



FOSSEE Summer Fellowship Report

On

Creating Spoken Tutorials on Osdag

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Chapter 1

Introduction

The Spoken Tutorial Project is about teaching and learning a particular FLOSS (Free/Libre and Open Source Software for Education) like Linux, Scilab, LaTeX, PHP, MySQL, Java, C/C++, LibreOffice etc. via an easy video based learning methodology.

It is a multi-award-winning educational content portal. Here one can learn various FLOSS software all by oneself. It's self-paced, multi-lingual courses ensure that anybody with a computer and a desire for learning, can learn from any place, at any time and in a language of their choice. Students, staff teachers from schools, colleges, universities, polytechnics, ITIs, skill centres, NGOs all can avail the training at very low cost.

The method of active learning using computer systems is highly suited for remote/distance education. Teachers and students can master the software courses on their own, in their own campus and at their own time. They can also get certificates.

UG, PG or research scholar students and even teachers of science, IT, engineering, commerce, management, MCA disciplines can learn any of the FLOSS. Today, SMEs and Govt. departments are moving to open-source software like Linux OS. Students with this knowledge will have an edge in the job market. They can also become entrepreneurs and use open-source software in their businesses, and save money versus if they were using commercial software.

IIT Bombay Spoken Tutorials now offers partnership opportunities to computer institutes/centres to give their learners a range of 75+ relevant basic and specialized courses. These cover general IT skills, programming, web development, multimedia, mathematics, sciences, industrial process simulation packages and many more. Institutes can train unlimited students in many courses along with certificates.

The Osdag team at FOSSEE IIT Bombay is leading the effort to popularise Steel Design in India through the development Osdag. Osdag and its resources are Free and Open Source. The FOSSEE (Free and Open-source Software for Science and Engineering Education) project is part of the National Mission on Education through Information and Communication Technology (ICT), Ministry of Education (MoE), Government of India.

IIT Bombay is using Spoken Tutorials <https://spoken-tutorial.org/> to create learning material for FOSS. This is the main page for the organisation of the scripts required for Osdag spoken tutorials. We invite the Osdag user community to participate in this activity

Overall coordination for the series was done by Rashmi Patankar from FOSSEE project, IIT Bombay. Madhuri Ganapathi from the Spoken Tutorial project, IIT Bombay, was the reviewer from ST end. Rutvik Joshi (FOSSEE semester long intern) was the novice reviewer.

Chapter 2

Spoken Tutorial

2.1 Spoken Tutorial Project

Spoken Tutorial is a multi-award winning educational content portal. It provides various resources on free and open source software so that anyone can learn them irrespective of place or time in a language of the learner's choosing. These courses range from Beginner to Advanced from which a learner can choose according to their knowledge or expertise. The content includes side by side practice which ensures the active participation of the learner. The Spoken Tutorial project is funded by the National Mission on Education through Information and Communication Technology (ICT), launched by the Ministry of Human Resources and Development, Government of India. In this day and age of digital learning, initiatives like the Spoken Tutorial Project are of vital importance.

2.1.1 Process of creating a Spoken tutorial

- **Outline:**
An outline for the topic is created to help us get a basic understanding of the subject and to give some idea about the structure and sequence of the overall tutorial.
- **Script:**
A script is the written form of the spoken tutorial. Each sentence said during the recording is according to the script. This is made according to the guidelines by the ST team. For a good spoken tutorial, the script needs to be clear and simple.
- **Slides:**
Slides are made to help explain certain topics in the script. They are made corresponding to the script. LaTeX beamer environment is used to create the slides. For a specific FOSS, templates are used to make the slides. These slides should follow the guidelines given by the ST team.
- **Novice check:**
Novice check is done by a person who has very little knowledge about the ST

to make sure that the script and slides are easy to understand. The novice also points out mistakes made in the script and slides.

- Recording:

The narrated video is made according to the guidelines. Extra care is taken to minimize mistakes and ensure the proper quality of recording.

- Review:

After the above steps, the all related files are sent to the reviewer who verifies that the recording and files are done according to the spoken tutorial guidelines and checklist. This is to ensure a good quality of the content being uploaded. Once all issues are addressed, the reviewer publishes the tutorial on the spoken-tutorial website.

