

B.Tech / Dual Degree Curricula (2014)

[B.Tech and MS by Research in Computer Science and Engineering \(5 years\)](#)

[B.Tech and MS by Research in Electronics and Communication Engineering \(5 years\)](#)

[B.Tech in Computer Science and MS by Research in Computational Natural Sciences \(5 years\)](#)

[B.Tech in Computer Science and MS by Research in Computational Linguistics \(5 years\)](#)

[B.Tech in Computer Science and MS by Research in Exact Humanities](#)

[B.Tech in Civil Engineering and MS by Research in Building Science and Engineering \(5 years\)](#)

[B.Tech in Computer Science and Engineering \(4 years\)](#)

[B.Tech in Electronics and Communication Engineering \(4 years\)](#)

B.Tech in Computer Science and Engineering (4 years) UG CS Curriculum and Graduation Requirements [Subject to Changes]

May 2012

1 - Semester-Wise Curriculum						
Year	Semester	CD	AD	CNO	CName	Credits
I	I	In	MA	IMA101	Mathematics I	3-1-0-4
I	I	In	CS	ICS101	Computer Programming	3-1-3-5
I	I	In	EC	IEC101	Digital Logic and Processors	3-1-3-5
I	I	In	EC	IEC102	Electrical Science I (H2)	3-1-0-2
I	I	In	CS	ICS102	IT Workshop I	2-0-3-3
I	I	In	HS	IHS141/131	English 1/HSS Skills 1	2-0-0-2
I	I	In	HS	IHS151	Human Values I	0-2-0-2
Total 16-6-9-23						
Total In-Class Hours per week - 31						
I	II	In	MA	IMA102	Mathematics II	3-1-0-4
I	II	In	CS	ICS103	Data Structures	3-1-3-5
I	II	In	CS	ICS104	Computer System Organization	3-1-0-4
I	II	In	EC	IEC103	Basic Electronic Circuits	3-1-3-5
I	II	In	CS	ICS105	IT Workshop II	2-0-3-3
I	II	In	HS	IHS142/132	English 2/HSS Skills 2	2-0-0-2
Total 16-4-9-23						
Total In-Class Hours per week - 29						
II	I	In	MA	IMA201	Mathematics III	3-1-0-4
II	I	In	CS	ICS211	Algorithms	3-1-0-4
II	I	In	CS	ICS231	Operating Systems	2-1-1-3

II	I	In	CS	ICS241	Introduction to Databases	2-1-0-2
II	I	In	CS	ICS261	SSAD & Project	3-0-3-3
II	I	In	SC	ISC201	Science I	3-1-0-4
Total 16-5-4-20						
Total In-Class Hours per week - 25						
II	II	In	HS	IHS201	Intro to Humanities	3-1-0-4
II	II	Pr	CS	CSE311	Formal Methods	2-1-0-2
II	II	In	HS	IHS152	Human Values II	0-2-0-2
II	II	In	EG	IEG201	Engineering Systems(*)	3-1-0-4
II	II	Pr	CS	CSE371	Artificial Intelligence (*)	3-1-0-4
II	II	Pr	CS	CSE251	Graphics (*)	2-1-0-3
II	II	In	EC	IEC239	Digital Signal Analysis & Applications(*)	3-1-0-4
II	II	In	CS	ICS251	Computer Networks (*)	2-1-0-2
Total 18-9-0-25						
Notes: Students can postpone one or two (*) courses to take Science and Humanities courses – to pursue Honours or DD in Sciences or Humanities. In order to pursue a research area, a student can also drop a (*) course and take a bouquet course.						
Total In-Class Hours per week – 18 to 27						
SLAB - Meet above Institute Core by the end of Second Year.						
III	I	Pr	CS		Bouquet Core (*)	3-1-0-4
III	I	Pr	CS		Bouquet Core (*)	2-1-0-2
III	I	OT	[+]		Science/Maths/Humanities/Engg	0-2-0-2
III	I	OT	[+]		Science/Maths/Humanities/Engg	3-1-0-4
III	I	Pr	CS		Elective (CS/Free)	3-1-0-4
Total 15-5-0-20						
Total In-Class Hours per week - 15 to 20						
III	II	Pr	CS		Bouquet Core	3-1-0-4
II	II	Pr	CS		Bouquet Core (*)	3-1-0-4
III	II	In	CS	CSE496	BTP I	3-0-0-4
III	II	In	SC	ISC202	Science II	3-1-0-4
III	II	OT	[+]		Science/Maths/Humanities/Engg	3-1-0-4
Total 18-5-0-20						
Total In-Class Hours per week - 18 to 23						
IV	I	Pr	CS		Bouquet Core	3-1-0-4
IV	I	In	CS	CSE497	BTP II	5-0-0-4
IV	I	OT	[+]		Science/Maths/Humanities/Engg	3-1-0-4
IV	I	OT	[+]		Science/Maths/Humanities/Engg	3-1-0-4
IV	I	Pr	CS		Elective (CS/Free)	3-1-0-4
Total 17-4-0-20						
Total In-Class Hours per week - 17 to 21						
IV	II	Pr	CS		Bouquet Core	3-1-0-4
IV	II	OT	[+]		Science/Maths/Humanities/Engg	3-1-0-4

IV	II	OT	[+]		Science/Maths/Humanities/Engg	3-1-0-4
IV	II	Pr	CS		Elective (CS/Free)	3-1-0-4
IV	II	Pr	CS		Elective (CS/Free)	3-1-0-4
Total 15-5-0-20						
Total In-Class Hours per week - 15 to 20						

(*) Flexi-core course

(^) Preferred semester - can be taken in III year in Elective Slot

[+] Takes SC/MA/HS depending on the area of course taken

Note: 4 year B.Tech Students who are interested for B.Tech Honours programme have to take the following EXTRA 2 projects in III(I) and IV(II).

III	I	Pr	CS		Honours Project I	0-0-8-4
IV	II	Pr	CS		Honours Project II	0-0-8-4

Note: Dual Degree Students have to take the following EXTRA projects / courses during their III and IV years. BTP is not required.

III	I	Pr	CS		Honours Project I	0-0-8-4
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III	II	Pr	CS		Honours Project I	0-0-8-4
III	II	Pr	CS		Research Stream Course	3-1-0-4

IV	I	Pr	CS		Honours Project III	0-0-8-4
IV	I	Pr	CS		Research Stream Course	3-1-0-4

IV	II	Pr	CS		Honours Project IV	0-0-8-4
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1.1 Bouquet Courses

Bouquet courses for Computer Science cater to developing breadth in computer science in Foundations and Systems Area. Some of these courses are also Research Stream Courses. A student must take at least three courses from Foundations and Systems Bouquet Courses.

