

# LMS-Learning Management System

---

## What is a Learning Management System ?

LMS stands for Learning Management System, which is a software application that helps create, manage, deliver, and track educational programs

Currently the Top LMS are:

1. CYPHER Learning
2. Blackboard Learn LMS
3. Canvas LMS
4. Moodle
5. TalentLMS

**Amidst these establish LMS we are trying to bring about a better alternative called Frappe LMS**

---

## Why Frappe LMS ?

Frappe LMS has a few advantages over other LMS, these advantages include :

- Lower bandwidth usage
- Better UI/UX
- High customizability and 3rd party integration
- Better mobile integration

## Comparison of Different LMS:

---

	CYPHER Learning	TalentLMS	Blackboard Learn LMS	Moodle	Canvas LMS
Language support	50+	30+	30+	30+	43+
Mobile	Progress Tracked	Progress Tracked	Only Resources Available	Configuration Based	Configuration Based
Offline access	Limited Offline Access (Progress updated)	Limited Offline Access (Progress updated)	No Offline Access (Only Resources Available)	Limited Offline Access (Progress updated)	Limited Offline Access (Progress updated)
Data Analytics	Advanced	Limited	Limited	Basic	Basic
Integration (Module and 3rd party app) and its Difficulty	Easy but limited	Medium and limited	Easy and wider	Easy and wider	Easy and Wider
Pricing	Paid	190 USD/Month	9500 USD/Year	Open Source	Open Source

For your reference the sources are given ([Click Here](#))

## **Video Encoding**

---

In rural areas ,due to poor network and limited devices capabilities ,our lms should prioritise on lowering bandwidth usage to be more user friendly. For comparison let us use NPTEL.

Currently the Top online course and assignment sharing platform is NPTEL. It is widely used by teachers and students to get certified in different courses. Now let us compare a few parameters between NPTEL and our Platform.

Most of the lectures in NPTEL for each course are done by embedded Youtube URL. This means that there is further room for improvement by reducing the size even more while maintaining the quality. Most youtube videos use H.264 and VP9 while we use AV1 encoding.

---

**AV1:** A modern, open-source video codec designed for efficient compression and high-quality streaming.

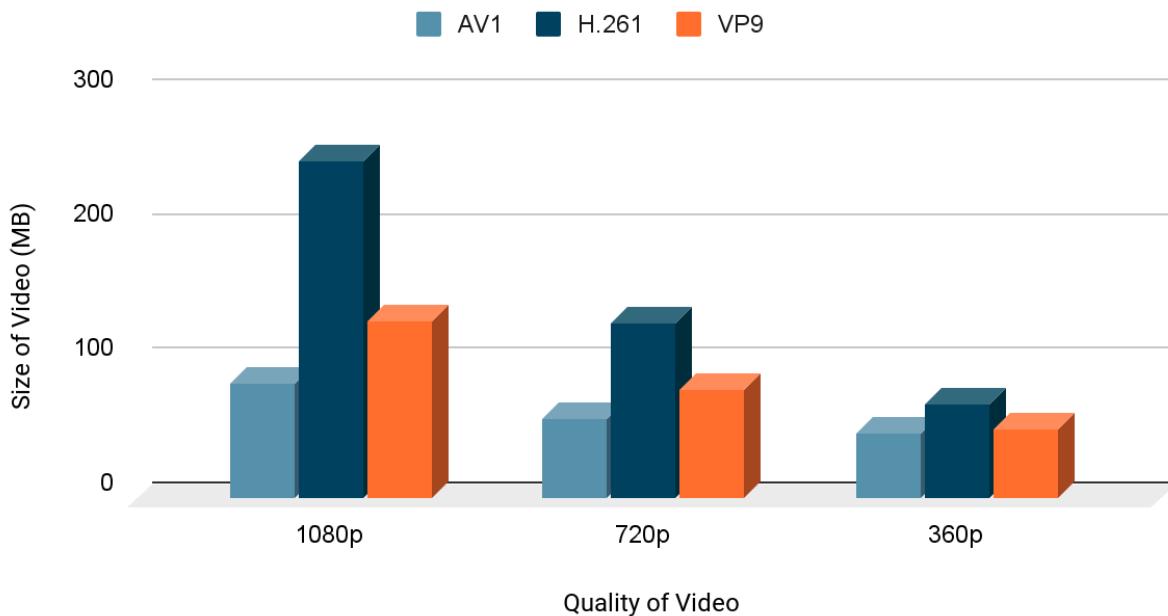
**H.264:** The first video compression standard, primarily used for video conferencing and ISDN telephony.

