

## Role: Embedded Software Engineer – Physical Products

**Type:** Permanent

**Grade:** Engineer, Advanced, Senior, Principal

**Hours:** Full or Part Time

**Location:** Chippenham or Tewkesbury

### A bit about us...

Amiosec is an exciting and growing UK technology company with innovation, agility, and state of the art technology at its core. We work in partnerships with UK government customers and commercial providers to deliver research, technology, products, solutions, and services in the communications security sector.

We provide a stimulating working environment, with an opportunity to be involved in various projects from early-stage proof-of-concepts using emerging technologies, tools, and languages right through to full lifecycle product development. We run self-managing agile teams using a mixture of Scrum and Kanban techniques so that engineers get a great sense of ownership of their work and can directly see how their efforts contribute to the bigger picture and help our customers achieve their goals.

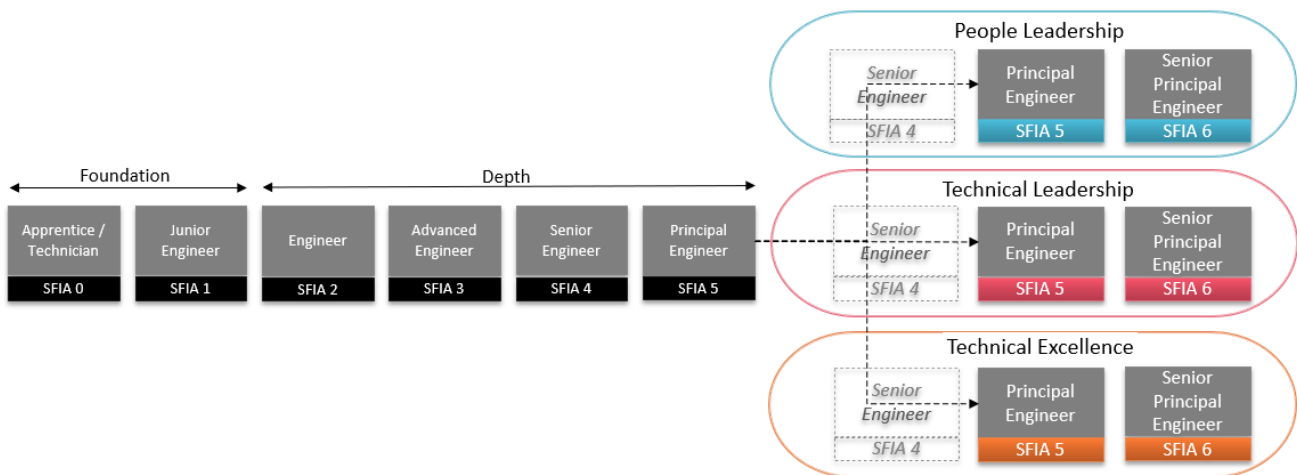
Collaboration and team spirit are key – we actively seek to share knowledge and ideas. Our monthly Engineering Forum provides an ideal opportunity for sharing tips, tricks, and techniques between projects/teams. We organise regular social activities and gatherings such as coffee and cake mornings and activity days – something we feel is important to support our hybrid working scheme and maintain a comfortable social atmosphere.

We are passionate and committed to growing new talent. As such, we run an Apprenticeship and Graduate Scheme, and have an active STEM outreach program – collaborating with schools, universities, and the NCSC CyberFirst program. If you are interested, we would love you to get involved and help in these areas.

Our engineering team is key to our success as a business and this not only includes what we do, but how we do it. Like any engineering organisation we have standardised processes and ways of working, but these are owned by the engineering team, and we work to ensure that they are relevant, helpful, and as efficient as possible so that we can focus on what we are good at – the engineering. We actively encourage our engineers to contribute to improvements in our working practices and environment and try out innovative ideas with a view to rolling things out that work well for us.

We actively encourage personal development and have a structured career framework based on industry standard SFIA grades. We provide training tailored to your needs and learning methods and encourage our engineers to develop their skills – both technical and non-technical alike. The diagram below shows the progression through our grades.





Work life balance is important, and we offer several options to support our engineers. We have an optional 9-day fortnight scheme, which gives the opportunity to compress a fortnight’s hours over 9 days to allow every other Friday to be taken off. We have a hybrid working policy, where we ask for a split of 3 days onsite (Chippenham or Tewkesbury) and 2 days remote (this is subject to individual project needs). In addition, this position can be either full or part time. For part time roles we are open to considering hours that work for you as a candidate.

NOTE: - Due to the nature of our work, all candidates will be required to obtain and maintain an appropriate UK security clearance.

## Embedded Software Engineer Vacancies

Our success as a business has seen our engineering team size increase through continuous and sustained growth, and will expand further for the foreseeable future. In addition to our Tewkesbury offices, we are setting up a new office in Chippenham – an exciting time to be part of the company.

As an Embedded Software Engineer within our physical products team, you will need at least 2 years of experience (if you’ve less than this, ask us about our Graduate Scheme). Responsibilities include concept definition, design, development, coding, testing, and debugging of complex software solutions on a variety of COTS and bespoke hardware platforms hosting both mainstream operating systems and Niche OSs similar to an RTOS.

