Software Design & Development

Software Design & Development
The B.S. in Software Design & Development (SDD) degree program integrates fundamental concepts in software design and development with concepts in modern programming languages, database systems, software engineering principles, and mobile and net-centric application development. The focus of this program is on the development of high quality software that meets client needs.

Program Requirements
In addition to the university’s general requirements, students seeking the B.S. in Software Design & Development must meet the requirements listed below.
A minimum grade of "C-" is required for all major and major-related courses with a cumulative major GPA of 2.5 or higher. Students should consult with their academic advisor for courses which may satisfy both the General Studies requirements and common prerequisites.

Software Design & Development
General Education
In addition to the General Education requirements listed on this page, students must satisfy all additional University requirements, including the Gordon Rule, multicultural, and foreign language requirements. With appropriate planning and coordination with an academic advisor, students may satisfy some of the general University requirements through the General Education curriculum. For a complete listing of general degree requirements, refer to the "University Requirements" (http://catalog.uwf.edu/undergraduate/universityrequirements) section of this catalog.

General Education Curriculum:

Communication
ENC 1101 English Composition I 3
ENC 1102 English Composition II 3

Mathematics
Choose one course from Group A and one Additional course from either Group A or Group B 6
from either Group A or Group B

Group A
MAC 1105 College Algebra
MAC 1105C College Algebra with Lab
MAC 2311 Analytic Geometry and Calculus I
MGF 1106 Mathematics for Liberal Arts I
MGF 1107 Mathematics for Liberal Arts II
STA 2023 Elements of Statistics

Group B
MAC 1114 Trigonometry
MAC 1140 Precalculus Algebra
MAC 2233 Calculus with Business Applications
MAC 2312 Analytic Geometry and Calculus II

Social Sciences
Choose one course from Group A and one additional course from either Group A or Group B 6

Group A
AMH 2020 United States since 1877
ANT 2000 Introduction to Anthropology
ECO 2013 Principles of Economics Macro
POS 2041 American Politics
PSY 2012 General Psychology
SPM 2010 Sport in Global Society
SYG 2000 Introduction to Sociology

Group B
AMH 2010 United States to 1877
ANT 2400 Current Cultural Issues
ANT 2100 Introduction to Archaeology
CCJ 2002 Survey of Crime and Justice
CPO 2002 Comparative Politics
DEP 2004 Human Development Across the Lifespan
EUH 1000 Western Perspectives I
EUH 1001 Western Perspectives II
FIN 2104 Personal Financial Planning
GEA 2000 Nations and Regions of the World
GEB 1011 Introduction to Business
IDH 1041 Honors Core 2
INR 2002 International Politics
MMC 2000 Principles of Mass Communication
PLA 2013 Survey of American Law
SOW 2192 Understanding Relationships in the 21st Century
SYG 2010 Current Social Problems

Humanities
Choose one course from Group A and one additional course from either Group A or Group B 6

Group A
ARH 1000 Art Appreciation
LIT 2000 Introduction to Literature
MUL 2010 Music Appreciation
PHI 2010 Introduction to Philosophy
THE 2000 Theatre Appreciation

Group B
AML 2010 American Literature I
AML 2020 American Literature II
AML 2072 Sex, Money, and Power in American Literature
ARH 2050 Western Survey I: Prehistory to the Medieval Period
ARH 2051 Western Survey II: Renaissance to Contemporary
ART 1015C Exploring Artistic Vision
ART 2821 Art and Visual Culture Today
CRW 2001 Introduction to Creative Writing
ENL 2010 History of English Literature I
ENL 2020  History of English Literature II
IDH 1040  Honors Core 1
MUH 2930  The Music Experience: Special Topics
PHI 2103  Critical Thinking
PHI 2603  Ethics in Contemporary Society
REL 1300  World Religions
THE 2300  Survey of Dramatic Literature
SPC 2608  Basic Communication Skills

Natural Sciences
Choose one course from Group A and one additional course from either Group A or Group B

