



# Certificate Course in Fertilizer Technology Under ITEC Program

**Course Duration: 2 Weeks**

Start Date: 10<sup>th</sup> October 2022 End Date: 21<sup>st</sup> October, 2022

**Rashtriya Chemicals and Fertilizers Limited, Mumbai  
(A Government of India Undertaking)**

## Rationale:

Food availability and Security has been a major plank of development in the world since the beginning of the mankind. Rapid growth in population is posing a serious challenge before policy makers and planners towards food security. This trend needs to be addressed and agricultural productivity has to be doubled to meet the ever growing demand for food in near future

To meet the growing food-grains need of the population, the only option available is increasing productivity through proper planning and optimum utilization of resources such as fertilizers, seeds, water, soil, etc. For proper planning, availability of reliable, accurate and time bound data is a prerequisite.

The production of ecofriendly, cost effective balanced fertilizers, its efficient and responsible distribution and its use of essential nutrients play a vital role in achieving bumper crop production leading to global food security and sustainable development.

As one of the giant and leading fertilizer industry, RCF promotes the modern trend in manufacturing of ecofriendly and cost effective fertilizers and with a special aid to our farmer community for effective farming through our research and outreach initiatives.

## Objectives of the Course:

- Provide exposure to Nitrogenous and Complex fertilizer production technologies.
- Overview to the most recent Nitrogenous fertilizer production technologies.
- Improve participants' technical knowledge over a varied range of fertilizer production techniques, understanding the best available technology options with cost effective, minimal energy consumption along with the best approaches to safety and environmental management.
- Enhance the participants' analytical and trouble-shooting skills by generating awareness to identify and resolve operational inefficiencies, if any, of their facilities.
- Provide a platform to exchange ideas on a varied range of production topics, opportunity for active interaction with leading technology experts and workshop participants.

## Who Should Attend:

- Senior Level Employees and Officials in Government, Private and Public Sector, Universities, Chambers of Commerce and Industry
- Senior Level People engaged in Fertilizer/Agro/Food Processing Sector

## Course content:

### **Module 1: General Concepts, Classification, Terminology and Definitions**

- Plant Nutrients
- Fertilizer Grade
- Nutrient Availability

### **Module 2: The Role of Fertilizers in Agriculture**

- Demand for Agriculture products and Plant Nutrients
- Concepts of Soil Fertility
- Diagnosis of Nutrient Problems
- Crop Response to Fertilizers
- Secondary & Micro plant Nutrients

### **Module 3: Fertilizer Production**

- Ammonia Technology
- Urea Technology
- Complex Fertilizer Technology
- Nitric Acid, Sulphuric Acid & Phosphoric Acid Production Processes

### **Module 4: Major Equipments, Instrumentation and Automation**

- Major Equipment's in Fertilizer Industry
- Process Automation: DCS, PLC, SCADA & Wireless Technology
- Latest Trends in Automation

### **Module 5: Environment, Safety and Quality**

- Safety in Fertilizer Industry – Process Safety Management
- HAZOP Study of Fertilizer Processes
- Environmental Assessments: Cutting & Capturing Emissions
- IMS Systems – International Certifications of Quality Management, Environmental Management, Occupational Health and Energy

### **Module 6: Status of the Fertilizer Industry**

- Raw Material Availability & Global Supply
- Global Fertilizer Supply & Trade
- Fertilizer Consumption Trends
- Supply/Demand Balances
- Fertilizer Policy & Subsidy
- Shifts in Energy Markets - Implications for the Fertilizer Industry
- Trends in Prices for Ammonia, DAP, Potash (MOP), Urea, Sulphur, Sulphuric Acid and Natural Gas.

### **Module 7: Nutrient Efficiency & Specific Energy Consumptions**

- Global Specific Energy Consumption of Ammonia & Urea Plants
- Nitrogen Efficiency
- P<sub>2</sub>O<sub>5</sub> Efficiency
- K<sub>2</sub>O Efficiency

### **Module 8: Status of Speciality Fertilizers**

- Water Soluble Fertilizers
- Slow & Controlled Release Fertilizers
- Area & Crop Specific Fertilizers
- Bio – Fertilizers & Nano Technology Based Fertilizers

### **Module 9: Recent Trends in Fertilizers Industry**

- Prills vs Granules: Size Matters
- Fertilizer Deep Placement Technology
- Enhancement of Production Plant Efficiency
- Production Cost Analyses

The teaching - learning involves a wide range of pedagogical approaches, including interactive lectures, group exercises, case studies, visits to factory, farms, research institutes, Agricultural Universities, etc.

### **Benefits to Participants:**

The participants would get a holistic exposure to:

- In-depth knowledge of fertilizer production technologies
- Enhance the participants' analytical and trouble-shooting skills
- Provide an opportunity to exchange ideas on a range of production topics with leading technology experts

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### **Faculty Profile:**

Faculty will be deployed from the rank of Senior Executives from Fertilizer / Agriculture Sector, who are

- Qualified engineers from the premier institutes
- With excellent teaching skills and
- Having a rich experience in the field of over twenty five years

### **Eligibility Criteria:**

Bachelor's degree is a must. Senior level position holders with special focus on Fertilizers, Agro and Allied Sectors

### **Capacity of Participants:**

Minimum 10, Maximum 25 Participants