Foundation Courses

CSE411 Complexity and Advanced Algorithms
CSE471 Statistical Methods in AI
CSE415 Principles of Programming Languages
CSE481 Optimization Methods
CSE418 Principles of Information Security

Semester Offered

Spring
Monsoon
Monsoon
Spring
Spring

Systems Courses

CSE431 Distributed Systems
CSE441 Database Systems
CSE435 Advanced Computer Networks
CSE419 Compilers
CSE461 Software Engineering

Monsoon
Spring
Spring
Monsoon
Spring

1.2 Stream Courses

Data Engineering

CSE441 Database Systems
CSE445 Data Warehousing and Data Mining
CSE541 Advances in Database Systems
CSE545 Advances in Data Mining

Language Technologies

CSE472 Natural Language Processing
CSE572 Natural Language Processing II
CSE573 Natural Language Applications
CLG431 Natural Language Dialog Systems
CSE474 Information Retrieval and Extraction

Robotics

ECE452 Intro to Robotics: Machines & Control
ECE485 Embedded Robotics
CSE481 Mobile Robotics
CSE482 Multi Agent Systems
CSE485 Introduction to Cognitive Science

Security, Theory and Algorithms

CSE418 Computational Geometry
CSE415 Cryptography and Network Security
CSE811 Topics in Information Security
CSE538 Systems and Network Security

Visual Information Technology

CSE251 Graphics
CSE471 Statistical Methods in AI
CSE478 Image Processing
CSE577 Machine Learning
CSE578 Computer Vision

VLSI & Embedded Systems

ECE481 Analog & Mixed Signal Design
ECE468 Modeling and Simulation of High-Speed VLSI Systems
ECE485 Embedded Robotics

... other streams can be added.

1.3 CSE Program Notes

(i) The Data Structures, Algorithms and Formal Methods courses will form the basic core for students to take Bouquet courses.

(ii) The Digital Logic and Processors, Computer System Organization and Operating Systems will form the systems core. Data Management and Applications is a two credit course covering designing databases for applications. Network programming and use is covered in the IT workshop course. Networking a two credit course covering basic concepts of Computer Networks.

(iii) All Bouquet courses are 400 level courses.

2 Graduation Requirements for B.Tech in CSE

In order to graduate with B.Tech in Computer Science and Engineering, a student must successfully complete 171 credits with minimum CGPA of 5.5 and meet the following requirements.

- (i) Must successfully complete the Institute Core.
- (ii) Must successfully complete at least three Foundation Bouquet Courses
- (iii) Must successfully complete at least three Systems Bouquet Courses
- (iv) Must successfully complete at least one Maths Elective course in years III & IV
- (v) Must successfully complete at least one Engineering Elective course in years III & IV
- (vi) Must successfully complete at least two Science Elective courses in years III & IV
- (vii) Must successfully complete at least three Humanities Elective courses in years III&IV
- (viii) Must successfully complete at least two CS elective courses in years III & IV
- (ix) Must successfully complete at least 8 credits of Free/CS elective courses in years III & IV
(these can be used to do courses of level 3xx or above in any area: CS/ECE/Science/ Maths/ Humanities/Engg).
- (x) Must successfully complete 4 credits from Physical Activity (Non academic credit – Excluding 171 – to be completed in first 2 years)

Name of Course	Credits	Cumulative Credits
Institutional Core*	95	95
Bouquet Core (6)**	6*4 = 24	119
Science Elective (2)	2*4 = 08	127
Humanities Elective (3)	3*4 = 12	139
Engineering Elective (1)	1*4 = 04	143
Maths Elective (1)	1*4 = 04	147
BTP 1 & 2	2*4 = 08	155
CS / Stream Electives (2)	2*4 = 08	163
Free Electives (2)	2*4 = 08	171
TOTAL		171 Credits

3 Graduation Requirements for B.Tech (Honours) in CSE

In order to graduate with B.Tech Honours in Computer Science and Engineering, a student must successfully complete 179 credits, meet requirements of above mentioned in point 2; and

- (i) Must successfully complete the FOUR 4 credit projects (Honours and BTP) in semesters V to VIII and obtain a GPA greater than 8 in these 4 projects.
- (ii) Must successfully complete at least three electives in the chosen honours stream (These courses will count towards Bouquet courses and CS/Free Electives also).

In order to graduate with B.Tech Honours and MS by Research in Computer Science and Engineering, a student must successfully complete 187 course credits and 24 Thesis credits, meet requirements of above mentioned in point **2** with CGPA of 7.00; and

- B.Tech in Electronics and Communication Engineering (4 years)**
UG ECE Curriculum and Graduation Requirements [Subject to Changes]

1 - Semester-Wise Curriculum						
Year	Semester	CD	AD	CNO	CName	Credits
I	I	In	MA	IMA101	Mathematics I	3-1-0-4
I	I	In	CS	ICS101	Computer Programming	3-1-3-5
I	I	In	EC	IEC101	Digital Logic and Processors	3-1-3-5
I	I	In	EC	IEC102	Electrical Science I (H2)	3-1-0-2
I	I	In	CS	ICS102	IT Workshop I	2-0-3-3
I	I	In	HS	IHS141/131	English 1/HSS Skills 1	2-0-0-2
I	I	In	HS	IHS151	Human Values I	0-2-0-2
Total 16-6-9-23						
Total In-class hours: 22						
I	II	In	MA	IMA102	Mathematics II	3-1-0-4
I	II	In	CS	ICS103	Data Structures	3-1-3-5
I	II	In	CS	ICS104	Computer System Organization	3-1-0-4
I	II	In	EC	IEC103	Basic Electronic Circuits	3-1-3-5
I	II	In	EC	IEC104	Electronics Workshop I (H2)	1-0-4-2
I	II	In	HS	IHS142/132	English 2/HSS Skills 2	2-0-0-2
Total 15-4-10-22						
Total In-class hours: 19						
II	I	Pr	MA	ECE230	Probability & Random Processes	3-1-0-4
II	I	Pr	EC	ECE205	Linear Electronic Circuits	3-1-3-5
II	I	Pr	EC	ECE241	Signals & Systems	3-1-0-4
II	I	Pr	EC	ECE260	Electrical Science II (H1)	3-1-0-2
II	I	Pr	EC	ECE225	Embedded Hardware Design	3-0-3-4
II	I	Pr	SC	ISC201	Science I	3-1-0-4
Total 18-5-6-23						

