



VETRON

Laboratory Information Management System

What is Vetron-LIMS?

A Laboratory Information Management System(LIMS) is software that manages the flow of samples and associate data to improve laboratory efficiency. By using LIMS, the labs can automate the workflows, integrate instruments, and manage samples and associated information. A LIMS helps standardize workflows, tests, and procedures while providing accurate controls of the process.

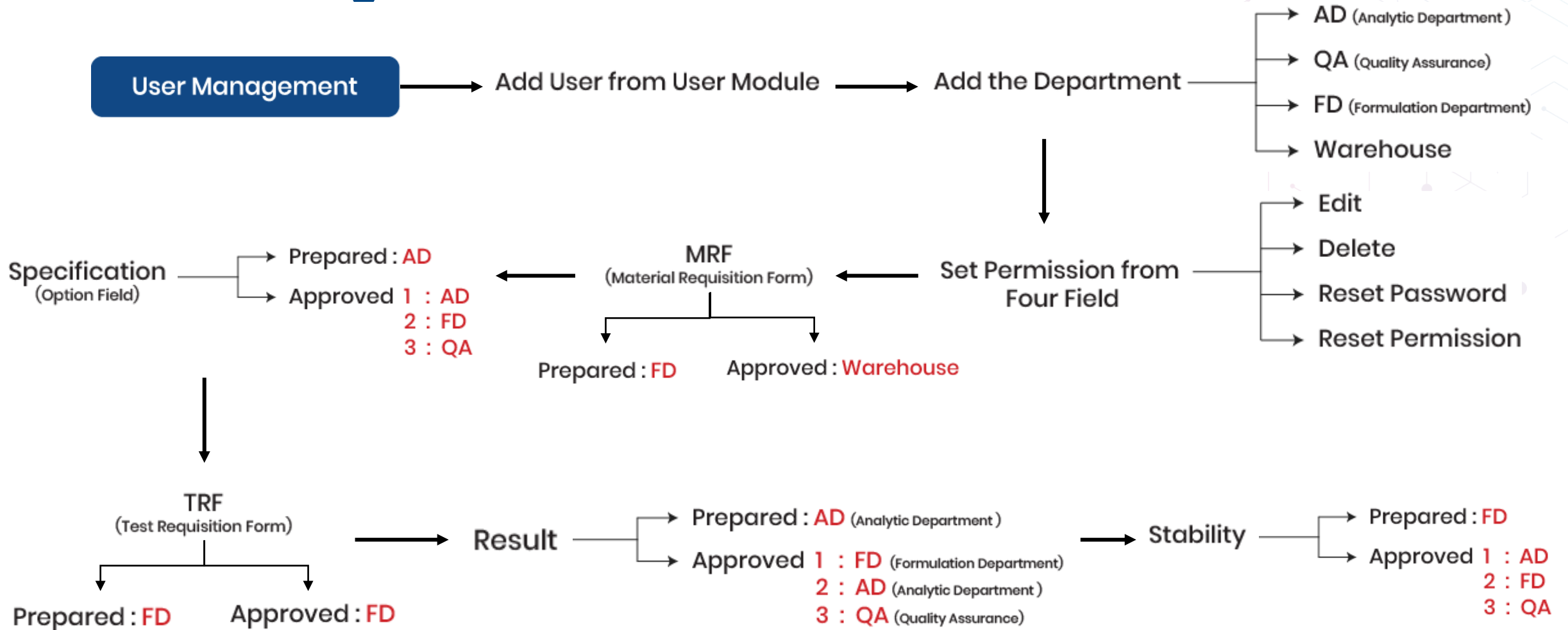
With the growing needs of laboratories, the traditional LIMS too has mitigated, which is able to do much more than just tracking samples. The main purpose of LIMS is to improve lab efficiency and accuracy by reducing manual operations. A LIMS system will perform a range of core functions.

These normally include:

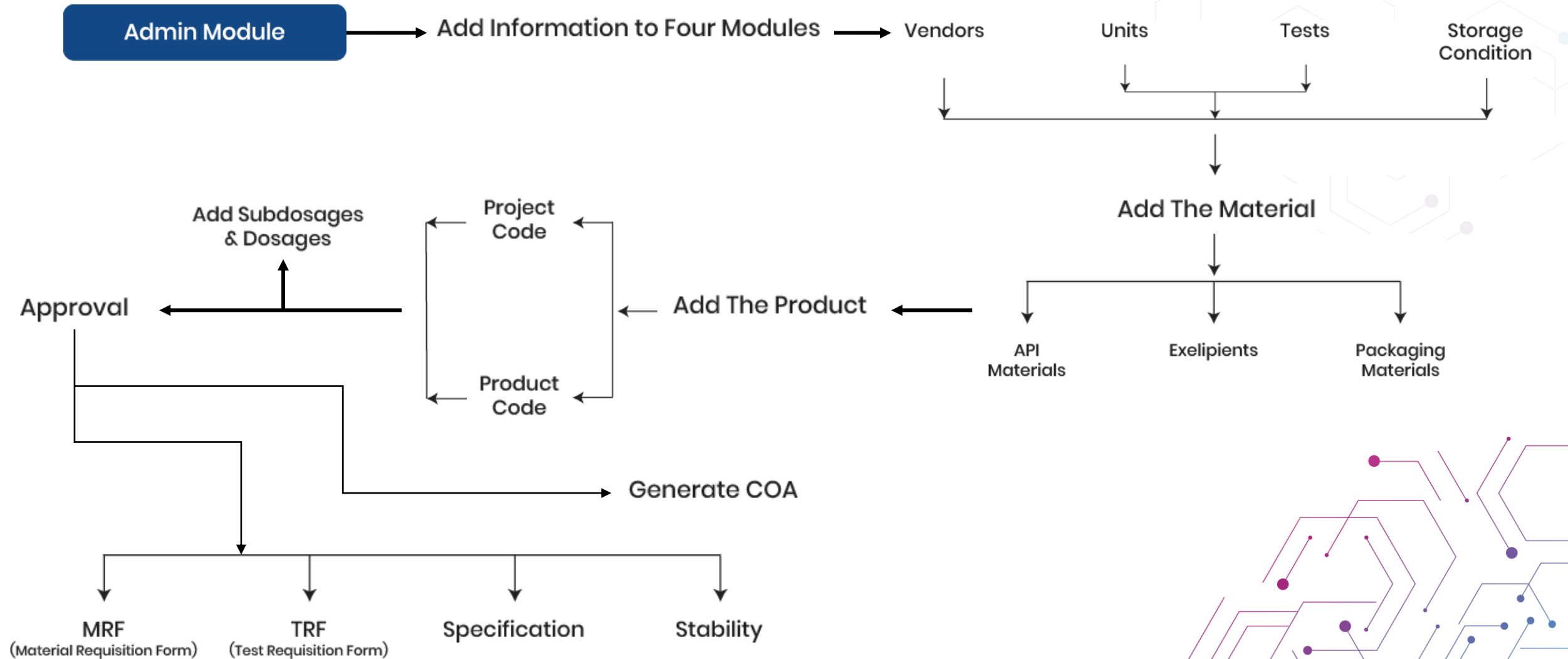
- ❖ Workflow management
- ❖ Record keeping
- ❖ Inventory management
- ❖ Reporting



Vetron-LIMS Flowchart (User Side)



Vetron-LIMS Flowchart (Admin Side)



The Workflow of the Vetron-LIMS:

Step 1: User Management

In the Users Module, first, we will add the number of users from predefined departments from Microbiology, Analytical Department, Warehouse, Formulation Department, and Quality Assurance. The basic information such as Email, Phone number, Department, and Password would be created here for later access.

The screenshot displays the Vetron-LIMS Users Management interface. The sidebar on the left contains navigation options: HOME, API MATERIAL, EXCIPIENTS, PACKING MATERIAL, PROJECT CODE, PRODUCT CODE, MRF, SPECIFICATION, TRF, RESULT, STABILITY, and DEPARTMENTS. The 'USERS' module is currently selected and highlighted. The main content area shows a table of users with the following columns: #, Name, Employee Code, Email, Mobile, Department, and Action. The table lists 12 users, each with a unique employee code, email address, and department. The 'Action' column for each user contains four icons: a blue pencil (edit), a red trash can (delete), an orange key (password reset), and a green shield (profile view).

#	Name	Employee Code	Email	Mobile	Department	Action
1	CP Chinjan Patel	E013	chinjan.patel@vetron.in	123456	Formulation Development	[Edit] [Delete] [Reset] [View]
2	GD Gaurang Dudhwala	E028	gaurang.dudhwala@vetron.in	1234	Analytical Development	[Edit] [Delete] [Reset] [View]
3	HP Harshit Patel	E015	harshit.patel@vetron.in	9904843224	Warehouse	[Edit] [Delete] [Reset] [View]
4	AD Anil Dube	E010	anil.dube@vetron.in	9033217484	Analytical Development	[Edit] [Delete] [Reset] [View]
5	TK Taviya Kanji	E026	taviya.kanji@vetron.in	7046274732	Analytical Development	[Edit] [Delete] [Reset] [View]
6	TC Taaral Contractor	E025	taaral.contractor@vetron.in	123123	Formulation Development	[Edit] [Delete] [Reset] [View]
7	SJ Sidhharth Joshi	E008	sidhharth.joshi@vetron.in	5544	Analytical Development	[Edit] [Delete] [Reset] [View]
8	SM Shiv Madrasi	E012	shiv.madrasi@vetron.in	33345	Analytical Development	[Edit] [Delete] [Reset] [View]
9	SV Sheetal Vadher	E011	sheetal.vadher@vetron.in	321	Analytical Development	[Edit] [Delete] [Reset] [View]
10	NS Nitul Savaliya	E022	nitul.savaliya@vetron.in	111	Analytical Development	[Edit] [Delete] [Reset] [View]
11	MS Meet Soni	E017	meet.soni@vetron.in	9228333355	Quality Assurance	[Edit] [Delete] [Reset] [View]
12	NL Nishant Lad	E016	nishant.lad@vetron.in	333	Quality Assurance	[Edit] [Delete] [Reset] [View]

The Workflow of the Vetron-LIMS:

Step 2: Action Field

There are four main fields with every individual in the User module: Edit, Delete, Reset password & Set Permission.

