

## ITMO 356 SYLLABUS

### ITMO 356 Introduction to Open Source Operating Systems

**Hours:** 3 credit hours / 60 contact hours; 30 hours lecture, 30 hours lab

**Instructor:** Sean Hughes-Durkin

**Textbook, title, author, and year:** *Linux+ Guide to Linux Certification, 4th/ED* Cengage, Jason W. Eckert, 2016

#### Specific course information:

- a. **Catalog description:** Students learn to set up and configure an industry-standard open source operating system including system installation and basic system administration; system architecture; package management; command-line commands; devices, filesystems, and the filesystem hierarchy standard. Also addressed are applications, shells, scripting and data management; user interfaces and desktops; administrative tasks; essential system services; networking fundamentals; and security, as well as support issues for open source software. Multiple distributions are covered with emphasis on the two leading major distribution forks.
- b. **Prerequisites:** None
- c. **Required.**

#### Specific goals for the course

- a. **Program Educational Objective:**
  2. Perform requirements analysis, design and administration of computer and network-based systems conforming to policy and best practices, and monitor and support continuing development of relevant policy and best practices as appropriate.
- b. **Course Outcomes:**
  - Describe the origins of and explain the philosophy of Open Source Software
  - Install, configure and administer an industry-standard distribution of the Linux operating system.
  - Troubleshoot and resolve Linux installation problems and common system problems
- c. **Course student outcomes:**

Students completing this course will be able to:

  - Use and administer Linux as both a server and desktop operating system
  - Describe the GPL, GNU, and history of the Linux operating system
  - Install different Linux distributions with custom partitioning

- Navigate the graphical interface of the Linux operating system
- Navigate the filesystem using the command line
- Interact with the Linux shell
- Recall and use key Linux utilities
- Install software for use with the Linux operating system
- Use networking services and describe how to troubleshoot issues
- Use SSH for remote administration and create customer host firewall rules
- Configure an Apache web server
- Create shell scripts for use with automation
- Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline  
**(ABET Computing Criteria 3.2)**
- Identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems discipline  
**(ABET Computing Criteria 3.6)**

#### Topics to be covered

- a. Introduction to Open Source Software
- b. Installing Linux
- c. Exploring Linux Filesystems
- d. Linux Filesystem Management
- e. Filesystem Administration
- f. Linux Server Deployment
- g. Working with the BASH Shell
- h. System Initialization and X Windows
- i. Process Management
- j. Administrative Tasks Compression, Backups, and Software Install
- k. Network Configuration
- l. Network Services
- m. Troubleshooting
- n. Performance
- o. Security