

FreeBSD Course
at
Radlan-Marvell
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Ascender Technologies Ltd.

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Abstract

This document is a proposal for a FreeBSD kernel level course. This course is to be largely original material based on a syllabus provided by Marvel with further suggestions from Ascender Technologies Ltd. The course will be delivered over a period of three days. Each day will consist of two half day (2 and 1/2 hour) sessions.

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1 Course Content

1.1 The Course Syllabus

- Features of the FreeBSD Kernel
- FreeBSD Kernel versions
- FreeBSD Kernel development Process
- Kernel Modules in FreeBSD
- Kernel Module writing guidelines
- Passing parameters to modules
- Character Device Drivers
- Memory Mapping (From Kernel to User Space)
- Implementing System Call (read/write/IOCTL, moving data to/from user space)
- Registering a character device.
- Interrupts (/proc/interrupts, enable/disable, Requesting IRQ, tasklets)
- Writing to /proc
- How to reserve memory for DMA ?
- Threads in FreeBSD
- FreeBSD boot process
- Tool Chains
- cross-compiling FreeBSD
- Kernel threads.
- Comparison between the Linux and the BSD schedulers.
- Network device drivers.
- Kgdb .
- Building Embedded BSD with busybox for flash file system.