Total In-class hours: 23						
II	II	In	EG	IEG201	Engineering Systems	3-1-0-4
II	II	Pr	EC	ECE335	Communication Theory I	3-1-0-4
II	II	Pr	EC	ECE341	Digital Signal Processing	3-1-0-4
II	II	Pr	EC	ECE339	ECE Lab	0-0-3-1
II	II	Pr	EC	ECE361	Intro to VLSI *	3-1-0-4
II	II	Pr	EC	ECE291	Electronics Workshop II	1-0-4-4
II	II	In	HS	IHS201	Introduction to Humanities	3-0-3-4
II	II	In	HS	IHS152	Human Values II	0-2-0-2

Total 16-6-10-27

Total In-class hours: 22						
III	I	Pr	EC	ECE381	Electromagnetic Theory & Appli. *	3-1-0-4
III	I	OT	[+]		Science/Maths/Humanities/Engg	3-1-0-4
III	I	OT	[+]		Science/Maths/Humanities/Engg	3-1-0-4
III	I	Pr	EC		EC Elective	3-1-0-4
III	I	Pr	EC		EC Elective	3-1-0-4

Total 15-5-0-20

Total In-class hours: 20						
III	II	Pr	EC	ECE337	Communication Networks *	3-1-0-4
III	II	In	SC	ISC202	Science II	3-1-0-4
III	II	In	EC	ECE496	BTP I	3-0-0-4
III	II	Pr	EC		EC elective	3-1-0-4
III	II	OT	[+]		Science/Maths/Humanities/Engg	3-1-0-4

Total 15-4-0-20

Total In-class hours: 19						
IV	I	In	CS	ICS331	OS and Algorithms *	3-1-0-4
IV	I	In	EC	ECE497	BTP II	5-0-0-4
IV	I	Pr	EC		EC elective	3-1-0-4
IV	I	Pr	EC		EC elective	3-1-0-4
IV	I	OT	[+]		Science/Maths/Humanities/Engg	3-1-0-4

Total 17-4-0-20

Total In-class hours: 21						
IV	II	Pr	EC		EC Elective	3-1-0-4
IV	II	Pr	EC		EC elective	3-1-0-4
IV	II	OT	[+]		Science/Maths/Humanities/Engg	3-1-0-4
IV	II	OT	[+]		Science/Maths/Humanities/Engg	3-1-0-4
IV	II	OT	[+]		Free Elective	3-1-0-4

Total 15-5-0-20

Total In-class hours: 20						
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(*) Flexi-core course

(^) Preferred semester - can be taken in III year in Elective Slot

[+] Takes SC/MA/HS depending on the area of course taken

Note: 4 year B.Tech Students who are interested for B.Tech Honours programme have to take the following EXTRA 2 projects in III(I) and IV(II).

III	I	Pr	EC		Honours Project I	0-0-8-4
IV	II	Pr	EC		Honours Project II	0-0-8-4

Note: Dual Degree Students have to take the following EXTRA projects / courses during their III and IV years. BTP is not required.

III	I	Pr	EC		Honours Project I	0-0-8-4
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III	II	Pr	EC		Honours Project II	0-0-8-4
III	II	Pr	EC		Research Stream Course	3-1-0-4

IV	I	Pr	EC		Honours Project III	0-0-8-4
IV	I	Pr	EC		Research Stream Course	3-1-0-4

IV	II	Pr	EC		Honours Project IV	0-0-8-4
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1.1 Stream Areas and courses

Signal Processing Stream		
Level 1	Time Frequency Analysis / Network Theory + Digital Image Processing (DIP) / Speech Signal Processing (SSP)	Time Frequency Analysis/ Network theory + Adaptive Signal Processing / Multirate Signal Processing.
Level 2	Pattern Recognition(PR), Computer Vision, Medical Image Processing, Advanced Signal and Image Processing, Artificial Neural Networks (ANN), Speech Technology, Speech systems, etc	
Communication Stream		
Level 1	Error Correcting Codes / Information Theory and Coding + Communication Theory 2 / Wireless Communication	Wireless communication + Communication theory 2 / Information Theory and Coding / Network Theory
Level 2	Space Time Coding, Topics in Wireless Communication, Radar Systems, Antennas and Propagation, Signal Detection and Estimation Theory, Computational Electromagnetics, etc	
VLSI & Embedded System Stream		
Level 1	Analog & mixed signal design + VLSI Architectures /Device Physics//Network Theory / Digital Design with HDL	

Level 2	CMOS RF IC Design, Advanced VLSI Circuits and Systems, Topics in Embedded Systems, Design for Testability, Modern Computer Architecture, ANN, Photonics, Fiber Optics, etc	
Robotics Stream		
Level 1	Linear Control Systems / Introduction to Robotics/ Mobile Robotics + DIP	Linear Control Systems /Introduction to Robotics + Mobile Robotics
Level 2	Advances in Embedded Systems, ANN, PR, Machine Learning, Computer Vision, etc	

Note:

In BTech (ECE) programme, 7 ECE electives are to be chosen from 4 streams listed above subject to the following conditions:

1. A minimum of 1 elective, at level 1, has to be taken from every stream. (4 electives)
2. An additional elective has to be chosen from any one stream at level 1. Recommended combinations are given.
3. Remaining 2 electives can be chosen from any stream from level 2, provided the pre-requisites have been satisfied.
4. Up to 4 credits can be earned via Independent study or Projects. These can be counted only for Free or Level 2 ECE electives with the approval of Programme Coordinator

For dual degree students, all the electives may be recommended to be from a single stream to satisfy conditions 2 and 3. Consult your supervisor.

2. Graduate Requirements for 4-year BTech in ECE degree are:

In order to graduate with 4-year B.Tech in Electronics and Communication Engineering, a student must successfully complete 175 credits with minimum CGPA of 5.5 and meet the following requirements.

