Department of Computer Science and Engineering & Information Technology

The Departments has earned a formidable reputation of providing an impeccable quality of education since 1996. The department provides adequate opportunities for student and researchers to learn and innovate and constantly modernizes the infrastructure and lab facilities through NCU as well as industry. The department has distinguished faculty, most of them holding M. Tech / PhD degree from renowned institutes in India and abroad.

Programmes offered by the Department:

1. Master of Technology in Computer Science & Engineering (with specialization in cyber security).
2. Master of Technology in Computer Science & Engineering (with specialization in Data Sciences).
3. Bachelor of Technology in Computer Science & Engineering.

The department has designed a new scheme both for B.Tech and M.Tech programmes. Some of its salient features are as follows.

1. Curriculum is designed and developed by the department of Computer Science and Information Technology and is approved by the Board of Studies of the department.
2. This Curriculum meets the standards of reputed Universities of India/abroad. The subject expert designed the scheme and curriculum in such a way so that the content related to the recent trends in the field of Computer Science and Information Technology is incorporated.
3. The designed curriculum of B.Tech in Computer Science and Engineering have total credits of 164 in which the departmental credits are 84 including all core courses of Computer Sciences and Information Technology.

4. The Credits of other Departments are Humanities and Management: 14 credits, Basic Science: 18 credits, Engineering Science: 21 credits, professional elective: 22 credits, open elective: 12 credits, Project 10 credits, Industrial Training 6 credits and 8 credits for general proficiency.

5. Master of Technology in Computer Engineering is a two year full time course and a part time course. The Curriculum designed for Master of Technology in Computer Engineering has total credits of 57.

Personality Development Program and other special modular courses are held during or at the end of the respective semesters. These courses are credit courses and have been added in the scheme as regular courses.

Bachelor of Technology in Computer Science & Engineering
Department of CSE & IT 2018-19

The Overall credits structure

Category	Credits
Humanities & management courses	**14**
Basic Sciences Courses	**18**
Engg. Science Courses	**21**
Department Core Courses	**51**
Professional Elective Courses	**22**
Open Electives	**12**
Project & Internship	**18**
General Proficiency	**08**
TOTAL	**164**

Basic Science Courses

		L-T-P	C
MAL151	Engineering Maths -I	3-0-2	4
MAL152	Engineering Maths -II	3-0-2	4
CHL100	Environmental Studies	3-0-0	3
PHY150	Engineering Physics	3-0-2	4
CHL150	Engineering Chemistry	2-0-2	3
	Total Credits		**18**

Humanities and Management Course

		L-T-P	C
CLL101	Effective Communications I	1-0-2	2
CLL102	Effective Communications II	1-0-2	2
CLP120	Creative Writing	0-0-2	1
CLP300	Campus to Corporate	0-0-2	1
CLL120	Human Values and Professional Ethics	2-0-0	2
SML300	Entrepreneurship	2-1-0	3
	OE-4 (Foreign Language Elective)	1-2-0	3
	Total Credits		**14**

Engineering Science Courses

		L-T-P	C
CSL106	FOCP I	1-0-2	2
CSL108	FOCP II	1-0-2	2
MEP110	Engineering Graphics & Drawing	1-0-3	3
MEL150	Basics of Mechanical Engineering	2-0-2	3
ECL 110	Basics of Electrical & Electronics Engg	3-0-2	4
CSL110	Problem Solving and design thinking	2-0-2	3
ECL200	Digital Electronics	3-0-0	3
ECP200	Digital Electronics Lab	0-0-2	1
	Total Credits		**21**

Project & Internship (P)

		L-T-P	C
CSD201	Mini Project		1
CSD301	Creativity and Innovation outcome lab		1
CSC301	Seminar		1
CSD401	Major Project – I		4
CSD402	Major Project – II		6
CST201	Practical Training		2
CST301	Industrial Internship		3
	Total Credits		**18**

Department Core (DC)

