Curriculum Comparison

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| Information Technology 2017  Body of Knowledge | Information Technology 2008  Body of Knowledge | CCECC Information Technology 2014  Core IT Learning Outcomes |
|  | ITF. Information Technology Fundamentals (25 core hours)  ITF. Pervasive Themes in IT (17)  ITF. History of Information Technology (3)  ITF. IT and Its Related and Informing Disciplines (3)  ITF. Application Domains (2) |  |
| ITE-UXD User Experience Design [20 hours]  ITE-UXD-01 History and overview [1]  ITE-UXD-02 Human factors in design [4]  ITE-UXD-03 Effective interfaces [5]  ITE-UXD-04 Application domain aspects [2]  ITE-UXD-05 Affective user experiences [2]  ITE-UXD-06 Human-centered evaluation [3]  ITE-UXD-07 Assistive technologies and accessibility [2]  ITE-UXD-08 User advocacy [1] | HCI. Human Computer Interaction (20 core hours)  HCI. Human Factors (6)  HCI. HCI Aspects of Application Domains (3)  HCI. Human-Centered Evaluation (3)  HCI. Developing Effective Interfaces (3)  HCI. Accessibility (2)  HCI. Emerging Technologies (2)  HCI. Human-Centered Computing (1) |  |
| ITE-CSP Cybersecurity Principles [40 hours]    ITE-CSP-01 History and overview [1]  ITE-CSP-02 Policy goals and mechanisms [2]  ITE-CSP-03 Security services, mechanisms, and countermeasures [4]  ITE-CSP-04 Cyber attacks and detection [4]  ITE-CSP-05 High assurance systems [4]  ITE-CSP-06 Vulnerabilities, threats, and risk [5]  ITE-CSP-07 Anonymity systems [2]  ITE-CSP-08 Usable security [3]  ITE-CSP-09 Cryptography overview [3]  ITE-CSP-10 Malware fundamentals [2]  ITE-CSP-11 Mitigation and recovery [3]  ITE-CSP-12 Personal information [2]  ITE-CSP-13 Operational issues [4]  ITE-CSP-14 Reporting requirements [1] | IAS. Information Assurance and Security (23 core hours)  IAS. Fundamental Aspects (3)  IAS. Security Mechanisms (Countermeasures) (5)  IAS. Operational Issues (3)  IAS. Policy (3)  IAS. Attacks (2)  IAS. Security Domains (2)  IAS. Forensics (1)  IAS. Information States (1)  IAS. Security Services (1)  IAS. Threat Analysis Model (1)  IAS. Vulnerabilities (1) |  |
| ITE-IMA Information Management [40 hours]  ITE-IMA-01 History and overview [1]  ITE-IMA-02 Data-information concepts [6]  ITE-IMA-03 Data modeling [9]  ITE-IMA-04 Database query languages [9]  ITE-IMA-05 Data organization architecture [8]  ITE-IMA-06 Special-purpose databases [2]  ITE-IMA-07 Managing the database environment [5] | IM. Information Management (34 core hours)  IM. IM Concepts and Fundamentals (8)  IM. Database Query Languages (9)  IM. Data Organization Architecture (7)  IM. Data Modeling (6)  IM. Managing the Database Environment (3)  IM. Special-Purpose Databases (1) | An ability to demonstrate core IT competency in database and information management   * Describe the data management activities associated with the data lifecycle. * Diagram a database design based on an identified scenario. * Differentiate between public and private data. * Discuss applications of data analytics. * Discuss issues relevant to dealing with very large data sets, both structured and unstructured. * Identify database administration tasks. * Produce simple database queries. * Use data analytics to support decision making for a given scenario. |
| ITE-IST Integrated Systems Technology [20 hours]  ITE-IST-01 History and overview [1]  ITE-IST-02 Data mapping and exchange [4]  ITE-IST-03 Intersystem communication protocols [4]  ITE-IST-04 Integrative programming [4]  ITE-IST-05 Scripting techniques [4]  ITE-IST-06 Defensible integration [3] | IPT. Integrative Programming & Technologies (23 core hrs)  IPT. Intersystems Communications (5)  IPT. Data Mapping and Exchange (4)  IPT. Integrative Coding (4)  IPT. Scripting Techniques (4)  IPT. Software Security Practices (4)  IPT. Miscellaneous Issues (1)  IPT. Overview of Programming Languages (1) | An ability to demonstrate core IT competency in programming and application development   * Demonstrate best practices for designing end-user computing interfaces. * Demonstrate the techniques of defensive programming and secure coding. * Diagram the phases of the Secure Software Development Lifecycle. * Discuss software development methodologies. * Summarize the differences among various programming languages. * Use a programming or a scripting language to share data across an integrated IT system. * Use a programming or a scripting language to solve a problem. |
