

**SEMESTER-WISE COURSE STRUCTURE OF
5-YR IDD (B.Tech.+M.Tech.) (Computer Science and Engineering) PROGRAMME
(w.e.f. 2016-17 for students admitted in July 2016)**

Semester-I				
CS. Coursecode.YY	Course Code	Subject	Contact Hours	Credits
IS.BL 101.14	BL 101	Biology	3-1-0	11
IS.PHY 101.14	PHY 101	Physics I: Classical, Quantum & Relativistic Mechanics	3-1-2	13
IS.MA 101.14	MA 101	Engineering Mathematics- I	3-1-0	11
IE.CSO 101.14	CSO 101	Computer Programming	3-1-2	13
EP.ME 106.14	ME 106	Manufacturing Practices-II	0-0-3	03
EP.ME 104.14	ME 104	Engineering Drawing	1-0-3	06
IH.H 101.14	H 101	Universal Human Values - I: Self and Family	1-2-0	05
		Total	14-6-10	62
LM.HL101.14	HL 101	Basic English	2-0-1	07
GY		Physical Education/ Creative Practice #	0-0-5	05

*Students who do not qualify the diagnostic test in English will study Basic English; they will not register for Gym Course.

This requirement of Gymkhana Course will be completed in 2nd and 3rd Semester.

L: Lecture hours; T: Tutorial hours; P: Laboratory/ Practical hours; C: Credits

GY.PE101.14	PE101	(Elementary Physical Education/	0	1	3	5
GY.CP111.15	CP111	Music - Instrumental/				
GY.CP112.15	CP112	Music - Vocal/				
GY.CP113.15	CP113	Dance/				
GY.CP121.15	CP121	Painting/				
GY.CP122.15	CP122	Sculpture/				
GY.CP123.15	CP123	Advertising)				

Semester-II				
CS. Coursecode.YY	Course Code	Subject	Contact Hours	Credits
IS.MA 102.14	MA 102	Engineering Mathematics- II	3-1-0	11
IE.EO 101.14	EO 101	Fundamentals of Electrical Engineering	3-1-2	13
MC.CSO 102.15	CSO 102	Data Structures *	3-0-2	11
EP. CSE103N.14	CSE103N	Information Technology Workshop-I (ITW-1)	2-0-3	09
EP.ME 105.14	ME 105	Manufacturing Practices – I	0-0-3	03
IH.H105.14 IH.H 106.14	H 105/ H 106	(Philosophy / Education & Self) #	2-1-0	08
		Total	13-3-10	55
GY2		Physical Education/ Creative Practice #	0-0-5	05

*Multicore subject offered by CSE Dept. to Mathematical Sciences

Semester-III				
CS. Coursecode.YY	Course Code	Subject	Contact Hours	Credits
IS.MA202.14	MA202	Probability and Statistics	3-1-0	11
IE.CMO102.14	ME102	Engineering Mechanics	3-1-0	11
MC. CSO204N.15	CSO204N	Discrete Maths +	3-0-0	09
MC. CSO211N.15	CSO211N	Computer System Organization*	3-0-2	11
DC. CSE205N.15	CSE205N	Information Technology Workshop-II (ITW-II)	2-0-3	09
IH.H103.14 IH.H104.14	H103 H104	Development of Societies History & Civilization	2-1-0	08
		Total	16-3-5	59
GY3		Hobbies and Club		

Semester-IV				
CS. Coursecode.YY	Course Code	Subject	Contact Hours	Credits
IS.MA 203.14	MA 203	Mathematical Methods	3-1-0	11
DC.CSE241N.15	CSE241N	Artificial Intelligence	3-0-2	11
MC. CSO221N.15	CSO221N	Algorithms *	3-0-2	11
MC. CSO231N.14	CSO231N	Operating Systems*	3-0-2	11
DP.CSE291.15	CSE 291	Exploratory Project	0-0-5	05
HU.H201.14	HL 201	Universal Human Values - II: Self, Society and Nature	1-2-0	05
		Total	13-3-11	54
GY4		Hobbies and Club		