VETRON-LIMS

Users

Show 25 entries

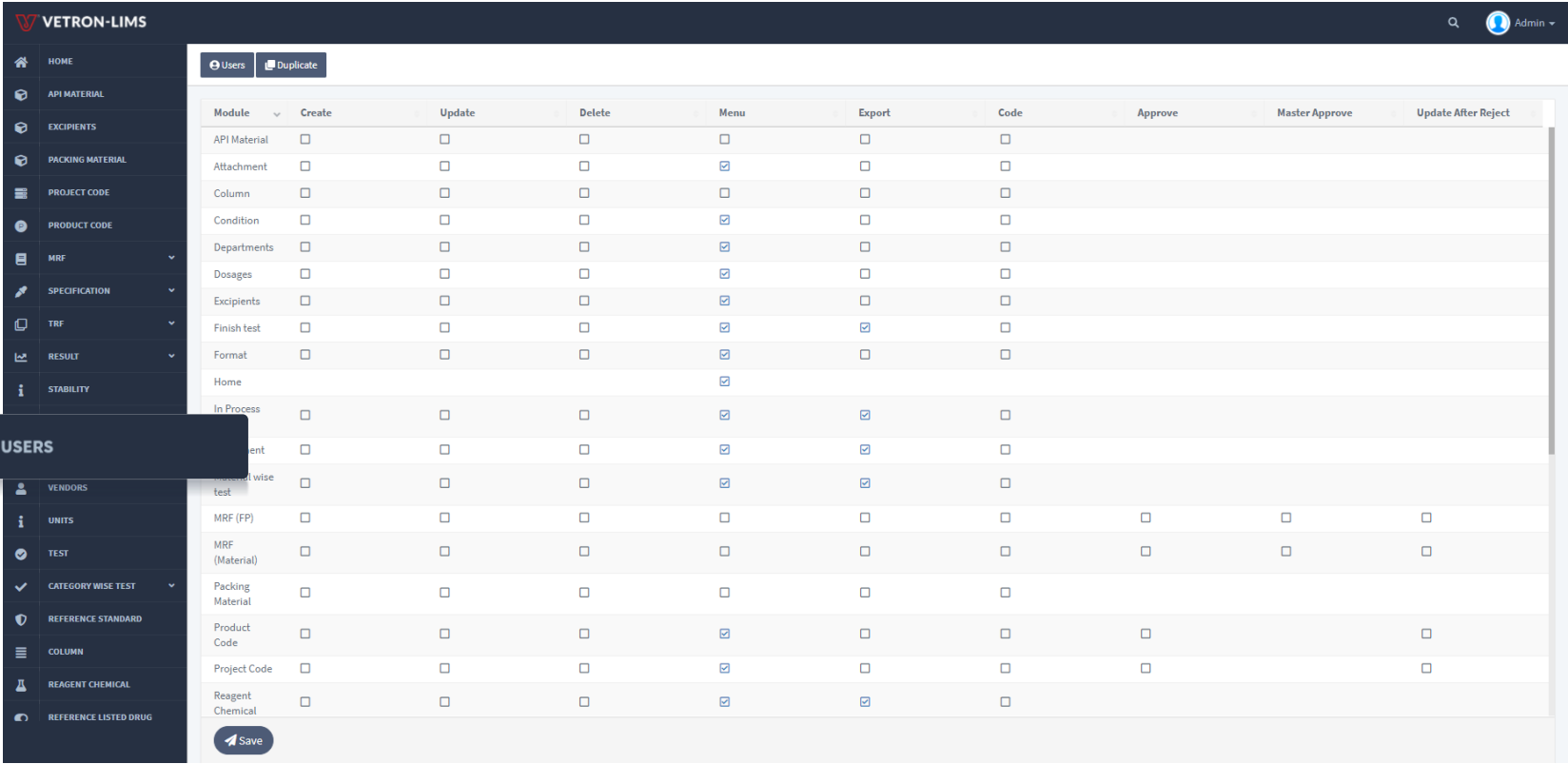
Search:

#	Name	Employee Code	Email	Mobile	Department	Action
1	CP Chinjan Patel	E013	chinjan.patel@vetron.in	123456	Formulation Development	   
2	GD Gaurang Dudhwala	E028	gaurang.dudhwala@vetron.in	1234	Analytical Development	   
3	HP Harshit Patel	E015	harshit.patel@vetron.in	9904843224	Warehouse	
4	AD Anil Dube	E010	anil.dube@vetron.in	9033217484	Analytical Development	
5	TK Taviya Kanji	E026	taviya.kanji@vetron.in	7046274732	Analytical Development	
6	TC Taaral Contractor	E025	taaral.contractor@vetron.in	123123	Formulation Development	   
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10	NS Nitul Savaliya	E022	nitul.savaliya@vetron.in	111	Analytical Development	   
11	MS Meet Soni	E017	meet.soni@vetron.in	9228333355	Quality Assurance	   
12	NL Nishant Lad	E016	nishant.lad@vetron.in	333	Quality Assurance	   

The Workflow of the Vetron-LIMS:

Step 3: Permission Access

In the User Module, every user is assigned the set of Administrative rights granted by the administrators to users which allow them to create, delete, and modify items and settings in the modules and also the how many numbers of modules would be displayed to the individuals are allowed in the User Module.



