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## A complete report of information technology training for Ayush professionals

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### Abstract

A four weeks Information Technology (IT) training program for AYUSH (Ayurveda, Yoga, Unani, Siddha & Homeopathy) professional was successfully completed at Centre for development of Advanced Computing (CDAC) Innovation Park, Panchavati, Pune, Maharashtra. The program began on 1st July 2019 and continued till 28th July 2019 (total 192 hours in 4 weeks) in collaboration with Ministry of AYUSH, Government of India and C - DAC Pune. This training aimed for capacity building of AYUSH scholars regarding use of IT related tools in various activities of AYUSH. The training was imparted by many renowned national level faculties. The training basically focused on use of computer, networking, software, information technology, health informatics, soft skills, team building and capacity building. It was attended by 40 participants from various institutes and centres of Ayurveda, Unani, Siddha and Homeopathy. Among the participants, there were researchers, medical officers, teachers and scholars from different institution and organizations across India.

**Keywords:** Information technology, ayush (ayurveda, yoga, unani, siddha, homoeopathy), training

### Introduction

The Information Technology training was divided in three sessions: first was “an inaugural session” and introductory lectures, second session was “main proceedings”, detail module lectures on different topics, hands on practice, project work, and third session was a “conclusive” - assessment, participants project presentations, valedictory ceremony etc.,

### First session

On the 1st day, the training program started with an inaugural session. The dignitaries were Mr. Karimullah Shaik (Associate Director, AAI group CDAC Pune), Ms Lakshmi Pannat (joint Director AAI group CDAC and course coordinator), Dr G.P. Prasad Assistant Director (Ay), Incharge CCRAS RAIFR, Pune), Dr. T. Saketh Ram (AYUSH coordinator, Research officer at NIIMH Hyderabad), Dr. Ganesh Karajkhede (Domain expert, course coordinator, CDAC Pune). The welcome address and program briefing was done by members. Training program started with participant introduction, expectation, requirement and suggestion. Basic introduction was given on Ayurveda<sup>[1]</sup>, Unani, Siddha, Homeopathy), Ministry of AYUSH<sup>[2-4]</sup>, governing bodies, centre of excellence, health related available software, Information and Communication Technology (ICT)<sup>[5]</sup>. Etc. Participants are Dr. Loknath Behera, Dr. Praveen Balakrishnan, Dr. Shyam B singh, Dr. Vikas Nariyal, Dr. Parvathy G Nair, Dr. Kishor A Gavali, Dr. Rasika Kolhe, Dr. Mohd. Nawab, Dr. Usama Akram, Dr. M. Ramesh, Dr. P. Hima Bindu, Dr. Partha Pratim Pal, Dr. Goli Shiva Prasad, Dr. M. Kannan, Dr. M.S. Shree Devi, Dr. G.S. Lekha, Dr. Mahendra Prasad, Dr. Vaibhav Bapat, Dr. Swapnil Yashwant, Dr. Abdul Azeez, Dr. S.Elansakaran, Dr. Sachin S kulkarni, Dr. Shiba Datta Panda, Dr. Kaveri Hulyakar, Dr. Harish Daga, Dr. Koshti Amol Ramesh, Dr. Praveen kumar KS, Dr. Siddhesh D Waje, Dr. Rajkumar Chinthala, Dr. Sandeep D Kale, Dr. Dnyaneshwar Meshram, Dr. Ketki S Wagh, Dr. Syed Abid Ur Rahman, Dr. P. Satish kumar, Dr. M. Kannan, Dr. Sneha Chandrashekhar Suryavanshi, Dr. T.S. Asta Eshwaran, Dr. Puja Nayneshbhai Bhatt, Dr. Sinnarkar Vineet Vivek, Dr. Siva Rami Reddy E.

### Second session (from 1<sup>st</sup> week to last week)

The basic concept of the computer fundamentals software, websites, google, browser, server data, data base were clarified by the teachers of CDAC.

**Introduction to healthcare informatics and information technology (04 hours):** The information technology have a broad scope in up gradation of academic, hospital and research sector of AYUSH. The basic aspects of health informatics, & ICT, information communication technology (ICT)–past, present, future, role of information communication technology in AYUSH informatics were discussed.

