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Computer software engineers are in great demand

By **CANDACE MOODY, Special to the Times-Union**

Computer systems software engineers research, design, develop, and test operating systems-level software and network distribution software for industrial, military, business and general computing applications. These Information Technology professionals set operational specifications and formulate and analyze software requirements.

The tasks performed by computer software engineers evolve quickly, reflecting new changes in technology, as well as the preferences and practices of employers. They are often involved in designing systems that are key to a business' success and future growth, including intranet sites, payroll, billing, customer relations management and communications. In addition, systems software engineers are responsible for ensuring security across the systems they are configuring.

According to the Occupational Outlook Handbook, computer software engineers are projected to be one of the fastest-growing occupations during the 2004-2014 period, as well as the sixth highest-paying occupation. In Northeast Florida, jobs for computer system software engineers are expected to grow by 68 percent for the next 12 months. This compares to a projected area median growth rate of 7 percent, placing computer system software engineers' growth in the top 10 percent of occupations for the area. With 63 percent of surveyed employers expecting growth for the occupation through November 2006, this is a high-paying occupation that will be producing many opportunities during the next year.

In Northeast Florida, computer software engineers can expect to earn between \$52,000 to \$70,000 per year, depending on the size of their employer and complexity of the tasks they will perform for the company. As of November 2005, employers surveyed reported that 18 percent of their jobs for systems engineers remained unfilled. Seventy-five percent of employers surveyed used referrals to find applicants, while 71 percent rely on the Internet as their most reliable source of applicants.

One of the biggest challenges for software systems engineers is working with hardware engineers to design systems that work for the users while being safe, reliable and having enough capacity. The two groups -- hardware and software engineers -- tend to think differently and approach design differently. Systems design is also complicated by subsystems that must be incorporated into the design. Users and systems are sometimes dispersed across geographically distributed sites and different organizations. Integration and interface issues are a frequent cause of rework and system launch delays.

To plan complex business systems effectively, systems engineers must develop skills for dealing with teams and facilitating communication. The most effective designs often start with what are sometimes called integrated product teams, a group of people with skills in complementary areas. The integrated product teams can include both system engineers and software architects, and also should include internal and external customers as well. The inclusion of customers helps the systems engineers stay focused on results for users during the process.

Indeed, "soft" skills are sometimes mentioned more prevalently in job postings for systems engineers than technical skills. Microsoft Corporation, headquartered in Redmond, Wash., lists a position for an Enterprise Architect on the company career Web site.

Qualifications for the position include a degree in computer science and experience in each of the business, information, application, and technology components of enterprise architecture, as well as Microsoft SQL experience. But the posting goes on to list many personal attributes needed for success in the job, including strong facilitation and consensus-building skills, leader and role model comfortable working as an individual contributor and/or as a member of a team across diverse organizations, and motivated and motivating, passionate, charismatic, creative, flexible ... with excellent communication skills.

Those skills will come in handy for those who go on to work for independent design firms. Systems engineers can become part of a product sales team and charged with providing customers with continuing technical support. Their ability to understand customer needs and translate them into technical requirements is important to their success.

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