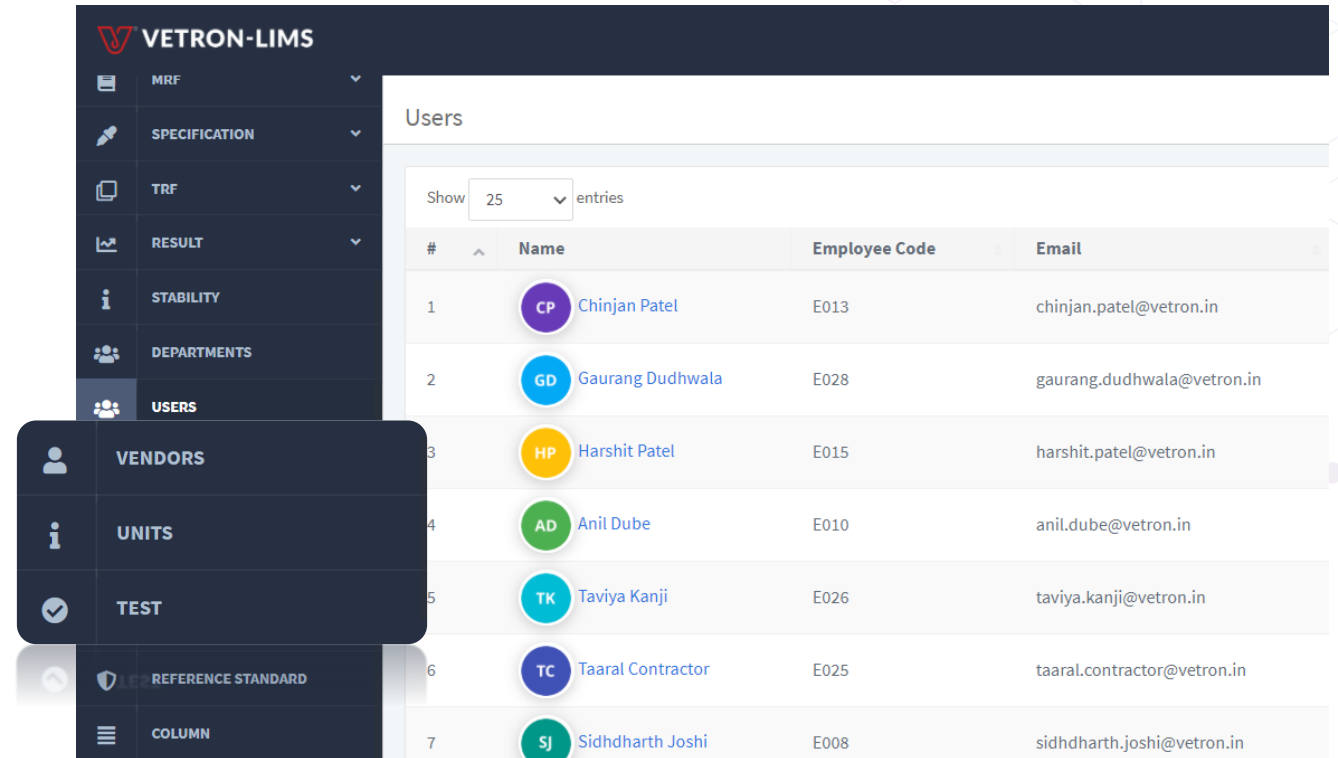
The screenshot displays the Vetron-LIMS interface, specifically the Users module. The left sidebar contains a navigation menu with options like HOME, API MATERIAL, EXCIPIENTS, PACKING MATERIAL, PROJECT CODE, PRODUCT CODE, MRF, SPECIFICATION, TRF, RESULT, and STABILITY. The main area shows a table of permissions for various modules, with columns for Create, Update, Delete, Menu, Export, Code, Approve, Master Approve, and Update After Reject. The table lists modules such as API Material, Attachment, Column, Condition, Departments, Dosages, Excipients, Finish test, Format, Home, In Process, MRF (FP), MRF (Material), Packing Material, Product Code, Project Code, and Reagent Chemical. The table is currently empty, and a 'Save' button is visible at the bottom.

