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UNIVERSITY OF PETROLEUM & ENERGY STUDIES
College of Engineering Studies

Dehradun

COURSE PLAN

Programme : B. Tech CSE DevOps

Course : DevOps Automation

Subject Code : CSDV 2101

No. of credits : 1

Semester : III

Session : 2018-19

Batch : 2017-21

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UPES
School of Computer Science & Engineering

COURSE PLAN

A. PREREQUISITE:

a. Basic Knowledge of Shell Scripting.
b. Basic Knowledge of Linux commands.

B. COURSE OUTLINE

The course provides the deep understanding of Linux commands with exercises on Shell Scripting

Subject: **DevOps Automation** **Course:** B.Tech-CSE-DevOps

Duration: **120 Minutes**

Course Objectives:

1. Examine the functionality of bash and shell scripting
2. Utilize the functionality of Automation Scripts in Shell.
3. Utilize the Cron Scheduling in Linux to make Auto Scheduling
4. Examine the Error messages for users and reusable library scripts for automation scripts.

C. COURSE OUTLINE

1. Introduction to bash and shell scripting
    - Setting Up Bash, configurations
    - Shell Scripts for various logical and arithmetic tasks
    - Shell scripts for various system tasks
2. Automation scripts
    - Automation of execution cycle
    - Automation of various user, system tasks
3. Working with Cron
    - Job scheduling exercises
4. Working with Make and Makefiles
    - Launching new OS copies with changes

5. Error messages for users
    - Error log analysis using various scripts
6. Creating reusable library scripts for automation scripts
    - Creating utilities and libraries for automation
7. Project

D. PEDAGOGY

Lab sessions with hands on sessions on Linux commands and using them for Shell Scripting.

E. COURSE COMPLETION PLAN

No.of Labs Planned/taken		No.of experiments planned/conducted		No.of Quizzes /viva planned/conducted		No.of Tests planned/conducted		% syllabus completed
12		12		02		02		

F. EVALUATION & GRADING

Students will be evaluated based on the following 2 stages.

Internal assessment - 50%

End term Examination - 50%

INTERNAL ASSESSMENT:

WEIGHTAGE- 50% Internal Assessment shall be based on the following:

Sl. No.	Description	% of Weightage out of 50%
1	Project & Continuous Assessment	20
2	Viva-Voce/Quiz	20
3	General Discipline	10

Internal Assessment Record Sheet will be displayed on LMS at the end of the semester i.e. in the last week of regular classroom teaching.

CONTINUOUS ASSESSMENT: Based on the weekly evaluation of the experiments actually performed by the students in the Laboratory and submitted on the same day or on the very next turn. A group project will be submitted and that will be evaluated.

The continuous Assessment will be displayed on LMS/ICOS on monthly basis i.e. on the last two or three working days of every month.

MANDATORY: A group project assignment will be submitted by the students. Project progress / VIVA: Progress of the project work will be discussed by the students twice the term each time a viva based exercise will be followed. Those who fail to do so shall be marked as absent and shall lose their marks.

The marks obtained by the students will be displayed on LMS after evaluation.

GENERAL DISCIPLINE: Based on student's regularity, punctuality, sincerity and behavior in the class.
The marks obtained by the students will be displayed on LMS at the end of semester.

END TERM EXAMINATION: WEIGHTAGE – 50%

End Term Examination shall be Three Hours duration and shall be conducted by actually performing the experiment.

GRADING: The overall marks obtained at the end of the semester comprising the above two mentioned shall be converted to a grade.

G. DETAILED SESSION PLAN

1. Introduction to bash and shell scripting with Setting Up Bash, configurations, Shell Scripts for various logical and arithmetic tasks and Shell scripts for various system tasks.
2. Automation scripts of execution cycle, various user, system tasks.
3. Working with Cron for Job scheduling exercises.
4. Working with Make and Makefiles for Launching new OS copies with changes.
5. Error messages for users to create Error log analysis using various scripts.
6. Creating reusable library scripts for automation scripts and Creating utilities and libraries for automation.
7. Project with team work demonstrating all aspects of Linux and Shell Scripting.

H. SUGGESTED READINGS:

G: 1 TEXT BOOKS:

1. DevOps Automation Lab Manual by Xebia

G: 2 REFERENCE BOOKS

1. The Linux Command Line: A Complete Introduction by William E. Shotts Jr.
2. Linux Command Line and Shell Scripting Bible 3rd Edition by Richard Blum (Author), Christine Bresnahan (Author)

G: 3 VIDEO RESOURCES (URL LINK) AND NPTEL LECTURES

1. https://nptel.ac.in/courses/117106113/
2. https://nptel.ac.in/courses/106108101/pdf/Lecture_Notes/Mod%2013_LN.pdf
3. https://nptel.ac.in/courses/106108101/pdf/PPTs/Mod_13.pdf
4. https://nptel.ac.in/courses/106108101/20

GUIDELINES

***Cell Phones and other Electronic Communication Devices*:** Cell phones and other electronic communication devices (such as Blackberries/Laptops) are not permitted in classes during Tests or the Mid/Final Examination. Such devices MUST be turned off in the class room.

E-Mail and online learning tool: Each student in the class should have an e-mail id and a pass word to access the LMS system regularly. Regularly, important information – Date of conducting class tests, guest lectures, via online learning tool. The best way to arrange meetings with us or ask specific questions is by email and prior appointment. All the assignments preferably should be uploaded on online learning tool. Various research papers/reference material will be mailed/uploaded on online learning platform time to time.

Attendance: Students are required to have **minimum attendance of 75%** in each subject. Students with less than said percentage shall **NOT** be allowed to appear in the end semester examination.

Course outcome assessment: To assess the fulfilment of course outcomes two different approaches have been decided. Degree of fulfillment of course outcomes will be assessed in different ways through direct assessment and indirect assessment. In Direct Assessment, it is measured through quizzes, tests, assignment, Mid-term and/or End-term examinations. It is suggested that each examination is designed in such a way that it can address one or two outcomes (depending upon the course completion). Indirect assessment is done through the student survey which needs to be designed by the faculty (sample format is given below) and it shall be conducted towards the end of course completion. The evaluation of the achievement

of the Course Outcomes shall be done by analyzing the inputs received through Direct and Indirect Assessments and then corrective actions suggested for further improvement.

Passing criterion: Student has to secure minimum 40% marks of the "highest marks in the class scored by a student in that subject (in that class/group class)" individually in both the 'End-Semester examination' and 'Total Marks' in order to pass in that paper.

- Passing Criterion for B. Tech: minimum 40% of the highest marks in the class

Sample format for Indirect Assessment of Course outcomes

NAME:
ENROLLMENT NO:
SAP ID:
COURSE:
PROGRAM: