

## IDD Course Structure for Computer Science and Engineering (2015-2016)

Cat.	Deviation	Programme Components	CSE	Recommended (V Years)	
				Min	Max
HU	0	Humanities and Social Science	44	41	50
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	20	24
LM	0	Language and Management	27	27	31
DC/ MC	0	Department/Programme Core (Includes Stream Courses)	147	105	155
DE/ BE	-6	Department/Programme Elective (Includes Stream Courses)	54	60	90
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	75	70	80
		<b>Total</b>	<b>568</b>	<b>540</b>	<b>570</b>
		<b>All SemesterTotal (Hons.)</b>	<b>588</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

1. Artificial Intelligence and Computer Vision (AICV)

2. High performance Computing and Data Engineering (HPCDE)

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

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

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

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

**IDD Course Structure for Computer Science and Engineering (2015-2016)**

UG-CRC Code	Course Code	Course Name	L-T-P			Credits	
<b>Section-BA1</b>		<b>Computer Science and Engineering : 5-Year IDD I-Semester</b>					
IH.H101.14	H101	Universal Human Values - I: Self and Family	1	1	0	5	
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>1</b>	<b>3</b>	<b>6</b>	<b>15</b>
LM.HL101.14	HL101	Basic English*	2	0	1	7	
			<b>Total</b>	<b>3</b>	<b>3</b>	<b>7</b>	<b>22</b>

#Creative Practices course to be announced by Dean Academic Office

\*Basic English course to be taken by student as recommended after Diagnostic Test

UG-CRC Code	Course Code	Course Name	L-T-P			Credits	
<b>Section-BA1</b>		<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	
EP.ME 104.14	ME 104	Engineering Drawing	1	0	3	6	
			<b>Total</b>	<b>13</b>	<b>4</b>	<b>10</b>	<b>57</b>

<b>Section-BA1</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.CSE101.14	CSE101	Information Technology Workshop-I (ITW-1)	2	0	3	9	
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>13</b>	<b>3</b>	<b>10</b>	<b>55</b>

\* The students have to choose one course from H105 & H106.

<b>Section-BA1</b>		<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>
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\*The Students have to choose one course from H103 & H104.

<b>Section-BA1</b>	<b>Computer Science and Engineering : 5-Year IDD IV-Semester</b>					
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
HU.H201.14	HL 201	Universal Human Values - II: Self, Society and Nature	1	2	0	5
		<b>Total</b>	<b>13</b>	<b>3</b>	<b>11</b>	<b>54</b>

<b>Section-BA1</b>	<b>Computer Science and Engineering : 5-Year IDD V-Semester</b>					
IE.MO201.14	MO201	Materials Science and Engineering	3	1	0	11
OE - 1	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-1	DE-1	Stream / Department Elective (DE) - 1	3	0	0	9
		Non-Stream Elective (DE) - 1				
HU/LM	HU/LM	Humanities/Language and Management Courses^^	3	0	0	9
		<b>Total (Regular-Non-Stream)</b>	<b>18</b>	<b>1</b>	<b>4</b>	<b>60</b>
DP.CSE391.16	CSE391	Stream Project (Hons.)	0	0	10	10
		<b>Total (Stream, Hons.)</b>	<b>18</b>	<b>1</b>	<b>14</b>	<b>70</b>

^Courses to be Selected such that recommended HU & LM programme components get satisfied separately.

<b>*V Semester Elective / Stream DE-1 Courses</b>						
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

<b>*V Semester Elective / Non Stream DE-1 Courses</b>						
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

<b>Section-BA1</b>	<b>Computer Science and Engineering : 5-Year IDD VI-Semester</b>					
OE - 2	OE - 2	Open Elective - 2	3	0	0	9
DC.CSE381.16	CSE381	Software Engineering	3	0	0	9
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

HU/LM	HU/LM	Humanities/Language and Management Courses <sup>^^</sup>	3	0	0	9
		<b>Total</b>	<b>18</b>	<b>0</b>	<b>12</b>	<b>66</b>

<sup>^^</sup>Courses to be Selected such that recommended HU & LM programme components get satisfied separately.

**\*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

**\*VI Semester Elective / Non Stream DE - 2 Courses**

DE. CSE324.16	CSE324	Operations Research	3	0	0	9
DE.CSE363.16	CSE363	Information Retrieval	3	0	0	9

**Section-BA1**

**Computer Science & Engineering: 4-Year B.Tech. Summer Term**

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>

**Section-BA1**

**Computer Science and Engineering: 5-Year IDD VII-Semester**

OE - 3	OE - 3	Open Elective - 3	3	0	0	9
DC. CSE425.17	CSE425	Compiler Design	3	0	0	9
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
HU/LM	HU/LM	Humanities/Language and Management Courses <sup>^^</sup>	3	0	0	9
		<b>Total (Regular/Non-Stream)</b>	<b>12</b>	<b>0</b>	<b>10</b>	<b>46</b>
DP.CSE493.17	CSE493	Stream Project	0	0	20	20
		<b>Total (Stream, Hons.)</b>	<b>12</b>	<b>0</b>	<b>20</b>	<b>56</b>

<sup>^^</sup>Courses to be Selected such that recommended HU & LM programme components get satisfied separately.

**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-I)**

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

Section-BA1	Computer Science and Engineering : 5-Year IDD VIII-Semester					
OE - 4	OE - 4	Open Elective - 4	3	0	0	9
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				
DT.CSE591.17	CSE591	Thesis	0	0	10	10
HU/LM	HU/LM	Humanities/Language and Management Courses^^	3	0	0	9
DC.CSE403.17	CSE403	Seminar	0	0	3	3
<b>Total</b>			<b>12</b>	<b>0</b>	<b>15</b>	<b>51</b>

^Courses to be Selected such that recommended HU & LM programme components get satisfied separately.

#### 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 / 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

#### Section-BA1

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

OE - 5	OE - 5	Open Elective - 5	3	0	0	9
OE - 6	OE - 6	Open Elective - 6	3	0	0	9
DE - 5	DE - 5	Department Elective (DE) - 5	3	0	0	9
DE - 5	DE - 5	Department Elective (DE) - 6	3	0	0	9
DT.CSE592.18	CSE592	Thesis	0	0	15	15
HU/LM	HU/LM	Humanities/Language and Management Courses^^	3	0	0	9
<b>Total</b>			<b>15</b>	<b>0</b>	<b>15</b>	<b>60</b>

^Courses to be Selected such that recommended HU & LM programme components get satisfied separately.

#### 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
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>Section-BA1</b>	<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						