



SAGE University, Indore
 Institute Name: Institute of Advance Computing
 Department Name: Centre for Liberal and Advanced Studies

National Education Framework
 Effective from Academic Session: 2026-27

Bachelor of Technology (B.Tech.) Computer Science and Engineering (VLSI Design and Technology)

Program:
Semester: I

Program Code : B.Tech CSE (VLSI)

Admission batch: 2026-27

Course wise Distribution of Marks and corresponding Credits

S. No.	Subject Code <12 digit>	Category	Subject Title	Maximum Marks Allotted										Credits	Credits Hours			
				Theory(100 Marks)			Practical (50 Marks)				Total Marks	Hours/week						
				End Sem	Continuous Internal Evaluation Mid Sem Test (MST)	Attendance/Quiz /Assig./Presentations	End Sem. Exam (ESE)For Practical and Viva	Continuous Internal Evaluation		L		T	P			M/B/S M	NTC C	
								Lab Work / WPR	Attendance/Assignment / viva / Lab manual									
1	ACTBSNLA101T	BSC	Linear Algebra and Vector Calculus	60	20	20	-	-	-	100	3	1	-	-	-	4	4	VLSI
2	ACTHSNDT102T	HSS	Design Thinking Fundamentals	60	20	20	-	-	-	100	3	-	-	-	-	3	3	
3	ACTESNED103T	ESC	Electronic Devices & Circuits Design	60	20	20	-	-	-	100	3	-	-	-	-	3	3	VLSI
4	ACTBSNSQ104T	BSC	Semiconductor & Quantum Physics	60	20	20	-	-	-	100	3	-	-	-	-	3	3	VLSI
5	ACTHSNES105T	HSS	Essential Skills Development 1 for Engineering Professionals	60	20	20	-	-	-	100	2	-	-	-	-	2	2	
6	To be selected ⁵	ESC	Departmental Skill Enhancement Elective Course-I	-	-	-	30	10	10	50	-	-	4	-	-	2	4	
7	ACTHSNDT102P	HSS	Design Thinking Fundamentals Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	
8	ACTESNED103P	ESC	Electronic Devices & Circuits Design Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	VLSI
9	ACTBSNSQ104P	BSC	Semiconductor & Quantum Physics Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	VLSI
10	ACTHSNES105P	HSS	Essential Skills Development 1 for Engineering Professionals Lab	-	-	-	30	10	10	50	-	-	4	-	-	2	4	
11	ACTNCNKS109N	NC	Indian Knowledge System for Engineers	-	-	-	-	20	30	50	-	-	-	-	4	0	2	
12	TO BE SELECTED ^{##}	OEC	Open Elective-1	60	20	20	-	-	-	100	3	-	-	2	-	3	5	
Total				360	120	120	150	70	80	900	17	1	14	2	4	25	36	

\$List of Departmental Skill Enhancement Elective

Course Code	Course Name
ACTESNPC106P	Logic Building Using C Lab
ACTESNPP107P	Foundations of Python Programming for Engineers Lab
ACTESNPJ108P	Principles of OOP with Java for Engineering Professionals Lab

Details of OE-1 Offered

Course Code	Course Name
ACTOENCS110B	Essence of Computer System

Students can opt general elective from the Courses offered by other institutes under group 1 in GE category
 Note: Industrial Internship I to be completed before start of V Semester, i.e. evaluation and credit to be added in V Semester.



