# Open Education Resource Flipping the classroom with MOODLE Computer Network (Basics of Internet)

Created as a part of

IITBx, AICTE approved FDP 101x / FDP201x Pedagogy for Online and Blended Teaching-Learning Process

### **Resource Center**

Sardar Patel Institute of Technology (SPIT)-1229

TEAM CODE 1229\_001

### **Team Member**

Ms. Minal Lopes (RC1229\_Group 1)

Dr. Kiran S. Kakade (RC1229\_Group 1)



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RC1229\_001 Team Leader – Minal Lopes Team Member – Dr. Kiran Kakade

### Section -I

## **Introduction to OER-The Internet**

### A brief overview of OER

An OER is a digitized materials offered freely and openly for all educators, students and selflearners to use and re-use for teaching, learning and research [4]. This OER is a collection of MOODLE Lesson activities that are useful as out-of-class activity while flipping the classroom. Currently there is one lesson created in this OER, and it deals with a topic related to 'The Internet' as a part of course on Computer Networks.

#### This course is available at OER Link:

#### https://spit1229group1.moodlecloud.com/login/index.php

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### **Target Audience**

Second year Engineering students (Domain: Information Technology)

### Tags of OER

Open Education, Resource, Internet, Networks, HTTP, IP and ARPANET

### Tools used in OER creation

OER is developed in MOODLE 3.4. MOODLE cloud site is used for creating the MOODLE course. [1]

### Learning objective of OER

After using this OER, learner will be able to:

- 1. Describe what is Internet (Recall Level)
- 2. Explain how does Internet work (Understand Level)
- 3. Identify class of the given IP address (Apply Level)
- 4. Explain importance of Protocols in the working of Internet (Understand Level)

### **Tools used for OER creation and Documentation**

- 1. Cam Studio: For Screen casting with Audio (Open source) [2]
- 2. Microsoft Office (Power Point, Word): For Presentations and Documentation (Proprietary)
- 3. Moodle Cloud: For Course Creation including activities [1]
- 4. Notepad: For creation Question banks for Quizzes.

## Section –II

# Pedagogy/Content/Technology Design Decisions

The decisions taken for designing this OER are broadly categorized in following three categories.

- 1. Content Decisions
- 2. Pedagogic Decisions
- 3. Technology Decisions

### Content Decisions

The lesson is categorized in four topics which includes LeD (Learning Dialogues) such as videos, LbD (Learning by Doing Activities) such as quizzes, LxT (Learning extension Resources) and LxI (Learning Experiences Interactions) such as discussion forums. Students are expected to watch the video and perform the associated activity.

### This OER is subdivided in four topics:

#### **1. Introduction to Internet**

The first segment consists of one LeD video with LbD activity which includes a quiz. As this is a first video of this course, the LeD is chosen to introduce concept of Internet to the students. The quiz is then designed to test the **understanding** of student after watching the video.

#### 2. Structure of Internet

This subsection consists of one LeD video with LbD activity (quiz). This quiz is also designed to test the **understanding** of student after watching the video.

#### **3.** Addressing on Internet

The third segment includes one LeD video with LbD activities (quiz and Discussion forum). Here the quiz is designed to test the **understanding** of learner and the discussion forum question will test **apply** cognitive level of a learner.

### 4. Protocol of Internet

The fourth subsection includes LxI and a LeD video with LbD. LxI is added here to test the **recall** cognitive level of the learner.

### 5. LxT (Learning Extension Resources)

This segment of OER consist,

- 1. One NPTL video on 'Introduction to Internet' (available under CC license)
- 2. Two Presentations on
  - a. The Internet and the Web
  - b. Management of Network

These extended resources are provided to enhance in-depth understanding of the concept.

### 6. Feedback survey

The last segment of the OER is a feedback survey. It is mandatory for every learner to participate in this survey. This will ensure continuous improvement of the course.

### Pedagogy Decisions

This course is designed as a series of lessons on the subject "Computer Networks". Each lesson will be based on Flipped classroom strategy. A lesson is planned to engage students for approximately 30-40 minutes in an out of-class activity. It will also prepare students for an inclass session of an hour's duration. The course currently includes one such flipped classroom lesson.

