



**Sri Lakshmi Narayana Institute of Medical Sciences**

Date:08.05.2017

From

Dr.Kamatchi  
Professor and Head,  
Department of Microbiology,  
Sri Lakshmi Narayana Institute of Medical Sciences  
Bharath Institute of Higher Education and Research,  
Chennai

To

The Dean,  
Sri Lakshmi Narayana Institute of Medical College  
Bharath Institute of Higher Education and Research,  
Chennai.

**Sub: Permission to conduct value-added course: Hospital information system&  
Environmental health and hygiene**

Dear Sir,

With reference to the subject mentioned above, the department proposes to conduct a value-added course titled: **Hospital information system for July to September 2017& Environmental health and hygiene** October to November 2017. We solicit your kind permission for the same.

Kind Regards

Dr. Kamatchi

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**FOR THE USE OF DEANS OFFICE**

Names of Committee members for evaluating the course:

The Dean: **Dr. Jayalakshmi.G**

The HOD: **Dr. Kamatchi**

The Expert: **Dr. Jayapradha.S**

The committee has discussed about the course and is approved.

Dean -

Subject Expert

HOD

(Sign & Seal)

(Sign & Seal)

(Sign & Seal)

DEPT. OF MICROBIOLOGY  
SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES  
Bharath Institute of Higher Education and Research,  
Chennai





Sri Lakshmi Narayana Institute of Medical Sciences

Circular

17.06.2017

**Sub: Organising Value-added Course: Hospital information system -reg**

With reference to the above-mentioned subject, it is to bring to your notice that Sri Lakshmi Narayana Institute of Medical Sciences, **Dharath Institute of Higher Education and Research**, is organizing "**Hospital information system**" from July to Sep 2017. The course content form is enclosed below."

The application must reach the institution along with all the necessary documents as mentioned. The hard copy of the application should be sent to the institution by registered/ speed post only so as to reach on or before June 30<sup>th</sup> 2017. Applications received after the mentioned date shall not be entertained under any circumstances.

Dean

Encl. Copy of Course content



## Course Proposal

**Course Title:** Hospital information system

**Course Objective:**

1. Definition for Hospital information system
2. Benefits of HIS
3. Risk of Health information system
4. Electronic health record
5. Clinical documentation improvement

**Course Outcome:** knowledge on the various aspects of Hospital information system

**Course Audience:** Medical undergraduates

**Course Coordinator:** Dr. G. Jayalakshmi

**Course Faculties with Qualification and Designation:**

1. Dr.S.Jayapradha, MD, Assistant professor
2. Mr.Naveenkumar, Msc,Assistant professor

**Course Curriculum/Topics with schedule (Min of 30 hours)**

Date	Time	Topic	Hour	Lecture taken by
5.7.2017	4-6pm	Pre-test & Definition for Hospital information system	2hrs	Dr.S.Jayapradha
12.7.2017	4-6pm	Benefits of HIS	2hrs	Mr.Naveenkumar.C
19.7.2017	4-5pm	Risk of Health information system	1hr	Dr.Jayalakshmi.G
26.7.2017	4-6pm	Electronic health record	2hrs	Dr.S.Jayapradha
5.8.2017	4-7pm	Clinical documentation improvement	3hrs	Dr.Jayalakshmi.G
9.8.2017	4-6pm	Technical features	2hrs	Mr.Naveenkumar.C
16.8.2017	4-6pm	Software quality and usability deficiencies	2hrs	Dr.S.Jayapradha
23.8.2017	4-7pm	Hardware and workflow considerations	3hrs	Mr.Naveenkumar.C
30.8.2017	4-6pm	Computer security	2hrs	Mr.Naveenkumar.C
26.8.2015	4-7pm	Information security culture	3hrs	Dr.Jayalakshmi.G
6.9.2017	4-6pm	Systems at risk	2hrs	Dr.S.Jayapradha



13.9.2017	4-6pm	Impact of security breaches	2hrs	Dr.Jayalakshmi.G
20.9.2017	4-6pm	Security by design	2hrs	Mr.Naveenkumar.C
27.9.2017	4-6pm	Health information technology & Personal health record, Post test	2hrs	Dr.S.Jayapradha
		Total hours	30hrs	

