

# Open Education Resource: Flipping the classroom with MOODLE

Work done as part of AICTE approved FDP on Use of ICT in Education for Online and Blended Learning

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- 2. Prof J. S. Khatik
- 3. Prof K. D. Koshti
- (Team Leader) (Team Member) (Team Member)



BY SA IDP in Educational Technology, 2016.

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### Introduction

FDP201x: Pedagogy for Online and Blended Teaching-Learning Process is 4 weeks workshop.

OER work is develop by Prof. P L sarode, Prof. J S Khatik and Prof. K D Koshti and as a part of assignment. Our topic is Structure of Materials, which comes under category of Mechanical and Mechanical allied. Our team ID is 006 and RC 1108.

OER is created on Wordpress and Moodle (Moodle Cloud). Initially plane is just to develop on Wordpress, but we to get grades and quiz conduction we decided to go for MOODLE Cloud.

Team ID: 1108\_012 RCID - 1108

Team

Mentor Name: Shyam A Sonawane Mentees: Team Leader: Prof P L Sarode Team Member 1: Prof J S Khatik Team Member 2: Prof K D Koshti

# **Open Education Resource: Flipping** classroom with Wordpress and MOODLE

### About OER

Classroom is flipped by creating this OER with WordPress and MOODLE CLOUD lesion activities. This OER contains four lessons. Domain selected is mechanical and allied. Power Point Presentation is created and uploaded on WordPress site and Quiz activity is plan to conduct on MOODLE page to check understanding of student level. Concept mapping is shown in pdf file of out of class activity.

- OER is downloadable from link bellow : • https://mechanicalclass.files.wordpress.com/2018/06/fdp201x oer creation rc1108 0124.pdf
- Moodle Cloud link: • https://krishnakoshti.moodlecloud.com/login/index.php

We created user with credentials as below, use this account to login.

User (Id- student Password – student)

- Target Audience: Second Year Mechanical Engineering students (Sem-III)
- <u>Tags</u>: Crystal, lattice, unit cell, defects, plastic deformation, properties
- OER developed in MOODLE CLOUD 3.3.2
- This resource is licensed under CC-BY-SA ver 4.0. You are free to use, distribute and modify it, including for commercial purposes, provided you acknowledge the source and share-alike.



### **Learning Objectives**

At the end of course student should be able to

At the end of this session students should be able to

- 1. Understand Space lattice, Unit cells,7 crystal structure and 14 Bravais lattices.
- 2. Understand atomic arrangement and packing in different unit cells.
- 3. Find out miller indices of crystallographic planes and directions.
- 4. Correlate some properties to crystal structure.
- 5. Describe the crystal defects and their effects on mechanical properties.

Describe the mechanism of plastic deformation

### Helpful Documentation for Tool Use

- 1. WordPress Design and development of Lesson Activity
- 2. MOODLE CLOUD Design and development of Lesson Activity
- 3. Microsoft Office PowerPoint for slide and animation development

### **Design Decisions**

#### Nature of Decisions taken

We consider Content Decisions, Pedagogic Decisions and Technology Decisions to create this OER.

#### 1. Content Decisions

Session covers – Crystal structures, indexing, crystal defects or imperfections, mechanism of plastic deformation. Motive is that students can any time view this course content and assed when required.

#### 2. Pedagogic Decisions

#### Cognitive Levels -

Out of Class Activity with lower cognitive level

SN	Out of class Learning objective	C- Level
1	Define Space lattice, Unit cells,7 crystal structure and 14 Bravais lattices.	Remember
2	Understand atomic arrangement and packing in different unit cells.	Understand
3	Find out miller indices of crystallographic planes and directions.	Understand
4	Correlate some properties to crystal structure.	Understand
5	Describe the crystal defects and their effects on mechanical properties.	Understand
6	Describe the mechanism of plastic deformation.	Understand

SN	Inclass Learning objective	C- Level
1	Find out miller indices of crystallographic planes and directions.	Apply
2	Find out the APF	Apply
3	Select the structure for specific mechanical properties	Analyze
5	Select the structure for specific mechanical properties	Anaryze

Page **4** 

#### Assessment Strategies -

Out of Class Activity with Multiple choice questions

SN	Out of class Learning objective	Assessment
----	---------------------------------	------------

