

# BACHELOR OF SCIENCE, MAJOR IN SOFTWARE ENGINEERING

**Additional information:** Reference the Program Landing Page (<https://www.shsu.edu/programs/bachelor-of-science-in-software-engineering/>) for additional information, such as cost, delivery format, contact information, or to schedule a visit.

| Code  | Title                           | Hours      |
|---|---------------------------------|------------|
| <b>Bachelor of Science, Major in Software Engineering</b>   |                                 |            |
| Core Curriculum ( <a href="http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/">http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/</a> ) |                                 |            |
| Component Area I (Communication)  |                                 | 6          |
| Component Area II (Mathematics) <sup>1</sup>  |                                 | 3          |
| Component Area III (Life and Physical Science)  |                                 | 8          |
| Component Area IV (Language, Philosophy, and Culture)   |                                 | 3          |
| Component Area V (Creative Arts)  |                                 | 3          |
| Component Area VI (U.S. History)  |                                 | 6          |
| Component Area VII (Political Science/Government)   |                                 | 6          |
| Component Area VIII (Social and Behavioral Sciences)  |                                 | 3          |
| Component Area IX (Component Area Option) <sup>1</sup>  |                                 | 4          |
| <b>Degree Specific Requirements</b>   |                                 |            |
| MATH 1420   | Calculus I <sup>1 &amp; 2</sup> | 4          |
| MATH 1430   | Calculus II                     | 4          |
| MATH 2395   | Discrete Mathematics            | 3          |
| MATH 3379   | Statistical Methods in Practice | 3          |
| 3 ADV MATH hours  |                                 | 3          |
| <b>Major: Foundation</b>  |                                 |            |
| COSC 1436   | Programming Fundamentals I      | 4          |
| COSC 1437   | Programming Fundamentals II     | 4          |
| COSC 2327   | Intro to Computer Networks      | 3          |
| COSC 2329   | Comp Organiz & Machine Lang     | 3          |
| COSC 3312   | Numerical Methods               | 3          |
| COSC 3318   | Data Base Management Systems    | 3          |
| COSC 3319   | Data Structures and Algorithms  | 3          |
| COSC 3321   | Digital System Design           | 3          |
| COSC 3327   | Computer Architecture           | 3          |
| COSC 4314   | Data Mining                     | 3          |
| COSC 4318   | Advanced Language Concepts      | 3          |
| COSC 4319   | Software Engineering            | 3          |
| COSC 4320   | System Modeling and Simulation  | 3          |
| COSC 4332   | Computer Graphics               | 3          |
| COSC 4340   | Spec Topics in Computer Sci     | 3          |
| COSC 4349   | Professionalism and Ethics      | 3          |
| <b>Major: Prescribed Electives</b>  |                                 |            |
| COSC or DFSC Electives (3 hours must be advanced)   |                                 | 6          |
| <b>Electives: General</b>   |                                 |            |
| General Electives   |                                 | 9          |
| <b>Minor: Not Required</b> <sup>3,4</sup>   |                                 |            |
| <b>Total Hours</b>  |                                 | <b>120</b> |

<sup>1</sup> **MATH 1420** satisfies the Core Curriculum requirement for Component Area II (Mathematics) and one semester credit hour of Component Area IX (Component Area Option).

<sup>2</sup> Students who are not eligible to take MATH 1420 may have additional mathematics requirements.

<sup>3</sup> A minor is not required for this degree program; however, a student has the option to add a minor, but to do so additional semester credits hours will be needed above the degree program's stated total semester credit hours.

<sup>4</sup> All minors can be paired with this degree program.

### Notes

Students must earn a 2.0 minimum overall GPA in all coursework.

Students must meet a 2.0 minimum overall major GPA in all major coursework.

Students must earn a 2.0 minimum SHSU GPA in all coursework.

Students must meet a 2.0 minimum SHSU major GPA in all major coursework.

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### First Year

| Fall   | Hours | Spring   | Hours     |
|--|-------|--|-----------|
| Component Area III ( <a href="http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaiii">http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaiii</a> ) |       | 4 Component Area III ( <a href="http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaiii">http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaiii</a> ) | 4         |
| COSC 1436  |       | 4 COSC 1437  | 4         |
| ENGL 1301 <sup>1</sup>   |       | 3 ENGL 1302 <sup>1</sup>   | 3         |
| MATH 1420 <sup>2,3</sup>   |       | 4 MATH 1430  | 4         |
|  |       | <b>15</b>  | <b>15</b> |

### Second Year

| Fall  | Hours | Spring   | Hours     |
|---|-------|--|-----------|
| Component Area IV ( <a href="http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaiv">http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaiv</a> )       |       | 3 Component Area V ( <a href="http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareav">http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareav</a> ) | 3         |
| Component Area VIII ( <a href="http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaviii">http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaviii</a> ) |       | 3 COSC 3312  | 3         |
| COSC 2329   |       | 3 COSC 3318  | 3         |
| HIST 1301 <sup>4</sup>  |       | 3 HIST 1302 <sup>4</sup>   | 3         |
| POLS 2305 <sup>5</sup>  |       | 3 POLS 2306 <sup>5</sup>   | 3         |
|   |       | <b>15</b>  | <b>15</b> |

### Third Year

| Fall  | Hours | Spring              | Hours     |
|---|-------|---------------------|-----------|
| Component Area IX ( <a href="http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaix">http://catalog.shsu.edu/undergraduate/academic-policies-procedures/degree-requirements-academic-guidelines/core-curriculum/#componentareaix</a> ) |       | 3 COSC 3327         | 3         |
| COSC 2327   |       | 3 COSC 4314         | 3         |
| COSC 3319   |       | 3 COSC 4318         | 3         |
| COSC 3321   |       | 3 General Electives | 3         |
| MATH 2395   |       | 3 MATH 3379         | 3         |
|   |       | <b>15</b>           | <b>15</b> |

### Fourth Year

| Fall              | Hours | Spring                         | Hours |
|-------------------|-------|--------------------------------|-------|
| COSC 4319         |       | 3 COSC 4340                    | 3     |
| COSC 4320         |       | 3 COSC 4349                    | 3     |
| COSC 4332         |       | 3 COSC/DFSC Advanced Electives | 3     |
| General Electives |       | 3 COSC/DFSC Electives          | 3     |

|                        |                     |           |
|------------------------|---------------------|-----------|
| MATH Advanced Elective | 3 General Electives | 3         |
|                        | <b>15</b>           | <b>15</b> |

**Total Hours: 120**

- <sup>1</sup> Satisfies Core Curriculum requirement for Component Area I (Communications).
- <sup>2</sup> MATH 1420 satisfies Core Curriculum requirement for Component Area II (Mathematics) and one semester credit hour of the Core Curriculum requirement for Component Area IX (Component Area Option).
- <sup>3</sup> Students who are not eligible to take MATH 1420 may have additional mathematics requirements.
- <sup>4</sup> Satisfies Core Curriculum requirement for Component Area VI (U.S. History).
- <sup>5</sup> Satisfies Core Curriculum requirement for Component Area VII (Political Science/Government).

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The Texas Higher Education Coordinating Board (THECB) marketable skills initiative is part of the state's **60x30TX plan** and was designed to help students articulate their skills to employers. Marketable skills are those skills valued by employers and/or graduate programs that can be applied in a variety of work or education settings and may include interpersonal, cognitive, and applied skill areas.

The BS in Software Engineering is designed to provide graduates with the following marketable skills:

- Software design.
- Database management.
- Complex problem-solving.
- Application of theoretical principles to the solution of technological problems.
- Technical communication.