SAGE University, Indore
 Institute Name: Institute of Advance Computing
 Department Name: Centre for Liberal and Advanced Studies

National Education Framework
 Effective from Academic Session: 2026-27

Program:
Semester: II

Bachelor of Technology (B.Tech.) Computer Science and Engineering (VLSI Design and Technology)

Program Code : B.Tech CSE (VLSI)

Admission batch: 2026-27

Course wise Distribution of Marks and corresponding Credits

S. No.	Subject Code <12 digit>	Category	Subject Title	Maximum Marks Allotted					Total Marks	Hours/week					Credits	Credits Hours	
				Theory(100 Marks)			Practical (50 Marks)			L	T	P	M/B/S M	NTC C			
				End Sem	Continuous Internal Evaluation Mid Sem Test (MST)	Attendance/Quiz /Assig./Presentations	End Sem. Exam (ESE)For Practical and Viva	Continuous Internal Evaluation									
1	ACTBSNLA201T	BSC	Linear Algebra And Differential Equations for Complex Analysis	60	20	20	-	-	-	100	3	1	-	-	-	4	4
2	ACTESNDE202T	ESC	Digital Electronics and Intelligent Communication Technologies	60	20	20	-	-	-	100	3	-	-	-	-	3	3
3	ACTPCNFV203T	PCC	Fundamentals of VLSI	60	20	20	-	-	-	100	3	-	-	-	-	3	3
4	ACTPCNAT209T	PCC	Analytical Thinking and Problem Solving for Intelligent Engineers	60	20	20	-	-	-	100	3	-	-	-	-	3	3
5	To be selected [§]	ESC	Departmental Skill Enhancement Elective Course-II	-	-	-	30	10	10	50	-	-	4	-	-	2	4
6	ACTESNDE202P	ESC	Digital Electronics and Intelligent Communication Technologies Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2
7	ACTPCNFV203P	PCC	Fundamentals of VLSI Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2
8	ACTPCNFL209P	PCC	Financial Literacy Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2
9	ACTNCNUH201N	NC	Universal Human Values & Professional Ethics	-	-	-	-	20	30	50	-	-	-	-	4	0	2
10	ACTHSNES205P	HSS	Essential Skills Development 2 for Engineering Professionals Lab	-	-	-	30	10	10	50	-	-	4	-	-	2	4
11	ACTPWNP201N	PW	Micro Project-I	-	-	-	-	20	30	50	-	-	-	-	4	2	4
Total				240	80	80	150	90	100	900	12	1	14	0	8	22	33

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§ List of Departmental Skill Enhancement Elective Course-II	
Course Code	Course Name
ACTESNLB206P	Logic Building using C++ Lab
ACTESNAP207P	Advanced Python Programming for Engineers Lab
ACTESNAJ210P	Advance Java Programming for Engineering Professionals Lab

Note: Industrial Internship I to be completed before start of V Semester, i.e. evaluation and credit to be added in V Semester.
 ## Students can opt general elective from the Courses offered by other institutes under group 2 in GE category



SAGE University, Indore
 Institute Name: Institute of Advance Computing
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National Education Framework
 Effective from Academic Session: 2026-27

Program:
Semester: III

Bachelor of Technology (B.Tech.) Computer Science and Engineering (VLSI Design and Technology)

Program Code : B.Tech CSE (VLSI)