**REFERENCE BOOKS:**

1. Hospitals - Facilities Planning & Management- G.D.Kunders
2. New Technologies in Hospital Information Systems- Dudeck, J. Lurdieck, W., Bürkle





## VALUE ADDED COURSE

**1. Name of the programme & Code**

Certificate course on Hospital information system and MICOS

**2. Duration & Period**

30 hrs July 2017– September2017

**3. Information Brochure and Course Content of Value Added Courses**

*Enclosed as Annexure- I*

**4. List of students enrolled**

*Enclosed as Annexure- II*

**5. Assessment procedures:**

Questionnaire- *Enclosed as Annexure- III*

**6. Course Feed Back**

*Enclosed as Annexure- IV*

**7. No. of times offered during the same year:**

July 2017- September 2017

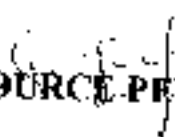
**8. Year of discontinuation: 2017**

**9. Summary report of each program year-wise**

Value Added Course- July 2017 - August 2017					
Sl. No	Course Code	Course Name	Resource Persons	Target Students	Strength & Year
1	MICOS	Certificate course on Hospital information system	Dr. S.Jayapradha Mr.Navcenkumar.C	2 <sup>nd</sup> yr MBBS	20July 2017- September2017

**10. Certificate model**

*Enclosed as Annexure- V*

  
RESOURCE PERSON

  
COORDINATOR



## Annexure I

### Certificate Course In Hospital Information System(HIS)

#### **COURSE DETAILS**

<b>Particulars</b>	<b>Description</b>
Course Title	Hospital information system
Course Code	MIC05
Objective	<ol style="list-style-type: none"><li>1. Definition for Hospital information system</li><li>2. Benefits of HIS</li><li>3. Risk of Health information system</li><li>4. Electronic health record</li><li>5. Clinical documentation improvement</li><li>6. Technical features</li><li>7. Software quality and usability deficiencies</li><li>8. Hardware and workflow considerations</li><li>9. Computer security</li><li>10. Information security culture</li><li>11. Systems at risk</li><li>12. Impact of security breaches</li><li>13. Security by design</li><li>14. Health information technology</li><li>15. Personal health record</li></ol>
Further learning opportunities	Information development
Key Competencies	On successful completion of the course the students will have skill to observe HIS
Target Student	2 <sup>nd</sup> MBBS Students
Duration	30hrs Every July 2017- September 2017
Theory Session	10hrs
Practical Session	20hrs
Assessment Procedure	Short answers

<b>Date</b>	<b>Time</b>	<b>Topic -</b>	<b>Resource person</b>
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5.7.2017	4-6pm	Pre-test & Definition for Hospital information system	Dr.S.Jayapradha
12.7.2017	4-6pm	Benefits of HIS	Mr.Naveenkumar.C
19.7.2017	4-5pm	Risk of Health information system	Dr.Jayalakshmi.G
26.7.2017	4-6pm	Electronic health record	Dr.S.Jayapradha
2.8.2017	4-7pm	Clinical documentation improvement	Dr.Jayalakshmi.G
9.8.2017	4-6pm	Technical features	Mr.Naveenkumar.C
16.8.2017	4-6pm	Software quality and usability deficiencies	Dr.S.Jayapradha
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### Definition

A hospital information system (HIS) is an element of health informatics that focuses mainly on the administrative needs of hospitals. In many implementations, a HIS is a comprehensive, integrated information system designed to manage all the aspects of a hospital's operation, such as medical, administrative, financial, and legal issues and the corresponding processing of services. Hospital information system is also known as hospital management software (HMS) or hospital management system.

