CENTRAL WOMEN'S UNIVERSITY (CWU)
Department of Computer Science and Engineering

Course Curriculum of Bachelor of Science (B.Sc.) in Computer Science and Engineering (CSE) Program
Minimum Requirement 160 Credits

Summary of Courses

Course Category	Credits
Language & General Education Courses	24
Basic Science Courses	11
Mathematics & Statistics Courses	15
Other Engineering Courses	12
Core Courses	78
Elective Courses	20
Total	160

1. Language & General Education Courses (24 Credits)

1.1 Compulsory Language Courses (9 Credits)

Course Code	Course Title	Credits	Prerequisite Courses
ENG 101	Communicative English	3	-
ENG 102	Writing Skills	3	ENG 101
BAN 101	Bangla Language	3	-

1.2 Optional Language Courses

Course Code	Course Title	Credits	Prerequisite Courses
ENG 103	Advanced Composition	3	ENG102

1.3 Compulsory General Education Courses (9 Credits)

Course Code	Course Title	Credits	Prerequisite Courses
SGS 105	Bangladesh Studies	3	-
SGS 106	History of the Emergence of Bangladesh	3	-
CSE 335	Professional Ethics and Environmental Protection	3	-

1.4 Optional General Education Courses (6 Credits)

1.4.1 Social Science Courses

Course Code	Course Title	Credits	Prerequisite Courses
CSE 231	Engineering Economics	3	-
SGS 101	Introduction to Sociology	3	-
CSE 235	History and Philosophy of Science	3	-
CSE 341	Environment and Society	3	-
CSE 239	Introduction to Human Development	3	-

CSE 343	Social Inequality and Planning	3	-

1.4.2 Arts and Humanities Courses

CSE 345	International Relations	3	-
CSE 347	History of South Asia	3	-
SGS 103	World Civilizations	3	-

1.4.3 Business Courses

BUS 202	Business Communications	3	-
BUS 301	Principles of Management	3	-
BUS 307	Entrepreneurship Development	3	-
CSE 339	Financial and Managerial Accounting	3	-
BUS 403	Operations Management	3	-

2. Basic Science Courses (11 Credits)

2.1 Physics Courses

Course Code	Course Title	Credits	Prerequisite Courses
PHY 101	Physics-I	3	-
PHY 102	Physics-I Sessional	1	-
PHY 203	Physics-II	3	PHY 101
PHY 204	Physics-II Sessional	1	-

2.2 Chemistry Courses

CHY 101	Chemistry	3	-

3. Mathematics and Statistics Courses (14 credit hours)

3.1 Mathematics Courses

Course Code	Course Title	Credits	Prerequisite Courses
MAT 101	Mathematics-I	3	-
MAT 103	Mathematics-II	3	MAT 101
MAT 201	Mathematics-III	3	MAT 103
MAT 301	Mathematics-IV	3	MAT 201

3.2 Statistics Courses

STA 201	Statistics	2	MAT 103

4. Other Engineering Courses (11 Credits)

4.1 EEE Courses

Course Code	Course Title	Credits	Prerequisite Courses
EEE 101	Basic Electrical Engineering	3	-
EEE 102	Basic Electrical Engineering Sessional	1.5	-
EEE 201	Electronic Devices, Circuits and Pulse Techniques	3	EEE 101
EEE 202	Electronic Devices, Circuits and Pulse Techniques Sessional	1.5	-

4.2 Engineering Drawing Courses (2 Credits)

END 201	Engineering Drawing	1	-
END 202	Engineering Drawing Sessional	1	-

5. Core Courses (80 credits)

5.1 Programming Courses (20 Credits)

Course Code	Course Title	Credits	Prerequisite Courses
CSE 101	Introduction to Computing	3	-
CSE 103	Structured Programming	3	-
CSE 104	Structured Programming Sessional	1.5	-
CSE 201	Object Oriented Programming	3	CSE 103
CSE 202	Object Oriented Programming Sessional	1.5	-
CSE 315	Numerical Methods	2	MAT 301, CSE 103
CSE 316	Numerical Methods Sessional	1	-
CSE 323	Web and Mobile Programming	3	CSE 105
CSE 324	Web Programming Sessional	1	-
CSE 326	Mobile Programming Sessional	1	-

