INFORMATION AND COMPUTER SCIENCE

Associate in Science Degree
with emphasis in one of the following:
   Network Support Specialist
   Database Support Specialist
   Information Security Specialist
   Mobile Developer Specialist
   Software Developer Specialist

Academic Subject Certificate
Certificate of Achievement
   Information & Computer Science
   Information Security

Certificate of Competence
   Basic Logic and Programming Level 1
   Basic Logic and Programming Level 2
   Database Support
   Help Desk
   Information Security
   Mobile Developer
   Network Support
   Software Developer

The growing interdisciplinary use of information systems has increased the need for a comprehensive program in Computer Science. Such a program is offered by Leeward CC through the Division of Mathematics and Natural Sciences. The course credits are transferable at the Bachelor’s degree level.

The curriculum leading to an Associate in Science degree in Computer Science is designed to prepare individuals for employment as technical assistants to professional and administrative personnel using computers. Students may choose one of five areas of specialty: Network Support Specialist, Database Support Specialist, Information Security Specialist, Mobile Developer Specialist, Software Developer Specialist. Skills in writing, speech, and mathematics complete the preparation for employment.

Students wishing to pursue a Bachelor’s degree in computer science may, instead, want to earn an Associate in Science with the software developer specialist degree. See a counselor or ICS Faculty Advisor for appropriate course choices.

IMPORTANT
AA, AS, and AAS degrees and ASCs and CAs require a cumulative 2.0 GPR or better for all courses used to meet the degree or certificate requirements. Transfer coursework is not calculated into the GPR.

To graduate with a degree from a Leeward Community College, a student must have earned a minimum of 12 credits of program courses in the degree/major at Leeward.

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Source: Leeward Community College Catalog 2016-17
Associate in Science Degree
Information & Computer Science
60 Credits

The curriculum leading to an Associate in Science degree in Information and Computer Science is designed to prepare individuals for employment as technical assistants to professional and administrative personnel using computers. Students may choose one of five areas of specialty: Network Support Specialist, Database Support Specialist, Information Security Specialist, Mobile Developer Specialist and Software Developer Specialist. Skills in writing, speech, and mathematics complete the preparation for employment. The program requirements are designed to facilitate transfer to the baccalaureate programs in Information and Computer Sciences at UH Mānoa, UH West O‘ahu and UH Hilo for those students who wish to continue their education while working in the industry.

All required ICS courses must be passed with a grade of “C” or better in order to be applied to the degree.

Core Requirements 27 credits

<table>
<thead>
<tr>
<th>Course Alpha</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICS 100</td>
<td>Computing Literacy and Applications (3)</td>
<td>3</td>
</tr>
<tr>
<td>ICS 101</td>
<td>Digital Tools for the Information World (3)</td>
<td></td>
</tr>
<tr>
<td>ICS 110M</td>
<td>Introduction to Programming</td>
<td>3</td>
</tr>
<tr>
<td>ICS 111</td>
<td>Introduction to Computer Science I</td>
<td>3</td>
</tr>
<tr>
<td>ICS 113</td>
<td>Database Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>ICS 125</td>
<td>Personal Computer Maintenance and Repair</td>
<td>3</td>
</tr>
<tr>
<td>ICS 184</td>
<td>Introduction to Networking</td>
<td>3</td>
</tr>
<tr>
<td>ICS 240</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>ICS 270</td>
<td>Systems Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ICS 293D</td>
<td>Cooperative Education</td>
<td>3</td>
</tr>
<tr>
<td>Core Credits</td>
<td></td>
<td>27</td>
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</tbody>
</table>

General Education Requirements 21 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>One DS Course</td>
<td>3</td>
</tr>
<tr>
<td>ENG 100 Composition I</td>
<td>3</td>
</tr>
<tr>
<td>ENG 225 Technical Writing (3) or ENG 209 or Business Writing (3)</td>
<td>3</td>
</tr>
<tr>
<td>SP 151 Personal and Public Speech</td>
<td>3</td>
</tr>
<tr>
<td>ICS 170 Ethics for the Digital World</td>
<td>3</td>
</tr>
<tr>
<td>One FG Course</td>
<td>3</td>
</tr>
<tr>
<td>ICS 141 Discrete Mathematics for Computer Science (3) or or MATH 103 College Algebra (3)</td>
<td>3</td>
</tr>
</tbody>
</table>

Gen Ed Credits 21

Electives Recommended Elective 3

It is recommended that the student choose one other ICS, DMED, or EE course numbered 100 or higher.

