

A Report on
“HOSPITAL MANAGEMENT SYSTEM”
DIPLOMA IN
INFORMATION TECHNOLOGY
SUBMITTED BY

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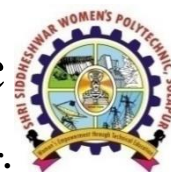
DEPARTMENT OF INFORMATION TECHNOLOGY
SHRI SIDDHESHWAR WOMEN'S POLYTECHNIC,
SOLAPUR -413 002
Academic Year 2020-2021



Shri Siddheshwar Women's Polytechnic

Accredited and Reaccredited by NBA, New Delhi

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CERTIFICATE

This is to certify that the Micro Project report
on

“HOSPITAL MANAGEMENT SYSTEM”

has successfully completed in **DATABASE MANAGEMENT(DMA)** subject by the Student of Fourth semester Diploma in Information Technology for the Academic Year 2020-2021 as prescribed in the “I-Scheme Curriculum” designed by MSBTE, Mumbai.

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INDEX

SR No	Content	Page no
1	Mapping of Co's with Po's for Micro-Project	4,5
2	Introduction	6,7
3	Why is HMS important for a hospital	7
4	Advantages of Hospital Management System	7,8,9,10
5	Features of Hospital Management System	10,11
6	Why We Need Hospital Management System	11,12,13,14,15
7	Importance of Hospital Management System	15,16
8	Hospital management system functions	16,17
9	Components of hospital information system	17,18,19,20
10	Actual Procedure Used	21
11	Output	21,22,23
12	Conclusion	24

Program Outcomes (POs)

PO 1	Basic and Discipline specific knowledge	Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the engineering problems.
PO 2	Problem analysis	Identify and analyses well-defined engineering problems using codified standard methods.
PO 3	Design/ development of solutions	Design solutions for well-defined technical problems and assist with the design of systems components or processes to meet specified needs
PO 4	Engineering Tools, Experimentation and Testing	Apply modern engineering tools and appropriate technique to
PO 5	Engineering practices for society, sustainability and environment	Apply appropriate technology in context of society, sustainability, environment and ethical practices.
PO 6	Project Management	Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.
PO 7	Life-long learning	Ability to analyze individual needs and engage in updating in the context of technological changes.

Program Specific Outcomes (PSO's)

PSO 1	Modern Information Technology	Use latest technologies for operation and application of information
PSO 2	Information Technology Process	Maintain the information processes using modern information and communication technologies

Course Outcomes (CO's)

CO1	Create database using SQL command.
CO2	Manage database using SQL command.
CO3	Implement advance SQL concepts on database.
CO4	Write PL/SQL code for database application.
CO5	Apply security and safety on database.

Mapping of CO's for Micro-Project

Sr. No	Micro project Title	Course Outcomes				
		CO209.1	CO209.2	CO209.3	CO209.4	CO209.5
1	Hospital Management System	1	2	1	1	1

Mapping of CO's with PO's & PSO's for Micro-project

Course Outcome	Program Outcomes (PO'S)							PSO's	
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PSO1	PSO2
CO209.1	1	2	1	1	2	1	1	2	
CO209.2	2	1	1	2	1	3	2	2	
CO209.3	1	1	2	1	2	1	1	3	
CO209.4	2	2	2	1	2	2	1	2	
CO209.5	1	2	1	2	1	2	2	1	

❖ Hospital Management System:

➤ Introduction:

Hospital management system is a computer system that helps manage the information related to health care and aids in the job completion of health care providers effectively. They manage the data related to all departments of healthcare such as,

- Clinical
- Financial
- Laboratory
- Inpatient
- Outpatient
- Operation theater
- Materials
- Nursing
- Pharmaceutical
- Radiology
- Pathology etc.
- Financial
- Laboratory
- Inpatient
- Outpatient
- Operation theater
- Materials
- Nursing
- Pharmaceutical
- Radiology
- Pathology etc.

HMS came into the picture of hospital management as early as 1960 and have ever since been evolving and synchronizing with the technologies while modernizing healthcare facilities. In today's world, the management of healthcare starts from the hands of the patients through their mobile phones and facilitates the needs of the patient.

➤ **Why is HMS important for a hospital?**

HMS was introduced to solve the complications coming from managing all the paper works of every patient associated with the various departments of hospitalization with confidentiality. HMS provides the ability to manage all the paperwork in one place, reducing the work of staff in arranging and analyzing the paperwork of the patients. HMS does many works like:

- Maintain the medical records of the patient
- Maintain the contact details of the patient
- Keep track of the appointment dates
- Save the insurance information for later reference
- Tracking the bill payments.

