

1 INTRODUCTION

This chapter outlines the background of the project, the need and the objectives that is covered in the project.

1.1 Introduction

Since long, we have started to witness some incredible reforms happening in our educational sector. As a nation, it's our primary duty and responsibility to raise the standards of our education as and when possible, to compete with the rest of the world. As a result the remarkable efforts have been taken by the different government and non-government bodies for the improvement of quality and relevance of our education and education system to meet certain worldwide norms, criteria and standards for professional courses, especially engineering and technical professional courses. Fulfilment of these norms, criteria and standards is not only considerably going to affect our economy and worldwide career opportunities but also the global equivalence over the professional courses. This equivalence further will gradually make the effective interchange of international resources leading to both educational and industrial development.

To make the institutions or the professional courses to follow prescribed norms, criteria and standards for quality assurance and improvements they need to be strengthened and upgrade or transform themselves to sustain to compete globally and fulfil requirement of resources. The transformation at such large scale undoubtedly requires strong economic support. So to make this transformation of engineering and technical professional courses various government and non-government organizations came up to fund such institutions and professional courses. These organizations such as All India Council for Technical Education (AICTE), Technical Education Quality Improvement Program (TEQIP), North East Quality Improvement Program (NEQIP), University Grant Commission (UGC), Public Financial Management System (PFMS) Ministry of Finance Government of India, National Project Implementation Unit (NPIU) a unit of [Ministry of Human Resource Development](#) (MHRD) Government of India, Atomic Energy Regulatory Board

(AERB), Aeronautics Research and Development Board (ARDB), Research in Nuclear Sciences (BRNS), Council of Scientific & Industrial Research (CSIR), Defence Research & Development Organisation (DRDO), Department of Atomic Energy, Department of Biotechnology (DBT), Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers, Department of Electronics and Information Technology, Indian Council of Agricultural Research (ICAR), Indian Council of Medical Research (ICMR), India-Republic of Korea Joint Applied R&D Program 2014 Funding, Indo French Centre for the Promotion of Advanced Research (IFCPAR), Indo-US Science & Technology Forum, UK India Education and Research Initiative (UKIERI), Global innovation Technology alliance and etc. provides funds to institutions for quality assurance and improvements. The organizations to make decisions for funding to institutions, the institutions have to fulfil certain eligibility criteria. This eligibility criterion generally involves the process of assessment and evaluation of institutions on different parameters and/or the institution or program must be accredited (Accreditation is a process of quality assurance and improvement, whereby a program in an approved Institution is critically appraised to verify that the Institution or the program continues to meet and/or exceed the Norms and Standards prescribed by regulator from time to time. It is a kind of recognition which indicates that a program or Institution fulfils certain standards) by one or many available government, non-government, private, autonomous accreditation bodies or boards or councils.

The assessment and evaluation and accreditation is done by reviewing and auditing lots of parameter/key indicators (KIs) such as institution or technical professional course/courses must be affiliated to university recognized by UGC, institution or technical professional course/courses must be ACITE approved, curricular and teaching-learning processes, governance body, infrastructure and facilities, student and faculty performance, support to student and faculty and staff, institutional best practices, financial support, etc. These KIs are further collapses in different metrics for which the responses are expected from the institutions [4] in the form of data with supported documentary proof.

Beyond funding agencies and accreditation bodies, various marketing research and

consulting organization conduct survey to rank the top technical/non-technical institutions. The survey is conducted every year to list rank wise top institutions among India. Some of the premier marketing research and consulting organization are The National Institutional Ranking Framework (NIRF), Marketing and Development Research Associates (MDRA), Outlook Drishti Survey, Optimal Media Solutions i3RC Times, digital LEARNING and many more organizations and several magazines. The survey methodology has identified broad parameters/key indicators (KIs) for ranking various universities and institutions. The parameters/ broadly cover “Teaching, Learning and Resources,” “Research and Professional Practices,” “Graduation Outcomes,” “Outreach and Inclusivity,” and “Perception” as per NIRF. These parameters are further elaborated into suitable metrics/sub-heads and institute are expected to submit data with documentary proof for each of the metric.

All of the KIs are very important but among all the KIs one of the very important and high weightage. The KI “Student and Faculty Performance” have further elaborated into following metrics:-

1. Research and Development Activities
2. Innovations, Awards
3. Patents, Books
4. Publication and Presentation of Research Work in National/International Journal/Conference
5. Teachers Awarded with National/International Fellowship for Advance Studies
6. Teachers Ph.D. Status
7. If Ph.D. completed, then status of Recognized as Ph.D. Supervisor in any University
8. Funded Projects
9. Conferences/Training/Workshop conducted by institution
10. Faculty Development Program/Student Development Program/Staff Development Program conducted by institution, etc.

The above metrics are very important with high weightage but at the same time for an institution to collect the data for all metrics is quite a tedious job, as; the data for these

metrics has to be collected from individuals whose may be students or faculties or staffs in the institution. The issue here is not only how to collect data from individual or who will collect the data, but also how much one individual is maintains his/her own data and how much willing to give and submit updated data within a given time frame and how many times, as it may the possibility that institution may apply to different funding/accreditation/ranking agencies simultaneously or periodically. Very obviously this scenario is not applicable to all institutions, but this may be the situation of some institutions. Moreover every funding/accreditation/ranking agency has their prescribed formats/templates for data collection. So it become more difficult for a coordinator to collect data, manipulates it, and compiles it every time for submission. Many of times it has been seen that institutions has failed to submit complete data within a given time frame because of all the above reasons, apart from the fact, that, that KI has high weightage. This incapability of any institution results in low funding, lower accreditation grade, and lower rank. Also, undoubtedly affects the way of institution towards the fulfilment of worldwide norms, criteria and standards for quality assurance and improvements of an institution.

For any institutions the most significant values of an education is to contribute to society in meaningful way through research and development, produce globally accepted skilled personals, stand globally competitively in comparison with others. With these values the other significant value next to human resource, is to efficiently store, manage, handle and deliver the data produced during the process of education quality enhancement through various KIs. Unfortunately, the sole awareness and significance of data maintenance is mostly not enough. What results from this situation is that despite the availability of data, data is still unavailable and insufficiently used. This is mainly because the individual's personal data has to be maintained at personal level and deliver the information to concern person when requested in prescribed format. It might be the situation that one has to deliver the same information in different prescribed formats for different purposes to different concern persons in institution, which makes them irritate to such a extend making them not to deliver the information. Other than individual's personal data, institute sometimes fail to give complete information on institute level data as there is abundance of institute level data which

is managed by hierarchy of Chairperson, Principal, Deans, Heads, and Activity Incharge etc. Moreover, the institute too requires the same information to be used by institute management to develop road maps, plans, strategies and to take decisions for education quality enhancement. From the above discussion we surely can make a statement that the data for each and every KIs not only plays a vital role in institution's accreditation, avail funding, top institution ranking survey but also in institutions self-assessment for decisions making and overall quality and performance improvement.

1.2 Necessity

At present to manage and deliver large amount data produced in the process education quality enhancement various web applications, mobile application, web portals etc. are developed and being used. In spite of this, the institutions fails to deliver the information because of inadequate centralize data management, data sharing support, data integrity, data availability, effective report generations and etc. issues makes less use of those portals affecting delivery of information to be incomplete and insufficient. The above discussion motivates us to design and develop the centralize data management system portal which can efficiently store, manage, handle and deliver information any time at the tip of a finger. This work is for now limited to develop data management system portal for Institution's Research and Development (R&D) Cell Activities. The details of activities under R&D Cell will be provided in forthcoming chapter.

Here we are discussing the development of better portal than existing, but really existing system have some problem? Some of the following issues surely have the answer for this:-

1. Does the institution have any prescribed standards for data exchange?
2. Data is stored in different formats, in different mediums and at different locations.
3. How much the stake holders are aware about the fact about the importance of data management, which is an intellectual asset of an institution and plays a vital role in overall development of institution.
4. How many stake holders realize the dependencies between the information provided

by them and institutional profit?

5. It has been noticed number of times many of employees fill in some reports or data templates without understanding its importance and purpose.
6. Whether the steps taken for full data digitalization?
7. If yes, at what level the training has been delivered to stake holders for data management?
8. Finally and very importantly do the employees believe that the existing data management system is not efficient, not user friendly, ineffective and feel the need of change in existing system?

If the answer for the 8th question is yes then, clearly the problem exists of which the employees are aware. So the institute must take corrective measures and one of the corrective actions is to development of better portal. “After all anyone can clearly see the institution’s performance by how the institution from the huge amount of data delivers the right information, in right format, to right people, at right time. At the same time every stake holder must realize their duty and responsibility of managing their own data and update it in the portal timely and accurate data.”

So from all of the above discussion we conclude that there is need to design and develop a data management system portal for Institution’s Research and Development (R&D) Cell Activities. The design and development of this portal is based around the concept of Web Portal and Management Information System (MIS).

A web portal is a [website](#) designed specially to bring data from various sources, together in a uniform way. Each information gets its dedicated area on the page for displaying information. The portals may include dashboards on which content is displayed in a uniform way and may depend on the intended user and the intended purpose, as well as the diversity of the content.

1.3 Objectives

The objective of portal to be develop is supposed

1. To be more centric to all stake holders of institution
2. To maintain any individual’s data, provided they must update it time to time

3. To maintain institute level data, with one of the dean as responsible in charge
4. To generate reports as the per need of individual
5. To generate reports of data for all users as the per need, of individual/group/consolidate of specific activity
6. To generate reports of institute level data
7. To store data with documentary proof
8. Better functionality, user friendliness, usability and performance

1.4 Organization of Report

The study is organized into five chapters:

- Chapter One: Is an introduction chapter, showing introduction of the project problem definition, purpose of study, necessity theme and objective of project.
- Chapter Two: Describes what others have done related to the current project. It also justifies the use of solution techniques and problem solving procedures in this project work. It also includes the technologies used in the project.
- Chapter Three: This chapter shows the proposed system design and database design.
- Chapter Four: This chapter shows the performance analysis, comparisons between prior system and proposed system.
- Chapter Five: This very last chapter deals with the discussion, the conclusion, the recommendations for further work and applications in our project.

2 LITERATURE SURVEY

Many organizations work with large amounts of data. Data are basic values or facts and are organized in a database. Many people think of data as synonymous with information; however, information actually consists of data that has been organized to help answers questions and to solve problems. An information system is defined as the software that helps organize and analyze data. So, the purpose of an information system is to turn raw data into useful information that can be used for decision making in an organization. A management information system (MIS) produces information that supports the management functions of an organisation and facilitates the decision-making process. The MIS is thus an organised approach of collecting, processing, storing and disseminating data to carry out management functions. To transform data into information, processing is required and it must be done while considering the context of a decision. The MIS can play a critical role in the implementation of a program in terms of monitoring periodic progress. A well designed MIS facilitates the flow of information among various levels and enables setting up of a feedback mechanism for planning and management of a program, project or a policy. The MIS must be simple and easy to comprehend by different stakeholders of the program at national, sub-national and community levels, and it should provide reliable information. The information should be specific, accurate and verifiable; it should facilitate timely management decision in terms of frequency and flow of information (i.e. a two-way feedback system in a decentralised framework). The information generated by the system should be easy to access, process and use; thereby enabling a wider dissemination. Also, it should be amenable to computer software.

A web portal is a specially designed website that often serves as the single point of access for information. It can also be considered a library of personalized and categorized content. A web portal helps in search navigation, personalization, notification and information integration, and often provides features like task management, collaboration, and business intelligence and application integration. A web portal is capable of handling both structured and unstructured information. For users, it provides ease of navigation, and for enterprises it provides significant

cost savings, improved productivity and a way to establish a long-lasting relationship with users. A web portal can facilitate notification and multi-channel consistency. It enables universal login and provides integration if needed to other applications and systems. It is also capable of integrating and supporting a specific application type like e-commerce support, business intelligence or application service provider application. The basic, uniting concept for each type of portal is personalized access, based on an assigned or assumed user role. For example, workplaces typically have multiple applications that their employees need to access, such as an application for recording time sheets, another for scheduling time off and a third for sending internal communications. Employees are frustrated when they have too many touchpoints that they need to jump between as part of their daily routine. A new employee portal brings together these common services and applications into one place for your team to access, and can further customize the page based on department or role. This personalization can also extend to anonymous users. Clothing retail sites, for instance, can begin personalizing which products are displayed based on stored information from past visits, even if the user hasn't created an account.

2.1 History

The history of information systems (IS) span five decades. Yet from its inception, IS has done more to expand business and industry into global markets than any other convention in history. Today the backbone of IS is known as the World Wide Web, Internet, or with a business a Local Area Network and host of others to describe new ways in which IS can be employed to grow business. By the mid-sixties IS was already forging its way into business mainstream. While computers remained out of reach for most businesses, telecommunications made its mark with the telex machine. This step gave businesses the ability to communicate within its own organization anywhere in the world at any time and effectively pass instructions and information. The use of computer in business and industry usually started off in the accounting departments. It was assumed that this area would know the most about using numerical machines and the lack of understanding in how important databases could be other areas of the business. By this time a number of business school began developing Management Information System (MIS) programs to meet the growing need of IS managers. During the seventies more

upper management recognized the importance of IS and the flexibility it was bring to business. The telex machine became the standard of information transfer and the mainframe computer became the standard for database creation. As the need for organized and easy access to data became apparent, information-based businesses began moving the mainframes from under the accounting management to its own department. IS is a technology driven system. Without it, business would not be what it is today. It has evolved over the past forty years to be the back bone of business, yet the simple application rules created in the 1960s and 1970s are still very relevant in any application where data or information is transferred in whatever business model it is applied to no matter the complexity. While it can be contested that the history of management information systems date as far back as companies using ledgers to keep track of accounting, the modern history of MIS can be divided into five eras originally identified by Kenneth C. Laudon and Jane Laudon in their seminal textbook Management Information Systems.

- First Era – Mainframe and minicomputer computing
- Second Era – Personal computers
- Third Era – Client/server networks
- Fourth Era – Enterprise computing
- Fifth Era – Cloud computing

The *first era* (mainframe and minicomputer computing) was ruled by IBM and their mainframe computers for which they supplied both the hardware and software. These computers would often take up whole rooms and require teams to run them. As technology advanced, these computers were able to handle greater capacities and therefore reduce their cost. Smaller, more affordable minicomputers allowed larger businesses to run their own computing centers in-house / on-site / on-premises.

The *second era* (personal computers) began in 1965 as microprocessors started to compete with mainframes and minicomputers and accelerated the process of decentralizing computing power from large data centers to smaller offices. In the late 1970s, minicomputer technology gave way to personal computers and relatively low-cost computers were becoming mass market commodities, allowing businesses to provide their employees access to computing power that ten years before would have cost tens of thousands of dollars. This proliferation of

computers created a ready market for interconnecting networks and the popularization of the Internet. (The first microprocessor — a four-bit device intended for a programmable calculator — was introduced in 1971 and microprocessor-based systems were not readily available for several years. The MITS Altair 8800 was the first commonly known microprocessor-based system, followed closely by the Apple I and II. It is arguable that the microprocessor-based system did not make significant inroads into minicomputer use until 1979, when VisiCalc prompted record sales of the Apple II on which it ran. The IBM PC introduced in 1981 was more broadly palatable to business, but its limitations gated its ability to challenge minicomputer systems until perhaps the late 1980s to early 1990s.)

The *third era* (client/server networks) arose as technological complexity increased, costs decreased, and the end-user (now the ordinary employee) required a system to share information with other employees within an enterprise. Computers on a common network shared information on a server. This lets thousands and even millions of people access data simultaneously on networks referred to as Intranets.

The *fourth era* (enterprise computing) enabled by high speed networks, consolidated the original department specific software applications into integrated software platforms referred to as enterprise software. This new platform tied all aspects of the business enterprise together offering rich information access encompassing the complete management structure.

The *fifth era* (cloud computing) is the latest and employs networking technology to deliver applications as well as data storage independent of the configuration, location, or nature of the hardware. This, along with high speed cellphone and Wi-Fi networks, has led to new levels of mobility in which managers may access the MIS remotely with laptops, tablet computers and smartphones.

2.2 File-Based System Vs DBMS

There are number of characteristics that differ from traditional file management system to database management system. In file system approach, each user implements the required files for a specific application to run. (Example: in a sales department of an enterprise, one user will be maintaining the details of the number of sales personnel in that department

and their grades. These details will be stored and maintained in a separate file. Another user will maintain the salary details of these sales personnel and the detailed salary report will be stored and maintained in a separate file. Although both of the users need the data of the salespersons, they will be having their details in separate files and they need different programs to operate their files.) When such data is isolated in separate files, it is difficult to access data that should be available for both users. This will lead to wastage of space and redundancy or replication of data, which may lead to confusion, as sharing of data among various users is not possible and data inconsistency may occur. These files will not be having any inter-relationship among the data stored in these files. Therefore in traditional file processing every user will be defining their own constraints and implement the files according to their needs.

In database approach, a single store of data is maintained that is defined once and then accessed by many users, as database belongs to the entire organization and can be shared by all authorized users. The essential characteristic of database approach is that the database system not only contains data but it contains complete definition or description of the database structure and control. These definitions are stored in a system catalog, which contains the information about the structure and definitions of the database. The information stored in the catalog is called the metadata, it describes the primary database. Hence this approach will work on any type of database for example, insurance database, Airlines, banking database, Finance details, and Enterprise information database. But in traditional file processing system the application is developed for a specific purpose and they will access specific database only. But the processing speed in TFS is high compared to DBMS. The other main characteristic of the database is that it will allow multiple users to access the database at the same time and sharing of data is possible. The database must include concurrency control software to ensure that several users trying to update the same data at the same time, it should maintain in a controlled manner. In file system approach many programmers will be creating files over a long period and various files have different format, in various application languages, where duplication of data can occur. This redundancy in storing same data multiple times leads to higher costs and wastage of space. This may result in data inconsistency in the application; this is because update is

done to some of the files only and not all of the files. Moreover in database approach multiple views can be created;

- External view – User/Application view,
- Conceptual view – Logical view,
- Internal view – Details about the structure of data and physical storage of information.

