

REVISED (20/04/2017)

**SEMESTER-WISE COURSE STRUCTURE OF
4-YR B.Tech. (Computer Science and Engineering) PROGRAMME
(For Session 2014-15, students admitted in July'2014)**

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
IE.CMO102.14	CMO102	Engineering Mechanics	3-1-0	11
EP.CS101.14	CS101	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	H105/ 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
<i>MC.CSO201.15</i>	<i>CSO201</i>	<i>Data Structures *</i>	<i>3-0-2</i>	<i>11</i>
MC.CSO202.15	<i>CSO202</i>	Discrete Maths +	3-0-0	09
MC.CSO203.15	<i>CSO203</i>	Computer System Organization*	3-0-2	11
DC.CSE201.15	CSE201	Information Technology Workshop-II (ITW-II)	2-0-3	09
IH.H103.14	H103	Development of Societies	2-1-0	08
IH.H104.14	H104	History & Civilization		
		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.CSE 202.15	CSE 202	Artificial Intelligence	3-0-2	11
MC.CSO 203.15	CSO 203	Algorithms *	3-0-2	11
MC.CSO 204.14	CSO 204	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	GY..	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	Old Course Code	New Course code	Subject	Contact Hours (L-T-P)	Credits
IE.MO201.14	MO201	MO201	Materials Science and Engineering	3-1-0	11
OE-1	OE-1		Open Elective-1	3-0-0	9
DC.CSE301.16	CSE301	CSE361	Database Management System	3-0-2	11
MC.CSO301.16	CSO301	CSO351	Computer Graphics*	3-0-2	11
DE.CSE311.16/ DE.CSE321.16/ DE.CSE411.16	CSE311/ CSE321/ CSE411	CSE342/ CSE362/ CSE443	<u>Stream Elective-I (DE-1)</u>	3-0-0	09
DE.CSO304.16+/ DE.CSO303.16/ DE.CSE303.16	CSO304/ CSO303/ CSE303	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	CSE391		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

Course Code	Old Course Code	Subject	L	T	P	Credits
DE.CSE311.16	CSE311	Intelligent Computing	3	0	0	9
DE.CSE321.16	CSE321	Data Mining	3	0	0	9
DE.CSE411.16	CSE411	Natural Language Processing	3	0	0	9

*V Semester Elective / Non Stream DE-1 Courses

Course Code	Old Course Code	Subject	L	T	P	Credits
DE.CSO304.16	CSO304	Graph Theory and Applications ⁺	3	0	0	9
DE. CSE303.16	CSE303	Multimedia Systems	3	0	0	9
DE. CSO303.16	CSO303	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/Applications 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	Stream Elective-III (DE-3) Intelligent Computing Natural Language Processing (NLP) Distributed Computing	3-0-0	09
DE.CSEXXX.17	CSEXXX	Non-Stream Elective-III (DE-3)		
DP.CSE491.17	CSE491S/ CSE491	Stream or UG Project#	0-0-10	10
	HU/LM	Humanities/Language management	3-0-0	09
		Total Credits in Semester	12-0-10	46

DE: Stream/Non-stream DeptElectives (Any one course depending on chosen stream). These are also OE: Open Electives for other Branches.

#UG Project to be carried out by every student in VII Sem.

VII Semester Elective / Stream DE-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

*VII Semester Elective / Non Stream DE - 3 Courses						
DE.CSE444.17	CSE444	Neural Networks	3	0	0	9
DE.CSE434.17	CSE434	Fault Tolerant Computing	3	0	0	9
DE.CSE435.17	CSE435	Real Time Systems	3	0	0	9
DE.CSE482.17	CSE482	Software Re-use and Re-engineering	3	0	0	9
DE. CSE583.17	CSE583	Advanced Software Engg.	3	0	0	9
DE. CSE559.17	CSE559	Medical Image Processing	3	0	0	9
DE. CSE529.17	CSE529	Bio-Informatics Algorithms	3	0	0	9
DE. CSE582.17	CSE582	Software Reuse and Re-engineering	3	0	0	9
DE. CSE539.17	CSE539	Social Network Analysis	3	0	0	9
DE. CSE573.17	CSE573	Parallel Algorithms	3	0	0	9
DE. CSE530.17	CSE530	Information Security	3	0	0	9
DE. CSE546.17	CSE546	Robotics	3	0	0	9
DE. CSE585.17	CSE585	Software Engineering Project Management	3	0	0	9
DE. CSE574.17	CSE574	Cloud Computing	3	0	0	9

Semester-VIII				
CS. Coursecode.YY	Course Code	Subject	Contact Hours	Credits
OE-4		Open Elective-4	3-0-0	9
DC. CSE433.17	CSE433	Computer Networks	3-0-2	11
DE. CSE4XX.17	CSE4XX	Stream Elective-IV (DE-4)	3-0-0	9
DE. CSEXXX.17	CSEXXX	Non-Stream Elective-IV (DE-4)		
	HU/LM	Humanities/Language management	3-0-0	09
DC.CSE403.17	CSE403	Seminar	0-0-3	3
		Total Credits in Semester	12-0-5	41
DP.CSE492.17	CSE492	Stream Project (Hons.)##	0-0-10	10
		Total Credits in Semester (Stream/Hons)	12-0-15	51

Extra Stream Project to be carried out by Stream/Hons. Students in VIII Semester

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.CSE436.17	CSE436	Cyber Security	3	0	0	9
DE.CSE426.17	CSE426	Cryptography	3	0	0	9
DE.CSE457.17	CSE457	Data Compression	3	0	0	9
DE.CSE458.17	CSE458	Soft Computing	3	0	0	9
DE.CSE465.17	CSE465	Advanced Databases	3	0	0	9
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

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.

Total Credits (Semester I-VIII) = 448 (Regular, Non-stream)
= 468 (Hons.) Stream
(Range varies depending on the credits of four open electives: 8-13)

List of Stream/Non-stream and Open Elective Courses**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. CSE311.16/ DE. CSE411.16	Intelligent Computing (IC)/ Natural Language Processing (NLP)	DE. CSE322.16	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 Elective Courses

V Semester Open Elective OE-1 Courses						
DE.CSE311.16	CSE342	Intelligent Computing	3	0	0	9
DE.CSE321.16	CSE321	Data Mining	3	0	0	9
DE.CSE411.16	CSE411	Natural Language Processing	3	0	0	9
DE.CSO303.16	CSO303	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.

4-YR-B.Tech Programme (students admitted in July'2014)

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)	18	-2
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)+11(VIII)+03(VIII)	147	Nil
7.	DP	05(IV)+10(V-Stream)+05(VI)+10(VI)+10(VII)+10(VIII- Stream)	30/50	Nil
8.	DE	09(V)+09(VI)+09(VII)+09(VIII)	36	Nil
9.	OE	09(V)+ 09(VI)+09(VII)+09(VIII)	36	Nil
			448/468 (Regular/ Stream)	—