5.2 Hardware Systems Courses (11 Credits)

Course Code	Course Title	Credits	Prerequisite Courses
CSE 223	Digital Logic Design	3	EEE 201
CSE 224	Digital Logic Design Sessional	1	-
CSE 307	Computer Architecture	3	CSE 205
CSE 333	Microprocessor and Microcontroller	3	CSE 205
CSE 334	Microprocessor and Microcontroller Sessional	1	

5.3 Logics and Algorithms Courses (11 Credits)

Course Code	Course Title	Credits	Prerequisite Courses
CSE 107	Discrete Mathematics	3	-
CSE 211	Data Structures	3	CSE 103
CSE 212	Data Structures Sessional	1	-
CSE 221	Algorithms	3	CSE 201
CSE 222	Algorithms Sessional	1	

5.4 Systems Courses (22 Credits)

Course Code	Course Title	Credits	Prerequisite Course
CSE 217	Database Management System	3	CSE 211
CSE 218	Database Management System Sessional	1	-
CSE 329	Operating System	3	CSE 309
CSE 330	Operating System Sessional	1	-

CSE 331	Linux System Administration	3	
CSE 405	Computer Networks	3	CSE 313
CSE 406	Computer Networks Sessional	1	-
CSE 413	Compiler	3	CSE 107
CSE 414	Compiler Sessional	1	-
CSE 425	Computer and Cyber Security	3	CSE 405

5.5 Software Systems and Engineering Courses (7 Credits)

Course Code	Course Title	Credits	Prerequisite Courses
CSE 213	System Analysis and Design	3	CSE 313
CSE 327	Software Engineering	3	-
CSE 328	Software Engineering Sessional	1	-

5.6 Communications Courses (3 Credits)

Course Code	Course Title	Credits	Prerequisite Courses
CSE 313	Data Communication	3	-

5.7 Dissertation (6 Credits)

Course Code	Course Title	Credits	Prerequisite Courses
CSE 400	Project/Thesis	6	-

6. Elective Subjects (20 Credits should be completed from any Track)

6.1 Track-I (Computing Theory)

Course Code	Course Title	Credits	Prerequisite Courses
CSE 415	Basic Graph Theory	3	CSE 203
CSE 416	Basic Graph Theory Sessional	1	
CSE 417	Computational Geometry	3	
CSE 418	Computational Geometry Sessional	1	
CSE 419	Algorithm Engineering	3	CSE 203
CSE 420	Algorithm Engineering Sessional	1	
CSE 423	Mathematical Analysis for Computer Science	3	CSE 301
CSE 424	Mathematical Analysis for Computer Science Sessional	1	
CSE 4XX	Relevant Courses	3	
CSE 4XX	Relevant Courses Sessional	1	

6.2 Track-II(Communications and ICT)

Course Code	Course Title	Credits	Prerequisite Courses
CSE 471	Wireless and Cellular Communication	3	CSE 209
CSE 472	Wireless and Cellular Communication Sessional	1	
CSE 473	Web Application and Security	3	CSE 301
CSE 474	Web Application and Security Sessional	1	
CSE 475	Electronic Business	3	
CSE 476	Electronic Business Sessional	1	
CSE 477	Visualizing Complex Information	3	MAT 301
CSE 478	Visualizing Complex Information Sessional	1	

CSE 479	Mobile Web Development and Usability Testing	3	CSE 301
CSE 480	Mobile Web Development and Usability Testing Sessional	1	
CSE 4XX	Relevant Courses	3	
CSE 4XX	Relevant Courses Sessional	1	