		L-T-P	C
CSL201	Discrete Structure	3-1-0	4
CSL204	Introduction to Java	2-0-0	2
CSL209	Data Structure & Algorithms	3-0-0	3
CSL212	Computer Architecture & Organization	3-1-0	4
CSL214	Database Management System	3-0-0	3
CSL300	Computer Networks	3-0-0	3
CSL301	Analysis & Design of Algorithms	3-1-0	4
CSL303	Operating System	3-0-0	3
CSL314	Software Engineering	3-0-0	3
CSL318	Theory of Computation	3-1-0	4
CSL334	IoT	2-0-0	3
CSL415	Artificial Intelligence	3-0-0	3
CSL417	Information Security & Cryptography	3-1-0	4
CSP204	Introduction to Java Lab	0-0-2	1
CSP209	Data Structure & Algorithms Lab	0-0-4	2
CSP214	Database Management System Lab	0-0-2	1
CSP300	Computer Networks Lab	0-0-2	1
CSP303	Operating System Lab	0-0-2	1
CSP314	Software Engineering Lab	0-0-2	1
CSP334	IoT Lab	0-0-2	1
CSP415	Artificial Intelligence Lab	0-0-2	1
	Total Credits		**51**

Programming Course Elective (PE1/ PE2) 3 Credits

		Pre-requisites
CSL205	Advanced JAVA	Intro. to Java
CSL206	Python	FOCP II
CSL207	Ruby on Rails	
CSL208	C# with .NET	
CSL305	PHP	
CSL304	R-Programming	
Note: New additions will be made time to time.		

Program Electives (PE3/ PE4/ PE5/ PE6#/ PE7#) 3 Credits

Specialized Electives Track – Data Sciences and Artificial Intelligence		Pre-requisites
CSL429	Data Mining and Warehousing	DBMS
CSL441	Big Data	OOPS
CSL308	Digital Image Analysis	Maths II
CSL404	Artificial Neural Network	Maths II, FOCP
CSL408	Soft Computing	
CSL432	Machine Learning	
CSL424	Human Computer Interaction	

Specialized Elective Track – Cyber Security		Pre-requisites
CSL422	Cyber Security	Computer Networks, DBMS
CSL405	Secure Software Engineering	Software Engineering
CSL440	Digital Forensics	Computer Architecture & Organization
CSL436	Cloud Computing	Object Oriented Programming
CSL326	Network Security & Cryptography	Computer Networks, Object Oriented Programming

Specialized Electives- General Track		Pre-requisites
CSL421	Compiler Design	Theory of Computation
CSL433	High Performance Computing	Computer Architecture & Organization
CSL430	Combinatorics	Maths II
CSL406	Simulation and Modeling	Maths II

Skill Development Courses

		L-T-P	C
CSP201	Skill Development	1-0-2	2
CSP301	Skill Development	0-0-2	1

OE-1 (SOM Elective) 2-1-0 03

Choose any one course from electives offered by SOM

OE-2 Maths Elective

		L-T-P	C
MAL201	Engineering Maths III	3-1-0	4
MAL208	Linear Algebra	3-1-0	4
MAL210	Numerical Methods	2-1-2	4
MAL220	Probability and Statistics	3-1-0	4

OE – 4 (Foreign Language Elective)

		L-T-P	C
CLL200	French I	1-2-0	3
CLL270	Spanish I	1-2-0	3
CLL220	German I	1-2-0	3

Self Study Course

SEG400	GATE Exam		Audit

Minimum 3-6 credits shall be taken up through MOOC courses like Swayam/ Coursera/ edX.