➤ **Advantages of Hospital Management System:**

The implementation of hospital management system project provides the institution with different advantages that improve the service quality and efficiency. As mentioned above it is created for three groups of users: patients, hospital staff and management, and third-parties like drug suppliers and insurance companies. The interaction between them conveys the general performance. The benefits received by a certain group of users also positively influence the work of the others. Cooperation and communication are the fundamental requirements here.

In order to create the hospital management system feature list, you need to identify your priorities by choosing the benefits that are prior for your case.

▪ **Improved Processes**

Automation is one of the main benefits here. It helps to optimize the user experience. Medical specialists, patients, and hospital authorities can interact online, make the appointments and exchange information.

▪ **Digital medical records**

The hospital database includes all the necessary patient data. The disease history, test results, prescribed treatment can be accessed by doctors without much delay in order to make an accurate diagnosis and monitor the patient's health. It enables lower risks of mistakes.

▪ **Staff interaction**

It is vital to engage all of your employees for improved coordination and teamwork. They do not need to make special requests

and wait for a long time for an answer. Each specialist will be in charge of certain process stage and can share outcomes with colleagues just in one click.

- **Facility management**

Hospitals authorities are able to manage their available resources, analyze staff work, reduce the equipment downtime, optimize the supply chain, etc. Another fact to mention is that hospital staff deal with the digital data instead of endless paperwork.

- **Financial control and tax planning**

The management has the ability to monitor different financial operations including expenses, profits, and losses, paying bills and taxes, in and outpatient billing. The financial awareness helps to analyze business prospects quite clear and move in the right direction.

- **Market strategy**

Due to the high market competitive nature, the medical industry is also open to all the different innovations that enable communication between patients, doctors, suppliers, and marketing services providers.

- **Insurance claims processing**

Integration with health insurance services improves the experience of the patients and brings benefits to the institution. It allows you to be innovative and helps both the patient and hospital to handle many aspects of the insurance process successfully.

- **Less time consuming**

As the services and interactions are improved in all possible ways, everything is being planned with greater precision. It saves the time of all the system users and provides them with up-to-date information.

- **Patient self-service**

Patients have their own system accounts where the list of various actions can be performed. They are able to make online requests or reservation, receive the test results, receive the consultation of the medical specialists and many more.

- **Better customer experience**

Since the clinic management system is patient-oriented, the treatment process can be less stressful. Doctors have more time for the examination and interaction with patients. In addition, all the requested information can be received online.

➤ **Features of Hospital Management System:**

Appointment Management:

For hospitals having their own site, appointment widgets will be integrated onto the site. Patients visiting the hospital's website can book online appointments with ease.

Billing Management:

Integrated Billing with treatments, Lab and Radiology. Alerts will be sent on Discount Authorisation. Automatic due capture, Option to bill before and after consultation.

Prescription Management:

Manage commonly and recently used medicines. Option to show medicines available in the pharmacy. SMS prescriptions to Patients.

Discharge Summary:

Template based Discharge Summary. ICD10 integration. Option to prevent discharge summary till IP bill is closed.

Operation Theatre Management:

Automatic notification can be sent to customers on test results. Lab notifications like email, SMS of the test reports sent from the Automated Lab notification module.

Pharmacy Management:

Comprehensive Pharmacy Management handles stock, Prescription Integration, Ward Request, Stock Management, Stock Moment and intelligent reports.

Lab Management:

Comprehensive Lab Management handles complete order management, Custom Reports, Smart Notifications, Credit Settlement, detailed MIS Reports, Analytics and App for Phlebotomist.

Master Information Systems:

Lets you access entire MIS data from your palm.

Manage Multiple Locations:

Any number of branches can be added and managed using a single account.

➤ Why We Need Hospital Management System:

Our present modern information system makes use of computers for the execution, each of them connected through an optimized network. Healthcare is the most critical aspect of our society, and many health care providers face challenges to offer practical and active services to patients. Considering a multispeciality hospital, many people enter and exit the hospital in a day and maintaining their records safely is tedious. To reduce this type of burdens and to manage the financial, hospital administration and clinical aspects, Hospital management system came into existence.

Apart from that automating your hospital's processes and implementing them cannot be done too easily, you need an efficient hospital management system to take care of everything that is happening around the labs and hospitals.

