



Summer Fellowship Report

Drupal Web Development

Submitted by

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Under the guidance of

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Acknowledgment

I, the FOSSEE intern of the Drupal Site Buildings and Theme Development is overwhelmed in all humbleness and gratefulness to acknowledge our deep gratitude to all those who have helped us put our ideas to perfection and have assigned tasks, well above the level of simplicity and into something concrete and unique. I wholeheartedly thank **Prof.Kannan M. Moudgalya Sir** for having faith in us, selecting us to be a part of his valuable project and for constantly motivating us to do better. I am very thankful to our mentors **Prashant Sinalkar Sir** for their valuable suggestions. They were and are always there to show us the right track when needed help. With help of their brilliant guidance and encouragement, we all were able to complete our tasks properly and were up to the mark in all the tasks assigned. During the process, I got a chance to see the stronger side of our technical and non-technical aspects and also strengthen our concepts. Hereby, I gladly consider ourselves to be the most fortunate batch of interns. Last but not the least, I wholeheartedly thank all our other colleagues working in different projects for helping us evolve better with their critical advice.

With Regards.

Shubham Kumar (NIT Patna)

Contents:

| | |
|--|----|
| 1. Introduction | |
| 1.1. Drupal 8..... | 4 |
| 1.2. What's new?..... | 5 |
| 1.3. Task Assigned..... | 5 |
| 2. Drupal 8 Custom Theme | |
| 2.1. Requirement | 6 |
| 2.2. Folder structure..... | 6 |
| 2.3. Layout Region..... | 7 |
| 2.4. External Libraries and Module..... | 7 |
| 3. Twig Templating | |
| 3.1. What is twig?..... | 8 |
| 3.2. Syntax..... | 8 |
| 4. Working with Fossee Site | |
| 4.1. Making Prototypes..... | 10 |
| 4.2. Folder Structure..... | 11 |
| 4.3. Adding Regions..... | 13 |
| 4.4. Creating Contents and styling them..... | 15 |
| 4.5. Creating Views of Blocks and Pages..... | 16 |
| 4.5.1.1. Front Page:..... | 17 |
| 4.5.1.2. Resource Page..... | 21 |
| 4.5.1.3. About-us Page..... | 22 |
| 4.5.1.4. Contact-us Page..... | 23 |
| 4.5.1.5. Blog Page..... | 23 |
| 4.5.1.6. NewsLetter- Page..... | 24 |
| 4.5.1.7. Fellow-Testimonial Page..... | 24 |
| 4.5.1.8. Media Article Page..... | 25 |
| 4.6. Problems faced during development..... | 25 |
| 5. References..... | 27 |

Chapter 1. Introduction:

1.1 Drupal 8:



Yeah Right It's a CMS(Content Management System).
Drupal is open source software (OSS) released under the GNU Public License. This means it has inherent benefits—cost, flexibility, freedom, security, and accountability—that are unmatched by proprietary software. For example, Drupal is free to download from Drupal.org. Anyone can modify and extend the platform. This ensures freedom from vendor “lock in” and it empowers users worldwide to monitor Drupal’s underlying code for compliance and security issues. These benefits sustain Drupal and keep the platform at the cutting-edge of Web technology.

Pros and Cons:

Pros:

- Most Basic CMS(Content Management System Included)
- Highly Customizable
 - Plenty of Modules
 - Good Architecture and API
 - Good Documentation
- Performance
- Good Community

Cons:

- Learning Curve (PHP OOPS Knowledge Required)
- Lack of Community Support for custom Theme Development

1.2 What's New in Drupal 8?

- New Templating Engine Twig by Symphony
- More HTML5 Power
- Multilingual Ready
- Manage Your Configuration
- Loading Speed fast wrt Drupal 7
- Classy, a new base theme
- Template.php becomes theme-name.theme
- Responsive design elements are included by default
- Breakpoints can be set and used across modules and themes.

1.3. Task Assigned:

Two Task were assigned to me:

1. Migration of OpenPLC website From Drupal 7 to Drupal 8 and Add a custom theme.
2. Create Main Fossee Website in drupal 8.

