

GRADUATE STUDENT HANDBOOK

Master of Science in Health Information Technology
(MHIT)

Master of Science in Information Technology
(MS in IT)

Integrated Information Technology Department
University of South Carolina
Molinaroli College of Engineering and Computing
Columbia, South Carolina

I. INTRODUCTION	3
II. ADMISSION, ORIENTATION, AND REGISTRATION	4
Admission	4
Orientation and Registration for New Students	4
Registration for Continuing Students	4
The Honor System	5
Academic Progress	5
Enrollment	5
Internships and Job Placement	5
III. FACILITIES	5
Offices	5
Offices, Keys, Mailboxes, Telephones	5
Parking	6
Photocopier	6
Library	6
Athletic Facilities	6
Insurance Benefits	6
Email Communication	7
Petition and Appeal Procedure	7
IV. FINANCIAL SUPPORT	7
Fellowships and Scholarships	7
Assistantships	7
Termination of Support	8
Time Limit on Support	8
Work during University Recesses	8
Vacation Policy	8
V. ACADEMIC PROGRESS CHECKLIST	8
VI. MASTER OF SCIENCE DEGREE OPTIONS	9
VII. COURSEWORK PLANNING SHEET: MHIT DEGREE PROGRAM	10
VIII. COURSEWORK PLANNING SHEET: MS in IT DEGREE PROGRAM	11
IX. PROGRAM FACULTY	13
X. ITEC COURSE DESCRIPTIONS	14

I. INTRODUCTION

We welcome you to the University of South Carolina and to the Integrated Information Technology Department in the Molinaroli College of Engineering and Computing. We trust that your stay with us will be an enjoyable and rewarding experience.

This handbook will acquaint you with the Master of Health Information Technology (MHIT), and the Master of Science in Information Technology (MS in IT) graduate programs. The Graduate Director will act as your advisor; however, every faculty member will be pleased to discuss any academic or professional matters about which you are concerned. Please feel free to make an appointment to see us at any time.

The information in this handbook is intended to help you interpret and clarify the degree requirements, academic regulations, and procedures for the master's degree programs in the Integrated Information Technology Department. The guidelines listed here are not intended to supersede or replace the more general requirements listed in [The Graduate Studies Bulletin](#) of the University.

II. ADMISSION, ORIENTATION, AND REGISTRATION

Admission

Admission to the Master of Health Information Technology (MHIT) and the Master of Science in Information Technology (MS in IT) programs is based on the applicant's previous college work, letters of recommendation, GRE or GMAT scores, and TOEFL or other English language test scores when appropriate. All applicants must submit a one-page statement of purpose describing what the candidate hopes to achieve by pursuing a graduate degree. All candidates must meet the general requirements for admission to the Graduate School as described in the [Graduate Studies Bulletin](#).

The MHIT degree program accepts students from a broad range of disciplines in their undergraduate degrees. If the undergraduate degree is in information technology or a healthcare-related field, the student normally can begin graduate coursework the semester following acceptance into the University of South Carolina's Graduate School.

While the MS in IT program is designed for those with a computing background, students without such preparation can still earn the degree. Based on their experience, they may be asked to complete up to four foundational classes before they are fully admitted into the program. Foundation classes focus on networking, database systems, web design, and software development. The detailed specification of course requirements and substitutions of courses from other universities will be considered on a case-by-case basis.

In a few instances, students are admitted as "non-degree" candidates. This category is used when a student does not present all the credentials needed for admission to a degree program but can, in the opinion of the Department, benefit from our graduate program. Non-degree students may become degree candidates when their credentials are complete, and they demonstrate the capability to do successful graduate work for one or more semesters. Note: International applicants cannot be admitted as non-degree students due to visa regulations. Only 12 credit hours earned as a non-degree student may be applied to a master's degree.

Orientation and Registration for New Students

There will be an orientation session for all new graduate students at the beginning of each fall semester. All new students starting in the spring or summer semesters should attend orientation in the subsequent fall semester.

The Graduate Director will be your academic advisor. New graduate students should communicate with the Graduate Director for advisement (selection of courses) and registration instructions. After advisement, students may register through <https://my.sc.edu>. First year graduate students will generally carry a minimum of nine credit hours of courses during each semester. Due to visa regulations international students must be enrolled full time.