If you are ready to implement or go with the hospital management system, make sure you follow these things before making it useful in your hospitals or labs.

- **Processing Speed and Results:**

Hospital management system follows the standard operating procedures, and there are no chances for deviation to happen in any of the effective HMS systems. With the implementation of HMS in your labs or hospitals, you will be able to treat patients with a better way and accessing their real-time reports and other information regarding the patients, and their past clinical data and more can be done quickly and lead to best patient outcomes. Hospital management system makes employees work more accessible and improve the speed of the complete processes for better results.

- **Cost Effective:**

HMS information system helps to track and control finances, reduce leakages as well as reduce manual work and therefore there is no requirement of the higher human workforce.

Hospital management system helps to cut down the manual work done by humans in the hospitals especially for the peoples who take care of the record and documentations safely. Hospital management system helps in reducing the human resources costs as most of the work is automated.

Cut down the cost related to storage and other associated requirements. If your hospital is entirely HMS implemented, then your hospital will go paper-free one, it's enough if you maintain the mandatory documents and other related ones in your hospital to comply with the regulation standards.

▪ **Reduction in Errors:**

Hospital management system will help in reducing different types of errors that made through interventions like missing billing, operational failure, clinical errors, cost leakages, missing appointments and much more.

Every process on the hospital management system are automated, and there are plenty of tasks provided to the software to perform without the human intervention as well as accurately, this reduces the error significantly.

For example, An IPD patient final bill amount can be easily generated if your hospital enabled of Hospital management system as his reports and other samples bill are already billed and safe under the Patients unique Hospital ID, and therefore the billing executive needs to generate from the system and provide the statement to the patients.

If your hospital is not HMS enabled then you need to go with manual entries which involves too many human errors, so preferring HMS will make your billing section easier, faster, accurate and more transparent.

▪ **Data Security and Retrieving Ability:**

In a Hospital management system, they are one of the cloud-based software where everything gets interlinked, and therefore there are no chances for breaches to occur as they have high data security.

Evidence-based medicine requires the retrieving ability as well as data ability mandatorily, and this easily achieved through a Hospital

management system. If you have Hospital management system on your hospital, then you can easily access the operational, clinical and financial data of your hospitals.

▪ **Improved Patient Care:**

Enhanced work efficiency and improved patient data access mean faster and better clinical decisions. A clinician orders the solution to implement once he gets the diagnostic report on his hand, so its necessary to have speedier support for receiving the reports rapidly. All departments in the hospitals are interconnected and integrated with this automation, and this enhances the patient care quality as well as the hospital turnovers.

▪ **Quality and Compliance:**

Every hospital should send a report of birth, and death occurred, their reasons and related solutions to the NABH accreditation monthly. Its difficult to arrange them manually so preferring the best HMS helps you to send the reports faster and at the right time frame.

Every report is monitored and managed in the Hospital Management System carefully and efficiently for the accurate results.

Every one prefers HMS for their hospitals for coordinated and rapid care, reduced costs, reduced waiting time and readmission, enhanced patient safety and clinical care.

Any other essential benefits of implements a hospital management system to your clinics? Let us know through the comment section below.

➤ **Importance of Hospital Management System:**

The health system is one of essential socio-economic activities; therefore, it requires rational and effective management. For this, it is necessary to have a tool that allows adequate control of the information generated in health institutions.

Hospitals, as the main actors of the health system, generate an essential volume of information, but in most cases, it is dispersed or not available in the necessary time and manner.

In recent years, health information systems have helped improve the quality of life of people in all sectors of our society, so it is inevitable to adhere to this dizzying technological career. Currently, clinical and administrative management of hospitals and health centers is possible through a single platform, with the support of cutting-edge technology, developed to optimize the processes that allow the operation of organizations dedicated to treating patients in any branch of the medicine.

Hospital management systems allows us the ability to optimize and digitize all the processes within the institution, which will help to improve customer service, reduce process costs, streamline the search of medical records, bills, patients, doctors, etc.; thus, having a database of each module implemented.

A hospital management system is a web system developed for companies that wish to manage their processes, implementing modules for each of the required areas. It is essential to mention that the information is controlled by trained personnel. Computer technology is only a tool that allows us to perfect the inveterate use of paper records (notebooks, index cards, diaries, bibliographies, record books), or more recently, cassettes or video cassettes. A PC only collects and processes data; it is the individual that acquires information. allows us the ability to optimize and digitize all the processes within the institution, which will help to improve customer service, reduce process costs, streamline the search of medical records, bills, patients, doctors, etc.; thus, having a database of each module implemented.

