



COURSE CURRICULUM FOR BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND ENGINEERING (CSE)

1.1 Course Outline

Undergraduate students of the Department of Computer Science and Engineering (CSE) have to follow a particular course schedule. The outline of the courses which will be covered in the B.Sc. in CSE program is depicted below. This includes the list and number of Humanities Courses, Basic Science Courses, Mathematics Courses, Inter Disciplinary Engineering Courses and Program Core Courses.

Types of Courses	No. Of Courses	Credit
Humanities Courses (English & GED Courses)	04	7.5
Basic Science Courses (Physics and Chemistry Courses)	03	6.75
Mathematics Courses	04	12
Inter Disciplinary Engineering Courses	08	16.25
Program Core Courses	53	112.75
Option I (Specialized Core Courses)	01	3
Option II (Specialized Core Courses)	02	3.75
Total	75	162.00

Humanities Courses:

Course No.	Course Title	Credit Hours	Contact Hours
HUM-101	English	2.00	2.00
HUM-102	English Sessional	1.50	3.00
HUM-103	Sociology	2.00	2.00
HUM-415	Financial and Managerial Accounting	2.00	2.00
	Total	7.50	9.00

Basic Science Courses:

Course No.	Course Title	Credit Hours	Contact Hours
PHY-103	Physics	3.00	3.00
PHY-104	Physics Sessional	0.75	1.50
CHEM-101	Chemistry	3.00	3.00
	Total	6.75	7.50



Mathematics Courses:

Course No.	Course Title	Credit Hours	Contact Hours
MATH-141	Mathematics - I (Differential and Integral Calculus)	3.00	3.00
MATH-143	Mathematics - II (Ordinary and Partial Differential Equations and Coordinate Geometry)	3.00	3.00
MATH-245	Mathematics - III (Vector analysis, Matrices and Fourier Analysis)	3.00	3.00
MATH-247	Mathematics - IV (Complex Variable and Laplace Transform)	3.00	3.00
	Total	12.00	12.00

Inter Disciplinary Engineering Courses:

Course No.	Course Title	Credit Hours	Contact Hours
ME-181	Basic Mechanical Engineering	2.00	2.00
CE-150	Engineering Drawing and CAD Sessional	1.50	3.00
EEE-163	Electrical Circuit Analysis	3.00	3.00
EEE-164	Electrical Circuit Analysis Sessional	1.50	3.00
EEE-169	Electronic Devices and Circuits	3.00	3.00
EEE-170	Electronic Devices and Circuits Sessional	1.50	3.00
EEE-269	Electrical Drives and Instrumentation	3.00	3.00
EEE-270	Electrical Drives and Instrumentation Sessional	0.75	1.50
	Total	16.25	21.50

Program Core Courses:

Course No.	Course Title	Credit Hours	Contact Hours
CSE-101	Computer Fundamentals and Basic Programming	3.00	3.00
CSE-102	Computer Fundamentals and Basic Programming Sessional	1.50	3.00
CSE-103	Discrete Mathematics	3.00	3.00
CSE-105	Structured Programming Language	3.00	3.00
CSE-106	Structured Programming Language Sessional	1.50	3.00
CSE-201	Digital Logic Design	3.00	3.00
CSE-202	Digital Logic Design Sessional	1.50	3.00
CSE-203	Data Structure	3.00	3.00
CSE-204	Data Structure Sessional	1.50	3.00
CSE-205	Object Oriented Programming Language	3.00	3.00
CSE-206	Object Oriented Programming Language Sessional-I (C++)	1.50	3.00
CSE-210	Assembly Language Programming Sessional	1.50	3.00
CSE-211	Digital Electronics and Pulse Technique	3.00	3.00
CSE-212	Digital Electronics and Pulse Technique Sessional	0.75	1.50