Registration for Continuing Students

The use of <https://my.sc.edu> allows early registration during the preceding semester. Continuing students must be advised by the Graduate Director before registering. Students must register for a minimum of nine credit hours to be considered a full-time graduate student; students with graduate assistantships are considered full-time if they register for six credit hours.

The Honor System

We expect all our graduate students not only to do their own work but also to report to the appropriate faculty members any violations by others. Any graduate student guilty of a violation of these honor principles may be asked to leave. More information can be found here: [Academic Integrity](#).

Academic Progress

All students must demonstrate satisfactory progress towards their degree. Satisfactory progress requires continuous enrollment from one semester to the next, except for summer terms. If a student misses a fall or spring semester, they must apply for reinstatement through the [Update Form](#) the Graduate School.

Enrollment

All graduate students must maintain continuous enrollment in both fall and spring semesters while they pursue a degree in the department. Full time enrollment is nine credit hours per semester. Students appointed as research or graduate instructional assistants must enroll for a minimum of six credit hours each fall and spring semester to be considered full time. Part-time students must also maintain continuous enrollment of at least three credit hours each fall and spring semester.

Internships and Job Placement

Students in the MHIT program are required to perform an internship. An internship is optional for students in the MS in IT degree program. Most students do their internship after they have completed all course work. We have an internship director to assist students in finding an internship and to supervise the internship's academic requirements; however, it is the student's responsibility to secure an internship placement. The University has an online recruitment system available to current students and graduates to assist them in finding jobs and internships.

III. FACILITIES

Offices

The Integrated Information Technology Department is in the M. Bert Storey Engineering Center, 550 Assembly Street, Columbia, SC 29201. Faculty and staff offices are in Suite 1300.

Offices, Keys, Mailboxes, Telephones

Graduate Assistants (GAs) are given shared office space. This space includes a computer, printer and access to a photocopier. Offices are for official departmental business as required by the supervising professor. Graduate students who are not graduate assistants are not issued any office space and should not use any of the IIT office equipment for their personal or class needs. Graduate assistants will share mailboxes with their assigned professor. Access to the shared space is through the Carolina Card. Upon selection of a research advisor, students conducting research toward a thesis may receive office assignments. Departmental mailboxes should be used for official business related to your graduate activities. Use the following address for research-related business:

Integrated Information Technology Program
ATTN: (your name)/Graduate Student
Integrated Information Technology Department, Suite 1300
University of South Carolina
550 Assembly Street
Columbia, SC 29201

All offices are equipped with telephones for security and safety purposes. In general, graduate office telephones cannot be used for chargeable long-distance calls or calls that are personal in nature. However, some research advisors allow long distance calls to be made for research-related purposes.

Parking

Students providing documentation of their enrollment as a graduate student may purchase a Graduate Student (GS) parking permit from the Office of Parking Services, Discovery Garage at 821 Park Street. GS permits are valid at any time in “Resident Student”, “Commuting Student”, and “Any Decal Parking” lots. In addition, GS permits are valid in various Faculty/Staff lots. For more information, contact the Office of Parking Services, (803) 777-5160.

Photocopier

The department’s photocopier should be used only for official university business and research purposes. The photocopier may require access code. If this is the case, the code will be issued by the supervising faculty member or the Administrative Coordinator in the Integrated Information Technology Department. Use of the photocopier for graduate coursework is not permitted. Graduate students may be issued a copier access code after they have been assigned to a research advisor. Copier access codes must not be shared with others under any circumstances.

Library

The library resources of the University of South Carolina are housed primarily in the Thomas Cooper Library, a seven-story building located on Greene Street between the Russell House and Longstreet Theater. Patrons have access to all shelved materials except those in Special Collections. Books may be checked out with a valid Carolina Card. Students may not check out periodicals, but photocopy machines are available on Level 4 and Mezzanine for making copies of any necessary material. Photocopying cards are available; students conducting research should consult their committee chair about obtaining or borrowing photocopying cards.

Most research resources are now available via the internet, including the library catalog (USCAN) and electronic access to research journals (TDNET). These resources and other information are available via the USC Libraries web page at www.sc.edu/library.

Athletic Facilities

The two recreation and fitness facilities are located on campus: the Blatt PE Center, 1300 Wheat Street, and the Strom Thurmond Wellness Center, 1000 Blossom Street, on the corner of Blossom and Assembly Streets. They offer a wide variety of fitness activities. Students need only to present Carolina Cards to gain entrance into these facilities. They also offer locker rentals, towel services, guest privileges, and family membership is available to students, faculty, and staff for additional fees. There may be part-time employment opportunities, as well. For more information visit their web page for more information: [Campus Recreation](#).

