

Information Systems

Professional Standards of a Bachelor

1. General characteristics of information systems graduates

Computer-based information systems have become a critical part of the products, services, and management of organizations. The effective and efficient use of information technology is an important element in achieving competitive advantage for business organizations and excellence in service for government and non-profit organizations. The information technology/information system strategy is an integral part of organizational strategy. The support role of information systems extends to all organizational activity at all levels. Contemporary information systems more and more often cross the boundaries between organizations as well as between organisations and their customers/clients.

Information systems, as an academic field, encompasses two broad areas: (1) acquisition, deployment, and management of information technology resources and services (the information systems function) and (2) development and evolution of infrastructure and systems for use in organization processes (system development).

The information systems function has a broad responsibility to develop, implement, and manage an infrastructure of information technology (computers and communications), data (both internal and external), and organization-wide systems. It has the responsibility to track new information technology and assist in incorporating it into the organisation's strategy, planning, and practices. The function also supports departmental and individual information technology systems.

The activity of developing systems for organization and inter-organisation processes involves creative use of information technology for data acquisition, communication, coordination, analysis, and decision support. There are methods, techniques, technology, and methodologies for this activity. Creating systems in organizations includes issues of innovation, quality, human-machine systems, human-machine interfaces, socio-technical design, and change management.

The objective of this programme is to prepare students either for postgraduate study or for immediate employment, and achievement of professional excellence in the organisations that either deploy or develop information systems. The organisations can be in the public or private sector, they may supply material products or services. The bachelors of IS would have a good knowledge of human activity in organisations and its management. They would have the ability for acquisition, deployment, and management as well as for development and evolution of information systems (IS).

Information systems graduates would develop a high-level understanding of systems as a whole, would understand not only the theoretical underpinning of the discipline but also how this theory influences practice, would possess a solid foundation that allows them to maintain their skills and knowledge as the field of IS evolves.

The curriculum covers the essential practical techniques, together with the deeper principles, which they are based upon. Students are expected to develop a wide range of knowledge and skills. These may be divided in three broad categories: theoretical knowledge, practical skills and additional skills.

2. Common skills

The Information systems graduates would obtain expertise to:

- demonstrate knowledge and understanding of essential facts, concepts, principles, and theories relating to IS as well as of the spectrum of its reference disciplines;
- use such knowledge and understanding in the design and deployment of computer-based systems in a way that demonstrates comprehension of different tradeoffs involved in design and deployment choices;
- identify and analyze multiple criteria for the problems in the deployment and design of information systems;
- deploy appropriate theories, practices, and tools for the specification, design, implementation, deployment and evaluation of IS.

3. Practical skills

The Information systems graduates would acquire abilities to:

- work with office applications;
- specify, design, and implement software systems;
- observe human activity and interview people;
- evaluate systems in terms of various quality attributes;
- apply the principles of effective information management to information of various kinds of sources, such as textbooks, lecture notes, Internet;
- apply the principles of advanced human-computer interaction techniques to the design and implementation of a wide range of IS;
- deploy effectively the tools used for the construction and documentation of IS;
- operate computer hardware and software systems effectively and efficiently.

4. Additional skills

These skills are not concerned with specific IS-related field of study. Instead, they are meant to satisfy general student interests in computing. They would be acquired throughout the whole course of study.

These skills include the ability to:

- make succinct presentations to a range of audiences about IS problems and their solutions;
- work effectively as a member of a team;
- understand and explain the qualitative and quantitative dimensions of a problem;
- manage one's own learning and development, including time management and organizational skills;
- keep abreast of current developments in the discipline to continue one's own professional development;

5. IS Body of Knowledge

The IS graduates' education is based on:

- Fundamental training
 - Mathematics
 - Programming Fundamentals
 - Discrete structures
- Information Technology
 - Computer Architectures
 - Algorithms and Data Structures
 - Programming Languages
 - Operating Systems
 - Telecommunications
 - Databases
- Organizational and Management Concepts
 - General Organization Theory
 - Information Systems Management
 - Decision Theory
 - Organizational Behavior
 - Managing the Process of Change
 - Legal and Ethical Aspects of IS
 - Professionalism

