



**HINDUSTAN**  
INSTITUTE OF TECHNOLOGY & SCIENCE  
(DEEMED TO BE UNIVERSITY)

**CURRICULUM R 2022 A**  
**(in line with NEP 2020)**

**B.Tech. Civil Engineering**  
**(Duration: 4 Years)**

**(Applicable for Students admitted from Academic Year 2023-2024)**

**DEPARTMENT OF CIVIL ENGINEERING**  
**SCHOOL OF BUILDING SCIENCES**

**HINDUSTAN INSTITUTE OF TECHNOLOGY AND SCIENCE**

FRAMEWORK OF CURRICULUM 2022 A (in line with NEP 2020)									
SEMESTER – I									
SL. NO	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	BS	EMA51001	Matrices and Calculus	3	0	2	4	2	5
2	BS	<b>Any One Course to be Opted</b>		3	0	2	4	2	5
		EPH51001	Engineering Physics						
		ECT51001	Engineering Materials						
3	HS	<b>Any One Course to be Opted</b>		2	0	1	2	1	3
		GGGG1001	Communication Skills						
		GGGG1002	Personality Development and Soft Skills						
4	ES	<b>Any One Course to be Opted</b>		2	0	2	3	2	4
		ECS51009	Programming Fundamentals using C						
		ECS51010	Programming in Python						
		EME51001	Engineering Graphics and Computer Aided Design						
5	ES	EGE51002	Design Thinking	2	0	2	3	2	4
6	ES	<b>Any One Course to be Opted</b>		0	0	4	2	2	4
		EGE51406	Engineering Practices Lab						
		EGE51408	Fab Lab for Core Engineering						
7	HS	<b>Any One Course to be Opted (Outreach)</b>		0	0	2	1	4	2
		EGE51404	Outreach (NCC) – Level I #						
		EGE51405	Outreach (NSS, Y's Men, Rotaract) – Level I #						
8	HS	<b>Any One Course to be Opted (Indian / foreign language)</b>		2	0	0	2	2	2
		GGGG1008	Tamil (Regional Language)						
		GGGG1009	Hindi (Regional Language)						
		GGGG1010	Telugu (Regional Language)						
		GGGG1011	French (Foreign Language)						
		GGGG1012	German (Foreign Language)						
		GGGG1013	Spanish (Foreign Language)						
		GGGG1014	Korean (Foreign Language)						
		GGGG1015	Mandarin (Foreign Language)						
		GGGG1016	Japanese (Foreign Language)						
		<b>OR</b>							
EGE51001	Universal Human Values								
9	HS	ELS51006	Tamil Culture and Technology	1	0	0	1	2	1
<b>Total</b>				<b>15</b>	<b>0</b>	<b>15</b>	<b>22</b>	<b>19</b>	<b>30</b>

# Students should choose Level I and Level II of same outreach course in the semester 1 and 2 respectively.

SEMESTER – II									
SL. NO	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	BS	EMA51002	Analytical Mathematics	3	0	2	4	2	5
2	BS	<b>Any One Course to be Opted</b>		3	0	2	4	2	5
		EPH51001	Engineering Physics						
		ECT51001	Engineering Materials						
3	HS	<b>Any One Course to be Opted</b>		2	0	1	2	1	3
		GGGG1001	Communication Skills						
		GGGG1002	Personality Development and Soft Skills						
4	PC	ECE51001	Building Design and Technology	2	1	2	4	2	5
5	ES	<b>Any One Course to be Opted</b>		2	0	2	3	2	4
		ECS51009	Programming Fundamentals using C						
		ECS51010	Programming in Python						
		EME51001	Engineering Graphics and Computer Aided Design						
6	ES	<b>Any One Course to be Opted</b>		0	0	4	2	2	4
		EGE51406	Engineering Practices Lab						
		EGE51408	Fab Lab for Core Engineering						
7	HS	<b>Any One Course to be Opted</b>		0	0	2	1	4	2
		EGE51410	Outreach (NCC) – Level II #						
		EGE51411	Outreach (NSS, Y's Men, Rotaract) – Level II #						
8	HS	<b>Any One Course to be Opted (Indian / Foreign language)</b>		2	0	0	2	2	2
		GGGG1008	Tamil (Regional Language)						
		GGGG1009	Hindi (Regional Language)						
		GGGG1010	Telugu (Regional Language)						
		GGGG1011	French (Foreign Language)						
		GGGG1012	German (Foreign Language)						
		GGGG1013	Spanish (Foreign Language)						
		GGGG1014	Korean (Foreign Language)						
		GGGG1015	Mandarin (Foreign Language)						
		GGGG1016	Japanese (Foreign Language)						
		<b>OR</b>							
		EGE51001	Universal Human Values						
9	MC	EGE5101*	Mandatory Course I Mandatory Course I is a Non-credit course (Student shall select one course from the list given under Mandatory Course I)	3	0	0	-	2	3
<b>Total</b>				<b>17</b>	<b>1</b>	<b>15</b>	<b>22</b>	<b>19</b>	<b>33</b>

