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# **Quantitative Analysis of the Courses Completed by the SWAYAM (MOOC) During 2014-2019**

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## **INTRODUCTION**

India's higher education system is the world's third-largest in terms of students, next to China and the United States. In future, India will be one of the largest education hubs. India's Higher Education sector has witnessed a tremendous increase in the number of Universities/University level Institutions & Colleges since independence. (Sheikh, 2017).

A country like India having a large population of students and learners, though there are tremendous increase in the educational institutes but they are not enough to accommodate all the concerned population in the proper educational system. Those who are accommodated in the proper educational system are also facing the shortage of expert teachers of the concerned subjects. Faculty shortages and the inability of the state educational system to attract and retain well qualified teachers have been posing challenges to quality education for many years. (Sheikh, 2017).

Good internet connectivity at every nook of the country, which helps the MOOCs to reach a broad audience, can prove themselves as the real game-changer for cent per cent literacy and educating every Indian.

SWAYAM is a massive open online course (MOOC), it provides the online educational courses starting from standard ninth till post-graduation, and it also runs the annual refresher program in teaching (ARPIT) for the in-service teachers.

SWAYAM is a programme initiated by Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. The objective of this effort is to take the best teaching learning resources to all, including the most disadvantaged. SWAYAM seeks to bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy. (*Swayam Central*, n.d.)

The courses offered by the SWAYAM classified as School Education, Out of School Education, Under Graduate Education and Post Graduate Education are prepared under the coordination of nine institutes of India, named AICTE, NPTEL, UGC, CEC, NCERT, NIOS, IGNOU and IIMB.

The coordinators for school education are NIOS (National Institute of Open Schooling) and NCERT (National Council of Educational Research and Training) they are the two prominent organisations dealing with school education in India at National Level.

The coordinators for 'out of school education' are (Indira Gandhi National Open University) IGNOU, and NITTIR (National Institute of Technical Teachers Training and Research). IGNOU is one of the Central Universities in India having a wide variety of courses running experience in open educational mode. The other coordinator National Institute of Technical Teachers Training and Research (NITTTR) deals with the Teachers Training programme.

The coordinators for the Under Graduate Education are NPTEL, AICTE, CEC and IIMB, where NPTEL (National Programme on Technology Enhanced Learning) deals with Engineering courses, AICTE (All India Council for Technical Education) for self-paced and international courses, CEC (Consortium for Educational Communication) for under-graduate education and IIMB (Indian Institute of Management, Bangalore) for management related studies.

The coordinators of Post Graduation Education related MOOC are NPTEL, AICTE, IIMB and UGC, where NPTEL, as discussed in the earlier paragraph, take cares of the courses dealing with engineering, AICTE for international courses and IIMB for postgraduate courses for management.

The website of SWAYAM as on 17<sup>th</sup> January 2019 depicts that there are 203 partnering institutes, 2516 completed courses, 11975843 student enrollments, 900785 exam registrations and 523787 successful certifications.

The study of analysing the course completed by any MOOC is a very nascent idea. This paper will bring many ideas to the people involved in the industry to successfully implement the MOOC.

## **OBJECTIVE**

SWAYAM had conducted several open online courses during 2014-2019, it was felt that the courses conducted during the period should be quantitatively analysed, to see its several aspects; hence the present study was taken with the following objectives.

The objectives of the present study are

- I. To quantitatively analyse the discipline wise courses conducted in the SWAYAM during 2014-2019 and further find out the five disciplines which have maximum courses conducted on SWAYAM and the five disciplines having least courses conducted.

- II. To find out the total number of courses completed in 2014-2019, year wise.
- III. To find out the total courses completed during the period 2014-2019 institute wise, and further find the top and least five institutes regarding the course completions.
- IV. To quantitatively analyse the course duration of the courses conducted in the SWAYAM during 2014-2019.
- V. To quantitatively analyse the courses conducted in respect of enrollment during the period and hence find the five courses having the maximum number of enrollment and the five courses having the least number of enrollment.