View is a tailored representation of information contained in one or more tables. View is also called as “Virtual table” because view does not contain physically stored records and will not occupy any space. A multi-user database whose users have variety of applications must provide facilities for defining multiple views. In traditional file system, if any changes are made to the structure of the files it will affect all the programs. Therefore, changes to the structure of a file will require to change all programs that access the file and whereby data dependence will be lost. But in the case of database approach the structure of the database is stored separately in the system catalog from the access of the application programs. This property is known as program-data independence.

Database can also be used for continuous storage for program objects and data structures that resulted in object-oriented database approach. Traditional systems suffered from impedance mismatch problem and difficulty in accessing the data, which is avoided in object-oriented database system. Database can be used to represent complex relationships among data as well as to retrieve and update related data easily and efficiently. Hence DBMS does not automatically remove redundancies, but help to control redundancy.

It is possible to define and enforce integrity constraints for the data stored in the database. The database also provides facilities for recovering hardware and software failures, as it has automatic and intelligent backup and recovery procedures. It reduces the application development time considerably when compared to the file system approach and availability of up-to-date information of all the users. It also provides security to the data stored in the database system and maintains integrity.

A highly technical person will be required to handle the database, while for TFS, it is not so. File-based systems are very dependent upon the application programmer. Any required queries or reports have to be written by the application programmer. Normally, a fixed

format query or report can only be entertained and no facility for ad-hoc queries if offered. DBMS has data independence. The way information is stored and the way information issued is independent of each other. File-based systems also give tremendous pressure on data processing staff, with users' complaints on programs that are inadequate or inefficient in meeting their demands. Documentation may be limited and maintenance of the system is difficult. Provision for security, integrity and recovery capability is very limited. Whereas, DBMS has control over security as it provides tools such as use of User Code, Password / Privileges and Roles to ensure security of data.

2.3 Technologies Used

To overcome the above limitations and make the project more easier to implement, it was decided to use the following technologies due to the following reasons

- More user friendly environment for programmer as well as to the end user.
- Reduce the complexity of the code required to implement the same function.
- Faster loading time.

2.3.1 HTML/CSS

HTML is a computer language devised to allow website creation. These websites can then be viewed by anyone else connected to the Internet. It is relatively easy to learn, with the basics being accessible to most people in one sitting; and quite powerful in what it allows you to create. It is constantly undergoing revision and evolution to meet the demands and requirements of the growing Internet audience under the direction of the » W3C, the organisation charged with designing and maintaining the language.

The definition of HTML is HyperText Markup Language.

- HyperText is the method by which you move around on the web — by clicking on special text called hyperlinks which bring you to the next page. The fact that it is hyper just means it is not linear — i.e. you can go to any place on the Internet whenever you want by clicking on links — there is no set order to do things in.
- Markup is what HTML tags do to the text inside them. They mark it as a

certain type of text (italicised text, for example).

- HTML is a Language, as it has code-words and syntax like any other language.

How does it work?

- HTML consists of a series of short codes typed into a text-file by the site author — these are the tags. The text is then saved as a html file, and viewed through a browser, like Internet Explorer or Netscape Navigator. This browser reads the file and translates the text into a visible form, hopefully rendering the page as the author had intended. Writing your own HTML entails using tags correctly to create your vision. You can use anything from a rudimentary text-editor to a powerful graphical editor to create HTML pages.
- You can code your entire website offline, storing it all on your own computer, and then just transfer all the files onto the web. Then whenever you have new content, you just add that to the existing online version of your site. It's really quite simple.

CSS stands for Cascading Style Sheets with an emphasis placed on “Style.” While HTML is used to structure a web document (defining things like headlines and paragraphs, and allowing you to embed images, video, and other media), CSS comes through and specifies your document’s style—page layouts, colors, and fonts are all determined with CSS. Think of HTML as the foundation (every house has one), and CSS as the aesthetic choices (there’s a big difference between a Victorian mansion and a mid-century modern home).CSS brings style to your web pages by interacting with HTML elements. Elements are the individual HTML components of a web page.

Much like HTML, CSS is written in simple, plain text through a text editor or word processor on your computer, and there are three main ways to add that CSS code to your HTML pages. CSS code (or Style Sheets) can be external, internal, or inline. External style sheets are saved as .css files and can be used to determine the appearance of an entire website through one file (rather than adding individual instances of CSS code to every HTML element you want to adjust). Internal style sheets are CSS instructions written directly into the header of a specific .html page. (This is especially useful if you have a single page on a site that has a unique look.)

Finally, inline styles are snippets of CSS written directly into HTML code, and applicable only to a single coding instance. Generally speaking, external style sheets are the most efficient method for implementing CSS on a website (it's easier to keep track of and implement a site's style from a dedicated CSS file), while internal style sheets and inline style can be used on a case by case basis when individual style changes need to be made. So if HTML is the foundation, frames, walls, and girders supporting your website, consider CSS the paint color, window styles, and landscaping that comes on afterward. You can't get anywhere without putting that foundation up first, but—once you do—you'll want to follow up with some style, and CSS is the ticket to unleashing your inner decorator.

2.3.2 Javascript

JavaScript is a dynamic computer programming language. It is lightweight and most commonly used as a part of web pages, whose implementations allow client-side script to interact with the user and make dynamic pages. It is an interpreted programming language with object-oriented capabilities.

JavaScript was first known as LiveScript, but Netscape changed its name to JavaScript, possibly because of the excitement being generated by Java. JavaScript made its first appearance in Netscape 2.0 in 1995 with the name LiveScript. The general-purpose core of the language has been embedded in Netscape, Internet Explorer, and other web browsers.

The ECMA-262 Specification defined a standard version of the core JavaScript language.

- JavaScript is a lightweight, interpreted programming language.
- Designed for creating network-centric applications.
- Complementary to and integrated with Java.
- Complementary to and integrated with HTML.
- Open and cross-platform

Client-Side JavaScript

Client-side JavaScript is the most common form of the language. The script should be included in or referenced by an HTML document for the code to be interpreted by the browser.

It means that a web page need not be a static HTML, but can include programs that interact

with the user, control the browser, and dynamically create HTML content.

The JavaScript client-side mechanism provides many advantages over traditional CGI server-side scripts. For example, you might use JavaScript to check if the user has entered a valid e-mail address in a form field.

The JavaScript code is executed when the user submits the form, and only if all the entries are valid, they would be submitted to the Web Server.

JavaScript can be used to trap user-initiated events such as button clicks, link navigation, and other actions that the user initiates explicitly or implicitly.

Advantages of JavaScript

The merits of using JavaScript are –

- Less server interaction – You can validate user input before sending the page off to the server. This saves server traffic, which means less load on your server.
- Immediate feedback to the visitors – They don't have to wait for a page reload to see if they have forgotten to enter something.
- Increased interactivity – You can create interfaces that react when the user hovers over them with a mouse or activates them via the keyboard.
- Richer interfaces – You can use JavaScript to include such items as drag-and-drop components and sliders to give a Rich Interface to your site visitors.

Limitations of JavaScript

We cannot treat JavaScript as a full-fledged programming language. It lacks the following important features –

- Client-side JavaScript does not allow the reading or writing of files. This has been kept for security reason.
- JavaScript cannot be used for networking applications because there is no such support available.
- JavaScript doesn't have any multi-threading or multiprocessor capabilities.

Once again, JavaScript is a lightweight, interpreted programming language that allows you to build interactivity into otherwise static HTML pages.

2.3.3 PHP

- PHP is an acronym for "PHP: Hypertext Preprocessor"
- PHP is a widely-used, open source scripting language
- PHP scripts are executed on the server
- PHP is free to download and use
- PHP files can contain text, HTML, CSS, JavaScript, and PHP code
- PHP code are executed on the server, and the result is returned to the browser as plain HTML
- PHP files have extension ".php"
- PHP can generate dynamic page content
- PHP can create, open, read, write, delete, and close files on the server
- PHP can collect form data
- PHP can send and receive cookies
- PHP can add, delete, modify data in your database
- PHP can be used to control user-access
- PHP can encrypt data

With PHP you are not limited to output HTML. You can output images, PDF files, and even Flash movies. You can also output any text, such as XHTML and XML.

- PHP runs on various platforms (Windows, Linux, Unix, Mac OS X, etc.)
- PHP is compatible with almost all servers used today (Apache, IIS, etc.)
- PHP supports a wide range of databases
- PHP is free. Download it from the official PHP resource: www.php.net
- PHP is easy to learn and runs efficiently on the server side

2.3.4 SQL

Database is a systematic collection of data. Databases support storage and manipulation of data. Databases make data management easy. Few examples are : An online telephone directory would definitely use database to store data pertaining to people, phone numbers, other contact

details, etc. Your electricity service provider is obviously using a database to manage billing , client related issues, to handle fault data, etc. Database Management System (DBMS) is a collection of programs which enables its users to access database, manipulate data, reporting / representation of data. It also helps to control access to the database. Database Management Systems are not a new concept and as such had been first implemented in 1960s. Charles Bachmen's Integrated Data Store (IDS) is said to be the first DBMS in history. With time database technologies evolved a lot while usage and expected functionalities of databases have been increased immensely. Structured Query language (SQL) pronounced as "S-Q-L" or sometimes as "See-Quel" is actually the standard language for dealing with Relational Databases.

MySQL is the worlds most used open source relational data base management system (RDBMS) that runs as a server providing multi-user access to a number of data bases. The SQL phrase stands for Structured Query Language. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for- profit firm, the Swedish company MySQL AB, now owned by Oracle Corporation. MySQL is a popular choice of data base for use in web publications, and is a central component of the widely used LAMP open source web application software stack (and other AMP stacks). LAMP is an acronym for Linux, Apache, MySQL, Perl/ PHP / Python. Free-software open source projects that require a full-featured database management system often use MySQL

3 SYSTEM DEVELOPMENT

3.1 Proposed System

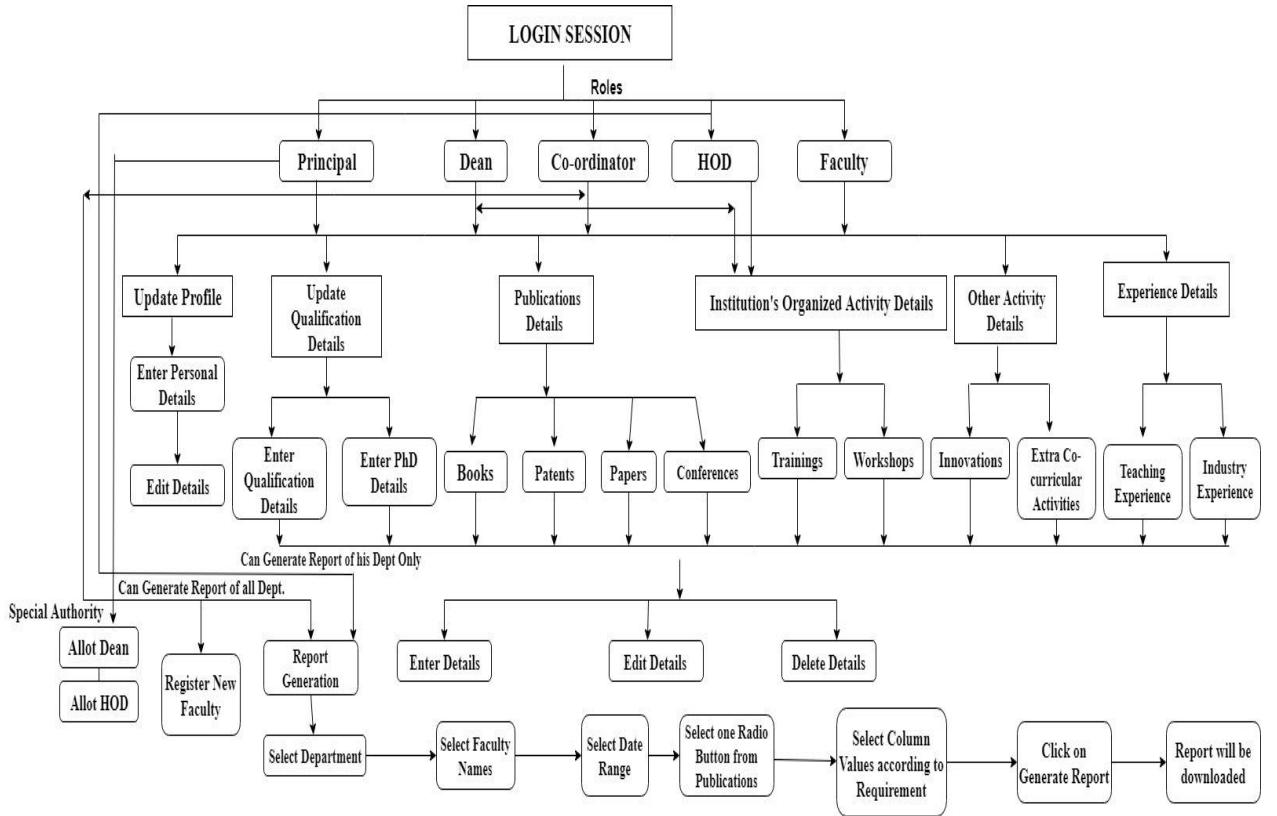


Figure 0: Workflow of project

3.2 Proposed System Architecture:

The Process of information systems development in its first phase attempts to determine the scope and type of system the user wants. The next phase analyzes the above requirement in two parts to facilitate detailed verification and validation before the system is actually designed and implemented.

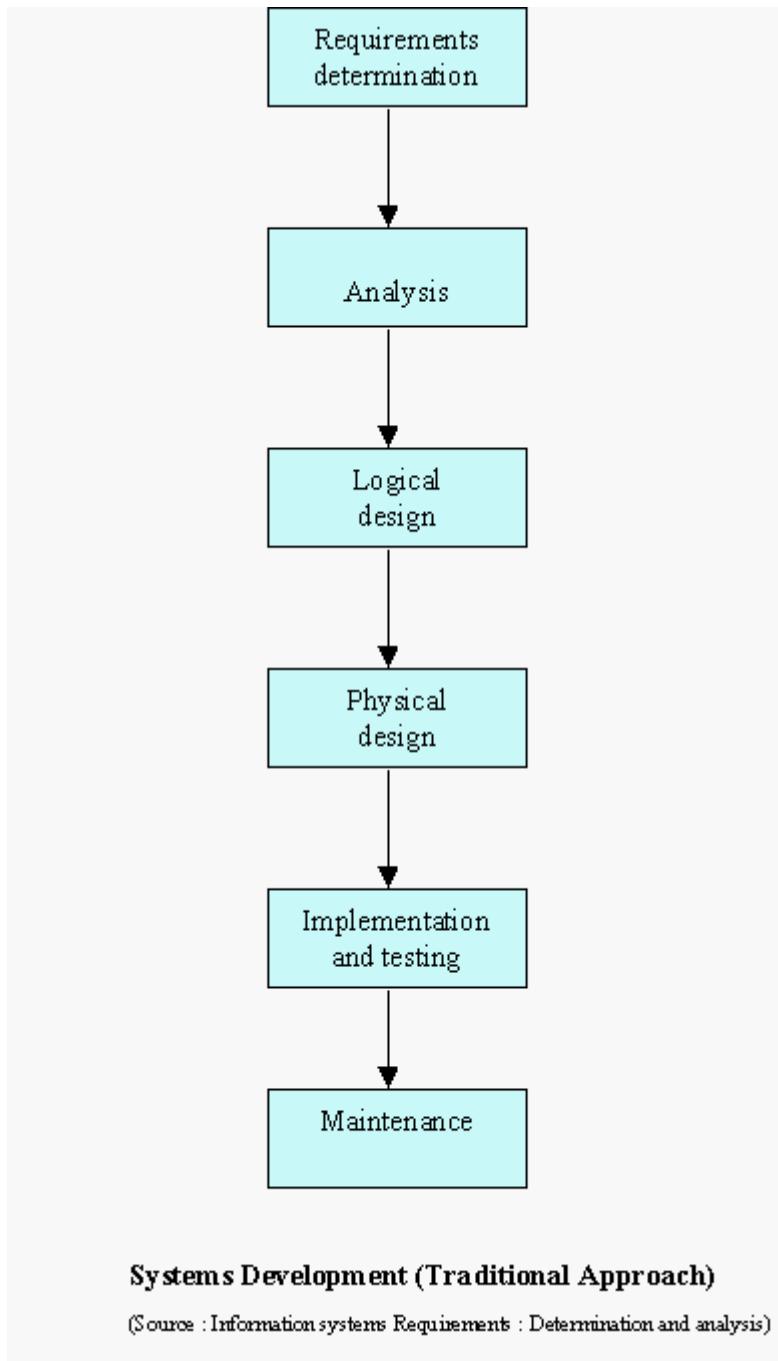


Figure1

Requirements Determination

This stage consists of obtaining user needs and requirements which reflect the user-expectations from the IS being developed. It consists of several stages:

- 1) Problem definition
- 2) Feasibility Study
- 3) Requirements Acquisition

4) Requirements Analysis

The problem definition and feasibility study stages consist of definition of a bare outline of the desired system. The Problem Definition Stage defines to a high level of detail the application for the desired IS and an indication of the advantages that will result from its implementation. The Feasibility Stage is the examination of the different alternatives with which a solution can be found for the design of the desired system. The Requirements Acquisition Stage results in a "statement of requirements". The Requirements Analysis stage produces the "requirements specification". Using the 'statement of requirements' as the main input the aim of the requirements specification is to act as an overview of the desired system in a structured form.

Analysis Phase

This phase analyzes the requirements from the previous phase and converts them into components, which are used to build a 'specification' of the desired system. The specification is more precise than in the previous phase and adds more detail, at the same time retaining user semantics, so that the description would be recognizable to the user. However the model is at an abstract level, that is, with no details concerning data representation or computer implementation.

Logical design

This phase produces a design of the desired system that will serve as a basis for computer implementation. There are two major tasks in logic design. Firstly the specification from the analysis phase is transferred and secondly the human computer system is designed. The significant difference in this phase is that the structure component is now represented by data. There will often be several possible ways of representing relationships. We may also use normalization in this phase. We decide exactly what data types are required for data representation, how many characters are required for each data item and we design records and files or databases to store the data, taking into account the type of processes that will operate the data. An abstract programming form is often used here, such as structured English, JSP diagrams or action diagrams. In addition DFDs may be drawn showing the processes that occur, the data input to and output from each process etc.

