model to be used by practitioners. It is time that the situation is addressed as these systems of control all share the same characteristics and objectives. Even after the introduction of HARPC (Hazard Analysis and Risk-Based Preventive Controls) under the FSMA (Food Safety Modernization Act), the HACCP model still has value to inspectors, stakeholders, and auditors. At its core, HACCP (Hazard Analysis Critical Control Point)

is a set of principles that provides food and beverage manufacturers a way to brainstorm what could go wrong and how they would address such an issue.

While manufacturers under the jurisdiction of the FDA use the HARPC model, producers of meat, poultry, seafood, and juice inspected by the USDA still need to follow HACCP guidelines.

Furthermore, all food and beverage manufacturers must follow HACCP protocol to receive annual GFSI (Global Food Safety Initiative) accreditation. The role of this type of guidance is not necessarily to prove aesthetic or nutritional quality, but to find the points in the manufacturing process most likely to introduce contamination risk to the end product.

Despite there being many risk-based systems, HACCP remains integral to all systems. The HACCP system can be used at all stages of a food chain, from food production and preparation processes including packaging, distribution etc.

* * *

“The goal of the food safety professional should be to create a food safety culture and not a food safety program!”

- Frank Yiannas, Author

Implementing HACCP

Hazard Analysis & Critical Control Point (HACCP) is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product.

For successful implementation of a HACCP plan, management must be strongly committed to the HACCP concept. A firm commitment to HACCP by top management provides company employees with a sense of the importance of producing safe food.

HACCP is designed for use in all segments of the food industry from growing, harvesting, processing, manufacturing, distributing, and merchandising to preparing food for consumption.

Prerequisite programs such as current Good Manufacturing Practices (cGMPs) are an essential foundation for the development and implementation of successful HACCP plans. Food safety systems based on the HACCP principles have been successfully applied in food processing plants, retail food stores, and food service operations.

The seven principles of HACCP have been universally accepted by government agencies, trade associations and the food industry around the world.

HACCP Principles:

1. Conduct a hazard analysis
2. Determine critical control points (CCPs)
3. Establish critical limits
4. Establish monitoring procedures
5. Establish corrective actions
6. Establish verification procedures
7. Establish record-keeping and documentation procedures

Prerequisite programs

Prerequisite programs provide the basic environmental and operating conditions that are necessary for the production of safe, wholesome food. The Codex Alimentarius General Principles of Food Hygiene describe the basic conditions and practices expected for foods intended for international trade. In addition to the requirements specified in regulations, industry often adopts

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policies and procedures that are specific to their operations. While prerequisite programs may primarily impact the safety of a food, they also are concerned with ensuring that foods are wholesome and suitable for consumption. The existence and effectiveness of prerequisite programs should be assessed during the design and implementation of every HACCP plan. All prerequisite programs should be documented and regularly audited. Prerequisite programs are established and managed separately from the HACCP plan. Certain aspects, however, may be incorporated into a HACCP plan.

Examples of Common Prerequisite Programs are :

- Facilities
- Supplier Control
- Specifications
- Pest Control
- Traceability and Recall
- Personal Hygiene

Developing a HACCP Plan

The format of HACCP plans will vary. In many cases the plans will be product and process specific. However, some plans may use a unit operations approach. Generic HACCP plans can serve as useful guides in the development of process and product HACCP plans; however, it is essential that the unique conditions within each facility be considered during the development of all components of the HACCP plan.

In the development of a HACCP plan, five preliminary tasks need to be accomplished before the application of the HACCP principles to a specific product and process.

The five preliminary tasks are :

1. Assemble HACCP Team
2. Describe the food and its distribution

3. Describe the intended use and consumers of the food
4. Develop a flow diagram which describes the process
5. Verify the flow diagram

Implementation and maintenance of the HACCP plan

The successful implementation of a HACCP plan is facilitated by commitment from top management. The next step is to establish a plan that describes the individuals responsible for developing, implementing and maintaining the HACCP system. Initially, the HACCP coordinator and team are selected and trained as necessary. The team is then responsible for developing the initial plan and coordinating its implementation. Product teams can be appointed to develop HACCP plans for specific products.

An important aspect in developing these teams is to assure that they have appropriate training. The workers who will be responsible for monitoring need to be adequately trained. Upon completion of the HACCP plan, operator procedures, forms and procedures for monitoring and corrective action are developed. Implementation of the HACCP system involves the continual application of the monitoring, record-keeping, corrective action procedures and other activities as described in the HACCP plan.