## **METHODOLOGY AND LIMITATION**

The data was taken from(<https://storage.googleapis.com/uniquecourses/statistics.html>) the website of SWAYAM in January 2020, from the link of completed courses (statistics), which showed several data relating to total 1659 courses conducted till then. The data were picked and analysed according to the objective of the study.

The statistics of the data available on the website is of 1659 courses only, while the site itself at the other place depicts that total 2516 courses have been completed , hence the analysis, discussion and the result will solely depend upon the limited statistics available on the website of the SAWAYAM.

## **RESULT AND FINDINGS**

The data was collected from the website of the SWAYAM. It was then imported in the excel sheet for easy evaluation, the findings according to the objective of the present study is given below.

Objective I: *To quantitatively analyse the discipline wise courses conducted in the SWAYAM during 2014-2018 and further find out*

- a) *The five disciplines which have maximum courses conducted on SWAYAM*
- b) *And the five disciplines having least courses conducted.*

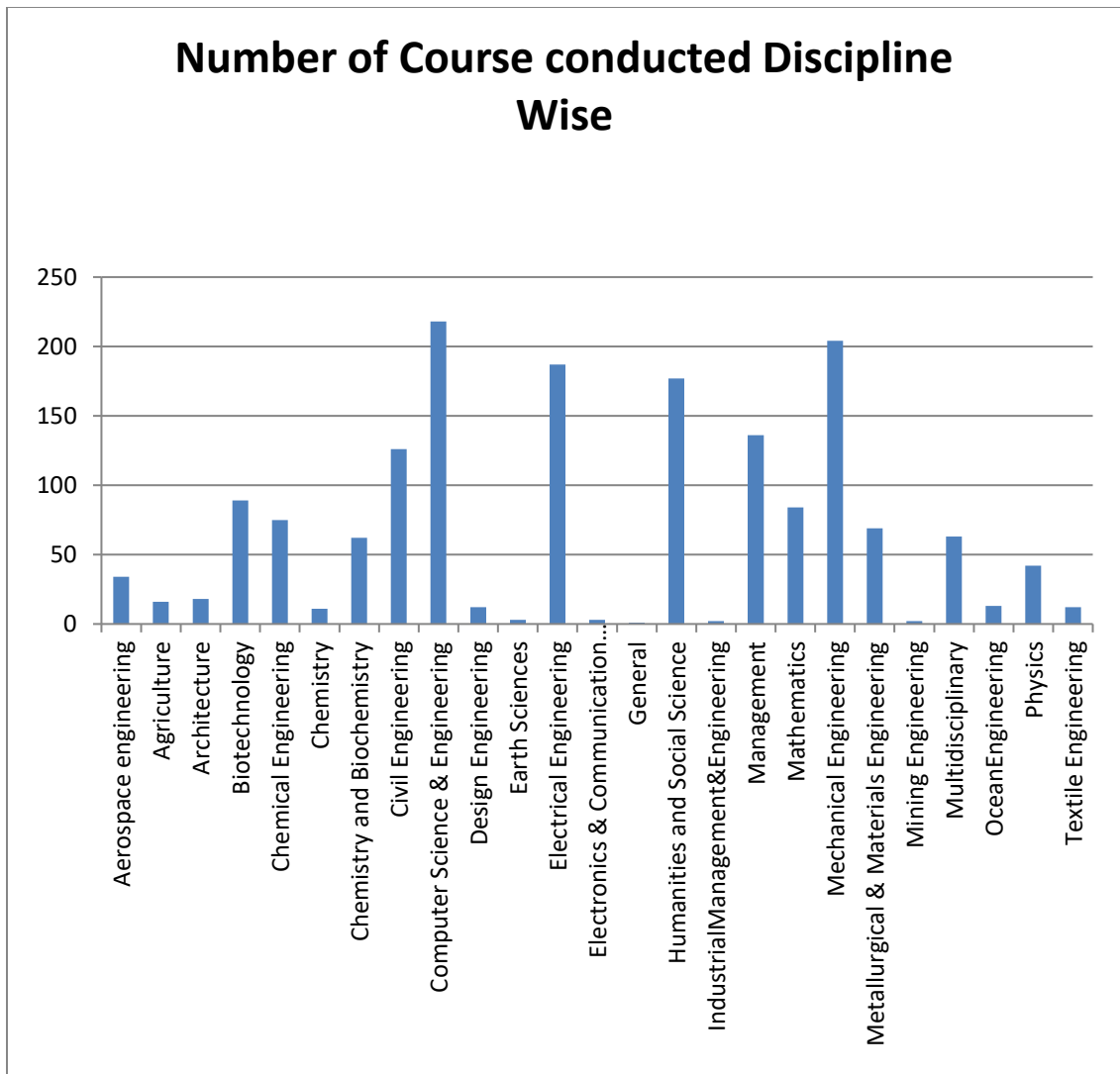
The five disciplines which have maximum courses conducted on SWAYAM are Computer Science Engineering with 218 courses held during the period, Mechanical Engineering's 204 courses were conducted, Electrical Engineering 187 courses were conducted, Humanities and Social Sciences 177 courses were conducted and Management's 136 courses were conducted.

