

Professional Issues in IT

Profession and Professional Bodies in Computing



What is the profession?

- A Paid Occupation, especially one that involves prolonged training and a formal qualification.
- Set of people, institutions, and practices to address people's concerns in a domain
- Client Expects Professionals to be
 - Ethical
 - Responsible
 - Competent
- Consequently, the profession includes
 - Institutions that declare and enforce standards of conduct
 - Institutions that train and certify the competence

Occupations

- Medieval and early modern tradition recognized only three professions: divinity, medicine, and law – the so called “learned professions”
- Major Milestones which may mark an occupation being identified as a profession include:
 - An occupation becomes a full-time occupation
 - The establishment of a training school
 - The establishment of a university school
 - The establishment of a local association
 - The establishment of a national association
 - The introduction of codes of professional ethics
 - The establishment of state licensing laws

Practices

- Practices are Habits, Routines, Processes, and Skills performed by individuals and groups mostly from experience and with little thoughts
- Practices are embodied or ready to hand knowledge
- Practices are learned by doing or involvement
- Mental knowledge and practices are different forms of knowledge; the one does not imply the other

Practices-Profession Relationship

- It is impossible to discuss the profession without discussing practices
- Practices are not just personal actions (It exist in community of people)
 - Communities train, certify, and maintain competence in professionals
- Professional competence of a person is judged by the way s/he works without her/his supervisor
- Practicing Ethical behavior reflects
 - Right and Wrong
 - Integrity
 - Honesty

Computer Science/IT Professional

- A computer professional maybe:
 - A person working in the field of information technology.
 - A person who has undergone training in a computer-related fields from colleges, universities, and computer institutes.
 - A person who has proven extensive knowledge in one or more areas of computing.
- People who understand the Psyche of Computers
- People who can meet the User Expectations
 - Design, locate, retrieve, use, configure, program, maintain, and understand the computers, networks, applications, and objects.

Computer Science/IT Professionals

- Traditional Branches of Computing and IT
 - Computer Science
 - Information Systems
 - Information Science
 - Software Engineering
 - Software Architecture
 - Humane-computer Interface Design
 - Computational Science
 - Computational Statistics
 - Numerical Modeling
 - Library Sciences
 - System Engineering and many more

Roots of Computer Science

- **Science** (dating back to Galileo, reflect ancient interests in discovering the laws of nature and verifying them through calculations in many fields including astronomy, physics, and chemistry)
- **Engineering** (dating back to michalangelo, reflect interests to harness the laws of nature through construction of artifacts and systems; given rise to electrical and electronics industry)
- **Mathematics** (Alkhwarzimi, Pascal 16xx, Gauss 17xx, Hilbert 18xx, Godel and Turing 19xx)

Disappearing Dichotomies

- Computer Science vs. Traditional Branches of CS
- Research vs. Application
- Researcher vs. Practitioner
- Education vs. Training

Professional Requirements

- Simply put

The skills and qualification desired to fulfill the job requirements

Professional Associations

- A Professional Association (also called a professional body, professional organization, or professional society) is usually a nonprofit organization seeking to further a particular profession, the interests of individuals engaged in that profession and the public interest.

Professional Associations

- A few notable Professional Associations are:
 - Association of Computing Machinery (ACM)
 - Association of Information Technology Professionals (AITP)
 - Information Systems Audit and Control Association (ISACA)
 - Institute of Electrical and Electronics Engineers (IEEE)
 - Institute of Engineering and Technology (IET)
 - International Federation for Information Processing (IFIP)
 - International Federation of Robotics (IFR)

Regulations

- Originally, any regulation of the profession was self-regulation through bodies
- With growing role of government, statutory bodies have increasingly taken on this role, their members being appointed either by profession or (increasingly) by governments
- Proposals for the introduction or enhancement of statutory regulation maybe welcomed by a profession as protecting clients and enhancing its quality and reputation, or as restricting access to profession and hence enabling high fees to be charged
- It maybe resisted as limiting the members' freedom to innovate or to practice as in their professional judgment they consider best

Pakistan Engineering Council

- It is the professional and statutory federal institution for accreditation and regulation of engineers.
- PEC is dedicated to promote engineering education in Pakistan
- PEC grants license and issues registration of engineers, consulting engineers and constructors/operators.
- It is also discharged with the accreditation of engineering programs throughout the country.

