

BS in Engineering Sciences
Course Curriculum for AY: 2022-23

Semester I

Course No.	Course Title	Credits
CHE103	Engineering Design and Drawing	3
CHM101	General Chemistry	3
EES101	Earth Materials and Processes	3
HSS101	English for Communication	2
MTH101	Calculus of One Variable	3
PHY101	Mechanics	3
PHY103	General Physics Laboratory I	1
PT101	Physical Training	0
<i>Elective Courses (Any One)</i>		
BIO101*	Biology I: Biomolecules	3
ECO101*	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
PHY106	Quantum Physics	3
EES102	Introduction to Environmental Sciences	3
ECS102	Introduction to Programming	3
CHM114	Chemistry Laboratory I	1
<i>Elective Courses (Any One)</i>		
BIO102*	Biology II: Fundamentals of Cell Biology	3
ECO102*	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.

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Semester III

Course No.	Course Title	Credits
CHE201	Engineering Mechanics (Solid and Fluid)	3
CHE205	Chemical Engineering Thermodynamics	3
ECS201	Discrete Mathematics I	3
ECS203	Basic Electronics	3
MTH201X	Multivariable Calculus	3
ECO201	Econometrics I	4
Total Credits		19

Semester IV

Course No.	Course Title	Credits
CHE208	Chemical Process Technology	3
CHE204	Chemical Process Calculations	3
CHE206	Introduction to Chemical Engineering Laboratory	1
ECS202	Data Structures and Algorithms	3
ECS204	Signals and Systems	3
MTH202O	Probability and Statistics	3
*** **	Open Elective	3
Total Credits		19

BS/BSMS in Chemical Engineering (CHE)
Course Curriculum for AY: 2022-23

Semester V

Course No.	Course Title	Credits
CHE305	Heat Transfer Operations	4
CHE307	Fluid Mechanics and Mechanical Operations	4
CHE309	Numerical Methods in Chemical Engineering	4
CHE313	Fluid Mechanics and Thermodynamics Laboratory	3
*** **	Open Elective I	3/4
ECO500	Law Relating to Intellectual Property and Patents	1
Total Credits		19

Semester VI

Course No.	Course Title	Credits
CHE306	Chemical Reaction Engineering I	4
CHE304X	Mass Transfer and Separation Process	4
CHE316	Heat and Mass Transfer Laboratory	3
CHE***	Department Elective I	4
*** **	Open Elective II	3/4
Total Credits		19

Semester VII

Course No.	Course Title	Credits
CHE401	Statistical Mechanics	4
CHE403	Process Dynamics and Control	4
CHE405	Chemical Reaction Engineering II	4
CHE413	Chemical Reaction Engineering and Process Control Laboratory	3
*** **	Open Elective III	4
Total Credits		19

Semester VIII

Course No.	Course Title	Credits
CHE402	Process Design and Economics	4
CHE406	Advanced Transport Phenomena	4
CHE412	Project Work	4
CHE***	Department Elective II	4
*** **	Open Elective IV	4
Total Credits		20

BS/BSMS in Chemical Engineering (CHE)

Course Curriculum for AY: 2022-23

Semester IX

Course No.	Course Title	Credits
CHE501	MS Thesis	12
CHE***	Department Elective III	4
*** **	Open Elective V	4
Total Credits		20

Semester X

Course No.	Course Title	Credits
CHE502	MS Thesis	18
Total Credits		18

BS in Data Science and Engineering (DSE)
Course Curriculum for AY: 2022-23

Semester V

Course No.	Course Title	Credits
DSE317	Machine Learning	4
DSE315	Data Science in Practice	4
DSE312	Computer Vision	4
DSE310	Fundamentals of Database Systems	4
*** **	Open Elective I	4
Total Credits		20

Semester VI

Course No.	Course Title	Credits
DSE304	Algorithms	4
DSE311	Applied Optimization	4
DSE313	Artificial Intelligence	4
DSE316	Deep Learning	4
*** **	Open Elective II	4
Total Credits		20

Semester VII

Course No.	Course Title	Credits
DSE316	Deep Learning	4
DSE406	Spatial Data Science and Applications	4
DSE407	Natural Language Processing	4
*** **	Open Elective III	4
*** **	Open Elective IV	4
*** **	Open Elective V	4
Total Credits		24

Semester VIII

Course No.	Course Title	Credits
DSE400	Project Work	18

BS in Electrical Engineering and Computer Science (ECS)
Course Curriculum for AY: 2022-23

Semester V

Course No.	Course Title	Credits
ECS301	Principles of Communications	4
ECS307	Theory of Computation	4
ECS321	Electronic Devices	4
ECS323	Control Systems	4
ECS325	Analog Circuits	4
ECS327	EECS Laboratory I	1
ECO500	Law Relating to Intellectual Property and Patents	1
Total Credits		19

Semester VI

Course No.	Course Title	Credits
ECS308	Data Science and Machine Learning	4
ECS310	Algorithms	4
ECS322	Electromagnetic Theory	4
ECS326	Digital Circuits and Systems	4
ECS330	EECS Laboratory II	3
Total Credits		19

Semester VII

Course No.	Course Title	Credits
ECS409	Computer Organisation	4
ECS***	Department Elective I	4
ECS***	Department Elective II	4
*** **	Open Elective I	4
*** **	Open Elective II	4
Total Credits		19

BS in Electrical Engineering and Computer Science (ECS)
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Semester VIII

Course No.	Course Title	Credits
ECS408	Operating Systems	4
ECS412	Project Work	4
ECS***	Department Elective III	4
*** **	Open Elective III	4
*** **	Open Elective IV	4
Total Credits		20

Semester IX

Course No.	Course Title	Credits
ECS501	MS Thesis	12
*** **	Open Elective V	4
*** **	Open Elective VI	4
Total Credits		20

Semester X

Course No.	Course Title	Credits
ECS502	MS Thesis	18
Total Credits		18