The five disciplines having least courses conducted are General 01, IndustrialManagement&Engineering 02, Mining Engineering 02, Earth Science 03, Electronic and Communication Engineering 03.

Out of twenty-five broad categories of disciplines divided by the SWAYAM, it was found that the Computer Science Engineering discipline courses were maximum conducted during the period and the in the General category discipline only one course was conducted. The detail of the courses conducted during the period is given in table 1 and the related bar diagram in figure 1, for better illustration.

**Table 1**  
**Courses Conducted Discipline Wise during 2014-2019 at SWAYAM**

<b>Sl No</b>	<b>Discipline</b>	<b>Number of Courses conducted</b>
1	Aerospace engineering	34
2	Agriculture	16
3	Architecture	18
4	Biotechnology	89
5	Chemical Engineering	75
6	Chemistry	11
7	Chemistry and Biochemistry	62
8	Civil Engineering	126
9	Computer Science & Engineering	218
10	Design Engineering	12
11	Earth Sciences	03
12	Electrical Engineering	187
13	Electronics & Communication Engineering	03
14	General	01
15	Humanities and Social Science	177
16	IndustrialManagement&Engineering	02
17	Management	136
18	Mathematics	84
19	Mechanical Engineering	204
20	Metallurgical & Materials Engineering	69
21	Mining Engineering	02
22	Multidisciplinary	63
23	Ocean Engineering	13
24	Physics	42
25	Textile Engineering	12
<b>Total</b>		<b>1659</b>