Insurance Benefits

All full-time graduate students (enrolled in nine or more credit hours), all graduate assistants, and all international students are required to have health insurance coverage. Students may purchase coverage in the University’s health insurance plan or provide evidence of coverage by another comparable health insurance plan. More information about health insurance can be found here: [Insurance and Fees](#). The cost of university-sponsored health insurance is subsidized for graduate assistants. The premium for this

coverage will be included on the tuition bill each semester, with any subsidy applied automatically. Payments can be automatically deducted from stipend paychecks.

Email Communication

The University and the IIT Department will communicate with graduate students via their university issued email account. Students are expected to check that email account daily.

Petition and Appeal Procedure

The departmental Graduate Faculty functions as a petition and appeal committee for graduate students requesting relief from a departmental academic regulation. Students seeking relief from departmental academic regulation must first consult with the Graduate Director. The Graduate Faculty only considers petitions coming from the Graduate Director.

If the student's request receives an unfavorable recommendation from the Graduate Director, the student may appeal in writing directly to the Graduate Committee.

Unsatisfactory progress in meeting degree requirements may result in a loss of financial support and/or disqualification from a degree program. In cases in which the departmental regulations permit remedial action, and if the remedial action brings the student into compliance with the regulations, then the Graduate Committee will normally consider a reinstatement of financial support and/or qualification for a degree program. The student may also regain lost status by favorable action on a new application for admission.

IV. FINANCIAL SUPPORT

Fellowships and Scholarships

Fellowships are awarded to all international students. Although the amount is a small token, it allows students to pay the in-state tuition rate. The Fellowship award amount is \$500 annually and is applied at \$250 per semester (Fall and Spring) – not including Summer. This Fellowship is in recognition of students' strong academic background and research potential. Other Fellowships and scholarships are sometimes available from industrial, government, and private sources. These may be allocated by the Department, they may be awarded competitively on an inter-departmental basis by the University, or they may be awarded through national competitions. The Department will attempt to inform you of all such support available and will be glad to assist qualified people in applying. Fellowship or scholarship awards are frequently based, at least in part, on the GRE or GMAT scores of competing nominees. More information can be found here [Fellowships and Awards](#).

Assistantships

Graduate Research or Graduate Instructional Assistants receive stipends from funds administered by the Integrated Information Technology Program. All graduate assistant appointments entitle students to the in-state resident rate of tuition. Graduate Assistants are expected to work up to 20 hours per week to receive their stipends. Graduate students who are not on assistantships and students in the online program do not normally receive stipends.

Appointment as a Graduate Assistant (GA) should be completed prior to registration. Students should ensure that all other enrollment issues (e.g, immigration paperwork, original transcripts, health insurance enrollment and legal residency) are resolved prior to registration to minimize problems that may prevent enrollment. Please see the department's Administrative Coordinator if problems arise with respect to GA

appointment and tuition payments, stipends, payroll, and taxes. Tuition and payment information can be found here: [Bursar's Office](#).

Graduate assistant stipends are paid twice per month by direct deposit, at the middle and end of each month. You sign up for direct deposit on <https://my.sc.edu>. Federal and state income taxes will be deducted from these checks. All students must complete an I-9 form before being placed on the payroll. This form can be obtained from the department's Administrative Coordinator. A W-4 form must also be completed to establish the level of federal and state tax withholding. The IRS considers income from assistantships to be taxable, but the tuition remission is not taxable.

Termination of Support

After an assistantship or fellowship has been awarded, it will normally be continued during the period of graduate study. This support is contingent upon satisfactory performance of the duties of the assistantship, normal progress towards a degree, and satisfactory academic performance as defined by the requirements outlined in the [Graduate Bulletin](#). Stipends may be reduced or suspended for students who are not making satisfactory or timely progress towards fulfillment of their degree requirements.

Time Limit on Support

It is the policy of the Department that, except in unusual circumstances, no graduate student shall be supported on teaching or research assistantships for longer than two years.

Work during University Recesses

The duties of Graduate Assistants continue throughout the semester on all days that the University is open for regular business. The duties of Graduate Assistants normally begin with the start of classes each term and end when the final examination period has ended.