- (i) Must successfully complete the Institute Core.
- (ii) Must successfully complete ECE core course requirements.
- (iii) Must successfully complete 7 ECE electives as per given prescriptions in 1.1 above.
- (iv) Must successfully complete two electives from Maths or Science courses in years III & IV
- (v) Must successfully complete at least one Engineering Elective course in years III & IV
- (vi) Must successfully complete at least three Humanities Elective courses in year IV
- (vii) Must successfully complete at least two (of the 7) ECE elective courses in year IV
- (viii) Must successfully complete 4 credits in any of the streams (HSS, Maths, Engineering, CSE/ECE)
- (ix) Must successfully complete 4 credits from Physical Activity (Non academic credit – Excluding 175 – to be completed in first 2 years)

Institute Core + Programme Core	61+50	111
ECE Electives (7) (5 L1+ 2 L2)	7*4 = 28	139
Science / Maths Electives (2)	2*4 = 08	147
Humanities Elective (3)	3*4 = 12	159
Engineering Elective (1)	1*4 = 04	163

BTP 1 & 2	$2 \times 4 = 08$	171
Free Elective (1)	$1 \times 4 = 04$	175
TOTAL		175 Credits

3. Graduation Requirements for 4-year B.Tech (Honours) in ECE are:

In order to graduate with B.Tech Honours in Electronics and Communication Engineering, a student must successfully complete 183 credits, meet requirements of above mentioned in point 2; and

(i) Must successfully complete the FOUR 4 credit projects (Honours and BTP) in semesters V to VIII and obtain a GPA greater than 8 in these 4 projects.

(ii) Must successfully complete the level 2 courses from one stream.

4. Graduation Requirements for Dual Degree (B.Tech (Honours) + MS by Research) in ECE are:

In order to graduate with B.Tech Honours in Electronics and Communication Engineering, a student must successfully complete 191 course credits and 24 Thesis credits, meet requirements of above mentioned in point 2 with CGPA of 7.00; and

i) Must successfully complete the FOUR 4 credit projects (Honours) in semesters V to VIII and obtain a GPA greater than 8 in these 4 projects.

ii) Must successfully complete the level 2 courses from one stream and successfully complete two 4 credit research stream courses in semesters VI and VII.

Master of Science by Research as a Dual-Degree Programme in CSE / ECE

The students of the dual-degree programme receive an MS by Research degree in the respective discipline along with a B.Tech degree. These students follow the respective B.Tech programme for the first four years with the following modifications:

Breadth/Depth Requirements:

1. They join an honours stream of their choice at the end of 4 semesters and follow all requirements of the honours programme.
2. They must complete 16 credits over the total minimum credit requirements for B.Tech (typically during the first four years). The distribution of this could be:

For CSE

- a) Must successfully complete the FOUR 4 credit projects (Honours) in semesters V to VIII and obtain a GPA greater than 8 in these 4 projects.
- b) Must successfully complete two 4 credit research stream courses in semesters VI and VII.
- c) Must successfully complete at least three electives in the chosen honours stream (These courses will count towards Bouquet courses and CS/Free Electives also).

For ECE

- a. Must successfully complete the FOUR 4 credit projects (Honours) in semesters V to VIII and obtain a GPA greater than 8 in these 4 projects.
 - b. Must successfully complete the level 2 courses from one stream and successfully complete two 4 credit research stream courses in semesters VI and VII.
3. 24 credits worth of MS thesis work with the same guidelines as the MS by Research given above.

Credit Requirements:

16 credits over the total minimum credit requirements for B.Tech (typically in the first 4 years). 24 credits of M.S. thesis (typically in the fifth year).

MS Thesis:

Once the student completes his/her Thesis work, he/she has to submit the Graduation Request Form (GRF) in the academic office as per the guidelines given on intranet <http://intranet.iiit.ac.in/Information/academic/thesisEvaluation.html>.

The MS thesis has to be defended to a committee of typically consists of 3 faculty members including the advisor, a faculty member nominated by PG Chair and a nominee of the Dean (R&D).

Academic Performance:

The student should complete the requirements with a minimum CGPA of 7.0 for the 5 years to receive the MS degree.

Residency Requirements:

Minimum of 10 semesters, maximum of 12 semesters. The BTech degree has the date when s/he completes 8 semesters of study and fulfils all the requirements of B.Tech (except for honours projects credits in lieu of B.Tech project credits) at the institute. The B.Tech degree is given together with the MS degree after completing all requirements for the MS programme.

Converting to the single-degree programme:

Students admitted to the dual-degree programme from the start cannot convert to a B.Tech only programme.

Student status:

The student of this programme is considered to be an undergraduate student for the first 4 years and a post-graduate student subsequently ordinarily. A student with more than 8 credits of backlog after the end of 4 years will be considered an undergraduate student.

Fees:

Undergraduate fees apply when the student has a UG student status and thesis student's fees will apply thereafter.

B.Tech in CS and MS by Research in CNS - Dual Degree Programme
Curriculum and Graduation Requirements [Subject to Changes]

September 2012

Year	Semester	CD	AD	CNO	CName	L-T-P-Credits
I	I	In	MA	IMA 101	Mathematics I	3-1-0-4
I	I	In	CS	ICS 101	Computer Programming	3-1-3-5
I	I	In	EC	IEC101	Digital Logic Processors	3-1-3-5
I	I	In	CS	ICS102	IT Workshop I	2-0-3-3
I	I	In	HS	IHS141/131	English/HSS Group A	2-0-0-2
I	I	In	HS	IHS151	Human Values I	0-2-0-2
I	I	PR	CNS	SCI101	General Physics (CM+QM)	3-1-0-4
Total 16-6-9-25						
Total In-class hours: 22						
I	II	In	MA	IMA102	Mathematics II	3-1-0-4
I	II	In	CS	ICS103	Data Structures	3-1-3-5
I	II	In	CS	ICS104	Computer System Organisation	3-1-0-4
I	II	In	CS	ICS105	IT Workshop II	2-0-3-3
I	II	In	HS	IHS142/132	English/HSS Group A	2-0-0-2
I	II	PR	CNS	SCI341	General & Structural Chemistry (Including Symmetry)	3-1-0-4
I	II	PR	CNS	SCI101	Introduction to Biology	3-1-0-4
Total 19-4-6-26						
Total In-class hours: 23						
II	I	In	MA	IMA201	Mathematics III	3-1-0-4
II	I	In	CS	ICS211	Algorithms	3-1-0-4
II	I	In	CS	ICS241	Introduction to Databases	2-1-0-2
II	I	In	CS	ICS261	SSAD & Project	3-0-3-3
II	I	PR	CNS	SCI331	Thermodynamics & Statistical Mechanics	3-1-0-4
II	I	PR	CNS	SCI345	Biomolecular Structure & Supramolecular Chemistry	3-1-0-4
II	I	PR	CNS	SCI371	Science Lab I	0-1-4-4
Total 17-6-7-25						
Total In-class hours: 23						
II	II	In	HS	IHS201	Introduction to Humanities	3-1-0-4
II	II	Pr	CS	CSE311	Formal Methods	2-1-0-2
II	II	In	HS	IHS152	Human Values II	0-2-0-2
II	II	Pr	CS	CSE251	Graphics	2-1-0-3
II	II	PR		SCI346	Organic Chemistry	3-1-0-4
II	II	PR	CNS	SCI372	Science Lab II	0-1-4-4

