

# BACHELOR OF SCIENCE IN APPLIED SCIENCE IN INFORMATION TECHNOLOGY 4+1 GRADUATE TRACK

This degree may be earned in eight semesters if students average 16 hours per semester.

The Information Technology 4+1 program leads to the degree of Master of Computing and Information Systems. The flexibility of the program allows the student many choices.

This degree may be earned in ten semesters if students average 16 hours per semester during the first 4 years and 11 hours semester during the last year.

Students wishing to receive the Bachelor of Applied Science in Information Technology - Graduate Track must complete the following:

| COURSE   | TITLE   | S.H. |
|--|---|------|
| <b>FIRST YEAR REQUIREMENT -STUDENT SUCCESS</b>                           |   |      |
| YSU 1500   | Success Seminar   | 1-2  |
| or YSU 1500S   | Youngstown State University Success Seminar   |      |
| or HONR 1500   | Intro to Honors   |      |
| <b>General Education Requirements</b>                                    |   |      |
| ENGL 1550  | Writing 1   | 3-4  |
| or ENGL 1549   | Writing 1 with Support  |      |
| ENGL 1551  | Writing 2   | 3    |
| Mathematics Requirement <small>Included in Support Courses</small>       |   |      |
| Arts and Humanities (6 s.h.)   |   |      |
| PHIL 2625  | Introduction to Professional Ethics   | 6    |
| One additional Arts and Humanities course                                |   |      |
| Natural Sciences (2 courses, 1 with lab) (6-7 s.h.)                      |   |      |
| Social Science (6 s.h.)  |   |      |
| General Education Electives (9 s.h.) <small>Any 3 Gen Ed Courses</small> |   |      |
| <b>Major Requirements</b>  |   |      |
| CSIS 1525  | Survey of Modern Operating Systems  | 3    |
| CSIS 1570  | Web Systems and Technologies  | 3    |
| CSIS 1590  | Foundations of Information Systems & Technologies   | 3    |
| CSIS 1595 & 1595L  | Fundamentals of Programming and Problem-Solving 1 and Fundamentals of Programming and Problem-Solving 1 Lab | 3    |
| CSIS 2605 & 2605L  | Fundamentals of Programming and Problem-Solving 2 and Fundamentals of Programming and Problem-Solving 2 Lab | 3    |
| CSIS 2620  | System Configuration and Maintenance  | 3    |
| CSIS 3701  | Advanced Object-oriented Programming  | 3    |
| CSIS 3722  | Development of Databases  | 3    |
| CSIS 3731  | Human-Computer Interaction  | 3    |
| CSIS 3755  | Information Assurance   | 3    |
| CSIS 3782  | Cisco Networking Academy 1  | 3    |
| INFO 3704  | Business Communication  | 3    |
| or ENGL 3743   | Introduction to Public, Professional and Technical Writing  |      |
| INFO 4880  | Information Technology Analysis and Design  | 3    |
| <b>Concentration area -select 6 hours from one area below</b>            |   |      |
| Data Engineering Concentration   |   |      |