The in-class activities include quizzes and discussion forums, which will test learner's knowledge at **recall, understand and Apply level.** 

The out of-class active learning activities that are planned as,

- 1. Real world problem solving using
  - Think-Pair-Share
- 2. Concept clarification using
  - Peer Instruction

These activities will help learners to achieve knowledge at analyze, evaluate and create level.

### Technology Decisions

Depending upon the course needs various decisions about the technological tools were taken. For seamless dissemination of the course within learners, word press site is used. Course URL is be made available on facilitator's word press site.

To create the course for flipped classroom strategy, MOODLE is considered. MOODLE is an open source learning management system (LMS). It provides very good support for uploading media files, designing quizzes and setting up discussion forums. MOODLE also has good documentation support. More information about MOODLE is available at [3].

To create presentations and documents, Microsoft office is used.

## Section –III

## **OER Description**

### Link to OER

To access this OER use following Moodle cloud link, https://spit1229group1.moodlecloud.com/login/index.php

### **Course Enrollment**

The access to this course is through email registration. Learner will be prompted to set USER ID and PASSWORD for accessing the course. The steps are as follows:

### **Email Registration steps for student**

Step1: Click on link or paste it in browser. The following screen will appear.

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	Course on Com	puter Networks	
	Username Password Remember username	Forgotten your username or password? Cookies must be enabled in your browser 👔	
	Is this your first time here? For full access to this site, you first need to create a Create new account		
	You are not Hor Get the mo	ne	

Step 2: Click on Create New Account button and click on Next button as shown in following screen.

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	Register of research related to Moodle	Published research documents, login details and profile	Data Subjects, Moodle HQ	
	Hosting applications for Moodle	Login information	Data Subjects, Moodle HQ	
	Legacy Moodle sites	Login information	Data Subjects, Moodle HQ	
	Indexing for search purposes	Any data supplied over our sites network	Data Subjects, Moodle HQ	
	Collection and processing of anonymized data from third parties	Anonymized data from other institutions as well as login/profile for Moodle HQ employees and contractors	Data Subjects, Moodle HQ	
	News and information for the Development community	Login and other personal profile information. Details of specific development project participants	Data Subjects, Moodle HQ	
	Communication to Moodle community	Login and other personal profile information	Data Subjects, Moodle HQ	
	Accounts for access to software and licensing	Login and other personal profile information	Data Subjects, Moodle HQ	
Next				Back to top
	You a	re not logged in. ( <u>Log in</u> ) Home		
	2	Get the mobile app		

Step 3: Check the box of Agree the Moodle Cloud Policy and click on next.

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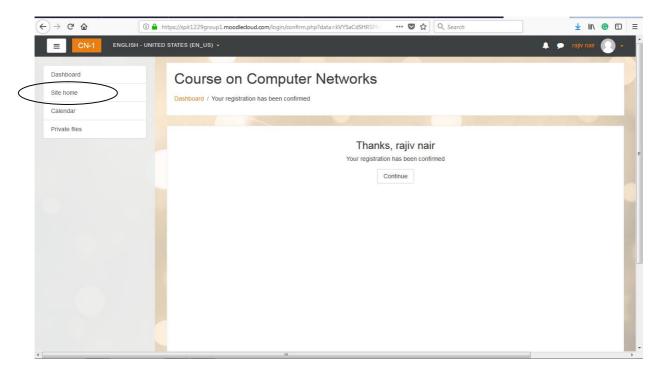
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	Create my new account Cancel			
	There are required fields in this form marked ().			

Step 4: Fill the following form for registration of the course.

Step 5: The above screen shows the link for course registration is send to the registered email-id.

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Course o	on Computer Networks		
Home / Confirm your			
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	inclines to complete your registration.		
If you continue to hav	e difficulty, contact the site administrator.		
1	Continue		
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Step 6: Home screen for student login. Click on Continue button.



Step 7: Click on Site Home option on right side of the screen. Following screen will appear with the course details.

