

## IDD Course Structure for Computer Science and Engineering (2018-2019)

Cat.	Deviation	Programme Components	CSE	Recommended (V Years)	
				Min	Max
HU	0	Humanities and Social Science	22	22	22
IS	0	Science	68	62	84
IE	0	Institute Requirement Engineering/ Pharmacy	48	41	60
EP	0	Engineering Drawing (Manual and Computer Aided), Manufacturing Practices and Practice course of Department/ School	21	18	24
LM	0	Language and Management	27	27	31
DC/ MC	0	Department/Programme Core (Includes Stream Courses)	148	105	175
DE/ BE	0	Department/Programme Elective (Includes Stream Courses)	63	60	105
OE	-1	Open Elective (Interdisciplinary Stream courses from Science/ Engineering/Pharmacy)	54	55	100
DP	0	Project/ Industrial visit/ Training	30	20	50
DT	0	Dissertation	70	70	80
		<b>Total</b>	<b>551</b>	<b>540</b>	<b>570</b>
		<b>All SemesterTotal (Hons.)</b>	<b>571</b>	<b>560</b>	<b>590</b>

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

### Streams in Computer Science and Engineering

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

One course to be selected, for respective stream in corresponding semester, on recommendation of DUGC

### Artificial Intelligence and Computer Vision (AICV) Electives

IDD Pt. III (V Sem.)	DE. CSE342.16	Intelligent Computing (IC)	3	0	0	9
	DE. CSE443.16	Natural Language Processing (NLP)	3	0	0	9
IDD Pt. III (VI Sem.)	DE.CSE352.16	Computer Vision	3	0	0	9
IDD Pt. IV (VII Sem.)	DE. CSE443.16	Natural Language Processing (NLP)/	3	0	0	9
	DE. CSE342.16	Intelligent Computing (IC)	3	0	0	9
IDD Pt. IV (VIII Sem.)	DE.CSE454.17	Pattern Recognition/	3	0	0	9
	DE. CSE464.17	Machine Learning/	3	0	0	9
	DE.CSE456.17	Biometrics	3	0	0	9

### High performance Computing and Data Engineering (HPCDE) Electives

IDD Pt. III (V Sem.)	DE. CSE362.16	Data Mining	3	0	0	9
IDD Pt. III (VI Sem.)	DE. CSE371.16	Parallel Computing	3	0	0	9
IDD Pt. IV (VII Sem.)	DE. CSE472.17	Distributed Computing	3	0	0	9
IDD Pt. IV (VIII Sem.)	DE.CSE464.17	Machine Learning	3	0	0	9

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UG-CRC Code	Course Code	Course Name	L-T-P			Credits
<b>Computer Science and Engineering : 5-Year IDD I-Semester</b>						
IH.H101.14	H101	Universal Human Values - I: Self and Family	2	0	0	6
GY.PE101.14	PE101	Elementary Physical Education	0	1	3	5
GY.CP101.14	CP101	Creative Practices #	0	1	3	5
		<b>Total</b>	<b>2</b>	<b>2</b>	<b>6</b>	<b>16</b>
LM.HL101.14	HL101	Basic English*	2	0	1	7
		<b>Total</b>	<b>4</b>	<b>2</b>	<b>7</b>	<b>23</b>
#Creative Practices course to be announced by Dean Academic Office						
*Basic English course to be taken by student as recommended after Diagnostic Test						
<b>Computer Science and Engineering : 5-Year IDD I-Semester</b>						
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	3
		<b>Total</b>	<b>12</b>	<b>4</b>	<b>7</b>	<b>51</b>
<b>Computer Science and Engineering : 5-Year IDD II-Semester</b>						
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	9
EP.ME 104.14	ME 104	Engineering Drawing	1	0	3	6
EP.ME 105.14	ME 105	Manufacturing Practices – I	0	0	3	3
IH.H105.14	H 105	Philosophy	2	1	0	8
IH.H 106.14	H 106	Education & Self #				
		<b>Total</b>	<b>14</b>	<b>3</b>	<b>13</b>	<b>61</b>
# The students have to choose one course from H105 & H106.						
<b>Computer Science and Engineering : 5-Year IDD III-Semester</b>						
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	9
MC. CSO211N.15	CSO211N	Computer System Organization*	3	0	2	11
DC. CSE205N.15	CSE205N	Information Technology Workshop-II (ITW-II)	2	0	3	9
IH.H103.14	H103	Development of Societies	2	1	0	8
IH.H104. 14	H104	History & Civilization #				
		<b>Total</b>	<b>16</b>	<b>3</b>	<b>5</b>	<b>59</b>

# Students have to choose one course from H103 and H104.

### Computer Science and Engineering : 5-Year IDD IV-Semester

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	5
<b>Total</b>			<b>12</b>	<b>1</b>	<b>11</b>	<b>49</b>

### Computer Science and Engineering : 5-Year IDD V-Semester

IE.MO201.14	MO201	Materials Science and Engineering	3	1	0	11
DC.CSE361.16	CSE361	Database Management System	3	0	2	11
MC.CSO351.16	CSO351	Computer Graphics*	3	0	2	11
DE-1	DE-1	Stream / Department Elective (DE) - 1	3	0	0	9
		Non-Stream Elective (DE) - 1				
OE - 1	OE - 1	Open Elective - 1	3	0	0	9
<b>Total</b>			<b>15</b>	<b>1</b>	<b>4</b>	<b>51</b>
DP.CSE391S.16	CSE391S	Stream Project (Hons.)	0	0	10	10
<b>Total (Stream, Hons.)</b>			<b>15</b>	<b>1</b>	<b>14</b>	<b>61</b>