Group A
AST 1002  Descriptive Astronomy
BSC 1005  General Biology for Non-Majors
BSC 1085  Anatomy and Physiology I
BSC 2010  Biology I
CHM 1020  Concepts in Chemistry
CHM 2045  General Chemistry I
ESC 2000  Introduction to Earth Science
EVR 2001  Introduction to Environmental Science
PHY 1020  Introduction to Concepts in Physics
PHY 2048  Calculus-Based Physics I
PHY 2048C  University Physics I - Studio
PHY 2053  Algebra-Based Physics I

Group B
ANT 2511  Biological Anthropology
BOT 2010  General Botany
BSC 1050  Fundamentals of Ecology
BSC 1086  Anatomy and Physiology II
BSC 2011  Biology II
BSC 2311  Introduction to Oceanography and Marine Biology
CGS 2060  Excursions in Computing
CHM 1032  Fundamentals of General Chemistry
CHM 2046  General Chemistry II
CIS 2530  Introduction to Cybersecurity
GEO 1200  Physical Geography
GLY 2010  Physical Geology
MCB 1000  Fundamentals of Microbiology
PHY 2049  Calculus-Based Physics II
PHY 2054  Algebra-Based Physics II

* May be taken with or without lab.
** General Physics is non-calculus based and is usually recommended for non-science majors. University Physics is calculus based and is usually recommended for science majors.
*** Although students receive 5 semester hours credit for PHY 2048C, an additional 3 semester science course will be needed to meet General Education requirements.

Multicultural Requirement
Multicultural Courses
An important component of a liberal education is the study of cultures other than one's own. As such, multiculturalism encompasses the appreciation of the values, expressions, and modes of organization of diverse cultural communities. To further such study, the University of West Florida requires all students pursuing a bachelor's degree to complete at least one course that explores one or more of the dimensions of another culture (language, religion, socio-economic structures, etc.). Students are exempt from this requirement if they have completed an A.A. degree, the general education program at a Florida public institution, or a baccalaureate degree.

The requirement is satisfied by the successful completion of a multicultural course designated on the following list. Several of the selections are General Education courses, and students may enroll in these to meet both the General Education and the multicultural requirements.

*Faculty Senate 11/8/2002
This list is continually updated and students are encouraged to check with their advisors for alternative options.

AML 2010  American Literature I  3
AML 2020  American Literature II  3
AML 3604  African American Literature  3
AML 3624  Black Women Writers  3
AML 4015  Topics in Nineteenth-Century American Literature  3

ARH 1000  Art Appreciation  3
ARH 2050  Western Survey I: Prehistory to the Medieval Period  3
ARH 2051  Western Survey II: Renaissance to Contemporary  3
ARH 3590  Non-Western Art  3
ARH 4302  Late Renaissance Art in Italy  3
ARH 4305  Early Italian Renaissance Art  3
ARH 4412  The Age of Revolution to Romanticism  3
ARH 4450  Modern Art: 1850-1980  3

The following courses are recommended to complete general education requirements:

Lecture Science
CGS 2060  Excursions in Computing  3

Humanities/Contemporary Values
PHI 2603  Ethics in Contemporary Society  3

Mathematics
STA 2023  Elements of Statistics  3

Social Science: Socio-political
MAC 2233  Calculus with Business Applications  3

ECO 2013  Principles of Economics Macro  3

General Education Electives
Choose an additional course from two of the three areas of Humanities, Social Sciences and Natural Sciences
Civic Literacy Requirement

1. Baccalaureate degree-seeking students initially entering a state university fall semester 2018 and thereafter must demonstrate competency in civic literacy through one of the following options prior to graduation:
   a. Successfully passing either POSIX041 American Government or AMHX020 Introductory Survey Since 1877. Each of the courses must include the following competencies:
      i. Understanding of the basic principles and practices of American democracy and how they are applied in our republican form of government;
      ii. An understanding of the United States Constitution and its application;
      iii. Knowledge of the founding documents and how they have shaped the nature and functions of our institutions of self-government; and
      iv. An understanding of landmark Supreme Court cases, landmark legislation and landmark executive actions and their impact on law and society.