From its content types to its theme development.

Chapter 2. Drupal 8 Custom Theme:

2.1. Requirement

- Basic Knowledge of PHP (OOPS)
- Knowledge about styling (HTML/CSS)
- Knowledge about Responsive design
- Knowledge of Twig Templating Engine

2.2. Folder Structure

- **/core** - All files required by Drupal's out-of-the-box usage (core), except for files that have an explicit reason to be included in the base (/) directory.
- **/libraries** - All third party external libraries leveraged by Drupal, such as a WYSIWYG editor. This folder is not included by core, but used with many contributed modules.
- **/modules** - The directory into which all custom (created by you) and contributed (created by community) modules go.
 - Splitting this up into the sub-directories **contributed** and **custom** can make it easier to keep track of the modules. You can create subfolders for organization to match your development, storage, usage standards.
- **/profile** - All contributed and custom installation profiles.
- **sites/[domain OR default]/{modules,themes}** - Site specific modules and themes can be moved into these directories to avoid them showing up on every site. Identical to Drupal 7.
- **sites/[domain OR default]/files** - The storage of site-specific files. This includes files uploaded by users (such as images) and site configuration (**active** and **staged**).
- **/themes** - All contributed and custom themes and subthemes. Please note that subthemes do require the base theme to be installed here as well.

- **/vendor** - Backend external libraries that Drupal core depends on (examples being Symfony, Twig).

2.3 Layout Region:

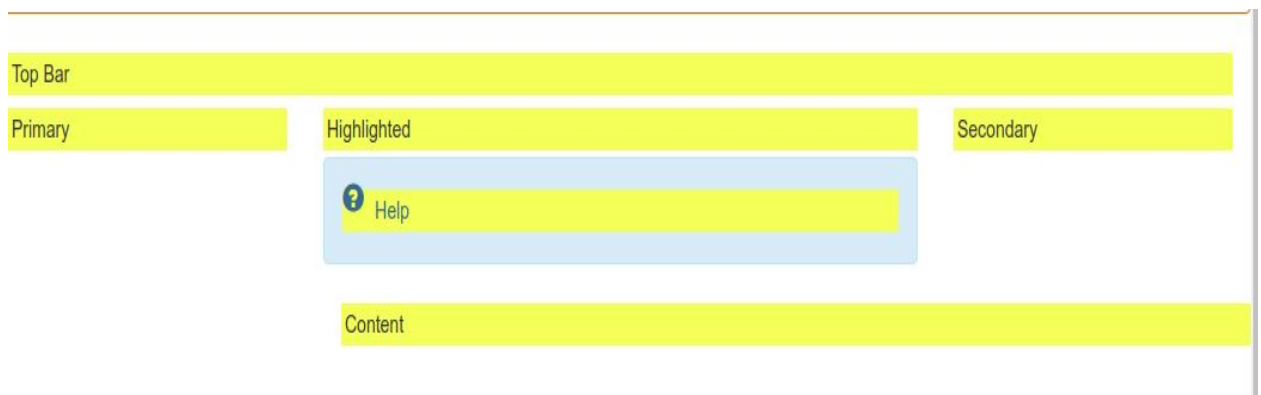
Default Region in drupal 8.

1. page.primary_menu
2. page.THEMENAME.info.yml file.secondary_menu
3. page.highlighted
4. page.help (dynamic help text, mostly for admin pages)
5. page.content (main content of current page)
6. page.sidebar_first
7. page.sidebar_second
8. page.footer
9. Page.breadcrumb

Regions are added in .info.yml file.

To view the regions of Theme

Go to blockLayout -> [Demonstrate block regions](#)



2.4 External Libraries and Module:

There are plenty of open source module and libraries available for drupal development. Only we have to download them and use them according to our needs.

Eg.

For Carousel We can use FlexSlider Module

For Menu and Submenu We can use SuperFish Module.

Chapter 3. Twig Templating:

PHPTemplate is the engine that has been driving Drupal templates since 2005.

After nearly 10 years of honorable service, PHPTemplate is about to be replaced by Twig in Drupal 8.

This will be the biggest overhaul of Drupal theming in a decade.