Module	Create	Update	Delete	Menu	Export	Code	Approve	Master Approve	Update After Reject
API Material	☐	☐	☐	☐	☐	☐			
Attachment	☐	☐	☐	☒	☐	☐			
Column	☐	☐	☐	☐	☐	☐			
Condition	☐	☐	☐	☒	☐	☐			
Departments	☐	☐	☐	☒	☐	☐			
Dosages	☐	☐	☐	☒	☐	☐			
Excipients	☐	☐	☐	☒	☐	☐			
Finish test	☐	☐	☐	☒	☒	☐			
Format	☐	☐	☐	☒	☐	☐			
Home				☒					
In Process	☐	☐	☐	☒	☒	☐			
MRF (FP)	☐	☐	☐	☐	☐	☐	☐	☐	☐
MRF (Material)	☐	☐	☐	☐	☐	☐	☐	☐	☐
Packing Material	☐	☐	☐	☐	☐	☐			
Product Code	☐	☐	☐	☒	☐	☐	☐		☐
Project Code	☐	☐	☐	☒	☐	☐	☐		☐
Reagent Chemical	☐	☐	☐	☒	☒	☐			

The Workflow of the Vetron-LIMS:

Step 4: Add the Basics

The four modules are crucial to add the information first, before adding the details of materials in further modules. The modules named **Vendors, Units, Test, and Storage conditions** are added first from the admin panel before adding details to the specific three products in Raw Material, Package Material & API.



#	Name	Employee Code	Email
1	Chinjan Patel	E013	chinjan.patel@vetron.in
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4	Anil Dube	E010	anil.dube@vetron.in
5	Taviya Kanji	E026	taviya.kanji@vetron.in
6	Taara Contractor	E025	taara.contractor@vetron.in
7	Siddharth Joshi	E008	siddharth.joshi@vetron.in

For creating the specific projects, the modules named- **project code and product code are used**. Firstly, the project is created under which multiple products are created in the project. Then add the products in the particular project and each individual product will have a product code along with its project code.

The Workflow of the Vetron-LIMS:

Before generating the project code and product code, we will add the information in **Dosages and Sub Dosages Modules**. After adding the dosages, create the project name first to generate the project code.

The screenshot displays the Vetron-LIMS web application interface. The top navigation bar includes the Vetron-LIMS logo, a search icon, and a user profile labeled 'Admin'. The left sidebar contains a menu with various modules: CATEGORY WISE TEST (expanded), Finish test, In Process test, Material wise test, REFERENCE STANDARD, COLUMN, REAGENT CHEMICAL, REFERENCE LISTED DRUG, INSTRUMENT, SOP, FORMAT, and ATTACHMENT. The 'DOSAGES' module is highlighted in the sidebar. The main content area is titled 'Dosage' and features a '+ Create' button. Below the title, there is a table with columns for '#', 'Dosage', and 'Action'. The table contains two entries: '1 Injectable Dosage Form' and '2 Oral Liquid Dosage Form'. Each entry has edit and delete icons in the 'Action' column. The table is paginated, showing 'Showing 1 to 2 of 2 entries' and navigation buttons for 'First', 'Previous', '1' (current page), 'Next', and 'Last'. A search bar is located in the top right corner of the table area.

#	Dosage	Action
1	Injectable Dosage Form	 
2	Oral Liquid Dosage Form	 

The Workflow of the Vetron-LIMS:

Step 5: Adding Raw Material and Package Material & API

First, we will add the products from the three fields– **API materials, Excipients, and Packing material**. In which, they will add the details of materials provided by the warehouse department.

VETRON-LIMS

HOME

API Material

+ Create

API MATERIAL

EXCIPIENTS

PACKING MATERIAL

entries

Search :