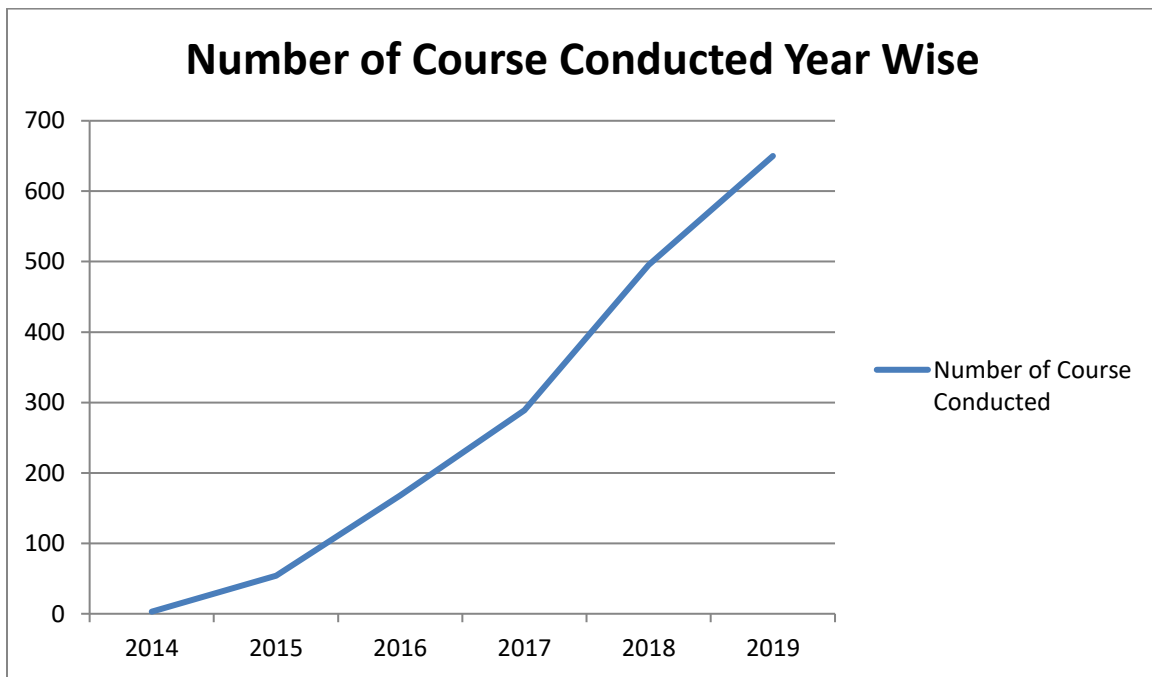
**Figure 1**  
**Courses Conducted Discipline Wise during 2014-2018 at SWAYAM**

Objective II: *To find out the total number of courses completed in 2014-2019, year wise.*

A total of 1659 course were conducted during 2014-2019, and it can be easily analysed that the number of courses was increased during the successive years, the detail of which can be seen in table 2 and figure 3.

**Table 2**  
**Courses Conducted during 2014-2019**

SI No	Year	Number of courses conducted
1	2014	03
2	2015	54
3	2016	168
4	2017	289
5	2018	495
6	2019	650
Total		<b>1659</b>



**Figure 2**  
**Courses Conducted during 2014-2019**

Objective III: *To find out the total courses completed during the period 2014-2019 institute wise, and further find the top and least five institutes regarding the course completions.*