3.1. What is Twig?

Twig is a template framework and is a direct replacement for PHPTemplate.

Unlike PHPTemplate which was developed in-house by Drupal developers, Twig comes from the wider PHP world.

Twig was created by SensioLabs, the same people who develop the Symfony2 framework. Drupal 8 is using Symfony2 to overhaul its codebase. Because Twig is natively supported by Symfony2, it was a logical choice to use for Drupal themes

- Drupal 8 has [its own standards for Twig](#).

3.2 Twig Syntax:

A. To print a Statement

```
{{ statement_name }}
```

E.g.

```
<p>{{ 'temperature is between 18 & 27' }}</p>
```

B. For Loop

E.g.

```
<ul>
  {% for key, user in users %}
    <li>{{ user.username|e('html') }}</li>
  {% else %}
    <li><em>no user found</em></li>
  {% endfor %}
</ul>
```


C. If Condition

E.g.

```
{% if users | length > 0 %}  
    <p>There are {{ users | length }} users available.  
{% endif %}
```

D. The ternary operator: ?: is the ternary operator

| | |
|--------------------------|---|
| {{ foo ? 'yes' : 'no' }} | If "foo" is set then it will return "yes" else "no" |
| {{ foo ?: 'no' }} | same as {{ foo ? foo : 'no' }} |
| {{ foo ? 'yes' }} | same as {{ foo ? 'yes' : "" }} |

E. Debug:

| | |
|-----------------------|---|
| {{ dump(user) }} | Prints array if "user" is an array if it is a variable then it will print variable value. |
| {{ dump(user keys) }} | Prints "key" of "user". |

F. Set Variables / Array:

Set variable:

| | |
|-----------------------|--------------------------------------|
| {% set foo = 'bar' %} | Sets variable "foo" with value "bar" |
|-----------------------|--------------------------------------|

Set Array:

| | |
|------------------------|---------------------------------------|
| {% set foo = [1, 2] %} | Set array "foo" with values "1" & "2" |
|------------------------|---------------------------------------|

G. Comment Statement:

```
{# "Hello There" #}
```

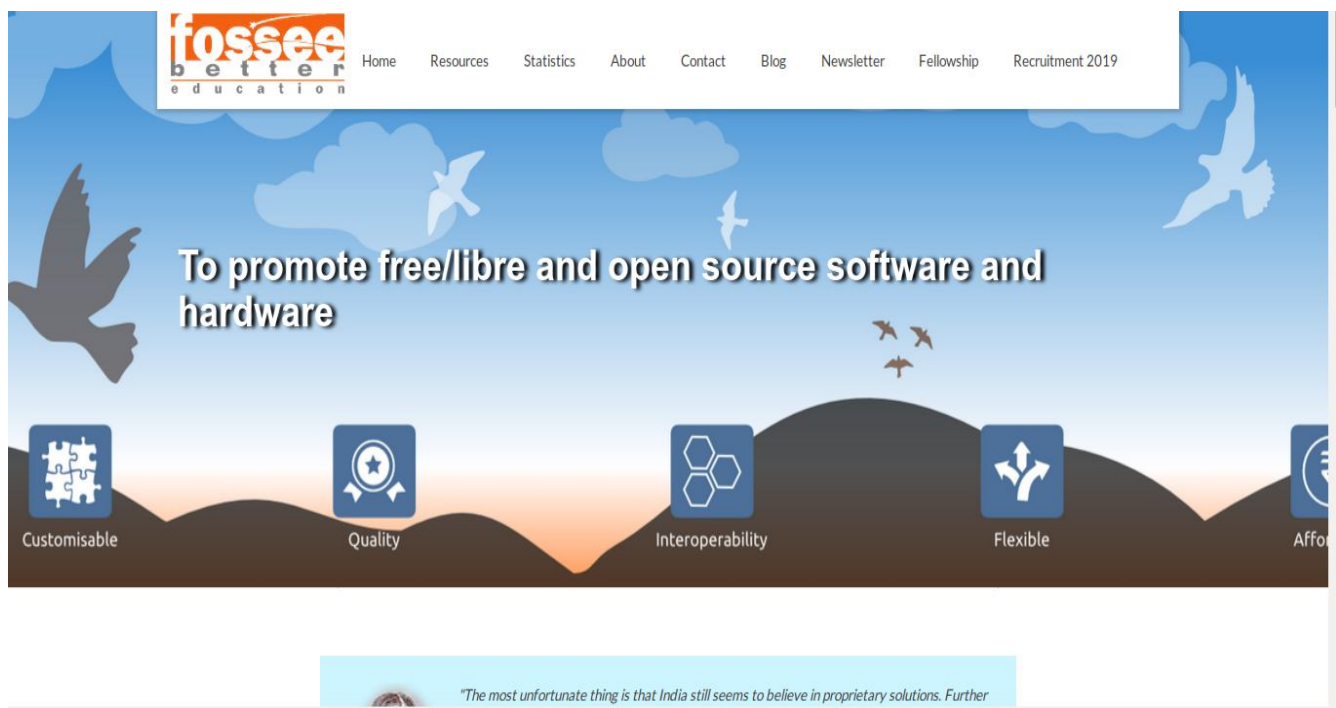
H. Execution Statement:

```
{% for user in user._id %}
```