Admission batch: 2026-27

Course wise Distribution of Marks and corresponding Credits

S. No.	Subject Code <12 digit>	Category	Subject Title	Maximum Marks Allotted					Total Marks	Hours/week					Credits	Credits Hours	
				Theory (100 Marks)			Practical (50 Marks)			L	T	P	M/B/S	N/C			
				End Sem	Continuous Internal Evaluation Mid Sem Test (MST)	Attendance/Quiz /Assig./Presentations	End Sem. Exam (ESE) For Practical and Viva	Continuous Internal Evaluation									
1	ACTBSNPS301T	BSC	Probability & Statistics	60	20	20	-	-	-	100	3	1	-	-	-	4	4
2	ACTPCNDS302T	PCC	Digital Signal Processing	60	20	20	-	-	-	100	3	0	-	-	-	3	3
3	ACTESNMP303T	ESC	Microprocessors & Microcontrollers	60	20	20	-	-	-	100	3	0	-	-	-	3	3
4	ACTPCNDS304T	PCC	Smart Computing with Data Structures and Algorithms	60	20	20	-	-	-	100	3	0	-	-	-	3	3
5	To be selected\$	ESC	Departmental Skill Enhancement Elective Course-III	-	-	-	30	10	10	50	-	-	4	-	-	2	4
6	ACTPCNDS302P	PCC	Digital Signal Processing Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2
7	ACTESNMP303P	ESC	Microprocessors & Microcontrollers Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2
8	ACTPCNDS304P	PCC	Smart Computing with Data Structures and Algorithms Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2
9	ACTESNLS306P	ESC	Lean Startup Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2
10	ACTHSNES305P	HSS	Essential Skills Development 3 for Engineering Professionals	-	-	-	-	20	30	50	-	-	4	-	-	2	4
11	ACTNCNES302N	NC	Environmental Study & Disaster Management	-	-	-	-	20	30	50	-	-	-	-	4	0	2
12	To be selected ##	OEC	Open Elective-2	60	20	20	-	-	-	100	3	-	-	2	-	3	5
Total				300	100	100	150	90	110	850	15	1	16	2	4	24	36

Details of OE-2 Offered		\$ List of Departmental Skill Enhancement Elective Course-III	
Course Code	Course Name	Course Code	Course Name
ACTOENIT310B	Essence of IoT	ACTESNDB306P	DBMS for Smart and Adaptive Systems Lab
		ACTESNAE307P	Analog Electronic Circuits Lab

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SAGE University, Indore
 Institute Name: Institute of Advance Computing
 Department Name: Centre for Liberal and Advanced Studies

National Education Framework
 Effective from Academic Session: 2026-27

Program:
Semester: IV

Bachelor of Technology (B.Tech.) Computer Science and Engineering (VLSI Design and Technology)

Program Code : B.Tech CSE (VLSI)

Admission batch: 2026-27

Course wise Distribution of Marks and corresponding Credits

S. No.	Subject Code <12 digit>	Category	Subject Title	Maximum Marks Allotted					Total Marks	Hours/week					Credits	Credits Hours		
				Theory (100 Marks)			Practical (50 Marks)			L	T	P	M/B/S	NTC				
				End Sem	Continuous Internal Evaluation Mid Sem Test (MST)	Attendance/Quiz /Assig./Presentations	End Sem. Exam (ESE) For Practical and Viva	Continuous Internal Evaluation										
								Lab Work / WPR									Attendance/ Assignment /viva /Lab manual	
1	ACTBSNM401T	BSC	Numerical Methods & Sampling Techniques for Emerging Engineers	60	20	20	-	-	-	100	3	0	-	-	-	3	3	VLSI
2	ACTPCNIM402T	PCC	Introduction to Microelectronics	60	20	20	-	-	-	100	3	0	-	-	-	3	3	VLSI
3	ACTPCNHD403T	PCC	Hardware Description Language (HDL)	60	20	20	-	-	-	100	3	0	-	-	-	3	3	VLSI
4	ACTPCNCS404T	PCC	Control Systems	60	20	20	-	-	-	100	3	0	-	-	-	3	3	VLSI
5	ACTPCNAD408T	PCC	Design and Analysis of Algorithms in Intelligent Computing	60	20	20	-	-	-	100	3	-	-	-	-	3	3	
6	To be selected	ESC	Departmental Skill Enhancement Elective Course-IV	-	-	-	30	10	10	50	-	-	4	-	-	2	4	
7	ACTBSNEM401P	BSC	Electro Magnetic Theory and Transmission Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	VLSI
8	ACTPCNIM402P	PCC	Introduction to Microelectronics Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	VLSI
9	ACTPCNHD403P	PCC	Hardware Description Language (HDL) Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	VLSI
10	ACTPCNAD408P	PCC	Design and Analysis of Algorithms in Intelligent Computing Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	VLSI
11	ACTPCNPM410P	PCC	Probabilistic Modeling and Reasoning with Python Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	
12	ACTHSNES405P	HSS	Essential Skills Development 4 for Engineering Professionals	-	-	-	-	20	30	50	-	-	4	-	-	2	4	
13	ACTPWNP409N	PW	Micro Project-II	-	-	-	-	20	30	50	-	-	-	-	4	2	-	
Total				240	80	80	180	100	120	800	12	0	18	0	4	26	30	