Elective Credits 3

Specialization 9 credits

Select One Specialization Below

Specialization Network Support Specialist

<table>
<thead>
<tr>
<th>Course Alpha</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICS 171</td>
<td>Introduction to Computer Security</td>
<td>3</td>
</tr>
<tr>
<td>ICS 172</td>
<td>Network Design and Administration</td>
<td>3</td>
</tr>
<tr>
<td>ICS 283</td>
<td>Advanced Network Design and Administration</td>
<td>3</td>
</tr>
</tbody>
</table>

Specialization Credit 9

Specialization Database Support Specialist

<table>
<thead>
<tr>
<th>Course Alpha</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICS 151</td>
<td>Structured Database Programming</td>
<td>3</td>
</tr>
<tr>
<td>DMED 120</td>
<td>NetPrep Web Development</td>
<td>3</td>
</tr>
<tr>
<td>ICS 251</td>
<td>Advanced Database Programming</td>
<td>3</td>
</tr>
</tbody>
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Specialization Credit 9

Specialization Information Security Specialist

<table>
<thead>
<tr>
<th>Course Alpha</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ICS 171</td>
<td>Introduction to Computer Security</td>
<td>3</td>
</tr>
<tr>
<td>ICS 281</td>
<td>Ethical Hacking</td>
<td>3</td>
</tr>
<tr>
<td>ICS 282</td>
<td>Computer Forensics</td>
<td>3</td>
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</table>

Specialization Credit 9

Specialization Mobile Developer Specialist

<table>
<thead>
<tr>
<th>Course Alpha</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ICS 136</td>
<td>Intro to Mobile Device Application Developer</td>
<td>3</td>
</tr>
<tr>
<td>ICS 215</td>
<td>Introduction to Scripting or ICS 251 Advanced Database Programming</td>
<td>3</td>
</tr>
<tr>
<td>ICS 236</td>
<td>Mobile Device Management and Programming</td>
<td>3</td>
</tr>
</tbody>
</table>

Specialization Credit 9

Specialization Software Developer Specialist

<table>
<thead>
<tr>
<th>Course Alpha</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ICS 211</td>
<td>Introduction to Computer Science II</td>
<td>3</td>
</tr>
<tr>
<td>ICS 212</td>
<td>Program Structure or Introduction to Scripting</td>
<td>3</td>
</tr>
<tr>
<td>ICS 241</td>
<td>Discrete Mathematics for Computer Science II</td>
<td>3</td>
</tr>
</tbody>
</table>

Specialization Credit 9

Total Degree Credits 60

Source: Leeward Community College Catalog 2016-17
Associate in Science Information and Computer Science

Program Outcomes

In addition to acquiring the competencies required for Associate in Science degrees, upon successful completion of this program graduates will be able to:

- Demonstrate computing literacy.
- Demonstrate an understanding of the functioning of a computer’s operating system.
- Solve problems, develop algorithms, and write structured computer programs in at least two programming languages.
- Demonstrate a familiarity with the mathematics used in computing science.
- Effectively communicate in written and oral form, a system solution, its documentation, and its implementation.
- Use project management tools to manage information systems development projects.
- Work effectively as part of a group/team.
- Design a relational database with proper documentation.
- Demonstrate proficiency in computer maintenance and networking.

Based on selection of an area of specialty, the student will further be able to:

- Database Support Specialist: Write object-oriented computer programs for online access and manipulation of databases.
- Mobile Developer Specialist: Design, develop and implement applications and policies for mobile devices.
- Software Developer Specialist: Develop a foundation in computer science to succeed in upper-division courses.
- Network Support Specialist: Apply computer networking principles to build and troubleshoot networks.
- Information Security Specialist: Apply the tools and techniques of information security to secure physical and digital information.

2 Year Plan for Degree Completion

Suggested Sequence for 2 year plan

**First Semester**
- ICS 100
- ICS 110M
- ICS 170
- ENG 100
- ICS 141 or MATH 103

**Second Semester**
- ICS 111
- ICS 125
- ICS 113
- ICS 184
- One DS Course

**Third Semester**
- ICS 240
- ENG 225 or ENG 209
- SP 151
- Specialization
  - Network Support: ICS 171 and ICS 172
  - Database Support: ICS 151 and DMED 120
  - Information Security: ICS 171 and ICS 281
  - Mobile Developer: ICS 136 and ICS 251
  - Software Developer: ICS 211 and ICS 241

**Fourth Semester**
- ICS 270
- ICS 293D
- One FG Course
- Elective
- Specialization
  - Network Support: ICS 283
  - Database Support: ICS 251
  - Information Security: ICS 282
  - Mobile Developer: ICS 236
  - Software Developer: ICS 212

Source: Leeward Community College Catalog 2016-17