Chapter 4. Working on Fossee Main Website:

4.1. Making Prototype:

First of all I have to make website looking exact looking like this, It should consists contents which should be change anytime So I have to create the content type so that It changes accordings to site admin.

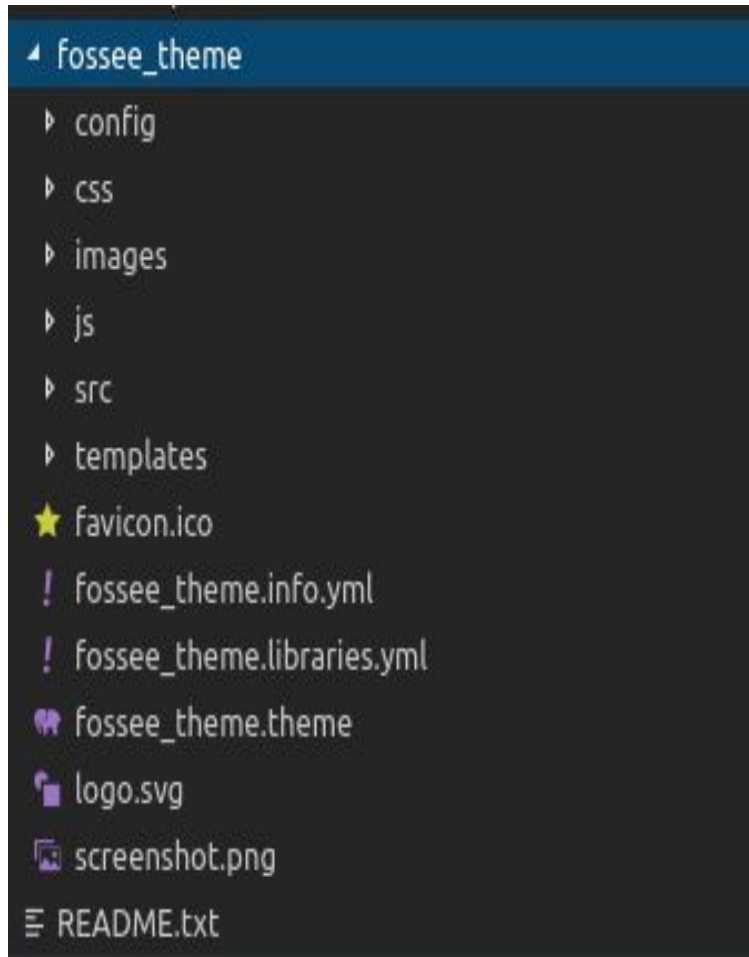


Link : <https://fossee.in/>

This Site is on Drupal 7 and It consists of all its content hard coded. My task was to develop site in Drupal 8 and It must consist the content which can be changed anytime.

4.2 Folder Structure:

I followed the drupal 8 folder Structure Convention and I have taken the bootstrap as a Subtheme.



