Information Systems, B.S.I.S.

Degree Offered

- Bachelor of Science

Nature of the Program

The ever increasing use of technology has taken almost every business, non-profit organization, and government agency to a drastically different place from where they were only decades ago. Computers and the Internet have allowed companies to conduct operations, utilize resources, and sell products in almost any area of the world. Information systems specialists analyze the complex operational problems of private and public industry; and design, build, implement, and manage innovative software for improving operations from both a technological and business perspective.

Bachelor of Science in Information Systems (BSIS)

WVU Tech Information Systems program is designed to train highly skilled professionals with expertise in networking, database management, computer systems management, and website development. The program curriculum contains 17 courses taught by Computer Science and Information Systems faculty that are specially developed for Information Systems majors. They include courses such as Database Management, e-Commerce, and Computer Security. Those courses are supplemented by highly specialized Business Management courses such as Visual Basic for Business applications, Business Information Systems, and Business Statistic s. For elective requirements, the department offers a wide variety of courses on computer systems, programming, and special topics such as video game development, artificial intelligence, image processing, and computer graphics. Students have the opportunity to learn more theoretical aspects of computing, other programming languages, advanced programming concepts, or other applications of computing by taking Computer Science electives of their interest.

Program Educational Objectives

In three to five years after graduation, the graduates of the WVU Tech BS degree program in Information Systems will do the following:

- Demonstrate success in the professional practice of Information Systems through recognition of their contributions to an organization or entrepreneurial accomplishments.
- Alternatively or additionally, demonstrate success in the field of computing by continuing formal education through earning post graduate degrees, technical certificates, or other technical training.
- Demonstrate lifelong learning habits either as a professional or a researcher in their field.

FACULTY

CHAIR
- Ranjith Munasinghe - Ph.D.

PROFESSOR
- Ranjith Munasinghe - Ph.D. (University of Wyoming)

ASSOCIATE PROFESSOR
- Afrin Naz - Ph.D. (University of North Texas)

ASSISTANT PROFESSORS
- Mohammad Ahmad - Ph.D.
- Cao Thang Bui - Ph.D.

General Education Foundations

Please use this link to view a list of courses that meet each GEF requirement. ([http://registrar.wvu.edu/gef/](http://registrar.wvu.edu/gef/))

NOTE: Some major requirements will fulfill specific GEF requirements. Please see the curriculum requirements listed below for details on which GEFs you will need to select.

General Education Foundations

<table>
<thead>
<tr>
<th>F1 - Composition &amp; Rhetoric</th>
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<tbody>
<tr>
<td>ENGL 101</td>
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<tr>
<td>&amp; ENGL 102</td>
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<tr>
<td>or ENGL 103</td>
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</table>
Information Systems, B.S.I.S.

F2A/F2B - Science & Technology 4-6
F3 - Math & Quantitative Reasoning 3-4
F4 - Society & Connections 3
F5 - Human Inquiry & the Past 3
F6 - The Arts & Creativity 3
F7 - Global Studies & Diversity 3
F8 - Focus (may be satisfied by completion of a minor, double major, or dual degree) 9

Total Hours 31-37

Please note that not all of the GEF courses are offered at all campuses. Students should consult with their advisor or academic department regarding the GEF course offerings available at their campus.

Curriculum Requirements

University Requirements 25
Program Requirements 23
Information Systems Major Requirements 72
Total Hours 120

University Requirements

General Education Foundations (GEF) 1, 2, 3, 4, 5, 6, 7, and 8 (31-37 Credits)
Outstanding GEF Requirements 1, 2, 5, 6, 7, and 8 18
WVUE 191 First Year Seminar 1
General Electives (Students are free to choose any college level course to fulfill this requirement) 6
Total Hours 25

Program Requirements

Laboratory Science, Students may select any of the two four credit hour BIOL, CHEM, PHSC, or PHYS courses with lab*: (also fulfills GEF 2 and GEF 8) 8
ENGL 305 Technical Writing 3
MATH 124 Algebra with Applications (GEF 3) 3
MATH 150 Applied Calculus (GEF 8) 3
ACCT 201 Principles of Accounting 1 3
ECON 202 Principles of Macroeconomics (GEF 4) 3

Total Hours 23

* Department approval is required for four-credit-hour courses with laboratory components from other science disciplines.

Information Systems Major Requirements

A minimum GPA of 2.0 is required in all CS and ISYS courses.

CS 121 Computer Science 1 4
CS 122 Computer Science 2 4
CS 222 Intro Software Engineering 3
CS 231 Introduction to Computer Organization 3
CS 321 Introduction to Networking 3
CS 324 Database Management 3
CS 365 Computer Languages 1
CS 465 Cybersecurity Principles and Practice 3
CS 480 Capstone Project - Design 2
CS 481 Capstone Project - Implementation 3
CS 491 Professional Field Experience 4
ISYS 101 Introduction to Information Systems 1 3
ISYS 102 Introduction to Information Systems 2 3
ISYS 115  Discrete Structures  3
ISYS 270  Linux  3
ISYS 325  C#  3
ISYS 366  e-Commerce  3
MANG 386  Business Statistics  3
MANG 420  Business Information Systems  3
**Minor(s) or Coursework Option**  15

Coursework Option:
- Technical Electives - 9 credits (See approved list)
- Six (6) credits of 300-400 Level Electives (Students are free to choose any 300-400 college level courses to fulfill this requirement)

Total Hours  72

* Minors option: Complete all the requirements of at least one minor available to Information Systems majors.