Maintaining an effective HACCP system depends largely on regularly scheduled verification activities. The HACCP plan should be updated and revised as needed. An important aspect of maintaining the HACCP system is to assure that all individuals involved are properly trained so they understand their role and can effectively fulfill their responsibilities.

* * *

ISO 22000:2018 - Food Safety Management Systems

ISO 22000:2018 defines requirements for any organization in the food chain. It is developed by ISO/TC 34/SC 17. The ISO 22000 family addresses food safety management by providing guidelines and best practice for managing risks in all areas of food production. ISO 22000 is a certifiable standard that sets out the overall requirements for a food safety management system. It defines the steps an organization must take to demonstrate its ability to control food safety hazards and ensure that food is safe for human consumption. ISO 22000 is one of ISO's best-known standards, with 32 061 certificates issued in 2015 alone. Within its broad scope, the ISO 22000 family includes standards specific to catering, food manufacturing, farming, packaging, and animal foodstuffs and feed production.

ISO 22000 – Prerequisite Programmes (PRP)

A key requirement of ISO 22000, one of the world's most renowned International Standards for food chain safety, are prerequisite programmes (PRPs). These are basic conditions and activities that are necessary within the organization and throughout the food chain to maintain food safety. The ISO portfolio has a series of technical specifications (TS) dedicated to maintaining prerequisite programmes to assist in controlling food safety hazards in the manufacturing process.

The series comprises:

1. ISO/TS 22002-1, Prerequisite programmes on food safety – Part 1: Food manufacturing
2. ISO/TS 22002-2, Prerequisite programmes on food safety – Part 2: Catering
3. ISO/TS 22002-3, Prerequisite programmes on food safety – Part 3: Farming
4. ISO/TS 22002-4, Prerequisite programmes on food safety – Part 4: Food packaging manufacturing
5. ISO/TS 22002-5, Prerequisite programmes on food safety – Part 5: Transport and Storage
6. ISO/TS 22002-6, Prerequisite programmes on food safety – Part 6: Feed and animal food production

The series of technical specifications is available for purchase from your national ISO member or through the ISO Store.

Source: ISO

Worsening Water Quality Reducing Economic Growth by a Third in Some Countries: World Bank

According to a report released by World Bank, the world faces an invisible crisis of water quality that is threatening human and environmental well-being while reducing economic growth in the affected areas by 33%.

The report titled, "Quality Unknown: The Invisible Water Crisis" was created by assembling the world's largest database on water quality gathered from monitoring stations, remote sensing technology, and machine learning. Data shows how a combination of bacteria, sewage, chemicals, and plastics can suck oxygen from water supplies and transform water into poison for people and ecosystems.

The report further finds that a key contributor to poor water quality is nitrogen, which enters rivers, lakes and oceans through fertilizers and transforms into nitrates affecting growth and brain development in children. The report also finds that increase in water salinity is reducing food production impacting 170 million people every year.

The report recommends a set of actions that countries can take to improve water quality. These include environmental policies and standards; water treatment infrastructure supported with incentives for private investment, and reliable, accurate information disclosure to households to inspire citizen engagement.

NCQM NEWS

Mr. Dhananjay Joshi joins as Director - Business Development

Mr. Dhananjay Joshi has joined NCQM as Director- Business Development.



Mr. Joshi was ED NCQM for a brief period in past and has been associated as member of NCQM since then. He is B. Tech. Mechanical from VJTI 1982 Batch, has attended Executive Management program at IIM Ahmedabad and is qualified ISO 9001 Lead Auditor. He has 38 years industry experience. His last assignment was with Tapasya Engg. Thane as GM Ops.

1. The temperature of a roast chicken is checked to see if it has met its critical limit of 145 degrees F for 4 minutes. This is an example of which HACCP principle?
 - a. Verification
 - b. Monitoring
 - c. Record Keeping
 - d. Hazard analysis

2. The temperature of a mutton soup is checked during holding. The soup has not met the critical limit and is thrown out according to house policy. Throwing out the stew is an example of which HACCP principle?
 - a. Monitoring
 - b. Verification
 - c. Hazard analysis
 - d. Corrective Action

3. A food joint serves cold sandwiches in a self-serve display. Which step in the flow of food would be a critical control point?
 - a. Storage
 - b. Cooling
 - c. Cooking
 - d. Reheating