CSE-213	Computer Architecture	3.00	3.00
CSE-215	Algorithms	3.00	3.00
CSE-216	Algorithms Sessional	1.50	3.00
CSE-217	Theory of Computation	3.00	3.00
CSE-220	Object Oriented Programming Language – II (Java)	0.75	1.50
CSE-301	Database Management Systems	3.00	3.00
CSE-302	Database Management Systems Sessional	1.50	3.00
CSE-303	Compiler	3.00	3.00
CSE-304	Compiler Sessional	0.75	1.50
CSE-305	Microprocessors and Micro-controller	3.00	3.00
CSE-306	Microprocessors and Micro-controller Sessional	0.75	1.50
CSE-307	Operating System	3.00	3.00
CSE-308	Operating System Sessional	0.75	1.50
CSE-309	Computer Networks	3.00	3.00
CSE-310	Computer Networks Sessional	1.50	3.00
CSE-311	Numerical Analysis	3.00	3.00
CSE-312	Numerical Analysis Sessional	0.75	1.50
CSE-313	Applied Statistics for Computer Science	3.00	3.00
CSE-315	Digital System Design	3.00	3.00
CSE-316	Digital System Design Sessional	0.75	1.50
CSE-317	Data Communication	3.00	3.00
CSE-318	Data Communication Sessional	0.75	1.50
CSE-319	Software Engineering	3.00	3.00
CSE-322	Software Development Sessional	1.50	3.00
CSE-350	Industrial Training	1.00	2.00
CSE-400	Project and Thesis	4.50	9.00
CSE-401	System Analysis, Design and Development	3.00	3.00
CSE-402	System Analysis, Design and Development Sessional	0.75	1.50
CSE-403	Artificial Intelligence	3.00	3.00
CSE-404	Artificial Intelligence Sessional	0.75	1.50
CSE-405	Computer Interfacing	3.00	3.00
CSE-406	Computer Interfacing Sessional	0.75	1.50
CSE-407	Queueing Systems	3.00	3.00
CSE-411	VLSI Design	3.00	3.00
CSE-412	VLSI Design Sessional	0.75	1.50
CSE-410	Software Development for Web Apps	1.50	3.00
CSE-413	Computer Graphics	3.00	3.00
CSE-414	Computer Graphics Sessional	0.75	1.50
CSE-417	Engineering Ethics and Management	3.00	3.00
	Total	112.75	142.50



Program Optional Courses: (Option I)

Course No.	Course Title	Credit Hours	Contact Hours
CSE-419	Advanced Algorithms	3.00	3.00
CSE-421	Basic Graph Theory	3.00	3.00
CSE-423	Fault Tolerant System	3.00	3.00
CSE-425	Basic Multimedia Theory	3.00	3.00
CSE-427	Digital Image Processing	3.00	3.00
CSE-429	Information and Network Security	3.00	3.00
CSE-431	Object Oriented Software Engineering	3.00	3.00
CSE-433	Artificial Neural Networks and Fuzzy Systems	3.00	3.00
CSE-435	Distributed Algorithms	3.00	3.00
CSE-437	Bioinformatics	3.00	3.00
CSE-439	Robotics	3.00	3.00
CSE-441	Machine Learning	3.00	3.00
CSE- 443	Cloud Computing	3.00	3.00

Program Optional Courses: (Option II)

Course No.	Course Title	Credit Hours	Contact Hours
CSE-445	Pattern Recognition	3.00	3.00
CSE-446	Pattern Recognition Sessional	0.75	1.50
CSE-447	Digital Signal Processing	3.00	3.00
CSE-448	Digital Signal Processing Sessional	0.75	1.50
CSE- 449	Telecommunication Engineering	3.00	3.00
CSE- 450	Telecommunication Engineering Sessional	0.75	1.50
CSE-451	Mobile and Ubiquitous Computing	3.00	3.00
CSE-452	Mobile and Ubiquitous Computing Sessional	0.75	1.50
CSE- 453	Simulation and Modeling	3.00	3.00
CSE- 454	Simulation and Modeling Sessional	0.75	1.50
CSE-455	Data Ware-housing and Data Mining	3.00	3.00
CSE-456	Data Ware-housing and Data Mining Sessional	0.75	1.50



1.2 Course Distribution

Undergraduate students of the Department of Computer Science and Engineering (CSE) have to follow a particular course schedule, the term-wise distributions of which are given below:

LEVEL-1 TERM-I

Sl	Course No	Course Title	Hours/Week		Credits	Pre-requisite	Page No
			Theory	Sessional			
1	CSE-101	Computer Fundamentals and Basic Programming	3.00	-	3.00		
2	CSE-102	Computer Fundamentals and Basic Programming Sessional	-	3.00	1.50		
3	EEE-163	Electrical Circuit Analysis	3.00	-	3.00		
4	EEE-164	Electrical Circuit Analysis Sessional	-	3.00	1.50		
5	CE-150	Engineering Drawing & CAD Sessional	-	3.00	1.50		
6	MATH-141	Mathematics-I (Differential Calculus and Integral Calculus)	3.00	-	3.00		
7	CHEM-101	Chemistry	3.00	-	3.00		
8	HUM-101	English	2.00	-	2.00		
9	HUM-102	English Sessional	-	3.00	1.50		
	Total		14.00	12.00	20.00		

