Bachelor of Science in Computer Science and Engineering (CSE) Course Curriculum

Category of courses:

1. English (4.0 credit hours)
2. General Education (15 credit hours)
3. Mathematics (15 credit hours)
4. Basic Sciences (8.5 credit hours)
   i) Physics and (ii) Chemistry
5. Other Engineering Courses (OEN) (12 credit hours)
6. CSE Engineering courses (102.5 credit hours)
   a. CSE Core i/c project (4.5 credit hours) (60.5 credit hours)
   b. CSE Advanced Core (19.5 credit hours)
   c. Advisor Approved Technical Electives (22.5 credit hours)
      i. Elective I (Courses with labs) (13.5 credit hours)
      ii. Elective II (courses without labs) (9 .00 credit hours)

Total Credit hours: 157.00

Course Listing of the Syllabus for B.Sc. in Computer Science and Engineering (CSE)

Abbreviations and Symbols:
Course Numbering: Each course offered by the Faculty is identified by the name of the department offering the course and a three digit course number. These numbers indicate course level as follows:

Course Numbers	Level
100-299	Lower division-primarily for freshmen and sophomores
300-499	Upper division-primarily for juniors and seniors.

The first digit will correspond to the level in which the course is normally taken by the students. The second and third digits will be reserved for course numbering. The odd number for theoretical courses and even for laboratory. 0 digit as last digit is for projects.

Legends:

ENG - English
ECO – Economics
ACT – Accounting
BUS - Business
HSS – Humanities and Social Science
MATH – Mathematics
PHY – Physics
CHEM – Chemistry
EEE- Electrical and Electronic Engineering
CSE – Computer Science and Engineering
ME – Mechanical Engineering
CE – Civil Engineering

Category	Course Number with Title	Credits-hours
1. English (4.0 credit hours)		
	ENG 119 English	3.0
	ENG 210 Developing English Skills Lab	1.0
2. General Education courses (15 credit hours)		
	HSS 111 Sociology	3.0
	HSS 117 Bangladesh Studies	3.0
	HSS 211 Engineering Ethics	3.0
	ACT 221 Industrial Management and Accounting	3.0
	ECO 311 Economics	3.0
	BUS 321 Project Management	3.0
3. Mathematics (15 credit hours)		
	MATH 115 Differential Calculus and Integral Calculus	3.0
	MATH 125 Ordinary and Partial Differential Equations	3.0
	MATH 217 Co-ordinate Geometry and Vector Analysis	3.0
	MATH 229 Linear Algebra and Complex Variables	3.0
	MATH 319 Statistics and Probability	3.0
4. Basic Sciences (8.5 credit hours)		
	PHY 111 Physics	3.0
	PHY 112 Physics Lab	1.5
	CHEM 127 Chemistry	3.0
	CHEM 128 Chemistry Lab	1.0
5. Other Engineering Courses (OEN) (12 credit hours)		
	EEE 123 Introduction to Electrical Engineering	3.0
	EEE 124 Introduction to Electrical Engineering Lab	1.5
	EEE 213 Electronic Devices and Circuits	3.0
	EEE 214 Electronic Devices and Circuits Lab	1.5
	ME 215 Basic Mechanical Engineering	3.0
6. Computer Science & Engineering Courses (102.5 credit hours)		

(a) Core Courses (56 credit hours)

CSE 111 Computer Fundamentals	2.0
CSE 113 Structured Programming Language	3.0
CSE 114 Structured Programming Language Lab	1.5
CSE 121 Discrete Mathematics	3.0
CSE 123 Object Oriented Programming	3.0
CSE 124 Object Oriented Programming Lab	1.5
CSE 211 Data Structure	3.0
CSE 212 Data Structure Lab	1.5
CSE 221 Algorithms	3.0
CSE 222 Algorithms Lab	1.5
CSE 223 Database Management Systems	3.0
CSE 224 Database Management Systems Lab	1.5
CSE 225 Digital Logic Design	3.0
CSE 226 Digital Logic Design	1.5
CSE 227 Theory of Computing	3.0
CSE 311 Numerical Analysis	3.0
CSE 312 Numerical Analysis	1.5
CSE 313 Data Communication	3.0
CSE 319 Computer Architecture	3.0
CSE 325 Computer Networks	3.0
CSE 326 Computer Networks Lab	1.5
CSE 327 Operating Systems	3.0
CSE 328 Operating Systems Lab	1.5
CSE 410 System Analysis and Design Lab	1.5