### \*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
DE.CSE372.18	CSE372	Introduction to High Performance Computing	3	0	0	9

### Computer Science and Engineering : 5-Year IDD VI-Semester

DC.CSE381.16	CSE381	Software Engineering	3	0	2	11
MC. CSO322.16	CSO322	Theory of Computation	3	0	0	9
DC. CSE312.16	CSE312	Computer Architecture	3	0	2	11
DE - 2	DE - 2	Department / Stream Elective (DE) - 2	3	0	0	9
		Non-Stream Elective (DE) - 2				
DP.CSE392/S.16	CSE392/ CSE392S	Stream or UG Project	0	0	10	10
OE - 2	OE - 2	Open Elective - 2	3	0	0	9
<b>Total</b>			<b>15</b>	<b>0</b>	<b>14</b>	<b>59</b>

<b>*VI Semester Elective / Stream DE - 2 Courses</b>						
DE.CSE352.16	CSE352	Computer Vision	3	0	0	9
DE.CSE371.16	CSE371	Parallel Computing	3	0	0	9
<b>*VI Semester Elective / Non Stream DE - 2 Courses</b>						
DE. CSE324.16	CSE324	Operations Research	3	0	0	9
DE.CSE363.16	CSE363	Information Retrieval	3	0	0	9
<b>Computer Science &amp; Engineering: 4-Year B.Tech. Summer Term</b>						
DP.CSE393.15	CSE393	Project / Industrial Project / Industrial Training	0	0	5	5
		<b>Total</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>5</b>
<b>Computer Science and Engineering: 5-Year IDD VII-Semester</b>						
DC. CSE425.17	CSE425	Compiler Design	3	0	2	11
DE - 3	DE - 3	Department / Stream Elective (DE) - 3	3	0	0	9
		Non-Stream Elective- (DE) - 3				
DP.CSE491.17	CSE491	UG Project	0	0	10	10
OE - 3	OE - 3	Open Elective - 3	3	0	0	9
LM	LM	Language and Management Courses	3	0	0	9
		<b>Total (Regular/Non-Stream)</b>	<b>12</b>	<b>0</b>	<b>12</b>	<b>48</b>
DP.CSE493S.17	CSE493S	Stream Project	0	0	20	20
		<b>Total (Stream, Hons.)</b>	<b>12</b>	<b>0</b>	<b>32</b>	<b>68</b>
<b>VII Semester Elective / Stream DE-3 Courses (Elective-III)</b>						
DE.CSE342.16	CSE342	Intelligent Computing	3	0	0	9
DE.CSE443.16	CSE443	Natural Language Processing (NLP)	3	0	0	9
DE.CSO445.19	CSO445	Game Theory	3	0	0	9
DE.CSE472.17	CSE472	Distributed Computing	3	0	0	9
<b>VII Semester Elective / Non-Stream DE - 3 Courses (Elective-I)</b>						
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
<b>Computer Science and Engineering : 5-Year IDD VIII-Semester</b>						
DC. CSE433.17	CSE433	Computer Networks	3	0	2	11
DE - 4	DE - 4	Department / Stream Elective (DE) - 4	3	0	0	9
		Non-Stream Elective (DE) - 4				
DE - 5	DE - 5	Non-Stream Elective (DE) - 5	3	0	0	9

OE - 4	OE - 4	Open Elective - 4	3	0	0	9
LM	LM	Language and Management Courses	3	0	0	9
DT.CSE591.17	CSE591	Thesis	0	0	10	10
<b>Total</b>			<b>15</b>	<b>0</b>	<b>2</b>	<b>57</b>

#### VIII Semester Elective / Stream DE-4 Courses (Elective-IV)

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 DE-5 Courses (Elective-V)

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

#### VIII Semester Elective / Non Stream DE - 4 Courses (Elective-II)

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

#### Computer Science and Engineering : 5-Year IDD IX-Semester

DE - 6	DE - 6	Department Elective (DE) - 6	3	0	0	9
DE - 7	DE - 7	Department Elective (DE) - 7	3	0	0	9
OE - 5	OE - 5	Open Elective - 5	3	0	0	9
OE - 6	OE - 6	Open Elective - 6	3	0	0	9
LM	LM	Language and Management Courses	3	0	0	9
DT.CSE592.18	CSE592	Thesis	0	0	10	10
<b>Total</b>			<b>15</b>	<b>0</b>	<b>0</b>	<b>55</b>

#### IX Semester Elective / Stream DE-5 Courses – 3 (Elective-III)

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 / Stream DE-6 Courses -4 (Elective-IV)

DE. CSE530.18	CSE530	Information Security	3	0	0	9
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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
<b>IX Semester Open Elective OE - 5 Courses (for the students of other departments)</b>						
DE.CSE5XX.18	CSE5XX	-----	3	0	0	9
<b>Computer Science and Engineering : 5-Year IDD X-Semester</b>						
DT.CSE593.18	CSE593	Thesis	0	0	50	50
			<b>Total</b>	<b>0</b>	<b>0</b>	<b>50</b>
L: Lecture hours; T: Tutorial hours; P: Laboratory/ Practical hours; C: Credits						