- CSD402 Major Project – II can be taken as 8 weeks Internship

Bachelor of Technology in Computer Science and Engineering 2018-19

Semester	Course Code Course Name (L-T-P)Credits									Skill Development Course	GP Course	Contact Hours	Credits
1	MAL151 Engg Maths-I (3-0-2)4	CSL106 FOCP-I (1-0-2)2	CHL150 Engg. Chemistry (2-0-2) 3	CLL101 Effective Communication I (1-0-2)2	MEP110 Engg Graphics & Drg (1-0-3) 3*	CLL 120 Human Values and Professional Ethics (2-0-0)2	CSL110 Problem Solving and design thinking (2-0-2)3				CSR118 GP1 1 credit	25	20
2	MAL152 Engg Maths-II (3-0-2)4	CSL108 FOCP-II (1-0-2)2	PHY150 Engineering Physics (3-0-2) 4	CLL 102 Effective Communication-II (1-0-2)2	MEL150 Basics of Mechanical Engineering (2-0-2) 3	ECL110 Basics of Electrical & Electronics Engineering (3-0-2) 4					CSR119 GP2 1 credit	25	20
Summers	CSD201 Mini Project												01
3	CSL209 Data Structures & Algo (3-0-0)3	CSL201 Discrete structures (3-1-0)4	ECL200 Digital Electronics (3-0-0)3	CSL204 Introduction to Java (2-0-0)2	CLP120 Creative Writing (0-0-2)1	OE-1 (Management Course) (2-1-0)3	CSP209 Data Structure & Algo. Lab (0-0-4)2	ECP200 Digital Electronics Lab (0-0-2)1	CSP204 Intro. to Java Lab (0-0-2)1		CSR218 GP3 1 credit	25	21
4	CSL212 CAO (3-1-0)4	CSL214 DBMS (3-0-0)3	OE-2 (Maths Course) (3-1-0)4	PE-1 (Programming course) (2-0-0)2	CHL100 Environmental Studies (3-0-0) 3	CSP214 DBMS Lab (0-0-2)1	PE – 1 Lab (0-0-2)1			CSV201 Skill Development (1-0-2) 2	CSR219 GP4 1 credit	22	21
Summers	CST201 Practical Training												02
5	CSL303 Operating System (3-0-0)3	CSL301 ADA (3-1-0)4	CSL334 IoT (2-0-0)2	PE-2 (Programming course) (2-0-0)2	OE-3 (3-0-0)3	CSP303 Operating System Lab (0-0-2)1	CSP334 IoT Lab (0-0-2)1	PE – 2 Lab (0-0-2)1	CSC301 Seminar (1-0-0)1	CSV301 Skill Development (0-0-2) 1	CSR318 GP5 1 credit	23	20
6	CSL300 Computer networks (3-0-0)3	CSL314 Software Engineering (3-0-0)3	CSL318 Theory of Computation (3-1-0)4	PE-3 (2-0-0)2	OE-4 (Foreign Language) (1-2-0)3	CSP300 Computer Networks Lab (0-0-2)1	CSP314 Software Engineering Lab (0-0-2)1	PE – 3 Lab (0-0-2)1	CSD301 Creativity and Innovation outcome lab 1 Credits	CLP300 Campus to corporate (0-0-2)1	CSR319 GP6 1 credit	23	21
Summers	CST301 Industrial Internship												03
7	CSL415 Artificial Intelligence (3-0-0)3	CSL417 Information Security & Cryptography (3-1-0)4	PE-4 (2-0-0)2	PE-5 (2-0-0)2	SML300 Entrepreneurship (2-1-0)3	CSD401 Major Project - I 4 credits	CSP415 Artificial Intelligence Lab (0-0-2)1	PE – 4 Lab (0-0-2)1	PE – 5 Lab (0-0-2)1		CSR418 GP7 1 credit	20	22
8	PE-6# (3-0-0)3	PE-7# (3-0-0)3	SEG400 Self Study Course GATE Audit	CSD402 Major Project – II/ Internship 6 credits							CSR419 GP8 1 credit	6	13
Total Credits: 164 (156 + 8GP) # Through MOOC courses like Swayam/ Coursera/ EdX with 1 hours facilitation per week.													

B.Tech. (CSE) 2018 Batch: Pre-requisites mapping