**VP9:** A video codec developed by Google for efficient compression, used in platforms like YouTube for high-quality streaming.

# **Comparison of videos with different quality in different Encoding Scheme**

Here we have taken a video from NPTEL which is a youtube Video. AV1 encoding consistently has lower size while maintaining similar quality when compared to other encoding techniques

## **Encoding Comparison**



Here you can note that AV1 encoding consistently has lower size while maintaining similar quality to other encoding techniques  
After that VP9 has lower size compared to H.264

# For 1080p/256Kbps

## Course Structure... (1/2)

S. No.	Topic	Description
1	Entrepreneurial Journey	Orients the various stages of setting up and growing an entrepreneurial firm – from start-up to ramp-up; covers key definitional aspects
2	Entrepreneurial Discovery	Focusses on self-discovery and self-evaluation; proposes a model of entrepreneurship that could be contextually adaptive while being person-specific
3	Ideation and Prototyping	Discusses the importance and methodologies of developing ideas and prototypes to establish workable propositions
4	Testing, Validation, and Commercialisation	Covers the concepts of Minimum Viable Product and Ultimate Desirable Product; focusses on thematic criticality
5	Disruption as a Success Driver	Discusses the importance of disrupting established product and service structures as well as processes to create new growth niches
6	Technological Innovation and Entrepreneurship - 1	Focusses on technology as a key driver of successful start-up and sustainable ramp-up – provides examples
7	Technological Innovation and Entrepreneurship - 2	Takes a further deep-dive on technology as a key driver of successful start-up and sustainable ramp-up – provides additional examples
8	Raising Financial Resources	Orients options available for entrepreneurs to access funds, the policy frameworks, and other supportive options



Size of the File:

**251MB**

Video Duration:

**32min32sec**



## Course Structure... (1/2)

S. No.	Topic	Description
1	Entrepreneurial Journey	Orients the various stages of setting up and growing an entrepreneurial firm – from start-up to ramp-up; covers key definitional aspects
2	Entrepreneurial Discovery	Focusses on self-discovery and self-evaluation; proposes a model of entrepreneurship that could be contextually adaptive while being person-specific
3	Ideation and Prototyping	Discusses the importance and methodologies of developing ideas and prototypes to establish workable propositions
4	Testing, Validation, and Commercialisation	Covers the concepts of Minimum Viable Product and Ultimate Desirable Product; focusses on thematic criticality
5	Disruption as a Success Driver	Discusses the importance of disrupting established product and service structures as well as processes to create new growth niches
6	Technological Innovation and Entrepreneurship - 1	Focusses on technology as a key driver of successful start-up and sustainable ramp-up – provides examples
7	Technological Innovation and Entrepreneurship - 2	Takes a further deep-dive on technology as a key driver of successful start-up and sustainable ramp-up – provides additional examples
8	Raising Financial Resources	Orients options available for entrepreneurs to access funds, the policy frameworks, and other supportive options



Size of the File:

**132MB**

Video Duration:

**32min32sec**



## Course Structure... (1/2)

S. No.	Topic	Description
1	Entrepreneurial Journey	Orients the various stages of setting up and growing an entrepreneurial firm – from start-up to ramp-up; covers key definitional aspects
2	Entrepreneurial Discovery	Focusses on self-discovery and self-evaluation; proposes a model of entrepreneurship that could be contextually adaptive while being person-specific
3	Ideation and Prototyping	Discusses the importance and methodologies of developing ideas and prototypes to establish workable propositions
4	Testing, Validation, and Commercialisation	Covers the concepts of Minimum Viable Product and Ultimate Desirable Product; focusses on thematic criticality
5	Disruption as a Success Driver	Discusses the importance of disrupting established product and service structures as well as processes to create new growth niches
6	Technological Innovation and Entrepreneurship - 1	Focusses on technology as a key driver of successful start-up and sustainable ramp-up – provides examples
7	Technological Innovation and Entrepreneurship - 2	Takes a further deep-dive on technology as a key driver of successful start-up and sustainable ramp-up – provides additional examples
8	Raising Financial Resources	Orients options available for entrepreneurs to access funds, the policy frameworks, and other supportive options



Size of the File:

**86MB**

Video Duration:

**32min32sec**



Encoding:

**AVI**

# For 720p/256Kbps

## Course Structure... (1/2)

S. No.	Topic	Description
1	Entrepreneurial Journey	Outlines the various stages of setting up and growing an entrepreneurial firm – from start-up to ramp-up; covers key definitional aspects
2	Entrepreneurial Discovery	Focusses on self-discovery and self-evaluation; proposes a model of entrepreneurship that could be contextually adaptive while being person-specific
3	Ideation and Prototyping	Discusses the importance and methodologies of developing ideas and prototypes to establish workable propositions
4	Testing, Validation, and Commercialisation	Covers the concepts of Minimum Viable Product and Ultimate Desirable Product; focusses on thematic criticality
5	Disruption as a Success Driver	Discusses the importance of disrupting established product and service structures as well as processes to create new growth niches
6	Technological Innovation and Entrepreneurship - 1	Focusses on technology as a key driver of successful start-up and sustainable ramp-up – provides examples
7	Technological Innovation and Entrepreneurship - 2	Takes a further deep-dive on technology as a key driver of successful start-up and sustainable ramp-up – provides additional examples
8	Raising Financial Resources	Outlines options available for entrepreneurs to access funds, the policy frameworks, and other supportive options



Size of the File:

**130MB**

Video Duration:

**32min32sec**

Encoding:

**H.264**

Size of the File:

**81MB**

Video Duration:

**32min32sec**

Encoding:

**VP9**

Size of the File:

**60MB**

Video Duration:

**32min32sec**

Encoding:

**AVI**

## Course Structure... (1/2)

S. No.	Topic	Description
1	Entrepreneurial Journey	Outlines the various stages of setting up and growing an entrepreneurial firm – from start-up to ramp-up; covers key definitional aspects
2	Entrepreneurial Discovery	Focusses on self-discovery and self-evaluation; proposes a model of entrepreneurship that could be contextually adaptive while being person-specific
3	Ideation and Prototyping	Discusses the importance and methodologies of developing ideas and prototypes to establish workable propositions
4	Testing, Validation, and Commercialisation	Covers the concepts of Minimum Viable Product and Ultimate Desirable Product; focusses on thematic criticality
5	Disruption as a Success Driver	Discusses the importance of disrupting established product and service structures as well as processes to create new growth niches
6	Technological Innovation and Entrepreneurship - 1	Focusses on technology as a key driver of successful start-up and sustainable ramp-up – provides examples
7	Technological Innovation and Entrepreneurship - 2	Takes a further deep-dive on technology as a key driver of successful start-up and sustainable ramp-up – provides additional examples
8	Raising Financial Resources	Outlines options available for entrepreneurs to access funds, the policy frameworks, and other supportive options



# For 360p/128Kbps

## Course Structure... (1/2)

S. No.	Topic	Description
1	Entrepreneurial Journey	Outlines the various stages of setting up and growing an entrepreneurial firm – from start-up to ramp-up; covers key definitional aspects
2	Entrepreneurial Discovery	Focusses on self-discovery and self-evaluation; proposes a model of entrepreneurship that could be contextually adaptive while being person-specific
3	Ideation and Prototyping	Discusses the importance and methodologies of developing ideas and prototypes to establish workable propositions
4	Testing, Validation, and Commercialisation	Covers the concepts of Minimum Viable Product and Ultimate Desirable Product; focusses on thematic criticality
5	Disruption as a Success Driver	Discusses the importance of disrupting established product and service structures as well as processes to create new growth niches
6	Technological Innovation and Entrepreneurship - 1	Focusses on technology as a key driver of successful start-up and sustainable ramp-up – provides examples
7	Technological Innovation and Entrepreneurship - 2	Takes a further deep-dive on technology as a key driver of successful start-up and sustainable ramp-up – provides additional examples
8	Raising Financial Resources	Outlines options available for entrepreneurs to access funds, the policy frameworks, and other supportive options