Vacation Policy

Students on graduate assistantships must work out schedules and personal leave time with their supervising professor. The student's supervisor should approve all personal leave absences. Extended absences (more than five working days) must be requested and approved in writing.

V. ACADEMIC PROGRESS CHECKLIST

Steps	Timing	Responsibility
1. Initial advisement by Graduate Director	Before registration for first semester	Student
2. Registration for each subsequent semester	Toward the end of each semester	Student
3. File Program of Study	Early in the final semester	Student
4. File Degree Application with the Graduate School	Early in the semester of graduation	Student
5. Certify completion of degree requirements	After the final semester	Graduate Director
6. Receive Degree	About six weeks after the final semester	Graduate School

VI. MASTER OF SCIENCE DEGREE OPTIONS

The Master of Science in Information Technology may be earned through either Professional Track or Research Track. In both tracks, at least half of the credit hours (exclusive of thesis preparation) must be earned in courses number 700 and above. Students currently enrolled in the BS Integrated Information Technology degree program can select the [Accelerated Master's option](#).

Professional Track Program of Study (30 credit hours)

The MS in IT Professional Track is available 100% online and as a residential program. Students who choose this track must take 12 hours of IT Core Courses, 15 hours in IT Electives, a 3-hour ITEC 766, IT Project Management course, and pass a written comprehensive examination offered at the end of Fall and Spring semesters.

REQUIREMENTS	CREDIT HOURS
IT Core Courses	15
IT Elective Courses	15

Research Track Program of Study (33 credit hours)

The MS in IT Research Track is a residential program not available 100% online. Students who choose this track must take 12 hours of IT Core Courses, 12 hours in IT Elective Courses, a 3-hour Research Methods course, and 6 hours of ITEC 799, Thesis Preparation. Students must successfully write and defend a thesis under faculty guidance.

REQUIREMENTS	CREDIT HOURS
IT Core Courses	12
IT Elective Courses	12
Research Methods Course	3
ITEC 799, Thesis Preparation	6

VII. COURSEWORK PLANNING SHEET: MHIT DEGREE PROGRAM

Number	Course Title	Grade	Term	Notes
Core Courses (18 hours)				
ITEC 747	Management of Health Information Systems (3)			
ITEC 752	Health Systems Analysis and Design (3)			
ITEC 764	Project Management for Health Information Systems (3)			
ITEC 770	Health Database Systems (3)			
HSPM 700 or PUBH 700	Approaches and Concepts for Health Administration (3) OR Perspectives in Public Health (3)			
HSPM 768	Health Services Administration II (3)			
Health Electives (any combination of a minimum of 3 and a maximum of 9 credit hours)				
BIOS 710	Effective Data Management in Public Health (3)			
HSPM 711	Health Politics (3)			
HSPM 712	Health Economics (3)			
HSPM 726	Applied Public Health Law (3)			
HSPM 730 or NURS 738	Financing of Health Care (3)			
HSPM 769	Organizational Behavior (3)			
HSPM 777	Healthcare Policy and Principles of Health Insurance (3)			
HSPM 791	Special Topics (3)			
NURS 717	Application of Basic Statistics for Nursing Practice (3)			
NURS 734	Conceptual Basis of Health Systems (3)			
Information Technology Electives (any combination of a minimum of 3 and a maximum of 9 credit hours)				
ITEC 743	Health Information Security (3)			
ITEC 745	Telecommunications for Health Information Systems (3)			
ITEC 762	Health Info Systems Usability & Interface Design (3)			
ITEC 775	Large Scale Health Information Systems (3)			
ITEC 776	Health IT and Clinical Transformation (3)			
ITEC 590	Special Topics in Integrated Information Technology (3)			
ITEC 790	Special Topics in Health Information Technology			
ITEC 795	Directed Study in Health Information Technology			
Practicum in Health Information Technology (6 credit hours required)				
ITEC 748	Health Information Technology Practicum (1-6)			