# Students should choose Level I and Level II of same outreach course in the semester 1 and 2 respectively.

**FRAMEWORK OF CURRICULUM 2022 A (in line with NEP 2020)**

**SEMESTER – III**

SL. NO	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	BS	EMA51003	Partial Differential Equations and Transforms	3	1	0	4	2	4
2	HS	GGGG1003	Advanced Academic Writing	1	0	1	1	1	2
3	PC	ECE51002	Mechanics of Structures	2	1	2	4	2	5
4	PC	ECE51003	Surveying and Planning	2	0	2	3	2	4
5	PC	ECE51004	Building Materials	2	0	2	3	2	4
6	DE	ECE515**	Departmental Elective 1	2	0	2	3	2	4
7	ES	EGE51003	Environmental Science and Sustainable Development	2	0	0	2	2	2
8	EEC	ECE51800	Design Project – 1	0	0	2	1	6	2
9	EEC	ECE51801	Internship -1 (To be carried out in summer after 2 <sup>nd</sup> semester and evaluated in 3 <sup>rd</sup> semester)	#			1	2	0
10	MC	EGE5102*	Mandatory Course II Mandatory Course II is a Non-credit course (Student shall select one course from the list given under Mandatory Course II)	3	0	0	0	2	3
<b>Total</b>				<b>17</b>	<b>2</b>	<b>11</b>	<b>22</b>	<b>23</b>	<b>30</b>

**SEMESTER – IV**

SL. NO	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	BS	EMA51007	Probability and Statistics	3	1	0	4	2	4
2	HS	GGGG1004	Professional Editing and Project Writing	1	0	1	1	1	2
3	PC	ECE51005	Geotechnical Engineering	2	1	2	4	2	5
4	PC	ECE51006	Environmental Engineering	2	0	2	3	2	4
5	PC	ECE51007	Design of Concrete Structures (Industry Collaborated Course)	2	0	2	3	2	4
6	DE	ECE515**	Departmental Elective 2	2	0	2	3	2	4
7	NE	E**517**	Non-Departmental Elective 1	2	0	2	3	2	4
8	EEC	ECE51802	Design Project – 2	0	0	2	1	6	2
9	MC	EGE5103*	Mandatory Course III Mandatory Course III is a Non-credit course (Student shall select one course from the list given under Mandatory Course III)	3	0	0	*	2	3
<b>Total</b>				<b>17</b>	<b>2</b>	<b>17</b>	<b>2</b>	<b>13</b>	<b>22</b>

**FRAMEWORK OF CURRICULUM 2022 A (in line with NEP 2020)**

**SEMESTER – V**

SL. NO	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	HS	GGGG1005	Public Speaking	1	0	1	1	1	2
2	PC	ECE51008	Structural Analysis	3	0	2	4	2	5
3	PC	ECE51009	Mechanics of Fluids	2	0	2	3	2	4
4	PC	ECE51010	Automation in Civil Engineering	2	0	2	3	2	4
5	DE	ECE515**	Departmental Elective 3	2	0	2	3	2	4
6	NE	E**517**	Non-Departmental Elective 2	2	0	2	3	2	4
7	EEC	ECE51803	Design Project – 3	0	0	2	1	6	2
8	ES	EGE51004	Entrepreneurship	2	0	0	2	6	2
9	EEC	ECE51804	Internship -2 (to be evaluated in 5 <sup>th</sup> semester. To be carried out in summer after 4 <sup>th</sup> semester))	#			1	0	0
<b>Total</b>				<b>13</b>	<b>1</b>	<b>13</b>	<b>21</b>	<b>23</b>	<b>27</b>

**SEMESTER – VI**

SL. NO	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	HS	GGGG1006	English for Competitive Examinations	1	0	1	1	1	2
2	PC	ECE51011	Design of Steel Structures	2	1	2	4	2	5
3	PC	ECE51012	Construction Project Management	2	0	2	3	2	4
4	PC	ECE51013	Transportation Engineering	2	0	2	3	2	4
5	DE	ECE515**	Departmental Elective 4	2	0	2	3	2	4
6	NE	E**517**	Non-Departmental Elective 3	2	0	2	3	2	4
7	PC	ECE51014	Introduction to Industry 4.0 (Case Study / Field Study / Product study)	2	0	2	3	6	4
8	EEC	ECE51805	Design Project – 4	0	0	2	1	6	2
<b>Total</b>				<b>13</b>	<b>1</b>	<b>15</b>	<b>21</b>	<b>23</b>	<b>29</b>