II	II	PR	CNS	SCI347	Select topics in Phys Chemistry: (Kinetics, Rxn. Dynamics, solid state, electrochemistry)	3-1-0-4
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Total 13-8-4-23

Total In-class hours: 21

III	I	In	CS	ICS231	Operating Systems	2-1-1-3
III	I	Pr	CS		Bouquet Core	3-1-0-4
III	I	Pr	CNS	SCI471	Honours project I (CNS)	0-0-8-4
III	I	Pr	CNS	SCI437	QM-II & spectroscopy	3-1-0-4
III	I	Pr	CNS	SCI421	Advanced Biology (cellular/molecular/genetic)	3-1-0-4
III	I	Pr	CNS	SCI373	CNS Lab	0-1-4-4

Total 11-5-12-23

Total In-class hours: 16

III	II	Pr	CNS	SCI438	Electromagnetism and Optics	3-1-0-4
III	II	Pr	CS	CSE481	Optimization Methods	3-1-0-4
III	II	Pr	CS		Bouquet Core	3-1-0-4
III	II	Pr	CNS		CNS Elective	3-1-0-4
III	II	Pr	CS	CSE492	Honours Project II (CS)	0-0-8-4
III	II	In	CS		CS Elective	3-1-0-4

Total 15-5-8-24

Total In-class hours: 20

IV	I	Pr	CS		Bouquet Core	3-1-0-4
IV	I	OT	[+]		Free Elective	3-1-0-4
IV	I	Pr	CNS		CNS Elective	3-1-0-4
IV	I	Pr	CNS		CNS Elective	3-1-0-4
IV	I	Pr	CNS	SCI472	Honours Project III (CNS)	0-0-8-4
IV	I	Pr	CS		CS Elective	3-1-0-4

Total 15-5-8-24

Total In-class hours: 20

IV	II	Pr	CS		Bouquet Core	3-1-0-4
IV	II	Pr	CNS		CNS Elective	3-1-0-4
IV	II	Pr	CNS	SCI473	Honours Project IV (CNS)	0-0-8-4
IV	II	OT	[+]		Free Elective	3-1-0-4
IV	II	EG			Engineering Elective	3-1-0-4

Total 12-4-8-20

Total In-class hours: 16

V		I+II		SCI 800	Thesis work	12 +12 Credits
Total 24 credits						

CNS Electives:

Introduction to Bioinformatics
 Advanced Bioinformatics
 Quantum Mechanics III
 Advanced Biology
 Science of Quantum Computing
 Complex Systems: Dynamics
 Research Proj. In Compu. Biology
 Physics of Advanced Materials
 Nanotech. & sci of nanobio systems
 Systems Biology

Graduate Requirements

Institutional Core	66	66
Programme Core	52	118
Bouquet Core (5)	$5*4 = 20$	138
Engineering Elective (1)	$1*4 = 04$	142
CNS Electives (4)	$4*4 = 16$	158
CS Electives (2)	$2*4 = 08$	166
CS Project (1) (Honors project II)	$1*4 = 04$	170
Honours Project I, III, IV	$3*4 = 12$	182
Free Electives (2)	$2*4 = 08$	190
Thesis Credits – Typically in 5th year	$12*2=24$	214
TOTAL		214 Credits

	1	2	3	4	5	6	7	8	Total
Maths	4	4	4	-	-	-	-	-	12
CS	8	8	9	9	7	16	8	4	69
CNS	4	8	12	12	16	8	12	8	80
Humanities	4	2	-	6	-	-	-	-	12
EC	5	-	-	-	-	-	-	4	9
Free	-	-	-	-	-	-	4	4	8

In order to graduate with B.Tech (Honours) in Computer Science and MS by Research in Computational Natural Science, a student must successfully complete 190 course credits and 24 Thesis credits, with minimum CGPA of 7.00 and meet the following requirements.

1) Meet the requirements as given in the above table and

2) Students are required to complete 4 PT Credits which will be counted towards extra-curricular credits (not part of credit requirements mentioned above).

3) Must successfully complete the four 4 credit Honours Projects in semesters V, VI, VII & VIII and obtain a GPA greater than 8 in these projects.

Five-year Dual Degree in Computational Linguistics (Leading to B.Tech in Computer Science and MS by Research in Computational Linguistics) [Subject to Changes]

June 2012

I. The Trans Disciplinary Programme in Computational Linguistics prepares experts who will lead research in the area of computational linguistics. They will be the professionals who will work towards developing man-man and man-machine communication systems which includes natural language processing and natural language understanding. The applications of this would be in the area of machine translation, dialog systems, intelligent search engines, information extraction, etc.

Since the area is inter-disciplinary, it would be better to start young so that the knowledge synthesis from the two disciplines – Computer Science and Linguistics - happens earlier and thus deeper.

II. Semester-wise curriculum [Subject to Changes]

Year	Semester	CD	AD	CNO	CName	Credits
I	I	In	MA	IMA101	Mathematics I	3-1-0-4
I	I	In	CS	ICS101	Computer Programming	3-1-3-5
I	I	Pr	CL	CLG211	Introduction to Linguistics	3-1-0-4
I	I	In	EC	IEC101	Digital Logic and Processors	3-1-3-5
I	I	In	CS	ICS102	IT Workshop I	2-0-3-3
I	I	In	HS	IHS141/131	English 1/HSS Skills 1	2-0-0-2
I	I	In	HS	IHS151	Human Values I	0-2-0-2
Total 16-6-6- 25						
Total In-Class Hours per week - 28						
I	II	In	MA	IMA102	Mathematics II	3-1-0-4
I	II	In	CS	ICS103	Data Structures	3-1-3-5
I	II	Pr	HS	CLG412	Linguistics-2: Language & Society	3-1-0-4
I	II	In	CS	ICS105	IT Workshop II	2-0-3-3
I	II	In	CS	ICS104	Computer System Organization	3-1-0-4
I	II	In	HS	IHS142/132	English 2/HSS Skills 2	2-0-0-2
Total 16-4-6-22						
Total In-Class Hours per week - 26						
II	I	In	MA	IMA201	Mathematics III	3-1-0-4
II	I	In	CS	ICS211	Algorithms	3-1-0-4
II	I	In	EC	IEC102	Electrical Science I (H2)	3-1-0-2