**Potential benefits of hospital information systems include:**

- Efficient and accurate administration of finance, diet of patient, engineering, and distribution of medical aid. It helps to view a broad picture of hospital growth
- Improved monitoring of drug usage, and study of effectiveness. This leads to the reduction of adverse drug interactions while promoting more appropriate pharmaceutical utilization.
- Enhances information integrity, reduces transcription errors, and reduces duplication of information entries.
- Hospital software is easy to use and eliminates error caused by handwriting. New technology computer systems give perfect performance to pull up information from server or cloud servers.

#### **Benefits of HIS:**

- 1) Improved information access.
- 2) Increased healthcare professional's productivity.
- 3) Improved efficiency and accuracy of coding and billing.
- 4) Improved quality of healthcare.
- 5) Improved clinical management.

#### **Risk of Health information system:**

The most critical threat is power failure of the server, and the second is power failure of home personal computers. Air-conditioning failure, system and network software failure, monitor support software failure, and medical record software failure are also treated as high-risk threats.

#### **Clinical documentation improvement:**

It is the systematic study and application of knowledge about how individuals and groups act within the organizations where they work. OB draws from other disciplines to create a unique field.

For example, when we review topics such as personality and motivation, we will again review studies from the field of psychology. The topic of team processes relies heavily on the field of sociology.

When we study power and influence in organizations, we borrow heavily from political sciences.

Even medical science contributes to the field of Organizational Behaviour, particularly in the study of stress and its effects on individuals.

There is increasing agreement as to the components or topics that constitute the subject area of OB.

Although there is still considerable debate as to the relative importance of change, there appears to be general agreement that OB includes the core topics of motivation, leader behaviour, and power, interpersonal communication, group structure and processes, learning, attitude development, and perception, change processes, conflict, work design, and work stress.

### **Electronic health record:**

An electronic health record (EHR) is the systematized collection of patient and population electronically stored health information in a digital format. These records can be shared across different health care settings. Records are shared through network-connected, enterprise-wide information systems or other information networks and exchanges. EHRs may include a range of data, including demographics, medical history, medication and allergies, immunization status, laboratory test results, radiology images, vital signs, personal statistics like age and weight, and billing information.

For several decades, electronic health records (EHRs) have been touted as key to increasing of quality care. Today, providers are using data from patient records to improve quality outcomes through their care management programs. Combining multiple types of clinical data from the system's health records has helped clinicians identify and stratify chronically ill patients. EHR can improve quality care by using the data and analytics to prevent hospitalizations among high-risk patients.

### **Technical features:**

- Digital formatting enables information to be used and shared over secure networks
- Track care (e.g. prescriptions) and outcomes (e.g. blood pressure)
- Trigger warnings and reminders
- Send and receive orders, reports, and results
- Decrease billing processing time and create more accurate billing system
- Health Information Exchange.

### **Software quality and usability deficiencies:**

The Healthcare Information and Management Systems Society, a very large U.S. healthcare IT industry trade group, observed in 2009 that EHR adoption rates "have been slower than expected in the United States, especially in comparison to other industry sectors and other developed countries. A key reason, aside from initial costs and lost productivity during EMR implementation, is lack of efficiency and usability of EMRs currently available. The U.S. National Institute of Standards and Technology of the Department of Commerce studied usability in 2011 and lists a number of specific issues that have been reported by

health care workers [43] The U.S. military's EHR, AHLTA, was reported to have significant usability issues.[44] Furthermore, studies such as the one conducted in BMC Medical Informatics and Decision Making, also showed that although the implementation of electronic medical records systems has been a great assistance to general practitioners there is still much room for revision in the overall framework and the amount of training provided. It was observed that the efforts to improve EHR usability should be placed in the context of physician-patient communication

#### **Hardware and workflow considerations:**

When a health facility has documented their workflow and chosen their software solution, they must then consider the hardware and supporting device infrastructure for the end users. Staff and patients will need to engage with various devices throughout a patient's stay and charting workflow. Computers, laptops, all-in-one computers, tablets, mouse, keyboards and monitors are all hardware devices that may be utilized. Other considerations will include supporting work surfaces and equipment, wall desks or articulating arms for end users to work on. Another important factor is how all these devices will be physically secured and how they will be charged that staff can always utilize the devices for EHR charting when needed.