PEC accredited Software Engineering Programs in Pakistan

- Accredited 12 Software Engineering Programs
- From 2002 to 2014 Batches
- The Universities include
 - Bahria University
 - NUST-SEECS, MCS
 - Fatima Jinnah Women University
 - Foundation University
 - UET Taxila, Peshawar
 - Ghulam Ishaq Khan Institute
 - University of Science and Technology, Bannu
 - Mehran UET, Jamshoro
 - Balochistan University of IT, Eng. and Mgt. Sciences

Higher Education Commission of Pakistan

- Promotes higher education
- Enables research ecosystem
- Regulates the academic programs
- Initiates capacity building and professional development programs
- Accredits the graduates
- Aligns local and international degree programs

National Computing Education Accreditation Council (NCEAC)

- Higher Education Commission has setup an accreditation authority, National Computing Education Accreditation Council (NCEAC).
- NCEAC looks after the matter regarding the accreditation of institutions and their departments, faculties and disciplines by giving them appropriate ratings and define the organization's objectives, functions and duties to be performed.
- It periodically evaluates, scrutinizes and monitors the standards followed in different Universities, Degree Awarding Institutions and their affiliated colleges offering computing degree programs.
- Ratings (W [Highest], X [Intermediate], Y [Lowest])

NCEAC Accreditation of Programs

1. The Council will publish a roster of Accredited Programs as prescribed.
2. The Recognized Computing Qualifications granted by institutions recognized by the respective authorized bodies outside Pakistan shall also be recognized by the Council as per need in case of Pakistani graduates of Computing program.
3. Every institution in Pakistan which has an Accredited Program shall furnish such information as the Council may, from time to time, require as to the courses of study and examination to be undergone in order to obtain such Recognized Computing Qualification.
4. The Council shall appoint such number of Program Evaluators as it may deem requisite to attend at any or all of the examinations held by the institutions in Pakistan for the purpose of granting Recognized Computing Qualifications which are Accredited or in respect of which Accreditation has been sought.

NCEAC Accreditation Process

1. NCEAC will constitute AIC (Accreditation Inspection Committee)
2. Chair person will head AIC or member nominated by chair person
3. The inspection process shall be carried on in a manner to evaluate programs preferably alternatively one from public sector and one from private sector.

Zero Visit

Zero Visit for Institutes, those launch new computing program.

Interim Visit

Interim Visit for those batches, which are yet to be accredited. The Interim visit will be conducted during the Second/Third year of the program.

Accreditation Visit

Accreditation Visit will be conducted in the final year of those batches, which are going to be graduated.

National Technology Council

It is a proposed council similar to Pakistan Engineering Council. Earlier, the National Assembly Standing Committee on Science and Technology had signaled to establish a separate National Technology Council (NTC) for regulation of B.Sc. Engineering Technology graduates, BS-IT, agriculture technology etc. and also to safeguard their interests and rights. It is to be mentioned here that the B.Sc. Engineering technology graduates and other technologies have been deprived of access to higher studies, job opportunities in public departments, and promotions due to undefined status of their degree and it was their longstanding demand to establish NTC.

This council will control, registers and promote, B. Tech Engineers, Engineering Technologists, Graduates across the country and also promote the revolution of engineering technology in Pakistan.

<http://www.ntc-hec.org.pk/>

Information Technology Boards

- National Information Technology Board (NITB)
- Punjab Information Technology Board (PITB)
- Khyber Pakhtunkhwa Information Technology Board (KPITB)
- Information Technology Department (Sindh Government)

Intellectual Property Organization of Pakistan (IPO-Pakistan)

- Established as an autonomous body on April 8, 2005
- The major functions of the Organization
 - Include administer and coordinate all Government systems for protection and strengthening of Intellectual Property (IP)
 - Manage all IP offices in the country
 - Create awareness about IP Rights
 - Advise Federal Government on IP Policy
 - Ensure effective enforcement of IP rights through designated IPR Enforcement Agencies (Police, FIA, and Pakistan Customs)

Pakistan Software House Association (P@SHA)

- Promoting, Protecting, and developing software industry in Pakistan
- Objectives :
- Provide a platform for member software and service companies to share technical and management related experience
- Promote, protect and develop the software and services industry in Pakistan
- Provide a forum for formulation of standards for the software and services industry in Pakistan
- Provide a focal point for outside agencies such as end-user organizations and foreign trade/donor agencies etc, to contact for queries related to accredited software and service companies and the general state of affairs of information and communication technology in Pakistan
- Solicit support such as subsidized communication facilities and relaxation of government policies

Pakistan Software House Association (P@SHA) (Continued...)