II	I	In	CS	ICS231	Operating Systems	2-1-1-3
II	I	In	CS	ICS241	Introduction to Databases (H1)	2-1-0-2
II	I	In	CS	ICS261	SSAD & Project	3-0-3-3
II	I	Pr	HS	CLG421	Computational Linguistics I	3-1-0-4

Total 19-6-4-22

Total In-Class Hours per week - 29

II	II	In	EG	IEG201	Engineering Systems	3-1-0-4
II	II	Pr	CS	CSC371	Artificial Intelligence	3-1-0-4
II	II	Pr	CS	CSC251	Graphics (*)	2-1-0-3
II	II	Pr	CS	CSC311	Formal Methods	2-1-0-2
II	II	OT	[+]	IHS201	Introduction to Humanities	3-1-0-4
II	II	Pr	HS	CLG422	Computational Linguistics 2	3-1-0-4
II	II	In	HS	IHS152	Human Values II	0-2-0-2
II	II	In	CS	ICS251	Computer Networks	2-1-0-2

Total 18-9-0-25

Total In-Class Hours per week - 27

III	I	In	SC	ISC201	Science I	3-1-0-4
III	I	Pr	CS	CSE472	Natural Language Processing	3-1-0-4
III	I	Pr	HS	CLG411	Linguistics 1: Language Typology	3-0-0-4
III	I	Pr	CS	CSE471	Statistical Methods in AI	3-1-0-4
III	I	In	CS		Project	3-0-0-4
III	I				Elective	3-1-0-4
III	I				Humanities Elective	3-1-0-4

Total 21-5-0-28

Total In-Class Hours per week - 26

III	II	OT	[+]		Humanities Elective	3-1-0-4
III	II	Pr	CS		Bouquet Core	3-1-0-4
III	II	Pr	??		CL-Elective	3-1-0-4
III	II	Pr	CS	CSE573	Natural Language Applications	3-1-0-4
III	II	Pr	CS		CS Elective	3-1-0-4
III	II	In	CS		Hons Project I	3-0-0-4

Total 18-5-0-24

Total In-Class Hours per week - 23

IV	I	OT	[+]		Humanities Elective	3-1-0-4
IV	I	Pr	??		CL-Elective	3-1-0-4
IV	I	Pr	CS		Bouquet Core	3-1-0-4
IV	I				Elective	3-1-0-4
IV	I	Pr	CS		CS-Elective	3-1-0-4
IV	I	In	CS		Hons Project II	3-0-0-4

Total 18-5-0-24

Total In-Class Hours per week - 23

IV	II	OT	[+]		Humanities Elective	3-1-0-4
IV	II	Pr	CS		Bouquet Core	3-1-0-4
IV	II	Pr	??		CL-Elective	3-1-0-4
IV	II	Pr	CS		CS Elective	3-1-0-4
IV	II	In	CS		Project	3-0-0-4
Total 15-4-0-20						
Total In-Class Hours per week - 19						
Total Credit requirements in eight semesters						
V	I				Thesis	12
V	II				Thesis	12

(*) Flexi-core course

(^) Preferred semester - can be taken in III year in Elective Slot

[+] Takes SC/MA/HS depending on the area of course taken

III. Electives

III.1 CL-Electives (for Streams):

(Although some courses together may provide an in-depth knowledge for a chosen stream, however, the students will be free to choose any of the courses from the list provided below).

Advanced Syntax

Grammar Formalisms (LTAG, LFG, HPSG etc)

Indian Grammatical Tradition/Information Dynamics in Language

Natural Language Semantics

Cognitive Science

Ontology

Natural Language Dialog Systems

Phonetics and Phonology

Linguistics Data 1

Linguistics Data 2

Information Retrieval and Extraction

Web Mining

III.2 CS Electives

Any CS elective

CS Core courses which can be taken as CS elective

Digital Signal Analysis and Applications

IV. CL-Related CS Courses

Artificial Intelligence

Statistical Methods in AI

V. Recommended Bouquet Courses for CL

V.1 Foundation Courses

CSE411 - Complexity and Advanced Algorithms

CSE415 - Principles of Programming Languages

V.2 Systems Courses

CSE431 Distributed Systems

CSE441 Database Systems

CSE419 Compilers (More Advanced than current)

CSE461 Software Engineering

VI. Total Credit requirements

Name of Course	Credits	Cumulative Credits
Institutional Core	86	86
Programme Core	28	114
Bouquet Core (3)	3*4 = 12	126
Humanities Elective (4)	4*4 = 16	142
CS Electives (3)	3*4 = 12	154
CL Electives (3)	3*4 = 12	166
Honours Projects (2)	2*4 = 08	174
Projects (2)	2*4 = 08	182
Free Electives (2)	2*4 = 08	190
<i>TOTAL</i>		<i>190 Credits</i>

In order to graduate with B.Tech Honours in Computer Science and MS by Research in Computational Linguistics, a student must successfully complete 190 course credits and 24 Thesis credits, with minimum CGPA of 7.00 and meet the following requirements.

- 1) Meet the requirements as given in the above table VI and
 - 2) Students are required to complete 4 PT Credits which will be counted towards extra-curricular credits (not part of credit requirements mentioned above).
 - 3) Must successfully complete the TWO 4 credit Honours Projects in semesters VII & VIII and obtain a GPA greater than 8 in these 2 projects.
-

Five-Year Dual Degree in Exact Humanities (Leading to B.Tech in Computer Science and MS by Research in Exact Humanities)

July 2012

Semester-wise Curriculum [Subject to Changes]