LEVEL-1 TERM-II

Sl	Course No	Course Title	Hours/Week		Credits	Pre-requisite	Page No
			Theory	Sessional			
1	CSE-103	Discrete Mathematics	3.00	-	3.00		
2	CSE-105	Structured Programming Language	3.00	-	3.00	CSE-100	
3	CSE-106	Structured Programming Language Sessional	-	3.00	1.50		
4	EEE-169	Electronic Devices and Circuits	3.00	-	3.00	EEE-163	
5	EEE-170	Electronic Devices and Circuits Sessional	-	3.00	1.50		
6	ME-181	Basic Mechanical Engineering	2.00	-	2.00		
7	PHY-103	Physics	3.00	-	3.00		
8	PHY-104	Physics Sessional	-	1.50	0.75		
9	MATH-143	Mathematics-II (Ordinary and Partial Differential Equations and Coordinate Geometry)	3.00	-	3.00		
10							
	Total		17.00	7.50	20.70		



LEVEL-2 TERM-I

Sl	Course No	Course Title	Hours/Week		Credits	Pre-requisite	Page No
			Theory	Sessional			
1	CSE-201	Digital Logic Design	3.00	-	3.00		
2	CSE-202	Digital Logic Design Sessional	-	3.00	1.50		
3	CSE-203	Data Structures	3.00	-	3.00	CSE-105	
4	CSE-204	Data Structures Sessional	-	3.00	1.50		
5	CSE-205	Object Oriented Programming Language	3.00	-	3.00	CSE-105	
6	CSE-206	Object Oriented Programming Language Sessional-I (C++)	-	3.00	1.50		
7	EEE-269	Electrical Drives and Instrumentation	3.00	-	3.00	EEE-169	
8	EEE-270	Electrical Drives and Instrumentation Sessional	-	1.50	0.75		
9	MATH-245	Mathematics-III (Vector Analysis, Matrices and Fourier Analysis)	3.00	-	3.00		
	Total		15.00	10.50	20.25		

LEVEL-2 TERM-II

Sl	Course No	Course Title	Hours/Week		Credits	Pre-requisite	Page No
			Theory	Sessional			
1	CSE-210	Assembly Language Programming Sessional	-	3.00	1.50		
2	CSE-211	Digital Electronics and Pulse Technique	3.00	-	3.00	EEE-169	
3	CSE-212	Digital Electronics and Pulse Technique Sessional	-	1.50	0.75		
4	CSE-213	Computer Architecture	3.00	-	3.00	CSE-201	
5	CSE-215	Algorithms	3.00	-	3.00	CSE-101, CSE-203	
6	CSE-216	Algorithms Sessional	-	3.00	1.50		
7	CSE-217	Theory of Computation	3.00	-	3.00		
8	CSE-220	Object Oriented Programming language Sessional-II (Java)	-	1.50	0.75		
9	MATH-247	Mathematics-IV (Complex Variable and Laplace Transform)	3.00	-	3.00		
	Total		15.00	9.00	19.50		



LEVEL-3 TERM-I

Sl	Course No	Course Title	Hours/Week		Credits	Pre-requisite	Page No
			Theory	Sessional			
1	CSE-301	Database Management Systems	3.00	-	3.00		
2	CSE-302	Database Management Systems Sessional	-	3.00	1.50		
3	CSE-303	Compiler	3.00	-	3.00	CSE-217	
4	CSE-304	Compiler Sessional	-	1.50	0.75		
5	CSE-305	Microprocessors and Micro-controller	3.00	-	3.00	CSE-201	
6	CSE-306	Microprocessors and Micro-controller Sessional	-	1.50	0.75		
7	CSE-307	Operating System	3.00	-	3.00		
8	CSE-308	Operating System Sessional	-	1.50	0.75		
9	CSE-309	Computer Network	3.00	-	3.00		
10	CSE-310	Computer Network Sessional	-	3.00	1.50		
	Total		15.00	10.50	20.25		

LEVEL-3 TERM-II

Sl	Course No	Course Title	Hours/Week		Credits	Pre-requisite	Page No
			Theory	Sessional			
1	CSE-311	Numerical Analysis	3.00	-	3.00		
2	CSE-312	Numerical Analysis Sessional	-	1.50	0.75		
3	CSE-313	Applied Statistics for Computer Science	3.00	-	3.00		
4	CSE-315	Digital System Design	3.00	-	3.00	CSE-305	
5	CSE-316	Digital System Design Sessional	-	1.50	0.75		
6	CSE-317	Data Communication	3.00	-	3.00		
7	CSE-318	Data Communication Sessional	-	1.50	0.75		
8	CSE-319	Software Engineering	3.00	-	3.00		
9	CSE-322	Software Development Sessional	-	3.00	1.50		
10	HUM-103	Sociology	2.00		2.00		
	Total		17.00	7.50	20.75		

*LEVEL-3 INDUSTRIAL TRAINING

Sl	Course No	Course Title	Hours/Week		Credits	Pre-requisite	Page No
			Theory	Sessional			
1.	CSE-350	Industrial Training	-	4 Weeks	1.00		

***Note:** This course is mandatory. Evaluation report from industry is to be submitted at the end of the training and accordingly to be incorporated in the tabulation sheet.