➤ **HOSPITAL MANAGEMENT SYSTEM FUNCTIONS:**

The hospital management system organizes the stable functioning of daily tasks and interactions. This is a special tool to support the smooth operating of the software components that are vital for the clinic administration. The hospital records management software keeps a track of all the operations, stores the users' data, performs its analysis and generates the reports. The medical institution is given the opportunity to collect its information in one place. It includes the patient and doctors' records as well as the data concerning financial affairs, supply management, etc. Furthermore, it is only processed, classified and accessible for authorized users. The hospital database management system provides users with data security due to all regulations. Implementation of different functions empowers smooth and clear functionality.

The hospital records management software tracks the number of available doctors and their working hours. This allows to have the accurate schedule of each employee, manage your facility abilities and the supply chain in order to meet all the needs of the patients. It helps to arrange the appointments for both the staff and patients' convenience.

Any clinic should store medical histories, test results, prescribed treatments, etc. The good hospital database management system will do it for you. All the details are securely stored for the access of the doctor and can be provided to the patients by their requests. They can receive the test results or medical reports by email or the user account. When the written form is required, printing will take only a few minutes for the clinic staff. Another function is connected with managing finances. The hospital accounting software estimates the patients' payments. It might remind the

bank account where you can check performed operations and the billing status of each customer.

Moreover, the hospital record management system is capable of generating regular reports of the tracked data including healthcare, staff efficiency, finances, inventory, and facility utilization, etc. This greatly helps the clinic authorities in making reasonable policy decisions. Therefore, any of these functions are designed to make the clinic management system easy to use, comprehensive, powerful and reliable.

➤ **COMPONENTS OF HOSPITAL INFORMATION SYSTEM:**

When the hospital considers applying this approach, it is necessary to learn how to develop a hospital management system. Planning and setting priorities is one of the important stages. It outlines the functions and benefits that the medical institution expects to get at the final point. The qualified developers usually suggest the list of the recommended hospital management system project modules. They will ensure the efficient administration of your medical institution.

Their number might differ depending on the clinic needs, however, it usually includes some basic hospital information system modules.

Patient Management

It is used to control patient flow. It can be used to register them, get the data of the patients' health condition, view the treatment and check the medical history and reports.

Appointment module in hospital management

Appointment module in hospital management arranges the schedule of doctors due to the patients' application. It helps to organize the availability of medical specialists at any convenient time. Some hospital can even offer remote visits when you need immediate assistance.

Facility management

The facility management module is responsible for tracking and maintaining the room availability, the occupancy status as well as various kinds of administrative documentation.

Inventory management

Inventory management module controls the amount of clinic inventory. The entire supply chain is automated for the convenience of the staff that can concentrate on the patients' need firstly.

Staff Management

Staff management module provides the human resources administration. It updates the job description of employees, updates the hospital structure, tracks the recruiting records.

Accounting

Accounting module organizes the financial affairs of both customers and the medical institution. It stores and presents all the patient payment details, hospital financial records on expenses and overall profit.

Insurance services integration

Insurance module can record patients' insurance details. It includes the policy number, the insurance company, information about their policies.

Medicine management

Medicine management module contains the list of drugs that usually used for the specific treatment. It keeps records of every patient's drugs used during their treatment.

Laboratory and tests management

Lab management module shows the test results of the particular patient. The lab data can be viewed by the staff and generated for the patients' reports. It is usually integrated with other hospital information system modules for the better overall functionality of the system.

Reporting

Report management part stores the already processed detailed information. This module helps management collect, analyze and view the performance data in a comprehensive format. The business intelligence subsystem helps define problematic aspects and successfully eliminate them to keep the business profitability as well the high customer satisfaction level.

Helpdesk & support

Helpdesk support module specializes in handling different issues, problems, and requests. It ensures that the operations are maintained properly, the data is valid and reported in accordance.

➤ **Syntax:**

CREATE:

CREATE DATABASE database_name;
Where database_name;name of the database.