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The Internet	The Internet	
Dashboard	Dashboard / Courses / The Internet / Enroll me in this course / Enrollment options	
Site home		
Calendar	Enrollment options	
Private files	The Internet *	
	✓ Self enrollment (Student)	
	No enrollment key required.	
	Enroll me	

Step 8: Click on the course title. Following screen will appear giving full access of the course.

Step 9: Click on Enroll me. Learner will get enroll for the course and following screen will appear on desktop.

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The Internet	The Internet	o -
Participants	Dashboard / Courses / The Internet	
Badges		
Competencies		
Grades	Course Objectives	
General	At the end of watching the videos student will be able to,	
Introduction to Internet	E 1. Describe what is Internet (Recall Level)	
Structure of Internet	2. Explain how does internet work (Understand Level)     3. Identify class of the given IP address (Apply Level)	
Addressing on Internet	4. Explain importance of Protocols in the working of Internet (Understand Level)	
Protocols of Internet	Introduction to Internet	
Learning Experience Interaction - 5 (LxI-5)	What is Internet?	
Learning Extension Resources (LxT)		
Feedback survey		
Dashboard	WHAT IS THE INTERNET?	
Site home		

### Various Aspects of OER

To create this flipped classroom activity, it is required to add lessons to the course. Following steps can be used to add lessons and activities to the course.

Step1: Use encircled path to access the 'create new course' option. You can add new lessons to the course from here.

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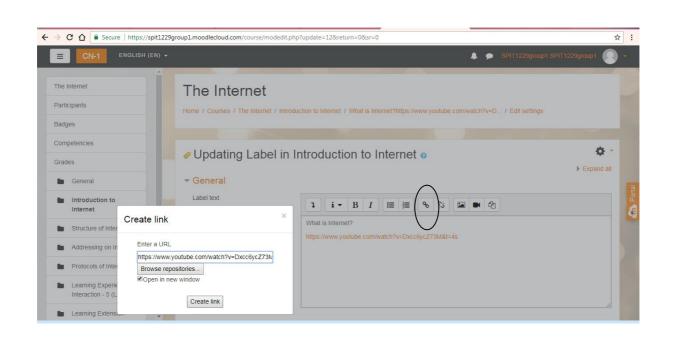
Step 2: Adding Course Information/ Objectives/Overview

- 1. Select newly created course.
- 2. Turn editing on (right-hand side top corner 🌣 icon)
- 3. Add an Activity or resource (right hand side bottom corner + icon)
- 4. Select Assignment.

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Addressing on Internet	4. Explain ii	) 📑 G	lossary			
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Interaction - 5 (LxI-5)	+ What is Internet	o 📕 s	CORM package	•	Edit 🛩	
Learning Extension Resources (LxT)				Add Cancel		

### Step 3: Adding Media Contents

- 1. Select newly created course.
- 2. Turn editing on (right-hand side top corner 🌣 icon)
- 3. Add topics/lectures depending on your course needs.
- 4. Select any topic/lecture where you want to add an activity and click on 'Add an activity or resource' (right hand side bottom corner + icon)
- 5. Select Label
- 6. In Label text, select Link. Copy your resource video URL and create link.



Step 4: Adding Quiz/Discussion Forum/Feedback

- 1. Select the course.
- 2. Turn editing on (right-hand side top corner  $\clubsuit$  icon)
- 3. Select any topic/lecture where you want to add an activity and click on 'Add an activity or resource' (right hand side bottom corner + icon)
- 4. Select required activity or resource from the list.

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Introduction to Internet     Structure of Internet	0				+ Add an activity or resource
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Protocols of Internet	0				
Learning Experience Interaction - 5 (LxI-5)	•				
Learning Extension Resources (LXT)		IMS content package			
Feedback survey			Add Cano	el leCloud F	

### How to use OER (Screen-cast Video)

### As a Learner:

A screen cast video is provided in the starting of the course to aid learners navigate this course. The video is available under creative commons license at following link: <u>https://youtu.be/ykm-AZPS8mE</u>

### As a Facilitator:

Any faculty, who wants to use this course, needs to execute following steps.