The sections below outline typical responsibilities and competencies that we are looking for. These are wide-ranging and represent the full cross-section of capabilities that we seek. Prospective candidates should be able to demonstrate ability in a number of the technical competencies (depending on grade/experience) and as a minimum, satisfy the core competencies as listed. We are not looking for full coverage across all of them in any one candidate.

### Typical Activities

Subject Area	Activities
<b>Application Design &amp; Development</b>	<ul style="list-style-type: none"> <li>• Design and implementation of robust embedded and user-facing software applications</li> <li>• Code reviews</li> </ul>
<b>Driver &amp; Middleware Development</b>	<ul style="list-style-type: none"> <li>• Development/modification of board support packages and drivers for hardware devices, filesystems</li> </ul>
<b>Planning and Estimation</b>	<ul style="list-style-type: none"> <li>• Task breakdown, sizing, progress reporting</li> <li>• Development/contribution to technical proposals</li> </ul>
<b>Technical Authorship</b>	<ul style="list-style-type: none"> <li>• Authorship of formal documentation</li> <li>• Review and scrutinise other technical documentation e.g., requirements documentation, design, and architecture documents</li> </ul>
<b>Team Activities</b>	<ul style="list-style-type: none"> <li>• Participation in team planning and progress activities such as daily stand-ups, planning and design meetings</li> </ul>
<b>Continuous Improvement</b>	<ul style="list-style-type: none"> <li>• Review and recommend enhancements for processes and workflows including but not limited to development tools used with projects</li> </ul>



## Technical Competencies

Subject Area	Competency
<b>Programming Languages (Primary)</b>	<ul style="list-style-type: none"> <li>Real-time C is our primary language</li> </ul>
<b>Scripting Languages</b>	<ul style="list-style-type: none"> <li>Python</li> <li>Bash scripts</li> </ul>
<b>Programming Languages (Secondary)</b>	<ul style="list-style-type: none"> <li>Go</li> <li>Rust</li> <li>Web based application development using modern frameworks/tools</li> <li>User interface design – e.g., python/WxPython/QT</li> </ul>
<b>Software Quality &amp; Testing</b>	<ul style="list-style-type: none"> <li>Unit and system testing frameworks (e.g., Robot, OpenHTF)</li> <li>Fuzzing (e.g., AFL)</li> <li>Static/Dynamic Analysis tools (e.g., Coverity, PRQA, Lint)</li> <li>Comfortable debugging embedded systems with limited resources, able to use equipment such as bench power supplies and oscilloscopes</li> </ul>
<b>Architectures &amp; Build Systems</b>	<ul style="list-style-type: none"> <li>Understanding of both kernel and user space application development aspects</li> <li>Build systems (yocto/buildroot, GNU Make, CMake)</li> </ul>
<b>Development Targets</b>	<ul style="list-style-type: none"> <li>Embedded operating systems – including real-time aspects and resource constrained environments</li> <li>Desktop operating systems - Linux (primary), Windows (secondary)</li> </ul>
<b>Networks and Protocols</b>	<ul style="list-style-type: none"> <li>Network communications protocols (TCP/IP, ARP)</li> <li>Network analysis and debugging tools (e.g., WireShark, TCPDump)</li> </ul>
<b>Communications Security</b>	<ul style="list-style-type: none"> <li>Secure application design and defensive programming</li> <li>Understanding of cryptography and cryptographic algorithms</li> </ul>
<b>Development Tools/Lifecycle</b>	<ul style="list-style-type: none"> <li>Requirements management</li> <li>Design capture (UML)</li> <li>Source control (including workflows - Git)</li> </ul>

## Core Competencies

Subject Area	Competency
<b>Approach</b>	<ul style="list-style-type: none"> <li>Enthusiasm for technology and desire to understand and utilise it to develop innovative solutions</li> <li>Ability to quickly learn innovative technologies as needed</li> <li>Ability to apply a systematic and methodical approach to debugging/resolving technical issues</li> </ul>
<b>Working Style</b>	<ul style="list-style-type: none"> <li>Ability to work individually or as a member of a multi-discipline team</li> <li>Self-motivated</li> <li>Ability to capture and articulate design ideas</li> <li>Willingness to be flexible and embrace new technologies/techniques</li> </ul>



Subject Area	Competency
	<ul style="list-style-type: none"><li>• Good time management skills</li><li>• Ownership of own deliverables</li><li>• Tenacious problem-solving skills</li></ul>
<b>Innovation</b>	<ul style="list-style-type: none"><li>• Ability to foster and develop innovative ideas</li><li>• Willingness to lead and/or contribute to improvements in products and ways of working.</li></ul>

Amiosec is committed to providing equality of opportunity for all. We aim to ensure our workplaces are free from discrimination and that our current and future colleagues, are treated fairly and with dignity and respect. Please inform us of any reasonable adjustments that we may need to make to the application or interview process.

