IS2020

UPDATING THE MODEL CURRICULUM

IS 2020 -- time for review and revision

IS 2010 (Topi, et al)

IS 2002 (Gorgone, et al)

IS’97 (Longenecker et al)

IS’90 (Longenecker, et al)

DPMA ’86 (DPMA)

IS’81 (Nunamaker, et al)

IS’72 (Teichroew, et al)
PANEL SCHEDULE

- Introduction
- Key principles identified by the Exploratory Taskforce guiding the IS2020 efforts
- Articulation of the current (IS2010) model curriculum - issues suggesting updates.
- Current model curriculum trends and movement towards the use of competency models.
- Changing industry expectations: adequacy of IS2010
- IS2020 project schedule and IS2020 as a living document
- Open discussion

Please feel free to ask/comment at any point!
IS2020 CURRICULUM TASKFORCE

<table>
<thead>
<tr>
<th>Name</th>
<th>ACM/AIS</th>
<th>Institution</th>
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<tbody>
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GUIDING PRINCIPLES (EXPLORATORY TASKFORCE)

The model curriculum should:
1. represent a consensus from the IS community.
2. be designed to help IS programs produce competent and confident entry-level graduates well suited to workplace responsibilities.
3. guide but not prescribe.
4. be flexible and adaptable to most IS programs.
5. not be restricted to a specific application domain.
6. determine whether the model curriculum must have a core of content that is common to all IS programs globally.
7. not focus on specific issues related to pedagogy.
8. be coordinated and aligned with CC2020.
SIGCSE 2020 PANEL ON THE IS2020 MODEL CURRICULUM

PRELIMINARY TIMELINE (Bi-weekly virtual meetings)

▸ First F2F meeting – Cancun, 8/2019
▸ AIS AMCIS – Cancun, 8/2019
▸ EDSIGCon – Cleveland, 11/2019
▸ Second F2F meeting – Munich 12/2019
▸ AIS SIGEd, Munich 12/2019
▸ ACM SIGCSE – Portland, 3/2020
▸ ACM ITiCSE – Trondheim, 6/2020
▸ ACM-SIGMIS – Nuremberg, 6/2020
▸ AIS-AMCIS – Salt Lake City, 8/2020
▸ EDSIGCon – Clearwater, 11/2020
▸ Target First Draft: AIS ICIS – Hyderabad, 12/2020
▸ Publication of guidelines, targeted for spring/summer 2021
▸ IS2020 as a living document
PREVIOUS APPROACHES

- IS curricula (IS 2002, IS 2010, and MSIS 2016) have been represented mainly through courses: Core and Electives
  - For each course, defined learning objectives and topics
  - Emphasis on a course-specific view
- IS 2010: Specified program-level graduate capabilities at a high level of abstraction, but no mapping to the course level

Source: MSIS 2016: Global Competency Model for Graduate Degree Programs in Information Systems
For those readers who know IS 2002 well and in order to illustrate recent changes in the field, this section will discuss the differences between IS 2010 and the previous curriculum recommendation, IS 2002.

There are several major differences between the course recommendations in these two independent volumes. The following list these major differences and describes in detail why the task force implemented these changes.

1. **Status of Application Development in the curriculum**. One of the more noticeable changes to the IS model curriculum is the removal of application development (IS 2002.5 Programming, Data, File, and Object Structures) from the prescribed core. It is important to understand that although application development is not included in the core, it has not been removed from the IS program, and the task force acknowledges that a strong case can be made for inclusion of programming, computational thinking, data structures, and related material in an IS program (see, for example, Topi et al., 2008). Application development can still be offered in most IS programs. By offering application development as an elective the IS 2010 model curriculum increases its reach into non-business IS programs while also creating flexibility for curricula that choose to include an application development course.

2. **Inclusion of both enterprise architecture and IT infrastructure**. The IS 2002 model curriculum includes both an IT Hardware and System Software course (IS 2002.4) and a Network and Telecommunication course (IS 2002.6) to edify the concepts and practices related to IT infrastructure. The IS 2010 model curriculum proposes a different approach, which integrates the material included in IS 2002 into IS 2010.5 IT Infrastructure course and introduces a new IS 2010.3 Enterprise Architecture course that focuses on concepts.
Website Data from 44 Information Systems Departments

1. Foundations of Information Systems (100% required)
2. Data and Information Management (91% required, 9% elective)
3. Enterprise Architecture (24% required, 12% elective, 64% not evident)
4. IS Project Management (35% required, 24% elective, 41% not evident)
5. IT Infrastructure (35% required, 24% elective, 41% not evident)
6. Systems Analysis and Design (38% required, 24% elective, 38% not evident)
7. IS Strategy, Management, and Acquisition (41% required, 18% elective, 41% not evident)
LEARNING OUTCOMES AND COMPETENCIES

▶ Learning Outcome (LO)

▶ “relate to the knowledge, skills, and behaviours that students acquire as they progress through the program” (ABET)

▶ Example: Acquire system requirements specification skills

▶ Competency (CE)

▶ *What an individual is able to *DO* on completing a course* (Baumgartner and Shankararaman. 2013)

▶ CC2020

Competencies = Knowledge (K) + Skills (S) + Dispositions (D)

Competency Leaf Framework: In the context of a competency, a disposition helps to order knowledge and skill in context; to connect the ability (knowledge and skill) with the follow-through of the appropriate behavior. (Frezza et al., 2018)
Competencies = Knowledge (K) + Skills (S) + Dispositions (D)

- **Knowledge** - a fact/idea that enables satisfactory performance of relevant tasks
- **Skill** - a degree of mastery in applying a fact/idea to achieve a valued outcome
- **Dispositions** - values and motivation that moderates skilled behavior to influence a quality of professional performance
COMPETENCY BASED IS 2020 ACM/AIS CURRICULUM GUIDELINES FOR INFORMATION SYSTEMS

Information Systems Curriculum Mapping

Foundations
- Foundations of Information Systems

Technology
- IT Infrastructure (incl. Networking, Cloud)
- Security / Info. Assurance
- Emerging Technologies (e.g. IOT, blockchain, etc.)

Data/Information
- Data / Info. Management (incl. Database)
- Data / Business Analytics (incl. Data Mining, AI, BI)
- Data/Info. Visualization

Development
- Systems Analysis & Design
- Application Development / Programming
- Object-oriented Paradigm
- Web/Mobile programming
- User Interface Design

Organizational Domain
- Ethics, use and implications for society
- Digital Innovation
- Business Process Management

Integration
- IS Project Management
- Capstone Project
- IS Management & Strategy
IS2020 AS A LIVING DOCUMENT

▸ Purpose: Designing IS2020 as a ‘living artifact’, to be continuously debated and updated based on ongoing insights and developments from academic and professional communities

▸ Initial ideas/questions:
  ▸ Interactive digital platform/forum/apps?
  ▸ Annual panels in academic/professional conferences?
  ▸ Permanent joint committee?
  ▸ Other?
HOW TO FOLLOW OUR WORK?

IS2020.org

Comment/feedback tool coming soon for you to contribute to this process.