4. A chef sanitized a thermometer probe and then checked the temperature of minestrone soup being held in a hot-holding unit. The temperature was 120 degrees F, which did not meet the operation's critical limit of 135 degrees F. The chef recorded the temperature in the log and reheated the soup. Which was the corrective action?
 - a. Reheating the soup
 - b. Checking the critical limit
 - c. Sanitizing the thermometer probe
 - d. Recording the temperature in the log

5. What is the purpose of a food safety management system?
 - a. To keep all areas of the facility clean and pest-free
 - b. To identify, tag, and repair faulty equipment within the facility
 - c. To identify and control possible hazards throughout the flow of food
 - d. To identify, document, and use the corrective methods for receiving food

6. Reviewing the temperature logs and other records to make sure that the HACCP plan is working as intended is an example of which HACCP principle?
 - a. Monitoring
 - b. Verification
 - c. Hazard analysis
 - d. Record keeping

7. What is the first step in developing a HACCP plan?
 - a. Identify corrective actions
 - b. Conduct a hazard analysis
 - c. Establish monitoring procedures
 - d. Determine critical control points

8. What does an operation that wants to smoke food as a method of preservation need to have before processing food this way?
 - a. A food safety certificate
 - b. A crisis-management plan
 - c. A master cleaning schedule
 - d. A variance from the regulatory authority

Send in your answers to
ncqm2013@gmail.com
First 3 all correct entries will
receive prizes. Last date to
send in entries : Feb 29, 2020

2019 BEQET Preparatory Workshop

Quality : The only Strategy

Workshop proceedings:

On Saturday, 7th December 2019, a full day workshop was held for prospective participants of BEQET and their associates. The Venue was at NCQM Learning Centre, Vikhroli, Mumbai.

There were 12 participants from seven colleges. Mr. Santosh Khadagade, President of NCQM, opened the proceedings by highlighting activities & achievement of NCQM since its inception in 1985. He then introduced the speaker, Mr. B. Banerjee, currently Trustee & Immediate Past-President of NCQM. The first session was devoted to concepts of Quality, Quality Characteristics, Quality Control, Quality Assurance basics of TQM (Total Quality Management) leading to TQoM (Total Quality of Management) which is World Class Management (WCM).

Concepts of inevitability of variation, chance & assignable causes were next dwelled upon. To study the pattern of variation the participants were made to work on an exercise of drawing a Histogram. Pareto analysis for prioritisation and Ishikawa diagram for cause & effect analysis were next covered with illustrative examples in the second session.

The third session was handled by Dr. Deepa Sharma, Principal, Shri M D Shah Mahila College. She highlighted modus operandi of project selection and its skilful execution.

The fourth and final session was devoted to RCA (Root Cause Analysis) techniques such as Brain Storming and Why-Why analysis. Highlighting their limitations, RRCA (Relentless Root Cause Analysis) techniques like NGT (nominal group technique) and Why-Verify-Why analyses were highlighted with illustrative examples and case studies.

Quantification of feedbacks:

Structured feedbacks were captured on each relevant parameter in 1 to 5 scale, 1 being the lowest and 5 being the highest. There were 13 responses which were compiled. The program

was well received with the participants giving high ratings for the problem and faculties. Participants has a great learning experience and have gone back energized to prepare for the final presentation.