The second major task in logical design consists of design of human computer systems. Two levels of detail are normally considered here:

- Design of user procedures which consist of tasks and processes with which users will be directly involved

-Computer interface design consists of the detail of processes and the objects on which these processes operate and may involve considerations related to interaction style (screen and report layouts, human-computer dialogues), specifications of manual or mechanical operations, and off-line or online processing.

Physical design

This is the last of the design phases. We may consider it as consisting of 3 components: Hardware, software and human-computer systems. The hardware design consists of a description of the computers, storage devices, input/output devices and possibly networking devices required for the desired system.

Software consists of the programs that run on the hardware. The physical design of data needs to be considered as the kind of data invariably affects the programs that process the data. It will be necessary to decide on the appropriate types of applications software, including languages and packages as well as systems software required for supporting the eventual system.

Process Design

There are four options for process design

1. For standard processes, we can buy packaged software. For example, accounting software is largely standardized.
2. Use of a fourth-generation language such as lotus123, VB, Oracle etc.
3. Generate code using a CASE tool
4. Write our own code.

If in-house coding is done data structures are chosen for the representation of data in the programs, together with decisions as to the programming language required for eg. COBOL, C++ etc. Issues such as execution speed and ease of maintainability of program code are considered.

Human Computer system design

Some of the design of this system specifies the activities to be followed when communicating with the computer, for example, detail of dialogue between computer and operator, procedures for starting-up and shutting down the system and screen contents such as windows or colors etc.

Implementation And Testing

The major output of the implementation and testing phase is a physical information system and not a design. Of course the physical and earlier designs remain available for reference, as they form the specification. The major tasks consist of:

- Acquiring and integrating hardware, producing software, generating data for the files or databases and producing the human-computer system.
- System is tested, user comments are evaluated, perhaps to redesign the system.
- The operation of the implemented system in the user-organization if monitored closely for a limited period.

Maintenance

The maintenance phase consists of correcting errors in the system or responding to changes in the user requirement, due, for example, to environmental changes or personal preferences for system operation and it may require reworking of all the previous phases for the part of the system that requires changing.

3.3 System Design

The architectural design of a software project is simply the design of the entire software system. This includes the hierarchy of the modules and also which modules are present in the system. A good architectural design will create a clear and fair balance between cohesion (each module has only one distinct purpose), coupling (no two modules depend completely on each other), abstraction (seeing modules in full and not in detail), hierarchy

(logical modules stem from others) and partitioning (logically grouping modules together) of the software modules.

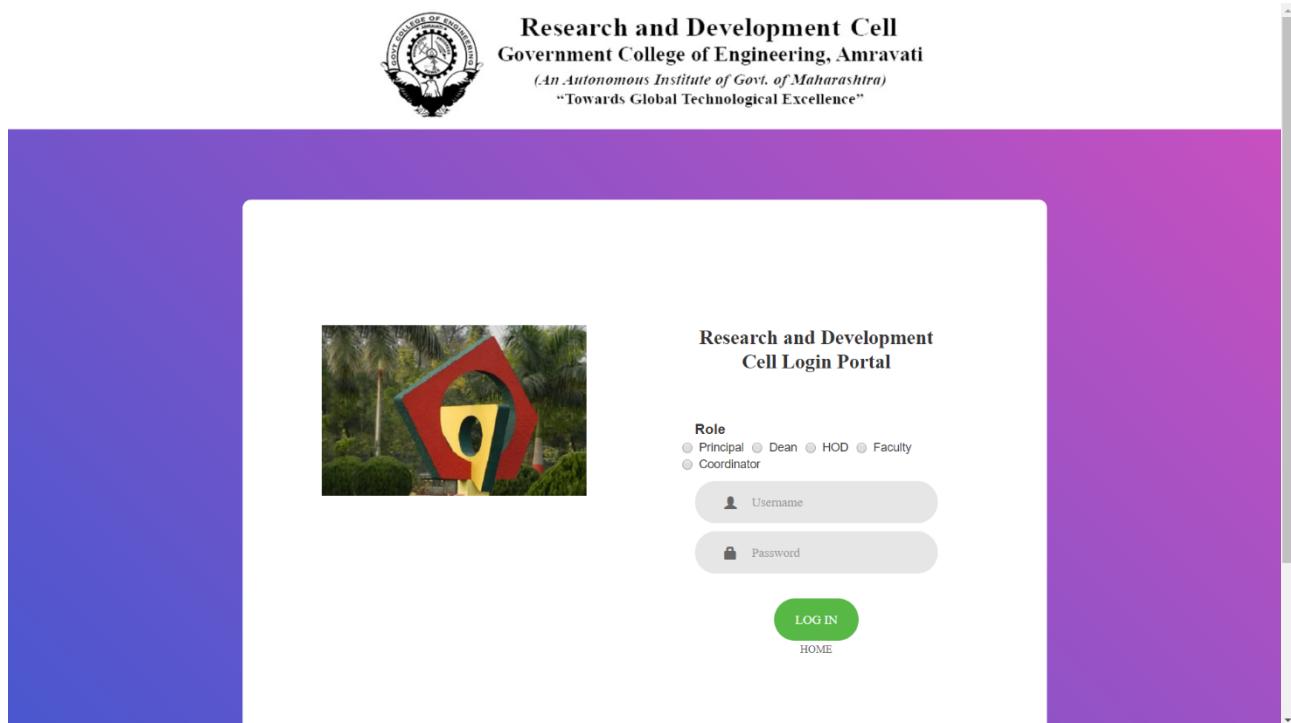


Figure 2

Figure 3

The screenshot shows the 'Qualification' section of the application. At the top, there is a navigation bar with icons for My Profile, Qualification, Publications, Experience, Other Activities, and Organized Programs. Below the navigation bar, there are three tabs: 'Qualification' (selected), 'PhD Details', and 'PhD Administrator'. A large title 'Qualification Details' is centered above a table. The table has columns for Degree level, Degree Name, College name, University, Year of passing, Percentage, Discipline, Passing Division, Upload Degree, Status, Edit, and Delete. There is also an 'Addnew' button. On the left side of the screen, there is a sidebar with sections for Entitlement (Allot Dean/HOD, Publications, Trainings, Other Activities) and Extra (New Registration, Report, Change Password, Activate/Deactivate user accounts). At the bottom left is a 'LOGOUT' button.

Figure 4

The screenshot shows the 'Papers' section of the application. At the top, there is a navigation bar with icons for My Profile, Qualification, Publications, Experience, Other Activities, and Organized Programs. Below the navigation bar, there are several tabs: Books, Journals (selected), Patents, Innovations, Conferences, Workshops, and Training. A large title 'Papers' is centered above a table. The table has columns for Title, Department, National/International, Journal/Proceeding Name, Volume number, Page number, Publication Date/Year, Whether joined institution, Whether joined R&D institution, Citations, and Download. There is also an 'Addnew' button. On the left side of the screen, there is a sidebar with sections for Entitlement (Allot Dean/HOD, Publications, Trainings, Other Activities) and Extra (New Registration, Report, Change Password, Activate/Deactivate user accounts). At the bottom left is a 'LOGOUT' button.

Figure 5

The screenshot shows the application's main dashboard with a dark theme. At the top, there is a navigation bar with icons for My Profile, Qualification, Publications, Experience, Other Activities, and Organized Programs. Below this, a sub-navigation bar shows 'Qualification' as the active tab, followed by 'PhD Details' and 'PhD Administrator'. A notice at the top right indicates a session was already started. A table header for 'PhD Details' is visible, with columns for Name of Topic, Name of Guide, College Name, University, Status, Registration number, Letter/Degree, Year of Obtaining, Edit, and Delete.

localhost/finalproject/qualtab.php#pills-phd

Figure 6

This screenshot shows the same application interface as Figure 6, but with the 'PhD Administrator' tab selected. A message 'Recognized as PhD' is displayed above a table. The table header for 'PhD Administrator' includes columns for Whether Recognized, University, College Name, Year, No. of Students completed PhD, No. of Students pursuing PhD, and Edit/Delete. The table body is currently empty.