*Multicore subject offered by CSE Dept. to Mathematical Sciences

Streams in Computer Science and Engineering

1. Artificial Intelligence and Computer Vision (AICV)
2. High performance Computing and Data Engineering (HPCDE)

Semester-V				
CS. Coursecode.YY	Course code	Subject	Contact Hours (L-T-P)	Credits
IE.MO201.14	MO201	Materials Science and Engineering	3-1-0	11
OE-1		Open Elective-1	3-0-0	9
DC.CSE361.16	CSE361	Database Management System	3-0-2	11
MC.CSO351.16	CSO351	Computer Graphics*	3-0-2	11
DE. CSE342.16/ DE. CSE362.16/ DE. CSE443.16	CSE342/ CSE362/ CSE443	<u>Stream Elective-I (DE-1)</u> Intelligent Computing Data Mining Natural Language Processing	3-0-0	09
DE.CSO323.16 ⁺ / DE.CSO332.16/ DE.CSE353.16	CSO323/ CSO332/ CSE353	<u>Non-Stream Elective-I (DE-1)</u>		
	HU/LM	Humanities/Language Management	3-0-0	09
		Total Credits in the Semester (Regular-Non-Stream)	18-1-4	60
DP.CSE391.16		Stream Project (Hons.)##	0-0-10	10
		Total Credits (Stream, Hons.)	18-1-14	70

*Multicore Subject offered by CSE to Math Sc.

DE: Dept. Elective (Stream/non-stream), ME: Multicore Elective (from Math. Sc.), OE: DE which is also OE (Open Elective)

Extra Stream Project to be carried out by Hons. Students in V Sem.

*V Semester Elective / Stream DE-1 Courses

DE.CSE342.16	CSE342	Intelligent Computing	3	0	0	9
DE.CSE362.16	CSE362	Data Mining	3	0	0	9
DE.CSE443.16	CSE443	Natural Language Processing	3	0	0	9

*V Semester Elective / Non Stream DE-1 Courses

DE.CSO323.16	CSO323	Graph Theory and Applications ⁺	3	0	0	9
DE. CSE353.16	CSE353	Multimedia Systems	3	0	0	9
DE. CSO332.16	CSO332	Ubiquitous Computing	3	0	0	9

Semester-VI				
CS. Coursecode.YY	Course Code	Subject	Contact Hours (L-T-P)	Credits
OE-2	OE-2	Open Elective-2	3-0-0	09
DC.CSE381.16	CSE381	Software Engineering	3-0-0	09
MC. CSO322.16	CSO322	Theory of Computation	3-0-0	09
DC. CSE312.16	CSE312	Computer Architecture	3-0-2	11
DE.CSE352.16/ DE.CSE445.17 DE.CSE371.16	CSE352/ CSE445 CSE371	<u>Stream Elective-II (DE-2)</u> Computer Vision/Application of Natural Language Processing (NLP) Parallel Computing	3-0-0	09
DE.CSEXXX.16	CSEXXX	<u>Non-Stream Elective-II (DE-2)</u>		
DP.CSE392.16	CSE392	Stream or UG Project	0-0-10	10
	HU/LM	Humanities/Language Management	3-0-0	09
		Total Credits	18-0-12	66

*VI Semester Elective / Stream DE - 2 Courses						
DE.CSE352.16	CSE352	Computer Vision	3	0	0	9
DE.CSE371.16	CSE371	Parallel Computing	3	0	0	9
DE.CSE445.17	CSE445	Applications of Natural Language Processing	3	0	0	9

*VI Semester Elective / Non Stream DE - 2 Courses						
DE. CSO324.16	CSO324	Operations Research	3	0	0	9
DE.CSE363.16	CSE363	Information Retrieval	3	0	0	9

Computer Science & Engineering: 4-Year B.Tech. Summer Term (After VI Sem.)						
DP.CSE393.15	CSE393	Project / Industrial Project / Industrial Training	0	0	5	5
		Total	0	0	5	5

Semester-VII				
CS. Coursecode.YY	Course Code	Subject	Contact Hours	Credits
OE-3		Open Elective-3	3-0-0	09
DC. CSE425.17	CSE425	Compiler Design	3-0-0	09
DE.CSE342.16 DE.CSE443.16 DE.CSE472.17	CSE342 CSE443 CSE472	<u>Stream Elective-III (DE-3)</u> Intelligent Computing Natural Language Processing (NLP) Distributed Computing	3-0-0	09
DE.CSEXXX.17	CSEXXX	<u>Non-Stream Elective-III (DE-3)</u>		
DP.CSE491.17	CSE491	UG Project#	0-0-10	10
	HU/LM	Humanities/Language Management	3-0-0	09
		Total Credits in Semester (Regular/Non-Stream)	12-0-10	46
DP.CSE493-17	CSE493	Stream Project	0-0-20	20
		Total Credits (Stream, Hons.)	12-0-20	56

