

Role Profile: Embedded Software Engineer (All Grades)

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 and services in the communications security sector.

Our Engineering team is expanding, and we are looking for great software engineers who want to come on board and join us on our journey. We provide a stimulating working environment, with an opportunity to be involved in various projects from early-stage proof-of-concepts using emerging technology, 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.

We actively encourage personal development and have a structured career framework based on industry standard SFIA grades, with core and technical competencies aligned to each grade. We provide training tailored to your needs and learning methods and encourage our engineers to develop their skills – both technical and non-technical alike.

Collaboration and team spirit are key – we actively seek to share knowledge and ideas and preserve a family feel within our organisation. Our monthly Engineering Forum provides an ideal vehicle for sharing tips, tricks and techniques between projects/teams and we organise regular social activities to bring people together – something we feel has been especially important during this last year of lockdowns and remote working.

We are passionate and committed to growing new talent and as such run a Graduate Scheme and have an active STEM outreach program – working with schools, universities, and the NCSC CyberFirst program. If you're interested, we'd love you to get involved and help out 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're good at – the engineering. We actively encourage our engineers to contribute to improvements in our working practices and environment and regularly try out new ideas with a view to rolling things out that work well for us.



Embedded Software Engineering Vacancies

As an Embedded Software Engineer, you'll need at least a few years of experience so that you can hit the ground running (if you've less than this, ask us about our Graduate Scheme). Responsibilities include conception, 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 secure microkernels. Ideally you should be comfortable in probing, measuring voltages, signals etc. We have hardware support team for such things, but it makes the role of the embedded software engineer that much more fun.

We are looking for Embedded Software Engineers across all grades; the sections below outline typical activities, responsibilities, and competencies that we are looking for, but these are a wide-ranging superset – you should be able to demonstrate ability in at least some of the technical competencies (depending on your grade/experience) and the core competencies are important too because these are the things that will make you a good fit in our team.

Due to the nature of our work, you'll need to obtain and maintain an appropriate UK security clearance.

Typical Activities

Subject Area	Activities
Application Design & Development	<ul style="list-style-type: none"> Design and implementation of robust embedded and user-facing software applications in line with the technical competencies listed below.
Driver & Middleware Development	<ul style="list-style-type: none"> Development/modification of board support packages and drivers for hardware devices, filesystems, etc.
Technology Research	<ul style="list-style-type: none"> Evaluating latest technologies (e.g. hardware processors, languages, operating systems).
Tool Evaluation	<ul style="list-style-type: none"> Investigation of emerging frameworks (e.g. test, automation), libraries, build tools etc.
Planning and Estimation	<ul style="list-style-type: none"> Task breakdown, sizing, progress reporting; Development/contribution to technical proposals.
Team Activities	<ul style="list-style-type: none"> Involvement in Agile Scrum ceremonies and design sessions.



Technical Competencies

Subject Area	Competency
Programming Languages (Primary)	<ul style="list-style-type: none"> Real-time C is our primary language for embedded systems, although we are starting to use Rust and envisage that this will expand over time.
Scripting Languages	<ul style="list-style-type: none"> We make heavy use of Python in all sorts of applications – from utilities and test harnesses to early proof-of-concept developments. Bash scripts are widely used too.
Programming Languages (Secondary)	<ul style="list-style-type: none"> Web based application development using modern frameworks/tools. User interface design – e.g. python/WxPython/QT. We do a small amount using C#/.NET but this is in the minority.
Software Quality & Testing	<ul style="list-style-type: none"> Unit and system testing frameworks (e.g. Google Test, Unity, Robot, OpenHTF, etc). Fuzzing (e.g. AFL). Static/Dynamic Analysis tools (e.g. Coverity, PRQA, Lint).
Architectures & Build Systems	<ul style="list-style-type: none"> Understanding of both kernel and user space application development aspects. Build systems (yocto/buildroot, GNU Make, CMake etc).
Development Targets	<ul style="list-style-type: none"> Embedded operating systems – including real-time aspects and resource constrained environments. Desktop operating systems - Linux (primary), Windows (secondary). Secure microkernels. Smart phones (iOS, Android).
Networks and Protocols	<ul style="list-style-type: none"> Network communications protocols (TCP/IP, ARP, etc). Network analysis and debugging tools (e.g. WireShark, TCPDump).
Communications Security	<ul style="list-style-type: none"> Secure application design and defensive programming. Understanding of cryptography and cryptographic algorithms is an advantage but not essential.
Development Tools/Lifecycle	<ul style="list-style-type: none"> Requirements management - you should have an understanding of how to read, interpret and specify requirements. Design capture (UML, etc). Source control (including workflows - Git).

Core Competencies

Subject Area	Competency
Approach	<ul style="list-style-type: none"> Enthusiasm for technology and desire to understand it, work with it and develop innovative solutions.
Working Style	<ul style="list-style-type: none"> Ability to work individually or as a member of a multi-discipline team. Self-motivated. Ability to capture and articulate design ideas. Willingness to be flexible and embrace new technologies/techniques.



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Subject Area	Competency
	<ul style="list-style-type: none">• Good time management skills.• Ownership of own deliverables.• Tenacious problem-solving skills.• An ability to inspire and be inspired.
Customer Focus	<ul style="list-style-type: none">• Excellent communication skills (including generation of written content).• Ability to investigate and understand customer needs.
Innovation	<ul style="list-style-type: none">• Ability to foster and develop innovative ideas;• Willingness to lead and/or contribute to improvements in products and ways of working.