The success of eHealth interventions is largely dependent on the ability of the adopter to fully understand workflow and anticipate potential clinical processes prior to implementations. Failure to do so can create costly and time-consuming interruptions to service delivery

#### **Computer security:**

Computer security, cybersecurity or information technology security (IT security) is the protection of computer systems and networks from the theft of or damage to their hardware, software, or electronic data, as well as from the disruption or misdirection of the services they provide.

The field is becoming more significant due to the increased reliance on computer systems, the Internet and wireless network standards such as Bluetooth and Wi-Fi, and due to the growth of "smart" devices, including smartphones, televisions, and the various devices that constitute the "Internet of things". Owing to its complexity, both in terms of politics and technology, cybersecurity is also one of the major challenges in the contemporary world.

#### **Information security culture**

- **Pre-Evaluation:** to identify the awareness of information security within employees and to analyze the current security policy.
- **Strategic Planning:** to come up with a better awareness program, clear targets need to be set. Assembling a team of skilled professionals is helpful to achieve it.

- **Operative Planning:** a good security culture can be established based on internal communication, management-buy-in, and security awareness and a training program.
- **Implementation:** four stages should be used to implement the information security culture. They are:
  - Commitment of the management
  - Communication with organizational members
  - Courses for all organizational members
  - Commitment of the employees
- **Post-Evaluation:** to assess the success of the planning and implementation, and to identify unresolved areas of concern.

### **Systems at risk**

#### Financial systems

The computer systems of financial regulators and financial institutions like the U.S. Securities and Exchange Commission, SWIFT, investment banks, and commercial banks are prominent hacking targets for cybercriminals interested in manipulating markets and making illicit gains.[30] Web sites and apps that accept or store credit card numbers, brokerage accounts, and bank account information are also prominent hacking targets, because of the potential for immediate financial gain from transferring money, making purchases, or selling the information on the black market.[31] In-store payment systems and ATMs have also been tampered with in order to gather customer account data and PINs.

#### Utilities and industrial equipment

Computers control functions at many utilities, including coordination of telecommunications, the power grid, nuclear power plants, and valve opening and closing in water and gas networks. The Internet is a potential attack vector for such machines if connected, but the Stuxnet worm demonstrated that even equipment controlled by computers not connected to the Internet can be vulnerable. In 2014, the Computer Emergency Readiness Team, a division of the Department of Homeland Security, investigated 79 hacking incidents at energy companies. Vulnerabilities in smart meters (many of which use local radio or cellular communications) can cause problems with billing fraud.

#### **Impact of security breaches:**

Serious financial damage has been caused by security breaches, but because there is no standard model for estimating the cost of an incident, the only data available is that which is made public by the organizations involved. "Several computer security consulting firms produce estimates of total worldwide losses attributable to virus and worm attacks and to hostile digital acts in general. The 2003 loss estimates by these firms range from \$1.4 billion (worms and viruses only) to \$226 billion (for all forms of covert attacks). The



reliability of these estimates is often challenged; the underlying methodology is basically anecdotal." Security breaches continue to cost businesses billions of dollars but a survey revealed that 66% of security staffs do not believe senior leadership takes cyber precautions as a strategic priority.

However, reasonable estimates of the financial cost of security breaches can actually help organizations make rational investment decisions. According to the classic Gordon-Loeb Model analyzing the optimal investment level in information security, one can conclude that the amount a firm spends to protect information should generally be only a small fraction of the expected loss (i.e., the expected value of the loss resulting from a cyber/information security breach).

### **Security by design**

Some of the techniques in this approach include:

- The principle of least privilege, where each part of the system has only the privileges that are needed for its function. That way even if an attacker gains access to that part, they have only limited access to the whole system.
- Automated theorem proving to prove the correctness of crucial software subsystems.
- Code reviews and unit testing, approaches to make modules more secure where formal correctness proofs are not possible.
- Defense in depth, where the design is such that more than one subsystem needs to be violated to compromise the integrity of the system and the information it holds.
- Default secure settings, and design to "fail secure" rather than "fail insecure" (see fail-safe for the equivalent in safety engineering). Ideally, a secure system should require a deliberate, conscious, knowledgeable and free decision on the part of legitimate authorities in order to make it insecure.
- Audit trails tracking system activity, so that when a security breach occurs, the mechanism and extent of the breach can be determined. Storing audit trails remotely, where they can only be appended to, can keep intruders from covering their tracks.
- Full disclosure of all vulnerabilities, to ensure that the "window of vulnerability" is kept as short as possible when bugs are discovered.