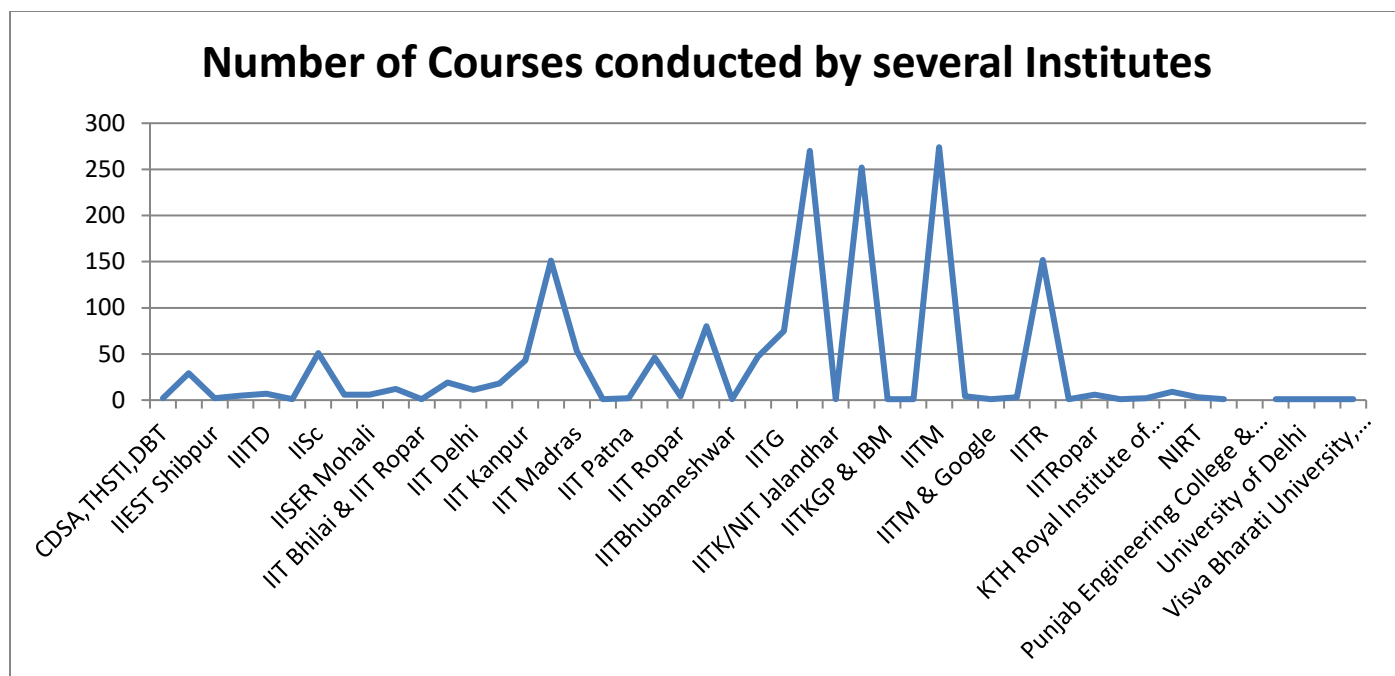
It was found during analysis that a total of forty-six individual institutes or the collaborative institutes have conducted the courses during 2014-2019. It was also found that several institutes have conducted only one or two courses during the period while the institutes like IIT Mumbai and IIT Kharagpur has conducted several courses. A total of seventeen per cent of courses were conducted by IIT Mumbai, sixteen per cent by IIT Kanpur and fifteen per cent by IIT Kharagpur, so we can conclude that almost fifty per cent of courses conducted during the period was by these three institutions. The Indian Institute of Technology conducted the majority of the course, also called as IIT, they are the premier institute of technology in India, The detail of the number of courses conducted by several institutes is given in table 3 and figure 3.

**Table 3**  
**Courses Conducted Institute wise during 2014-2019**

<b>Sl No</b>	<b>Name of Institute</b>	<b>Number of courses conducted</b>
1	CDSA, THSTI, DBT	02
2	CMI	29
3	IEST Shibpur	02
4	IITB	05
5	IITD	07
6	IITH	01
7	IISc	51
8	IISc Bangalore	06
9	IISER Mohali	06
10	IISER Pune	12
11	IIT Bhilai & IIT Ropar	01
12	IIT Bombay	19
13	IIT Delhi	11
14	IIT Guwahati	18
15	IIT Kanpur	43
16	IIT Kharagpur	151
17	IIT Madras	53
18	IIT Mandi	01
19	IIT Patna	02
20	IIT Roorkee	46
21	IIT Ropar	04
22	IITB	80
23	IITBhubaneshwar	01
24	IITD	47
25	IITG	75
26	IITK	270



27	IITK/NIT Jalandhar	01
28	IITKGP	252
29	IITKGP & IBM	01
30	IITKGP, NIT Meghalaya	01
31	IITM	274
32	IITM & Glass Academy	04
33	IITM & Google	01
34	IITP	03
35	IITR	152
36	IITR & IISc Bangalore	01
37	IITRopar	06
38	IMSc	01
39	KTH Royal Institute of Technology, Sweden	02
40	NIE	09
41	NIRT	03
42	Punjab Engineering College & IIT Ropar	01
43	Texas A&M Univ.	01
44	University of Delhi	01
45	University of Hyderabad	01
46	Visva Bharati University, Santiniketan	01
<b>Total</b>		<b>1659</b>