Size of the File:

**70MB**

Video Duration:

**32min32sec**

Encoding:

**H.264**



## Course Structure... (1/2)

S. No.	Topic	Description
1	Entrepreneurial Journey	Outlines the various stages of setting up and growing an entrepreneurial firm – from start-up to ramp-up; covers key definitional aspects
2	Entrepreneurial Discovery	Focusses on self-discovery and self-evaluation; proposes a model of entrepreneurship that could be contextually adaptive while being person-specific
3	Ideation and Prototyping	Discusses the importance and methodologies of developing ideas and prototypes to establish workable propositions
4	Testing, Validation, and Commercialisation	Covers the concepts of Minimum Viable Product and Ultimate Desirable Product; focusses on thematic criticality
5	Disruption as a Success Driver	Discusses the importance of disrupting established product and service structures as well as processes to create new growth niches
6	Technological Innovation and Entrepreneurship - 1	Focusses on technology as a key driver of successful start-up and sustainable ramp-up – provides examples
7	Technological Innovation and Entrepreneurship - 2	Takes a further deep-dive on technology as a key driver of successful start-up and sustainable ramp-up – provides additional examples
8	Raising Financial Resources	Outlines options available for entrepreneurs to access funds, the policy frameworks, and other supportive options



Size of the File:

**51MB**

Video Duration:

**32min32sec**

Encoding:

**VP9**



## Course Structure... (1/2)

S. No.	Topic	Description
1	Entrepreneurial Journey	Outlines the various stages of setting up and growing an entrepreneurial firm – from start-up to ramp-up; covers key definitional aspects
2	Entrepreneurial Discovery	Focusses on self-discovery and self-evaluation; proposes a model of entrepreneurship that could be contextually adaptive while being person-specific
3	Ideation and Prototyping	Discusses the importance and methodologies of developing ideas and prototypes to establish workable propositions
4	Testing, Validation, and Commercialisation	Covers the concepts of Minimum Viable Product and Ultimate Desirable Product; focusses on thematic criticality
5	Disruption as a Success Driver	Discusses the importance of disrupting established product and service structures as well as processes to create new growth niches
6	Technological Innovation and Entrepreneurship - 1	Focusses on technology as a key driver of successful start-up and sustainable ramp-up – provides examples
7	Technological Innovation and Entrepreneurship - 2	Takes a further deep-dive on technology as a key driver of successful start-up and sustainable ramp-up – provides additional examples
8	Raising Financial Resources	Outlines options available for entrepreneurs to access funds, the policy frameworks, and other supportive options



Size of the File:

**49MB**

Video Duration:

**32min32sec**

Encoding:

**AVI**



# LMS and their available integration

---

## Moodle Learning Management System

Multi-platform supported,few platforms are given below

<b>Analytics:</b> IntelliBoard	<b>Accessibility:</b> Brickfield Education Labs
<b>Virtual Classroom:</b> BigBlueButton	<b>Peer Learning:</b> Gamoteca
<b>Communication:</b> Element	<b>Discussions:</b> Kialo Edu
<b>Course Catalogue:</b> Levitate	<b>STEM Education:</b> MathType
<b>Data Integration:</b> Myddleware	<b>Video &amp; VR:</b> Nearlife
<b>Content Creation:</b> Nolej	<b>Language Learning:</b> Poodll
<b>Text-to-Speech:</b> ReadSpeaker	<b>Video Streaming:</b> Zatuk
<b>Assessment:</b> Ans	<b>Content Creation:</b> Tiny