§ List of Departmental Skill Enhancement Elective Course-IV

Course Code	Course Name
ACTESNJP406P	Julia Programming for professionals Lab
ACTESNCE407P	Communication Engineering Lab

Students can opt general elective from the Courses offered by other institutes under group 4 in GE category



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National Education Framework
 Effective from Academic Session: 2026-27

Program: Bachelor of Technology (B.Tech.) Computer Science and Engineering (VLSI Design and Technology)
Semester: V

Program Code : B.Tech CSE (VLSI)

Admission batch: 2026-27

Course wise Distribution of Marks and corresponding Credits

S. No.	Subject Code <12 digit>	Category	Subject Title	Maximum Marks Allotted						Total Marks	Hours/week					Credits	Credits Hours
				Theory(100 Marks)			Practical (50 Marks)				L	T	P	M/B/S M	NTC C		
				End Sem	Continuous Internal Evaluation Mid Sem Test (MST)	Attendance/Quiz /Assig./Presentations	End Sem. Exam (ESE)For Practical and Viva	Continuous Internal Evaluation									
								Lab Work / WPR	Attendance/Assignment /viva/Lab manual								
1	ACTPCNSM501T	PCC	Semiconductor Materials and Characterization	60	20	20	-	-	-	100	3	0	-	-	-	3	3
2	ACTPCNML502T	PCC	Machine Learning Tools & Techniques	60	20	20	-	-	-	100	3	0	-	-	-	3	3
3	ACTPCNCT503T	PCC	CMOS Technology & Design	60	20	20	-	-	-	100	3	0	-	-	-	3	3
4	To be selected***	PEC	Elective-I	60	20	20	-	-	-	100	3	0	-	-	-	3	3
5	To be selected****	PEC	Elective-II	60	20	20	-	-	-	100	3	0	-	-	-	3	3
6	To be selected \$	ESC	Departmental Skill Enhancement Elective Course-V	-	-	-	30	10	10	50	-	-	4	-	-	2	4
7	ACTPCNSM501P	PCC	Semiconductor Materials and Characterization Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2
8	ACTPCNML502P	PCC	Machine Learning Tools & Techniques Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2
9	ACTPCNCT503P	PCC	CMOS Technology & Design Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2
10	To be selected***	PEC	Elective-I Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2
11	To be selected****	PEC	Elective-II Lab	60	20	20	-	-	-	100	3	0	-	-	-	1	2
12	To be selected ##	OEC	Open Elective-3	60	20	20	-	-	-	100	3	-	-	2	-	3	5
13	ACTPWNIN509N	PW	Internship-I	-	-	-	-	20	30	50	-	-	-	-	4	2	-
Total				420	140	140	150	70	80	1000	21	0	12	2	4	27	34

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Elective-I		Elective-II	
Course Code	Course Name	Course Code	Course Name
ACTPENSI504T/P	Sensors & IoT Systems / Sensors & IoT Systems Lab	ACTPENES511T/P	Embedded System Design / Embedded System Design Lab
ACTPENLV505T/P	Low-Power VLSI Design / Low-Power VLSI Design Lab	ACTPENOS512T/P	Operating Systems and Process Intelligence Lab
Details of OE-3 Offered		\$ List of Departmental Skill Enhancement Elective Course-V	
Technical Elective		Course Code	Course Name
		ACTESNSE506P	Scripting for EDA (Python/TCL/Perl) / Scripting for EDA (Python/TCL/Perl) Lab
		ACTESNDV507P	Data Visualization I/ Data Visualization I Lab
		ACTESNUP508P	Unix/Linux Programming for professionals Lab



