ETSU currently offers one undergraduate, two graduate, and two dual-enrollment courses that feature SAP content.

Select courses are required in the undergraduate Information Systems and Information Technology undergraduate programs and the graduate Information Technology program. Courses are open to all department students as electives. Professionals and others not pursuing a degree at ETSU may register for courses if they meet the prerequisites or have background sufficient to have prerequisites waived.

"We are looking for highly skilled CS and IT graduates that understand fundamental business processes and concepts. They need to understand the language, terminology, and concepts that are embedded in various systems so that they can jump in and actively begin working on projects."

Manager of Enterprise Solutions for a national security, energy, and defense contractor

“I can program, develop, etc. but that does not mean much when there is a huge jargon barrier. Finance people do not think in variables and methods!”

Information Technology alumnus working as System Analyst for a Fortune 500 company
CSCI 3720 Fundamentals of Business Information Systems

Prerequisite: 60 hours of completed coursework

Course Description: This course presents an overview of information systems in a modern organization and their strategic importance in supporting business processes. Success factors in system implementation are discussed. Common business processes such as procurement, production, and fulfillment are presented and conducted using SAP ERP.

Discussion: CSCI 3720 is designed to help technology-focused students become literate in business concepts, terminology, and processes, and introduce non-technology-focused students to enterprise information systems. SAP ERP is used to bridge the gap between technology and business practice. A business simulation—ERPsim—is used to provide students with experience in diverse facets of SAP ERP in a manner that approximates its use in a realistic business setting. Students gain experience executing several core business processes including procurement, production, and manufacturing.

Outcomes: Each student who completes this course will be able to do the following:

- Explain the importance of IS in business operations and core business concepts related to IS implementation and use.
- Use SAP ERP to enter various standardized business transactions and correct any entry errors.
- Demonstrate the interlocking nature of business processes by following a standardized business process through its entire life cycle in SAP ERP.

Fundamental purpose of a business

Sustain ongoing business operations by meeting a need of a targeted customer base in a mutually beneficial manner.
Maintaining or enhancing investment of owners.
Existing in an environment characterized by risk and competition.
Progressively evolving to meet the demands of an ever-changing customer.
Subject to the regulation of governmental authority.
Recognizing responsibility to various stakeholders.
Often, having a profit focus.

Information Silos

Historically, functional areas maintained independent information systems.
Systems not designed to interface with one another.
Information exchange often paper-based.
Coordinating information exchange and cross-functional handoffs—problematic.
Unified system for data handling can provide efficiencies and permit more effective management.

Isolated Kingdoms

Business Processes, Business Models

Business Process: A collection of activities each taking in input and creating output performed by 1 or more functional areas that creates value for a customer.

Business Model: description of methods and related resources employed by a company and its partners leading to creation of value for a customer and sustaining ongoing operation.
Encompasses what a business is doing, how, and why.
CSCI 4757/5757 Information Systems Implementation

**Prerequisite:** CSCI 3720 or CSCI 5720 or permission of the instructor

**Course Description:** This course presents implementation and configuration issues in contemporary Enterprise Resource Planning (ERP) and other enterprise-scale information systems. Issues such as organizational modeling, decision support processes, role definition and management, information handling logistics, and implementation project management are examined. ERP implementation project management is examined in detail. Students are provided with extensive with hands-on experience configuring an actual enterprise-scale information system (SAP ERP ECC 6.04).

**Discussion:** This course will leverage the foundation laid in CSCI 3720 and CSCI 5720 to deal with more advanced topics in Enterprise Information Systems. Having mastered the basics of SAP ERP from a transaction and business process perspective, students will go "under the hood" and see how SAP can be configured to support the management of a real-world implementation.

**Outcomes:** Each student who completes this course will be able to do the following:

- Explain the importance of information systems in business operations and common implementation and configuration processes.
- Demonstrate knowledge of common key configuration decision points in enterprise software systems decision.
- Present key project management considerations in enterprise software implementation, and describe common success and failure characteristics for projects.
- Demonstrate the interlocking nature of enterprise system configuration by configuring a standardized business process in a contemporary enterprise information system.
Key Business Processes

Classes of data within Enterprise Information System

Organizational Data—represents entities that compose an organization's structure and their relationships with one another.

Master Data—relatively fixed data that is shared across and among business processes.

Transaction Data—data resulting from executing business process steps. Based on 'facts' related to the actual process (situational data).

Financial Accounting vs Managerial Accounting (Controlling)

Financial Accounting (FI)
- Tracks financial impact of transactions on financial statements
- Presents current financial situation of company
- External, legally required reporting focus
- Requirements defined by laws, gov't policies (US-GAAP, IFRS, etc.)
- Country-specific variations and requirements

Managerial Accounting (CO)
- Allocate and manage costs and revenues
- Reporting to support managing the company
- Internal focus
- Reporting requirements are based on company needs

General Ledger (G/L)

All accounting relevant transactions recorded in G/L.

Each G/L structured per chart of accounts (orderly definition of all accounts in the G/L).

Account definitions in COA consist of account number, name, and account type.

Each account designated as profit and loss statement account (sales, expenses) or balance sheet account (assets, liabilities, equity).

The G/L contains collective postings where the details are contained in subsidiary ledgers (or subledgers) which pass summary data on to the G/L.

