

**Department of Computer Science and Information Technology**

**College of Science University of Salahaddin Subject:**

**Operating System Course Book -(4th CS & IT Class)**

**Lecturer's name: Assist. Lecturer Samar Sabah Mamand**

**Academic Year: 2021/2022**

**Course Book**

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| **1. Course name** | Operating System |
| **2. Lecturer in charge** | Samar Sabah Mamand |
| **3. Department/ College** | Computer Science and Information Technology / Science |
| **4. Contact** | E-mail: samar.mamand@su.edu.krd  Tel: +964(0)7504523808 |
| **5. Time (in hours) per**  **week** | Practical: 2 |
| **6. Office hours** | Tuesday 10:30 – 12:30 |
| **7. Course code** | CST401 |
| **8. Teacher's academic**  **profile** | EDUCATION  2010 - 2011 **Master of (Computer**  **Science)**, Salahaddin University- Erbil.  Master’s Thesis: “ Expert Database System”  Salahaddin University- Erbil.  2004 - 2005 **Bachelor of computer Science Department – education College** , sSalahaddin University- Erbil. |

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| **9. Keywords** | **Linux Operating System : Ubuntu command , shell programming bash shell command ,perl** |
| 10. Course overview:  This course will provide an introduction to operating system design and implementation. The operating system provides a well-known, convenient, and efficient interface between user programs and the bare hardware of the computer on which they run. The operating system is responsible for allowing resources (e.g., disks, networks, and processors) to be shared, providing common services needed by many different programs (e.g., file service, the ability to start or stop processes, and access to the printer), and protecting individual programs from one another.. | |

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| On the practical side, the course provides students with the essential knowledge to begin using and managing the powerful LINUX operating system with the following objectives: familiarize students with the Linux environment, learn the fundamentals of shell scripting/programming, and familiarize students with basic Linux administration. |
| **11. Course objective**  This course will provide students with an in-depth understanding of the Ubuntu Linux System).   1. Ubuntu Commands 2. Shell programming 3. Bash shell command 4. perl |
| **12. Student's obligation**  1- Attendance.  2- Quiz.  3- exam  4 Practical will be out of %35 |
| **13. Forms of teaching**  1- data show.  2- whiteboard.  3- Discussion examples and techniques with students. |

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| **14. Student learning outcome:**   1. Be familiar with various types of operating systems including Linux . 2. comfortably use basic Linux commands from the command line (from a terminal window); 3. usefully combine Linux tools using features such as filters, pipes, redirection, and regular expressions; 4. be knowledgeable enough about basic Linux shell scripting to be able to successfully read and write bash shell scripts; 5. Know how to use Linux resources to find additional information about Linux commands |
| **15. Course Reading List and References:**   1. Wiley ,Linux® Command Line and Shell Scripting Bible, Third Edition , Indianapolis, Indiana Published simultaneously in Canada , 2015. 2. Ken O. Burtch ,Linux Shell Scripting with Bash, 2004 by Sams Publishing. 3. Roderick W. Smith, CompTIA® Linux+™ Study Guide , 2nd edition ,2013 by John Wiley & Sons, Inc., Indianapolis, Indiana. 4. Other relevant papers, websites and books |

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**17-The Topics**

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| **Week(s)** | **Lab** |
| 1-3 | **Basic Commands:**  Pwd, LS ,Cat ,Clear & Exit **Managing File/directory Commands:-**  The **cp** Command. The **mv** Command. The **rm** Command. The **mkdir** Command. The **rmdir** Command.  The **cd** Command. |
| 4-5 | Introduction To Shell Programming.  Shell Programming : String  ,Case , While and for. |
| 6-7 | Unix Pipes and filters. Commands :wc, grep and sort.  Unix Special Variables.  Command-Line Arguments |
| 8-9 | Nesting Loop Example. Loop Control Example. Shell Substitution Example.  Unix I/O Redirections & here document. |
| 10-12 | Shell Function Example. Unix I/O Redirections.  Commands:head, tail, cmp. Commands: Join, split and uniq |
| 13-14 | **Bash Shell Commands:**  Tree , file  Ps, kill and killall Df , du  Ifcongi , ping and tracroute |

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| **Week(s)** | **Lab** |
| 15 |
| 16-18 | Shell Function Examples Networking cmds: dig, hostname , arp, Ip, ipcalc |
| 19-21 | **Bash Shell Commands:** Managing system: free, top, iostat, date, cal, reboot, shutdown.  Locking Down Security: useradd, usermod, userdel, password  last, finger , whoiam. |
| 22-24 | Introduction to Perl Programming  Perl: Operators.  Perl: Loop Control Statements. Perl: Sample Programs. |
| 25-28 | Perl: More Array Functions Perl: Loop Statements.  Perl: Conditional Statements. |
| 29 | Perl: subroutine Perl: File I/O. |
| 30 | Second Mid Exam |

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| **18. Examination:**  Shell Programming :  using for loop ,while loop, if decision making , write script shell.  **Multiple Choices**   1. **create 3 new file by names OS1.txt , OS2.txt, OS3.txt** 2. which command is used to evaluate arithmetic expression. 3. Which of the option with cp command makes back up of source of file   **19.Extra notes** |
| **20. Peer review** |

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