SOFTWARE DESIGN – SPECIALIZATION (COMPUTING) – BACHELOR OF COMPUTING (HONOURS)

SODE-P-BCH (Software Design)
SODE-I-BCH (Software Design with Professional Internship)

Subject: Administered by the School of Computing
Program: The Plan, with sufficient electives to total 120.00 units, will lead to a Bachelor of Computing (Honours) Degree.

Note: Requirements for this program have been modified. Please consult the 2023-2024 (https://queensu.ca/public.courseleaf.com/archive/2023-2024/) Calendar for the previous requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>1. Core</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A. Complete the following:</td>
<td></td>
</tr>
<tr>
<td>CISC 102</td>
<td>Discrete Structures I</td>
<td>3.00</td>
</tr>
<tr>
<td>CISC 121</td>
<td>Introduction to Computing Science I</td>
<td>3.00</td>
</tr>
<tr>
<td>CISC 124</td>
<td>Introduction to Computing Science II</td>
<td>3.00</td>
</tr>
<tr>
<td>B. Complete 3.00 units from the following:</td>
<td>3.00</td>
<td></td>
</tr>
<tr>
<td>MATH 110</td>
<td>Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH 112</td>
<td>Introduction to Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>C. Complete 6.00 units from the following:</td>
<td>6.00</td>
<td></td>
</tr>
<tr>
<td>MATH 120</td>
<td>Differential and Integral Calculus</td>
<td></td>
</tr>
<tr>
<td>or</td>
<td>MATH 121 Differential and Integral Calculus</td>
<td></td>
</tr>
<tr>
<td>or</td>
<td>MATH 123 &amp; MATH 124 Differential and Integral Calculus</td>
<td></td>
</tr>
<tr>
<td>D. Complete 3.00 units from the following:</td>
<td>3.00</td>
<td></td>
</tr>
<tr>
<td>STAT 263</td>
<td>Introduction to Statistics</td>
<td></td>
</tr>
<tr>
<td>STAT 268</td>
<td>Statistics and Probability I</td>
<td></td>
</tr>
<tr>
<td>STAT_Options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Complete the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CISC 203</td>
<td>Discrete Structures II</td>
<td>3.00</td>
</tr>
<tr>
<td>CISC 204</td>
<td>Logic for Computing Science</td>
<td>3.00</td>
</tr>
<tr>
<td>CISC 220</td>
<td>System Level Programming</td>
<td>3.00</td>
</tr>
<tr>
<td>CISC 221</td>
<td>Computer Architecture</td>
<td>3.00</td>
</tr>
<tr>
<td>CISC 223</td>
<td>Software Specifications</td>
<td>3.00</td>
</tr>
<tr>
<td>CISC 235</td>
<td>Data Structures</td>
<td>3.00</td>
</tr>
<tr>
<td>F. Complete the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CISC 324</td>
<td>Operating Systems</td>
<td>3.00</td>
</tr>
<tr>
<td>CISC 360</td>
<td>Programming Paradigms</td>
<td>3.00</td>
</tr>
<tr>
<td>CISC 365</td>
<td>Algorithms I</td>
<td>3.00</td>
</tr>
</tbody>
</table>

G. Complete the following:
- CISC 325 Human-Computer Interaction 3.00
- CISC 327 Software Quality Assurance 3.00
- CISC 422 Formal Methods in Software Engineering 3.00
- CISC 423 Software Requirements 3.00
- CISC 497 Social, Ethical and Legal Issues in Computing 3.00

H. Complete the following:
- CISC 498 Information Technology Project 6.00

2. Option
A. Complete 3.00 units from the following: 3.00
- CISC 322 Software Architecture
- CISC 326 Game Architecture

B. Complete 3.00 units from the following course list: 3.00
SOFT_Design at the 400-level or above

C. Complete 6.00 units from the following course list: 6.00
SOFT_Design

D. Complete 3.00 units from the following: 3.00
- PHIL 259 Critical Thinking
- WRIT 125 Fundamentals of Academic Essay Writing
- WRIT 175 Effective Writing II

E. Complete 3.00 units from the following: 3.00
- APSC 221 Economic and Business Practice
- COMM 200 Business Fundamentals
- COMM 251 Organizational Behaviour

F. Complete 3.00 units from the following course list: 3.00
ASC_Humanities_Languages_Social_Sciences

G. Any discipline other than APSC, CISC, COCA, COGS, 18.00
COMP, ELEC, MATH, MTHE, SOFT, STAT

Electives
Elective Courses 12.00

Total Units 120.00

3. Substitutions
A. Students in the internship version of this Plan will substitute 3.00 units from COMP at the 300-level for requirement 1.H. (CISC 498). In addition, the B.Cmp.(Hons.) Program requirements will be increased by 6.00 units from COMP at the 300-level, for a total of 126.00 units if the

queensu.ca/academic-calendar
student is taking a 12-month internship, or by 9.00 units from COMP at the 300-level, for a total of 129.00 units if the student is taking a 16-month internship.

