**Enterprise Resource Planning System**

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**Ahmedabad 38248**

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Submitted in fulfillment of the requirements

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**Bachelor of Technology in Computer Science**

By

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**CERTIFICATE**

This is to certify that the project/Seminar entitled “Enterprise Resource Planning” submitted by AKSHAT SHAH (17BCE107), NAYAN SHAH (17BCE112), SHAIL PATEL (17BCE114) and JEET SUREJA (17BCE123) towards the partial fulfillment of the requirements for the degree of Bachelor of Technology in Information Technology of Nirma University is the record of work carried out by him/her under my supervision and guidance. In my opinion, the submitted work has reached a level required for being accepted for examination.

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# Introduction

## Purpose

This report serves as a functional overview to the different components of the project. It gives information regarding the project’s Modules, database management and using the system .

## Product

A system to eliminate manual operation like documentation, record keeping ,

Inventory tracking and maintenance of books of accounts , by automating and

seamlessly connecting all the departments of the organization ,

Real time thus,eliminating any workflow

## Project Description / Scope

## Software products need to produce:

## 

## ● Standard Enterprise Resource Planning Software

## ● Finance &amp; Accounting Module

## ● Purchase Module

## ● Inventory Management Module

## ● Manufacturing Module

## ● Sales Module

## 

## Project Objective

The objective of the ERP Business Transformation Strategy is to modernize and integrate business processes and systems.

This “leapfrog” into the future will empower staff and students to access information and provide services through an intuitive and integrated interface, and

ultimately aims to:

● Improve Service Experience

● Enhance Competitiveness

● Modernize Business Processes and Systems

● Automate Business Solutions

● Increase in Operating Efficiency

# Functional Requirement

## Purchase

### Inviting quotations

* Pricing, delivery conditions, timing-related conditions, etc. are included in quotations by the various suppliers for different raw material we want and transferred it to the vendor.

### Supplier evaluation

* The vendor evaluates the suppliers on a various basis like price, quality, timeliness of the delivery, etc. and then places the purchase order to a specific supplier.

### Placing purchase-order

* In purchase-order, the types, quantity, and conditions of delivery of the goods needed are specified and given by the vendor to the supplier.

### Billing

* The bill of the goods is transferred to the vendor.

### Import of goods

* Goods are supplied to the vendor.

## Inventory Management

### Stock Ledger/Report

Contains all the entries which has the following columns:

* Stock Balance: The number of products currently in the warehouse.
* Stock Projected Quantity: The number of products that will be there in the near future after distribution and restocking.
* Stock Ageing: Time since the items entered the warehouse. This ensures that expired products don’t go on sale.
* Item Price Stock: Cumulative price of every specific type of item.
* Stock Summary: Summation of every tuple which gives an overview of the entire warehouse.

### Stock Transactions

Contains transaction-related information like:

* Stock Entry: Entries of every transaction happening in the warehouse.
* Delivery Note: Any special care notes needed about specific items to be delivered with extra care.
* Purchase Receipt: Receipt of every purchase made by the warehouse.
* Material Request: Request for new material from the production house.
* Delivery Trip: Information related to the route to be followed and the time needed to complete the delivery.

### Items and Pricing

Contains price related details of items:

* Item: Description of the Maximum Retail Price of the individual items.
* Product Bundle: Price at which the company got the item as a bundle.
* Item Group: Item grouping with similar pricing
* Shipping Rule: the Delivery price of items.
* Pricing Rule: Rule that describes the minimum price at which the item should be sold, even if the item is overstocked
* Item Alternative: Price of all the alternative items which can be bought substituting our item.
* Item Manufacturer: Name of manufacturers and the price at which they offer items.

### Serial no. and Batch

Contains other details of items:

* Serial No.: Serial no. of the item.
* Batch No.: Batch no. of the item.
* Installation Note: Any special note while delivering and installing the product.

### Settings

Contains settings information:

* Stock Settings: Some common settings like first in first out stock and don’t forward if the expiration date has passed.
* Unit of Measure (UOM): Unit of measure of the product, like numbers or kgs, etc.
* Brand: Brand of products.

## **Manufacturing**

### Inventory access

* Read-only access for raw material availability
* Extension for purchase request
* Extension usage log

### Project

* Project ID
* Approx. resource utilization
* Quantity of the product
* Approx. manufacturing cost

### Process

* Process chain
* Assembly line

### Capacity

* Determine the capacity of the production per hour per project ID

### Scheduling

* Schedule the timing, deadline
* Workflow management according to quantity and capacity

### Quality control

* Testing of final product samples

## Sales

### Customer

* Detailed customers, business partners, dealer’s database. These entries include bank details, TDS details, contact details, and credit limits.
* Sales Contract Handling: Long term agreement with the customer for price, discount, delivery, etc.

### Quotation Response

* The quotation is made in response to an enquiry from a customer. The quotation may be created for a standard or customized item. The terms of payment is suggested by the system from the credit rating of the customer.

### Sales Order Handling

* This process handles regular sales orders, cost orders, customer return and collect orders. Through the use of templates, the system allows quick data entry process to manage products ranging from standard to Engineering to Order (ETO).
* Letter of credit details for association with sales orders.

### Sales Invoice Handling

* This process facilitates billing functions such as issuing invoices based on goods/services provided, generating proforma invoices, issuing credit notes resulting corresponding entries in accounts receivable and control account of the general ledger.
* Tracking Sales Returns.

### Sales Pricing

* Sales pricing control helps to maintain prices for items, details of the discount structure and special discount is given to some category of customers. A price book originates with a base price for the item. A single level discount rule with a minimum or maximum quantity or pricing break is attached to the price book. Additional pricing conditions such as the category of supplier, delivery schedule, etc. may be formulated in a matrix format, for attaching to the price book.