	Code	Name	PO Number	Quantity	Unit	Expiry Date	Storage Condition	Material Grade	Storage Location	Vendor COA	In-House COA	Receipt Date
	A00023	SN-38	NA	3.000	g	31/12/2021	20°C TO 25°C	USP	CYTOTOXIC CUPBO...	-	-	16/10/2020
	A00005	BUPIVACAINE BAS...	PO/AXL/20-21/0087	250.000	g	05/06/2024	20°C TO 25°C	USP	CYTOTOXIC CUPBO...	Download	-	28/12/2020
3	A00026	Bisoprolol Fuma...	PO/AXL/20-21/0090	997.600	g	30/08/2023	20°C TO 25°C	USP	RACK-4 API & EX...	Download	-	03/12/2020
4	A00010	MERCAPTOPYRINE...	NA	299.000	g	14/01/2024	20°C TO 25°C	USP	CYTOTOXIC CUPBO...	Download	-	22/07/2020
5	A00017	HYDROXYCHLOROQU...	NA	1.000	kg	30/05/2025	20°C TO 25°C	PH.EUR	RACK-4 API & EX...	Download	-	04/09/2020
6	A00022	Paracetamol Ph...	PO/AXL/20-21/0042	25.000	kg	30/07/2025	20°C TO 25°C	PH.EUR	RM store	Download	-	06/10/2020
7	A00008	BACITRACIN USP	NA	80.000	g	10/07/2022	2° TO 8° C	USP	refrigerator	Download	-	19/09/2020
8	A00003	Decitabine	PO/AX/20-21/0028	9.000	g	30/06/2021	2° TO 8° C	USP	refrigerator	Download	-	27/05/2020
9	A00014	WARFARIN SODIUM...	NA	845.240	g	28/01/2022	20°C TO 25°C	PH.EUR	RACK-4 API & EX...	Download	-	14/07/2020
10	A00015	RIVASTIGMINE TA...	PO/AX/20-21/0066	379.600	g	30/06/2024	20°C TO 25°C	USP	RACK-4 API & EX...	Download	-	30/07/2020
11	A00013	HYDROCHLOROTHA...	NA	304.800	g	30/09/2021	20°C TO 25°C	USP	RACK-4 API & EX...	Download	-	23/07/2020
12	A00002	SUCCINYLCHOLINE...	PO/AX/20-21/0035	238.116	g	28/02/2024	20°C TO 25°C	USP	RACK-4 API & EX...	Download	-	16/12/2020
13	A00007	OMEPRazole Ph.E...	PO/AX/20-21/0058	374.536	g	30/04/2025	2° TO 8° C	PH.EUR	refrigerator	Download	-	07/01/2020
14	A00011	LOSARTAN POTASS...	NA	898.900	g	30/08/2022	20°C TO 25°C	PH.EUR	RACK-4 API & EX...	Download	-	22/07/2020
15	A00019	AZACITIDINE	NA	645.998	g	30/07/2021	2° TO 8° C	USP	refrigerator	Download	-	30/09/2020

The Workflow of the Vetron-LIMS:

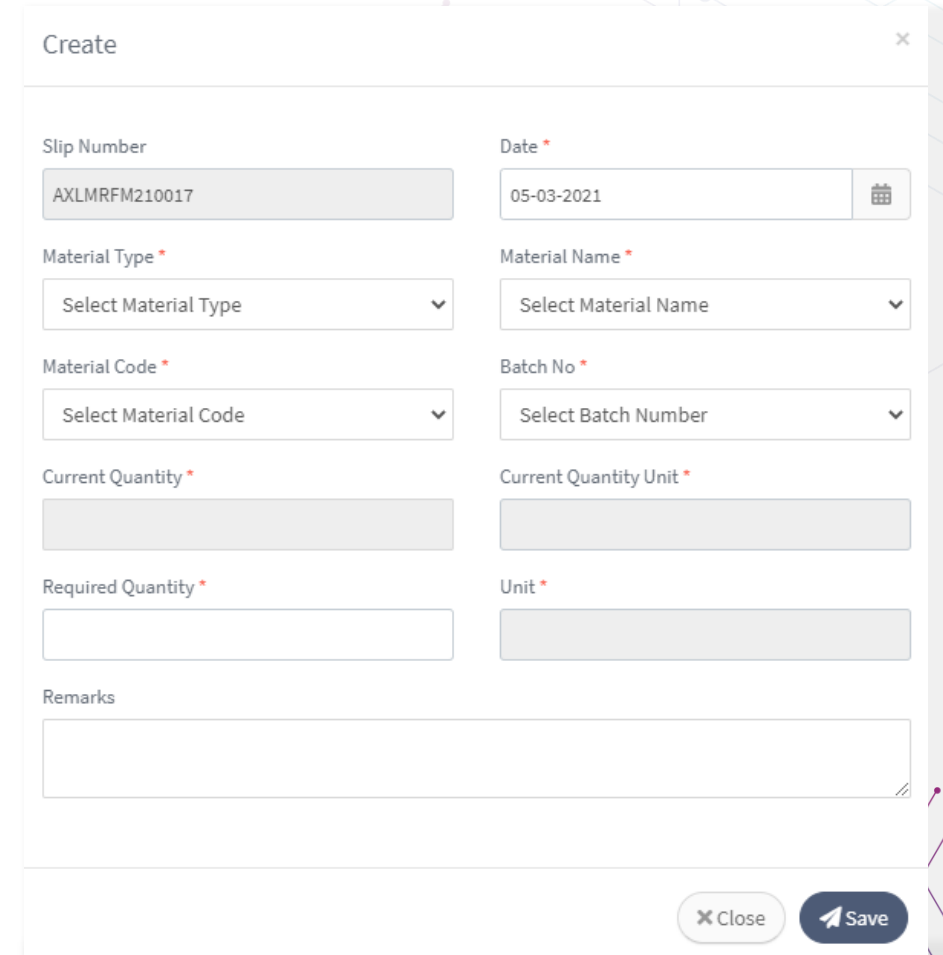
Step 6: Material Requisition Form (MRF)

Here all the materials are approved and finalized by the departments. The departments are only added by the Admin.

In the MRF(Material) & MRF(Final Product) modules, it will be approved from two departments: **Formulation Department and Warehouse Department.** The one who prepared it and the warehouse department will approve or reject it.

If the product is rejected, the MRF(Final Product) record would be rejected with the remark by the departments of why the product is rejected.