VIII. COURSEWORK PLANNING SHEET: MS in IT DEGREE PROGRAM

Number	Course Title	Grade	Term Planned	Notes
Core Courses (12-15 credit hours)				
ITEC 749	Principles of Informatics (3)			
ITEC 754	Analysis & Design of Info Systems & Technology (3)			
ITEC 766	IT Project Management (3)			
ITEC 772	Database Systems (3)			
ITEC 785	Enterprise Data Analytics (3)			
ITEC Electives (12-15 credit hours)				
ITEC 510	Emerging Information Technology Trends (3)			
ITEC 520	Exploring the Internet of Things			
ITEC 534	Advanced Human Computer Interaction (3)			
ITEC 540	Cloud Computing & Virtualization			
ITEC 544	Training Systems (3)			
ITEC 545	Telecommunications (3)			
ITEC 552	Linux Programming and Administration (3)			
ITEC 560	Project Management Methods			
ITEC 562	Advanced Web Support Systems (3)			
ITEC 564	Capstone Project for IT			
ITEC 570	Database Management and Administration (3)			
ITEC 590	Special Topics in Information Technology			
ITEC 742	Enterprise Network Management (3)			
ITEC 743	Health Information Privacy and Security (3)			
ITEC 745	Telecommunications for Health IT (3)			
ITEC 747	Management of Health Information Systems (3)			
ITEC 760	Cyberinfrastructure and Information Assurance (3)			
ITEC 761	Management of Cyberinfrastructure (3)			
ITEC 762	Health IT Usability and Interface Design (3)			
ITEC 764	Project Management for Health Information (3)			
ITEC 765	HCI Usability and Interface Design (3)			
ITEC 766	IT Project Management (professional track core)			
ITEC 770	Health Database Systems (3)			
ITEC 775	Large-Scale Health Information Systems (3)			

ITEC 776	Health IT and Clinical Transformation (3)			
ITEC 781	Artificial Intelligence and Informatics I (3)			
ITEC 782	Artificial Intelligence and Informatics II (3)			
ITEC 786	Advanced Enterprise Data Analytics (3)			
ITEC 787	Advanced Data Analytics Tools (3)			
ITEC 790	Special Topics in Informatics (3)			
ITEC 791	Introduction to Management of Information Security (3)			
ITEC 792	Management of Cyber Operations (3)			
ITEC 793	Cybersecurity Risk Management (3)			
ITEC 795	Independent Study in Health IT (3)			
Research Methods (0-3 credit hours) for Research track				
BIOS 700	Introduction to Biostatistics (3)			
EDFI 731	Qualitative Inquiry (3)			
EDRM 710	Educational Statistics I (3)			
SOCY 515	Scientific Methods and Sociological Inquiry (3)			
SOCY 562	Advanced Sociological Research Methods (3)			
STAT 506	Introduction to Experimental Design (3)			
STAT 509	Statistics for Engineers (3)			
STAT 515	Statistical Methods I (3)			
STAT 700	Applied Statistics I (3)			
Thesis (6 credit hours) for Research Track				
ITEC 799	Thesis Preparation (1-6)			

IX. PROGRAM FACULTY

Jorge Crichigno
Professor
Ph.D., University of New Mexico

Travis Dalton
Instructor
M.S., University of North Carolina Greensboro

Denise Davis
Clinical Assistant Professor
PhD, University of Sout Carolina

Anthony Dillon
Senior Instructor and Internship Director
M.Ed., Bowling Green State University

John Gerdes, Jr.
Professor and Graduate Director
Ph.D., Vanderbilt University

Sharon Gumina
Instructor
M.S., George Washington University

Neset Hikmet
Professor
Ph.D., University of Rhode Island

Elie Kfoury
Assistant Professor
Ph.D., University of South Carolina

Keiona Middleton
Clinical Assistant Professor
D.Sc., Western Governor's University

Elizabeth Regan
Associate Professor and IIT Department Head
Ph.D., University of Connecticut

Dezhi Wu
Professor
Ph.D., New Jersey Institute of Technology

Patrick Wright, Sr.
Instructor and Undergraduate Director
M.B.A., Duke University

X. ITEC COURSE DESCRIPTIONS

Course offerings are based on faculty availability.

ITEC 510 - Emerging Information Technology Trends (3 Credits)

Survey of emerging information technology (IT) trends, featuring IT industry professionals presenting disruptive and emerging information technologies being developed and/or adopted by businesses within South Carolina.

ITEC 534 - Advanced Human Computer Interaction (3 Credits)

Review of current trends & challenges of human-computer interaction, the design of emerging technologies including AI driven technologies, such as chatbot design, Internet of Things design, and human-robot interaction design, biometric evaluation methods, and usability testing with AI-driven emerging technologies. **Prerequisites:** B or better in [ITEC 444](#) or [ITEC 762](#).