(b) Advanced Core Courses (19.5 credit hours)

CSE 321 Compiler Design	3.0
CSE 322 Compiler Design Lab	1.5
CSE 323 Artificial Intelligence and Expert Systems	3.0
CSE 324 Artificial Intelligence and Expert Systems Lab	3.0
EEE 327 Electrical Drives and Instrumentation	3.0
EEE 328 Electrical Drives and Instrumentation Lab	1.5
EEE 411 VLSI Design	3.0
EEE 413 Signals and Linear Systems	3.0
CSE 413 Software Engineering	3.0
CSE 414 Software Engineering Lab	1.5
CSE 415 Digital Systems	3.0
CSE 416 Digital Systems Lab	1.5
CSE 421 Communication Engineering	3.0

(c) Thesis

CSE 400 Project and Thesis	4.5

(d) Advisor Approved Technical Electives (22.5 credit hours)

(Those courses not used to meet the advanced CSE core requirement can be used as technical electives)

(i) Elective I : Courses with Labs (13.5 credit hours)

CSE 315 Microprocessor and Interfacing	3.0

CSE 316 Microprocessor and Interfacing Lab	1.5
CSE 365 Pattern Recognition	3.0
CSE 366 Pattern Recognition Lab	1.5
CSE 381Simulation and Modeling	3.0
CSE 382 Simulation and Modeling lab	1.5
CSE 383 Basic Multimedia Theory	3.0
CSE 384 Basic Multimedia Theory Lab	1.5
CSE 417 Computer Graphics and Image Processing	3.0
CSE 418 Computer Graphics and Image Processing Lab	1.5
CSE 467 Advanced Database Management Systems	3.0
CSE 468 Advanced Database Management Systems Lab	1.5
EEE 415 Digital Electronics and Pulse Techniques	3.0
EEE 416 Digital Electronics and Pulse Techniques Lab	1.5

(ii) Elective II : Courses without Labs (9.0 credit hours)

CSE 423 Internet and Web Technologies	3 .0
CSE 425 Machine Learning	3 .0
CSE 427 Neural Networks and Fuzzy Systems	3 .0
CSE 429 Fault Tolerance Systems	3 .0
CSE 449 Real Time Systems	3 .0
CSE 443 Optical Fiber Communication	3 .0

Sequence of course offerings in eight Semesters:

1st Year 1st Semester [1st Semester

Sl. No.	Course Code	Course Title	Credit Hr.	Pre-Requisite/ co-requisite
1.	CSE 111	Computer Fundamentals	2.00	
2.	PHY 111	Physics	3.00	
3.	PHY 112	Physics Lab	1.50	
4.	CSE 113	Structured Programming Language	3.00	
5.	CSE 114	Structured Programming Language Lab	1.50	
6.	MATH 115	Differential Calculus and Integral Calculus	3.00	
7.	ENG 119	English	3.00	
8.	HSS ***	GED Course	3.00	
		Subtotal	**20.00**	

1st Year 2nd Semester [2nd Semester

Sl. No.	Course Code	Course Title	Credit Hr.	Pre-Requisite
1.	ENG 120	Developing English Skills Lab	1.00	ENG 119
2.	CSE 121	Discrete Mathematics	3.00	
3.	CSE 123	Object Oriented Programming	3.00	CSE 113
4.	CSE 124	Object Oriented Programming Lab	1.50	CSE 114
5.	EEE 123	Introduction to Electrical Engineering	3.00	PHY 111
6.	EEE 124	Introduction to Electrical Engineering Lab	1.50	
7.	MATH 125	Ordinary and Partial Differential Equations	3.00	
8.	CHEM 127	Chemistry	3.00	
9.	CHEM 128	Chemistry Lab	1.00	
		Subtotal	**20.00**	