1	Understand Space lattice, Unit cells,7 crystal structure and 14 Bravais lattices.	MCQ 1, 2
2	Understand atomic arrangement and packing in different unit cells.	MCQ 3, 4
3	Find out miller indices of crystallographic planes and directions.	MCQ 5, 6
4	Correlate some properties to crystal structure.	MCQ 7, 8
5	Describe the crystal defects and their effects on mechanical properties.	MCQ 9
6	Describe the mechanism of plastic deformation.	MCQ 10
7	Calculate compositions content by using Phase Rule	Identify as submission

#### In of Class activities used are TPS and PI

SN	In of class Learning objective	Assessment
1	What is crystal defect? Which type of crystal defect is there in Cast Iron?	Peer Instruction
Select appropriate, Identify material by out amount of phases present from its microstructure		Think-Pair- Share

### 3. Technology Decision

Out of Class Activity tool decided are as follows

SN	Tool	Use
1	Microsoft Office Power point	Slide show is created with office as licensed copy of Microsoft office16 is available in College. .You can also use Apache open office tool as Freeware.
2	Wordpress and Moodle Cloud	Wordpress and Moddle 3.3.2 (moodlecloud.com) is use to develop self-learning lesson.

### **OER Description**

### Active OER

You can access active OER of "**Structure of materials**" in the Wordpress with link provided as follows:

https://mechanicalclass.files.wordpress.com/2018/06/fdp201x\_oer\_creation\_rc1108\_0124.pdf

OR

 MOODLE Cloud Link: <u>https://krishnakoshti.moodlecloud.com/login/index.php</u>

We created user with credentials as below, use this account to login.

User (Id- student, Password - student)

#### **Lesson Setting**

1. Worspress

For Wordpress lesson Screenshots shown as follows:

Step 1 : Go to https://wordpress.com/ > log in

Step 2 : Create wabpage - Manage > Site Pages > Add (ref-snap 1)

Step 3 : Adding data to - Put name of page at place of Tile and add content at bottom place (ref-snap 2)

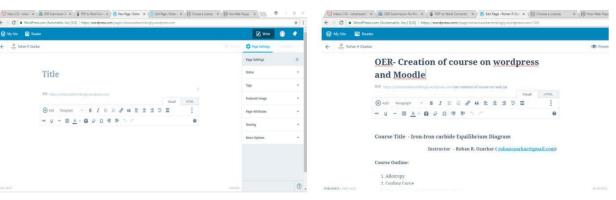
Step 4 : To add feature Image - Go to Page setting > Add featured image > update

(ref-snap 4) > Add > Media (ref-snap 5) >Add > New > browse file to upload> select> Open > insert



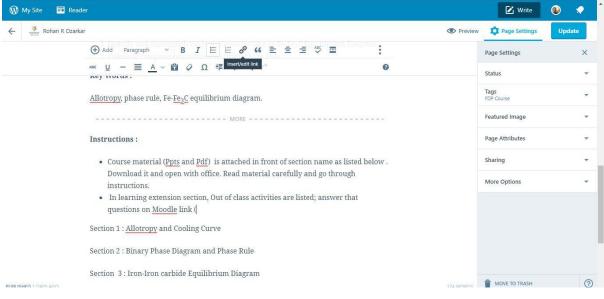
#### Snap 1

#### 1. Before





2. After



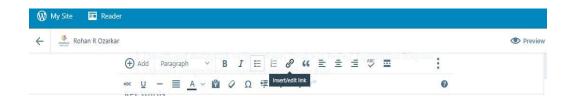


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Manage				
📑 Site Pages	Add	OER	OER	
Blog Posts	Add		https://mnp.moodlecloud.com/	
🔜 Media	Add	Search	SHARE THIS:	
Comments			Press This Y Twitter Facebook G+ Google	
Feedback	Add		🖈 Like	
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🛠 Customize	Themes			
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o) 🖉 🚞				- 18 10 th 4:06 PM

Snap 4

Step 5 : To Add Link- Click on >Insert link (ref-snap 5) > Put link in new window > add link



Snap 5

#### 2. Moodle

For Moodle lesson Screenshots shown as follows:

Step 1: Go to > <u>https://www.moodlecloud.com/</u>>Create your own page then admin will sent you your id and password to account.

