

Department of Instructional Systems and Workforce Development

Department Head:

Office: 100 Industrial Education Building

Website: iswd.msstate.edu

The Department of Instructional Systems and Workforce Development prepares students with marketable technology skills to pursue careers in a variety of professional settings, including K-12 schools, higher education, and an array of industry and business environments. The department offers three undergraduate bachelor's degrees, Master of Science in Technology, Master of Science in Instructional Technology, Educational Specialist, and Doctor of Philosophy degrees. Additionally, pre-service teachers and licensed teachers may add additional endorsements in Business Technology (411), Information and Communication I and II (981, 982), Technology Foundations (984), STEM (983), and Career Pathway Experience (917). They may also earn the IC³ certification and online learning certifications.

Students may also complete the Veterans' Certificate Program (<http://iswd.msstate.edu/current-students/programs/veterans>) that consists of 15 semester hours of coursework designed for anyone at any level who would like to serve veterans. Two minors consisting of 18 hours are also offered to students interested in either industrial technology or information technology services.

Business Technology Education Major (BTE)

Major Advisor: Pamela Scott-Bracey, 258 IED Building

Upon program completion, the Business Technology Education (BTE) graduates will receive 10 teaching endorsements and be qualified to teach all courses of the Mississippi Business Management Framework and the Business Technology Framework as well as Economics, Information and Communication Technology I and II, Technology Foundations, and Career Pathway Experiences. Graduates may teach at middle schools, high schools, and career and technology centers. Graduates acquire a national certification in computer literacy as well as certification to teach online. The BTE degree is offered as a face-to-face program and a distance learning degree. Students may choose to add a minor in business administration and add the STEM endorsement.

Licensure areas with Mississippi Department of Education licensure number are as follows:

- 193 Economics
- 405 Business Management (formerly 105 Business Education)
- 411 Business Technology (formerly 111 Computer Applications)
- 917 Career Pathway Experience
- 952 Accounting and Finance
- 955 Management
- 956 Marketing
- 981 Information and Communication Technology I
- 982 Information and Communication Technology II
- 984 Technology Foundations

The MSU Bulletin is not the final source of information; departmental advisement is important for course sequence and selection. Students should get advisement and approval from their MSU advisors for course scheduling.

Information Technology Services Major (ITS) non-teaching

Major Advisors: Vicki Keel, 114; Kun Huang, 261; Sang Joon Lee, 103; Wei-Chieh Yu, 102 IED Building

This curriculum is designed to prepare students for the use of computer-based information systems, particularly software applications and hardware, development and implementation of information technology end-user support, information technology project management, and technology training.

By completing the business requirements for the ITS degree, students may be eligible to receive a minor in Business Administration from the College of Business. ITS majors interested in a minor in business administration should contact an academic coordinator in room 106 McCool Hall.

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Industrial Technology Major (INDT) non-teaching

Major Advisors: John Wyatt, Mickey Giordano, and Mervin Mize

Office: 110 IED Building

The industrial education curriculum is designed for students who want to prepare for employment leading to supervisory and management positions in the production, automation, maintenance, or logistics areas of industry. The role of the Industrial Technology graduate is that of a facilitator of ideas from senior management to the production floor. Successful completion of the four-year curriculum would provide an excellent background in science, mathematics, design and human relations. This is coupled with the practical use of both manual and automated machinery and the associated tools, as well as knowledge of industrial manufacturing processes, materials and logistics.

To this extent the curriculum is divided into three concentrations:

- Industrial Automation
- Industrial Distribution
- Manufacturing & Maintenance Management

These concentrations are designed to give students a specialization that they can take into the workforce and build upon throughout their industrial career. Graduates should quickly become proficient in both the supervisory and administrative roles of dealing with personnel, and depending upon the concentration selected, the graduate should become adept in the various aspects of the manufacture, distribution and automation of industrial products and processes. Employment opportunities are excellent for this degree.

The MSU Bulletin is not the final source of information. Departmental advisement is critically important for the course sequence and selection. Students should always get advisement and approval from their MSU advisor for course scheduling.

Upper division courses (3000 level and up) must be taken at a senior college or university. See a faculty advisor for prerequisites and proper course sequence.