**Approved Technical Electives**

**Accounting**
- ACCT 201  Principles of Accounting 1
- ACCT 202  Principles of Accounting 2
- ACCT 300-400 Level***

**Biology**
- BIOL 111  General Biology **
- BIOL 112  General Biology **
- BIOL 300-400 Level***

**Chemistry**
- CHEM 111 & 111L  Survey of Chemistry 1 and Survey of Chemistry 1 Laboratory **
- CHEM 112 & 112L  Survey of Chemistry 2 and Survey of Chemistry 2 Laboratory **
- CHEM 115 & 115L  Fundamentals of Chemistry 1 and Fundamentals of Chemistry 1 Laboratory **
- CHEM 116 & 116L  Fundamentals of Chemistry 2 and Fundamentals of Chemistry 2 Laboratory **
- CHEM 300-400 Level***

**Computer Science**
- CS 265  C Programming
- CS 300-400 Level***

**Cybersecurity**
- CYBE 266  Foundations of Cybersecurity
- CYBE 300-400 level***

**Economics**
- ECON 201  Principles of Microeconomics
- ECON 300-400 Level***

**Physical Science**
- PHSC 101  Introductory Physical Science 1 **
- PHSC 102  Introductory Physical Science 2 **
- PHSC 300-400 Level***

**Physics**
- PHYS 101  Introductory Physics 1 **
- PHYS 102  Introductory Physics 2 **
- PHYS 111  General Physics 1 **
- PHYS 112  General Physics 2 **
- PHYS 300-400 Level***
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** Unless taken as a science requirement
Other courses are accepted as technical electives only with advance approval from the department. Most of the 300-400 level ACCT, BCOR, BIOL, CHEM, ECON, FINC, MANG, and PHYS courses are considered acceptable.
***Department approval required

**Suggested Plan of Study**

**First Year**

<table>
<thead>
<tr>
<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENGL 101 (GEF 1)</td>
<td>3</td>
<td>3 ENGL 102 (GEF 1)</td>
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<tr>
<td>MATH 124 (GEF 3)</td>
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<td>3 MATH 150 (GEF 8)</td>
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<tr>
<td>CS 121</td>
<td>4</td>
<td>4 CS 122</td>
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<tr>
<td>ISYS 101</td>
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<td>3 ISYS 102</td>
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<tr>
<td>WVUE 191</td>
<td>1</td>
<td>Elective</td>
<td>3</td>
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**Second Year**

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<thead>
<tr>
<th>Fall</th>
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<th>Spring</th>
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<tbody>
<tr>
<td>ACCT 201</td>
<td>3</td>
<td>3 ECON 202 (GEF 4)</td>
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<tr>
<td>CS 231</td>
<td>3</td>
<td>3 CS 222</td>
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<td>ISYS 115</td>
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<td>3 CS 324</td>
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<tr>
<td>Elective</td>
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<td>3 ISYS 270</td>
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<td>GEF 5</td>
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<td>GEF 6</td>
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**Third Year**

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<th>Fall</th>
<th>Hours</th>
<th>Spring</th>
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<tr>
<td>CS 321</td>
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<td>3 ENGL 305</td>
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<tr>
<td>ISYS 325</td>
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<td>3 CS 365</td>
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<tr>
<td>MANG 386</td>
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<td>3 ISYS 366</td>
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<tr>
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<td>Laboratory Science</td>
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<tr>
<td>GEF 2</td>
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<td>GEF 8</td>
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**Fourth Year**

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<th>Fall</th>
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<th>Spring</th>
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<tbody>
<tr>
<td>CS 480</td>
<td>2</td>
<td>2 CS 465</td>
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<tr>
<td>MANG 420</td>
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<td>3 CS 481</td>
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<td>300-400 Level Elective or Minor course</td>
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<td>CS 491</td>
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<tr>
<td>Technical Elective or Minor course</td>
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<td>3 300-400 Level Elective or Minor course</td>
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<tr>
<td>GEF 7</td>
<td>3</td>
<td>3 Technical Elective or Minor course</td>
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Total credit hours: 120

**Major Learning Outcomes**

**INFORMATION SYSTEMS**

The BS degree in Information Systems at WVU Tech enables students to attain:

- An ability to apply knowledge of computing and mathematics appropriate to the program’s student outcomes and to the discipline.
- An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
- An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
- An ability to function effectively on teams to accomplish a common goal.
- An understanding of professional, ethical, legal, security and social issues and responsibilities.
- An ability to communicate effectively with a range of audiences.
- An ability to analyze the local and global impact of computing on individuals, organizations, and society.
- Recognition of the need for and an ability to engage in continuing professional development.
• An ability to use current techniques, skills, and tools necessary for computing practice.
• An understanding of processes that support the delivery and management of information systems within a specific application environment.