Figure 7

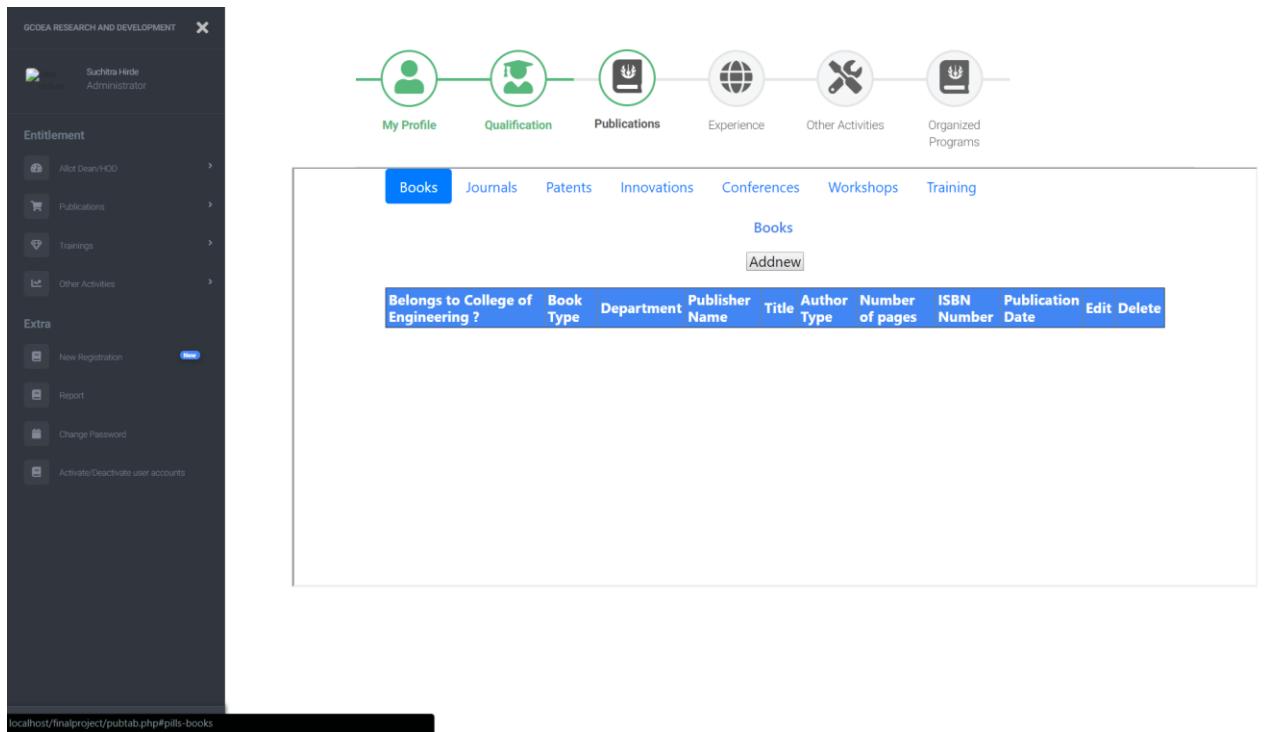


Figure 8

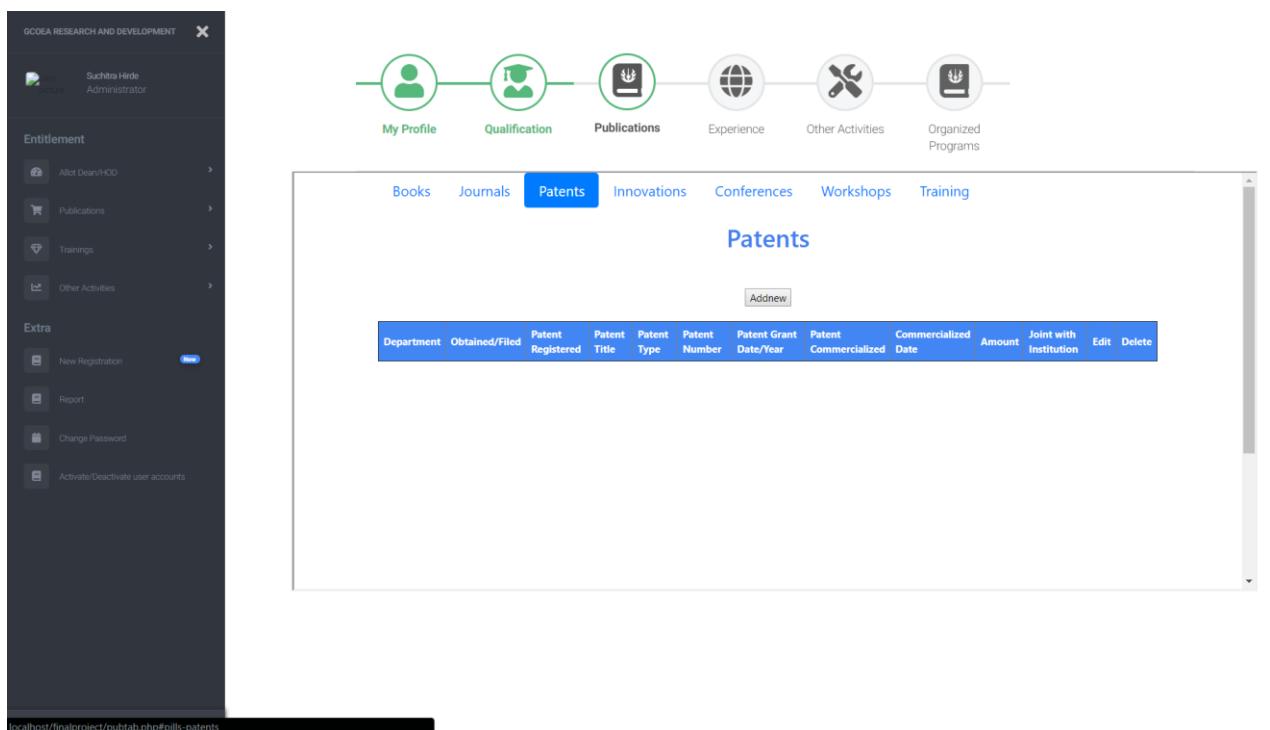


Figure 9

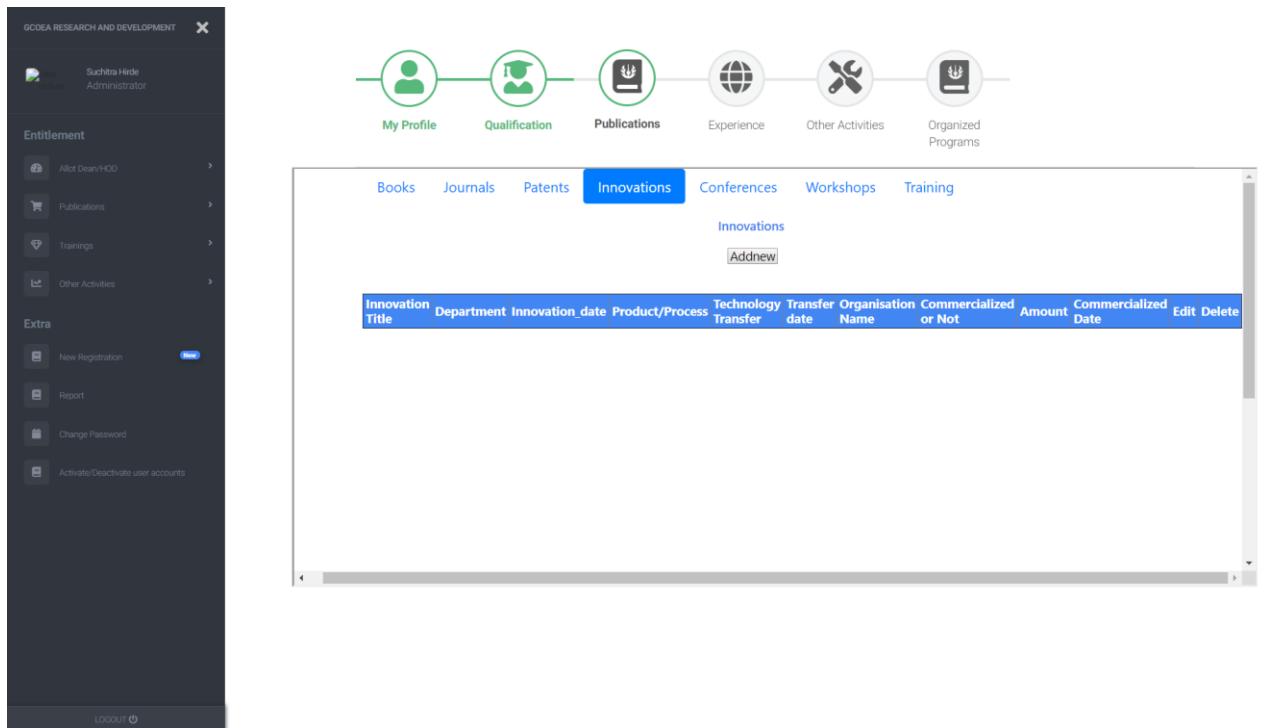


Figure 10

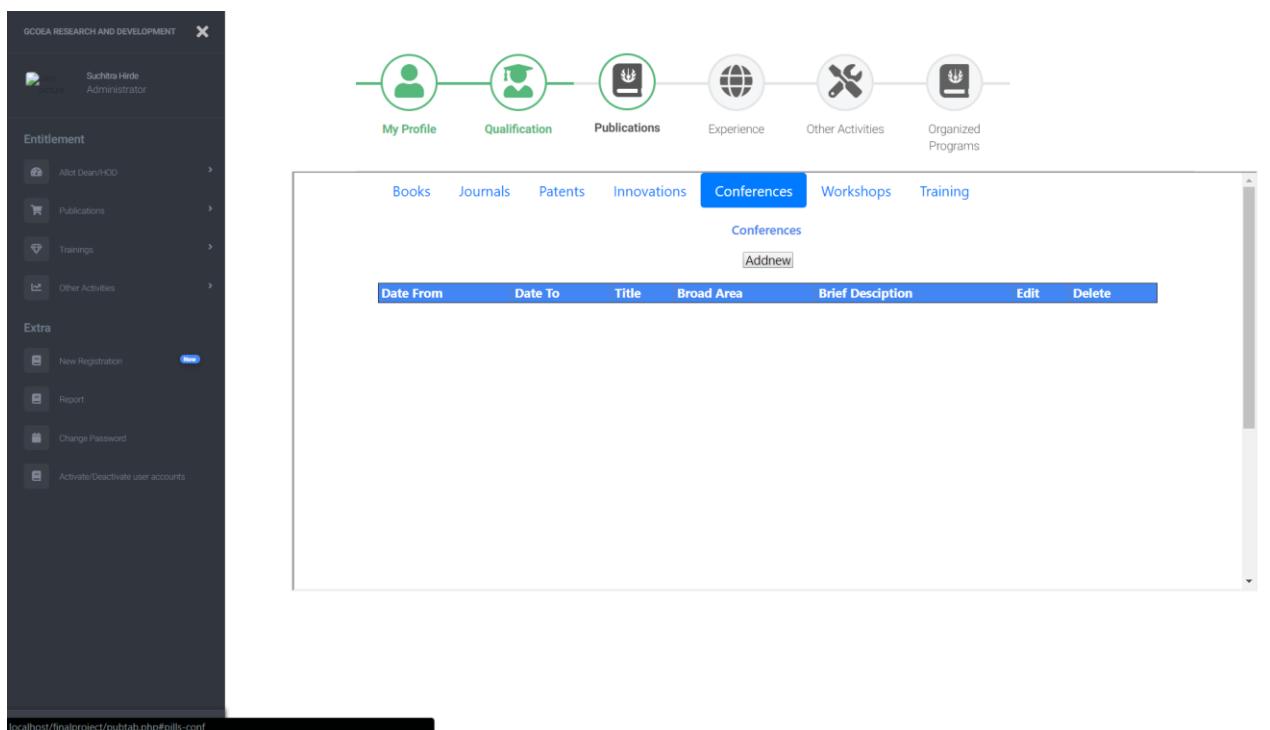


Figure 11

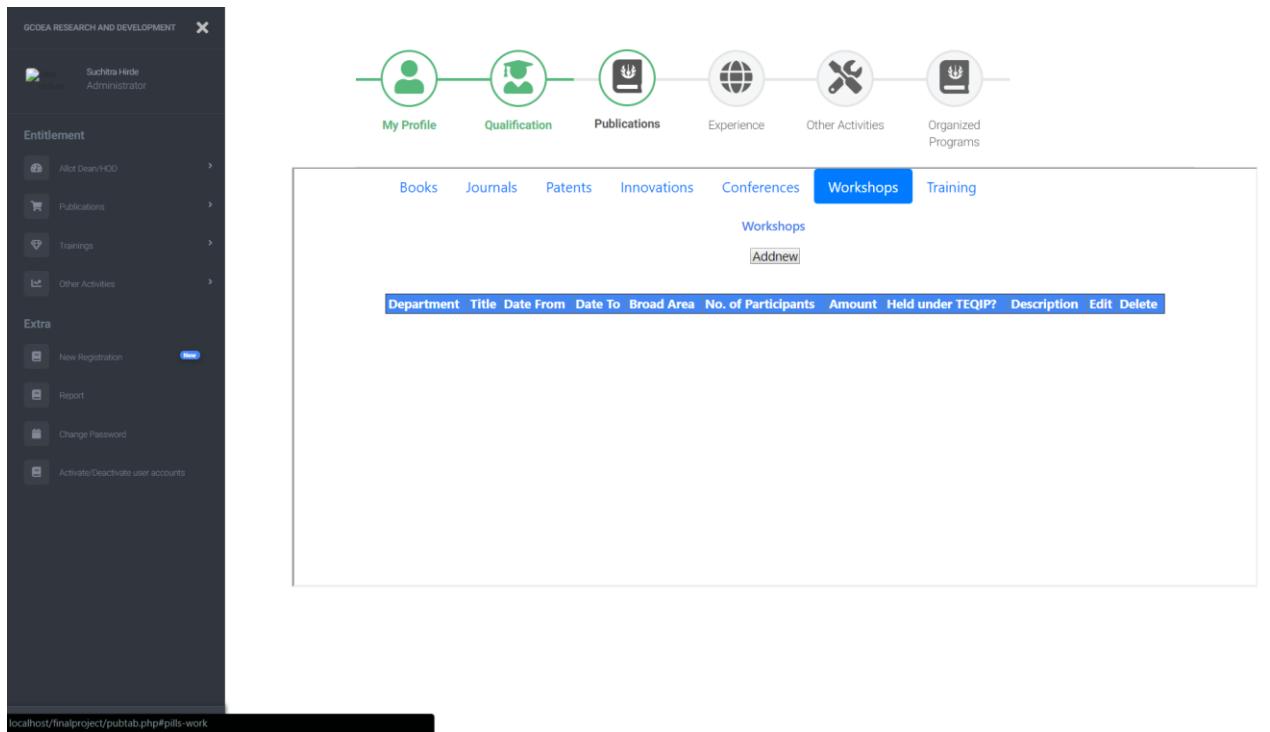


Figure 12

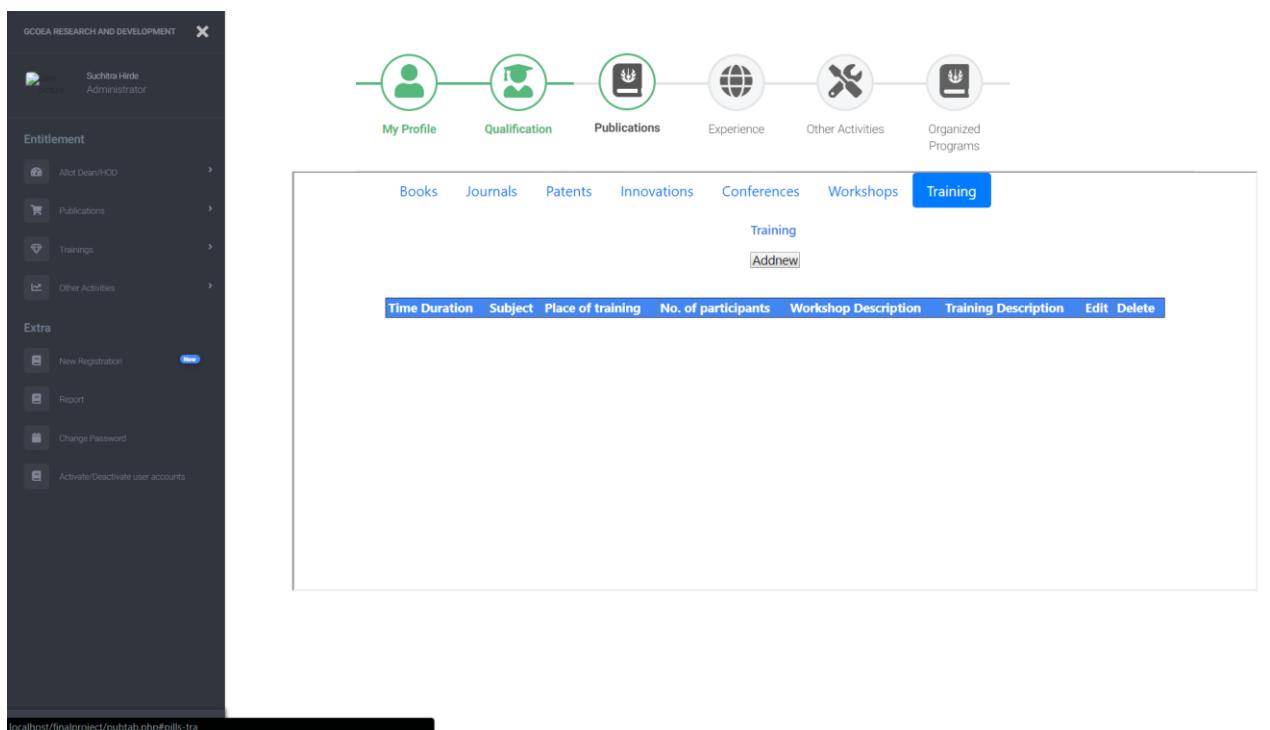


Figure 13

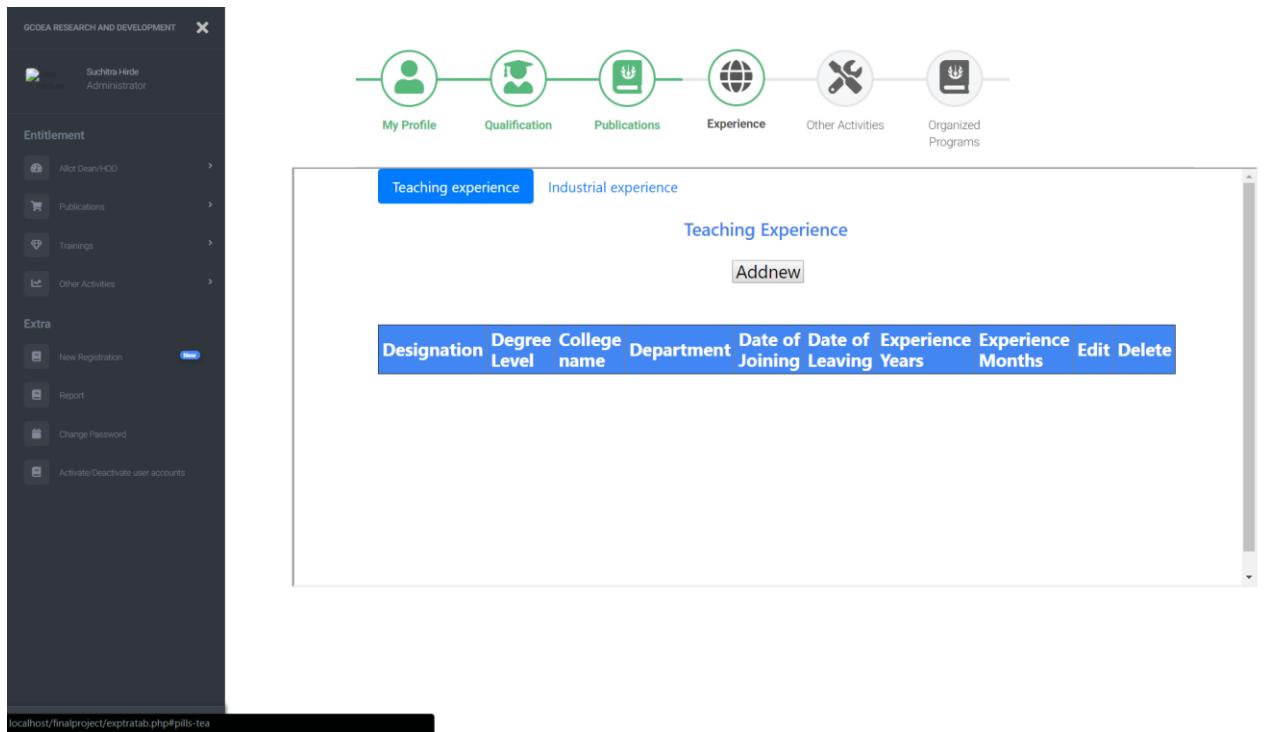


Figure 14

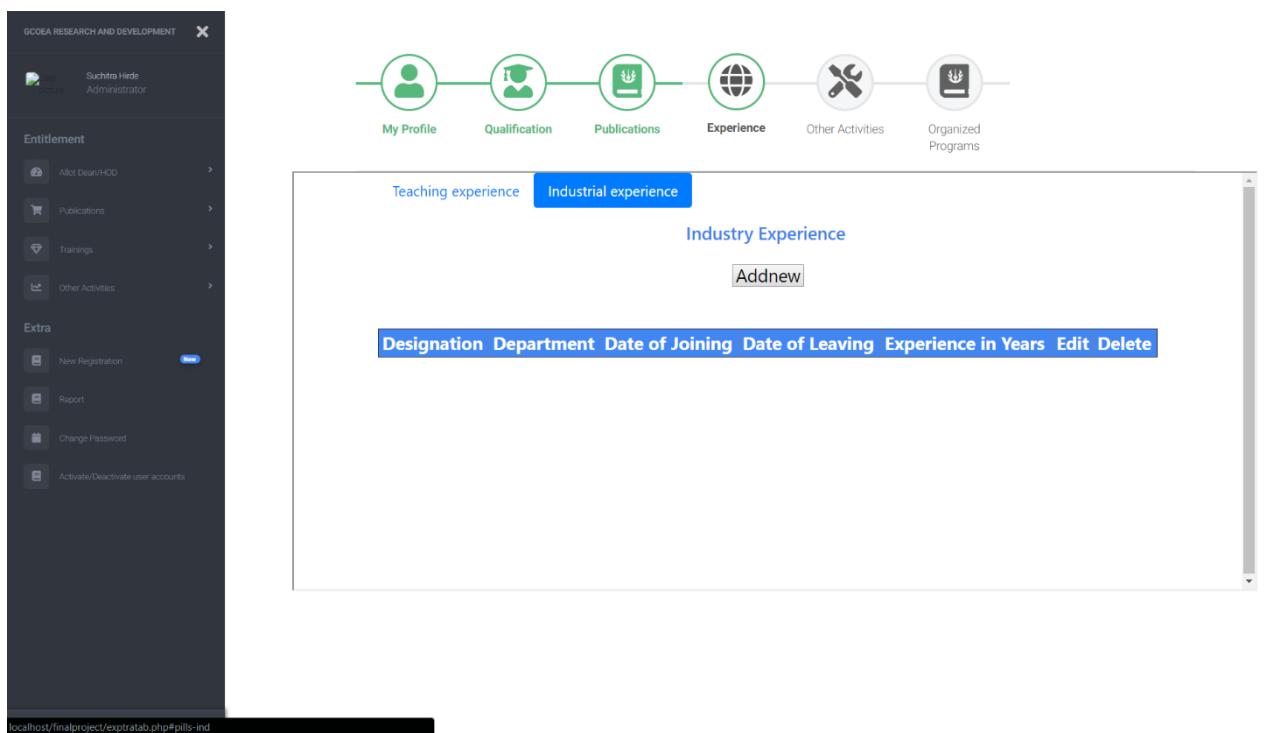


Figure 15

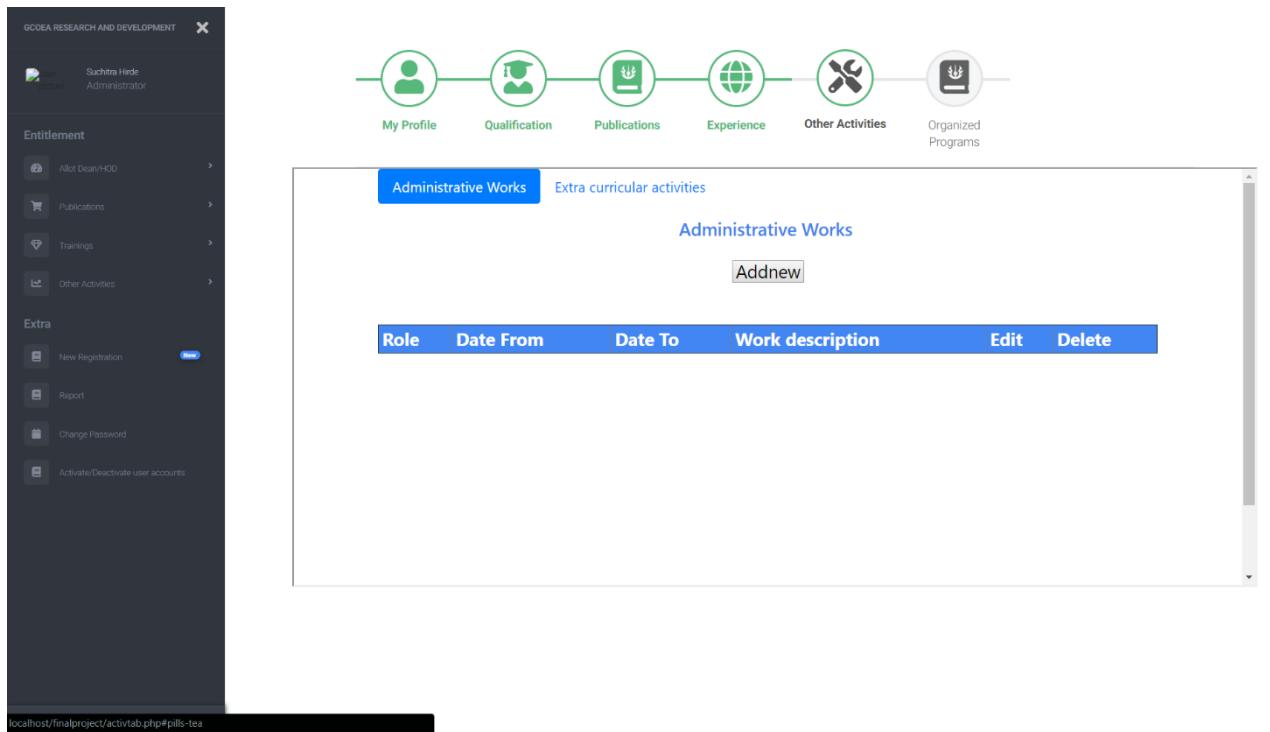


Figure 16

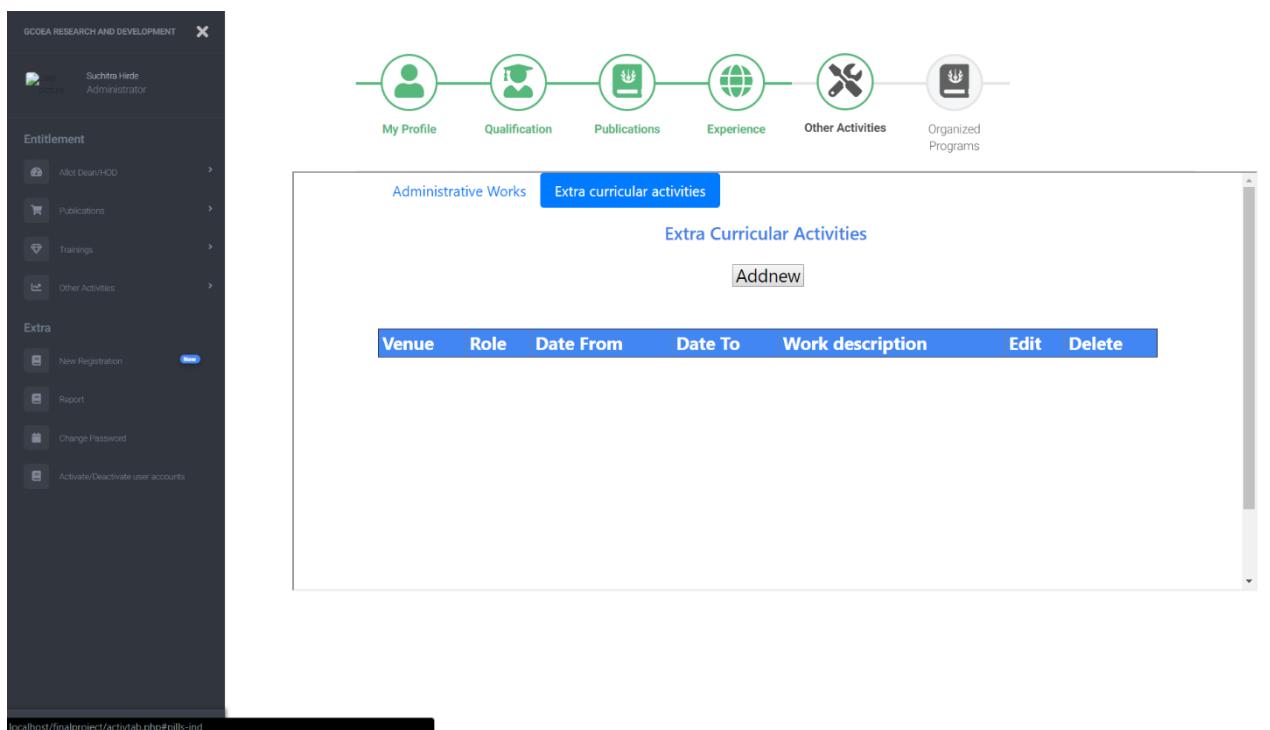


Figure 17

The screenshot shows the GCOEA Research and Development application interface. At the top, there is a navigation bar with icons for My Profile, Qualification, Publications, Experience, Other Activities, and Organized Programs. The 'Organized Programs' section is currently active. On the left, a sidebar menu includes Entitlement (Allot Dean/HOD, Publications, Trainings, Other Activities) and Extra (New Registration, Report, Change Password, Activate/Deactivate user accounts). The main content area displays a form titled 'Trainings Organized in Institute' with fields for Training Program (dropdown menu showing 'STTP'), Department (dropdown menu showing 'Select Department'), Title (text input field), Number of participants (from institute) (text input field), and Number of participants (other institutes) (text input field). A 'LOGOUT' button is at the bottom.