Click on link <u>https://krishnakoshti.moodlecloud.com/</u> and use ID (student) & password (student) to log in

	🐥 🗩 Krishna Koshti 🍏
Krishna Koshti	<b>Q</b> -
Available courses	This course is for undergraduate students of Mechanical and Civil branch. This course is specially designed for 2nd year Mechanical & Civil Engineering students.

Snap 6

lome		mandle							
Dashboard									
Calendar									
Private files									
Ay courses									
Site administration	0				- NUL				
		+ Add an activity or resource	MA		ENU			+⊀	\$
Add a block	My courses			+ Ac	id an	activi	ity or	reso	ouro
	SFDP101X RCA	02 Moodle course						<b>+</b> <	¢
		This my first Moodle course. I am learning to create							
	BOZABKAR	this. This just a demo on industrial engineering and safety on topic plant layouts.	CAI		DAR			+ <	\$
	Teach to Learn	Course is about Plant layout and its types.		P	Noven	nber	2017		
			Sun	Mon	Tue	Wed	Thu 2		Sa
			5	6	7	8	9	10	1
	Searc	ch courses Go	12		14	15	16	17	
			19	20	21	22		24	25

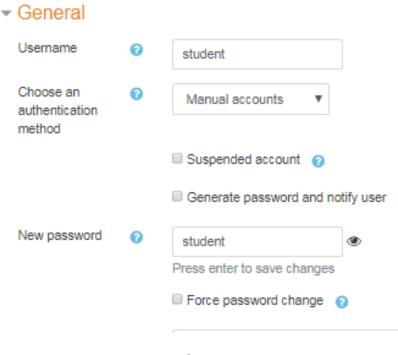
Step 3: Add new course (ref- Snap 7) course > Add General and course information



Step 4 : Select Site admistration > Accounts > Add new user> Fill User details with ID password

Krishna Kos			Blocks editing off
Site administra	ition	Search	
Site administration Us Reports Development		Plugins Appeara	ince Server
	Notifications Registration Advanced features Assignment upgrade helper		
Competencies	Competencies settings Migrate frameworks Import competency framework Export competency frameworks Competency frameworks Learning plan templates		

Snap 8



Snap 9

Step 5 : After user creation- Go course administration > user > Enrolled users Click on enrolled user> add created user> student

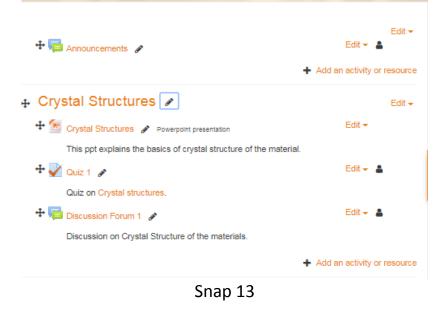
Users	Enrolled users		
	Groups Other users	Search Enrolment methods All e Role All e Group All participants e	
		Status All C Filter Reset	
Enrolment methods	Manual enrolments		
		First name / Surname * / Email address Last access to course Roles Groups Enrolment methods	
Permissions	Check permissions	🕥 Student student student 1 min 17 secs Student 💼 🏭 Manual enrolments from Wednesday, 8 November 2017, 12:00 AM 🌢	
			Enrol

Step 6 : Click on Profile (man Pic- adjacent to Admin user) > Switch role to > Teacher

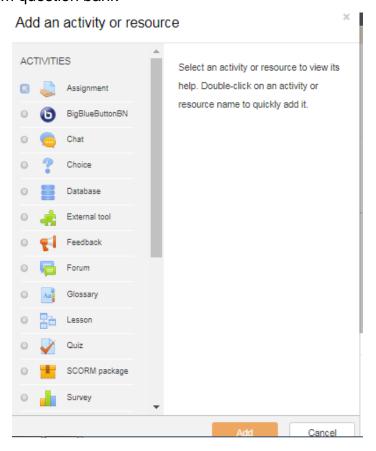
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	Dashboard
Structure of Materials	💄 Profile
Home / Courses / SOM	I Grades
	Messages
	🕞 Log out
🕂 🖶 Announcements 🕜	a Switch role to
	+ Add an activity or resource
Span 12	

Snap 12

Step 6: Edit Topic name by clicking it > press Enter key



Step 8: Add Quiz > fill details> Add each details> save and display> edit quiz> Add new question > select from question bank



Snap 14

#### How to use this OER

For using this OER-Moodle Cloud, use admin id and password as follows and change to admin role or ask admin administrator to restore backup in your course.