---

## BlackBoard Learning Management System

Multi-platform supported,few examples are given below

<b>Classroom tool:</b> 42 Lines Inc	<b>Data insights:</b> Academic Partnerships
<b>Assessment Tool:</b> Acuity Insights	<b>Data insights:</b> ADInstruments
<b>Multimedia:</b> Annatto	<b>Integration Services:</b> AGI Technology
<b>Design:</b> Canva	<b>Credentialing:</b> Badgr Concentric Sky
<b>AI Support Tool:</b> LearnWise ai	<b>Virtual Classroom:</b> Class Tech Inc
<b>Integration Services:</b> Edlink	<b>Analytics:</b> IntelliBoard
<b>Content Creation:</b> Adobe	<b>Security:</b> Bluefin
<b>Alliance:</b> Affinaquest	<b>Multimedia:</b> GoReact

---

# Canvas Learning Management System

Multi-platform supported,few examples are given below

**Classroom Tool:** Microsoft Education

**AI Support Tool:** Khanmigo

**Accessibility:** Atomic Jolt

**Content Creation:** Genially

**Video Streaming:** 3Play Media

**Assessment:** Google Assignments

**Communication:** AcativeClass

**Video Streaming:** Zoom

**Design:** Canva

**Virtual Classroom:** Blindsight Network

**Assessment Tool:** Respondus

**Attendance:** aPlus+ Attendance

**Credentialing:** AEFIS

**Analytics:** IntelliBoard

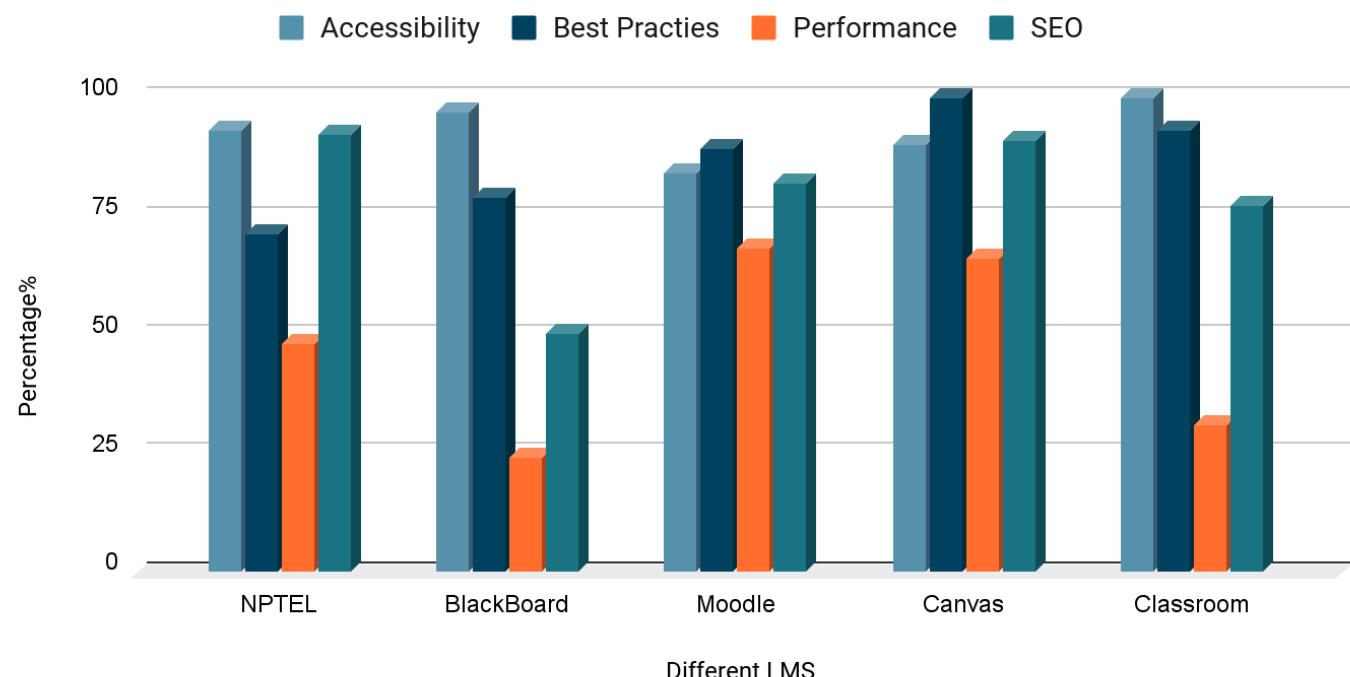
**Security:** Unicheck

**Accessibility:** Stackle

## Lighthouse Score Comparison

Lighthouse is an open-source tool developed by Google to analyze and audit web pages for performance, accessibility, SEO, and best practices. ([Lighthouse Data](#))

