

COURSE CURRICULUM OF BS PROGRAMME IN ENGINEERING SCIENCES

CORE COURSES

Semester I

Course No.	Course Title	Credits
CHM101	General Chemistry	3
MTH101	Calculus of One Variable	3
PHY101	Mechanics	3
EES101	Introduction to Earth Sciences	3
CHE103	Engineering Design and Drawing	3
HSS101	English for Communication	2
PHY103	General Physics Laboratory – I	1
BIO101* or ECO101*	Biology I: Biomolecules or Principles of Economics – I	3
Total Credits		21

Semester II

Course No.	Course Title	Credits
CHM112	Basic Organic Chemistry – I	3
MTH102	Linear Algebra	3
PHY102	Modern Physics	3
EES102	Introduction to Environmental Sciences	3
ECS102	Introduction to Programming	3
CHM114	Chemistry Laboratory – I	1
BIO102* or ECO102*	Biology II: Fundamentals of Cell Biology or Principles of Economics – II	3
Total Credits		19

* BS (Engineering Sciences) students can take either BIO101 or ECO101 in their 1st semester, followed by BIO102 or ECO102, respectively in their 2nd semester. In other words, these students must either do both BIO101 and BIO102 in their 1st year, or both ECO101 and ECO102.

Pre Major Year

Semester III

Chemical Engineering

Course No.	Course Title	Credits
CHE201	Engineering Mechanics (Solid and Fluid)	3
CHE203	Introduction to Thermodynamics	3
MTH201	Multivariable Calculus	3
*** **	Open Elective	3
*** **	Open Elective	3
*** **	Open Elective	3
Total Credits		18

Electrical Engineering and Computer Sciences

Course No.	Course Title	Credits
ECS201	Discrete Mathematics – I	3
ECS203	Basic Electronics	3
MTH201	Multivariable Calculus	3
*** **	Open Elective	3
*** **	Open Elective	3
*** **	Open Elective	3
Total Credits		18

Semester IV

Chemical Engineering

Course No.	Course Title	Credits
CHE202	Chemical Engineering Thermodynamics	3
CHE204	Chemical Process Calculation	3
CHE206	Introduction to Chemical Engineering Laboratory	1
MTH202	Probability and Statistics	3
*** **	Open Elective	3
*** **	Open Elective	3
*** **	Open Elective	3
Total Credits		19

Electrical Engineering and Computer Sciences

Course No.	Course Title	Credits
ECS202	Data Structures and Algorithms	3
ECS204	Signals and Systems	3
MTH202	Probability and Statistics	3
*** **	Open Elective	3
*** **	Open Elective	3
*** **	Open Elective	3
Total Credits		18

PROFESSIONAL COURSES

BS in Electrical Engineering and Computer Science (EECS)

Semester V

Course No.	Course Name	Credits
ECS301	Principles of Communication	4
ECS307	Theory of Computation	4
ECS323	Control Systems	4
ECS325	Analog Circuits	4
ECS321	Electronic Devices	4
ECS327	EECS Laboratory I	1
Total Credits		21

Semester VI

Course No.	Course Name	Credits
ECS306	Algorithms	4
ECS322	Electromagnetic Theory	4
ECS326	Digital Circuits and Systems	4
ECS304	Data Science and Machine Learning	4
ECS330	EECS Laboratory II	3
Total Credits		19

Semester VII

Course No.	Course Name	Credits
ECS409	Computer Organization	4
ECS ***	Departmental Elective – I	4
ECS ***	Departmental Elective – II	4
*** ***	Open Elective – I	4
*** ***	Open Elective – II	4
Total Credits		20

Semester VIII

Course No.	Course Name	Credits
ECS408	Operating Systems	4
ECS 412	Project Work	4
ECS ***	Departmental Elective – III	4
*** ***	Open Elective – III	4
*** ***	Open Elective – IV	4
Total Credits		20

Curriculum for additional one year to obtain BS-MS (Dual Degree) in EECS

Semester IX

Course No.	Course Name	Credits
ECS 501	MS Thesis	12
*** ***	Open Elective – V	4
*** ***	Open Elective – VII	4
HSS 503 [§]	Law Relating to Intellectual Property and Patents	1
Total Credits		21

Semester X

Course No.	Course Name	Credits
ECS 502	MS Thesis	18

[§]Students can credit this course any time before completion of BS Programme, as and when offered.

BS in Chemical Engineering (CHE)

Semester V

Course No.	Course Title	Credits
CHE 301	Heat Transfer Operations	4
CHE 303	Fluid Mechanics and Mechanical Operations	4
CHE 305	Numerical Methods in Chemical Engineering	4
CHE 307	Thermodynamics Laboratory	2
CHE ***	Department Elective – I	4
*** **	Open Elective – I	4
Total Credits		20

Semester VI

Course No.	Course Title	Credits
CHE 302	Chemical Reaction Engineering-I	4
CHE 304	Mass Transfer and Separation Process	4
CHE 306	Heat Transfer Laboratory	2
CHE 308	Fluid Mechanics Laboratory	2
CHE ***	Department Elective – II	4
*** **	Open Elective – II	4
Total Credits		20

Semester VII

Course No.	Course Title	Credits
CHE401/CHM421	Statistical Mechanics	4
CHE 403	Process Dynamics and Control	4
CHE 405	Chemical Reaction Engineering-II	4
CHE 407	Chemical Reaction Engineering Laboratory	2
CHE 409	Mass Transfer Laboratory	2
*** **	Open Elective – III	4
Total Credits		20

Semester VIII

Course No.	Course Title	Credits
CHE 402	Process Design and Economics	4
CHE 406	Advanced Transport Phenomena	4
CHE 408	Process Control and Instrumentation Laboratory	2
CHE 412	Project Work	4
CHE ***	Department Elective – III	4
*** **	Open Elective – IV	4
Total Credits		22

Curriculum for additional one year to obtain BS-MS (Dual Degree) in CHE

Semester IX

Course No.	Course Title	Credits
CHE 501	MS Thesis	12
CHE ***	Department Elective – IV	4
*** **	Open Elective – V	4
HSS 503 [§]	Law Relating to Intellectual Property and Patents	1
Total Credits		21

Semester X

Course No.	Course Title	Credits
CHE 502	MS Thesis	18

[§]Students can credit this course any time before completion of BS Programme, as and when offered.

List of mandatory courses required to be credited in order to get a Minor in EECS

Course No.	Course Name	Credits
ECS201	Discrete Mathematics I	3
ECS202	Data Structures and Algorithms	3
ECS203	Basic Electronics	3
ECS204	Signals and Systems	3
ECS301	Principles of Communication	4
ECS409	Computer Organization	4

List of mandatory courses required to be credited in order to get a Minor in CHE

Course No.	Course Name	Credits
CHE 301	Heat Transfer Operations	4
CHE 302	Chemical Reaction Engineering – I	4
CHE 303	Fluid Mechanics and Mechanical Operations	4
CHE 304	Mass Transfer and Separation Process	4