Admin ID – student Password – student

For using this OER-Moodle cloud, save page as html.

### **Evaluating Effectiveness of OER**

Effectiveness of OER is done by

### 1. Student

Moodle Reports and grades (Refer - Snap 15) which we provide in Moodle Cloud

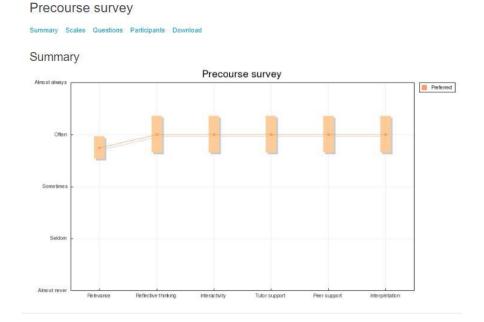
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Welcome!	Select Fin	st name 🔺 / Surname		Roles	Groups	Last access to course	Status		
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Dashboard		mahesh patil	m.patil123@gmail.com	Teacher 🕜	No groups	4 secs	Active (		6
Calendar		Rajendra Patil	rajendrapatil9975@gmail.com	n Student 🖋	No groups	22 hours 17 mins	Active	0 0	
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### 2. Consumer

Survey is provided before and after course. Provision to send feedback on course is also made for consumer on Moodle

Precourse survey						
Fill course						
All questions are required and must be answered. Relevance						
Responses	Not yet answered	Almost never	Seldom	Sometimes	Often	Almost always
In this online unit						
1 my learning focuses on issues that interest me.	۲	0	0	۵	0	0
2 what I learn is important for my professional practice.		0	0	ø	0	0
3 I learn how to improve my professional practice.	۲	٥	0	0	0	0
4 what I learn connects well with my professional practice.	۲	0	0	٥	0	0
Reflective thinking						
Responses	Not yet answered	Almost never	Seldom	Sometimes	Otten	Almost atways
In this online unit						
5 I think oritically about how I learn.	۲	0	0	0	0	۵
6 I think critically about my own ideas.	۲	0	0	0	0	Θ
7 I think critically about other students' ideas.	۲	0	0	0	0	۲
8 I think critically about ideas in the readings.	۲	0	0	0	0	0
Interactivity						
Responses	Not yet answered	Almost never	Seldom	Sometimes	Otton	Almost always
In this online unit						
9 I explain my ideas to other students.	۲	0	0	0	0	0
10 I ask other students to explain their ideas.	۲	0	0	٥	0	0
11 other students ask me to explain my ideas.		0	0	۵	0	0
12 other students respond to my ideas.	۲	٥	0	۵	0	0
Tutor support						
Responses	Not yet answered	Almost never	Seldom	Sometimes	Often	Almost always
In this online unit						
13 the tutor stimulates my thinking.		0	0	0	ø	0

#### Snap 17: Pre course survey questions



Snap 18: Response - Pre course survey questions

More details visit site as follow and use above Id and Password to login (<u>https://moodlecloud.com/app/en/portal/view/krishnakoshti</u>)

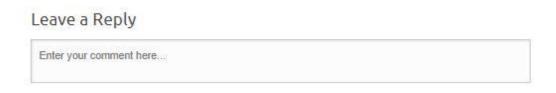


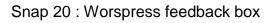
Post course servey	View 1 survey responses
Answer following	
At what moment in class were you most engaged as a learner?	
Section 2	
At what moment in class were you most distanced as a learner?	
Section 3	
What action from anyone in the forums did you find most affirming or helpful?	
Flip Classroom	
What action from anyone in the forums did you find most puzzling or confusing?	
Discussing	
What event surprised you most?	