#UG Project to be carried out only by non-stream student in VII Sem

VII Semester Elective / Stream DE-3 Courses (Elective-III)

DE.CSE342.16	CSE342	Intelligent Computing	3	0	0	9
DE.CSE443.16	CSE443	Natural Language Processing (NLP)	3	0	0	9
DE.CSE472.17	CSE472	Distributed Computing	3	0	0	9

VII Semester Elective / Non-Stream DE - 3 Courses (Elective-III)

DE.CSE527.17	CSE527	Computational Geometry	3	0	0	9
DE.CSE584.17	CSE584	Software Metrics	3	0	0	9
DE.CSE545.17	CSE545	Knowledge Based System	3	0	0	9
DE.CSE567.17	CSE567	Distributed Database	3	0	0	9

Semester-VIII				
CS. Coursecode.YY	Course Code	Subject	Contact Hours	Credits
OE	OE	Open Elective-4	3-0-0	9
DE.CSE454.17 DE.CSE456.17 DE.CSE464.17	CSE454 CSE456 CSE464	Stream Elective-IV (DE-4) Pattern Recognition Biometrics Machine Learning	3-0-0	9
DE.CSEXXX.17	CSEXXX	Non-Stream Elective-II (DE-4)		
DE. CSEXXX.17	CSEXXX	DE-5	3-0-2	11
DT.CSE591.17	CSE591	Thesis	0-0-10	10
	HU/LM	Humanities/Language Management	3-0-0	9
DC.CSE403.17	CSE403	Seminar	0-0-3	3
		Total Credits in Semester (Regular)	12-0-13	51

Note: In VIIIth Semester, students from a specific stream are required to opt for any of the subject from the list of respective Stream Elective-IV. However, if a student from any stream wishes to study another DE from Electives-IV, he/she is allowed to opt for the same.

VIII Semester Elective / Stream DE-4 Courses						
DE.CSE454.17	CSE454	Pattern Recognition	3	0	0	9
DE.CSE456.17	CSE456	Biometrics	3	0	0	9
DE.CSE464.17	CSE464	Machine Learning	3	0	0	9

VIII Semester Elective / Non Stream DE - 4 Courses						
DE.CSE537.17	CSE537	Network Security	3	0	0	9
DE.CSE528.17	CSE528	Approximation Algorithms	3	0	0	9
DE.CSE538.17	CSE538	Semantic Web	3	0	0	9
DE.CSE568.17	CSE568	Web Mining	3	0	0	9

VIII Semester DE - 5 Course						
DE. CSE433.17	CSE433	Computer Networks	3	0	2	11

Semester IX				
CS. Coursecode.YY	Course Code	Subject	Contact Hours	Credits
OE		Open Elective-5	3-0-0	9
OE		Open Elective-6	3-0-0	9
DE.CSE5XX.18/	CSE5XX	DE-6	3-0-0	9
DE.CSE5XX.18/	CSE5XX	DE-7	3-0-0	9
DT.CSE592.18	CSE592	Thesis	0-0-10	10
	HU/LM	Humanities/Language Management	3-0-0	9
		Total Credits in Semester	15-0-10	55

IX Semester Elective DE-6 Courses						
DE. CSE583.18	CSE583	Advanced Software Engg.	3	0	0	9
DE. CSE559.18	CSE559	Medical Image Processing	3	0	0	9
DE. CSE529.18	CSE529	Bio-Informatics Algorithms	3	0	0	9
DE. CSE582.18	CSE582	Software Reuse and Re-engineering	3	0	0	9
DE. CSE539.18	CSE539	Social Network Analysis	3	0	0	9
DE. CSE573.18	CSE573	Parallel Algorithms	3	0	0	9

IX Semester Elective DE-7 Courses						
DE. CSE530.18	CSE530	Information Security	3	0	0	9
DE. CSE546.18	CSE546	Robotics	3	0	0	9
DE. CSE585.18	CSE585	Software Engineering Project Management	3	0	0	9
DE. CSE574.18	CSE574	Cloud Computing	3	0	0	9

Semester X				
CS. Coursecode.YY	Course Code	Subject	Contact Hours	Credits
DT.CSE593.18	CSE593	Thesis	0-0-50	50
		Total Credits in Semester	0-0-50	50

Total Credits in IDD (CSE) Programme (Semester I-X) = 563 (Regular)

= 583 (Stream, Hons.)