|  | MS. Math and Statistics for IT (38 core hours)  MS. Basic Logic (10)  MS. Discrete Probability (6)  MS. Functions, Relations and Sets (6)  MS. Hypothesis Testing (5)  MS. Sampling and Descriptive Statistics (5)  MS. Graphs and Trees (4)  MS. Application of Math & Statistics to IT (2) |  |
| ITE-NET Networking [35 hours]  ITE-NET-01 History and overview [1]  ITE-NET-02 Foundations of networking [3]  ITE-NET-03 Physical layer [5]  ITE-NET-04 Networking and interconnectivity [7]  ITE-NET-05 Routing and switching [6]  ITE-NET-06 Application networking services [5]  ITE-NET-07 Network management and security [8] | NET. Networking (22 core hours)  NET. Foundations of Networking (3)  NET. Routing and Switching (8)  NET. Physical Layer (6)  NET. Security (2)  NET. Network Management (2)  NET. Application Areas (1) | An ability to demonstrate core IT competency in networking and convergence   * Carry out basic computer network troubleshooting techniques. * Describe the layers, protocols and components of the OSI model. * Diagram the components of an integrated IT system. * Differentiate among various computer networking models. * Differentiate among various techniques for making a computer network secure. * Summarize the flow of data through a computer network scenario. |
| ITE-SWF Software Fundamentals [30 hours]  ITE-SWF-01 History and overview [1]  ITE-SWF-02 Concepts and techniques [5]  ITE-SWF-03 Problem-solving strategies [3]  ITE-SWF-04 Program development [8]  ITE-SWF-05 Fundamental data structures [4]  ITE-SWF-06 Algorithm principles [6]  ITE-SWF-07 Modern app programming [3] | PF. Programming Fundamentals (38 core hours)  PF. Fundamental Data Structures (10)  PF. Fundamental Programming Constructs (10)  PF. Object-Oriented Programming (9)  PF. Algorithms and Problem-Solving (6)  PF. Event-Driven Programming (3) |  |
| ITE-PFT Platform Technologies [15 hours]  ITE-PFT-01 History and overview [1]  ITE-PFT-02 Operating systems [7]  ITE-PFT-03 Computing infrastructures [2]  ITE-PFT-04 Architecture and organization [3]  ITE-PFT-05 Application Execution Environment [2] | PT. Platform Technologies (14 core hours)  PT. Operating Systems (10)  PT. Architecture and Organization (3)  PT. Computing Infrastructures (1)  PT. Enterprise Deployment Software  PT. Firmware  PT. Hardware |  |
| ITE-SAM System Administration and Maintenance [20 hours]  ITE-SAM-01 History and overview [1]  ITE-SAM-02 Administrative activities [5]  ITE-SAM-03 Administrative domains [4]  ITE-SAM-04 Performance analysis [3]  ITE-SAM-05 Backup and recovery [3]  ITE-SAM-06 Applications of system administration [4] | SA. System Administration and Maintenance (11 core hours)  SA. Operating Systems (4)  SA. Applications (3)  SA. Administrative Activities (2)  SA. Administrative Domains (2) | An ability to demonstrate core IT competency in servers, storage and virtualization   * Differentiate among strategies for business continuity provisioning of IT resources at the enterprise level. * Discuss data governance and its implications for users as well as IT professionals. * Identify a variety of enterprise-level digital storage technologies. * Implement an application of virtualization. * Modify a system to improve data confidentiality or regulatory compliance. * Summarize the implications of various cloud computing models. * Summarize the security implications and risks for distributed IT systems. |
| ITE-SIA System Integration and Architecture [20 hours]  ITE-SIA-01 History and overview [1]  ITE-SIA-02 Requirements [4]  ITE-SIA-03 System architecture [2]  ITE-SIA-04 Acquisition and sourcing [4]  ITE-SIA-05 Testing and quality assurance [4]  ITE-SIA-06 Integration and deployment [5] | SIA. System Integration and Architecture (21 core hours)  SIA. Requirements (6)  SIA. Acquisition and Sourcing (4)  SIA. Integration and Deployment (3)  SIA. Project Management (3)  SIA. Testing and Quality Assurance (3)  SIA. Organizational Context (1)  SIA. Architecture (1) |  |