Figure 18

The screenshot shows the GCOEA Research and Development application interface. At the top, there is a navigation bar with icons for My Profile, Qualification, Publications, Experience, Other Activities, and Organized Programs. The 'Organized Programs' section is currently active. On the left, a sidebar menu includes Entitlement (Allot Dean/HOD, Publications, Trainings, Other Activities) and Extra (New Registration, Report, Change Password, Activate/Deactivate user accounts). The main content area displays a form titled 'Conference' with fields for Topic (text input field), Role (text input field), Date from (text input field with placeholder 'dd----yyyy') with a note 'If exact date is unknown, enter the date 1 of that month with corresponding year.', Date to (text input field with placeholder 'dd----yyyy') with a note 'If exact date is unknown, enter the date 1 of that month with corresponding year.', and Conference Type (dropdown menu). A 'LOGOUT' button is at the bottom.

Figure 19

The screenshot shows the GCOEA Research and Development interface. The top navigation bar includes the title 'GCOEA RESEARCH AND DEVELOPMENT', a user profile for 'Suchitra Hinde Administrator', and a 'LOGOUT' button. On the left, a sidebar lists 'Entitlement' and 'Extra' sections with various options like 'Allot Dean/HOD', 'Publications', 'Trainings', etc. The main content area features a horizontal navigation bar with icons for 'My Profile', 'Qualification', 'Publications', 'Experience', 'Other Activities', and 'Organized Programs'. Below this, a section titled 'Workshops Organized in Institute' contains fields for 'Department' (a dropdown menu), 'Title' (a text input field), 'Number of participants(from institute)' (a text input field), 'Number of participants(other institutes)' (a text input field), and 'Upload list Of Participants' (a file upload input field). A 'Choose File' button and a message 'No file chosen' are visible.

Figure 20

The screenshot shows the GCOEA Research and Development interface. The top navigation bar includes the title 'GCOEA RESEARCH AND DEVELOPMENT', a user profile for 'Suchitra Hinde Administrator', and a 'LOGOUT' button. On the left, a sidebar lists 'Entitlement' and 'Extra' sections with various options like 'Allot Dean/HOD', 'Publications', 'Trainings', etc. The main content area features a horizontal navigation bar with icons for 'My Profile', 'Qualification', 'Publications', 'Experience', 'Other Activities', and 'Organized Programs'. Below this, a section titled 'Allot Dean' displays the message 'Please select new DEAN for Research and development cell:'. It lists two categories: 'APPLIED CHEMISTRY' containing names 'Hemlata Vishnupant Patile', 'Shamal Kesharao Doifode', and 'Vaishali Vijayrao Ardhapurkar'; and 'APPLIED MECHANICS' containing names 'Ashish Ramdaspant Akhare' and 'Dilip Janardhan Chaudhari'. Each category has a blue rectangular background.