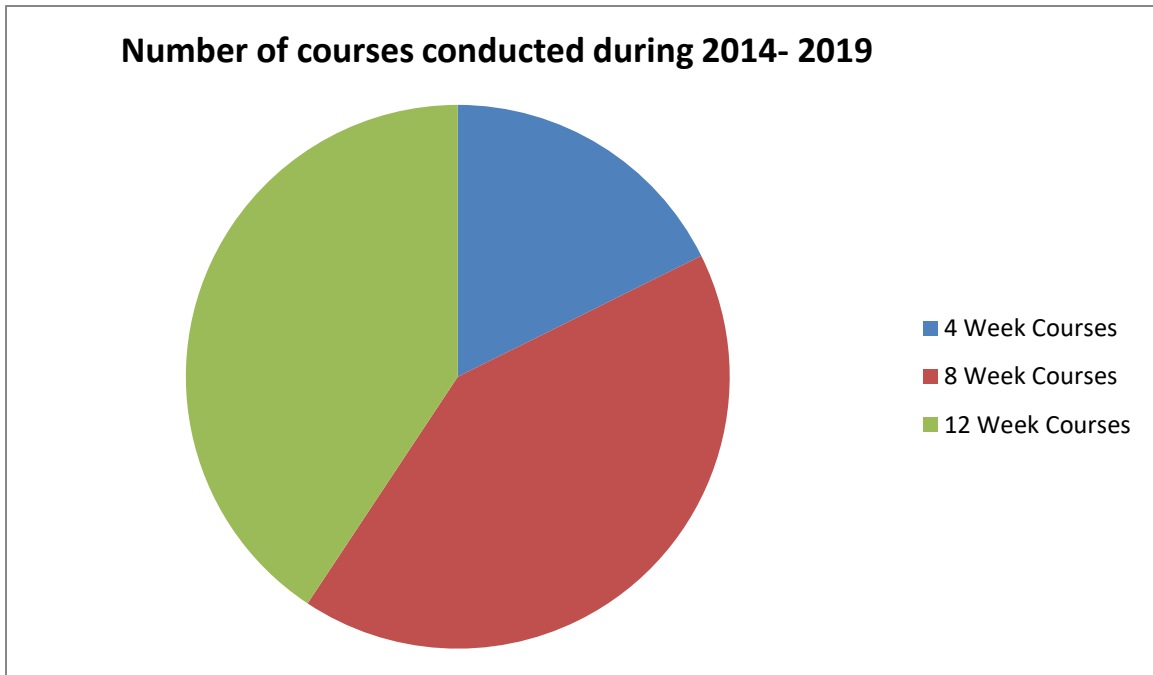
**Figure 3**  
**Courses Conducted Institute wise during 2014-2019**

Objective IV: *To quantitatively analyse the course duration of the courses conducted in the SWAYAM during 2014-2019.*

There were three types of course duration, of the courses conducted in the SWAYAM, they were of four-week courses, eight-week courses and twelve-week courses, the eight week courses were conducted six hundred ninety one times, while twelve-week course were conducted total six hundred seventy five times and four week courses were conducted two hundred ninety three times in between 2014 to 2019, a detail of the course duration can also be seen in table 4 and figure 4. It can be further analysed that eighteen per cent of the total courses conducted were of four week, while forty-one per cent of twelve week courses and forty two per cent of courses undertaken in all were of eight weeks.

**Table 4**  
**Courses Conducted according to course duration during 2014-2019**

SI No	Course Duration	No of courses conducted during 2014-2019
1	Four-Week Course	293
2	Eight-Week Course	691
3	Twelve-Week Course	675
<b>Total</b>		<b>1659</b>



**Figure 4**  
**Courses Conducted according to course duration during 2014-2019**

*Objective V: To quantitatively analyse the courses conducted in respect of enrollment during the period and hence find the five courses having the maximum number of enrollment and the five courses having the least number of enrollment.*

After analyzing the data captured from the SWAYAM website the five courses having the maximum enrollment and five having least enrollment were found and are noted down in table 5 and table 6 respectively.