6.3 Track-III (System and Data Science)

Artificial Intelligence

CSE 409	Artificial Intelligence	3	CSE 203
CSE 410	Artificial Intelligence	1	
CSE 429	Simulation and Modeling	3	STA 201
CSE 430	Simulation and Modeling Sessional	1	
CSE 431	Computer Graphics	3	MAT 301
CSE 432	Computer Graphics Sessional	1	
CSE 435	Neural Networks and Fuzzy Systems	3	CSE 203
CSE 436	Neural Networks and Fuzzy Systems Sessional	1	
CSE 439	Distributed Database	3	CSE 207
CSE 440	Distributed Database Sessional	1	
CSE 441	Machine Learning	3	CSE 203
CSE 442	Machine Learning Sessional	1	
CSE 443	Data Mining	3	MAT 301
CSE 444	Data Mining Sessional	1	
CSE 445	Bioinformatics	3	
CSE 446	Bioinformatics Sessional	1	
CSE 447	Digital Image Processing	3	MAT 301
CSE 448	Digital Image Processing Sessional	1	
CSE 449	Big Data Analysis	3	CSE 207
CSE 450	Big Data Analysis Sessional	1	
CSE 451	Cloud Computing	3	CSE 209
CSE 452	Cloud Computing Sessional	1	
CSE 4XX	Relevant Courses	3	
CSE 4XX	Relevant Courses Sessional	1	

6.4 Track-IV (Software Engineering)

Course Code	Course Title	Credits	Prerequisite Courses
CSE 453	Human Computer Interaction	3	CSE 313, CSE 315
CSE 454	Human Computer Interaction Sessional	1	
CSE 455	Software Architecture	3	
CSE 456	Software Architecture Sessional	1	
CSE 457	Software Testing and Quality Assurance	3	CSE 313
CSE 458	Software Testing and Quality Assurance Sessional	1	
CSE 459	Mobile Application Development	3	CSE 105

Course Code	Course Title	Credits	Prerequisite Courses
CSE 460	Mobile Application Development Sessional	1	
CSE 4XX	Relevant Courses	3	
CSE 4XX	Relevant Courses Sessional	1	

6.5 Track V (Hardware)

Course Code	Course Title	Credits	Prerequisite Courses
CSE 421	Computer Interfacing	3	CSE 205
CSE 422	Computer Interfacing Sessional	1	
CSE 433	VLSI Design	3	CSE 205
CSE 434	VLSI Design Sessional	1	
CSE 437	Computer Vision and Robotics	3	CSE 203
CSE 438	Computer Vision and Robotics Sessional	1	
CSE 461	Digital System Design	3	CSE 205
CSE 462	Digital System Design Sessional	1	
CSE 463	Embedded System	3	CSE 205
CSE 464	Embedded System Sessional	1	
CSE 4XX	Relevant Courses	3	
CSE 4XX	Relevant Courses Sessional	1	

(Semester wise Courses offered to the Undergraduate Students)

First Semester

S.L.	Course Code	Course Title	Credits	Contact Hours/ Week	Prerequisite Courses
1.	ENG 101	Communicative English	3	3	
2.	CSE 101	Introduction to Computing	3	3	
3.	BAN 101	Bangla Language	3	3	
4.	PHY 101	Physics-I	3	3	
5.	PHY 102	Physics-I Sessional	1	2	
6.	MAT 101	Mathematics-I	3	3	
7.	SGS 105	Bangladesh Studies	3	3	
8.	CHY 101	Chemistry	3	3	
		Total	22	23	

Second Semester

S.L.	Course Code	Course Title	Credits	Contact Hours/ Week	Prerequisite Courses
1.	ENG 102	Writing Skills	3	3	ENG 101
2.	CSE 103	Structured Programming	3	3	-
3.	CSE 104	Structured Programming Sessional	1.5	3	-
4.	CSE 107	Discrete Mathematics	3	3	-
5.	MAT 103	Mathematics-II	3	3	MAT 101
6.	EEE 101	Basic Electrical Engineering	3	3	-
7.	EEE 102	Basic Electrical Engineering Sessional	1.5	3	-