Figure 21

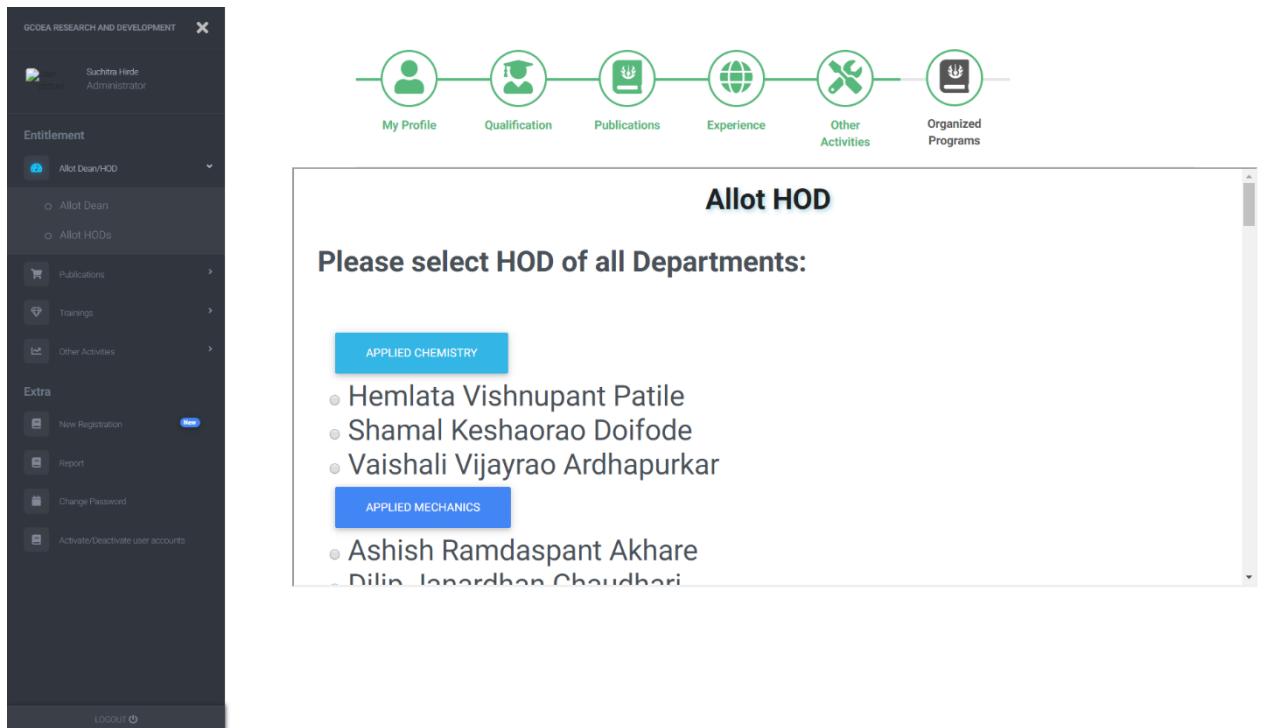


Figure 22

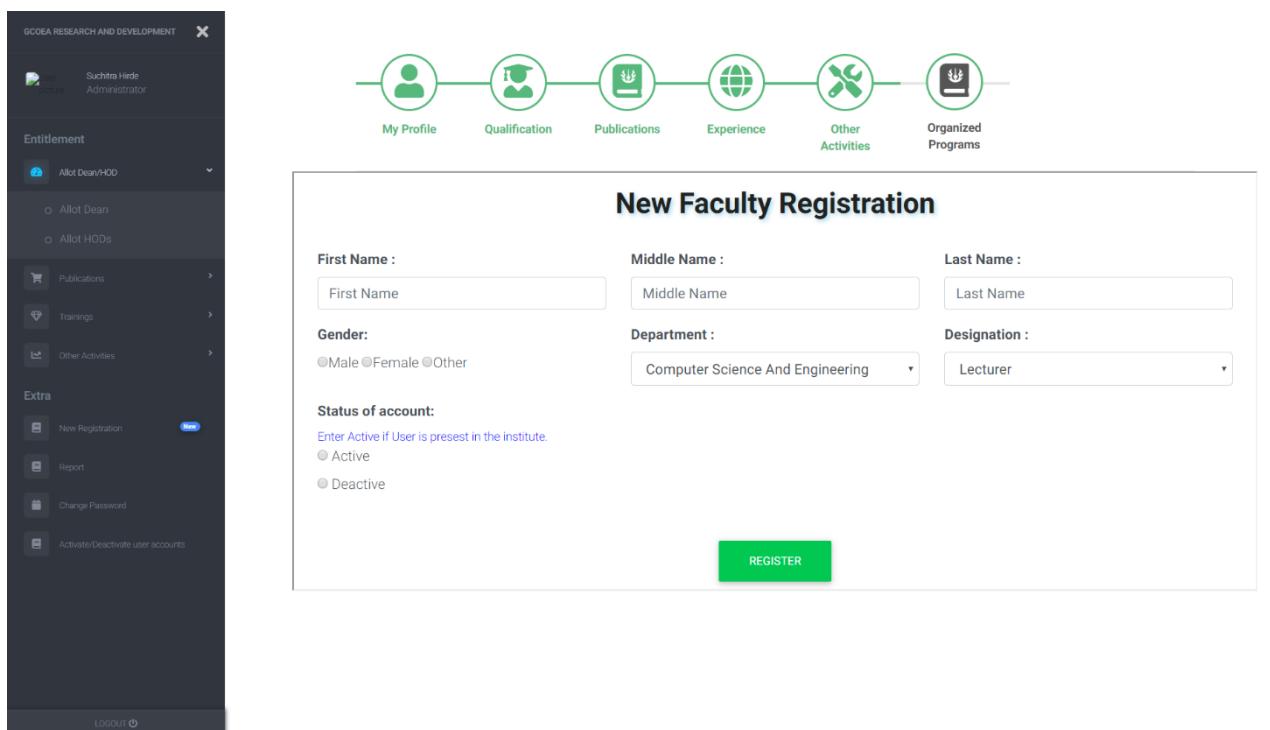


Figure 23

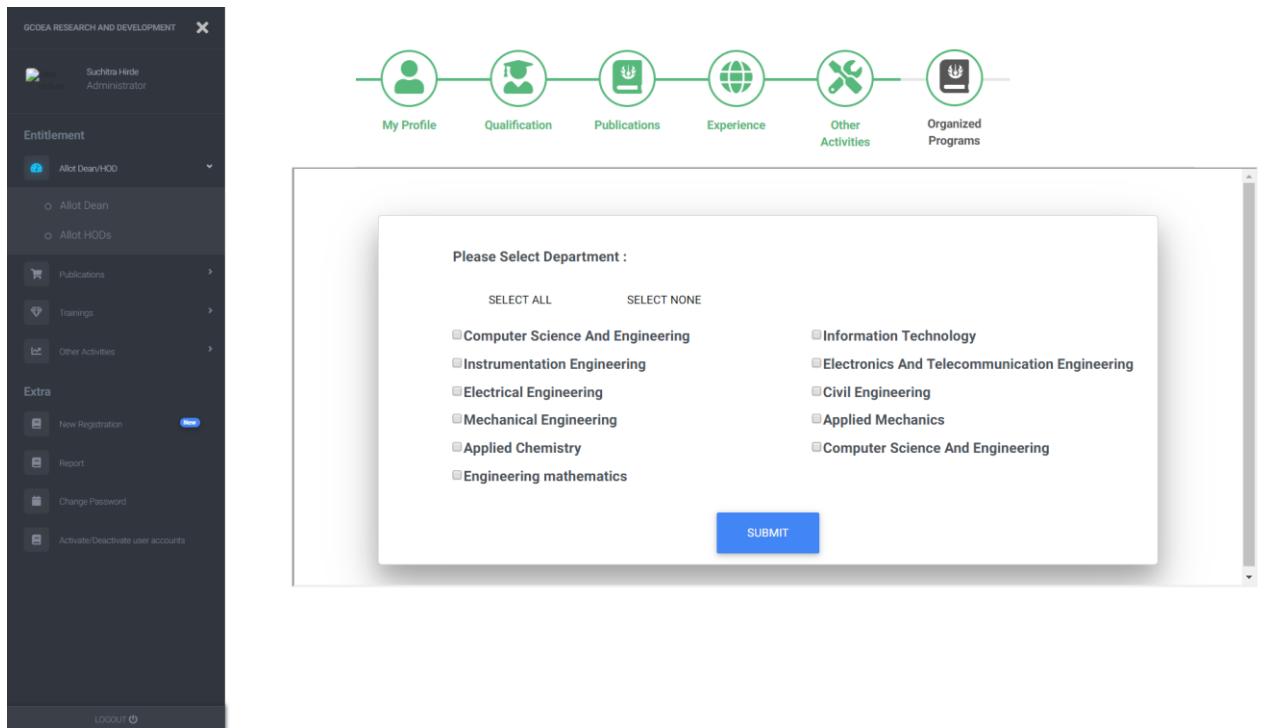


Figure 24

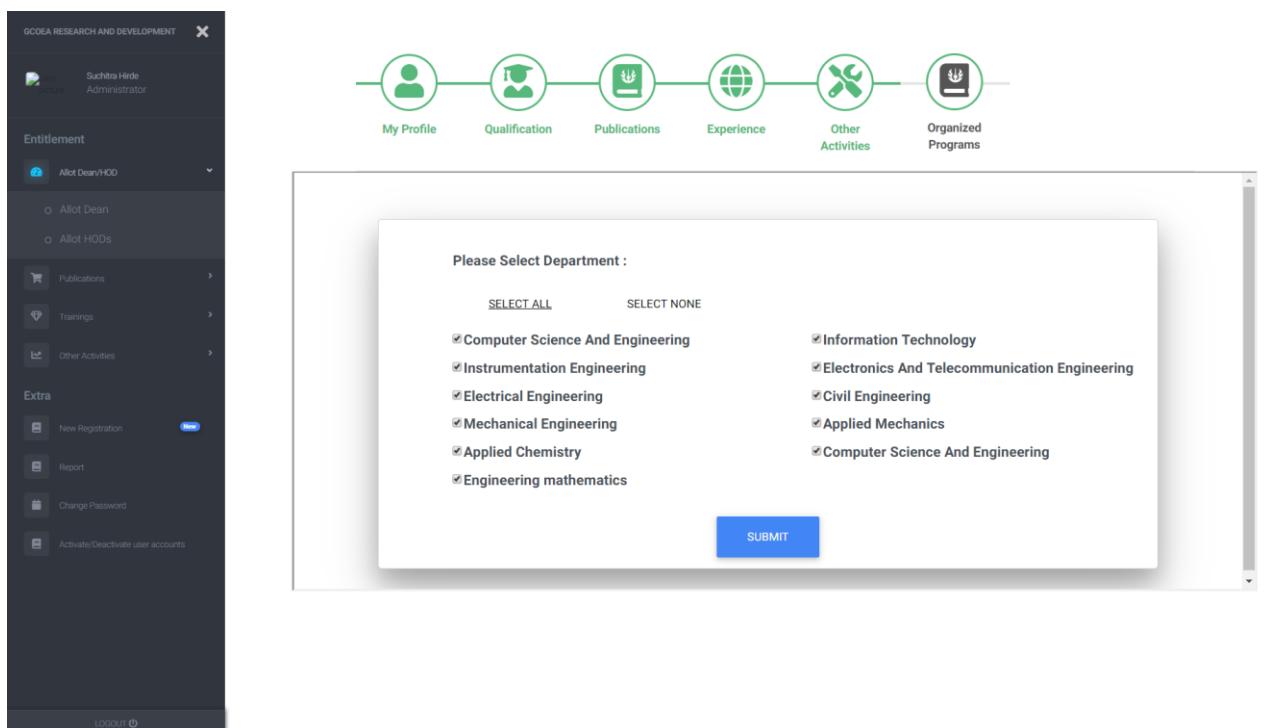


Figure 25

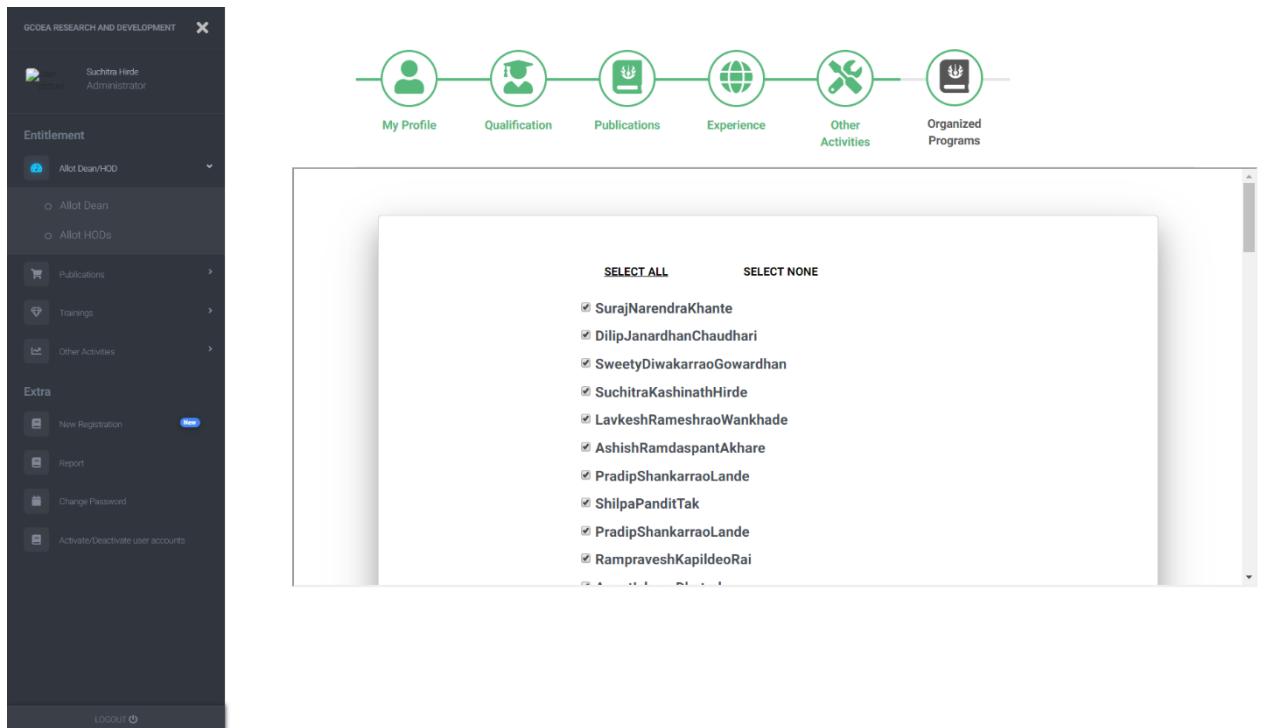


Figure 26

	A	B	C	D	E	F	G	H	I	J	K
1	Firstname	Middlename	Lastname	Title_of_papers	Department	NationalORInternat	JournalORProceedingName	VolumeNO	Page_no	Publication date	
2	Suchitra	Kashinath	Hirde	SEISMIC PERFORMANCE OF ELEVATED WATER TANKS	Applied Mechanics International		International Journal of Advanced Engineering Rese	1	10	01-12-11	
3	Suchitra	Kashinath	Hirde	Seismic Performance of Multistorey Building with Soft Storey at Different	Applied Mechanics International		International Journal of Current Engineering and Technology	4	5	01-06-14	
4	Suchitra	Kashinath	Hirde		Applied Mechanics International		International Journal of Current Engineering and Technology	7	3	20-04-17	
5	Suchitra	Kashinath	Hirde	Effect of Sequential Construction on Multistoreyed Building	Applied Mechanics International		International Journal of Engineering Technology Science and Research	5	5	01-03-18	
6	Suchitra	Kashinath	Hirde	Seismic Response of Multistorey RC Frames	Applied Mechanics International		International Journal of Engineering Technology Science and Research	5	4	01-03-18	
7	Suchitra	Kashinath	Hirde	Study of Fatigue Crack Growth Rate of High Strength Metallic Material	Applied Mechanics International		International Journal of Engineering Technology Science and Research	5	5	01-03-18	
8	Suchitra	Kashinath	Hirde	Effect of Addition of Ground Granulated Blast Furnace Slag (GBFS) on Mec	Applied Mechanics International		International Journal of Current Engineering and Technology	5	6	01-06-15	
9	Suchitra	Kashinath	Hirde	PERFORMANCE OF ELEVATED WATER TANKS SUBJECTED TO WIND FORCES	Applied Mechanics International		International Journal of Advanced Engineering Technology	2	9	01-06-11	
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											

Figure 27

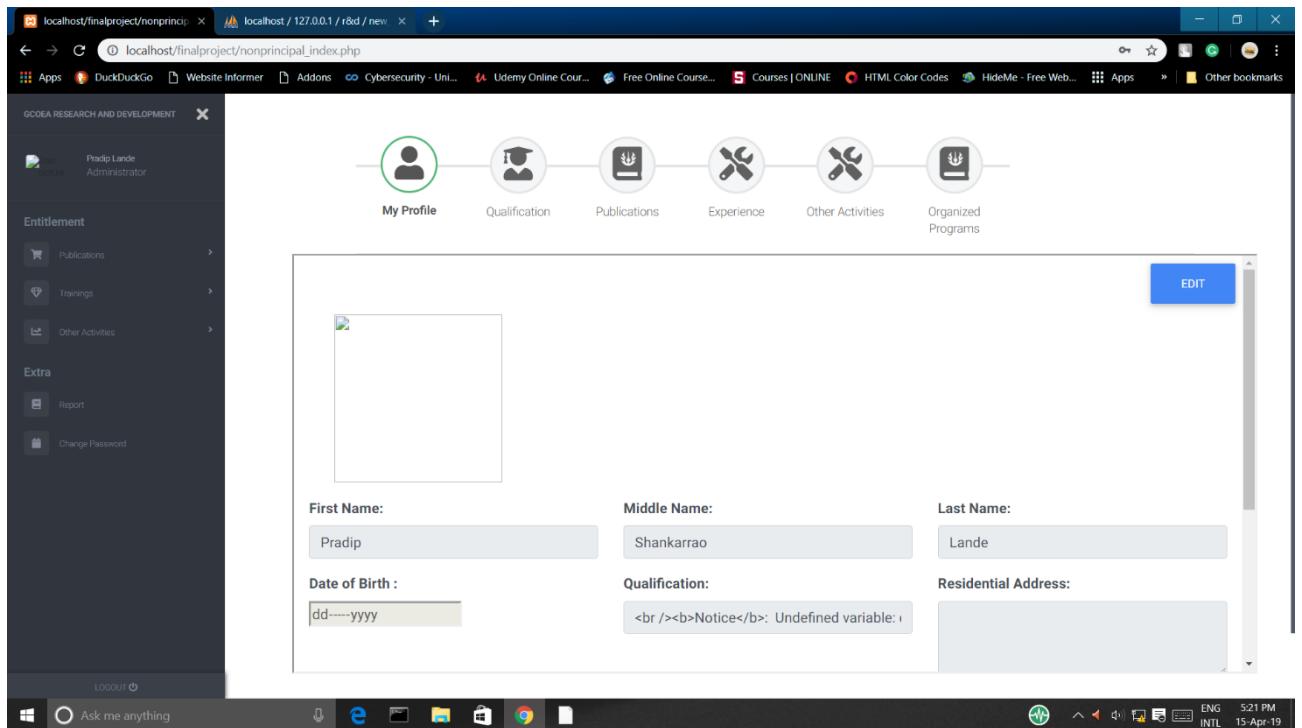


Figure 28

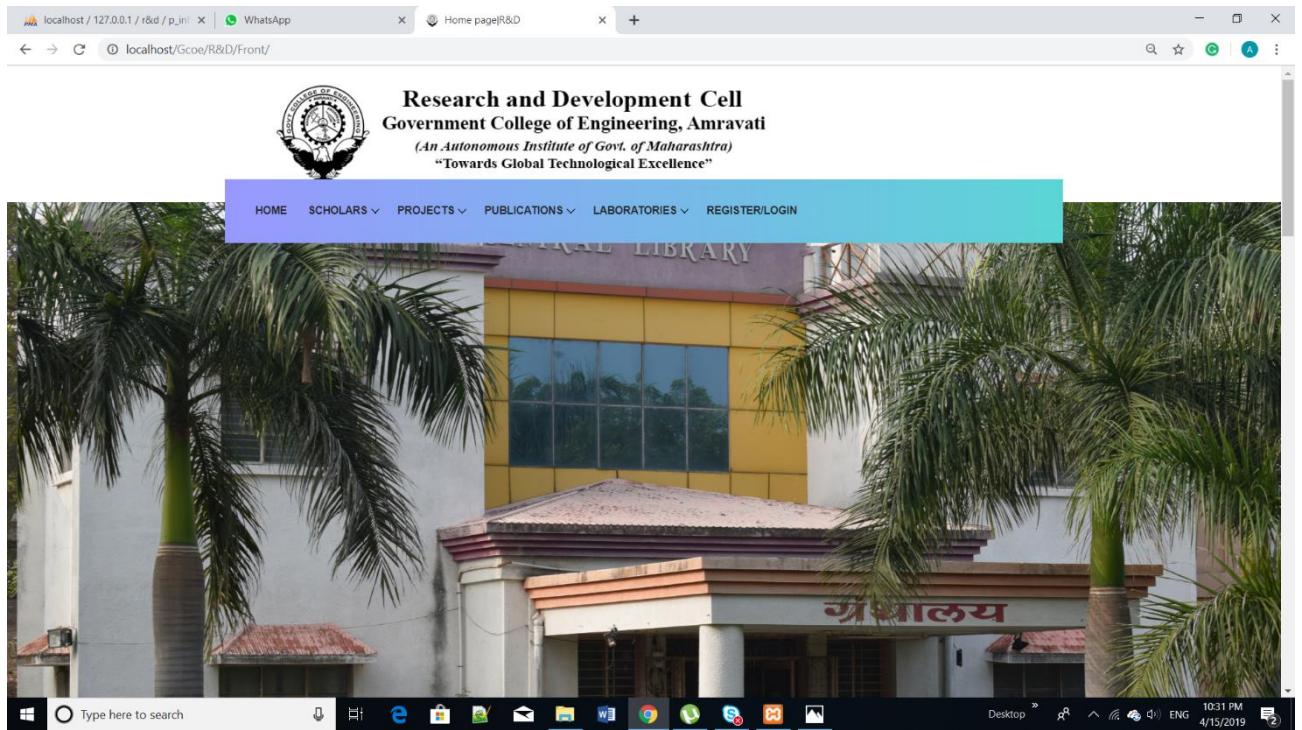


Figure 29

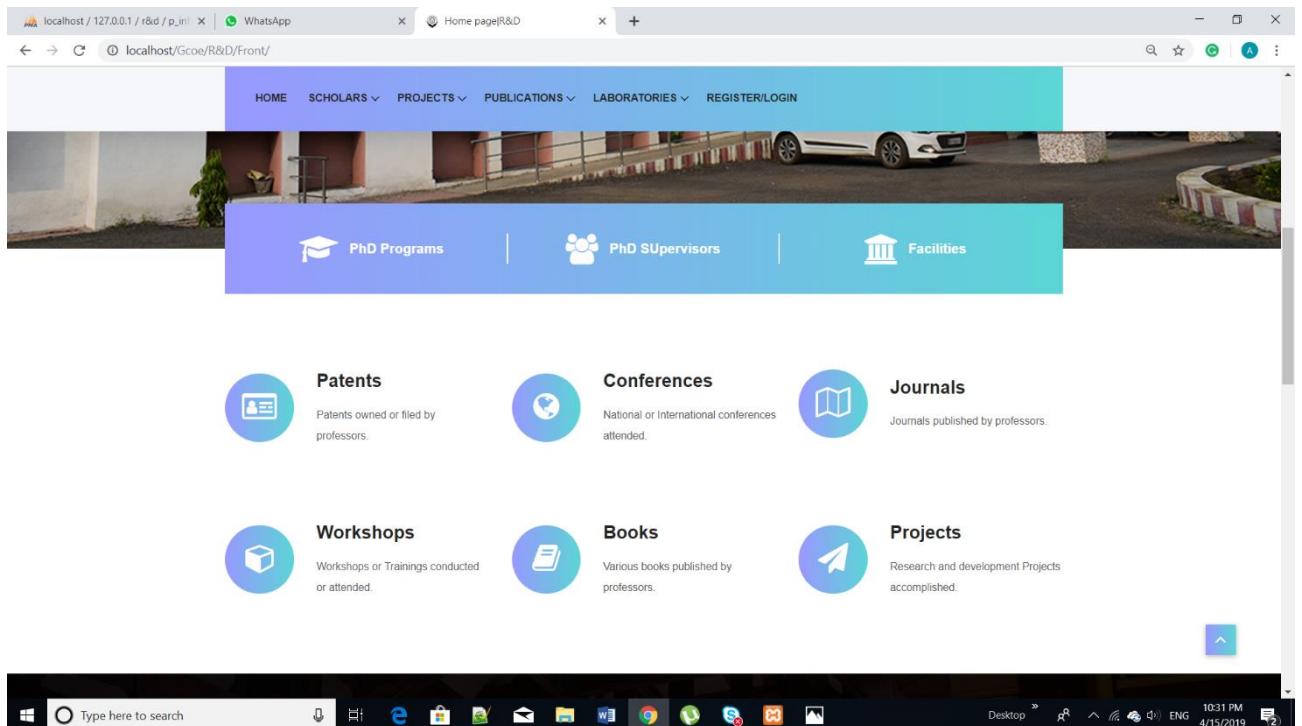


Figure 30

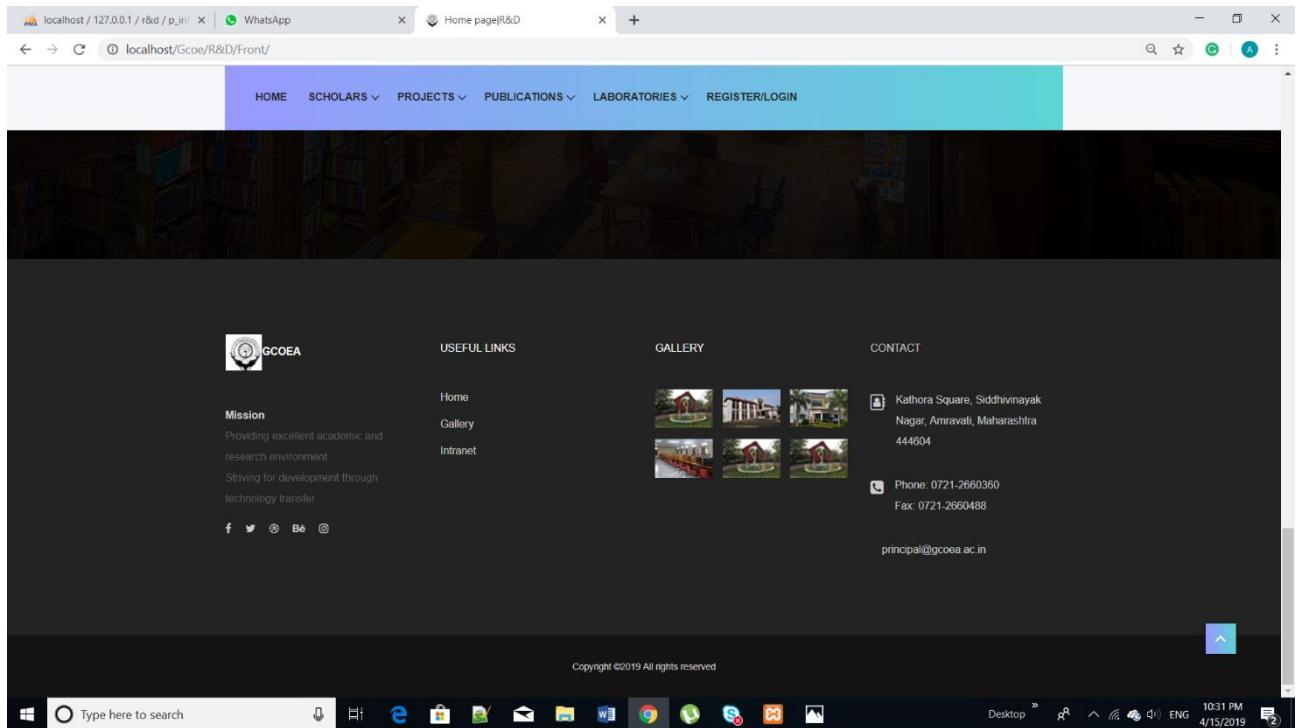


Figure 31

3.4 Database Design

The database description is given as follows:

Action	Table	Rows	Type	Collation	Size	Overhead
Browse	administrative_work	1	InnoDB	utf8_bin	16 kB	-
Browse	books	1	InnoDB	utf8_bin	16 kB	-
Browse	conferences	1	InnoDB	utf8_bin	16 kB	-
Browse	experience_industry	1	InnoDB	utf8_bin	16 kB	-
Browse	experience_teaching	1	InnoDB	utf8_bin	16 kB	-
Browse	externally_funded_projects	1	InnoDB	utf8_bin	16 kB	-
Browse	extracurricular_activity	1	InnoDB	utf8_bin	16 kB	-
Browse	innovations	1	InnoDB	utf8_bin	16 kB	-
Browse	navigation	7	InnoDB	utf8_bin	16 kB	-
Browse	new_registration	269	InnoDB	latin1_swedish_ci	16 kB	-
Browse	papers	92	InnoDB	utf8_bin	48 kB	-
Browse	patents	9	InnoDB	utf8_bin	16 kB	-
Browse	phd_details	1	InnoDB	utf8_bin	16 kB	-
Browse	p_info	88	InnoDB	utf8_bin	96 kB	-
Browse	qualification_details	1	InnoDB	utf8_bin	16 kB	-
Browse	recg_as_phd	1	InnoDB	utf8_bin	16 kB	-
Browse	trainings	1	InnoDB	utf8_bin	16 kB	-
Browse	update_work_info	8	InnoDB	utf8_bin	16 kB	-
Browse	workshops	1	InnoDB	utf8_bin	16 kB	-
Sum	19 tables	269	InnoDB	utf8_bin	416 kB	0 kB