The highest number of enrollments were 127452, 71893, 66613, 65678 and 57910 and the lowest number of enrollments were 203, 229, 231, 239 and 244 in several courses conducted during 2014 o 2019 in SWAYAM. Various interesting data were found as the course having maximum enrollment was of 1, 27,452 enrollments but the learners enrolled for the final exam were only three percent of the total learners enrolled for the course though ninety six percent of them who appeared for the examinations were qualified in it. Similar were the case of the student registered

for the examinations in the other top four courses in respect of the enrollment, it was seen that very few were enrolled for the exams. But the pass percentage of the learners seems to be entirely satisfactory as in the majority of cases the pass percentage is above eighty per cent.

So it can be concluded that several learners enrol for the SWAYAM courses but very few get enrolled for the final examinations and those who go for the proctored examination majority of them pass it.

**Table 5**  
**Five Courses Having the Maximum Number of Enrollment**

Discipline	NOC Course Name	Year	SME Name	Institute	Duration	Enrollment	Registrations	Present	Certified	Reg %	Pass %
Computer Science & Engineering	Introduction to Modern Application Development	2017	Prof. Gaurav Raina	IITM	8 weeks	<b>127452</b>	4427	3931	3756	3	96
Computer science and engineering	Introduction to Programming in C	2018	Prof. Satyadev Nandakumar	IITK	8 weeks	<b>71893</b>	6890	5945	3925	10	66
Computer Science and Engineering	Programming in Java	2019	Prof. Debasis Samanta	IIT Khargpur	12 Weeks	<b>66613</b>	9446	8689	8377	14	96
Computer Science and Engineering	Problem solving through Programming In C	2019	Prof. Anupam Basu	IIT Khargpur	12 Weeks	<b>65678</b>	11830	11017	9254	18	84
Computer Science and Engineering	The Joy of Computing using Python	2019	Prof. Sudarshan Iyengar	IIT Ropar	12 Weeks	<b>57910</b>	11503	10436	8505	20	81

**Table 6**  
**Five Courses Having the Least Number of Enrollment**

Discipline	NOC Course Name	Year	SME Name	Institute	Duration	Enrollment	Registrations	Present	Certified	Reg %	Pass %
Metallurgical & Materials Engineering	Elementary Stereology for Quantitative Metallography	2018	Prof. Sandeep Sangal & Prof. Sankaran	IITM	4 Weeks	203	12	10	10	6	100
Chemical Engineering	Rheology	2018	Prof. Abhijit Deshpande	IITM	12 Weeks	229	6	2	0	3	0
Metallurgical & Materials Engineering	Thermo-Mechanical And Thermo-Chemical Processes	2019	Prof. Vivek Pancholi & Prof. S. R. Meka	IITR	8 weeks	231	31	23	20	13	87
Chemical Engineering	Multiphase Microfluidics	2018	Prof. Raghendra Gupta	IITG	8 weeks	239	11	5	5	5	100
Metallurgical & Materials Engineering	Transport Phenomena In Materials	2019	Prof. Gandham Phanikumar	IITM	12 Weeks	244	7	6	5	3	83

## CONCLUSION

It was found that several courses were conducted during the period of study i.e. 2014-2019 on the SWAYAM platform, and many more are on the verge of completion and many to come, but the analysis in the above paragraph makes us come to the conclusion that lakhs of the learners get enrolled in the course (MOOC/SWAYAM), but later it was also found that many quits in between and very few get the final certificate as they did not get enrolled for the final examinations. The people engaged in the process of implementation of MOOC-SWAYAM should see it seriously why the people, at last, leave the course though the course is freely

available to all. Is there any issue of quality? Is the course content is not interesting enough to make the learners remain in the learning process through the SWAYAM or there are other issues which cause the non-completion of the courses by the learners enrolled in the course at the initial learning. If the concerned make the course content appropriate enough to attract the active learners and most importantly make them remain till last then it will really proof its relevance otherwise it will go on as it is going now with less number of learners continuing till last.

As the present study was limited to the MOOC in the Indian scenario, the related studies may be taken to the other available MOOCs. The quantitative study like this may bring to the notice to the concerned regarding the present popularity of the courses and the adaptation by the learners.

## REFERENCES

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