Subledgers are not part of the G/L.

A Detailed Procurement Process

Requirements Determination

Typically triggered by the material planning process (MRP).

Purchase requisition is a planning document with no external obligation.

May result is requisition for item with no material master. If MM exists, can be referenced specifically in requisition.

No FI or CO impact to process steps (unless commitment management being used). No material documents generated or changed.
CSCI 4767/5767 Enterprise Programming

Prerequisite: CSCI 2910 and (CSCI 3720 or CSCI 5720) or permission of the instructor

Course Description: This course will present ERP programming in a contemporary environment to those students who are experienced programmers. Contemporary ERP development techniques will be surveyed and used in projects.

Discussion: This course will present SAP developing using ABAP. Students will learn the fundamentals of the language and gain experience implementing a variety of ABAP programs. Both procedural and object-oriented development will be covered using ABAP Objects.

Outcomes: Each student who completes this course will be able to do the following:
- Use ABAP to produce solutions for various ERP-related projects.
CSCI 5720 Enterprise and e-Business Integration

**Prerequisite:** graduate standing or permission of the instructor

**Course Description:** This course will cover major topics related to business-to-business (B2B) e-Business and internal enterprise application integration. Students will gain experience implementing B2B and enterprise application components. SAP NetWeaver Enterprise Portal will be introduced and used in projects.

**Discussion:** This course introduces graduate students to integrated business processes through ERP systems. ERPsim (also used in CSCI 3720) is used as a vehicle for introducing ERP concepts and usage. SAP NetWeaver concepts are covered, and SAP NetWeaver Enterprise Portal is introduced as a mechanism for implementing

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**What Is ABAP?**

Originally: Allgemeiner Bericht-Aufbereitungs-Prozessor (Generic Report Preparation/Generation Processor)

Now: Advanced Business Application Programming

Created by SAP initially for report creation. Later evolved into full language. Made public for program customization and enhancement by companies.

Notable for its database abstraction (logical databases) and ease of database interaction. Embedded SQL statements in code (Open SQL). Platform independent.

Extended in 1998 to include Object support (ABAP Objects). Developing using OO model recommended, but legacy procedural coding still supported.

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**Developing In an Established Environment**

Programming in an environment with many pre-existing named components.

- Name collision can break existing functionality.
- Program namespaces beginning A through Z are reserved for use by SAP. Y and Z can be used by customers.
- Modification/programming only possible with a developer key and appropriate configuration. (SCC4)

Key is client and username dependent.

Keys provided by SAP based on license agreement. May require additional payment.

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**SE80 ABAP Workbench**

ABAP DEVELOPMENT WORKBENCH

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**Object Oriented ABAP Development**

OO often considered superior to procedural programming due to encapsulation of data with related functionality.

ABAP Objects similar conceptually to languages like C++ and Java.

Backwards compatible with procedural ABAP, so objects can be used in procedural coding.

Some language constructs considered deprecated (yet still supported in procedural ABAP) are disallowed in ABAP objects.

Just as in other OO languages, ABAP Objects supports:

- **Inheritance**—one class shares structure and behavior with another
- **Polymorphism**—different (but related) objects have the same communication interface
- **Events**—objects respond when triggered. Objects can trigger an event.
business processes. Students will survey contemporary peer-reviewed ERP literature in course readings, and will lead the class in discussing contemporary issues facing corporate IT.

Outcomes: Each student who completes this course will be able to do the following:

- Identify key elements in Enterprise Information Systems (EIS) management and Enterprise Application Integration (EAI).
- Relate various issues in EIS management and EAI to the formulation of an effective corporate computing strategy.
- Compare contemporary EAI alternatives and major issues related to successful implementation of EAI.
- Complete typical transactions with a contemporary ERP system and explain the overall workflow.
- Successfully create end-user applications in an ERP-related composite application environment.

**CSCI 5730 Enterprise Information Systems**

**Prerequisite:** CSCI 5720

**Course Description:** This course will assess the role and discuss the implementation of Enterprise Information Systems (EIS) in modern organizations. Topics such as data quality and integrity, business process modeling and management, large scale system integration, and EIS configuration will be covered. Advanced coverage of SAP NetWeaver will be featured.

**Discussion:** NetWeaver coverage begun in 5720 will be continued in this course. Students complete projects in Visual Composer and NetWeaver Developer Studio (WebDynpro for Java). ARIS Business Process Modeler is introduced and used in Business Process Modeling projects. Understanding the underlying technology of Service-Oriented Architecture (SOA), its use, and its value within an organization is a course focal point. Business Network Transformation is presented as a key contemporary issue. Students will survey contemporary peer-reviewed ERP literature in course readings, and will lead the class in discussing contemporary issues facing corporate IT.

**Outcomes:** Each student who completes this course will be able to do the following:

- Identify key elements in EIS management.
- Relate various issues in EIS management to the formulation of an effective corporate computing strategy.
- Explore various critical factors in EIS deployment in organizations.

**SAP Student Recognition**

Students completing 3 courses with significant SAP content earn a SAP Student Recognition Certificate jointly awarded by ETSU and SAP UA.

![SAP Student Recognition Certificate](image)

For additional information or to participate further in ETSU’s efforts, please contact Dr. Pittarese (pittares@etsu.edu), ETSU SAP Coordinator.