Supten Institute

Prospectus for Health Informatics Online Certificate Course

Course Creator, Content Developer and Coordinator
Prof. Suptendra Nath Sarbadhikari, MBBS, PhD
Founder and Director

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CONTENTS

About SUPTEN INSTITUTE

Vision: **Supten Institute** intends to become a Center of Excellence for empowering professionals to effectively use Information and Communications Technologies (ICT) applied to healthcare practice, education and research.

Mission: **Supten Institute** is committed to capacity building, for informed healthcare delivery in the 21st century, through the Internet, Social Networking sites and also face-to-face classes *i.e*., *Blended Learning*.

Values: **Supten Institute** shares the values of its founder whose commitment is to offer high quality education across time and space barriers to enable all human beings in asking for and delivering informed healthcare through informatics tools.

FACULTY

Prof. Suptendra Nath Sarbadhikari

MBBS, PhD, a physician and a biomedical engineer, has been a hardcore academician since the last 16 years and is regarded as a pioneer in spreading awareness of health informatics in India.

He is the Founder and Director of Supten Institute. He has been the Founding Director of CAL2CAL Institute and the Founding Professor and Head of the Department of Health Informatics at Bangladesh Institute of Health Sciences, Dhaka, Bangladesh. With his past faculty positions with the IIT (Kharagpur), the Manipal, Amrita and PSG groups, and post-doctoral positions in the Indian Statistical Institute, Kolkata, he has had a wide and varied experience in both healthcare and technology academia.

He is a Fellow and Faculty of the PSG-FAIMER South Asia Regional Institute – an Educational Leadership development program for South Asia, in collaboration with the FAIMER (Foundation for Advancement of Medical Education and Research) Institute, Philadelphia,

He is the Chairman [2011-2013] and also the Chair, Education Committee [2009-2013] for Health Level Seven (HL7) India.

He has been the Course Coordinator and Co-Developer for the first ever Masters Degree on Medical Informatics from an Indian University at Amrita University, where he was also the Course Coordinator for M.Tech in Biomedical Engineering program.

He has been the Editor-in-Chief of the Indian Journal of Medical Informatics [2007-2010], the first Editor of the ACM SIGHIT Record [2011] and Editorial Board member of Mental Health and Physical Activity (Elsevier) [2008-2010]. Currently he is an Associate Editor for International Journal of User Driven Health (IGI Publishers) and Network Modeling and Analysis in Health Informatics and Bioinformatics – NetMAHIB (Springer) [2011-2014].

He has written a book “A Short Introduction to Biomedical Engineering” (Universities Press / CRC Press) and has edited another book “Depression and Dementia: Progress in Brain Research, Clinical Applications and Future Trends” (Nova, USA).

He has numerous publications and awards for medical informatics and education. He has been selected as one of the fifty best teachers in the country by the Department of Atomic Energy, as part of their Golden Jubilee Celebrations in July-August 2004. He has been awarded the prestigious *“SSLS Memorial Award 2000-2001” from the National Academy of Medical Sciences* (India), for research in Biomedical Engineering.

He is a member of the Expert Committee on Standards for Electronic Medical Records, Working Groups on Indian Health Information Network Development (i-HIND) and Health Literacy and Portal, of the Ministry of Health and Family Welfare, Government of India. Globally he is an emissary of health informatics standards in the form of being an HL7 Ambassador – a select representative of the global standards HL7 for healthcare information exchange.

Course Details

Career gains

Participants successfully completing the course are likely to be involved in the identification, planning, implementation and use of computer-based information systems in all areas of the healthcare industry, including hospitals and health directorates. The ones from a technology background may envision the potential benefits of using computers and work at the interface of technology and society in the area of healthcare delivery.

Introduction

Health informatics is an inter-disciplinary, multi-dimensional field focusing on the collection, storage, retrieval, management, and optimal use of health related data, information and knowledge. It is a socio-technical field that emphasizes an understanding of both the organizational and cultural environment of health services and computing and information systems tools and processes.