8.	SGS 106	History of the Emergence of Bangladesh	3	3	-
		Total	21	24	

Third Semester

S.L.	Course Code	Course Title	Credits	Contact Hours/ Week	Prerequisite Courses
1.	CSE 105	Object Oriented Programming	3	3	CSE 103
2.	CSE 105	Object Oriented Programming Sessional	1.5	3	-
3.	CSE 211	Data Structures	3	3	CSE 103
4.	CSE 212	Data Structures Sessional	1	2	-
5.	EEE 201	Electronic Devices, Circuits and Pulse Techniques	3	3	EEE 101
6.	EEE 202	Electronic Devices, Circuits and Pulse Techniques Sessional	1.5	3	-
7.	STA 201	Statistics	2	2	MAT 103
8.	PHY 203	Physics-II	3	3	-
9.	PHY 204	Physics-II Sessional	1	2	-
		Total Credits	19	24	

Forth Semester

S.L.	Course Code	Course Title	Credits	Contact Hours/ Week	Prerequisite Courses
1.	CSE-213	System Analysis and Design	3	3	CSE-201
2.	CSE 217	Database Management System	3	3	CSE 211
3.	CSE 218	Database Management System Sessional	1	2	-
4.	MAT 201	Mathematics-III	3	3	MAT 103
5.	CSE 221	Algorithms	3	3	CSE 201
6.	CSE 222	Algorithms Sessional	1	2	
7.	CSE 223	Digital Logic Design	3	3	EEE 201
8.	CSE 224	Digital Logic Design Sessional	1	2	-
9.	END 201	Engineering Drawing	1	1	-

10.	END 202	Engineering Drawing Sessional	1	2	-
		Total	20	24	

Fifth Semester

S.L.	Course Code	Course Title	Credits	Contact Hours/ Week	Prerequisite Courses
1.	CSE 323	Web and Mobile Programming	3	3	CSE 105
2.	CSE 324	Web Programming Sessional	1	2	-
3.	CSE 327	Software Engineering	3	3	CSE-213
4.	CSE 328	Software Engineering Sessional	1	2	-
5.	CSE 315	Numerical Methods	2	2	MAT 201
6.	CSE 316	Numerical Methods Sessional	1	2	
7.	CSE 307	Computer Architecture	3	3	CSE 223
8.	MAT 301	Mathematics-IV	3	3	MAT 201
9.	CSE XXX	Courses from General Education	3	3	
		Total	20	23	

Sixth Semester

S.L.	Course Code	Course Title	Credits	Contact Hours/ Week	Prerequisite Courses
1.	CSE 313	Data Communication	3	3	-
2.	CSE 326	Mobile Programming Sessional	1	2	CSE 323
3.	CSE 329	Operating System	3	3	CSE 307
4.	CSE 330	Operating System Sessional	1	2	-
5.	CSE 333	Microprocessor and Microcontroller	3	3	CSE 223
6.	CSE 334	Microprocessor and Microcontroller Sessional	1	2	
7.	CSE 335	Professional Ethics and Environmental Protection	3	3	
8.	CSE XXX	Courses from General Education	3	3	

9.	CSE 331	Linux System Administration	3	3	
		Total	21	24	

Seventh Semester

S.L.	Course Code	Course Title	Credits	Contact Hours/ Week	Prerequisite Courses
1.	CSE 405	Computer Networks	3	3	CSE 313
2.	CSE 406	Computer Networks Sessional	1	2	
3.	CSE 413	Compiler	3	3	-
4.	CSE 414	Compiler Sessional	1	2	
5.	CSE 4XX	Option-I	3	3	
6.	CSE 4XX	Option-I Sessional	1	2	
7.	CSE 4XX	Option-II	3	3	
8.	CSE 4XX	Option-II Sessional	1	2	
9.	CSE 4XX	Option-III	3	3	
10.	CSE 4XX	Option-III Sessional	1	2	
		Total	20	25	

Eighth Semester

S.L.	Course Code	Course Title	Credits	Contact Hours/ Week	Prerequisite Courses
1.	CSE 425	Computer and Cyber Security	3	3	CSE 405
2.	CSE 4XX	Option-IV	3	3	
3.	CSE 4XX	Option-IV Sessional	1	2	
4.	CSE 4XX	Option-V	3	3	
5.	CSE 4XX	Option-V Sessional	1	2	
6.	CSE 400	Thesis/Project	6	6	

Total	17	19	