- Interpersonal Skills
- Theory and Development of Systems
 - Systems and Information Concepts
 - Approaches to Systems Development
 - Systems Development Concepts and Methodologies
 - Systems Development Tools and Techniques
 - Application Planning
 - Project and Risk Management
 - Information and Business Analysis
 - Information Systems Design
 - Systems Testing and Implementation Strategies
 - Systems Operation and Maintenance
 - Systems Development for Specific Types of IS

IS graduates are expected to be highly qualified and motivated, with in-depth knowledge and understanding of C&IT. They may be expected to take up positions such as, but not limited to: application software developers, system programmers, system analysts, project managers, software designers.

References:

IEEE Computer Society/ACM <http://www.computer.org/education/cc2001>

Bologna Declaration, Lisbon Recognition Convention

Diploma Supplement, ECTS

Information systems

Professional Standards of a Master

1. General characteristics of MSc in Information systems

The professional suitability of a Master in Information systems (IS) is to carry out investigations; to develop and deploy and to manage both of these; to do research and to teach in the field of Information Systems in view of their application in industry, science, education, the public and private sectors, banking, transport, health care, environment protection, etc. An MSc in IS should possess professional expertise.

In order to develop a firm understanding of the scientific approach, students must have direct hands-on experience with hypothesis formulation, experimental design, hypothesis testing and data analysis as well as with design, analysis and interpretation of qualitative research. Student must develop an understanding of various scientific methods and experience this mode of inquiry in courses that provide some exposure to laboratory work and empirical field work in organisations. They may acquire their scientific perspective in a variety of domains, depending on programme objectives and their area of interest.

2. Common skills

Upon graduation, the MSc in IS should have the following most common skills to:

- identify and present his/her own solutions to problems in the field of Information Systems (IS);
- apply creatively in practice the acquired knowledge;
- critically analyze and apply a range of frameworks, concepts, principles and practices of the subject in the context of loosely specified problems, showing effective judgement in the selection and use of tools and techniques;
- adopt a complex technical, social and economical approach and use modern methods and tools when solving an assigned task.

3. Specific skills

Upon graduation, the MSc in IS should also possess the following more specific skills to:

- analyse and understand organisational activity and its management in terms of IS support (potentially) integrated to them;
- create, develop and maintain modern information systems in all phases of its life cycle;

- manage the change of organisation in the context of development, adaptation and implementation of information systems;
- demonstrate a sound understanding of the main areas of the body of knowledge and the theory of IS, with an ability to exercise critical judgement across a range of issues;
- produce work involving problem identification, user requirements specification, analysis, design and development of an information system, along with appropriate documentation. The work must show a range of problem solving and evaluation skills, draw upon supporting evidence, and demonstrate a good understanding of the need for quality.

4. Additional skills

These skills are not concerned with specific IS-related field of study. Instead, they are meant to satisfy general student interests in IS. They would be acquired throughout the whole course of study. These skills include the ability to:

- demonstrate the ability to work as an individual with minimum guidance and as either a leader or member of a team;
- follow appropriate practices within a professional, legal and ethical framework;
- identify mechanisms for continuing professional development and life-long learning;
- explain a wide range of applications based upon the body of knowledge.

5. IS Body of Knowledge

The IS Master's education is based on training in the following areas with in-depth studies in at least one of them:

- A core of IS Knowledge
- Integration of IS and Business Foundations
- Broad Business Organisation and Real World Perspective
- Academia
- Consulting
- Data Management and Data Warehousing
- Decision Making
- Electronic Commerce
- Enterprise Requirements Planning
- Global IT Management
- Knowledge Management
- Managing the <is Function
- New Ways of Working

- Project Management
- Systems Analysis and Design
- Technology Management
- Telecommunications

Research and Master's Thesis in accordance with the student's own interests, abilities and development perspectives in the areas of specialized training.

References:

IEEE Computer Society/ACM <http://www.computer.org/education/cc2001>

Bologna Declaration, Lisbon Recognition Convention

Diploma Supplement, ECTS