Basic Concepts

Health information management is becoming increasingly important to effective and efficient health care. The informatics tools, commonly known as Information and Communications Technologies (ICT) tools applied to healthcare delivery, used judiciously can help us to deliver more effective, more efficient and more patient-oriented health care. However, improperly used they waste time and money, create inefficiencies, and dehumanize our interactions with each other. Healthcare delivery personnel who understand and are able to utilize health informatics tools and applications will be more empowered to deliver better healthcare.

Health informatics is an emerging discipline and profession in its own right, with emerging career opportunities. For technocrats involved with healthcare delivery, there is a need for interactions with a wide range of people, including consumers, health professionals, administrators and vendors, in many instances playing a pivotal role as information systems are developed, implemented and maintained. The health informatics professional therefore needs broad skills and knowledge which incorporates principles and applications of information management, and an understanding of organizational culture, change management and innovation diffusion. This program intends to offer students the opportunity to develop the necessary skills and knowledge.

Further advanced training will allow students to specialize in a particular area of health informatics, like bioinformatics, public health informatics, and clinical informatics. This course is designed using flexible delivery mode. This allows self directed learning, with the majority of the course being completed by students working from home, or at their workplaces. All the study materials are accessed through a personal computer. A range of media is used including the Internet and email, to contact with academic staff.

We are for helping you for anything that you would need. You can talk with the others in your mentor group at any time. But remember:

You must never discuss your Tutor-Marked Assignment with anyone else until all of you have submitted it.

Enjoy this course and Good luck to all of you!

Goal

This course is intended to introduce the basics of healthcare informatics. At the end of completion of this course, the students will be skilled in the learning objectives listed below.

Learning Objectives

1. Know about basic health informatics including electronic health / medical records (EHR/EMR), telehealth (e-health and telemedicine), medical imaging, evidence-based medicine (EBM), and healthcare interoperability standards.
2. Be aware of the role of hardware, software and networks used in healthcare.
3. Demonstrate skills in querying medical databases (including literature) relevant to clinical management and medical research.
4. Understand basic skills required to develop databases relevant to healthcare.
5. Understand the use of a hospital information system (identify the data requirements enough for a requirement analysis).

Structure of the Course

Schedule / Study plan: MODULES and Objectives:

1. Introduction and overview
   This unit will address the basic concepts of health informatics. You will learn about various topics and their relevance. The topics presented here form the basis for much of the subsequent course and further detail on some of those will be provided in later modules.
2. Computer hardware and software basics
   This unit will cover the basic concepts of computer hardware, software and networks.
3. Net searching tips
   This unit will provide some tips for making effective search on the Internet (Google, PubMed).
4. Databases and Knowledge management
   This unit will introduce the basic concepts of databases, nomenclature, vocabulary, terminology and evidence-based medicine (EBM).
5. Standards for health informatics
   This unit will cover the basic concepts of types and need for standards in healthcare information exchange like LOINC, SNOMED-CT, ICD-9/10.
6. Electronic Health Records, HL7 and XML
   This unit will introduce the basic concepts of electronic health records (EHR) and EMR, a standard HL7, issues of concern, and the importance of XML in transmitting and receiving useful medical records.
7. Integrated HIS including Clinical Decision Support Systems

This unit will stress on the necessity of Integration of health information technology with clinical knowledge management and decision support.

8. Imaging and DICOM
   This unit will cover the basic concepts of medical imaging, including PACS, and a related standard DICOM.
9. Requirements management
   This unit will address the concept of "requirements management" with respect to design, development, implementation; testing and deployment of integrated HIS.
10. Telehealth principles and practice
    This unit will introduce the basic concepts of e-health and telemedicine.

The 10 modules of this course will be conducted over a 12 week (3-months) period. The student should plan for an estimated average of 4-5 hours of course work per week, taking into account the topics of study and background of students.

The dates specified in the Schedule (available at the beginning of the course) for submitting the completed assignments will be followed strictly. The Course-Completion Certificate will not be awarded if all the completed assignments are not submitted by the stipulated dates.