- Devise ways and means for tackling and solving the problems & difficulties confronting the members & allied industries/ trades
- Collect, tabulate and circulate statistics & other information relating to or of interest to the business of its members &/or the industry in general
- Publish, or cause to be published, or encourage and support publication, bulletins or any other information useful or beneficial to the member companies and the industry in general
- Initiate, protect, promote and support legitimate interest of the members, including those necessary for and in the interest of Pakistan and to take steps to secure public support against measures affecting the software and services industry
- Make representations to and communicate with federal, provincial governments, local or other authorities both government & private on any matter affecting the business of its members or of its trade
- Secure, organize and coordinate action on all matters pertaining to or affecting the interests of its members
- Endeavor to settle, adjust and resolve controversies between members and to arbitrate in matters of differences or disputes arising between members
- Frame, vary, modify and/or amend, from time to time, the arbitration rules of the association

Pakistan Software House Association (P@SHA) (Continued...)

- Undertake special investigative study, research and enquiries
- Hold in trust, in safe custody or otherwise except for the purpose of trading any material or amount desired to be so held by the government or members of the association
- Advise and assist the government in the formulation of useful and progressive policies and to cooperate with them in their successful implementation
- Take effective measures to eradicate unethical practices in the field of trade, commerce and industry
- Subscribe to and become a member of the federation of Pakistan chambers of commerce and industry and to cooperate with and/or to procure from and communicate with any incorporated organization of trade, commerce and industry such information as may be likely to further the aims and objects of the association
- Frame and assist in the framing of rules of practice for facilitating and simplifying the business of its members

Pakistan Software House Association (P@SHA) (Continued...)

- Maintain and manage any training facilities which may be set up by the association with or without the assistance of the government
- Encourage friendly feelings, close cooperation and unanimity among the members of the association on all matters connected with their common goals and objectives
- Only in connection with the activities & operations of the association, to purchase, take on lease or in exchange or otherwise acquire or deal in and to construct, maintain, develop or control lands, buildings, or any kind of movable or immovable property or any rights or privileges connected with such property or properties
- Sell, improve, manage, develop, exchange, lease, mortgage, dispose of, turn to account or otherwise deal in all or any part of the property of the association
- Invest and deal with the money of the association not immediately required in such manner as may, from time to time, be determined
- Generally to do all that may be conducive or necessary to achieve and attain all or any of the aims and objects of the association directly and indirectly

Pakistan Software Testing Board (PSTB)

- Provides various certifications for software testing
- Runs National Level Conferences on Software Quality and Testing
- Accredits trainers in the field of software testing
- Creates awareness about the importance of software testing in industry and academia
- Provides high quality training for software testing professionals
- Enables Industry – academia linkage
- Helps local industry in production of high quality software

Pakistan Information Security Association (PISA)

- Run by non-government organization (Ultraspectra)
- Presents a series of international conferences and awareness seminars on the topics of cybersecurity
- PISA Chapters include
 - Islamabad Chapter
 - Karachi Chapter
 - Lahore Chapter
 - KPK Chapter
 - University Chapters
- Membership
 - Students (Rs. 500)
 - Professionals (Rs. 1,000)
 - Corporate (Rs. 10,000)

STEP

- Special Talent Exchange Program (Designed for People with Disability)
- Trains People
- Provides Job Opportunities
- Runs Leadership conference
- Networks (Baluchistan, Islamabad, Kashmir, Khyber Pakhtunkhwa, Punjab, Sindh)
- Partners with 28 International government, non-government, and commercial organizations

<http://www.step.org.pk>