**Step 1:** Ensure that you have admin permissions of your Moodle course. It is mandatory for importing any course in your own Moodle site. In case you are using a private MOODLE server, you may ask your administrator to restore the backup course in your course page.

**Step 2:** Please download the backup of this course from following link. (File name: OER Backup) <u>https://minallopes.wordpress.com/2018/06/07/oer-acitivity/</u>

**Step3:** Watch following video created by our fellow colleague under creative commons. This will guide you to import courses into your Moodle course. <u>https://youtu.be/wfGnWWYfSd8</u>

### **Best Practices with this Lesson Activity**

Few best practices on using this Lesson Activity in the classroom:

- 1. Provide this activity at least 1 week in advance.
- 2. Provide minor incentive (marks) for completion of the activity.
- 3. Ensure that there is a concrete output at the end of out-of-class activity to ensure learners are interested.
- 4. It would be good if the screencasts and resources are available in the MOODLE course itself. This will take care of common cribs related to "website not available", "resources not accessible" etc.

## Section IV

## **Evaluation of Effectiveness of OER**

The OER effectiveness can be assessed at two levels:

1. at the student level

2. at the consumer level

#### Effectiveness at the student level

Effectiveness at the student level involves metrics related to student access of the resource and student learning. The Moodle lesson report can be used to evaluate this effectiveness, with the report showing the total number of students who accessed the reports (along with time) and their marks (based on their answers to MCQs). Additionally there is an option for teacher to grade essays and these marks also will be calculated if needed.

Student feedback survey is also implemented with following questions.

- 1. With how many peers did you interacted?
- 2. Did the Course content and activities contributed towards enhancing your knowledge?
- 3. Suggestions/ Improvements (essay question)
- 4. What according to you are the best practices of this course? (essay question)

#### Effectiveness at consumer level

OER consumers are typically faculties who want their students to learn 'Basics of Internet'. Linking a survey on three main constructs – Ease of Use, Concept Coverage and Concept Complexity, can help in identifying the effectiveness of this OER at consumer level. This has to be done as a follow-up activity.

#### **Implementing Survey**

Every user who downloads this resource will be asked to download the feedback form and email it on the prescribed email address. The feedback form is available at:

https://minallopes.wordpress.com/2018/06/07/oer-acitivity/

Download 'OER Consumer Feedback' from this link.

## Section V

# **Consolidated log of Teamwork**

The consolidated log of team work is as shown below:

Activity	Team Member	Amount of Time
Discussion on Topic	Ms. Minal Lopes	1 Hour
	Dr. Kiran Kakade	1 Hour
Tool Exploration	Ms. Minal Lopes	2 Hours
	Dr. Kiran Kakade	2 Hours
Planning for Moodle course on 'The Internet'	Ms. Minal Lopes	2 Hours
	Dr. Kiran Kakade	2 Hours
OER Creation on 'The Internet'	Ms. Minal Lopes	6 Hours
	Dr. Kiran Kakade	6 Hours
OER documentation	Ms. Minal Lopes	8 Hours
	Dr. Kiran Kakade	8 Hours
OER Evaluation	Ms. Minal Lopes	3 Hours
	Dr. Kiran Kakade	3 Hours

## **Section VI**

## **Building Community with OERs**

#### **Possible Sources for Community Building**

Some of the viable sources for building a community are:

- 1. Teachers who are using MOODLE
- 2. Teachers who plan to use Flipped Classroom Strategies

### **Plans for Community Building**

The is already available resource in the webpage (https://spit1229group1.moodlecloud.com/login/index.php) and word site press (https://minallopes.wordpress.com/2018/06/07/oer-acitivity) and its access require the users to provide their email id. Thus there will be a list of interested users whom we can follow up using Email. All the interested users can then be connected using a local word press or Moodle website.

# **Works Cited**

- [1]. <u>https://moodlecloud.com/</u>
- [2]. <u>http://camstudio.org/</u>
- [3]. https://docs.moodle.org/35/en/Main\_page/
- [4]. https://en.wikipedia.org/wiki/Open\_educational\_resources