**FRAMEWORK OF CURRICULUM 2022 A (in line with NEP 2020)**

**SEMESTER – VII**

SL. NO	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	HS	GGGG1007	Verbal Reasoning and Interview Skills	1	0	1	1	1	2
2	PC	ECE51015	Estimation and Quantity Surveying	2	1	2	4	2	5
3	PC	ECE51016	Structural Dynamics and Aseismic Design	2	0	2	3	2	4
4	PC	ECE51017	Foundation Engineering	2	0	2	3	2	4
5	DE	ECE515**	Departmental Elective 5	2	0	2	3	2	4
6	NE	E**517**	Non-Departmental Elective 4	2	0	2	3	2	4
7	ES	EGE51005	Research Methodology and IPR	2	0	0	2	2	2
8	EEC	ECE51806	Project Phase 1	0	0	6	3	6	6
<b>Total</b>				<b>13</b>	<b>1</b>	<b>17</b>	<b>22</b>	<b>19</b>	<b>31</b>

**SEMESTER – VIII**

SL. NO	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
1	EEC	ECE51807	Project Phase 2	0	0	26	13	10	26
<b>Total</b>				<b>0</b>	<b>0</b>	<b>26</b>	<b>13</b>	<b>10</b>	<b>26</b>
<b>Total Credits for the Program</b>							<b>165</b>		

**CREDIT COUNT**

Semester	Credit Count
1	22
2	22
3	22
4	22
5	21
6	21
7	22
8	13
	165

**MANDATORY COURSES I**

S.No	Course Code	Course Title	Periods Per week				Total Contact Periods	Credits
1	EGE51011	Introduction to Women and Gender Studies	3	0	0	2	3	Non Credit Course
2	EGE51012	Public and Personal Administration	3	0	0	2	3	Non Credit Course
3	EGE51013	Constitution of India	3	0	0	2	3	Non Credit Course
4	EGE51014	Law for Engineers	3	0	0	2	3	Non Credit Course
5	EGE51015	Indian Knowledge System (IKS)	3	0	0	2	3	Non Credit Course

**MANDATORY COURSES II**

S.No..	Course Code	Course Title	Periods Per week				Total Contact Periods	Credits
1	EGE51021	Traditional Indian Systems of Medicine and Therapies	3	0	0	2	3	Non Credit Course
2	EGE51022	History of Science and Technology in India	3	0	0	2	3	Non Credit Course
3	EGE51023	Political and Economic Thought for a Humane Society	3	0	0	2	3	Non Credit Course
4	EGE51024	State, Nation-Building and Politics in India	3	0	0	2	3	Non Credit Course
5	EGE51025	Industrial Safety	3	0	0	2	3	Non Credit Course

**MANDATORY COURSES III**

S.No.	Course Code	Course Title	Periods Per week				Total Contact Periods	Credits
1	EGE51031	Principles of Management	3	0	0	2	3	Non Credit Course
2	EGE51032	Human Resource Management	3	0	0	2	3	Non Credit Course
3	EGE51033	Green Technology	3	0	0	2	3	Non Credit Course
4	EGE51034	Industrial Management	3	0	0	2	3	Non Credit Course
5	EGE51035	Fintech and Financing new Business	3	0	0	2	3	Non Credit Course

**COURSES OFFERED BY THE DEPARTMENT OF LANGUAGES**

S.No.	Course Code	Course Title	Semester	Credit
1	GGGG1001	Communication Skills (Improving English communication skills.)	I / II	2
2	GGGG1002	Personality Development and Soft Skills (Enhancing the personality through English communication skills)	I / II	2
3	GGGG1003	Advanced Academic Writing (Developing essential writing skills for academic and professional settings)	III	1
4	GGGG1004	Professional Editing and Project Writing (Presenting the skills of creating professional documents and projects that are clear, concise, and effective)	IV	1
5	GGGG1005	Public Speaking (Providing instruction and experience in preparation and delivery of speeches within a public setting and group discussion)	V	1
6	GGGG1006	English for Competitive Examinations (Developing the necessary skills and knowledge to succeed in competitive exams)	VI	1
7	GGGG1007	Verbal Reasoning and Interview Skills (Enhancing the understanding of reasoning using concepts framed in words and equipping to succeed in interviews)	VII	1