2nd Year 1st Semester [3rd Semester

Sl. No.	Course Code	Course Title	Credit Hr.	Pre-Requisite/ co-requisite
1.	CSE 211	Data Structure	3.00	CSE 113
2.	CSE 212	Data Structure Lab	1.50	CSE 114
3.	EEE 213	Electronic Devices and Circuits	3.00	EEE 123
4.	EEE 214	Electronic Devices and Circuits Lab	1.50	EEE 124
5.	ME 215	Basic Mechanical Engineering	3.00	
6.	MATH 217	Co-ordinate Geometry and Vector Analysis	3.00	
7.	HSS ***	GED Course	3.00	
		Subtotal	**18.00**	

2nd Year 2nd Semester [4th Semester

Sl. No.	Course Code	Course Title	Credit Hr.	Pre-Requisite/ Co-Requisite
1.	CSE 221	Algorithms	3.00	CSE 113
2.	CSE 222	Algorithms Lab	1.50	CSE 114
3.	CSE 223	Database Management Systems	3.00	
4.	CSE 224	Database Management Systems Lab	1.50	
5.	CSE 225	Digital Logic Design	3.00	
6.	CSE 226	Digital Logic Design Lab	1.50	
7.	CSE 227	Theory of Computing	3.00	CSE 121
8.	MATH 229	Linear Algebra and Complex Variables	3.00	
9.	ACT ***	GED Course	3.00	
		Subtotal	**22.50**	

3rd Year 1st Semester [5th Semester

Sl. No.	Course Code	Course Title	Credit Hr.	Pre-Requisite/ Co-Requisite
1.	CSE 311	Numerical Analysis	3.00	CSE 221
2.	CSE 312	Numerical Analysis Lab	1.50	CSE 222
3.	CSE 313	Data Communication	3.00	
4.	CSE ***	Elective I	3.00	
5.	CSE ***	Elective I Lab	1.50	
6.	CSE 319	Computer Architecture	3.00	
7.	ECO ***	GED Course	3.00	
8.	MATH 319	Statistics and Probability	3.00	
		Subtotal	**21.00**	

3rd Year 2nd Semester [6th Semester

Sl. No.	Course Code	Course Title	Credit Hr.	Pre-Requisite/ Co-Requisite
1.	CSE 321	Compiler Design	3.00	CSE 227
2.	CSE 322	Compiler Design Lab	1.50	
3.	CSE 323	Artificial Intelligence & Expert systems	3.00	
4.	CSE 324	Artificial Intelligence & Expert systems Lab	1.50	
5.	CSE 325	Computer Networks	3.00	
6.	CSE 326	Computer Networks Lab	1.50	
7.	CSE 327	Operating Systems	3.00	
8.	CSE 328	Operating Systems Lab	1.50	
9.	BUS ***	GED Course	3.00	
		Subtotal	**21.00**	

4th Year 1st Semester [7th Semester

Sl. No.	Course Code	Course Title	Credit Hr.	Pre-Requisite/ Co-Requisite
1.	CSE 400	Project and Thesis	1.50	
2.	CSE 410	System Analysis and Design Lab	1.50	
3.	EEE ***	Advance core course	3.00	
4.	CSE 413	Software Engineering	3.00	
5.	CSE 414	Software Engineering Lab	1.50	
6.	EEE ***	Elective I	3.00	
7.	EEE ***	Elective I lab	1.50	
8.	CSE ***	Elective I	3.00	
9.	CSE ***	Elective I Lab	1.50	
		Subtotal	**19.50**	

4th Year 2nd Semester [8th Semester

Sl. No.	Course Code	Course Title	Credit Hr.	Pre-Requisite/ Co-Requisite
1.	CSE 400	Project and Thesis	3.00	
2.	CSE 421	Communication Engineering	3.00	
3.	CSE ***	Elective II	3.00	
4.	CSE ***	Elective II	3.00	
5.	CSE ***	Elective II	3.00	
		Subtotal	**15.00**	

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