FD dept gives the request to warehouse dept for issuance of Material through Material Requisition Form (MRF).



The screenshot shows a 'Create' form for the Material Requisition Form (MRF) in the Vetron-LIMS system. The form is titled 'Create' and has a close button (X) in the top right corner. It contains several input fields and dropdown menus for creating a new MRF record. The fields are organized into two columns. The left column includes: 'Slip Number' (text input with value 'AXLMRFM210017'), 'Material Type' (dropdown menu with 'Select Material Type'), 'Material Code' (dropdown menu with 'Select Material Code'), 'Current Quantity' (text input), and 'Required Quantity' (text input). The right column includes: 'Date' (text input with value '05-03-2021' and a calendar icon), 'Material Name' (dropdown menu with 'Select Material Name'), 'Batch No' (dropdown menu with 'Select Batch Number'), 'Current Quantity Unit' (text input), and 'Unit' (text input). At the bottom of the form is a 'Remarks' text area. The bottom right corner of the form has two buttons: 'Close' and 'Save'.

Field	Value
Slip Number	AXLMRFM210017
Date	05-03-2021
Material Type	Select Material Type
Material Name	Select Material Name
Material Code	Select Material Code
Batch No	Select Batch Number
Current Quantity	
Current Quantity Unit	
Required Quantity	
Unit	
Remarks	

The Workflow of the Vetron-LIMS:

Step 7: Specification of Materials

FD(Formulation Department) department gives the request to the warehouse department for issuance of Material through (MRF) Material Requisition Form.

The Specification of material would be added by the AD(Analytical Department), in which the Material Type, Name, and Code is selected from the prefilled information added before in the modules. The form request would be in three fields: Approved, Rejected, and Not reviewed. After the entry is added in the specification, the request would first be approved by the FD(Formulation Department), and lastly, it would be approved by the QA(Quality Assurance Department).

The sequence is important for the approval because until and unless the FD(Formulation Department) will not approve the request, it won't be sent to the QA(Quality Assurance Department) for approval. In the Specification module, the entries of the test module will be given the option for the user to select from the checkbox which will use it later in the TRF Module.

The Workflow of the Vetron-LIMS:

After the approval, the COA is generated which will be reviewed by AD (Analytical Department) and further it cannot be altered. After approval from the AD (Analytical Department), the COA will be approved by QA (Quality Assurance) Department.

The screenshot displays the Vetron-LIMS interface. On the left is a dark sidebar with a navigation menu including: HOME, API MATERIAL, EXCIPIENTS, PACKING MATERIAL, PROJECT CODE, PRODUCT CODE, MRF, SPECIFICATION, TRF, RESULT, STABILITY, DEPARTMENTS, USERS, VENDORS, UNITS, TEST, CATEGORY WISE TEST, REFERENCE STANDARD, COLUMN, REAGENT CHEMICAL, and REFERENCE LISTED DRUG. The main content area has a top header with 'VETRON-LIMS' and a user profile 'Admin'. Below the header, there are 'Update' and 'Delete' buttons. The central form contains the following data:

STP No NA	
Position Straight	Other Position N/A
Stability Reason optimization of Na Alginate concentration for Dissolution (without Na Alginate)	
Created At 13/01/2021	Updated At 13/01/2021

To the right of the form is a table with two columns:

Total Time Point 3	Sample Per Time Point 1
Extra Samples 0	Total Sample Charge 3
Test 1. Description2. Assay of Omeprazole3. In Vitro Drug Release4. Related Substances	Remarks Placebo sample is not kept (consider OMEL/0701/1040P for Analysis)

Below the form is an 'Approvals' modal window listing the following:

User	Department	Status	Timestamp
Nidhi Choraria	Formulation Development	✓ Prepared	13/01/2021 13:19
Binal Mehta	Analytical Development	✓ Approved	13/01/2021 15:04
Devang Tailor	Analytical Development	⚠ Not Reviewed	13/01/2021 13:19
Gaurang Dudhwala	Analytical Development	⚠ Not Reviewed	13/01/2021 13:19
Ashish Savaliya	Formulation Development	⚠ Not Reviewed	13/01/2021 13:19
Taara Contractor	Formulation Development	✓ Approved	13/01/2021 15:08
Meet Soni	Quality Assurance	✓ Approved	13/01/2021 15:43

The Workflow of the Vetron-LIMS:

Step 8: Test Requisition Form (TRF)

FD dept generates the (TRF) Test Requisition Form for the testing of material. The TRF code is generated with the help of Product code and the following details from the modules of Materials, MRF, & Specification in which the selected testing features would be displayed from the specification module. And it also gives the option for the second time to select the check-boxes from the test module which will be used in the Result Module.