ITEC 544 - Training Systems (3 Credits)

Theory, design, and implementation of technology-based training systems, including hardware and software solutions. **Prerequisites:** C or better in [ITEC 444](#).

ITEC 545 - Telecommunications (3 Credits)

Telecommunications systems, applications, and equipment allowing for the global dissemination of information. **Prerequisites:** C or better in [ITEC 245](#).

ITEC 552 Linux Programming and Administration (3 Credits)

Shell scripting and administration in the Linux operating system. **Prerequisites:** C or better in [CSCE 104](#), [ITEC 104](#), or [CSCE 145](#).

ITEC 562 - Advanced Web Support Systems (3 Credits)

The development of advanced, dynamic, Web-based information systems, including the integration of back-end database records management systems. **Prerequisites:** C or better in [ITEC 362](#).

ITEC 570 - Database Management and Administration (3 Credits)

Introduction to database administration and implementation using an enterprise-level Relational Database Management System (RDBMS). **Prerequisites:** C or better in [ITEC 370](#).

ITEC 590 - Special Topics in Integrated Information Technology (3 Credits)

Advanced concepts, issues, and trends in technology support and training management. Course content varies and will be announced in the schedule of classes by title. May be repeated twice for credit.

ITEC 742 - Enterprise Network Management (3 Credits)

Management of enterprise networks, including switched Local Area Networks (LANs), Wide Area Networks (WANs), data centers and cloud systems; monitoring and optimization of networks; emerging network technologies. **Prerequisites:** C or better in [ITEC 749](#) and [ITEC 772](#).

ITEC 743 - Health Information Privacy and Security (3 Credits)

Healthcare, privacy and security threats and solutions. Compliance with patient information privacy and information security regulations.

ITEC 745 – Telecommunications for Health Information Systems (3 Credits)

Overview of telecommunications technologies as they apply to health care delivery, health care administration, and health information exchange.

ITEC 747 - Management of Health Information Systems (3 Credits)

Overview of health information technology, electronic health records (EHR), and health information exchange (HIE), current practices, trends, and issues in health information systems management, and privacy and security of health information.

ITEC 748 – Health Information Technology Internship (1-6 Credits)

Professional residency (internship) in health information technology. Positions assigned on an individual basis with emphasis on management decision making, oral and written communication skills, planning, and problem solving.

ITEC 749 - Principles of Informatics (3 Credits)

Integration of information technology across the business spectrum. Underlying technological developments and important business drivers of performance. Digital technology's role in relation to three major components of business performance improvement: people, processes, and technology.

ITEC 752 – Health Systems Analysis and Design (3 Credits)

This course applies the principles of information systems analysis and design to health processes and applications. It looks at the analysis and logical design of business processes and management information systems focusing on the systems development life cycle, and techniques for logical system design.

ITEC 754 - Analysis and Design of Information Systems and Technology (3 Credits)

Application of the principles of information systems analysis and design to organizational processes and applications. Analysis and logical design of business processes and management information systems focusing on the systems development life cycle. Techniques for logical system design.

Prerequisites: B or better in [ITEC 447](#).

ITEC 760 - Cyberinfrastructure and Information Assurance (3 Credits)

Information Technology (IT) elements of the cyber infrastructure; information assurance and security in the modern cyberinfrastructure; design and secure advanced systems that use, process, transmit, and store information. **Prerequisites:** [ITEC 742](#).

ITEC 761 - Management of Cyberinfrastructure (3 Credits)

Techniques, technologies, and management tools used in modern cyberinfrastructures, including software-defined data centers, next-generation software-defined networking (NG-SDN), and cloud systems. **Prerequisites:** [ITEC 760](#).

ITEC 762 - Health Information Technology Usability and Interface Design (3 Credits)

Overview of the analysis, design, and usability of health information systems. Includes consideration of computer interfaces, Web portals, and patient portals.

ITEC 764 - Project Management for Health Information (3 Credits)

Application of project management software, technologies and practices to the design and implementation of real-world health information technology projects. Integrates IT knowledge and skills learned in earlier graduate courses and challenges graduate students to learn new technologies and to solve real business problems.