### **Health information technology**

Health technology, particularly information technology, applied to health and health care. It supports health information management across computerized systems and the secure exchange of health information between consumers, providers, payers, and quality monitors. Based on an often-cited 2008 report on a small series of studies conducted at four sites that provide ambulatory care – three U.S. medical centers and one in the Netherlands – the use of electronic health records (EHRs) was viewed as the most promising tool for improving the overall quality, safety and efficiency of the health delivery system. According to a 2006

report by the Agency for Healthcare Research and Quality, in an ideal world, broad and consistent utilization of IIT would:

- Improve health care quality or effectiveness
- Increase health care productivity or efficiency
- Prevent medical errors and increase health care accuracy and procedural correctness
- Reduce health care costs
- Increase administrative efficiencies and healthcare work processes
- Decrease paperwork and unproductive or idle work time
- Extend real-time communications of health informatics among health care professionals
- Expand access to affordable care

#### **Personal health record:**

(PHR) is a health record where health data and other information related to the care of a patient is maintained by the patient. This stands in contrast to the more widely used electronic medical record, which is operated by institutions (such as hospitals) and contains data entered by clinicians (such as billing data) to support insurance claims. The intention of a PHR is to provide a complete and accurate summary of an individual's medical history which is accessible online. The health data on a PHR might include patient-reported outcome data, lab results, and data from devices such as wireless electronic weighing scales or (collected passively) from a smartphone.

#### **A patient tracking system:**





















A patient tracking system (also called patient identification system) allows a healthcare provider to log and monitor the progress of a person through the provision of care during their stay there. Such systems are part of an overall information system and may interact with the person's electronic health record, where information specific to the person is stored, the system used by radiology departments to track patients as well as the system storing medical images, the pathology laboratory information management system, as well as patient check-in and check-out systems.

Increasingly people as well as biopsies and associated equipment are tagged in various ways, for example with radio-frequency identification tags.

A given floor or ward may use a white board as its system to track the status of all the people being cared for, for example, in an obstetrics ward, each mother in labor is listed, along with her status and the time she was last checked.

**Certificate course on Hospital information system and MIC05**

**List of Students Enrolled July 2017 – September- 2017**

<b>2<sup>nd</sup> Year MBBS Student</b>			
<b>Sl. No</b>	<b>Name of the Student</b>	<b>Roll No</b>	<b>Signature</b>
1	AARTHA	U16MB251	
2	ABILASHAK	U16MB252	
3	ABITHA RAJLIN JS	U16MB253	
4	ADAPALA PRIYANKA	U16MB254	
5	ADHITHAYA RAJ.N	U16MB255	
6	AJAY.N	U16MB256	
7	AKSHYA.R	U16MB257	
8	ALLARI KARTHIK ABHIROOP	U16MB258	
9	AMAL ASILOK	U16MB259	
10	AMIRTHAVARSHNI .R	U16MB260	
11	ANANYA SHARMA	U16MB261	
12	ANGALAKUDURU DEEPCHAND	U16MB262	
13	ANJAN BANERJEE	U16MB263	
14	ANWESHA CHATTERJEE	U16MB264	
15	ARCHANA .A	U16MB265	
16	ARCHITHA.A	U16MB266	
17	ARIVUMATHI .R	U16MB267	
18	ARJUN.S	U16MB268	
19	ASHVANTH KUMAR .A	U16MB269	
20	ASMITHA S.V	U16MB270	

  
RESOURCE PERSON

  
COORDINATOR





**SRI LAKSHMI NARAYANA INSTITUTE OF HIGHER EDUCATION  
AND RESEARCH**

Annexure - III

LIGHT MICROSCOPE & ITS APPLICATIONS

MULTIPLE CHOICE QUESTIONS

Aranya . . . . .