NOTE: This curriculum lends itself well to a minor in Business Administration or Marketing.

Business Technology Education

English Composition

EN 1103	English Composition I	3
or EN 1163	Accelerated Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

Mathematics

MA 1313	College Algebra	3
MA higher than MA 1313 (see General Education courses)		3

Science

Natural Science with lab (see General Education courses)		3
Natural Science with lab (see General Education courses)		3

Math/Science Elective

See General Education courses		3
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Humanities

See General Education courses		6
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Fine Arts

See General Education courses		3
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Social/Behavioral Science

PSY 1013	General Psychology	3
EC 2113	Principles of Macroeconomics	3

Major Core

EDF 3333	Social Foundations of Education	3
EDF 4243	Planning for the Diversity of Learners ¹	3
EPY 3143	Human Development and Learning Strategies in Education ¹	3
EPY 3253	Evaluating Learning ¹	3
EDX 3213	Individualizing Instruction for Exceptional Children	3
EDS 4873	Seminar in Managing the Secondary Classroom ¹	3
or BTE 4873	Professional Seminar in Vocational/Technical Education	
BTE 3003	Practicum in Technology Teacher Education	3

BTE 4886	Teaching Internship ¹	6
BTE 4896	Teaching Internship ¹	6
Oral Communication Requirement		
CO 1003 or CO 1013	Fundamentals of Public Speaking Introduction to Communication	3
Writing Requirement		
MGT 3213	Organizational Communications	3
Concentration Requirements		
ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
BL 2413 or PHI 3013	The Legal Environment of Business Business Ethics	3
EC 2123	Principles of Microeconomics	3
MKT 3013	Principles of Marketing	3
TKB 2123	Database Management	3
TKB 2133	Spreadsheet Design and Analysis	3
TKB 3133	Administrative Management and Procedures	3
TKB 4543	Information Processing	3
TKB 4563 or TKT 4743 or TKT 4763	Introduction to Data Networks Elements of Electronic Desktop Publishing Digital Tools for 21st Century Teaching and Learning	3
TKB 4583	Graphics and Web Design	3
TKT 4143	History and Philosophy of Career and Technology Education	3
BTE 4213	Methods of Teaching Business Subjects	3
BTE 4463	Method of Teaching Business Technology	3
TKT 4493	Methods of Teaching Career Pathways Experiences	3
Approved elective		3
Total Hours		123

¹ Requires admission to Teacher Education.

Information Technology Services Major (ITS) non-teaching

General Education Requirements

English Composition

EN 1103 or EN 1163	English Composition I Accelerated Composition I	3
EN 1113 or EN 1173	English Composition II Accelerated Composition II	3

Mathematics

MA 1313	College Algebra	3
ST 2113 or BQA 2113	Introduction to Statistics Business Statistical Methods I	3

Science

Natural Science w/lab - see General Education courses	3
Natural Science w/lab - see General Education courses	3

Math/Science Elective

See General Education courses	3
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Humanities

see General Education requirement	6
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Fine Arts

See General Education requirement	3
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Social/Behavioral Science		
See General Education requirement		6
College Core		
Oral Communication Requirement		
CO 1003 or CO 1013	Fundamentals of Public Speaking Introduction to Communication	3
Computer Literacy Requirement		
TKT 1273	Computer Applications (or other approved course)	3
Writing Requirement		
MGT 3213	Organizational Communications	3
Major Core		
Business Courses		
ACC 2013	Principles of Financial Accounting	3
ACC 2023	Principles of Managerial Accounting	3
BL 2413	The Legal Environment of Business	3
EC 2113	Principles of Macroeconomics	3
EC 2123	Principles of Microeconomics	3
MGT 3114	Principles of Management and Production	4
MGT 3513	Introduction to Human Resource Management	3
BIS 1523	Web Development I	3
BIS 3233	Management Information Systems	3
Technology Courses		
TKB 2123	Database Management	3
TKB 2133	Spreadsheet Design and Analysis	3
TKB 3133	Administrative Management and Procedures	3
TKB 4543	Information Processing	3
TKB 4563	Introduction to Data Networks	3
TKB 4573	Data Networks II	3
TKB 4583	Graphics and Web Design	3
TKT 3213	Call Center Management	3
TKT 3463	Computer Repair and Maintenance	3
TKT 3623	Designing Technology Training	3
TKT 4203	Emerging Technologies	3
TKT 4343	Information Technology Project Management	3
TKT 4623	Delivery and Evaluation of Technology Training	3
TKT 4683	Senior Seminar in Information Technology Services	3
TKT 4743	Elements of Electronic Desktop Publishing	3
TKT 4753	Media for Presentations, Instruction and Gaming	3
Approved Elective		3
Total Hours		124