Figure 32

Action	first_name	middle_name	last_name	Gender	department	username	password	UID	role	designation	Status
Edit	Pramod	Ramchandraj	Pachghare	Male	Mechanical Engineering	Pramod01438	XvQMP0Cb	01438	faculty	Assistant Professor	Active
Edit	Sunil	Ramdas	Kewate	Male	Mechanical Engineering	Sunil01862	K7hLAGeN	01862	faculty	Assistant Professor	Active
Edit	Rampravesh	Kapideo	Rai	Male	Civil Engineering	Rampravesh02536	mNOMOrBd	02536	faculty	Associate Professor	Active
Edit	Manisha	Vasant	Jape	Female	Electrical Engineering	Manisha02675	tj5Avz3	02675	faculty	Assistant Professor	Active
Edit	Suraj	Narendra	Khante	Male	Applied Mechanics	Suraj04591	UsOpnYWl	04591	faculty	Associate Professor	Active
Edit	Vaishali	Vijayrao	Ardhapurkar	Female	Applied Chemistry	Vaishali04697	3jySPfao	04697	faculty	Assistant Professor	Active
Edit	Hemant	Sahabroa	Farkade	Male	Mechanical Engineering	Hemant05672	P2kKeI96	05672	faculty	Assistant Professor	Active
Edit	Anant	Ishwar	Dhatrik	Male	Civil Engineering	Anant0683	76SovJct	0683	faculty	Associate Professor	Active
Edit	Archana	Wamanrao	Bhade	Female	Information Technology	Archana03568	ik5zuWGa	13568	faculty	Assistant Professor	Active
Edit	Narensh	Gajanan	Gadage	Male	Computer Science And Engineering	Naresh14209	tltpkB5SK	14209	faculty	Lecturer	Active
Edit	Srikant	Dinkarao	Londhe	Male	Mechanical Engineering	Srikant14308	uy79eeF	14308	faculty	Associate Professor	Active
Edit	Ravi	Viswanath	Mante	Male	Computer Science And Engineering	Ravit16389	SvIULuzF	16389	faculty	Assistant Professor	Active
Edit	Premchand	Bhagwan	Amthore	Male	Information Technology	Premchand16830	mtfYogc	16830	faculty	Assistant Professor	Active
Edit	Nitin	Jaykumar	Phadkule	Male	Electrical Engineering	Nitin20898	6gPbvWZz	20898	faculty	Associate Professor	Active
Edit	Vijay	Mahadevrao	Harane	Male	Electrical Engineering	Vijay21305	huMTGNQz	21305	faculty	Lecturer	Active
Edit	Villas	Namdeo Rao	Ghat	Male	Electrical Engineering	Villas24316	G51g0ejp	24316	faculty	Associate Professor	Active
Edit	Shailendra	Manikrao	Lawankar	Male	Mechanical Engineering	Shailendra26835	RJmBKOh	26835	faculty	Assistant Professor	Active
Edit	Prajakta	Prakash	Shelke	Female	Computer Science And Engineering	Prajakta26907	Z2ILAkzJ	26907	faculty	Assistant Professor	Active
Edit	Prashant	Laxmanrao	Pikrao	Male	Electronics And Telecommunication Engineering	Prashant27840	Ma1bZg8p	27840	faculty	Assistant Professor	Active
Edit	Dinesh	Vithalrao	Rojatkar	Male	Electronics And Telecommunication Engineering	Dinesh29467	oIQscDX	29467	faculty	Assistant Professor	Active
Edit	Samrat	Subhod	Thorat	Male	Electronics And Telecommunication Engineering	Samrat3269	r0mMPK0F	3269	faculty	Professor	Active
Edit	Dilip	Janardhan	Chaudhari	Male	Applied Mechanics	Dilip3270	XFSI6gvPu	3270	faculty	Professor	Active
Edit	Rajendra	Sevakram	Dalu	Male	Mechanical Engineering	admin	admin_principal	42007	principal	Professor	Active
Edit	Shweta	Jeewandas	Meshram	Female	Electronics And Telecommunication Engineering	Shweta45372	zEgM6DQS	45372	faculty	Assistant Professor	Active
Edit	Deeptak	Amritrao	Zatale	Male	Applied Physics	Deeptak49053	Y8jeKB0F	49053	faculty	Assistant Professor	Active

Figure 33

localhost / 127.0.0.1 / r&d / papers

localhost/phpmyadmin/sql.php?server=1&db=r&d&tname=papers&pos=0

phpMyAdmin

Server: 127.0.0.1 > Database: r&d > Table: papers

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

Recent Favorites

Table structure for table `papers`:

Title_of_Papers	Whether_referred	Department	NationalOrInternational	JournalORProceedingName	VolumeNO	Page_no	Publication_year	IfJoint_academic_inst	IfJoint_RD_inst	citations	download
Energy Efficient Data Collection and Routing Algo...		Computer Science And Engineeri...	International	International Journal for Research in Emerging Sci...	0	0	2014-01-01				
Design of Efficient Data Aggregation Methodology ...		Computer Science And Engineeri...	International	International Journal of Applied Engineering Resea...	0	0	2017-01-01				https://www.i...
Design of Efficient Data Aggregation Methodology ...		Computer Science And Engineering	National	The CSI journal of Computing	0	0	0000-00-00				
An integrated approach to minimize energy and re...		Computer Science And Engineering	International	IEEE INDICON Conference Delhi	0	0	2015-01-01				
Clustering of Web Search Results using Semantic Im...		Information Technology	International	International journal of Emerging Technology and A...	0	0	2016-01-01				https://jetae.i...
Improving Web Search Results using Semantic Cluste...		Information Technology	International	International journal of Computer technology and E...	0	0	2013-01-01				http://www.ijc...
Secure Document Sharing And Access Control on Cloud		Computer Science And Engineering	International	IEEE Xplore (ICICCT 2018)	0	0	2018-01-01				https://ieeexp...
Privacy Preserving and Information Security in Deco...		Computer Science And Engineering	International	IEEE Xplore (ICICCT 2018)	0	0	2018-01-01				https://ieeexp...
Automatic Question Classification And Prediction Q...		Computer Science And Engineering	International	International Journal of Research In Science & Eng...	0	0	2017-01-01				
Deadline Based Resource Provisioning And Schedul...		Computer Science And Engineering	International	International Journal of Research In Science & Eng...	0	0	2017-01-01				
Cloud Based Scheduling using Genetic Algorithm fo...		Computer Science And Engineering	International	International Journal of Innovative Research in Sc...	0	0	2017-01-01				https://www.ij...
Privacy Preserving For Relational Database Using R		Computer Science And Engineering		IEEE Xplore (Colossal Data Analysis and Networkin...	0	0	2016-01-01				https://ieeexp...
Detection of Fake Biometric using Liveness		Computer Science And Engineering	International	International Journal of Advanced Research in Comp...	0	0	2015-01-01				

Bookmarks Options History Clear

Console >SELECT * FROM `new_registration`

Type here to search

Desktop 10:24 PM 4/15/2019

Figure 34

localhost / 127.0.0.1 / r&d / patents

localhost/phpmyadmin/sql.php?server=1&db=r&d&tname=patents&pos=0

phpMyAdmin

Server: 127.0.0.1 > Database: r&d > Table: patents

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

Recent Favorites

Table structure for table `patents`:

Department	ObtainedOrFile	Patent_Registered	Patent_Type	Patent_Number	Patent_Grant_Year	Commercialized_or_Not	Commercialized_Date	Amount	Joint_with_Inst	patentsID	UID
Electrical Engineering	obtained	Programmable Multifunctional	Product Based	2147483647	2016-01-01		0000-00-00	0	v9kdyw3	24316	
Mechanical Engineering	obtained	Automatic Screw Assembly syst...	Product Based		1	2018-01-01		0000-00-00	0	prau0cy	42007
Mechanical Engineering	obtained	SINTERED BRONZE POROUS BLOCK F	Product Based	16	2014-01-01		2014-04-18	0	Sptgye8	71904	
Electronics And Telecommunicat	obtained	Yes	FEATURE EXTRACTION METHOD FOR	Product Based	1438	2013-00-01		0000-00-00	0	xgqhuvt	29467
Civil Engineering	filed	Hybrid moving bed Biofilm rear	Product Based	736	2015-01-01		0000-00-00	0	zf0rh	89065	
Civil Engineering	filed	Artificial Tidal Wind system	Product Based	737	2015-01-01		0000-00-00	0	zslgvym	89065	
Civil Engineering	filed	Biological Contactors	Product Based	2133	2015-01-01		0000-00-00	0	g0528jt	89065	
Civil Engineering	filed	Wastewater treatment by	Product Based	2132	2015-01-01		0000-00-00	0	qgb0lzy	89065	
Computer Science And Engineeri	obtained	Digital video security using o	Product Based	2147483647	2016-01-01		0000-00-00	0	m53th14	37521	

Query results operations

Bookmarks Options History Clear

Console >SELECT * FROM `new_registration`

Type here to search

Desktop 10:25 PM 4/15/2019

Figure 35

The screenshot shows the phpMyAdmin interface for the 'r&d' database. The left sidebar lists various databases and tables. The current table is 'p_info' under the 'r&d' database. The main area displays the 'Table structure' tab, showing 18 columns with their respective details. Below the table structure, there is a section for 'Indexes' with two entries: 'PRIMARY' and 'Address'. At the bottom, there is a SQL query editor with the text: 'SELECT * FROM "new registration"'.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	Firstname	varchar(30)	utf8_bin		Yes	None			Change Drop More
2	Middlename	varchar(30)	utf8_bin		Yes	None			Change Drop More
3	Lastname	varchar(30)	utf8_bin		No	None			Change Drop More
4	dateofbirth	date			No	None			Change Drop More
5	Department	text	utf8_bin		Yes	None			Change Drop More
6	Designation	varchar(30)	utf8_bin		Yes	None			Change Drop More
7	Mobile	varchar(10)	utf8_bin		Yes	None			Change Drop More
8	Office	varchar(11)	utf8_bin		No	None			Change Drop More
9	Email_Id	varchar(30)	utf8_bin		Yes	None			Change Drop More
10	Qualification	varchar(20)	utf8_bin		Yes	None			Change Drop More
11	Gender	varchar(10)	utf8_bin		Yes	None			Change Drop More
12	Address	text	utf8_bin		Yes	None			Change Drop More
13	SevarthNumber	varchar(15)	utf8_bin		No	None			Change Drop More
14	AadharNumber	varchar(12)	utf8_bin		No	None			Change Drop More
15	PANumber	varchar(10)	utf8_bin		No	None			Change Drop More
16	Date_of_joining	date			Yes	None			Change Drop More
17	Upload_photo	mediumblob			Yes	None			Change Drop More
18	UID	varchar(5)	utf8_bin		No	None			Change Drop More

Indexes

Action	Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
Edit Drop	PRIMARY	BTREE	Yes	No	UID	80	A	No	
Edit Drop	Address	FULLTEXT	No	No	Address	80	Yes		

Console
>SELECT * FROM "new registration"

Figure 36

4 PERFORMANCE ANALYSIS

A detailed analysis report was prepared before designing the project. Initially the research and development information system was manual and every step in this system was performed manually which wasted time of all concerned.

Feasibility Analysis

An online research and development information system was developed where a faculty can register himself. The registration form has been designed to be user friendly and easy to fill and hence leads to saving of time and money as compared to multiple forms filled manually by the professors. The software development team ascertained the technical feasibility of the project and concluded that the project can be undertaken with available technology and resources. Although implementation phase might require hardware additions but currently the project is technically feasible and should proceed further. The operational feasibility analysis acknowledged the acceptability of the provided solution to the problem. This analysis verified that the new system will be acceptable and adaptable to the new users. The economic feasibility study perceived that the project will produce long term gains for the institution. The cost benefit analysis proved that benefits of the proposed system undermine the costs involved, hence the system is worth implementing. The utility it provides to the faculties for completing the registration process and the provision it provides to the faculty for managing the database makes this project feasible to undertake.

Design

While designing the web application portal a three tier architecture for application development was followed. The presentation tier occupies the front end design of the application. It relates to every entity with which the user interacts. It accepts user inputs and actions, and then sends this information to the data tier through the application tier for further processing. The research and development data management system portal accepts input in the form of faculty's personal detail, faculty's registration details, faculty publication and research related details etc. The second tier is application tier, it serves as an intermediary to the presentation tier and the data tier. It applies business logic to the input received from the presentation tier. The business logic is applied combining the

information collected from upper and lower layers of the three tier architecture. When an admin or a coordinator asks for a report to be retrieved, on the basis of this command data is fetched from the database and the required business logic is applied and finally a report is displayed to the user. The third and final tier is the data tier which is concerned with the design of the database to be used with the web application. It is concerned with maintaining central servers and its information. The data tier is kept independent of application servers and business logic to promote data security. The database is developed using PHP MYADMIN keeping in mind the authenticity concerns of different users. All the necessary primary keys and access controls are depicted with utmost care. In recent times, there has been an increase in use of Web enabled transaction processing online. Many organizations have adopted this technique for processing and maintenance of research related data etc. Online Research and Development portal is based on the Web enabled transaction processing model. The design flow of the web application starts with the faculty logging into the system and update required information regarding their published papers, books, filed patents, attended conferences, conducted or attended trainings and etc. , then the system stores this data in the database . After the process is completed, a downloadable report can be generated in the format as required by the various administrators. There are in total 19 tables in the database for managing faculties data namely new_registration, p_info, administrative_work, books, patents, papers, conferences, qualification_details, phd_details, recg_as_phd, experience_teaching, experience_industry, trainings, workshops, innovations, extracurricular_activities, externally_funded_projects. These tables further contain multiple columns for storing information. The database has been normalized which helps to maintain data integrity and prevents duplication of data. Initially before pursuing the project a system flow was prepared in order to answer the following questions:

- How will data flow In and Out of the system?
- How to maintain relationship between different data?
- what will be the different milestones data will travel from start to end?

To understand these questions and assess the requirements, pictorial representation was prepared which is given below in Figure 1:

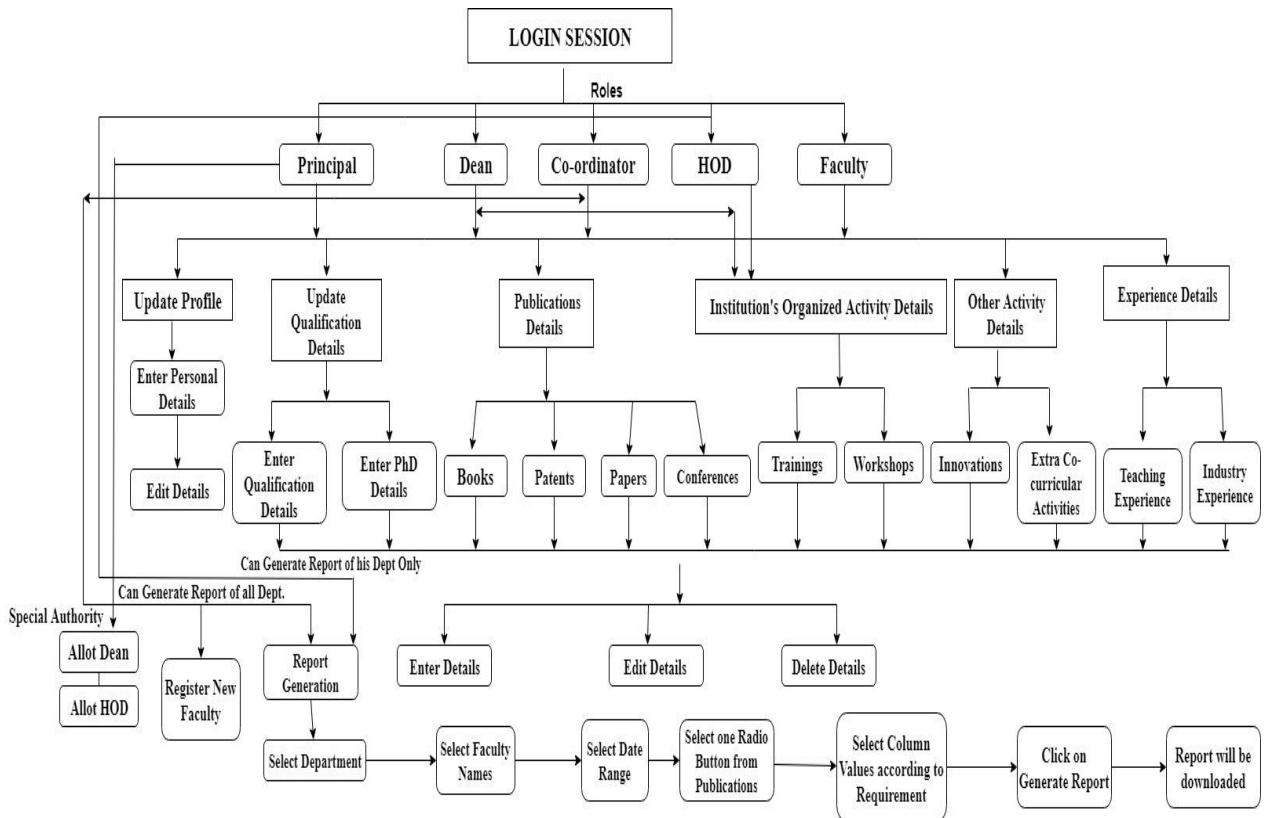


Figure 37: System Architecture

The front-end design of the web application is designed carefully for usage simplicity. There is a menu bar at top of the page for navigation and the user can scroll through different pages with its help. The final product of the data management system describes the faculty research information in the format of the Spreadsheet.

Testing

The compiled project was tested thoroughly using different usage environments like different browsers, Operating Systems, hardware components and different sets of data. The web application was found to be working conveniently. However, latest versions of the browser, Operating System and hardware components of the computer are recommended for best results.

Results and Discussion

Development of Research and Development data management system has greatly

simplified previously complex tasks. Manual work is reduced to a large extent. The task of maintaining huge data can now be accomplished with a few button clicks. Previously, the system was hectic for both faculty and the students but now that it is accessible anywhere, registration process has been simplified. The database is maintained on a central server, so that it can be accessed anywhere inside the university by authorized personnel. Different departments can access the data whenever required. Also, the process being simple and easy to use any faculty with minimum computer knowledge can use the application easily. The user can print the final excel report and keep the information safe with him/her. Also, this detail can be saved as a Excel file anywhere on the computer. Further, In future we would like to recommend certain valuable additions to the project. The most important is allowing faculties to update their research data on some centralized web server. This can be achieved using the R&D data management system portal. This addition would further reduce the admins to ask for the research data to each and every individual professors in the given institute, if required by some government organization. It would completely automate the given system. Also, a system to digitally uploaded documents can also be downloaded. This would enable the faculty and administrators to acknowledge the documents more securely and reduce the security risk to valuable personal information. Entering faculty PhD details is also recommended in order to obtain report of PhD completed faculties in particular course. Finally we can say that the Online Research and Development Data Management System for faculty is ready for implementation and will surely provide the administrators and every entity associated with it a better experience. Although the project is complete and ready for implementation there is always room for improvement. As this system depends upon computer hardware, and with more and more student entries into the database there will be constant need to update server storage. To make the system more secure.