Chapter 3

Osdag Spoken Tutorials

Osdag is a cross-platform free/libre and open-source software for the design (and detailing) of steel structures, following the Indian Standard IS 800:2007. It allows the user to design steel connections, members and systems using a graphical user interface. The interactive GUI provides a 3D visualisation of the designed component and an option to export the CAD model to any drafting software for the creation of construction/fabrication drawings. The design is typically optimised following industry best practices.

Osdag is primarily built upon Python and other Python-based FLOSS tools, such as, PyQt, OpenCascade, PythonOCC, and svgwrite. It uses SQLite for managing steel section databases.

This series shows how to use Osdag and perform steel design with the help of Osdag and it's resources.

3.1 Topics

1. Overview of Osdag
2. Installing Osdag in Ubuntu
3. Installing Osdag in Windows
4. Introduction of Osdag
5. Performing an optimum design in Osdag
6. Performing a design check in Osdag
7. Save and Import input values in Osdag using OSI file
8. Handling unsafe designs in Osdag
9. Specifying design preferences in Osdag
10. Handling 3D models and CAD in Osdag

11. Design report in Osdag
12. Shear Connection: Design of Fin Plate
13. Shear Connection: Design of End Plate
14. Shear Connection: Design of Cleat Angle
15. Shear Connection: Design of Seated Angle

3.2 Tutorials worked on

- **Tutorial 2 - Installation of Osdag in Ubuntu** : *Downloading and installing Osdag in Ubuntu Linux OS, opening Osdag through terminal, verifying the installation.*

This tutorial went over how to download the latest release of Osdag from the website, and to unzip and run the installer on Ubuntu. The tutorial covers the basic linux commands used in the tutorial as well as an overview of what exactly the installer does.

- **Tutorial 3 -Installing Osdag in Windows** : *Downloading and installing Osdag in Windows OS, opening Osdag through shortcut icon, verifying the installation.*

This tutorial went over how to download the latest release of Osdag from the website, and to unzip and run the installer on Windows. The tutorial also covers what exactly the installer includes and installs in addition to Osdag.

- **Tutorial 9 - Specifying design preferences in Osdag** : *What are design preferences in Osdag, how to specify design preferences, performing design using special preferences*

This tutorial covers how to design a model from a file and perform a design check upon it. It helps us understand what preferences should be chosen and what they signify. It also gives example values for the design preferences in order to perform the design check upon the given osi file.

- **Tutorial 10 - Handling 3D models and CAD in Osdag** : *Handling 3D CAD model in Osdag, exporting a CAD model from Osdag in standard file formats, performing design using special preferences, importing and viewing the CAD model in FreeCAD*

This tutorial goes over how to export the 3D CAD model created in Osdag in a variety of formats. It shows how to view the CAD model in Osdag using appropriate mouse buttons. It also goes over how to import the exported model into FreeCAD.

Chapter 4

Contributions

During the period of my semester internship, I have contributed the script and slides for the following 4 tutorials for the Osdag series:

- [Installing Osdag in Ubuntu](#)
- [Installing Osdag in Windows](#)
- [Specifying design preferences in Osdag](#)
- [Handling 3D models and CAD in Osdag](#)

Chapter 5

Challenges

Challenges that I faced during the internship were:

- Familiarizing myself with the standards of the spoken tutorial project
- Writing my first script
- Learning to speak enunciate well and speak clearly
- Learning how to quickly edit and modify presentations using LaTeX
- Recording the tutorial in a minimum number of takes

Chapter 6

Conclusion

The internship helped me gain an appreciation for the work done by the FOSSEE team and allowed me first hand insight into how collaborative projects of this sort are structured and how they function.

Along the way, I have picked up useful skills related to LaTeX and Ubuntu in the process of recording the tutorials. It has helped me learn how to be more professional while communicating and improve my time management and organizational skills.

The challenges encountered while working were fulfilling to overcome and I gained an understanding of the difficulties associated with recording tutorials. My writing capabilities were bolstered by the script writing that was a part of the internship. Moreover, the practice of making changes to the scripts and slides from the continuous, constructive feedback from my mentors allowed us to rectify issues and create more content in the timespan afforded to us.

I would once again like to thank all of my mentors and teachers for all the support and help received. The time spent doing this internship was fun, fulfilling and will in all probability serve as a stepping stone to my future career path.

Reference

- <http://www.spoken-tutorial.org/>
- <https://osdag.fossee.in/>
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- <https://osdag.fossee.in/resources/videos>