Fossee_theme.info.yml:

Notify Drupal about the existence of a module, theme, or install profile.

```
core: 8.x
type: theme
base theme: bootstrap

name: 'FOSSEE MAIN SITE'
description: 'Fossee Main Site.'
package: 'Bootstrap'

regions:
  navigation: 'Navigation'
  navigation_collapsible: 'Navigation (Collapsible)'
  header: 'Top Bar'
  highlighted: 'Highlighted'
  help: 'Help'
  quotes: 'Quotes'
  project_list: 'Project List'
  news_policy: 'News And Policy'
  project_corousal: 'Project Corousal'
  activity_project: 'Activity Project'
  content: 'Content'
  sidebar_first: 'Primary'
  sidebar_second: 'Secondary'
  footer: 'Footer'
  page_top: 'Page top'
  page_bottom: 'Page bottom'

libraries:
  - fossee_theme/global-script
libraries-extend:
  bootstrap/framework:
    - fossee_theme/framework
```

Fossee_theme.libraries.yml:

It depicts about the libraries used for drupal 8 projects.

E.g Css, JS, External Libraries like bootstrap, fontawesome

```

framework:
  css:
    theme:
      css/style.css: {}
      css/animate.css: {}
  js:
    bootstrap/js/affix.js: {}
    bootstrap/js/alert.js: {}
    bootstrap/js/button.js: {}
    bootstrap/js/carousel.js: {}
    bootstrap/js/collapse.js: {}
    bootstrap/js/dropdown.js: {}
    bootstrap/js/modal.js: {}
    bootstrap/js/tooltip.js: {}
    bootstrap/js/popover.js: {}
    bootstrap/js/scrollspy.js: {}
    bootstrap/js/tab.js: {}
    bootstrap/js/transition.js: {}

global-script:
  version: 1.x
  js:
    js/wow.min.js: {}
  dependencies:
    - core/jquery

```

Fossee_theme.theme:

This File consist of preprocessor, hooks for form alter etc.

4.3 Adding Regions:

Regions are basically the layout in drupal 8 that how different

Components should appear on different pages.

Regions are first defined inside the .info.yml files and the content are shown on different pages accordingly.

Regions definition in .info.yml file:

```
regions:  
  navigation: 'Navigation'  
  navigation_collapsible: 'Navigation (Collapsible)'  
  header: 'Top Bar'  
  highlighted: 'Highlighted'  
  help: 'Help'  
  quotes: 'Quotes'  
  project_list: 'Project List'  
  news_policy: 'News And Policy'  
  project_corousal: 'Project Corousal'  
  activity_project: 'Activity Project'  
  content: 'Content'  
  sidebar_first: 'Primary'  
  sidebar_second: 'Secondary'  
  footer: 'Footer'  
  page_top: 'Page top'  
  page_bottom: 'Page bottom'
```

Regions appear in Website:



4.4. Creating Content Types:

In Drupal We can Create Content out of the box.

For the Fossee Website I have to create Content Type for Different contents like:

A. Active Faculty Members involved in FOSSEE

This Content Type Consists of all Faculty Member active in Fossee

B. Activities

This Content Type Consists of all the activities done in Fossee Projects.

C. Blogs

This Contains the blog written by different users for Fossee Projects

D. Carousel

It consists of the images and information which appear in form of carousel in front page.

E. Fellow Testimonials

This contains the video of former Fellow Testimonial who worked on the fossee projects.

F. Former Employee Video

This consists of the video content for former fossee employee, in which they share their experience

G. Fossee NewsLetter

It Consists the newsletter related to fossee Project

H. Fossee Project and Their Resource and Contact Link

This includes Link of Resource and Contact Section of Different Project comes under Fossee

I. Fossee project carousel

Project Done By Fossee.