Year	Semester	CD	AD	CNO	CName	Credits
I	I	In	MA	IMA101	Mathematics I	3-1-0-4
I	I	In	CS	ICS101	Computer Programming	3-1-3-5
I	I	In	CS	ICS102	IT Workshop I	2-0-3-3
I	I	In	HS	IHS103	Human Values I	0-2-0-2
I	I	Pr		HSS290	Confluence of Humanities & CS	3-0-0-4
I	I	Pr		HSS240	Sense of Past	3-0-0-4
I	I	In		IHS141/131	English/HSS Skills I	2-0-0-2
Total 16-4-6-24						
Total In-Class Hours per Week – 26						
I	II	In	MA	IMA102	Mathematics II	3-1-0-4
I	II	In		ICS103	Data Structures	3-1-3-5
I	II	In	CS	ICS105	IT Workshop II	2-0-3-3
I	II	In	HS	IHS107	Human Values II	0-2-0-2
I	II	Pr		HSS200	Theoretical Humanities, Formalisms, Digital Humanities	3-0-0-4
I	II	Pr		HSS260	Society & Development	3-0-0-4
I	II	In		IHS132	HSS Skills II	2-0-0-2
Total 16-4-6-24						
Total In-Class Hours per Week – 26						
II	I	In	MA	IMA201	Mathematics III	3-1-0-4
II	I	In	EC	IEC101	Digital Logic and Processors	3-1-3-5
II	I	In		ICS211	Algorithms	3-1-0-4
II	I	In	CS	ICS241	Intro to Databases	2-1-0-2
II	I	In	CS	ICS261	SSAD & Project	3-0-3-3
II	I	Pr			Humanities Foundations	3-0-0-4
II	I	Pr		HSS320	Ontology	3-0-0-4
Total 20-4-6-26						
Total In-Class Hours per Week – 23						
II	II	In	CS	ICS104	Computer System Organization	3-1-0-4
II	II	Pr	CS	CSE311	Formal Methods	2-1-0-2
II	II	Pr	CS	CSE251	Graphics	2-1-0-3
II	II	Pr	CS	CSE371	Artificial Intelligence	3-1-0-4
II	II	In	CS	ICS251	Computer Networks	2-1-0-2
II	II	Pr		HSS330	Aesthetics, Narrative & Design	3-0-0-4
II	II	Pr		HSS300	History of Ideas	3-0-0-4
II	II	Pr		HSS341	Classical Language: Sanskrit I	3-0-0-2

Total 21-5-0-25						
Total In-Class Hours per Week – 24						
III	I	In	CS	ICS231	Operating Systems	2-1-1-3
III	I				CS Bouquet Core	3-1-0-4
III	I				Elective from CS	3-1-0-4
III	I				Elective from Science	3-1-0-4
III	I	Pr			Elective from Humanities	3-0-0-4
III	I	Pr			Humanities Sub-Stream Course I	3-0-0-4
III	I	Pr		HSS342	Classical Language: Sanskrit II	0-3-0-2
Total 15-7-1-25						
Total In-Class Hours per Week – 23						
III	II				CS Bouquet Core	3-1-0-4
III	II				Elective from CS	3-1-0-4
III	II	Pr			Elective from Humanities	3-0-0-4
III	II	Pr			Humanities Sub-Stream Course II	3-0-0-4
III	II	Pr			Independent Study-1	3-0-0-4
III	II	Pr			Confluence Projects-Honours-1	4-0-0-4
Total 19-2-0-24						
Total In-Class Hours per Week – 21						
IV	I				CS Bouquet Core	3-1-0-4
IV	I				Elective from CS	3-1-0-4
IV	I	Pr			Elective from Humanities	3-0-0-4
IV	I	Pr			Humanities Sub-Stream Course III	3-0-0-4
IV	I	Pr			Independent Study-2	3-0-0-4
IV	I	Pr			Confluence Projects-Honours-2	4-0-0-4
Total 19-2-0-24						
Total In-Class Hours per Week – 21						
IV	II				CS Bouquet Core	3-1-0-4
IV	II				Elective from CS	3-0-0-4
IV	II	Pr			Elective from Humanities	3-0-0-4
IV	II	Pr			Humanities Sub-Stream Course IV	3-0-0-4
IV	II	Pr			Confluence Projects-Honours-3	4-0-0-4
Total 16-1-0-20						
Total In-Class Hours per Week – 17						
V	I				Thesis I	12
Total 0-0-0-12						
Total In-Class Hours per Week – 0						

V	II				Thesis II	12
Total 0-0-0-12						
Total In-Class Hours per Week – 0						

Exact Humanities Sub-Streams: Choice of 4 Electives from Following

Cultural Informatics Stream:

1. Content Engineering*
2. Indian Aesthetics*
3. Theory of Cinema, Sports and Arts;
4. Narrative: Ramayana; Mahabharata and Stories

Ontology Stream:

1. Computational Appraisal of Indic Traditions
2. Generative Ontology and Applications
3. Indic Philosophical Systems
4. Phenomenology

Development Stream:

1. Search for a Human Society
2. Indian Constitution, Polity and Governance*
3. Decentralized Development and Social Wellbeing*
4. Social Choice Theory: Law and Environment

CS Bouquet Core Courses: Choice of Four from Foundation and System Courses

CS Elective Courses: Choice of Four Electives from Following:

Data Engineering

CSE441 Database Systems
CSE445 Data Warehousing and Data Mining

Language Technologies

CSE472 Natural Language Processing
CSE572 Natural Language Processing II
CLG431 Natural Language Dialog Systems
CSE474 Information Retrieval and Extraction

Robotics

CSE482 Multi Agent Systems
CSE485 Introduction to Cognitive Science

Security, Theory and Algorithms

CSE811 Topics in Information Security
CSE538 Systems and Network Security

Visual Information Technology

CSE251 Graphics

CSE478 Digital Image Processing

Science Elective Courses: Choice of One Elective from Science Courses

Summary

Area	Core	Elective	Total	Percentage
Computer Science	48	32	80	41.67%
Exact Humanities	44	32	76	39.58%
Mathematics	12	0	12	6.25%
Science	0	4	4	2.08%
Confluence project	12	0	12	6.25%
Independent Study	8	0	8	4.17%
Total	124	68	192	100.00%

Type of the Courses	Credits	Cumulative Credits
Institute Core	68	68
Programme Core	36	104
Bouquet Core (4)	4*4 = 16	120
Science Elective (1)	1*4 = 4	124
Humanities Elective (4)	4*4 = 16	140
CS Electives (4)	4*4 = 16	156
CEH Electives (4)	4*4 = 16	172
Confluence Projects (3)	3*4 = 12	184
Independent Study (2)	2*4 = 8	192
Thesis Credits (2) – Typically in 5 th year	12*2=24	216
TOTAL	216 Credits	

In order to graduate with B.Tech Honours in Computer Science and MS by Research in Exact Humanities, a student must successfully complete 192 course credits and 24 Thesis credits, with minimum CGPA of 7.00 and meet the following requirements.

1) Meet the requirements as given in the above table and

- 2) Students are required to complete 4 PT Credits which will be counted towards extra-curricular credits (not part of credit requirements mentioned above).
- 3) Must successfully complete the THREE 4 credit Confluence Honours Projects in semesters VI, VII & VIII and obtain a GPA greater than 8 in these 3 projects.

**Five-year Dual-Degree in Building Science & Engineering
(leading to B.Tech in Civil Engineering and MS by Research in Building Science & Engineering)**

Nov 7, 2014

IIT Hyderabad introduces an innovative Building Science & Engineering (BSE) teaching and research programme.