Minor in Information Technology Services

The Information Technology Services minor is for students who wish to learn technology, yet are not majoring in ITS. A minor in ITS will aid students in becoming familiar with the general concepts of information technology services and sub-components such as instructional technology, computer repair, and multimedia development and design.

To obtain this minor, a minimum of 18 hours must be taken from the following courses:

TKB 3133	Administrative Management and Procedures	3
TKB 4283	Advanced Office Systems	3
TKB 4543	Information Processing	3
TKB 4563	Introduction to Data Networks	3
TKB 4583	Graphics and Web Design	3
TKT 3463	Computer Repair and Maintenance	3

TKT 4343	Information Technology Project Management	3
TKT 4743	Elements of Electronic Desktop Publishing	3
TKT 4753	Media for Presentations, Instruction and Gaming	3
TKT 4813	Introduction to Instructional Systems	3

Industrial Technology Major (INDT) non-teaching

Major Advisors: Dr. John Wyatt, Mickey Giordano, and Mervin Mize

Office: 110 IED Building

General Education Requirements

English Composition

EN 1103	English Composition I	3
or EN 1163	Accelerated Composition I	
EN 1113	English Composition II	3
or EN 1173	Accelerated Composition II	

Mathematics

MA 1323	Trigonometry	3
MA 1613	Calculus for Business and Life Sciences I	3
or MA 1713	Calculus I	
BQA 2113	Business Statistical Methods I ¹	3
or MA 2113	Introduction to Statistics	
or ST 2113	Introduction to Statistics	

Science

CH 1043	Survey of Chemistry I	3
CH 1051	Experimental Chemistry	1
PH 1013	Physical Science Survey I	4
& PH 1011	and Physical Science Laboratory I	
PH 1023	Physical Science Survey 2	3

Humanities

See General Education courses 6

Fine Arts

See General Education courses 3

Social/Behavioral Science

See General Education courses ² 6

Major Core

TKI 1203	Industrial Communications	3
TKI 1814	Basic Industrial Electricity and Electronics	4
TKI 2113	Introduction to PLC Programming	3
TKI 2123	Introduction to CNC Programming	3
TKI 2323	Welding Technology	3
TKI 3044	Industrial Safety	4
TKI 3063	Industrial Human Relations	3
TKI 3104	Advanced Industrial Electricity and Electronics	4
TKI 3223	Industrial Materials Technology	3
TKI 3243	Industrial Metrology	3
TKI 3343	CAD/CAM	3
TKI 3363	Motion and Time Study	3
TKI 3373	Forecasting and Cost Modeling	3
TKI 3683	CNC Machining Processes	3
TKI 3813	Writing for Industry	3
TKI 4113	Industrial Fluid Power	3
TKI 4213	Survey of Energy Sources and Power Technology	3

TKI 4224	Quality Assurance	4
TKI 4801	Senior Seminar	1

Writing Requirement

fulfilled by TKI 3813

Footnotes

- ¹ Required for General Business Administration minor
² EC 2113 and EC 2123 recommended for business minors

Choose one of the following concentrations:**Industrial Distribution Concentration (IDIS)**

The industrial distribution concentration is designed for students who wish to pursue a career in the transportation of goods both nationally and internationally. This concentration is concerned with a logistical approach to the movement of products. The industrial distribution concentration lends itself to gaining a marketing minor.