J. Media Articles

This consists media articles related to Fossee Projects

K. Partners

FOSSEE is actively adding new partner institutes to spread the use of Open Source Software in academia, research and industry. Following are the institutes whom we have partnered with so far

L. Policy

Policies Related to Fossee

M. Projects

This includes Listing of Projects for Fossee

N. Team Members

List Of Team Member of Fossee

[+ Add content type](#)

| NAME | DESCRIPTION | OPERATIONS |
|---|---|---------------------------------|
| Active Faculty Members involved in FOSSEE | List Of Active Faculty Member of Fossee | Manage fields ▼ |
| Activities | List Of FOSSEE Project promotes the use of the following Activities. | Manage fields ▼ |
| Article | Use <i>articles</i> for time-sensitive content like news, press releases or blog posts. | Manage fields ▼ |
| Basic page | Use <i>basic pages</i> for your static content, such as an 'About us' page. | Manage fields ▼ |
| Blogs | This Content types includes blogs related articles.... | Manage fields ▼ |
| corousal | This content for corousal | Manage fields ▼ |
| Fellow Testimonials | This include experience videos of Fellow participated for FOSSEE Fellowship. Name,College Name,Task Assigned. | Manage fields ▼ |
| Former Employee Video | Formal Employee Video Content. | Manage fields ▼ |
| Fossee NewsLetter | This Content type includes newsletter content related to fossee | Manage fields ▼ |

We can easily manage the content type in drupal out of the box.

4.5. Creating Views of Block and Pages:

In Drupal We can Create View either in form of pages or blocks.

Block View we can Place in any region blocks.

Page View will appear for particular URL like /page.

I have Created Views for different content Types like:

- A. About Us
- B. Activity Page
- C. Blog-Page
- D. Testimonial
- E. Project Carousel

- F. Fossee Partners
- G. Fossee Newsletter
- H. Media Articles
- I. Projects
- J. News Articles

Different Views for Blocks and Pages:

4.5.1. Front Page:

- A. Nav Bar
- B. Carousel
- C. Quotes block
- D. News and Policy
- E. Project Details Slider
- F. Projects
- G. Activities
- H. Footer

4.5.2. Resource Page

4.5.3. About us Page

4.5.4. Contact Us Page

4.5.5. Blog Page

4.5.6. Newsletter Page

4.5.7. Fellow-Testimonials Page

4.5.8. Media Articles Page

4.5.1. Front Page

Page Name: page--front.html.twig

A. Nav Bar: Default bootstrap Navbar



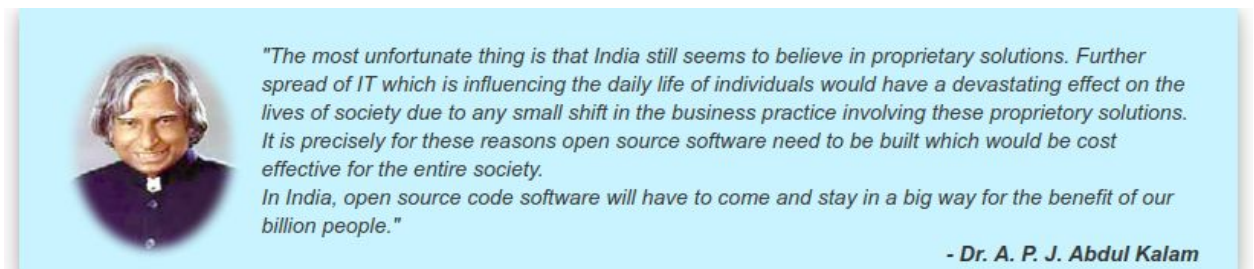
Home Resources About ▾ Contact Blog NewsLetter Fellowship

B. Carousel:



C. Quotes Block

For quotes, created a region name Quotes and added in Page--front.html.twig.



D. News & Policy Block

- News & Policy :

Created a view of block type

Region: News and Policy.

| News | Policy |
|--|---------------------------|
| International conference on Python for education and scientific computing to be held at IIT Bombay on 21 & 22 December, 2018 | View Here |
| International conference on Python for education and scientific computing to be held at IIT Bombay on 21 & 22 December, 2018 | View Here |
| International conference on Python for education and scientific computing to be held at IIT Bombay on 21 & 22 December, 2018 | View Here |
| Project FOSSEE listed under 'resources for faculty' on the AICTE website. | Scipy |

[View All](#)

E. Project Details Slider:

“

FOSSEE team has developed a Free/Libre and Open Source Python-Django based web application to conduct online programming as well as MCQ based quizzes. It is an online solution to test the practical skills of students in various programming platforms like Python, C, C++, Java, Scilab & Bash.