|  |  |     |
|--|--|-----|
| CSIS 3726  | Visual/Object-Oriented Programming                                   |     |
| CSIS 3760  | Electronic Commerce Programming                                      |     |
| CSIS 4822  | Database Applications  |     |
| CSCI 4851  | Data Science and Machine Learning                                    |     |
| CSCI 4852  | Deep Learning  |     |
| CSCI 4871  | Cloud Computing and Big Data   |     |
| Multimedia & Web Concentration   |  |     |
| INFO 3774  | Digital Image Processing   |     |
| INFO 3775  | Digital Multimedia Design & Creation                                 |     |
| INFO 3776  | Client-Side Scripting Techniques                                     |     |
| INFO 3777  | Digital Audio & Video Production                                     |     |
| INFO 5875  | Advanced Multimedia Authoring  |     |
| CSIS 4878  | Mobile Application Development                                       |     |
| Networking Concentration   |  |     |
| CSIS 3783  | Cisco Networking Academy 2   |     |
| CSIS 3784  | Cisco Networking Academy 3   |     |
| CSIS 4823  | Data Communications Networking                                       |     |
| CSIS 5883  | Remote Access and Multilayer Switched Networks                       |     |
| CSIS 5884  | Building Scalable Networks and Advanced Internetwork Troubleshooting |     |
| Security Concentration   |  |     |
| CSIS 3756  | Security Design  |     |
| CSIS 3757  | Computer Forensics   |     |
| CSIS 5828  | Computer Network Security  |     |
| CSCI 5857  | Encoding and Encryption  |     |
| Software Development Concentration   |  |     |
| CSIS 3700 & 3700L  | Data Structures and Objects and Data Structures and Objects Lab      |     |
| CSIS 3701  | Advanced Object-oriented Programming                                 |     |
| CSIS 3726  | Visual/Object-Oriented Programming                                   |     |
| CSIS 3760  | Electronic Commerce Programming                                      |     |
| CSIS 4878  | Mobile Application Development                                       |     |
| CSCI 4862  | Server-Side Web Development and Programming                          |     |
| CSCI 5801  | Software Engineering   |     |
| <b>Dual credit requirements</b> <sup>9 credit hours from the following list of approved courses</sup> <b>9</b> |  |     |
| CSCI 5801  | Software Engineering   |     |
| CSIS 5828  | Computer Network Security  |     |
| Any INFO/CSIS/CSCI 5XXX level course   |  |     |
| <b>Departmental Upper Division Electives</b> <sup>INFO, CSIS, CSCI 37XX and above</sup> <b>9</b>               |  |     |
| numbered courses. Up to 3 semester hours of STEM 4890 may also be used   |  |     |
| <b>Support Courses</b> <b>7</b>  |  |     |
| STAT 2601  | Introductory Statistics  |     |
| MATH 1552  | Applied Business Calculus  |     |
| <b>Minor or Elective Hours to reach 120 hours</b>  |  |     |
| Minor Requirements <sup>Required hours may be greater than 12 based on the chosen minor</sup> <b>12</b>        |  |     |
| Free Electives <sup>Any courses to meet 120 total hours</sup> <b>4</b>   |  |     |
| <b>Total Semester Hours</b> <b>120-123</b>   |  |     |
| <b>Year 1</b>  |  |     |
| <b>Fall</b> <b>S.H.</b>  |  |     |
| YSU 1500   | Success Seminar  | 1-2 |
| or YSU 1500S   | or Youngstown State University Success Seminar                       |     |
| or HONR 1500   | or Intro to Honors   |     |
| ENGL 1550  | Writing 1  | 3-4 |
| or ENGL 1549   | or Writing 1 with Support  |     |
| CSIS 1525  | Survey of Modern Operating Systems                                   | 3   |

|                |  |   |
|----------------|--|---|
| CSIS 1590      | Foundations of Information Systems & Technologies                            | 3 |
| Free Electives | Any courses to meet 120 total hours (i.e., prereq Math course for MATH 1552) | 4 |

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|-----------------------|--------------|
| <b>Semester Hours</b> | <b>14-16</b> |
|-----------------------|--------------|

**Spring**

|                          |   |   |
|--------------------------|---|---|
| ENGL 1551                | Writing 2   | 3 |
| CSIS 1570                | Web Systems and Technologies                          | 3 |
| CSIS 1595                | Fundamentals of Programming and Problem-Solving 1     | 2 |
| CSIS 1595L               | Fundamentals of Programming and Problem-Solving 1 Lab | 1 |
| MATH 1552                | Applied Business Calculus                             | 4 |
| Gen Ed Arts & Humanities |   | 3 |

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| <b>Semester Hours</b> | <b>16</b> |
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**Year 2****Fall**

|                          |   |   |
|--------------------------|---|---|
| CSIS 2605                | Fundamentals of Programming and Problem-Solving 2     | 2 |
| CSIS 2605L               | Fundamentals of Programming and Problem-Solving 2 Lab | 1 |
| CSIS 2620                | System Configuration and Maintenance                  | 3 |
| CSIS 3722                | Development of Databases                              | 3 |
| STAT 2601                | Introductory Statistics                               | 3 |
| Gen Ed Arts & Humanities |   | 3 |

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|                       |           |
|-----------------------|-----------|
| <b>Semester Hours</b> | <b>15</b> |
|-----------------------|-----------|

**Spring**

|                       |   |   |
|-----------------------|---|---|
| CSIS 3731             | Human-Computer Interaction                                    | 3 |
| CSIS 3782             | Cisco Networking Academy 1                                    | 3 |
| INFO 3704             | Business Communication  | 3 |
| or ENGL 3743          | or Introduction to Public, Professional and Technical Writing |   |
| Minor Course          |   | 3 |
| Gen Ed Social Science |   | 3 |