2. Achieving the standard score on one of the following assessments:

   **Assessment** | **Standard Score**
   --- | ---
   U.S. Citizenship and Immigration | 60
   Services Naturalization Test |  
   Advanced Placement Government | 3
   and Politics: United States |  
   Advanced Placement United States History |  
   CLEP American Government | 50
   *BOG 8.006 (http://www.flbog.edu/board/regulations/regulations.php)

Common Prerequisites

State mandated common prerequisites must be completed prior to graduation, but are not required for admission to the program. See the Common Prerequisite Manual (https://dlss.flvcc.org/admin-tools/common-prerequisites-manuals) for course substitutions from Florida colleges and universities.

   **ACG 2021** | Principles of Financial Accounting | 3
   **ACG 2071** | Principles of Managerial Accounting | 3
   **CGS 2570** | Personal Computer Applications | 3
   **COP 2253** | Programming Using Java | 3
   **COP 2334** | Programming Using C++ |  
   **ECO 2013** | Principles of Economics Macro | 3
   **ECO 2023** | Principles of Economics Micro | 3
   **MAC 2233** | Calculus with Business Applications | 3
   **STA 2023** | Elements of Statistics | 3

   **Total Hours** | **27**

   * Indicates common prerequisites which can be used to satisfy General Education requirements.
A minimum grade of C- is required for COP 2253, COP 2334, MAC 2233 and STA 2023.

Lower Division Electives

Students must complete sufficient 1000/2000 level electives to satisfy at least 60 sh in the lower division. Current UWF students may use elective courses at any level (1000-4000) to meet this elective requirement.

Total Hours 0-6

Major

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDA 3101</td>
<td>Introduction to Computer Organization</td>
<td>3</td>
</tr>
<tr>
<td>CEN 3031</td>
<td>Software Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>CEN 3032</td>
<td>Software Engineering II</td>
<td>3</td>
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<tr>
<td>CEN 4053</td>
<td>Software Engineering Management</td>
<td>3</td>
</tr>
<tr>
<td>CEN 4078</td>
<td>Secure Software Development</td>
<td>3</td>
</tr>
<tr>
<td>CIS 4595</td>
<td>Capstone Systems Project</td>
<td>3</td>
</tr>
<tr>
<td>COP 3014</td>
<td>Algorithm and Program Design</td>
<td>3</td>
</tr>
<tr>
<td>COP 3022</td>
<td>Intermediate Computer Programming</td>
<td>3</td>
</tr>
<tr>
<td>COP 3530</td>
<td>Data Structures and Algorithms I</td>
<td>3</td>
</tr>
<tr>
<td>COP 3665</td>
<td>Mobile Programming</td>
<td>3</td>
</tr>
<tr>
<td>COP 3813</td>
<td>Server-Side Programming</td>
<td>3</td>
</tr>
<tr>
<td>COP 4610</td>
<td>Theory and Fundamentals of Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>COP 4710</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>COP 4856</td>
<td>Distributed Software Architecture</td>
<td>3</td>
</tr>
<tr>
<td>COP 4864</td>
<td>Client-Side Programming</td>
<td>3</td>
</tr>
<tr>
<td>COT 3100</td>
<td>Discrete Structures</td>
<td>3</td>
</tr>
<tr>
<td>CNT 4007</td>
<td>Theory and Fundamentals of Networks</td>
<td>3</td>
</tr>
<tr>
<td>CTS 4348</td>
<td>Linux System Administration</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Total Hours</td>
<td>54</td>
</tr>
</tbody>
</table>

Major-Related

Two 3000/4000 level advisor approved electives 6

Total Hours 6

† Courses included in the major GPA

Database Systems Certificate

Department: Computer Science

Method of Instruction: Online

Semester Hours: 12

The undergraduate certificate in Database Systems is designed to provide both theory and practical knowledge in database design, development and implementation, advanced database concepts, database administration, as well as data mining. In-depth practice in the use of Structure Query Language (SQL) will also be provided. It will prepare one to be a database professional, or work in any other information system career in which knowledge of capturing, storing, retrieving, organizing, and analyzing information is important.