LEVEL-4 TERM-I

Sl	Course No	Course Title	Hours/Week		Credits	Pre-requisite	Page No
			Theory	Sessional			
1	CSE-400	Project and Thesis	-	3.00	1.50		
2	CSE-401	System Analysis, Design and Development	3.00	-	3.00		
3	CSE-402	System Analysis, Design and Development Sessional	-	1.50	0.75		
4	CSE-403	Artificial Intelligence	3.00	-	3.00		
5	CSE-404	Artificial Intelligence Sessional	-	1.50	0.75		
6	CSE-405	Computer Interfacing	3.00	-	3.00		
7	CSE-406	Computer Interfacing Sessional	-	1.50	0.75		
8	CSE-407	Queueing Systems	3.00	-	3.00		
9	CSE-4XO	Option-I	3.00	-	3.00		
	Total		15.00	7.50	18.75		

Option-I

Sl	Course No	Course Title	Hours/Week		Credits	Pre-requisite	Page No
			Theory	Sessional			
1	CSE-419	Advanced Algorithms	3.00	-	3.00		
2	CSE-421	Basic Graph Theory	3.00	-	3.00		
3	CSE-423	Fault Tolerant System	3.00	-	3.00		
4	CSE-425	Basic Multimedia Theory	3.00	-	3.00		
5	CSE-427	Digital Image Processing	3.00	-	3.00		
6	CSE-429	Information and Network Security	3.00	-	3.00		
7	CSE-431	Object Oriented Software Engineering	3.00	-	3.00		
8	CSE-433	Artificial Neural Networks and Fuzzy Systems	3.00	-	3.00		
9	CSE-435	Distributed Algorithms	3.00	-	3.00		
10	CSE-437	Bioinformatics	3.00	-	3.00		
11	CSE-439	Robotics	3.00	-	3.00		
12	CSE-441	Machine Learning	3.00	-	3.00		
13	CSE-443	Cloud Computing	3.00	-	3.00		

LEVEL-4 TERM-II

Sl	Course No	Course Title	Hours/Week		Credits	Pre-requisite	Page No
			Theory	Sessional			
1	CSE-400	Project and Thesis*	-	6.00	3.00		
2	CSE-411	VLSI Design	3.00	-	3.00		
3	CSE-412	VLSI Design Sessional	-	1.50	0.75		
4	CSE-410	Software Development for Web Apps	-	3.00	1.50		
5	CSE-413	Computer Graphics	3.00	-	3.00		
6	CSE-414	Computer Graphics Sessional	-	1.50	0.75		
7	HUM-415	Financial and managerial Accounting	2.00	-	2.00		
8	CSE-417	Engineering Ethics and Management	3.00	-	3.00		
9	CSE-4XO	Option-II	3.00	-	3.00		
10	CSE-4XE	Option-II Sessional	-	1.50	0.75		
	Total		14.00	13.50	20.75		



Option-II

Sl	Course No	Course Title	Hours/Week		Credits	Pre-requisite	Page No
			Theory	Sessional			
1	CSE-445	Pattern Recognition	3.00	-	3.00		
2	CSE-446	Pattern Recognition Sessional	-	1.50	0.75		
3	CSE-447	Digital Signal Processing	3.00	-	3.00		
4	CSE-448	Digital Signal Processing Sessional	-	1.50	0.75		
5	CSE- 449	Telecommunication Engineering	3.00	-	3.00		
6	CSE- 450	Telecommunication Engineering Sessional	-	1.50	0.75		
7	CSE-451	Mobile and Ubiquitous Computing	3.00	-	3.00		
8	CSE-452	Mobile and Ubiquitous Computing Sessional	-	1.50	0.75		
9	CSE- 453	Simulation and Modeling	3.00	-	3.00		
10	CSE- 454	Simulation and Modeling Sessional	-	1.50	0.75		
11	CSE-455	Data Ware-housing and Data Mining	3.00	-	3.00		
12	CSE-456	Data Ware-housing and Data Mining Sessional	-	1.50	0.75		

Summary

Level and Term	Hours/Week		Credits	No of Theory Courses
	Theory	Sessional		
Level-1 Term-I	14.00	12.00	20.00	5
Level-1 Term-II	17.00	7.50	20.75	6
Level-2 Term-I	15.00	10.50	20.25	5
Level-2 Term-II	15.00	9.00	19.50	5
Level-3 Term-I	15.00	10.50	20.25	5
Level-3 Term-II	17.00	7.50	21.75	6
Level-4 Term-I	15.00	7.50	18.75	5
Level-4 Term-II	14.00	13.50	20.75	5
Grand Total	122.00	78.00	162	42