Methodology (Study Guide)

Hardware and Software requirements

To access the course materials students need a personal computer (PC) or Laptop, running MS Windows or Linux, MS Office or Open Office and a web browser. Students also require Internet access via an Internet Service Provider (ISP) of their choice. Minimum hardware requirements are: 133 megahertz or higher Pentium or equivalent, 20 gigabytes or higher hard disk, minimum 32 megabytes of RAM, monitor – 800 × 600 at 65,000 or more colors, 28.8k modem or better, sound card and CD / DVD read/write facility.

Eligibility

The Course is directed at anyone (either from healthcare or technology background) associated with and/or interested in healthcare delivery. As this is a virtual course students need to know how to navigate through a web site in order to access and download the course resources and upload the assignments and participate in the discussion forums.
This course also requires fluency in reading/writing in English language.

Resources

The resources include:

- Study guide facilitating the student learning process
- Reading materials developed by faculty
- Application Activities using course acquired knowledge

• Links to other interesting sites or reading material

The activities will promote the exchange and use of knowledge and experiences of students as well as facilitate the implementation of new apprenticeships to professional practice. The activities will include:

• Mandatory weekly assignments: activity required for approval of course completion. All Assignments are mandatory and will have to be completed and uploaded at the website or mailed directly to supten.institute@gmail.com before the deadline specified by the tutor

Introduction with faculty and each other

At the beginning we hope you to meet your teachers and fellow course in the virtual environment and complete your personal profile in the designated website.

To assemble a learning group, we are interested in your profession, your specialty, the enrollment course motivation, how is your family and, why not, what are your hobbies.

Communications

The Supten Institute e-learning portal http://Supten-Institute.org/ will be the designated place of communication allowing interaction between those taking the course and the faculty. Subscription is compulsory.

Discussions are strongly encouraged through the Institute Wiki: http://supten-institute.wikispaces.com/ and also through the FaceBook Group: https://www.facebook.com/groups/150222388399540/

Assessment

Assessment consists of assignments. Students are required to upload at the site or mail it directly to supten.institute@gmail.com and discuss their assessment items with the subject tutor via email. There is no on-campus requirement.

References:

1. **Sarbadhikari SN**, How to Make Healthcare Delivery in India More "Informed", *Education for Health*, Volume 23, Issue 2, August 2010
2. **Sarbadhikari SN**, Unlearning and relearning in online health education, (Chapter 21) In, Biswas R, and Martin C M, Ed, User Driven Healthcare and Narrative Medicine, IGI Global, Hershey, USA, 2011: 294 – 309.
3. **Sarbadhikari SN** and Gogia SB, An Overview of Education and Training of Medical Informatics in India, IMIA Yearbook of Medical Informatics, 2010: 106-108.
4. **Sarbadhikari SN**, Applying health care informatics to improve student learning, **Really Good Stuff**, *Medical Education*, 2008; **42**: 1117–1118.

5. **Sarbadhikari SN**, How to design an effective e-learning course for medical education, *Indian Journal of Medical Informatics*. 2008; 3(1): 3: http://ijmi.org/index.php/ijmi/article/view/y08i1a3/15 [Subsequently converted into a lecture and posted at ***Supercourse***: http://www.pitt.edu/~super1/lecture/lec35331/001.htm]
6. **Sarbadhikari SN**, A Step-by-step Primer for using the Internet for Medical Education, South East Asian Journal of Medical Education, 2007, **1:** 49 – 51.
7. **Sarbadhikari SN**, The State of Medical Informatics in India: A Roadmap for optimal organization, *J. Medical Systems*, 2005, **29:** 125-141.
8. **Sarbadhikari SN**, Basic Medical Education must include Medical Informatics, *Indian J Physiol. Pharamcol.*, 2004, **48(4):** 395-408.
9. **Sarbadhikari SN**, Guest Editorial on "Health Care Delivery — The Roads Not Taken!", *J .Indian Med. Assoc.* , 1995, **93:** 329 – 330 .
10. **Sarbadhikari SN**, Guest Editorial on "Medical Informatics — Are the Doctors Ready?", *J.Indian Med. Assoc.* , 1995, **93**: 165 – 166.

