

Join DZS global team Where Every Connection Matters



DZS (NSDQ: DZSI) is a global provider of leading-edge access, 5G transport, and enterprise communications platforms that enable the emerging hyper-connected, hyper-broadband world. DZS Vietnam is proud to offer interns an useful training course to become Embedded Software programmers in the future.

During the entire course, interns will experience working in a real business environment, working cultures. Besides, you will be able to participate in extracurricular activities, sports of the company. Our program will give C programming knowledge, Embedded Linux, and Networking basic in about 60 days (corresponding to 3 months).

After 60 days ended, DZS Vietnam can confidently say that the interns have enough knowledge to participate in projects at the company and have a relatively solid foundation in C coding skills, besides its knowledge of Embedded Linux.

TRAINING PROGRAM

EMBEDDED SOFTWARE PROGRAMERS

C Programming

- Dasan Coding Rules
- C-Compiler processes
- Pointer
- Variables and Functions
- Memory Layout
- Data structure
- Socket Programming
- Process, Thread, Signal

Linux OS

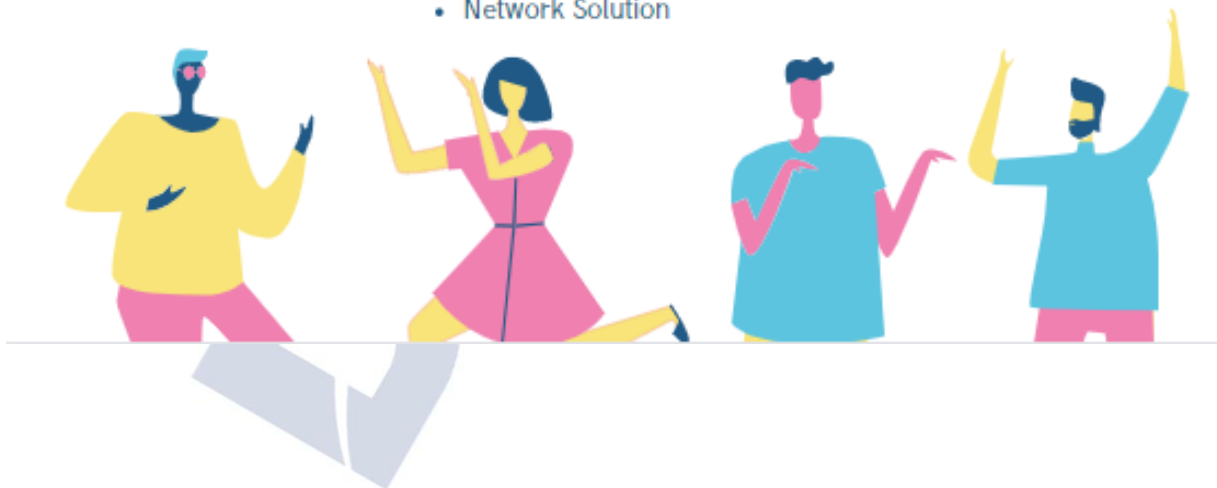
- Linux OS overview
- Linux kernel overview
- User - Kernel Interface
- Kernel Modules

Embedded System

- Embedded System Overview
- Embedded Linux Overview
- Advanced Embedded Linux

Network

- Computer Networking
- Network Solution



In order to help you with the creation of a Training Plan, you will find in the following table:

	Section	Output expectation
C Programing	Language Programing	Ideas and structures of programming languages
	DZs Coding Rules	MISRA & DZS C coding rules
	C-Compiler System	Try to use GCC tool in Linux OS (Ubuntu/Debian/Centos are prefer)
		Write a simple C program
	C Variables and Functions	Understanding about big endian vs little endian
		Write a simple C program
	C Memory Layout	Understanding some types of C memory layout (Stack, heap, BSS, data, text)
		Write a simple C program - Demonstrate and show all of memory layout (addresses, sizes, names, ...)
		Static vs Dynamic (malloc, calloc, realloc)
		Write simple C programs - Demonstrate and show memory allocation via memory layout.
		Understanding about a stack frame of C (Need to understand Assembly first - based on the architecture)
		Write a simple C program and compile to Assembly file - Demonstrate and show all of stack frames
	C Debugging Tools	Write simple C programs - Demonstrate and show command and how to debug
	Data Structures	Write a C program
	C Process Handling	Understanding about overview of a process, a thread, signals, the concepts of racing areas when using processes or threads
Write simple C programs, simple C programs using PIPE, FIFO, Message Queue, Shared Memory		
C Socket	Write simple C socket programs (Server-Client exchanging data) using Stream socket, Datagram socket, Raw socket	

		Write simple C socket programs (Chat room) using select, poll, select+ threads, poll + threads, poll+ threads.
Linux	Linux OS Overview	Understanding about basic concept of an Operating System, Linux Operating System: Components of Linux OS
		Understanding about concept, memory and processes of user space, kernel space
		Understanding about concept of Linux Shell
		Write a simple Linux Shell program
	Linux Kernel Overview	Understanding about and listing up basic components of Linux Kernel Components: - Usage and relationships between components
		Understanding deeply about the component: Memory Management; File System; Process Management; Network; Device Driver
	Linux Kernel Module	Understanding about concepts of Linux Kernel Module, Loadable Kernel Module
	Write a simple Driver to control basic hardware (mouse, keyboard,)	
Linux User and Kernel Communication	Understanding deeply about and write a simple C program about interface: Net link Socket; System Call, IOCTL, Proc file system	
Embedded Linux	Embedded System Overview	Understanding about concepts of an Embedded System, types, advantages, micro controller vs micro processor
		Differences between an Embedded System and PC/Laptop
	Embedded Linux Overview	Differences between an Embedded System vs Embedded Linux System
	Toolchain, Make file	Download and build a toolchain
	Advanced Embedded Linux	Write a simple make file for a project with complicated components (example: 5 modules, 20 files .c, .h, ...)
		Understanding deeply about Booting up processes of an Embedded Linux System
Understanding deeply about Bootloader of an Embedded Linux System		

Network	Computer Networking Overview	Understanding about some concepts: - Network architecture (bus, ring, star, mesh, ...) - Computer network classifier (PAN, LAN, VLAN, MAN, WAN, Internet - Networks of networks...)
		Understanding about functions of 7 layers of OSI model, 5 layers of TCP/IP model
	Network Solution	Understanding about the functions of Hub, repeater, bridge, switch, router, gateways, firewall
		Understanding about the concept of MAC address and IPv4: - Definition, duties, history, demands...
		Understanding about a PDU (Packet Data Unit)
		Understanding about some concepts: Bridging, Switching, Forwarding, Routing