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|-----------------------|-----------|
| <b>Semester Hours</b> | <b>15</b> |
|-----------------------|-----------|

**Year 3****Fall**

|                                      |  |   |
|--------------------------------------|--|---|
| CSIS 3755                            | Information Assurance  | 3 |
| CSIS 3701                            | Advanced Object-oriented Programming   | 3 |
| Departmental Upper Division Elective | INFO, CSIS, CSCI 37XX and above numbered courses. Up to 3 semester hours of STEM 4890 may also be used | 3 |
| Minor Course                         |  | 3 |
| Gen Ed Electives (Any Gen Ed Course) |  | 3 |

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|                       |           |
|-----------------------|-----------|
| <b>Semester Hours</b> | <b>15</b> |
|-----------------------|-----------|

**Spring**

|                                      |                                     |     |
|--------------------------------------|-------------------------------------|-----|
| IT Concentration                     |                                     | 3   |
| PHIL 2625                            | Introduction to Professional Ethics | 3   |
| Minor Course                         |                                     | 3   |
| Gen Ed Natural Sciences with Lab     |                                     | 3-4 |
| Gen Ed Electives (Any Gen Ed Course) |                                     | 3   |

Request a Graduation Evaluation after completing 80-85 s.h. from the STEM Advising Center, 2325 Moser Hall, (330) 941-2512.

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|-----------------------|--------------|
| <b>Semester Hours</b> | <b>15-16</b> |
|-----------------------|--------------|

**Year 4****Fall**

|                  |                      |   |
|------------------|----------------------|---|
| IT Concentration |                      | 3 |
| CSCI 5801        | Software Engineering | 3 |

|                                      |  |   |
|--------------------------------------|--|---|
| Departmental Upper Division Elective | INFO, CSIS, CSCI 37XX and above numbered courses. Up to 3 semester hours of STEM 4890 may also be used | 3 |
|--------------------------------------|--|---|

|              |  |   |
|--------------|--|---|
| Minor Course |  | 3 |
|--------------|--|---|

|                         |                                      |   |
|-------------------------|--------------------------------------|---|
| Dual credit requirement | Any INFO/CSIS/CSCI 5XXX level course | 3 |
|-------------------------|--------------------------------------|---|

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|                       |           |
|-----------------------|-----------|
| <b>Semester Hours</b> | <b>15</b> |
|-----------------------|-----------|

**Spring**

|                                      |  |   |
|--------------------------------------|--|---|
| CSIS 5828                            | Computer Network Security  | 3 |
| INFO 4880                            | Information Technology Analysis and Design   | 3 |
| Departmental Upper Division Elective | INFO, CSIS, CSCI 37XX and above numbered courses. Up to 3 semester hours of STEM 4890 may also be used | 3 |
| Gen Ed Electives (Any Gen Ed Course) |  | 3 |
| Gen Ed Natural Sciences              |  | 3 |

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|                       |           |
|-----------------------|-----------|
| <b>Semester Hours</b> | <b>15</b> |
|-----------------------|-----------|

|                             |                |
|-----------------------------|----------------|
| <b>Total Semester Hours</b> | <b>120-123</b> |
|-----------------------------|----------------|

## Learning Outcomes

1. The 4+1 program in Information Technology provides preparation and instruction that enables students to acquire knowledge and technical competencies to perform network design, implementation, and administration.
2. The 4+1 program in Information Technology provides preparation and instruction that enables students to acquire knowledge and technical competencies to perform information assurance and security.
3. The 4+1 program in Information Technology provides preparation and instruction that enables students to acquire knowledge and technical competencies to design, implement, and administer databases.
4. The 4+1 program in Information Technology provides preparation and instruction that enables students to acquire knowledge and technical competencies to design and implement reports and documents required by the organization through extraction of information using appropriate programs and applications.
5. The 4+1 program in Information Technology provides preparation and instruction that enables students to acquire knowledge and technical competencies to demonstrate information management skills in project management and system analysis, design, implementation, testing and monitoring.
6. The 4+1 program in Information Technology provides preparation and instruction that enables students to acquire knowledge and technical competencies to write and produce or assist in developing interactive programs.
7. The 4+1 program in Information Technology provides preparation and instruction that enables students to acquire knowledge and technical competencies to recognize technical and legal issues involved with technologies and concepts used in information technology.