EXAM INFORMATION
This exam was developed to enable schools to award credit to students for knowledge equivalent to that learned by students taking the course. This exam tests the ability to understand hardware, software licensing and development tools; development life cycles; data management; connectivity, privacy concerns; intellectual property; network etiquette; telecommunications law; artificial intelligence, and globalization.

The exam contains 100 questions to be answered in 2 hours.

The use of nonprogrammable calculators is permitted during the test. Scratch paper for computations will be provided. A calculator function is available during computer-based exams.

EXAM CONTENT OUTLINE
The following is an outline of the content areas covered in the examination. The approximate percentage of the examination devoted to each content area is also noted.

I. Computer Organization and Hardware – 20%
   a. Processing components (e.g. CPU, ALU, Fetch, Execute Cycle)
   b. Primary storage (e.g. RAM, ROM, cache, virtual memory)
   c. Peripherals (e.g. secondary storage, disk storage, I/O devices [RFID, biometrics, printers and scanners], communications hardware, cloud computing)
   d. Architectures (e.g. personal computers, workstations, mainframes, mobile devices)
   e. Data representation (e.g. binary system [bits, bytes], words, numbering systems, coding systems, graphic and multimedia formats)
   f. Units of measurement (e.g. kilobytes, gigabytes, terabytes, megahertz, gigahertz, microseconds, nanoseconds, bands, bps)

II. Systems Software – 10%
   a. Operating systems (e.g. Windows, Apple, Android, Linux, Unix, Mainframe etc., resource allocations, job scheduling, file management, virtual computing)
   b. Utilities (e.g. virus protection/detection, backup, disk maintenance and recovery, print)
   c. User interfaces (e.g. command line, menu-driven, graphical, voice, touch, gesture)

III. Application Software – 20%
   a. Word processing and desktop publishing
   b. Spreadsheets (e.g. charts, graphs, functions)
   c. Presentation software including hypertext
   d. Personal communications (e.g. electronic mail, list servers, chat groups, newsgroups, conferencing software, social media)
   e. Multimedia (e.g. video, audio)
   f. Databases
      1. Levels of hierarchy (e.g. fields, records, files)
      2. Database models (e.g. relational, network, hierarchical, object, data access mechanisms)
   g. Graphics (e.g. draw, paint, CAD, image processing)
   h. Software Licensing (e.g. shareware, freeware, enterprise, open source, software as a service)
   i. Commercial application software

IV. Data Communications and Networks – 20%
   a. World Wide Web (e.g. browsers, HTML, applets, search engines)
   b. Network access (e.g. file transfer, Telnet, Internet service providers [ISPs])
   c. Network architectures (e.g. local area networks, wide area networks, client server, peer-to-peer, network topology, domains, routers, switches, hubs)
   d. Data communications (e.g. infrastructure, protocol [http/https])
   e. Safety and security (e.g. firewalls, IDS/IPS, hardware aspects, encryption schemes, identity and access management)
   f. Mobile networks (wireless)

V. Software Development – 10%
   a. Software life cycle (e.g. analysis, design, development, debugging, testing, maintenance)
   b. Programming methodology (e.g. procedural, object oriented)
   c. Software development tools (e.g. assemblers, profilers, debuggers, editors, compilers/interpreters)

VI. Social Impact and History – 20%
   a. History (e.g. significant people, machines and events; digital revolution, Internet, evolution of user interfaces, new applications of information technology [car, airplanes etc.])
   b. Ethical/legal issues (e.g. privacy concerns, intellectual property rights, telecommunications law, accessibility)
   c. Safety and security (e.g. hacking, malware, system access, privacy in on-line services, identity theft)
   d. Careers in Computer Science and Information Systems (e.g. growth, trends, telecommuting, compensation)
   e. Social issues (e.g. social media responsibility/etiquette [professionally and
SAMPLE QUESTIONS

3. What is the term for a computer that processes requests from other computers to access a data base?
   a. Client
   b. Data warehouse
   c. Server
   d. Router

4. Which stage of the software life cycle usually requires the most time and effort?
   a. Design
   b. Requirements analysis
   c. Maintenance
   d. Coding

5. The first electronic digital computer was produced in the
   a. 1920s
   b. 1940s
   c. 1960s
   d. 1980s

6. What is a mechanism that prevents unauthorized access to computers that reside on a network?
   a. Sniffer
   b. Spoof
   c. Firewall
   d. Ethernet

CREDIT RECOMMENDATIONS
The American Council on Education’s College Credit Recommendation Service (ACE CREDIT) has evaluated the DSST test development process and content of this exam. It has made the following recommendations:

<table>
<thead>
<tr>
<th>Area or Course Equivalent</th>
<th>Introduction to Computing</th>
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<tbody>
<tr>
<td>Level</td>
<td>Lower-level baccalaureate</td>
</tr>
<tr>
<td>Amount of Credit</td>
<td>Three (3) semester hours</td>
</tr>
<tr>
<td>Minimum Score</td>
<td>400</td>
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<tr>
<td>Source</td>
<td>American Council on Education – College Credit Recommendation Service</td>
</tr>
</tbody>
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Answers to sample questions: 1-D; 2-A; 3-C; 4-C; 5-B; 6-C.