Curriculum proposal number 2003.89

Curriculum Action Request (CAR) (Form 4-93) - Maui Community College

1. Author(s) Sandra R. Swanson

2. Authors' unit(s) Professional / Technology: Information & Computer Science

3. Date submitted to Curriculum Committee 05 January 2004

4. a. General type of action? _x_course __program

   b. Specific type of action

Addition	Deletion	Modification	
x regular	__course	__number/alpha	__prerequisites
__experimental	__from program	__title	__corequisites
__other (specify)	__program	__credits	__program
_____	__other (specify)	__description	__other (specify)
	_____		_____

5. Reason for this curriculum action

   This course will be a requirement for the proposed High Performance Computing certificate of completion being introduced at MCC as part of the HPC grant.

   The essentials of this course have been previously taught twice as ECET/ICS 290: Special Topics in Computer Science, AIX Basics and System Administration. It is an advanced class building on the material introduced in ICS/ETRO 251.

6. Existing course

_____

alpha number title credits

7. Proposed new/modified course

ICS 252 Unix / Linux System Administration 4

alpha number title credits

8. New course description or page number in catalog of present course description, if unchanged.

   Continues exploration of the Unix / Linux operating system with an examination of the tasks and responsibilities of system administration. Examines and explores the Unix group and user hierarchy, system security, networking fundamentals, network administration, system logs, troubleshooting, application installation, and system installation and maintenance. Emphasizes the ethics and responsibilities of Unix System Administration and root user privileges.

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9. Prerequisite(s): ICS~~/ETRO~~ 251 with at least a C, or consent

10. Corequisite(s)

11. Recommended preparation

12. Is this course cross-listed? ___yes _x_no If yes, list course

13. Student contact hours per week

lecture___hours lab___hours lecture/lab_4_hours other___hours, explain

14. Revise current MCC General Catalog page(s)__34, 108_____

15. Course grading ___letter grade only ___credit/no credit _x__either _X_audit

16. Proposed semester and year of first offering? _Fall__semester _2004_year

17. Maximum enrollment__24___ Rationale, if applicable Number of computers in laboratory

18. Special scheduling considerations? _x_yes __no If yes, explain. Laboratory availability

19. Special fees required? __yes _x_no If yes, explain.

20. Will this request require special resources (personnel, supplies, etc.?) _x_yes __no

If yes, explain. Computers in laboratory must have Linux OS installed and operating.

21. Is this course restricted to particular room type? _x_yes __no If yes, explain. See #19

22. __Course fulfills requirement for _____ program/degree

_x_Course is an elective for __Technical Elective for ECET____ program/degree

_x_Course is elective for AS degree

23. This course __increases __decreases _x_makes no change in number of credit required for the program(s) affected by this action

24. Is this course taught at another UH campus? _x_yes __no

a. If yes, specify campus, course, alpha and number

Honolulu CC, CENT 251: Unix System Administration
UH Manoa, ICS 412 Operating Systems

b. If no, explain why this course is offered at MCC

25. a. Course is articulated at

__UHCC __UH Manoa __UH Hilo __UH WO __Other/PCC

b. Course is appropriate for articulation at

__UHCC __UH Manoa __UH Hilo __UH WO __Other/PCC

c. Course is not appropriate for articulation at

__UHCC __UH Manoa __UH Hilo __UH WO __Other/PCC

d. Course articulation information is attached? __yes __no

. . . . . .

Proposed by

Sandra R. Swanson: 30 Dec 2003
Author or Program Coordinator/Date

Approved by

02/13/04
Academic Senate Chair/Date

Requested by

Division or Unit Chair/Date

Chief Academic Officer/Date 13 Feb 04

Recommended by

Curriculum Chair/Date 4 Feb 04

Chancellor/Date

Revised Sept 2003/AC

Maui Community College
Course Outline

1.	Alpha and Number	ICS 252
	Course Title	Unix / Linux System Administration
	Credits	Four (4)
	Date of Outline	31 December 2003
2.	Course Description	Continues exploration of the Unix / Linux operating system with an examination of the tasks and responsibilities of system administration. Examines and explores the Unix group and user hierarchy, system security, networking fundamentals, network administration, system logs, troubleshooting, application installation, and system installation and maintenance. Emphasizes the ethics and responsibilities of Unix System Administration and root user privileges.
2.	Contact Hours/Type	Four(4): lecture/laboratory
4.	Prerequisites	ICS~~/ETRO~~ 251 with at least a C, or consent
	Corequisites	
	Recommended Preparation	