Recommended Books:-

1. Sarbadhikari SN, A Short Introduction to Biomedical Engineering, Universities Press India Ltd., Hyderabad, 2006.
2. Babu AN, Ed, Clinical Research Methodology and Evidence-based Medicine: The Basics, BI Publishers, New Delhi, 2008
3. Shortliffe EH, *et al.*, Biomedical Informatics: Computer Applications in Health Care and Biomedicine, Springer Verlag; 3rd ed, 2006
4. Lele RD, Computers in Medicine: Progress in Medical Informatics, Tata McGraw Hill, 2005
5. Blobel B, Pharow P, Eds, Advanced Health Telematics and Telemedicine: The Magdeburg Expert Summit Textbook, IOS Press, 2003
6. Coiera E. The Guide to Health Informatics (2nd Edition). Arnold, London, October 2003
7. Frank Sullivan and Jeremy Wyatt. ABC of Health Informatics Blackwell BMJ Books, 2006
8. Paul Taylor, From Patient Data to Medical Knowledge - The Principles and Practice of Health Informatics, Blackwell Scientific, 2006
9. Mervat Abdelhak; Sara Grostick; Mary Alice Hanken, Health information: management of a strategic resource, 4th Ed, 2012, St. Louis, MO : Elsevier Saunders
10. Hsinchun Chen; et al, Medical informatics : knowledge management and data mining in biomedicine, 2005 Springer, NY

Supplementary Online Resources:

1. http://www.dbmi.columbia.edu/~hripcsa/textbook/
2. http://john-norris.net/2008/07/25/what-is-a-medical-informaticist/
3. http://ocw.mit.edu/OcwWeb/Health-Sciences-and-Technology/HST-950JMedical-ComputingSpring2003/CourseHome/index.htm
4. http://gunston.gmu.edu/healthscience/OnlineCoursesFocussedOnInformaticsAndElectronicHealthRecords.htm

5. http://www.openclinical.org/healthinformatics.html
6. Glossary: http://en.wikipedia.org/wiki/Computer_terms

Certification

The approval of this course is a requirement for the certification; however, students can attend it regardless of course completion certification.
If students want to receive an Official Course Completion Certificate, they must satisfactorily complete all mandatory assignments in the specified timeframe. Supten Institute, India will issue the Certificate.
This course is estimated to take about 50 hours to complete.
For further information or inquiries please contact the course coordinator at supten.institute@gmail.com.

Course Dates

Dates for the Batch commencing in June 2012: June 06 – August 29, 2012

Course Fees:

The Course Fees (one time – all inclusive) are **`10,000/= (Rupees ten thousand only)** or **US$ 300/= (Three hundred US Dollars).**

How to Apply:

Application Form is annexed in the next page. Please send the completed Application Form along with the Crossed Demand Draft to: **Dr. S N Sarbadhikari, Supten Institute, T-12 Jains West Hills, Sowripalayam Road, Udayampalayam, Coimbatore 641 028. Phone: (+91) 91590 32857. Also, email a scanned copy of the filled up Application Form to supten.institute@gmail.com for enrollment. The last date for application is May 31, 2012 for the batch commencing from March 07, 2012.**

Supten Institute

T-12, Jains West Hills, Sowripalayam Road, Udayampalayam
Coimbatore 641 028, Tamil Nadu, India

Health Informatics Online Certificate Course

Application Form

Name:

Educational Background:

Corresponding Address:

Phone: Fixed: **Mobile:**

Email:

Reasons for applying to this Course:

Expectations from this Course:

Donation Details:
Crossed Demand Draft drawn in favor of **"Supten Institute Foundation",** payable at **Coimbatore,** worth **Rs. 10,000/= (Rupees ten thousand only)** or **US$ 300.00**

DD number: **Bank & branch:** **Date:**

SIGNATURE (with Place and Date):

The User id and the password will be sent to the applicant by email only, after realization of the donation.

All disputes regarding this course are subject to the jurisdiction of Coimbatore.
Please send the completed Application Form along with the Crossed Demand Draft to: **Dr. S N Sarbadhikari, Supten Institute, T-12 Jains West Hills, Sowripalayam Road, Udayampalayam, Coimbatore 641 028. Phone: (+91) 91590 32857. Also, email a scanned copy of the filled up Application Form to supten.institute@gmail.com for enrollment.**