(Range varies depending on the credits of six open electives: 8-13)

List of Stream Electives**1. B.Tech. (CSE) Streams Electives (Semester V Onwards):**

Streams
1. Artificial Intelligence and Computer Vision (AICV)
2. High performance Computing and Data Engineering (HPCDE)

Stream Elective (DE) Courses (Contact Hours L:T:P=3:0:0)(Credits:09)				
Stream Elective No.	AICV Electives		HPCDE Electives	
	Course Code	Subject	Course Code	Subject
Stream Elective-I (V Semester)	DE. CSE342.16/ DE. CSE443.16	Intelligent Computing (IC)/ Natural Language Processing (NLP)	DE. CSE362.16	Data Mining
Stream Elective-II (VI Semester)	DE. CSE352.16/ DE. CSE445.17	Computer Vision/ Applications of Natural Language Processing (NLP)	DE. CSE371.16	Parallel Computing
Stream Elective-III (VII Semester)	DE. CSE443.16/ DE. CSE342.16	Natural Language Processing (NLP)/ Intelligent Computing (IC)	DE. CSE472.17	Distributed Computing
Stream Elective-IV (VIII Semester)	DE.CSE454.17/ DE. CSE464.17/ DE.CSE456.17	Pattern Recognition/ Machine Learning/ Biometrics	DE.CSE464.17	Machine Learning

Note: In VIIIth Semester, students from a specific stream are required to opt for any of the subject from the list of respective Stream Elective-IV. However, if a student from any stream wishes to study another DE from Electives-IV, he/she is allowed to opt for the same.

List of Provisional Open Electives

V Semester Open Elective OE-1 Courses						
DE.CSE342.16	CSE342	Intelligent Computing	3	0	0	9
DE.CSE362.16	CSE362	Data Mining	3	0	0	9
DE.CSE443.16	CSE443	Natural Language Processing	3	0	0	9
DE.CSO332.16	CSO332	Ubiquitous Computing	3	0	0	9

VI Semester Open Elective OE - 2 Courses						
DE. CSE352.16	CSE352	Computer Vision	3	0	0	9
DE. CSE371.16	CSE371	Parallel Computing	3	0	0	9
DE.CSE445.17	CSE445	Applications of Natural Language Processing	3	0	0	9

VII Semester Open Elective OE-3 Courses						
DE.CSE342.16	CSE342	Intelligent Computing	3	0	0	9
DE.CSE443.16	CSE443	Natural Language Processing (NLP)	3	0	0	9
DE.CSE472.17	CSE472	Distributed Computing	3	0	0	9

VIII Semester Open Elective OE - 4 Courses						
DE.CSE454.17	CSE454	Pattern Recognition	3	0	0	9
DE.CSE456.17	CSE456	Biometrics	3	0	0	9
DE.CSE464.17	CSE464	Machine Learning	3	0	0	9

Any other subject that will be decided as Open Elective by the Department.

5-YR-(B.Tech+M.Tech) Programme (admitted in July'2016)

S.N.	Cat.	Credit	Total	Deviation
1.	IS	11(I)+13(I)+11(I)+11(II)+11(III)+11(IV)	68	Nil
2.	IE	13(I)+13(II)+11(III)+11(V)	48	Nil
3.	EP	03(I)+06(I)+09(II)+03(II)	21	Nil
4.	HU	05(I)+08(II)+08(III)+05(IV)+09(V)+09(VI)	44	Nil
5.	LM	09(VII)+09(VIII)+09(IX)	27	Nil
6.	MC/DC	11(II)+09(III)+11(III)+09(III)+11(IV)+11(IV+11(IV))+11(V)+11(V)+09(VI)+09(VI)+11(VI)+09(VII)+03(VIII)	136	Nil
7.	DP	05(IV)+10(V-Stream)+10(VI)+05(VI)+10(VII)+20(VII-Stream)	30/50	Nil
8.	DE	09(V)+09(VI)+09(VII)+09(VIII)+09(IX)+09(IX)+11(VIII)	65	Nil
9.	OE	09(V)+ 09(VI)+09(VII)+09(VIII)+09(IX)+09(IX)	54	-1
10.	DT	10(VIII)+10(IX)+50(X)	70	Nil
			563/583 (Regular/ Stream)	