

Skill Sets for Embedded Software Engineer

Embedded System is the combination of both hardware and software that is used to perform a specific task. It is defined as a way of working, organizing and performing tasks according to the set of rules. The main characteristics of an embedded system are speed, power, size, accuracy, reliability, and adaptability. When this system performs the operations at high speed, then it is used for real-time applications. A set of rules or code embedded into the Microcontroller but by using this only limited range of problems will be solved.

Typical Skill Sets for Embedded Software Engineer:-

- **Language** – Assembly language,C,C++,MATLAB,Labview,Python,Perl etc
- **HDL** – VHDL,Verilog,System C
- **RTOS** – Linux, QNX, VxWorks, WinCE
- Architecture of DSP, Microprocessor/Controller and FPGA
- **DSP** - ADSP 21xx,Blackfin,SHARC,Tiger SHARC, TI C6000,C66xx,C55xx
- **Microprocessor** - ARM Cortex A8/9/15,x86 etc
- **FPGA** - Xilinx-Zynq 7000,Spartan,Kintex,Virtex and Altera/Intel Cyclon,Stratix,Arria
- **Communication Protocols/BUS** – RS232,485,Ethernet,USB,CAN,I2C and SPI
- Knowledge in Device Drivers, Kernel Programming and DSP Fundamentals
- Knowledge in Electronics components/circuits like ADC, DAC, Sensors and Signal conditioning etc

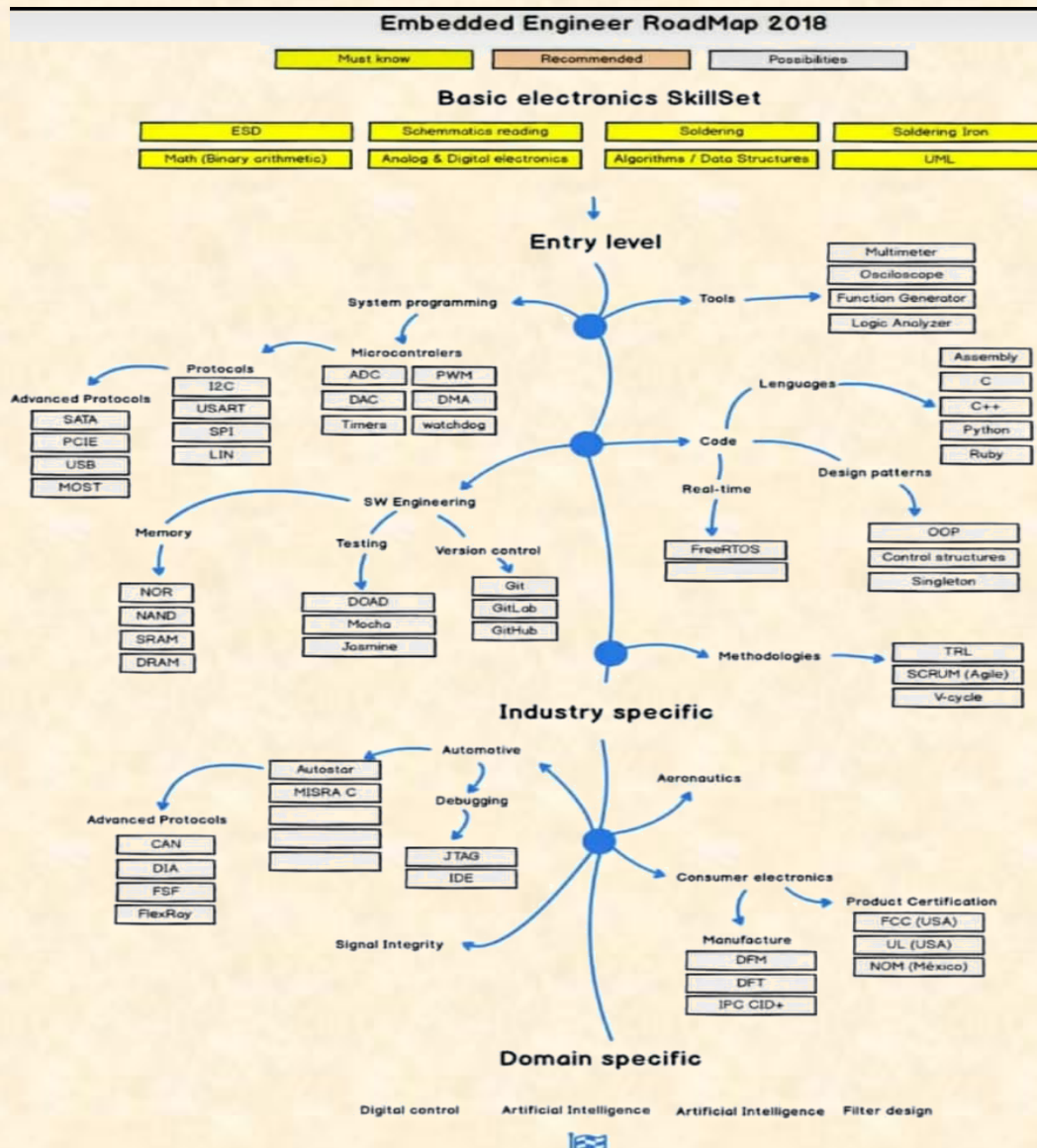


Fig 1 Embedded Engineer Roadmap

Positions in Embedded SW Design

- ✓ Embedded SW Engineer (Microprocessor , DSP, FPGA)
- ✓ SW Engineer – Drivers or RTOS
- ✓ Algorithm Engineer
- ✓ Test and Verification Engineer

-Prof. Nutan Malekar