Approved by _____ Date 2/24/04

5. General Course Objectives

Building on the introductory material covered in ICS 251, this advanced course introduces the concepts, tasks, duties, responsibilities, and privileges incumbent with Unix / Linux System Administration. System management of users, groups, networking, security, file maintenance and backup will be included.

6. Specific Course Objectives, Competencies, and Student Learning Outcomes

For assessment purposes, these are linked to #7. Recommended Course Content.

Upon successful completion of this course the student shall demonstrate mastery of, and competence in, the following areas through assignments, classroom discussions, laboratory projects, and formal evaluation:

a) Explain the differences between privileged (root) and ordinary users.
b) Mechanics of obtaining and accessing root privileges.
c) Discuss and review the ethical issues and responsibilities incumbent of system administrators.
d) Define and illustrate the Unix / Linux group and user structure and identify the different classes of users.
e) Explain the need for Unix / Linux security issues and their management.
f) Summarize networking basics and demonstrate those network administration basics used by System Administrators.
g) Demonstrate an understanding and competency of system and file archiving.
h) Perform system kernel and application upgrading and maintenance.

7. Recommended Course Content and Approximate Time Spent on Each Topic

Linked to #6. Specific Course Objectives, Competencies, and Student Learning Outcomes.

- 1-2 weeks Overview of Unix / Linux System Administration: a, b, c.
- 1-2 weeks Introduce the Unix / Linux group and user hierarchy: c, d.
- 2-3 weeks Creation, maintenance, and deletion of users and groups: b, c, d, e.
- 1-2 weeks Introduce and discuss Unix / Linux security issues: c, d, e.
- 3-4 weeks Unix / Linux system administrative tasks and tools: b, c, d, e, h.
- 3-4 weeks Introduction and overview of networking basics as needed by System Administrators: c, e, f.
- 2-3 weeks Discuss system and file archiving, methods, tools, and scheduling: c, d, e, g.
- 2-3 weeks System and application installation, maintenance, upgrading, and removal: c, d, e, h.

8. Text and Materials, Reference Materials, Auxiliary Materials and Content

Textbooks do not currently exist for the majority of advanced topics that are a part of this course. Students will use existing Unix / Linux reference materials such as: *A Practical Guide to Red Hat Linux 8*, Mark G. Sobell, Addison-Wesley Pearson Education, ISBN 0-201-70313-0 and *Linux Administration Handbook*, Nemeth, Snyder, & Hein, Prentice Hall, ISBN 0-13-008466-2. Instructors must be capable of developing classroom lecture materials, assignments, and laboratory exercises to adequately stimulate and challenge the student's learning experience. Emphasis will be made on the user and interpretation of the built-in Unix / Linux man pages.

9. Recommended Course Requirements and Evaluation

Specific course requirements are at the discretion of the instructor at the time the course is being offered. Suggested requirements include, but are not limited to: ICS 100 or similar introductory computer class with at least a C, or consent. Evaluation will be via testing and laboratory projects and will be graded as follows:

Laboratory workbook:	15-30 %
Unannounced quizzes:	10-25 %
Scheduled examinations:	15-40 %
Programming and reading assignments:	20-60 %
Student's class participation and attendance	0- 8 %

10. Methods of Instruction

Instructional methods will vary with instructors. Specific methods may vary at the discretion of instructors and may include, but are not limited to:

Lecture (PowerPoint or similar).
Classroom discussion.
Hands on laboratory exercises.
Design and implementation of shell scripting by example and evaluation.
Special projects.
Assignments.
Quizzes and examinations.
Guest lecturers.
Field trips.