The program aims at educating engineers and conduct research to build an environmentally sustainable habitat by integrating environment, materials, services, science and engineering while making use of latest technology in computer science and electronics. Given the multi-disciplinary nature of the proposed program, the program will address two broad areas; R&D gaps and Knowledge gaps and would collaborate with other institutions to address the skill gaps.

Curriculum

Year	Semester	CD	AD	Course Code	Course Name	Credits	Faculty
I	I	In	MA	IMA101	Mathematics I	3-1-0-4	
I	II	Pr	CE		Building Materials and Const	3-0-3-4	RPK
I	I	Pr	CE		Mechanics of Solids	3-1-0-4	VM
I	I	In	CS	ICS101	Computer Programming	3-1-3-5	
I	I	In	EC	IEC102	Electrical Science I (H2)	3-1-0-2	
I	I	In	CS	ICS102	IT Workshop I	2-0-3-3	
I	I	In	HS	IHS101/102	English/HSS Group A	2-0-0-2	
I	I	In	HS	IHS103	Human Values I	0-2-0-2	
Total	16-6-9-26						
Total In-Class Hours per week - 31							
I	II	In	MA	IMA102	Mathematics II	3-1-0-4	
I	II	Pr	CE		Structural Analysis	3-1-0-4	VM
I	II	Pr	CE		Strength of Materials Lab	3-1-0-2	RPK
I	II	Pr	CE		BMC Lab	3-1-0-2	RPK
I	II	In	CS	ICS103	Data Structures	3-1-3-5	
I	II	In	CS	ICS105	IT Workshop II	2-0-3-3	
I	II	In	HS	IHS105/106	English/HSS Group A	2-0-0-2	
I	II	Pr	CE		Engineering Drawing	3-1-0-4	SM
Total	16-6-9-26						
Total In-Class Hours per week – 31							

II	I	Pr	MA	IMA201	Engineering Mathematics	3-1-0-4	CNK
II	I	In	CS		Algorithms	3-1-0-4	
II	I	Pr	CE		Water Resource Engg.	3-1-0-4	NS
II	I	Pr	CE		Surveying	3-0-0-3	RPK
II	I	In	CS	ICS261	SSAD & Project	3-0-3-3	
II	I	In	CS		Introduction to Databases	3-1-0-2	
II	I	Pr	SC		Science I	3-1-0-4	
II	I	Pr	CE		Surveying Lab	0-3-0-2	RPK

Total 20-6-6-26

Total In-Class Hours per week – 32

Year	Semester	CD	AD	Course Code	Course Name	Credits	
II	II	Pr	CE		Design of Concrete Structures	3-1-0-4	RPK
II	II	Pr	CE		Building Services	3-1-0-4	VG
II	II	Pr	CE		Soil Mechanics	3-1-0-4	NS
II	II	In	CE		Graphics	3-1-0-3	
II	II	Pr	CE		Environmental Science	3-1-0-4	RCP
II	II	In	SC/BS		CS Elective	3-1-0-4	
II	II	In	HS	IHS107	Human Values II	0-2-0-2	
II	II	Pr			Soil Mechanics Lab	0-3-0-2	NS

Total 17-6-6-27

Total In-Class Hours per week - 29

SLAB - Meet above Institute Core by the end of Second Year.

III	I	Pr	BS		Stream Elective	3-1-0-4	
III	I	In	CE		Design of Steel Structures	3-1-0-4	RPK
III	I	In	CS		CE Elective	3-1-0-4	
III	I	In			Open Elective	3-1-0-2	
III	I	Pr	CE		Hons. Project-1	3-1-0-4	
III	I	Pr			Hydraulics Lab	0-3-0-2	

Total 18-6-6-22

Total In-Class Hours per week - 30

III	II	Pr	BS		Stream Elective	3-1-0-4	
III	II	In			CS Elective	3-1-0-4	
III	II	In	CE		CE Elective	3-1-0-4	
III	II	In	CS		Transportation Engineering	0-0-6-4	
III	II	In	BS		Hons. Project-2	3-1-0-4	
III	II	In	HS		Humanities Elective	3-1-0-4	

Total 17-6-12-24

Total In-Class Hours per week - 31

IV	I	In	CE		Estimating and Costing	3-1-0-4	
IV	I	In			Open Elective	3-1-0-4	

IV	I	Pr	BS		Stream Elective	3-1-0-4	
IV	I	In	MA		Mathematics Elective	3-1-0-4	
IV	I	In	BS		Hons. Project-3	3-1-0-4	
IV	I	In	HS		Humanities Elective	3-1-0-4	
Total 15-5-6-24							
Total In-Class Hours per week - 26							
Year	Semester	CD	AD	Course Code	Course Name	Credits	
IV	II	In	CE		CE Elective	3-1-0-4	
IV	II	Pr	BS		Stream Elective	3-1-0-4	
IV	II	In	CE		Hons. Project-4	3-1-0-4	
III	II	In	HS		Humanities Elective	3-1-0-4	
Total 12-4-0-16							
Total In-Class Hours per week - 16							

Civil Engineering Electives:

- Fluid mechanics
- Heat and Mass Transfer
- Indian Habitat
- Finite Element Methods
- Structural Engineering Workshop
- HVAC
- Etc...

Stream Electives:

Students may choose any one of the four streams from the following streams:

- Structural Engineering
- Geotechnical Engineering
- Building Automation & Green Buildings
- Spatial Informatics
- Etc.....

Graduation Requirements

Institutional Core	50	50
Program Core	65	115
Humanities Elective	3*4 = 12	127
Maths Elective (1)	4	131
BS Electives (4)	4*4 = 16	147
Stream Electives (4)	4*4 = 16	163
CS Electives (4)	1*4 = 04	167
Honours Projects 1 to 4	4*4 = 16	183
Free Electives (2)	2*4 = 08	191

Thesis Credits – Typically in 5th year	12*2=24	215
TOTAL		215 Credits

In order to graduate with B.Tech Honors in Civil Engineering and MS by Research in Building Science & Engineering, a student must successfully complete 191 course credits and 24 Thesis credits, with minimum CGPA of 7.00 and meet the following requirements.

- 1) Meet the requirements as given in the above table, and
- 2) Students are required to complete 4 PT Credits which will be counted towards extra-curricular credits (not part of credit requirements mentioned above).
- 3) Must successfully complete the FOUR 4 credit Honors Projects in semesters V to VIII and obtain a GPA greater than 8 in these 4 projects.