#### **Emerging information technology areas in AYUSH informatics (48 hours)**

- This topic included–introduction to technologies useful in AYUSH informatics like cloud computing, big data, applied artificial intelligence with applications, signal processing, natural language processing.
- Introduction to technologies useful in AYUSH informatics like image processing, wearable gadgets, internet of things (IOT), GID, GPS, interactive voice response system (IVRS), telemedicine, supercomputing, 3D printing, drone technology, chatbots, AR-VR, Photoshop, camtasia.
- Introduction to bioinformatics like genes sequencing and sequence searching, gene expression profiling, acquisition of 3D structures, structures types and databases, biology and computation, chemical database, chem. Informatics.
- Introduction to health informatics, electronic health records, HER standards for India 2016 and NDHB, Standard Nomenclature in Medicine Clinical Terms, telemedicine [6-8].

#### **Introduction to information and communication technologies (140 Hours)**

- **Computer fundamentals:** Introduction to computer fundamentals, hardware and software, object oriented programming concepts.
- **Web programming concepts:** Architecture of web, HTML, programming, DHTML, CSS, java script, introduction to internet/ website.
- **Data base concepts:** Principles of data base management, need of RDBMS, MS access data base, post Gre SQL database.
- **Mobile technology concepts:** Introduction to mobile

computing, creating first android applications. Layouts, views, activities, introduction to health applications.

- **Software engineering and project management concepts:** Phases in software development software life cycle including system requirement specifications, design, implementation, testing, deployment, maintenance and support, agile model.
- Introduction to coding standards, testing strategies and tactics, writing test cases, configuration management, software version control system, software quality assurance, project management.
- **Introduction of conceptualization of projects:** project conceptualization steps with case study, proposals writings tips, liaisoning with software development and interdisciplinary teams.
- **Health software demonstrations:** MoSqulT, Ayusoft, I Care @ Home, m Dots Plus – C –DAC, nadi taringini, vaidya manager, ohum Doc Demo, ERP system developed by DY Patil homoeopathic medical college.

#### **AYUSH probing and helping tools**

- This topic included the current status of AYUSH system, lacunae, unawareness and various information technology helping tools currently available. The online e – books, e – literature, e-education survey methods, social media and discussion forums (face book and research gate etc.) are helpful in improving AYUSH status.
- Soft skills–principals of management, employee engagement etc.,
- The hands on practice carried out on MS word, MS power point, MS access etc.,

#### **Project assignment**

- During the training, several projects were assigned to the team of four to seven participants. This was a practice work for the participant to develop systemic thinking, understand the minute problems in designing of software, writing of software requirement specification, design extramural research project and use of computer and information technology in various web or android based application.



**Fig 1:** Participants with CDAC faculty

#### **Site visitation**

During the training, the visitation lab was planned to encourage and perceive the real working environment of

renowned lab like Param computer lab, Sangam lab of CDAC Pune [9].

**Final session**

The final attraction of training projects presentation by the participant in front of AYUSH team, content development and modification in training module, participant's experiences, views, valedictory session, certificate distribution and vote of thanks ceremony. The event chaired by Dr. Hemant Darbari, Director General of CDAC Pune, Dr. Ajay Kumar (Assistant Director, HOD AAI group), Col. Asheet Nath (Executive director CDAC Pune). The workshop ended with the vote of thanks by course coordinator Ms Lakshmi Panat. In the last session, the discussion followed by the valedictory ceremony. Director CDAC chaired the session in which he guided and stimulated the audience about the need of IT in AYUSH with its current application status. In the four week of training, CDAC solved various issues related to training, practical discussion and on spot visitation to see various module of CDAC as per request and interest of participants.

**Historical endorsement and AYUSH perspective**

An initiative to improve the quality of AYUSH is taken up through this good training program. The prepared training module with some modification not only benefitted for participants and AYUSH professionals but it also provided the same value to guide and experts of IT domain to handle the upcoming batch. Definitely, this training fulfilled its objectives. The trained stakeholder are now likely to practice IT tools properly and hence may contribute to build a IT based push for the advancement of AYUSH.

**Execution of program in AYUSH sector**

This training basically was helpful in academic, clinical and research aspect of AYUSH. In traditional systems the IT tools may come as assisting tools to help reaching the desired goals in various fields. Various components of the training like e-library system, smart classes, projector-audio-video tools, importance of use of Mendeley like software to arrange their articles-references, research article design, online publication, research gate, social media discussion forum, massive open online Courses (MOOC), different search engine, important available software for AYUSH professional have a direct implication in AYUSH. Tools like hospital management information system, e-hospital, online registration of patient, electronic health record, electronic medical record, data safety-security-accessibility are of immense use in AYUSH also.

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