INDUSTRIAL VISIT REPORT OF SABAR DAIRY
(SABARKANTHA DISTRICT CO-OPERATIVE MILK
PRODUCERS’ UNION LIMITED)
ON 7TH AND 8TH OCTOBER 2014

PREPARED BY: PROF. MAULIK NAGARCHI

UNDER THE COORDINATION OF
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DEPARMENT OF MECHANICAL, ELECTRICAL & E.E.E
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GROW MORE FACULTY OF ENGINEERING
They are a district level Milk Processing Industry registered under Gujarat State Co-operative Societies Act, 1964. They known as the **Sabarkantha District Co-operative Milk Producers’ Union Limited** (Sabar Dairy), Himatnagar. The farmers own the Dairy, their elected representatives manage the Village Societies and the District Union. They employ professionals to operate the dairy and manage its business. Their aim to provide remunerative returns to the milk producers and serve the interest of Indian consumers by providing quality milk products through our Federation - M/s Gujarat Co-operative Milk m Marketing Federation Limited. They are an ISO-22000 & ISO-9011 certified institution.
ACKNOWLEDGEMENTS

Certainly, help and encouragement from others are always appreciated, but in different times, such magnanimity is valued even more. This said that Industrial visit would never have been completed without the generous help and support that We received from numerous people along the way.

We express our profound gratitude to Principal Dr. Samir Patel for his outstanding cooperation to provide all the required facilities.

We really thankful to In-charge Principal Prof. Bharat Suthar for prior permission and guidance.
OBJECTIVE OF VISITS

Industrial visits represent important activities in any engineering undergraduate programme that contribute to the achievement of various essential learning outcomes and programme objectives. This report on an attempt to make the industrial visit an integral part of the course. This is achieved through identifying learning outcomes and a suitable industrial site to achieve them. In this case a Dairy plant was identified as a site to be visited by electrical and mechanical engineering students.

Students believe this method very useful and they were able to remember a fair bit of information at the end of the semester. Our assessment of this exercise is that it has achieved its objectives.

The objective of the Industrial Visit is to help students gain first-hand information regarding functioning of the Industry. Which presents the students with opportunities to plan, organize and engage in active learning experiences both inside and outside the classroom.

Specific objectives for the students

• To understand the process
• To experience chemistry at work
• To become aware of the role of different people in an organization
• To become aware of career opportunities
• To recognize the need for health and safety in the workplace
• To focus students on specific aspects of their studies

PREPARATION OF STUDENTS

Preparation should be such so as to guide students towards recognizing the important elements in an industrial visit and provide support materials necessary to increase the effectiveness of this experience.

• Draw up a questionnaire (optional).
• Additional investigations.
• Prepare questions to ask on site.
• Assign roles to particular students.
• Appropriate clothing for the day.
INTRODUCTION

Grow More Faculty of Engineering, Himatnagar organized 2-day Industrial Visit for the 1ST, 3RD and 5TH Semester Students of the Degree Mechanical, Electrical and E.E.E Department. A company were chosen as SABARKANTHA DISTRICT CO-OPERATIVE MILK PRODUCERS’ UNION LIMITED (Sabar dairy). The dates were as 7.10.2014 and 8.10.2014. Almost 250 students participated in the study on visit.

The visit was organized as per GTU university guidelines and recommendations regarding syllabus of Mechanical and Electrical Engineering.

The activity taken on 7th and 8th October (2014) are Describe below.

The visit started with welcome drink given by organization. Then the students were divided in a 4 groups each of having 30 students per group. Each group was handled by the two faculties of grow more and one engineer of dairy. Each Group was given primarily brief discussion about the Rules and some safety steps to be followed during the visit by the Executive Engineers.

1. POWDER MANUFACTURING UNIT.

Milk powder manufacture is a simple process now carried out on a large scale. It involves the gentle removal of water at the lowest possible cost under stringent hygiene conditions while retaining all the desirable natural properties of the milk - colour, flavour, solubility, nutritional value. Whole (full cream) milk contains, typically, about 87% water and skim
milk contains about 91% water. During milk powder manufacture, this water is removed by boiling the milk under reduced pressure at low temperature in a process known as evaporation. The resulting concentrated milk is then sprayed in a fine mist into hot air to remove further moisture and so give a powder. Approximately 13 kg of whole milk powder (WMP) or 9 kg of skim milk powder (SMP) can be made from 100 L of whole milk. Milk powders may vary in their gross composition (milk fat, protein, lactose), the heat treatment they receive during manufacture, powder particle size and packaging. Special "high heat" or "heat-stable" milk powders are required for the manufacture of certain products such as recombined evaporated milk. Milk powders of various types are used in a wide range of products such as baked goods, snacks and soups, chocolates and confectionary (e.g. milk chocolate), ice cream, infant formulae, nutritional products for invalids, athletes, hospital use etc., recombined milks and other liquid beverages.

2. BUTTER AND BUTTER MILK PROCESS.

butter is defined as a plastic product derived from cream, inverted to a water-in-oil emulsion (W/O) with minimum 80% fat. The continuous fat phase in the butter is a complex matrix of liquid butter oil and fat crystals forming a network which entraps the water droplets and to a limited extent small
air bobbles. Whole operation for butter production is describe in below chart.

**GENERAL PROCESS STEPS IN BATCH AND CONTINUOUS PRODUCTION OF BUTTER AND BUTTER MILK**


**3. PANIR PROCESSING UNIT.**

The standardized milk is heated to 90°C without holding. Thereafter, the temperature of milk is brought down to 70°C and coagulated at this temperature using 1 percent citric acid solution. The temperature of citric acid solution is also maintained at 70°C. Citric acid solution is added with continuous stirring till clear whey separates out. After complete coagulation, the stirring is stopped and the coagulated mass (curd) is allowed to settle down for about 5 minutes. The whey is then drained through stainless steel strainer. The temperature of the content is not allowed to drop below 63°C until this stage. The curd is collected and filled in hoops (with holes on all its sides to facilitate the expulsion of whey) lined with clean fine cloth. The hoops containing curd is pressed for about 10-20 minutes. Thereafter, the pressed block of curd is removed, cut into pieces and immersed in chilled
water of 5-6°C for about 2 hours. Dipping of paneer pieces facilitates cooling of product and also it absorbs moisture and improves the body and texture of paneer. The chilled pieces of paneer are then removed from water and placed on wooden planks for 10-15 minutes to allow loose water to drain. The paneer is cut into desirable size and packaged in suitable packaging material. Finally it is stored under refrigeration till marketing and consumption.

NOTE : ALL ABOVE INFORMATION WAS GIVEN BY MR D. B PATEL (M.P.O DEPART.) AND MR C. S. PATEL (GHEE PRODUCTION UNIT)

STUDENTS FEEDBACK:

- “Actually as mechanical engineering student I thought Its not related to us but after visit whole plant based on mechanical system and really good experience for me.” BHATT RUCHIR KUMAR MADHUSUDAN (120560119059)(5TH MECHANICAL)

- “The visit was my first experience on the field, from which I gain a fair amount of practical knowledge. Seeking more visits in the coming semesters.” PRAJAPATI JAYDEEP KUMAR A (130560109052) (3rd ELECTRICAL)

- “It was my first Industrial visit and real this was good experience for me. I look forward for next visit” PATEL RISHABH SUBHASHBHAI (130560119068) (3rd MECHANICAL)

- “As my point view this was good opportunity to me that I visited sabar dairy and got real good practical idea which will be very useful to me in my future.” SHAH JAY RAJESH BHAI (130560119092) (3rd MECHANICAL)