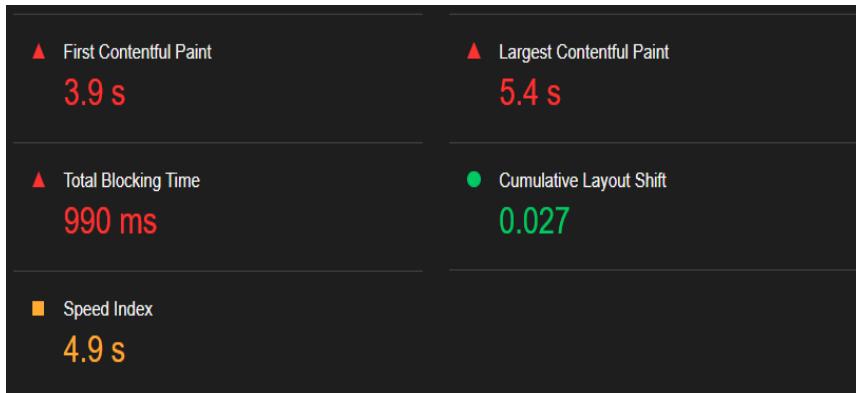
## Lighthouse Score Comparison



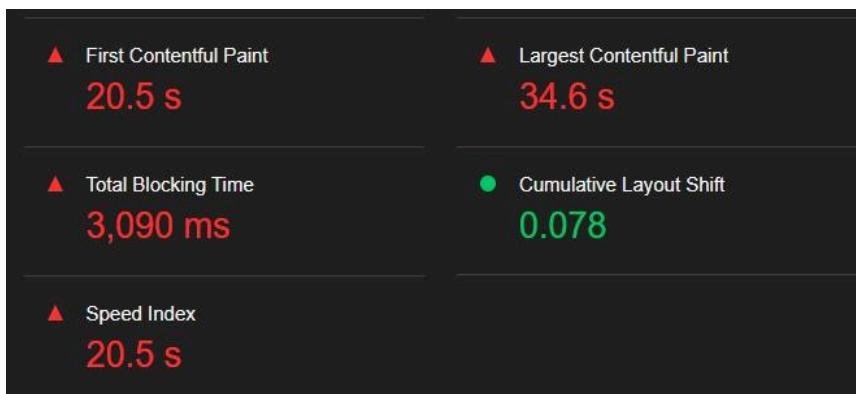
# Lighthouse Metrics

---

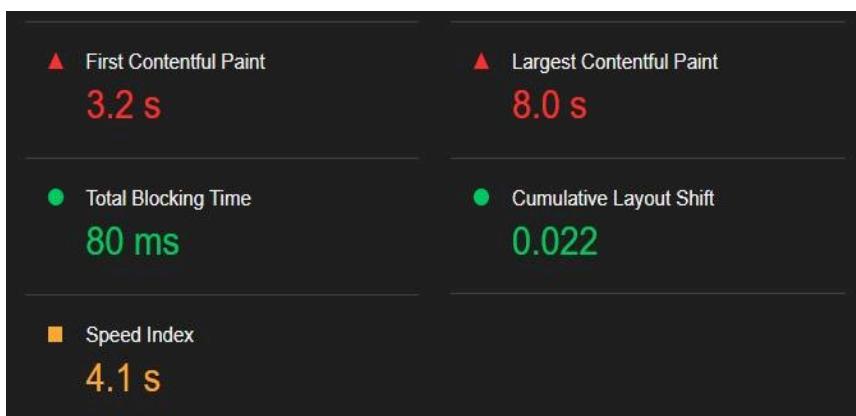
## NPTEL



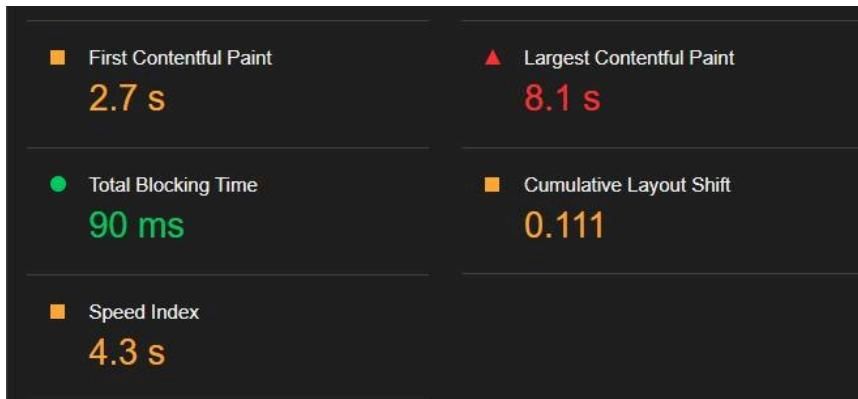
## BlackBoard Learn



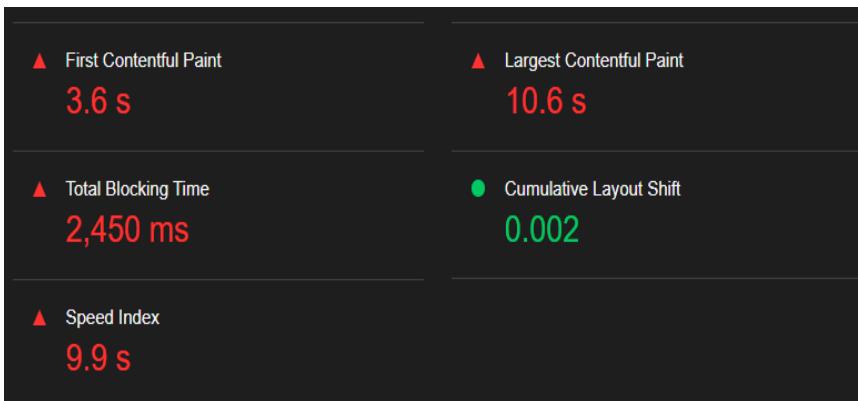
## Moodle LMS



# Canvas LMS



# Google Classroom



# Page Loading Time

---

## BlackBoard Learn

### Load timings (ms)

Thu Nov 28 2024 00:31:52 GMT+0530 (India Standard Time)

Event	Start	Duration	End
Redirect	0	0	0
DNS	9	0	9
Connect	9	0	9
Request	14	524	538
Response	538	1	539
DOM	539	4382	4921
Parse	539	795	1334
Execute Scripts	1334	0	1334
Content loaded	1334	29	1363
Sub Resources	1363	3557	4921
Load event	4921	2	4923
Total			4923

Total Loading time: **4.923** sec

## Moodle LMS

### Load timings (ms)

Thu Nov 28 2024 00:35:43 GMT+0530 (India Standard Time)

Event	Start	Duration	End
Redirect	4	743	747
DNS	747	0	747
Connect	747	0	747
Request	755	270	1024
Response	1024	49	1074
DOM	1074	163	1237
Parse	1074	37	1111
Execute Scripts	1111	0	1111
Content loaded	1111	0	1111
Sub Resources	1111	126	1237
Load event	1237	1	1238
Total			1238

Total Loading time: **1.238** sec

# NPTEL

## Load timings (ms)

Wed Nov 27 2024 23:24:45 GMT+0530 (India Standard Time)