### MIS for analyzing sales trends to project and forecast sales.

## Finance & Accounting

The important components of GL are:

1.GL master data set up.

2.GL integration set up with logistics modules.

3.Period and year closing.

Integration with other modules: Modules, integrated with GL is:

1.Accounts payable for purchase invoices, credit notes.

2.Accounts receivable for sales invoices, credit notes, and adjustment.

3.Cash management where payment details are transferred to GL.

4.Asset management for transferring depreciation details.

5.Cost accounting for allocation of cost.

Master data setup

One of the important processes of this is setting up a chart of accounts which is a complete structure of ledger accounts used by a company

Chart of Account may also be defined separately as well as for the purpose of reporting to management.

Another important parameter of GL is a transaction type that identifies different categories of transactions such as journal vouchers, sales invoices, cash, and corrections. And also, taxation.

GL integration set up with logistics modules: Examples of logistics transactions (for different transaction origins) that result in a corresponding financial transaction and for which the corresponding chart of accounts are needed to be defined are given below:

### Purchases

### Making and releasing of a purchase order

### Receiving materials against the purchase order

### Inspection and approvals of the received materials

### Registration of the supplier invoice in logistics.

### Sales

### Making of a Sales Order

### Releasing of the same to warehousing

### Issuing material against the resultant warehouse order

### Release the issue order to invoicing.

### 

### 2.5.3.Issues for subcontract orders

* Making of a production order
* Making subcontract purchase order based on the production order
* Initiate inventory issue to the subcontractor,
* Issue of inventory
* Receive subcontracted item,
* Completion of the production order
* Closing the production order.

### 2.5.4.Period and Year Closing

* If a period or year is past its end date, it needed to be closed and the result is to be posted in the next period/ year. Before closing any period, it is necessary to check the status of the period. Next, auditing, reconciliation, the passing of final correction entries and rebuilding of ledger history is carried out.
* In the last part of this process, closing of the periods, final closing of the periods and closing the year and archiving of data is done.

# Non-Functional Requirements

## Security and Privacy Requirements

### Authentication

* Only authenticated users will be allowed to place orders for shipping orders, monitor their orders, make payments online, etc.
* The unauthenticated users will only be allowed to browse through the site and can see the services provided by the system.
* The security will be based on simple password protection.
* There will be captcha if the user forgets the password and the recovery of the password will be sent to the user via a link in the backup mail ID.

### Authorization

* Security needs to be checked on the applicable pages to prevent URL manipulations.

### Privacy

* The orders placed by a particular user can only be seen by the user itself.

## Computer Resource Requirements

### Computer Resource Requirements

Server-side:

●Pentium 4 processor

●80 GB HDD or higher

●512MB RAM or higher

●NIC

Client-side:

●Pentium process

●256MB RAM or higher

●Internet Connection

### 

### Computer Software Requirements

Server-side:

●Java Framework

●Windows 2000 or later version

●MS SQL 2008

Client-side:

●Browser

# 

# Use case Diagram

* 1. Brief Description
* This use case describes how an ERP System helps streamlines and connects all the departments to ensure the smooth flow of business.
  1. Actors
     1. Supplier
     2. 2.2 Customer
  2. Preconditions
* The Client using the ERP should fulfill the non-technical requirements like stable internet, etc.
  1. Basic Flow of Events
     1. The Use Case begins with the Manufacturing Dept. checking Inventory for raw
     2. materials.
     3. Manufacturing Dept. checks-out materials and starts executing the production order.
     4. Production Order executed & finished products are checked-in Inventory.
     5. Sales Dept. sends out Sales Quotations.
     6. Sales Dept. issues Sales Order/Sales Invoice.

* + 1. Finished Goods are checked-out and delivered to the Customer.
    2. The Customer processes the Payment which is received by the Client.
    3. Finance & Accounting examines books and computes the Accounts Payable and
    4. Accounts Receivable.
    5. The Use Case ends successfully.
  1. Alternative Flows
     1. Manufacturing Dept. do not have the raw material for production.

1. We can place a request for quotation to all the suppliers for required raw materials

2. After receiving quotations, a purchase order will be sent to an appropriate supplier and

take the purchase receipt. And a supplier invoice will be generated.

3. And according to the terms of payment , payment will be done and after that step 2 of

basic flow will follow.

* + 1. Malfunctioning Machinery

If after step 2, Manufacturing Dept. has unintended stoppages due to faulty machines and the

production stops.

1. Manufacturing Dept. puts in a request for new machines to the Purchase Dept.

2. The Purchase Dept. looks into the request and requests quotations from the suppliers.

3. After finalizing the quotation, the new machinery is delivered to the client and the use

case resumes from step 3.

* + 1. Problem In Fulfilling the Sales Order

1. If the inventory is not having the gross amount of ordered items then It will request the

production to produce more items.

2. If something happens to the shipment then according to the terms of agreement

appropriate steps will be taken.

3. This use case resumes from step 6.

* + 1. Sales Returns

If after step 6, the customer, for some reason, decides to return the delivered goods.

1. The customer puts in a Sales Return Request to the Client.

2. The Client processes the Sales Return Request and after examining the returned goods,

gives away the payment.

3. The returned goods are checked-in Inventory and logs are updated.

4. Use Case resumes from step 8.

* 1. Post-conditions
     1. Successful Completion

The Client receives the payment and the cycle starts again from the beginning.

* + 1. Failure Condition

Appropriate course of action is taken and conflict is resolved.

# Class Diagram