MKT 3013	Principles of Marketing	3
MKT 4113	Personal Selling	3
MKT 4123	Advertising	3
Marketing (MKT) electives - See advisor		6
TKI Electives - See advisor		9
Total Hours		124

Industrial Automation Concentration (IAUT)

The industrial automation concentration is designed for students who wish to enter a career in the automation of manufacturing processes. This concentration is concerned with fixed automation, robotics, and the trouble shooting of automated systems and their role in the manufacturing environment. This concentration lends itself to a general business administration minor.

ACC 2013 or ACC 2203	Principles of Financial Accounting Survey of Accounting	3
BL 2413	The Legal Environment of Business	3
TKI 4103	Industrial Control Systems	3
TKI 4203	Automated Systems	3
TKI 4233	Maintenance Management	3
TKI 4303	Industrial Robotics	3
TKI 4403	Automated Systems II	3
TKI Electives - See advisor		3
Total Hours		124

Manufacturing & Maintenance Management Concentration (MFMA)

The manufacturing and maintenance management concentration is designed for students who want to enter a career in the manufacturing sector. This concentration is concerned with the management, maintenance, and day-to-day operation and improvement of manufacturing processes. This concentration lends itself to a general business administration minor.

ACC 2013	Principles of Financial Accounting	3
BL 2413	The Legal Environment of Business	3
TKI 4103	Industrial Control Systems	3
TKI 4233	Maintenance Management	3
TKI 4263	Manufacturing Technology and Processing	3
TKI 4373	Lean Six Sigma	3
TKI 4463	Manufacturing Technology & Processes II	3
TKI Electives - See advisor		3
Total Hours		124

Minor in Industrial Technology

A minor in Industrial Technology will help non-industrial technology students who wish to enter the field of manufacturing. Students will become familiar with the basic concepts of industrial practices and the machines and components that make up many manufacturing companies. This is combined with laboratory work to enhance these concepts and to give an understanding of how the many manufacturing systems are integrated. Academic advising is available from the Industrial Technology program in the Industrial Education Building.

A minimum of 21 hours must be taken to obtain the INDT minor. A minimum of 12 hours must be taken at MSU to receive the minor. Note that some choices requires others as prerequisites.

Required Courses

TKI 1203	Industrial Communications	3
TKI 2113	Introduction to PLC Programming	3
TKI 2123	Introduction to CNC Programming	3
TKI 4113	Industrial Fluid Power	3
Electives - Select any three:		
TKI 3044	Industrial Safety	
TKI 3223	Industrial Materials Technology	
TKI 4224	Quality Assurance	
TKI 4233	Maintenance Management	
TKI 4263	Manufacturing Technology and Processing	
TKI 4303	Industrial Robotics	

Veterans' Certificate Program

Major Adviser: Dr. Linda F. Cornelious

Office: 256 Industrial Education Building

The Veterans' Certificate Program, which is offered at the undergraduate and graduate levels, consists of 15 semester hours of coursework (3 hours prerequisite and 12 hours required core courses). The certificate is designed for anyone at any level who would like to serve veterans. Employees of colleges and universities, corporations, government at all levels, and other professionals who are interested in serving veterans should obtain this certificate.

As part of the University's ongoing commitment to veterans, the certificate provides the knowledge, skills, and competencies that individuals will need to support veterans as they transition to civilian life.

The curriculum is designed to increase the capabilities of individual within the federal and state governments, educational institutions, and private corporations who work with veterans' issues. Individuals working in the educational benefits area will find this program of particular value. The attainment of the Veterans' Certificate could be used as a precursor to position advancement within any government agency, federal or state, that deals with matters relevant to veterans.

Prerequisite Course:

TKB 3133	Administrative Management and Procedures	3
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Required Program Courses:

TKT 4403	Strategies for Campus Transition and Success for Veterans	3
or TKT 6403	Strategies for Campus Transition and Success for Veterans	
TKT 4413	Veterans' Benefits and Certification-Policies and Procedures	3
or TKT 6413	Veterans' Benefits and Certification-Policies and Procedures	
TKT 4423	History of Administration of Veterans' Benefits	3
or TKT 6423	History of Administration of Veterans' Benefits	
TKT 4433	The Development of Veterans' Benefits, Laws and Policies	3
or TKT 6433	The Development of Veterans' Benefits, Laws and Policies	

Total Hours		15
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