| ITE-GPP Global Professional Practice [25 hours]  ITE-GPP-01 History and overview [1]  ITE-GPP-02 Professional issues and responsibilities [2]  ITE-GPP-03 IT governance and resource management [2]  ITE-GPP-04 Risk identification and evaluation [2]  ITE-GPP-05 Environmental issues [2]  ITE-GPP-06 Ethical, legal, and privacy issues [2]  ITE-GPP-07 Intellectual property [3]  ITE-GPP-08 Project management principles [3]  ITE-GPP-09 Communications [3]  ITE-GPP-10 Teamwork and conflict management [2]  ITE-GPP-11 Employability skills and careers in IT [2]  ITE-GPP-12 Information systems principles [1] | SP. Social and Professional Issues (23 core hours)  SP. Professional Communications (5)  SP. Teamwork Concepts and Issues (5)  SP. Social Context of Computing (3)  SP. Intellectual Property (2)  SP. Legal Issues in Computing (2)  SP. Organizational Context (2)  SP. Professional and Ethical Issues and Responsibilities (2)  SP. History of Computing (1)  SP. Privacy and Civil Liberties (1) | An ability to function effectively as a member of a diverse team to accomplish common goals   * Use communication, negotiation, and collaboration skills as a member of a diverse team.   An ability to read and interpret technical information, as well as listen effectively to, communicate orally with,  and write clearly for a wide range of audiences   * Describe the attitudes, knowledge and abilities associated with quality customer service. * Produce technical documentation responsive to an identified computing scenario. * Use documentation or a knowledge base to resolve a technical challenge in an identified computing scenario   An ability to engage in continuous learning as well as research and assess new ideas and information to provide  the capabilities for lifelong learning   * Discuss significant trends and emerging technologies and their impact on our global society.   An ability to exhibit professional, legal, and ethical behavior   * Demonstrate professional behavior in response to an ethically-challenging scenario in computing. * Summarize the tenets of ethics and professional behavior promoted by international computing societies.   An ability to demonstrate business awareness and workplace effectiveness   * Describe IT procurement processes for goods and services. * Summarize the role of IT in supporting the mission and goals of an organization. |
| ITE-WMS Web and Mobile Systems [25 hours]  ITE-WMS-01 History and overview [1]  ITE-WMS-02 Technologies [5]  ITE-WMS-03 Digital media [5]  ITE-WMS-04 Applications concepts [5]  ITE-WMS-05 Development Frameworks [4]  ITE-WMS-06 Vulnerabilities [3]  ITE-WMS-07 Social software [2] | WS. Web Systems and Technologies (22 core hours)  WS. Web Technologies (10)  WS. Information Architecture (4)  WS. Digital Media (3)  WS. Web Development (3)  WS. Vulnerabilities (2)  WS. Social Software |  |
|  |  | An ability to demonstrate core IT competency in client computing and user support   * Carry out trouble-shooting strategies for resolving an identified end-user IT problem. * Differentiate among various operating systems. * Explain the process of authentication and authorization between end-user devices and computing network resources. * Identify a variety of assistive or adaptive technologies and universal design considerations. * Identify basic components of an end-user IT system. * Implement a hardware and software configuration responsive to an identified scenario. * Summarize life-cycle strategies for replacement, reuse, recycling IT technology and resources. * Summarize strategies to support or train users with their IT resources. * Use a variety of practices for making end-user IT systems secure. |
|  |  | An ability to demonstrate core IT competency in digital media and immersive technology   * Differentiate among a variety of technology-based sensory interactions. * Differentiate among data types, data transfer protocols and file characteristics specific to the targeted use. * Illustrate the activities of a digital media design process. * Implement communication principles into digital media design. |
| Total Hours: 420 | Total Hours: 314 |  |