ITEC 765 - Human Computer Interaction, Usability, and Interface Design (3 Credits)

Overview of the analysis, design, and usability of information systems. Includes consideration of computer interfaces, web portals, and human-computer interaction.

Prerequisites: C or better in [ITEC 749](#) and [ITEC 772](#).

ITEC 766 - IT Project Management (3 Credits)

Application of project management tools to document key components of the implementation of a real-world information technology project. **Prerequisites:** B or better in [ITEC 749](#) and [ITEC 772](#).

ITEC 770 - Health IT Database Systems (3 Credits)

This course is an introduction to design, implementation, and management of database systems that form the foundation for health information systems.

ITEC 772 - Database Systems (3 Credits)

Fundamentals, design, implementation, and management of database systems that form the foundation for information systems and data analytics. **Prerequisites:** B or better in [ITEC 749](#).

ITEC 775 - Large-Scale Health and Information Systems (3 Credits)

Design, implementation, and operation of large-scale information systems for healthcare institutions. Includes EMRs, CPOE, e-prescribing, medication administration, CRM, and supply chain management.

ITEC 776 - Health Information Technology and Clinical Transformation (3 Credits)

Implementation of electronic health records (EHR) and health information exchange with focus on clinical transformation, which is the most difficult and critical component of achieving improved clinical outcomes and efficiencies from EHRs.

ITEC 781 - Artificial Intelligence and Informatics I (3 Credits)

Fundamental concepts in artificial intelligence, including intelligent agents, problem solving by searching, logic-based knowledge representation and inference, planning, and probabilistic reasoning. Basic techniques for building intelligent computer systems and applications to problems.

Prerequisites: B or better in [STAT 700](#), [STAT 701](#), [BIOS 700](#), or [BIOS 757](#); B or better in [ITEC 749](#); B or better in [CSCE 145](#), [CSCE 204](#), or [ITEC 352](#).

ITEC 782 - Artificial Intelligence and Informatics II (3 Credits)

Artificial Intelligence concepts including algorithmic decision making. Machine learning techniques such as learning from examples, learning probabilistic models, and reinforcement learning. Applications of AI technologies, e.g., natural language processing, robotics, and perception.

Prerequisites: B or better in [ITEC 781](#).

ITEC 785 - Enterprise Data Analytics (3 Credits)

Mathematical and software tools and quantitative reasoning to the analysis of enterprise data. Fundamental concepts and essential skills in data analytics. Critical and creative thinking about quantitative and qualitative problems involving enterprise data.

Prerequisites: B or better in **MATH 174**; B or better in **STAT 700** or **STAT 701**; B or better in **ITEC 749**; C or better in **ITEC 264**.

ITEC 786 - Advanced Enterprise Data Analytics (3 Credits)

Advanced concepts, issues, and trends in data analytics. Critical thinking and quantitative and qualitative analytical skills essential for Healthcare, Engineering, and Business among many others.

Prerequisites: B or better in **ITEC 785**.

ITEC 787 - Advanced Data Analytics Tools (3 Credits)

Software tools in data analytics. Advanced analytics techniques. Case studies and problem sets from multiple enterprise domains.

Prerequisites: B or better in **MATH 174** and **STAT 700**; C or better in **ITEC 264**.

ITEC 790 - Special Topics in Informatics (3 Credits)

Advanced concepts, issues, and trends in information technology. Course content varies and will be announced in the schedule of classes by title. May be repeated twice for credit.

ITEC 791 - Introduction to Management of Information Security (3 Credits)

Overview of information security exploring basic concepts and developing knowledge and skills of protecting valuable information assets and systems.

ITEC 792 - Management of Cyber Operations (3 Credits)

Technical and managerial aspects of IT security operations. Securing the cyberinfrastructure, detecting, and mitigating intrusion, monitoring and managing computing systems.

ITEC 793 - Cybersecurity Risk Management (3 Credits)

Risk assessments, risk mitigation strategies, security risks, controls and services, development and implementation of security policies, threat and vulnerability, risk management program.

ITEC 795 - Independent Study in Health Information Technology (1-3 Credits)

Independent study in association with a directing instructor on a topic not covered in standard classes. Contract approved by instructor, advisor, and graduate program director.

ITEC 799 - Thesis Preparation (1-6 Credits)

Thesis Preparation as part of an ITEC master's degree. Students will work under the direction of a major advisor who is a member of the Graduate Faculty.