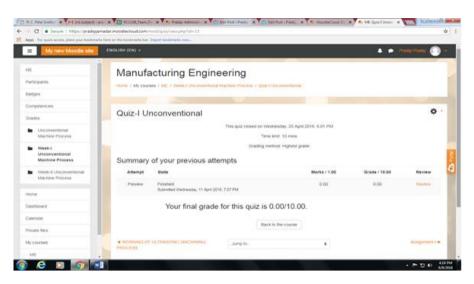
Snap 19: Response on post course survey on course effectiveness

### Wordpress

On Wordpress also we provide box to leave reply as feedback on course as consumer level







Snap 21 : Quiz snap

# **Consolidated Log of Team Work**

The consolidated log of team work is as shown below:

Activity	Team Member	Amount of Time
Discussion	K D Koshti	Every Monday and Friday- 2 hours for three
	P L Sarode J S Khatik	week
Tool Exploration	K D Koshti	2 Hrs
	P L Sarode J S Khatik	4 Hrs
OER Creation	K D Koshti	10 Hrs
	P L Sarode J S Khatik	6 Hrs
OER Documentation	K D Koshti	6 Hrs
	P L Sarode J S Khatik	4 Hrs
Individual Reflection	K D Koshti	2 Hrs on Sunday of each week
(Diary Logging)	P L Sarode J S khatik	1 Hour on Saturday of each week
OER Evaluation	K D Koshti	6 Hr
	P L Sarode J S Khatik	9 Hrs

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# **Building a Community of MOODLE and Flipped Classroom Adopters**

Now we provided link to fill google form as survey to join our Moodle society at RC1108 on Moodle Cloud page. In future (January 2019) our plan is to create wiki from generated contacts.

#### Google form survey link

https://docs.google.com/forms/d/e/1FAIpQLScey49pWMSCXT1-0Gg4XE67es8sZ4\_xH2v9vS2436lkEDF3A/viewform?c=0&w=1

> RC1108: R C Patel Institute of Technology, Shirpur- Place to discussion on Moodle for Teachers



FDP 101x and 201x by IITBombayx inspire us to take this initiative to form society of teachers how use Moodle for teaching process. We welcome you to fill google form (link provided below). Plan is to build Society on wiki in future. You can also live to reply below in word press.

Google form link -

https://docs.google.com/forms/d/e/1FAIpQLSflFYp1N2kWLoBSrRDPmTTZK\_lKg4 EPvPSNYQkqxHpaRZYb2Q/viewform?usp=sf\_link

Snap 22: Webpage for Moodle Society

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			^
	Contact information		
	*Required		
	Choose 🐨		
	Name of student * Write down your name as per Last Mark sheet in CAPITAL Letters		
	Your answer		
	Email *		
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Sanp 23 :Google form

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#### Summarizing OER

I come to know lot of new tool like Webpage and Moodle among Fdp101x and 201X course. This OER is result of effort and motivation of IITB team. Leave your comment on our website listed below. Thank you for reading.

https://krishnakoshti.moodlecloud.com

### Works Cited

- 1. William D. Callister , "Materials Science and Engineering", John Wiley & Sons Inc 2010.
- 2. V.D. Kodgire, "Material Science and Metallurgy", Everest Publishing House 25th Edition 2009.
- 3. Youtube (online) ,Video linkhttps://www.youtube.com/watch?v=uh4obOPltpw



SA IDP in Educational Technology, 2016.

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## Apex -1: OER Moodle site Snap

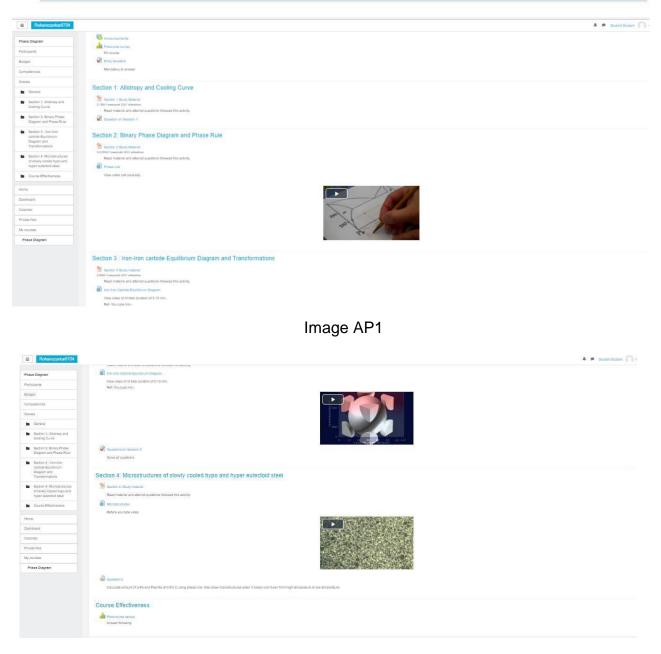


Image AP2

## Apex-2: WordPress site Snap