An analysis of the different opinions indicate the following elements must be present before a Web site could be called a portal:

- **Single Access Point:** A single gateway or logon to identify approved users, making it unnecessary to sign onto each of the different systems that provide portal content, for example, the e-learning facility, or full- text content such as digital

journals or other sources of information.

- **Internet Tools:** These are site search and navigation tools to provide users with easy access to information. Examples are calendars and planners to allow users to input and share events, as well as Web-site and content builders, offering them the ability to create and have customized content being made available according to individual profiles.
- **Collaboration Tools:** These include e-mail, threaded discussions, chat, and bulletin board software that offer a whole range of ways to communicate and share information
- **User Customization:** A typical portal prompts the first-time user via a series of fill-in windows to provide information about him/her. This is then stored in the portal's database. When that user authenticates to the portal, this information determines what he/she will see on the home page immediately after login.
- **User Personalization:** A portal enables the end user to take customization one step further, namely to subscribe and unsubscribe to channels and alerts, set application parameters, create and edit profiles, add or remove links, and many more .

Users' Satisfaction

Someone described satisfaction as a combination of comfort and acceptability of use: Comfort refers to overall physiological or emotional response to user of the system (whether the user feels good, warm, and pleased, or tense and uncomfortable). Acceptability of use may measure overall attitude towards the system, or the user's perception of specific aspect, such as whether the user feels that the system supports the way they carry out their tasks, do they feel in command of the system, is the system helpful and easy to learn.

Efficiency of Use

On the surface, the relationship between the time spent completing tasks and users' satisfaction may seem obvious: a well-designed, responsive system provides a more efficient experience and greater satisfaction. Indeed, earlier satisfaction research with client-based systems confirmed that system response time contributes significantly to

user satisfaction. More recent studies, however, question the correlation between users' efficiency and satisfaction, because users have demonstrated preferences for systems with which they performed less efficiently. This raises the question of how well efficiency relates to user satisfaction for recent technologies, such as Web-based portal applications. The One Start study findings support a strong relationship between users' efficiency and satisfaction. Users who perceived the system as responsive to their actions (for example, loading new screens or displaying available options) generally reported greater satisfaction than users who felt the system responded slowly. Similarly, those users able to complete their tasks in fewer attempts reported greater satisfaction than those who had to make multiple attempts. Portal study participants frequently rationalized their satisfaction ratings (both high and low) with references to the portal interface's organization and layout. Users commented positively in the ability to locate information in consistent screen locations, having similar units of information chunked or compartmentalized, and the ability to logically and efficiently scan information. Conversely, users commented negatively in the portal's organization whenever new windows unexpectedly popped open, they had to scroll extensively, or they felt the combination of screen elements produced a cluttered effect. Portal designers therefore should implement, whenever possible, visual design principles for effective proximity, contrast, repetition, and alignment to optimize their interfaces' organizational appearance. Similarly, they must guard against visual design pitfalls to avoid confronting users with unwanted and displeasing visual noise. More generally, a portal, often called portal software, is a Web-based application that brings audience, application, systems and processes together to form a centralized collaboration experience. Portal software integrates technologies to build personalized work areas and communities to increase productivity for users. Portal software is built for corporate intranets, extranets, communities, Web sites, and projects, just to name a few. Depending on the kind of business needs and the portal software, one can expect to gain several benefits from using portal software in any environment. Some of the benefits are :

- efficiently deliver information to the audience;
- increase productivity for the end user;

- provides customizable features and development tools;
- personalized environments for end users; and
- integration of external applications and services by portlets.

These are just several benefits that may be achieved by implementing portal software for any business.

Different Methods of Developing Portals In Universities

Each portal has its own advantages and disadvantages. The most straightforward option is to work with one of the university's existing suppliers that have a portal offering. The other option is to acquire a portal from a specialist vendor. The third option is to develop the portal in-house. The main benefit of this approach is the complete control it offers. Universities that plan to develop their portals in-house now have the opportunity to base their development on open-source products. This helps to speed up development time and reduce the cost.

When designed properly, a portal can improve the activities required to facilitate, manage, and assess learning. A portal can help teachers and students to discover new learning content and to express ideas in more innovative ways. It can streamline workflow and automate manual tasks. Fundamental portal capabilities include content aggregation, application integration, user authentication, personalization, search, collaboration, Web content management, workflow and analysis, and reporting (Connect, 2004).

Typically, university portals can be grouped into institutional portals and subject-based portals (Franklin, 2004). The institutional portal provides its users with a wide range of services, integrating these through a common interface regardless of whether particular services are provided by the institution or not. An institutional portal contains information about the user, enabling it to customise itself and be customised to the individual's interests and responsibilities. A subject-based portal brings together a variety of information sources and tools about a common theme, but is unlikely to have much information about the user.

The Limitations and Drawbacks of Portals

The portal industry is several years old, and vendors come into and out of the market

every month. Since typical licensing and development costs are several hundred thousand dollars or more, vendor selection is high risk. (In addition to some eight major vendors, a higher-education consortium is in the process of developing an open framework called the JA-SIG portal.) The current volatility of the portal market and the lack of agreed upon standards argues for institutions to wait to jump into a portal unless there is a clear need or benefit that requires one.

Developing a campus portal is a key strategic technology decision that will impact the entire campus community and every other strategic technology program such as CMS. The decision on a portal strategy requires careful analysis of long-term and short-term needs.

Campuses that do intend to begin the process of developing a portal need to consider the following issues:

- What short-term problem does the campus intend to solve with a portal, and is a portal the best solution?
- Is executive management willing to mandate a single portal for the campus?
- Does executive management understand that a portal represents an ongoing commitment rather than a onetime investment?
- Who owns and manages the portal?
- Is advertising appropriate? E-commerce?

An emerging consensus regarding portal development includes the following major best practices and considerations:

- there should be one and only one horizontal portal on campus;
- portals should be developed iteratively;
- the portal should support “single sign-on”; that is, with a single user id and password, each user can access all the applications and data that she or he is allowed to use;
- campuses should consider integration with both legacy systems and CMS;
- courseware management tools should be integrated with the portal; and
- while revenue generation should not drive the development of a portal, the design should allow advertising and e-commerce if desirable and appropriate.

In addition, careful consideration of security, privacy, and protection of intellectual

property must be part of the portal development process.

The Advantages of Portals

Regardless of whether the campus is looking for recognition, for ease of operations, for productivity gains and cost savings, or a combination of all of these, the portal will succeed or fail based upon the perceived benefits to the university community. Theoretically, every member of the university community should benefit from the portal. It should make it easier and more efficient for every individual to carry out his or her role in the institution.

One obvious reason to deploy portals is to improve productivity by increasing the speed and customizing the content of information provided to internal and external constituencies, similar to groupware applications. Portals also serve a knowledge management function by dealing with information glut in an organized fashion. In some ways, portals offer a technical solution, but not a total answer, to knowledge management.

University portals can be a means for establishing a long-term relationship with the institution. They not only make it easy to do business with the institution, but they allow for interaction and collaboration among students, faculty, staff, and graduates with similar needs and interests. Properly implemented, portals can be a strategic asset for the institution. In that sense, they do far more than a traditional Web site of static information ever could.

Beyond institutional gains, portals offer obvious benefits to students, faculty, staff, and external stakeholders.

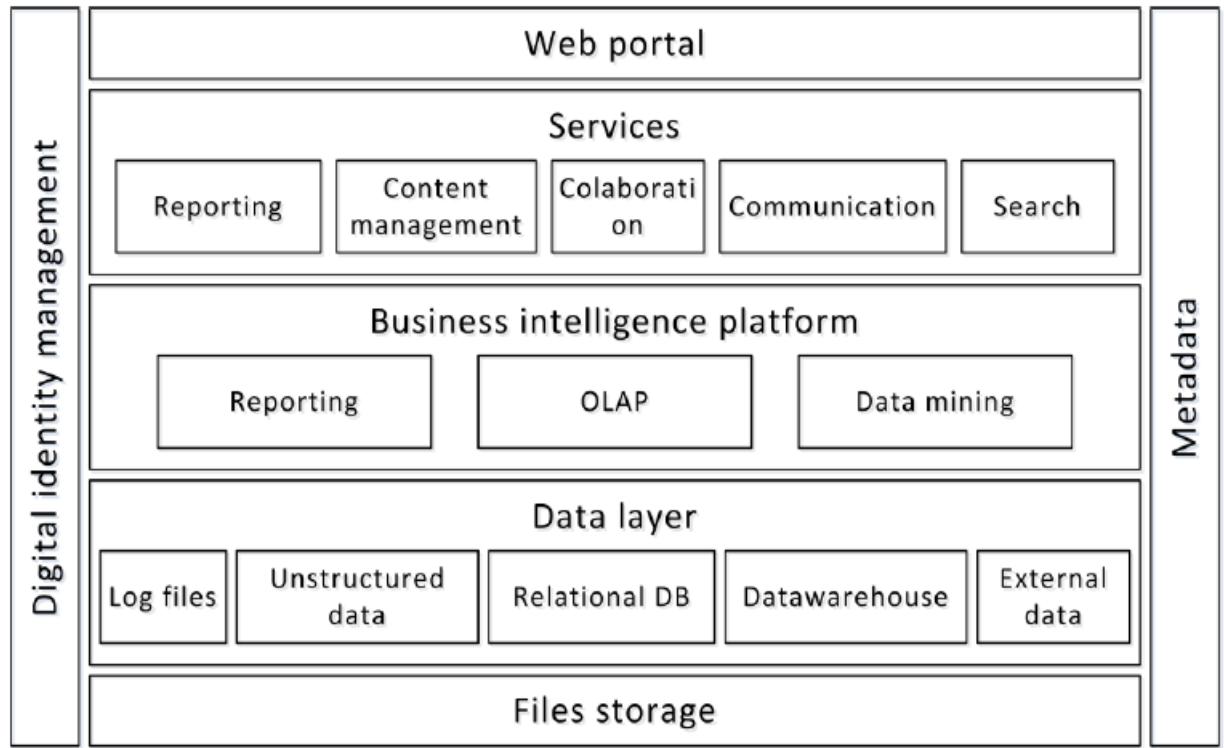


Fig. 38. Model of information management system based on principles of adaptability and personalization

5 CONCLUSIONS

5.1 Conclusions

To conclude, implementing a campus portal will effectively engender a fundamental shift in the way an organization provides services: users' expectations for interacting with the organization and other users (for example academic staff) are improved, for example, access to more information that is better organized. We believe that a portal should be a complementary component of the total campus' Web design, and needs to be viewed as integral element, rather than an add-on or competing technology. A portal represents a change in the institutional philosophy with regard to the delivery of services, and is a major shift to a customer-centric design of campus-wide IT facilities.

It is clear that almost all universities will implement a portal in the next few years. Many of the leaders in the field would have already gained key competitive advantages, such as recruiting students, developing relationships with suppliers and other bodies. Those who are still undecided to implement portals will be driven by pressure from students and parents who see the benefits of portals and are choosing universities who offer them.

Thus our project focuses on the development of a web application in campus environment that supports research and development services in campus environment. It is clear that there is a need for development for web application and terminals in campus environment and coordinators are able to retrieve information at any time and at any location. The system can be further enhanced to become a more powerful and sophisticated system. There are still many aspects for improvement and enhancements of the system can be made in the future to meet changing needs of the students. Therefore, enhancement in the future will extend the usability of this system. We can include faculty registration feature, publication details updation feature, allotting HOD or Dean, activate and deactivate user and Login for all faculties in future in our system and thus expand its scope.

As of for now, the project will enable the admins to download the report for various activities such as publications, trainings, work experience, workshops, innovations etc. But in the near future, if the lecturer or the professor is no more a professor in the college or if

he/she is leaving their respective designation or retired from the institute then the principal will have the authority to assign new Dean and HOD. For any problem arouse in the system, then respective user can consult with coordinator of the system. The user can deactivate their account from their own or the admins can also do the same. and the corresponding link will be send to the students. Thus the process of e-learning can be incorporated with the our project in the future to provide a robust learning system with the Campus Notification and Information System being a communication system or bridging the gap for a better learning experience. Being a relatively new idea in India, we can even go commercial with the idea and provide numerous campuses with the application.

Electronically manage, retrieve and process in real time research and development data from Prospective Institute. Research and development data management information system portal can be the most functionally advanced and widely used electronic web application for college research work data to maintain. We offered a broad-based solution that allows institution with different needs and criteria to simplify and manage every aspect of receiving and processing research related data. College can customize the web portal on the front end to meet the needs of their prospective government organizations, while robust and automatic back-end processing helps to minimize errors and ensure that fully compliant publication's detailed information are received.

Key Benefits

- **Customization Ability:** Customize the web portal with your requirement, questions, attachments, announcements, special instructions, contact information and more.
- **User Friendly:** The research and development web portal contains multiple conveniences for Prospective administrators to easy data retrieval. Users input their data one time and can also modify it. Information retained about the faculty can be used to auto-populate reports submitted for college research record keeping.
- **Save Time:** We can help expedite the time it takes to download and process data as well as respond to potential administrators. PHP's processing, user login credentials verification and data checks help ensure that accurate, fully compliant information is submitted. No more mailing the faculties requesting missing information and no more bad details. The sooner you get the information the way government organizations need have the better chance of

projecting college research work and maintaining its ranking and reputation among other colleges.

The Research and Development data management system

The Research and Development data management system is the portal through which college administrators can keep their information current and comprehensive on the Website. Although the list of modules and functions available for college participation are extensive, institutions can quickly and easily maintain the data required to populate all of this functionality in the Research and development web portal. From the web portal, institution representatives can update campus data, configure preferences, download publications reports, manage research related data and perform many other functions, and while much of the data can be provided automatically through your provision of information to systems users , you have the flexibility to modify and update that data at any time.

Key Benefits

- **Total Control:** You control online web portal by term, major or by your own custom rules. Update research data and tailor the system to meet your needs; all in real time.
- **Secure:** You can feel confident that professor's data is safe. R&D portal takes care of the encryption, redundancy and backups so that your data is secure and available for your continued use for years to come.
- **Easy to Use:** “Non-technical people” can accomplish most activities on the site. Data report will be generated in specified format of spreadsheet. No programming skills are required and in addition, support is always available from your web portal Co-ordinator.
- **New Technology:** The system is here whenever you need it, 24-7 – no waiting for scheduled batch runs; no nightly shutdowns. The system supports the latest standards and is flexible enough to fit your custom processes.

5.2 Future Scopes

- The following is just a sample of future opportunities that would help sustain the portal for undergraduates: -
 - 1. One can upgrade this web portal to store uploaded documents of different professors and different publication documents and also maintain the previous year's data on it.

- 2. The portal can be used to generate the report in the standard format as required by the many government organizations like NAAC, NBA, etc.
- 3. You can customize your report by selecting the order of columns as per your requirement.
- 4. One can deploy this web application into a mobile android application and be used in smaller devices like mobile phones, tablets, and notepads.
- 5. In Future, Users (Faculties) can generate their own CVs from this web portal based on information fed by them into the portal.
- 6. One can extend the reach of this portal to students, which will give them access to significant information within papers, books, etc. published by Faculties. Also, they can contact the concerned faculty for further development in their research.
- 7. It can further be enhanced to provide notifications about training programs or workshops to keep everyone acquainted about activities going to be held in-house or outhouse.
- Also, there is scope for Adding Additional tabs for the introduction of future activities, that can be added instead of ‘others’ in the navigation bar.

References

- [1] <https://scholarworks.lib.csusb.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1158&context=ciima>
- [2] <https://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=8265189>
- [3] <https://ieeexplore.ieee.org/document/1324229>
- [4] <http://www.cmswiki.com/tiki-index.php?page=Content>
- [5] http://en.wikipedia.org/wiki/Content_management
- [6] <http://www.contentmanager.eu.com/history.htm>
- [7] <https://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=5442274>
- [8] <https://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=5634838>
- [9] <https://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=8651405>
- [10] <https://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=5550976>
- [11] Mohd Nazri Ismail, “Development of WAP Based Students Information System in Campus Environment” International Journal of Computer and Electrical, Vol. 1, No. 3, August 2009.
- [12] R. B. Guin, S. Chakrabarti, C. Tarafdar, and S. Mandal, “A smart architectural concept for the making of a university education system using cloud computing paradigm,” in Proc. 2011 World Congress on Information and Communication Technologies, Mumbai, 2011, pp. 48-52.
- [13] Nigam, Archana and Dipankar Sengupta (2009), Development of a Management Information & Decision Support System for Plan Schemes, quoted from Second Administrative Reforms Commission, Fourteenth Report on Strengthening Financial Management Systems.
- [14] Lalit Joshi, “A Research Paper on College Management System”, International Journal of Computer Applications, Vol.122, Issue 11, July 2015.
- [15] S. R. Bharamagoudar, “Web-Based Student Information Management System”, International Journal of Advanced Research in Computer and Communication Engineering, Vol.2, Issue 6, June 2013.
- [16] Srikant Patnaik, “College Management System”, International Research Journal of Engineering and Technology, Vol.3, Issue 5, May-2016.

Acknowledgement

It gives us a better experience on bringing out the project entitled INSTITUTIONS' RESEARCH AND DEVELOPMENT DATA MANAGEMENT INFORMATION SYSTEM PORTAL . We express our sense of gratitude and sincere regards to our guide Prof. N. G. Gadge and Dr. A. V. Deorankar (Head of Department).We thank her for extending necessary help, providing facilities and time to time guidance. We would like to thanks all the staff members of Computer Science Department and the people who directly or indirectly helped us in completing the first phase of the project successfully. Last but not the least; we would like to thank our beloved Principal for his motivation to make it possible for us to implement this project.

Place: Amravati

Nivedita Gaikwad (15005044)

Date :-

Ambika Pandit(15005058)

Kunal Wanikar (15005060)

Ankush Narkhede(15005070)