YAKSH ONLINE TEST
python

[<](#) [>](#)

F. Projects :

This includes listing of Project comes under Fossee.

I.e. Python, Scilab, OsDag

- Content Type: Projects
- Region: Project List
- Fields:
 1. Project Description(text) -(field_project_description)
 2. Project Images(images) -(field_project_images)
 3. Project Link(link) -(field_project_link)
 4. Show on Front(yes/no) -whether you want to show particular project on front or not -(field_show_on_front)
- View Name: Projects as a block

Projects




G. Activities:


- Content Type: Activities
- Region: Activity Projects
- Fields:
 1. Activity Related Project Description(field_activty_related_project_d)
 2. Activity Description(field_project_activity_descripti)
 3. Activity Images(field_activity_image)
 4. Activity Objective(field_activity_description)
 5. Related Projects(field_related_projects)
 6. Show Activity(field_show_activity) (yes/no) for particular project activity to show on front page.
- View Name: Activities
- Override view block/page name in code:


```
block--views-block--activities-block-1.html.twig
```


Activities




TEXTBOOK COMPANION



LAB MIGRATION



NICHE SOFTWARE ACTIVITIES



TEXTBOOK COMPANION

The Textbook Companion (TBC) activity aims to port solved examples from standard textbooks using a Free/Libre and Open source software.

Objectives:


1. Make individuals learn FLOSS through a practical approach.
2. Provide a huge database of Textbook Companions as a learning resource.
3. To make it easy for users of such textbooks to start using FLOSS.
4. To improve the documentation available for FLOSS.

This internship is available for the following FLOSS supported by FOSSEE:


| Project | Link |
|---------|-------------------|
| Scilab | ↗ |
| Python | ↗ |

H. Footer:

POSTER




BROUCHER




CONTACT


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MUMBAI, INDIA
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Email : info [at] fossee [dot] in



IIT Bombay
MHRD
Govt. of India
NMEICT
National Mission on Education through IT



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4.5.2. Resource Pages: (/resources)

It consists of two parts:

- a. projects list and their contact links
- b. Iframe for resources

Resources



| | |
|-------|-----------------|
| Osdag | CFD |
| esim | Scilab Resource |

Index of /fossee/

| | | |
|--------------------|-------------------|---|
| ../ | | |
| Icons/ | 06-Mar-2019 12:26 | - |
| Icons-2/ | 22-Jan-2018 11:14 | - |
| banners/ | 14-Mar-2019 06:03 | - |
| brochures/ | 22-Jan-2018 11:14 | - |
| fellowship-report/ | 06-Sep-2018 05:57 | - |

4.5.3. About-Us Page: (/about-us)

- First Created A Basic Page name About-us
- Add Small Description for this page.
- Override This Basic Page as `node--42.html.twig`.

This Page Consists of Three Parts:

- Active Faculty Members
- Team Member
- Former Employee Testimonial Video

About Us

FOSSEE (Free/Libre and Open Source Software in Education) project promotes the use of FLOSS tools to improve the quality of education in our country. We aim to reduce dependency on proprietary software in educational institutions. We encourage the use of FLOSS tools through various activities to ensure commercial software is replaced by equivalent FLOSS tools. We also develop new FLOSS tools and upgrade existing tools to meet requirements in academia and research.

The FOSSEE project is part of the National Mission on Education through Information and Communication Technology (ICT), Ministry of Human Resource Development (MHRD), Government of India.