Prospective students for this certificate must contact the departmental advisor for completing the certificate declaration before the drop/add period of the semester of completion. All courses must have been completed within 5 years of receipt of application with a grade of "C-" or higher.

Choose one of the following Programming prerequisites: 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CGS 3464</td>
<td>Programming Using Visual Basic for Non-Majors</td>
<td>3</td>
</tr>
<tr>
<td>COP 2253</td>
<td>Programming Using Java</td>
<td>3</td>
</tr>
<tr>
<td>COP 2334</td>
<td>Programming Using C++</td>
<td>3</td>
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</table>

Required courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>COP 4710</td>
<td>Database Systems</td>
<td>3</td>
</tr>
<tr>
<td>CAP 4770</td>
<td>Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>CIS 4368</td>
<td>Introduction to Database Security</td>
<td>3</td>
</tr>
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<td></td>
<td>Total Hours</td>
<td>12</td>
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</tbody>
</table>

Geospatial Computing Certificate

Department: Environmental Science

Semester Hours: 22

The Certificate in Geospatial Computing combines foundation computer programming, database and web programming concepts with the specialized study of geographic information systems. This program is designed to address the need for customized GIS desktop and web-based applications related to business, geospatial intelligence, education, healthcare, and numerous other employment fields.

As part of the coursework, students will be provided with the opportunity to become technically proficient in a variety of geospatial technologies and applications through hands-on instruction. The program focuses on Geographic Information Science, data mining, programming, database concepts, computational modeling, automation, and implementation of customized GIS applications. The proposed courses have been carefully combined to reflect the real-world requirements needed for careers in the geospatial sciences. With 100 percent of the coursework offered online, this program is designed to meet the needs of recent graduates looking to enter the workforce and those working professionals who did not acquire a computational GIS background as part of their primary academic training while they continue to hold their position in their chosen field.

Program Requirements

In addition to meeting general UWF requirements, participants must successfully complete the prescribed courses earning a grade of "C-" or better in each course, and secure a combined grade point average of 2.5 or higher for the courses required by the certificate.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS 4043+L</td>
<td>Geographic Information Systems (+Lab)</td>
<td>4</td>
</tr>
<tr>
<td>GIS 4048</td>
<td>Applications in Geographic Information</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Systems</td>
<td></td>
</tr>
<tr>
<td>GIS 4930</td>
<td>Special Topics in Geographic Information</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Science</td>
<td></td>
</tr>
</tbody>
</table>

Choose one of the following 3

<table>
<thead>
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<th>Hours</th>
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<tbody>
<tr>
<td>COP 2253</td>
<td>Programming Using Java</td>
<td>3</td>
</tr>
<tr>
<td>CGS 3464</td>
<td>Programming Using Visual Basic for Non-Majors</td>
<td>3</td>
</tr>
<tr>
<td>COP 2334</td>
<td>Programming Using C++</td>
<td>3</td>
</tr>
<tr>
<td>COP 4710</td>
<td>Database Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following 3

<table>
<thead>
<tr>
<th>Course</th>
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<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>COP 3813</td>
<td>Server-Side Programming (Internet Programming)</td>
<td>3</td>
</tr>
<tr>
<td>CAP 4770</td>
<td>Data Mining</td>
<td>3</td>
</tr>
<tr>
<td>CNT 4007</td>
<td>Theory and Fundamentals of Networks</td>
<td>3</td>
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Select one of the following  

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>GIS 4944</td>
<td>GIS Internship</td>
</tr>
<tr>
<td>GIS 4102</td>
<td>GIS Programming</td>
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Total Hours 22