Restricted Circulation

 VETRON-LIMS

Raw material specification

Material Name	BACITRACIN USP		
Material Code	A00008	SPC No.	AXLA00008U/SPC/04-01
CRF No.	NA	Supersede No.	NA
Effective Date	14/08/2020	Review Date	13/08/2023

Sr. No.	Test	Limit	Reference
1	Bacterial Endotoxins	Not more than 0.01 USP Endotoxin Unit/Bacitracin Unit	USP
2	Assay of Drug Substance(s)	Microbial Assay USP <81> : Not less than 65 Bacitracin Unit per mg, calculated on the dried basis	USP
3	Microbial limits	1)Total aerobic microbial count (TAMC) Not more than 100 CFU/gram 2)Total combined yeasts/moulds count (TYMC) Not more than 10 CFU/gram 3)Escherichia coli Absent 4) Salmonella Absent 5) Pseudomonas aeruginosa Absent 6) Staphylococcus aureus Absent	USP
4	Residual Solvents	Butanol Not more than 5000 ppm	DMF
5	Loss on Drying	(USP <731>)Not more than 5.0%	USP
6	Residue on ignition	(USP <281>)Not more than 0.5%	USP
7	Related Substance	1)Content of Bacitracin A Not less than 40.0% 2)Content of active Bacitracin Not less than 70.0% 3)Limit of early eluting peptides Not more than 20.0% 4)Limit of Bacitracin F Not more than 6.0% 5)Limit of Bacitracin X Not more than 7.0%	USP
8	pH	(USP <791>) (solution containing 10,000 Bacitracin Units per mL) : Between 5.5 and 7.5	USP
9	Description	White to pale buff powder	DMF
10	Identification I	Identification-A Meets the requirements of the test for Composition of Bacitracin	USP
11	Identification II	Identification-B No white precipitate is formed	SUP

Note:

*If the test result of TAMC is 0 CFU/gram, the test for specified micro-organisms is omitted.

Note:

The Workflow of the Vetron-LIMS:

Step 9: Stability Program

The Storage Conditions would be selected here according to the product, where Total samples are added. This is the final module where all the beforehand information from the modules is added here. And lastly, the document is generated after the approval where it is approved firstly by FD and AD Department and lastly final approved by QA Department.

There are two features in the stability program :

Amendments: The comments and reviews which are related to company internal queries would be added here by the FD Department and approved by the QA Department.

Notification: The comments which are created by the FD Department in Amendments section, would be notified to the QA Department for approval through the Notification feature.

The screenshot displays the 'Stability Program' module in the Vetron-LIMS system. It is divided into three main sections: Information, Stability Information, and Time Point Information.

Information Section:

Product	Azacitidine oral suspension (AXLAZALU1F)	Status	Approved
Charging Date	11/01/2021		
Stability Program no	SPG/AXLAZAL/04	Batch No	AZAL/070121/1010A & B
Protocol no	NA	Batch Size	1000
Strength	50 mg/mL	Manufacture Date	07/01/2021
Type of Batch	N/A		
Specification	AXLAZALU1F/TSPC/18-01	API Batch No	ATZ/R-1/S-III/0076
STP No	NA		
Position	Inverted	Other Position	N/A

Stability Information Section:

Stability Conditions	7D	14D	1M	2M	3M	4M	6M	9M	12M	18M
40°C +/- 2°C and 75 % +/- 5 % RH			☒							
30°C +/- 2°C and 65 % +/- 5 % RH										
25°C +/- 2°C and 60 % +/- 5 % RH			☒							
25°C +/- 2°C and 40 % +/- 5 % RH										
40°C +/- 2°C and NMT 25 % RH										
2 to 8 °C										
30°C +/- 2°C and 70 % +/- 5 % RH										
30°C +/- 2°C and 75 % +/- 5 % RH										
30°C +/- 2°C and 35 % +/- 5 % RH										
-20 °C +/- 5 °C										
60 °C +/- 2 °C								☒		

Time Point Information Section:

Total Time Point	3	Sample Per Time Point	1
Extra Samples	1	Total Sample Charge	4



Purpose of



Vetron-LIMS





Purpose of LIMS

❖ Sample Management

Sample management is one of the critical functions of a LIMS. A LIMS manages detailed and accurate records of each sample and stores it securely, thus eliminating loss of data as it moves between the departments. Additionally, when the sample moves from one unit of the laboratory to another, the Chain is updated to ensure proper tracking of the sample's location and custodian.

❖ Inventory Management

The inventory management function of LIMS is an essential part of a laboratory's day-to-day management. A LIMS manages stock supplies and reagents. A LIMS can also generate automatic reorder alerts in case of stock depletion. These alerts facilitate laboratory workflows and prevent any delays resulting from the unavailability of stocks. A LIMS can also help to keep detailed and up-to-date information about your equipment and notify when any equipment is due for upgrade or maintenance.





Purpose of LIMS

❖ Test Management

A LIMS helps standardized testing workflows while providing complete and accurate control of the testing process. A LIMS allows you to manage the test conducted on the batch of samples, enables easy entry of the results, tracking approval/validation of results, and generation of reports.

❖ Reporting

Reporting is an essential part of LIMS that enables a laboratory to achieve an entire view of data collected and potential trends, reducing reporting overhead of the laboratory.





VETRON

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Thank You