Active Faculty Member Involved In FOSSEE

| | |
|---------------------------------------|---|
| Prof. Madhu N. Belur | 👁 |
| Prof. Shivasubramanian Gopalakrishnan | 👁 |

Next

Team Member

4.5.4. Partners Page (Submenu of About-us Menu) (/partners):

Fossee Partners

FOSSEE is actively adding new partner institutes to spread the use of Open Source Software in academia, research and industry. Following are the institutes whom we have partnered with so far:

B.M.S College of Engineering, Bangalore: Initiation of FOSSEE Chapter

The objective of this proposal is to start a chapter of FOSSEE at B.M.S College of Engineering, with the guidance and support from IIT Bombay to engage faculty and students of B.M.S College of Engineering and nearby institutions with their specified activities meeting the overall objective of FOSSEE. The chapter aims to promote the FOSSEE concepts by implementing different activities:

1. Scilab Lab Migration.
2. Train the faculty and students to use Open Source software.
3. Develop and promote Scilab, OpenModelica, eSim, DWSIM, OpenCV.
4. Port solved examples from standard textbooks using Scilab and OpenModelica.

Don Bosco Institute of Technology (DBIT), Mumbai: Linux promotion



4.3.5. Contact Us Page (/contact-us):

Content Type: Fossee Project and Their Resource and Contact Link

Fields: (only take the field Contact-us Link).

Contact us

Please address your queries/suggestions to:

CFD - Lab, Aero. Annex Building,
Below HSS Dept., Opp. Metallurgical Dept.
IIT Bombay, Powai, Mumbai - 400076
India.
Phone : (+91) 22 25764133
Email : info [at] fossee [dot] in

To connect with our various projects, mail us at:

| FOSS | Contact Id |
|-------|-------------------------|
| Osdag | contact-osdag@fossee.in |
| CFD | contact-cfd@fossee.in |
| eSim | contact-esim@fossee.in |

4.5.6. Blog Page(/blog):

Content Type: Blogs

Fields: Body (FULL HTML)

View Name: Blog Page

Details:

Blogs

Osdag Beta Launch, June 2017

Submitted by [shubhamk541](#) on Mon, 07/01/2019 - 02:00

INTRODUCTION

Osdag is a cross-platform free 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 an interactive graphical user interface. The interactive GUI provides a 3D visualisation of the designed component and creates images for construction/fabrication drawings. The design is typically optimised following industry best practices.

A beta version of Osdag was released on 21-Jun-2017.

[Read more](#)

4.5.7. NewsLetter Page (/newsletter):

Content Type: Fossee NewsLetter

Fields: Fossee NewLetter Link(Fossee Newsletter Link)

View Name: Fossee NewLetter as Page

Region: Content.

Fossee Newsletter



FOSSEE Newsletter January 2018 Edition



FOSSEE Newsletter November 2017 Edition



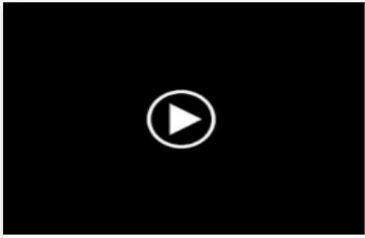
FOSSEE Newsletter May 2017 Edition

4.5.8. Fossee Testimonials Page: (/testimonials)


- Content Type: Fellow Testimonials
- Fields:
 1. Fellow Institute Name
 2. Fellow Name
 3. Fellowship Task
 4. FellowShip Testimonial Link(video)
 5. Fellow testimonial Poster(video images)
 6. Testimonial year
- Region: Content
- View Name: Fellow testimonial

Fossee Testimonials

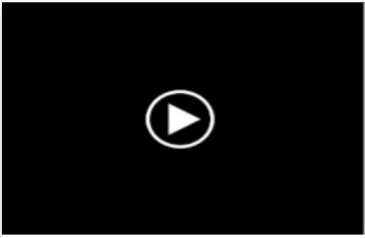
Choose Year



Python



Web Development



Python

4.6 Problems Faced During Development:

Drupal 8 theme is new So there is no plenty of tutorials or contents available. So It was a challenge to me as a newbie to find the correct details about anything where I stuck.

Sometimes I upload a question drupal.stackexchange and I have to wait for long so as to find the correct answer.

But Working with Drupal gives much more enjoyable and fun.

5. Reference:

- [Drupal 8](#)
- [Drupal Stack Exchange](#)
- [OsTrainings](#)
- [YouTube](#)
- [Twig](#)
- [Drupalize](#)