4. Notes
A. Students with no programming experience should review the Introductory Courses (https://www.queensu.ca/academic-calendar/arts-science/schools-departments-programs/computing/) paragraph included on the School of Computing overview page in the Calendar.

B. In exceptional circumstances (such as a student who has transferred from another Faculty or institution), the distribution requirements in the complementary courses may be relaxed, at the discretion of the Chair of Undergraduate Studies. Alternative complementary courses may be selected in consultation with the School of Computing.

C. ELEC courses are offered by Smith Engineering. Special permission may be required to register. All such courses will count as 3.00 units towards degree requirements in Arts and Sciences.

D. Option 2.D. may be satisfied by any course with a significant writing component. Alternative courses may be selected in consultation with the School of Computing.

E. With the approval of the Undergraduate Chair, students who take CISC 500 working on a project directly related to Software Design may count 3.00 units towards SOFT_Design.

F. A maximum of 6.00 units from courses offered by other Faculties and Schools may be counted toward the program and/or Plan requirements. This includes courses in BMED, COMM, GLPH, HSCI, LAW, NURS, and courses offered by Smith Engineering.

Software Design Course List
The following list contains courses offered through other Departments. In accordance with Academic Regulation 2.6 (Access to Classes), students do not have enrolment priority in all of these courses. Access to these courses may only be made available during the Open Enrolment period, and then only if space permits.

ASC_Humanities_Languages_Social_Sciences

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANIM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANSH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARAB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARTF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARTH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ARTV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BADR (formerly BISC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLCK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHIN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COCA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CWRI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEVS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECON (except ECON 250)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMPR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENIN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENSC (except ENSC 201; ENSC 301; ENSC 307; ENSC 320; ENSC 407; ENSC 425; ENSC 480)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FILM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FREN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GLPH 271; GLPH 385; GLPH 471; GLPH 482; GLPH 488; GLPH 487; GLPH 493</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GNDS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GPHY_Human Course List ¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GREK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRMN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HEBR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLTH (except HLTH 230; HLTH 331)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INUK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITLN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JAPN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JWST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KNPE 167; KNPE 237; KNPE 254; KNPE 265; KNPE 300; KNPE 303; KNPE 331; KNPE 335; KNPE 336; KNPE 337; KNPE 338; KNPE 345; KNPE 346; KNPE 363; KNPE 365; KNPE 367; KNPE 397; KNPE 400; KNPE 430; KNPE 433; KNPE 436; KNPE 446; KNPE 463; KNPE 465; KNPE 473</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LANG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LATN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIBS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LLCU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAPP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOHK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MUSC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MUTH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHIL</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
POLS (except POLS 285)
PORT
PPEC
PSYC 100; PSYC 101; PSYC 102; PSYC 236; PSYC 241;
PSYC 251; PSYC 331
PSYC_Clinical Course List ¹
PSYC_Developmental Course List ¹
PSYC_Social Course List ¹
QGSP
RELS
SOCY (except SOCY 210; SOCY 211)
SPAN
WRIT

¹ The GPHY and PSYC Course Lists noted here may be found in the Departments/Schools and Degree Plans section of this Calendar.

---

**STAT_Options**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 243</td>
<td>Introduction to Statistics</td>
<td>3.00</td>
</tr>
<tr>
<td>CHEE 209</td>
<td>Analysis of Process Data ¹</td>
<td>3.50</td>
</tr>
<tr>
<td>COMM 162</td>
<td>Managerial Statistics</td>
<td>3.00</td>
</tr>
<tr>
<td>ECON 250</td>
<td>Introduction to Statistics</td>
<td>3.00</td>
</tr>
<tr>
<td>GPHY 247</td>
<td>Introduction to Statistics</td>
<td>3.00</td>
</tr>
<tr>
<td>KNPE 251</td>
<td>Introduction to Statistics</td>
<td>3.00</td>
</tr>
<tr>
<td>NURS 323</td>
<td>Introduction to Statistics</td>
<td>3.00</td>
</tr>
<tr>
<td>POLS 285</td>
<td>Introduction to Statistics</td>
<td>3.00</td>
</tr>
<tr>
<td>PSYC 202</td>
<td>Statistics in Psychology</td>
<td>3.00</td>
</tr>
<tr>
<td>SOCY 211</td>
<td>Introduction to Statistics</td>
<td>3.00</td>
</tr>
<tr>
<td>STAM 200</td>
<td>Introduction to Statistics</td>
<td>3.00</td>
</tr>
<tr>
<td>STAT 263</td>
<td>Introduction to Statistics</td>
<td>3.00</td>
</tr>
</tbody>
</table>

¹ Note that the unit weighting system in Smith Engineering differs from that in the Faculty of Arts and Science. Therefore, upon acceptance of any course from Smith Engineering, the unit weighting towards Arts and Science degree requirements shall be at the discretion of the Associate Dean (Academic). Usually, a one-term course shall count as 3.00 units and a two-term course as 6.00 units.