Event	Start	Duration	End
Redirect	0	0	0
DNS	6	0	6
Connect	6	0	6
Request	19	1328	1347
Response	1347	63	1410
DOM	1410	1349	2759
Parse	1410	328	1738
Execute Scripts	1738	1	1739
Content loaded	1739	20	1759
Sub Resources	1759	1001	2759
Load event	2760	2	2761
<b>Total</b>			<b>2761</b>

Total Loading time: **2.761** sec

# GoogleClassroom

## Load timings (ms)

Mon Dec 02 2024 01:30:51 GMT+0530 (India Standard Time)

Event	Start	Duration	End
Redirect	0	0	0
DNS	3	0	3
Connect	3	0	3
Request	13	642	656
Response	656	704	1360
DOM	1360	663	2022
Parse	1360	27	1387
Execute Scripts	1387	49	1436
Content loaded	1436	0	1436
Sub Resources	1436	586	2022
Load event	2023	3	2026
<b>Total</b>			<b>2026</b>

Total Loading time: **2.026** sec

# Canvas LMS

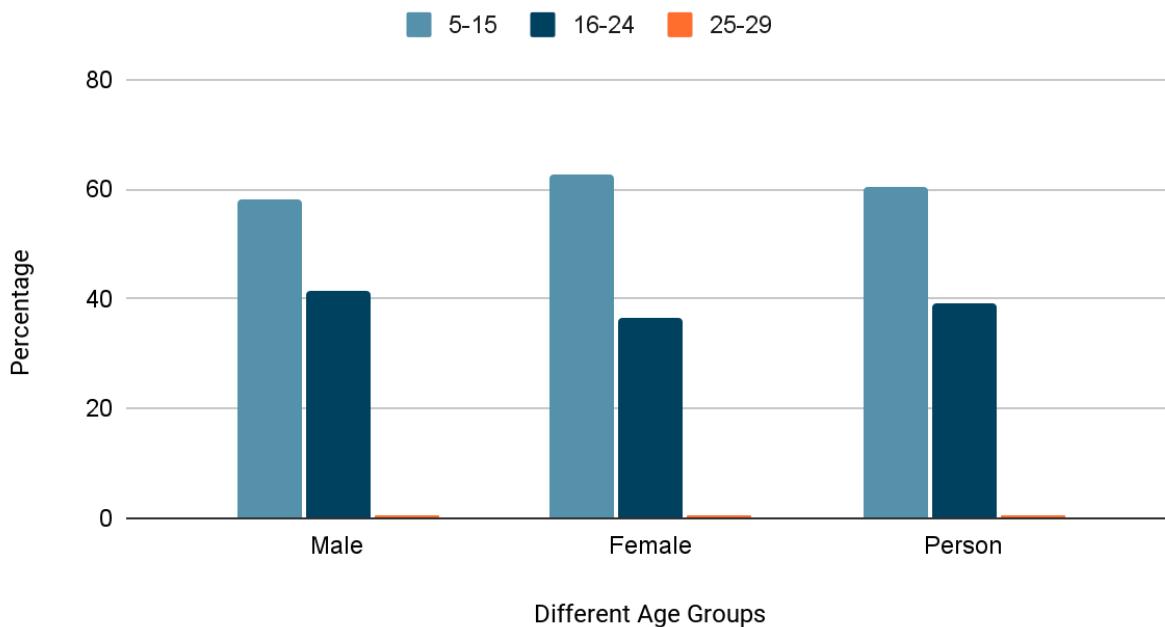
## Load timings (ms)

Thu Nov 28 2024 00:37:25 GMT+0530 (India Standard Time)

Event	Start	Duration	End
Redirect	0	0	0
DNS	11	539	550
Connect	550	489	1039
Request	1039	249	1288
Response	1288	241	1529
DOM	1529	53	1582
Parse	1529	46	1575
Execute Scripts	1575	0	1575
Content loaded	1575	0	1575
Sub Resources	1575	7	1582
Load event	1582	1	1583
Total			1583

Total Loading time: **1.583** sec

## Drop Out Rate - Rural



## Points scored