INSERT:

INSERT INTO table_nameVALUES(value1,value2,value3,.....);
Table_name;name of the table,
Value1,Value2,.....value of the column,
Second column,.....for the new record

SELECT:

SELECT column1,column2,.....
FROM table_name;

➤ **Actual Resources Used :**

- **Outputs of the Micro-projects :**

Sr.no	Name of Resources	Specification
1	Mobile	RAM 2GB
2	Software	https://sqliteonline.com

➤ **Outputs of the Micro-projects :**

- **Step 1 : Tables :**

1. RoomMst-Table



The screenshot shows a web application interface with a table containing 10 rows of room data. The table has four columns: RID, RoomType, Total, and Price. The data is as follows:

RID	RoomType	Total	Price
101	Delivery room	20000	20000
102	Delivery room	10000	10000
103	Consulting room	5000	5000
104	Emergency room	30000	30000
105	ICU	20000	20000
106	Operating theatre	20000	20000
107	Surgery	5000	5000
108	Day room	2000	2000
109	Dispensary	2000	2000
110	Emergency Department	20000	20000

2.DoctorsMst-Table

I	DID	DrName	Mobile	Speciality
11		Dr M Sharma	7719723710	Cardiology
11		Dr M Sharma	7719723710	Cardiology
12		Dr M mehora	7719722710	ENT
13		Dr k Hukka	7719724410	Orthopaedic Surgeon
14		Dr P Bolli	7569723710	Cardiology
15		Dr M Nandal	7989723710	Dentist
16		Dr k Manta	7719799710	Oncologist
17		Dr M Mushion	7719700710	Urology
18		Dr A Ankam	7719709710	Bone Marrow Transplant
19		Dr N Durgam	7719893710	Obstetrics and Gynaecology
20		Dr P Paskanti	7714523710	Cardiology

3.PatientMst-Table

I	Name	Address	PID	drname	Disease
	Deepa Durgam	228 Bharat nagar	111213141	Dr M sharma	Cardiology
	Vinod Kumar	600 Bharat nagar	111213142	Dr M Mehara	ENT
	Deepa Durgam	489 kota nagar	111213143	Dr K Hukka	Orthopaedic Surgeon
	Deepa Durgam	228 Navin Gharkul	111213144	Dr M sharma	Cardiology
	Deepa Durgam	11 I Group	111213145	Dr P Bolli	Cardiology
	Deepa Durgam	123 H group	111213146	Dr A Ankam	Bone Marrow Transplant
	Deepa Durgam	345 Laxmi chowk	111213147	Dr M Nandal	Oncologist
	Deepa Durgam	23 Ashok Chowk	111213148	Dr Priyanka	Obstetrician
	Deepa Durgam	90 I Group	111213149	Dr M Mushion	Urology
	Deepa Durgam	300 Navi Peth	111213110	Dr M Nandal	Dentist

4.BillMst-Table

I	BID	PID	RoomBill	DoctorBill	MedicineBill	TotalBill	PaidBill	RemBill
1000001	111213141	20000	30000	5000	55000	40000	15000	
1000002	111213142	20000	30000	5000	55000	40000	15000	
1000003	111213143	20000	30000	5000	55000	40000	15000	
1000004	111213144	20000	30000	5000	55000	40000	15000	
1000005	111213145	30000	40000	10000	80000	60000	20000	
1000006	111213146	20000	25000	4000	49000	40000	9000	
1000007	111213147	20000	30000	4000	54000	54000	-	
1000008	111213148	20000	35000	5000	55000	60000	-	
1000009	111213149	20000	22000	8000	50000	50000	-	
1000010	111213110	5000	8000	3000	16000	16000	-	

5.Payment-Tab

I	PayID	BillID	PID	Type	BankName
	2003001	1000001	111213141	Online payment	Bank Of India
	2003002	1000002	111213142	Online payment	Bank Of India
	2003003	1000003	111213143	Online payment	ICIC Bank
	2003004	1000004	111213144	Offline payment	HDSC Bank
	2003005	1000005	111213145	-	-
	2003006	1000006	111213146	Online payment	Bank Of India
	2003007	1000007	111213147	offline payment	ICIC Bank
	2003008	1000008	111213148	offline payment	Bank Of India
	2003009	1000009	111213149	Online payment	Bank Of Maharashtra
	2003010	1000010	111213150	Online payment	State Bank Of India

➤ **Conclusion:**

Taking into account all the mentioned details, we can make the conclusion that the hospital management system is the inevitable part of the lifecycle of the modern medical institution. Developing the hospital system software is a great opportunity to create the distinct, efficient and fast delivering healthcare model. Implementation of hospital management system project helps to store all the kinds of records, provide coordination and user communication, implement policies, improve day-to-day operations, arrange the supply chain, manage financial and human resources, and market hospital services. This beneficial decision covers the needs of the patients, staff and hospital authorities and simplifies their interactions.