

# STEM

## SOFTWARE DEVELOPMENT

**Delivery:** Daytime and Evening Classes

**Start:** Fall Semester only, Daytime, Full-time (recommended)

**Start:** Fall or Spring Semester, Evenings, Part-time

### AWARDS

Software Development A.A.S. Degree .....	69 cr.
Software Development Diploma .....	60 cr.
Desktop Programming Certificate .....	27 cr.
Web Programming Certificate .....	27 cr.

### MAJOR DESCRIPTION

This program prepares students to become computer programmers. Learning an array of programming languages used for software development. Students design, write, debug and test application software. Individual effort and teamwork are developed. Skilled graduates are prepared to provide software solutions for employers.

### WORK ENVIRONMENT

Working conditions are generally indoors in offices or laboratories. Programmers convert data from project specifications and problem statements to develop computer programs. Often employed in a team setting, programmers are also working more from home or other remote locations as telecommuting becomes more prevalent.

### POTENTIAL JOB TITLES

- Computer Programmer
- Computer Software Specialist
- Software Architect
- Software Developer
- Software Development Engineer
- Software Quality Assurance Specialist

### SALARY DATA

See latest data at [onetonline.org](https://onetonline.org).

- Average Wage: \$49.53/hour
- Top Earners: \$79.08/hour

### ADDITIONAL INFORMATION

Scan the QR code for more program information and specific program costs; some courses may have additional lab or instructional fees.



### SOFTWARE DEVELOPMENT

#### A.A.S. DEGREE

*This is a suggested sample course sequence.*

*Please contact your program advisor regarding your academic plans.*

First Year - Fall Semester		18 cr
ENGL1150	Composition I .....	3
ISTC1015	Supporting Business Applications .....	3
ISTC1030	Operating Systems I .....	3
ISTC1045	Network Systems I: Introduction to Networking .....	3
ISTC1300	Introduction to Programming .....	3
COMS1020	Interpersonal Communication .....	3

First Year - Spring Semester		18 cr
ISTC1033	Operating Systems II .....	3
ISTC1050	Database Systems .....	3
ISTC1061	Intro to IT Security .....	3
ISTC1100	Business Communications .....	3
ISTC1510	Web Programming I .....	3
	General Elective (any MnTC area) .....	3

Second Year - Fall Semester		18 cr
ISTC1230	System Analysis and Design .....	3
ISTC2110	Web Programming II .....	3
ISTC2320	.NET I † .....	3
ISTC2330	Cross Platform Mobile App Development † .....	3
	General Elective (any MnTC area) .....	3
	Technical Electives (Certificate Dependent)** .....	3

Second Year - Spring Semester		15 cr
ISTC2100	Project Management <b>or</b> ISTC2970 Internship .....	3
ISTC2610	Web Programming III † .....	3
MATS1251	<b>or</b> MATS1240 <b>or</b> MATS1300 <b>or</b> PHIL1250* .....	3
	Technical Electives (Certificate Dependent)** .....	6

#### TOTAL PROGRAM REQUIREMENTS 69

† Course only offered once a year. Please see faculty advisor for schedule.

\* PHIL1250 is 3 credits. MATS1251, 1240 & 1300 are 4 credits. Students who complete MATS1251, 1240, or 1300 will get 1 credit towards their General Elective total.

\*\* Students must choose one of the following certificates to complete the Software Development A.A.S.: Desktop Programming or Web Programming.

## SOFTWARE DEVELOPMENT DIPLOMA

*This is a suggested sample course sequence.*

*Please contact your program advisor regarding your academic plans.*

### First Year - Fall Semester 15 cr

ENGL1150	Composition I.....	3
ISTC1015	Supporting Business Applications.....	3
ISTC1030	Operating Systems I.....	3
ISTC1045	Network Systems I: Introduction to Networking....	3
ISTC1300	Introduction to Programming.....	3

### First Year - Spring Semester 15 cr

ISTC1033	Operating Systems II.....	3
ISTC1050	Database Systems.....	3
ISTC1061	Intro to IT Security.....	3
ISTC1510	Web Programming I.....	3
COMS1020	Interpersonal Communication.....	3

### Second Year - Fall Semester 15 cr

ISTC1230	System Analysis and Design.....	3
ISTC2110	Web Programming II.....	3
ISTC2320	.NET I †.....	3
ISTC2330	Cross Platform Mobile App Development †.....	3
	Technical Electives (Certificate Dependent)**.....	3

### Second Year - Spring Semester 15 cr

ISTC1100	Business Communications.....	3
ISTC2610	Web Programming III †.....	3
	Technical Electives (Certificate Dependent)**.....	6
	General Elective (any MnTC area).....	3

### TOTAL PROGRAM REQUIREMENTS 60

† Course only offered once a year. Please see faculty advisor for schedule.

\*\* Students must choose one of the following certificates to complete the Software Development Diploma: Desktop Programming or Web Programming.

## DESKTOP PROGRAMMING CERTIFICATE

*This is a suggested sample course sequence.*

*Please contact your program advisor regarding your academic plans.*

### First Year - Fall Semester 3 cr

ISTC1300	Introduction to Programming.....	3
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### First Year - Spring Semester 3 cr

ISTC1510	Web Programming I.....	3
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### Second Year - Fall Semester 12 cr

ISTC2110	Web Programming II.....	3
ISTC2315	Java II †.....	3
ISTC2320	.NET I †.....	3
ISTC2330	Cross Platform Mobile App Development †.....	3

### Second Year - Spring Semester 9 cr

ISTC2050	Data Structures †.....	3
ISTC2325	.NET II †.....	3
ISTC2610	Web Programming III †.....	3

### TOTAL PROGRAM REQUIREMENTS 27

† Course only offered once a year. Please see faculty advisor for schedule.

## WEB PROGRAMMING CERTIFICATE

*This is a suggested sample course sequence.*

*Please contact your program advisor regarding your academic plans.*

### First Year - Fall Semester 6 cr

ISTC1300	Introduction to Programming.....	3
WEBD1650	Web Content I †.....	3

### First Year - Spring Semester 6 cr

GRDT1016	Typography and Layout I.....	3
ISTC1510	Web Programming I.....	3

### Second Year - Fall Semester 9 cr

ISTC2110	Web Programming II.....	3
ISTC2320	.NET I †.....	3
ISTC2330	Cross Platform Mobile App Development †.....	3

### Second Year - Spring Semester 6 cr

ISTC2610	Web Programming III †.....	3
WEBD2695	UX/UI Design †.....	3

### TOTAL PROGRAM REQUIREMENTS 27

† Course only offered once a year. Please see faculty advisor for schedule.



**DAKOTA COUNTY**  
**TECHNICAL COLLEGE**

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This information is available in an alternate format by calling 651-423-8469 or TTY/Minnesota Relay at 1-800-627-3529.