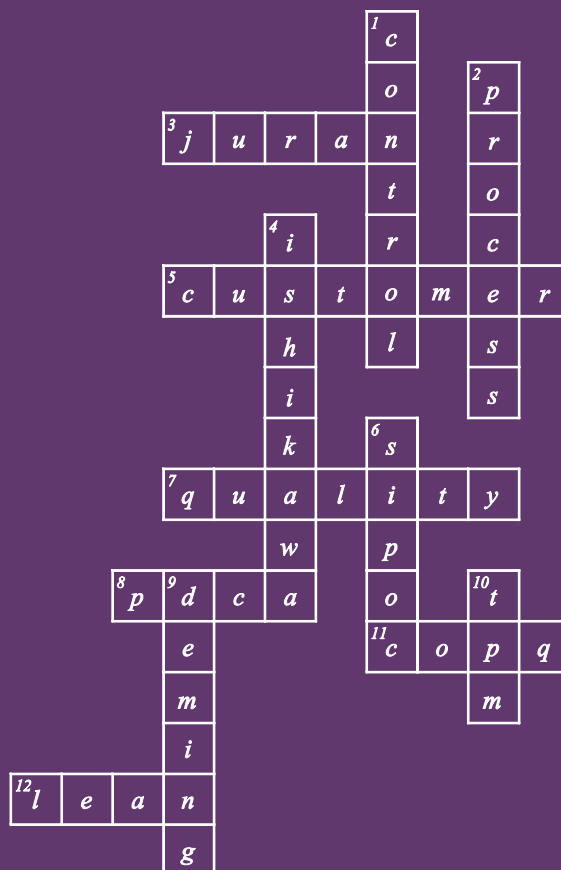
Compiled by Mr. B. Banerjee



All participants with Speaker Mr. B. Banerjee, Guest Faculty Dr. Deepa Sharma & NCQM President, Mr. Santosh Khadagade

FROM LAST ISSUE JULY-SEPT 2019

Q-Crossword Key





Training Calendar

Quality : The only Strategy

NCQM TRAINING CALENDAR January – March 2020

Dates	Program Title	Objective	Who should attend	Course Fees Rs.
23-24 Jan 2020	IMS Internal Audit Certification Training	Role and Skills required for effective IMS Audit	Functional Managers and Executives, IMS Coordinators	8000/-
31 Jan – 1 Feb 2020	ISO 22001 / FSSAI Awareness Training	Understanding requirements of ISO 22001 and Implementation	Functional Managers , Product and Process Engineers , Quality Managers/ Executive	7500/-
14-15 Feb 2020	Statistical Process Control	Implementation of SPC Tools & Techniques for process control and improvement	Functional Managers , Product and Process Engineers , Quality Managers/ Executive	7500/-
28-29 Feb 2020	ISO 45001:2018 – Awareness Training	Purpose and benefits of OH&SMS, Requirements of the new standard	Functional Heads, Functional Managers , SHE & Quality Managers/ Executive	7500/-
13-14 Mar 2020	TPM Tools & Techniques	Purpose & benefits of TPM Tools & Techniques and Implementation	Production/Operations /Maintenance / Quality Managers and Executives	7500/-
20-21 Mar 2020	IATF 16949 Awareness	Purpose & benefits of Standard's Requirements and Implementation	Automotive Supply Chain , Dept. Heads, Functional Managers/Executives/ Supervisors	8000/-

NCQM DIPLOMA PROGRAMS

Course Objective : To build & upgrade Quality and improve Competitiveness in Manufacturing, Service, Healthcare and Educational sectors.

POST GRADUATE DIPLOMA IN TOTAL QUALITY MANAGEMENT

One-year distant learning program with contact sessions

- Paper-I Total Quality Management (TQM)
- Paper-II Statistical Process Control (SPC) Techniques with Applications
- Paper-III Quality and other Management System
- Paper-IV Additional Tools and Techniques for Organizational Excellence
- Paper-V TQM in Manufacturing Industries
- Paper-V TQM in Service Industries

DIPLOMA IN TOTAL QUALITY MANAGEMENT

One-year distant learning program with contact sessions

- Paper-I Total Quality Management (TQM)
- Paper-II Statistical Process Control (SPC) Techniques with Applications
- Paper-III Quality and other Management System
- Paper-IV Additional Tools and Techniques for Organizational Excellence

Exam Centres : Ajmer, Coimbatore, Mumbai, Noida, and Pune

ADMISSIONS OPEN FOR JANUARY 2020 (BATCH)

Contact: Mr. Durgesh Rao, Course Coordinator
National Centre for Quality Management

Tel: (022) 40111962 / 25170483 / 69
Email: drr@ncqm.com / ncqmmumbai@yahoo.co.in



Quality : The only Strategy



Mr. Santosh Khadagade, President NCQM

and

Trustees of D. L. Shah Trust

**for Applied Science, Technology, Arts & Philosophy
Cordially invite you and your professional colleagues**

to

11th D. L. SHAH MEMORIAL LECTURE

by

Mr. Sandeep Mahajan

**General Manager - Quality, Engineering, Strategic Sourcing & TQM
Electrical Standard Products, Electrical & Automation IC**

Larsen & Toubro Limited

on

**“Quality First” to “Deming Prize”
Journey at L&T’s ESP Business**

Date : Saturday, February 22, 2020 Time : 03.00 PM

Venue: Hall of Harmony, Nehru Centre, Worli, Mumbai 400018

R S V P: National Centre for Quality Management

G-503, Kailas Industrial Complex, Vikhroli (W), Mumbai - 400079.

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