Information Technology 2017

Body of Knowledge

Supplemental IT Domains

ITS-DSA Data Scalability and Analytics [30 hours]

ITS-DSA-01 History and overview [1]

ITS-DSA-02 Foundations  [8] ITS-DSA-03 Data Management  [4]

ITS-DSA-04 Methods, techniques, and tools [6]

ITS-DSA-05 Data governance [5]

ITS-DSA-06 Applications  [6]

ITS-ANE Applied Networks [30 hours]

ITS-ANE-01 Proprietary networks [6]

ITS-ANE-02 Network programming [5]

ITS-ANE-03 Routing protocols [4]

ITS-ANE-04 Mobile networks [4]

ITS-ANE-05 Wireless networks [4]

ITS-ANE-06 Storage area networks [2]

ITS-ANE-07 Applications for networks [5]

ITS-IOT Internet of Things [30 hours]

ITS-IOT-01 History and overview [1]

ITS-IOT-02 IoT architectures [4]

ITS-IOT-03 Sensor and actuator interfacing [2]

ITS-IOT-04 Data acquisition [3]

ITS-IOT-05 Wireless sensor networks [4]

ITS-IOT-06 Ad-hoc networks [2]

ITS-IOT-07 Automatic control [4]

ITS-IOT-08 Intelligent information processing [4]

ITS-IOT-09 IoT application and design [6]

ITS-MAP Mobile Applications [25 hours]

ITS-MAP-01 History and overview [1]

ITS-MAP-02 Architectures [2]

ITS-MAP-03 Multiplatform mobile application development [5]

ITS-MAP-04 Servers and notifications [2]

ITS-MAP-05 Performance issues [3]

ITS-MAP-06 Views and gestures [3]

ITS-MAP-07 Interface implementations [4]

ITS-MAP-08 Camera, state, and documents interaction [3]

ITS-MAP-09 2D graphic and animation [2]

ITS-SDM Software Development and Management [20 hours]

ITS-SDM-01 Process models and activities [5]

ITS-SDM-02 Platform-based development [2]

ITS-SDM-03 Tools and services [4]

ITS-SDM-04 Management [5]

ITS-SDM-05 Deployment, operations, maintenance [4]

ITS-SRE Social Responsibility [20 hours]

ITS-SRE-01 Social context of computing [4]

ITS-SRE-02 Goals, plans, tasks, deadlines, and risks [4]

ITS-SRE-03 Government role and regulations [3]

ITS-SRE-04 Global challenges and approaches [3]

ITS-SRE-05 Risk management [3]

ITS-SRE-06 Energy standards and utilities [3]

ITS-VSS Virtual Systems and Services [30 hours]

ITS-VSS-01 History and overview [1]

ITS-VSS-02 Application of virtualization [5]

ITS-VSS-03 User platform virtualization [3]

ITS-VSS-04 Server virtualization [3]

ITS-VSS-05 Network virtualization [5]

ITS-VSS-06 Cluster design and administration [5]

ITS-VSS-07 Software cluster applications [5]

ITS-VSS-08 Storage [3]

ITS-CCO Cloud Computing [30 hours]

ITS-CCO-01 History and overview [1]

ITS-CCO-02 Concepts and fundamentals [6]

ITS-CCO-03 Security and data considerations [6]

ITS-CCO-04 Using cloud computing applications [5]

ITS-CCO-05 Architecture [4]

ITS-CCO-06 Development in the cloud [4]

ITS-CCO-07 Serves and platforms [4]

ITS-CEC Cybersecurity Emerging Challenges [30 hours]

ITS-CEC-01 Case studies and lessons learned [2]

ITS-CEC-02 Network forensics [4]

ITS-CEC-03 Stored data forensics [4]

ITS-CEC-04 Mobile forensics [2]

ITS-CEC-05 Cloud security [2]

ITS-CEC-06 Security metrics [2]

ITS-CEC-07 Malware analysis [3]

ITS-CEC-08 Supply chain and software assurance [2]

ITS-CEC-09 Personnel and human security [2]

ITS-CEC-10 Social dimensions [2]

ITS-CEC-11 Security implementations [2]

ITS-CEC-12 Cyber-physical systems and the IoT [3]