Course Code: MIC05

1. ANSWER ALL THE QUESTIONS

1. What is Hospital information system

HIS is an element of health information system that focuses mainly on the administrative

2. What are the benefits of HIS

Improved organizational success  
Improved healthcare performance

3. What are the risk factors of HIS

The main external risk factors  
of HIS are . . . . .





**SRI LAKSHMI NARAYANA INSTITUTE OF HIGHER EDUCATION  
AND RESEARCH**

Annexure - III

LIGHT MICROSCOPE & ITS APPLICATIONS

Page No. 2/2

MULTIPLE CHOICE QUESTIONS

Course Code: MIC05

1. ANSWER ALL THE QUESTIONS

1. What is Hospital information system

It is the system of business Administration.

2. What are the benefits of HIS

- Improved quality of services.
- Improved financial management.

3. What are the risk factors of HIS

- Poor controlling system.
- System & network - software failure.









**Annexure IV**

**Student Feedback Form**

Course Name: **Hospital Information system**

Subject Code: **MIC05**

Name of Student: Aranya Choudhary Roll No: 216215211

We are constantly looking to improve our classes and deliver the best training to you. Your evaluations, comments and suggestions will help us to improve our performance

Sl. NO	Particulars	1	2	3	4	5
1	Objective of the course is clear			✓		
2	Course contents met with your expectations				✓	
3	Lecturer sequence was well planned				✓	
4	Lectures were clear and easy to understand				✓	
5	Teaching aids were effective			✓		
6	Instructors encourage interaction and were helpful				✓	
7	The level of the course				✓	
8	Overall rating of the course					

\* Rating: 5 - Outstanding; 4 - Excellent; 3 - Good; 2 - Satisfactory; 1 - Not-Satisfactory

Suggestions if any.

Date: 20/9/20

Signature [Signature]





# Sri Lakshmi Narayana Institute of Medical Sciences

Affiliated to the Government Institute of Higher Education & Research,  
Chennai-600 034, Tamil Nadu, India. Phone: 044-26321111, 26321112, 26321113



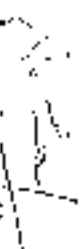
## CERTIFICATE OF MERIT

This is to certify that Arushi has


actively participated in the Value Added Course on Hospital information system – June

2017 to December 2017 Organized by Sri Lakshmi Narayana Institute of Medical Sciences,

Pondicherry- 605 502, India.

  
Dr. S. Jayapradha

RESOURCE PERSON

  
Dr. Kamatchi

COORDINATOR





# Sri Lakshmi Narayana Institute of Medical Sciences

Affiliated to Bharatiya Institute of Higher Education & Research

60-106, Vengal Rao Street, Anna Nagar, Chennai - 600 022.



## CERTIFICATE OF MERIT

This is to certify that Aravind Kumar has

actively participated in the Value Added Course on Hospital information system – June

2017 to December 2017 Organized by Sri Lakshmi Narayana Institute of Medical Sciences,

Pondicherry - 605 502, India.

  
Dr. S. Jayapradha

RESOURCE PERSON

  
Dr. Kamatchi

COORDINATOR





Date : 28.09.2017

From  
Dr.S.Jayapradha  
Department of Microbiology,  
Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry  
Bharath Institute of Higher Education and Research, Chennai.

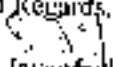
Through Proper Channel

To  
The Dean,  
Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry  
Bharath Institute of Higher Education and Research, Chennai.

**Sub: Completion of value-added course : Hospital information system**

Dear Sir,

With reference to the subject mentioned above, the department has conducted the value-added course titled Hospital information system for 20 students. We solicit your kind action to send certificates for the participants, that is attached with this letter. Also, I am attaching the photographs captured during the conduct of the course.

Kind Regards,  
  
Dr. S. Jayapradha

Encl: Certificates & photographs