SAGE University, Indore
 Institute Name: Institute of Advance Computing
 Department Name: Centre for Liberal and Advanced Studies

National Education Framework
 Effective from Academic Session: 2026-27

Program: Bachelor of Technology (B.Tech.) Computer Science and Engineering (VLSI Design and Technology)
Semester: VI

Program Code : B.Tech CSE (VLSI)

Admission batch: 2026-27

Course wise Distribution of Marks and corresponding Credits

S. No.	Subject Code <12 digit>	Category	Subject Title	Maximum Marks Allotted						Total Marks	Hours/week					Credits	Credits Hours	
				Theory(100 Marks)			Practical (50 Marks)				L	T	P	M/B/S M	NTC C			
				End Sem	Continuous Internal Evaluation Mid Sem Test (MST)	Attendance/Quiz /Assig./Presentations	End Sem. Exam (ESE)For Practical and Viva	Continuous Internal Evaluation										
								Lab Work / WPR	Attendance/Assignment /viva/Lab manual									
1	ACTPCNCP601T	PCC	CMOS Processing	60	20	20	-	-	-	100	3	0	-	-	-	3	3	VLSI
2	ACTPCNCS602T	PCC	Computing Systems Architecture	60	20	20	-	-	-	100	3	0	-	-	-	3	3	VLSI
3	ACTPCNFB603T	PCC	FPGA-Based System Design	60	20	20	-	-	-	100	3	0	-	-	-	3	3	VLSI
4	To be selected***	PEC	Elective-III	60	20	20	-	-	-	100	3	0	-	-	-	3	3	
3	ACTPCNCD604T	PCC	Cloud Driven Agile Practices	60	20	20	-	-	-	100	3	0	-	-	-	3	3	VLSI
6	To be selected \$	ESC	Departmental Skill Enhancement Elective Course-VI	-	-	-	30	10	10	50	-	-	4	-	-	2	4	
7	ACTPCNCP601P	PCC	CMOS Processing Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	VLSI
8	ACTPCNCS602P	PCC	Computing Systems Architecture Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	VLSI
9	ACTPCNFB603P	PCC	FPGA-Based System Design Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	VLSI
10	To be selected***	PEC	Elective-III Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	
11	ACTPCNCD604P	PCC	Cloud Driven Agile Practices Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	VLSI
12	ACTPWNP609N	PW	Minor Project	-	-	-	-	40	60	100	-	-	-	-	12	4	-	
Total				300	100	100	180	100	120	900	15	0	14	0	12	26	29	

Elective-III		\$ List of Departmental Skill Enhancement Elective Course-VI	
Course Code	Course Name	Course Code	Course Name
ACTPENC605T/P	Digital Circuit System / Digital Circuit System Lab	ACTESNXL607T/P	Xilinx / Xilinx Lab
ACTPENMP606T/P	Microprocessor and Interfacing / Microprocessor and Interfacing Lab	ACTESNSC608T/P	Synopsys IC Compiler / Synopsys IC Compiler Lab

Note: Industrial Internship II to be completed after V semester and before start of VII Semester, i.e. evaluation and credit to be added in VII Semester.



SAGE University, Indore
 Institute Name: Institute of Advance Computing
 Department Name: Centre for Liberal and Advanced Studies

National Education Framework
 Effective from Academic Session: 2026-27

Program:
Semester: VII

Bachelor of Technology (B.Tech.) Computer Science and Engineering (VLSI Design and Technology)

Program Code : B.Tech CSE (VLSI)

