

- 12 credits in Sports, Arts and Value Education
 - 4 credits from each of the three subjects
- 48 credits in Computational Linguistics
- 16 credits each in Maths, Science and Humanities & S
- 12 credits from any discipline
- 8 credits in honours project
- 2 seminar credits
- 1 unit (2 credits) of research writing
- 1 unit of research proposal
- 24 credits of Research thesis

3.4 CHD Programme

This is broadly structured as follows.

- 61 credits in Computer Science
- 12 credits in Sports, Arts and Value Education
 - 4 credits from each of the three subjects
- 60 credits in Computational Linguistics
- 16 credits each in Maths
- 8 credits in Science
- 12 credits from any discipline
- 8 credits in honours project
- 2 seminar credits
- 1 unit (2 credits) of research writing
- 1 unit of research proposal
- 24 credits of Research thesis

VI. Dual degree programme in Computing and Human Sciences (CHD)

Students in this programme will develop the ability to synthesise knowledge from the fields of Computer Science and the Social Sciences. The curriculum for CHD equips the students with fundamentals from the following areas:

- Humanities and the Social Sciences:** introduction to theories and methods in history, politics, literature, sociology and philosophy, research methods in the social sciences, theorizing technology, science and technology studies, human computer interaction etc.
- Computer Science:** programming languages, data structures, algorithm analysis, automata theory, AI, software design etc.
- Maths:** Discrete structures, probability and statistics, calculus, differential equations and matrices, linear regression, real analysis, abstract algebra etc.

The CHD curriculum has a balanced mixture of courses from different fields (Computer Science, Maths, Humanities and Social Sciences). The total credit requirement is 201 of which 24 are to be from a research thesis. The broad structure of the programme is as shown below.

Structure Of Humanities Programme

THESIS YEAR (9-10 SEMESTER)		
Computational Humanities Computer Sc tools/methods to study HSS problems (Semesters 5 to 8)	Society and IT HSS tools / methods to study impact of computers on society (Semesters 5 to 8)	Humanities & Social Science: Research where computer science plays a minor/negligible role (Semesters 5 to 8)

Core (Semesters 1-4): Computer Science, Maths, Science + Humanities and Social Sciences

Details of the requirements for the CHD programme are described next.

1. Maths requirement (16 credits): 3 core, 1 Elective

Maths courses

Discrete Structures	Semester 1
Linear Algebra	Semester 2
Probability and Statistics	Semester 3
Maths Elective	Semester 5/6/7

2. Science requirement (8 credits): 2 Electives

Science courses

Science 1 - Scientific Method, Micro and the Macro Principles of Natural Phenomena Science 2 - Electromagnetism, Applications of Classical and Quantum Mechanics	Semester 5/6/7
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3. Institute core requirement (12 credits): 4 credits each in Sports, Arts and Value education

Sports (4 credits)	Semesters 1 through 4
Arts (4 credits)	Semesters 1 and 2
Value education (4 credits)	Semesters 1 and 4

4. Programme core requirement: These are to be completed in the first 5 semesters (plus one core in the 8th semester). The list of programme core courses is as below.

Core (Humanities and CS) courses in the CHD Programme:

Monsoon	Course title	Credits	Spring	Course title	Credits
Sem 1	Making of the Contemporary World	4	Sem 2	Making of Contemporary India	4
	Human Sciences Lab	2		Thinking and Knowing in the Human Sciences – I	4
	Digital Systems and Microcontrollers	5		Data structures and algorithms	5
	Computer Programming	5		Introduction to Software Systems	2

Monsoon	Course title	Credits	Spring	Course title	Credits
Sem 3	Thinking and Knowing in the Human Sciences – II	4	Sem 4	Research Methods in Human Sciences	4
	Classical Text Readings – I	4		Science, Technology and Society	4
	Algorithm Analysis and Design	4		Computer Systems Organization	4
				Design and Analysis of Software Systems	4
				Machine, Data and Learning	4
	Automata Theory	2			
	Data & Applications	2			
Sem 5	Applied Ethics	4	Sem 8	Classical Text Readings-II	4
	Computer Science Engineering	4			

5. Other programme requirements: credits in electives 54 + 8 credits of Honours projects.

Once the foundation is built via core courses in the first four semesters, the CHD curriculum allows a student the flexibility to pursue choose her/his stream of research and do courses to build the depth in the stream in the last two years. The electives in different streams provide that opportunity and can be decided in consultation with the advisor of the student. Of the 54 credits in electives, a minimum of 22 credits have to be earned in the domain area, 20 in Computer Science and the rest (12 credits) can be earned via courses from across disciplines.

CHD electives are organized into 3 streams (Figure1 above), with each stream consisting of introductory as well as advanced level courses. The offerings at the advanced level can change from time to time. Every student is expected to do 3 electives in the chosen stream and the remaining from other streams in consultation with the advisor and the programme coordinator.

Honours projects (8 credits): This is to be done as 2-credit projects each in Semesters 5, 6 7 and 8 preferably around the same topic.

Thesis (24 credits): This is to be done in the fifth year.