Admission batch: 2026-27

Course wise Distribution of Marks and corresponding Credits

S. No.	Subject Code <12 digit>	Category	Subject Title	Maximum Marks Allotted					Total Marks	Hours/week					Credits	Credits Hours		
				Theory (100 Marks)			Practical (50 Marks)			L	T	P	M/B/S M	NTC C				
				End Sem	Continuous Internal Evaluation Mid Sem Test (MST)	Attendance/Quiz /Assig./Presentations	End Sem. Exam (ESE) For Practical and Viva	Continuous Internal Evaluation										
1	ACTPCNRH701T	PCC	RF and HF IC Design	60	20	20	-	-	-	100	3	0	-	-	-	3	3	VLSI
2	ACTPCNRV702T	PCC	RISC-V Architecture & SoC Design	60	20	20	-	-	-	100	3	0	-	-	-	3	3	VLSI
3	ACTPCNCA703T	PCC	CMOS Analog and Digital IC Design	60	20	20	-	-	-	100	3	0	-	-	-	3	3	VLSI
4	To be selected****	PEC	Elective-IV	60	20	20	-	-	-	100	3	0	-	-	-	3	3	VLSI
5	To be selected****	PEC	Elective-V	60	20	20	-	-	-	100	3	0	-	-	-	3	3	VLSI
6	ACTPCNCI708T	PCC	Computational Intelligence with Generative AI	60	20	20	-	-	-	100	3	0	-	-	-	3	3	
7	ACTPCNRH701P	PCC	RF and HF IC Design Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	VLSI
8	ACTPCNRV702P	PCC	RISC-V Architecture & SoC Design Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	VLSI
9	To be selected****	PEC	Elective-IV Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	VLSI
10	To be selected****	PEC	Elective-V Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	VLSI
11	ACTPCNVT709P	PCC	VLSI Testing And Testability Lab	-	-	-	30	10	10	50	-	-	2	-	-	1	2	VLSI
12	ACTPWNI710N	PW	Internship-II	-	-	-	-	20	30	50	-	-	-	-	8	4	-	
Total				360	120	120	150	70	80	900	18	0	10	0	8	27	28	

Elective-IV	
Course Code	Course Name
ACTPENHS704T/P	Hardware Security and Trusted Chips / Hardware Security and Trusted Chips Lab
ACTPENIA705T/P	IoT System Architecture and Design / IoT System Architecture and Design Lab

Elective-V	
Course Code	Course Name
ACTPENED706T/P	Electronic Design Automation / Electronic Design Automation Lab
ACTPENVS707T/P	Verilog for Synthesis / Verilog for Synthesis Lab



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National Education Framework
 Effective from Academic Session: 2026-27

Program:

Bachelor of Technology (B.Tech.) Computer Science and Engineering (VLSI Design and Technology)

Semester: VIII

Program Code : B.Tech CSE (VLSI)

Admission batch: 2026-27

Course wise Distribution of Marks and corresponding Credits

S. No.	Course Code <12 digit>	Category	Course Title	Maximum Marks Allotted							Total Marks	Hours/week					Credits	Credits Hours
				Theory(100 Marks)			Practical (50 Marks)					L	T	P	M/B/S M	NTC C		
				End Sem	Continuous Internal Evaluation Mid Sem Test (MST)	Attendance/Quiz /Assig./Presentations	End Sem. Exam (ESE)For Practical and Viva	Continuous Internal Evaluation										
								Lab Work / WPR	Attendance/Assignment /viva/Lab manual									
1	ACTPWNP801N	PW	Major Project/Startup/Industrial Internship	-	-	-	-	40	60	100	-	-	-	-	16	8	16	
Total				-	-	-	-	40	60	100	0	0	0	0	16	8	16	

Offered Credit Summary	
Semester	B.Tech. CSE (VLSI)
I	25
II	22
III	24
IV	26
V	27
VI	26
VII	27
VIII	8
Total	185

Legends		
L= Lecture	1 Hr	1 CR
T= Tutorial	1 Hr	1 CR
P= Practical	2 Hr	1 CR
S= Studio	1 Hr	1.5 CR
NTCC = Non Teaching Credit Course	NA	NA
M= MOOC	SWAYAM/NPTEL	Certificate
BM = Blended MOOC	1 Hr	1 CR