**DEPARTMENT ELECTIVES (DE) OFFERED UNDER FIVE VERTICALS**

SEM	Vertical 1	Vertical 2	Vertical 3	Vertical 4
	STRUCTURAL ENGINEERING	CONSTRUCTION MANAGEMENT	ENVIRONMENTAL/ WATER SOURCES	GEOTECHNICAL / TRANSPORTATION ENGINEERING
III	Concrete Technology Earthquake Engineering	Housing Planning and Management Construction Safety Management	Environmental Impact Assessment Irrigation Engineering	Engineering Geology Remote Sensing Techniques and Applications
IV	Wind Engineering Design of Steel Concrete Composite Structures	Building Services Construction Techniques, Equipment and Practices		
V				
VI				



VII				
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<b>LIST OF DEPARTMENTAL ELECTIVES</b>									
<b>Department Elective-1</b>									
<b>Specialization 1: STRUCTURAL ENGINEERING</b>									
<b>SEM</b>	<b>COURSE CATEGORY</b>	<b>COURSE CODE</b>	<b>NAME OF THE COURSE</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>	<b>S</b>	<b>TCH</b>
3	DE	ECE51500	Concrete Technology	2	0	2	3	2	4
3	DE	ECE51501	Earthquake Engineering	2	0	2	3	2	4
<b>Specialization 2: CONSTRUCTION MANAGEMENT</b>									
3	DE	ECE51502	Housing Planning and Management	2	0	2	3	2	4
3	DE	ECE51503	Construction Safety Management	2	0	2	3	2	4
<b>Specialization 3: ENVIRONMENTAL/ WATER SOURCES</b>									
3	DE	ECE51504	Environmental Impact Assessment	2	0	2	3	2	4
3	DE	ECE51505	Irrigation Engineering	2	0	2	3	2	4
<b>Specialization 4: GEOTECHNICAL / TRANSPORTATION ENGINEERING</b>									
3	DE	ECE51506	Engineering Geology	2	0	2	3	2	4
3	DE	ECE51507	Remote Sensing Techniques and Applications	2	0	2	3	2	4

<b>Department Elective-2</b>									
<b>Specialization 1: STRUCTURAL ENGINEERING</b>									
<b>SEM</b>	<b>COURSE CATEGORY</b>	<b>COURSE CODE</b>	<b>NAME OF THE COURSE</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>	<b>S</b>	<b>TCH</b>
4	DE	ECE51508	Wind Engineering	2	0	2	3	2	4
4	DE	ECE51509	Design of Steel Concrete Composite Structures	2	0	2	3	2	4
<b>Specialization 2: CONSTRUCTION MANAGEMENT</b>									
4	DE	ECE51510	Building Services	2	0	2	3	2	4
4	DE	ECE51511	Construction Techniques, Equipment and Practices	2	0	2	3	2	4
<b>Specialization 3: ENVIRONMENTAL/ WATER SOURCES</b>									

4	DE	ECE51512	Applied Hydrology	2	0	2	3	2	4
4	DE	ECE51513	Air Pollution Management	2	0	2	3	2	4
<b>Specialization 4: GEOTECHNICAL / TRANSPORTATION ENGINEERING</b>									
4	DE	ECE51514	Ground Improvement Techniques	2	0	2	3	2	4
4	DE	ECE51515	Road safety and Traffic Management	2	0	2	3	2	4

Department Elective-3									
Specialization 1: STRUCTURAL ENGINEERING									
SEM	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
5	DE	ECE51516	Tall Structures	2	0	2	3	2	4
5	DE	ECE51517	Prestressed Concrete	2	0	2	3	2	4
Specialization 2: CONSTRUCTION MANAGEMENT									
5	DE	ECE51518	Resource management for Construction	2	0	2	3	2	4
5	DE	ECE51519	Construction Planning and Scheduling using BIM	2	0	2	3	2	4
Specialization 3: ENVIRONMENTAL/ WATER SOURCES									
5	DE	ECE51520	Geo Environmental Engineering	2	0	2	3	2	4
5	DE	ECE51521	Industrial Waste Management	2	0	2	3	2	4
Specialization 4: GEOTECHNICAL / TRANSPORTATION ENGINEERING									
5	DE	ECE51522	Earth Retaining Structures	2	0	2	3	2	4
5	DE	ECE51523	Airport planning and Management	2	0	2	3	2	4

Department Elective-4									
Specialization 1: STRUCTURAL ENGINEERING									
SEM	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
6	DE	ECE51524	Bridge Structures	2	0	2	3	2	4
6	DE	ECE51525	Storage Structures	2	0	2	3	2	4
Specialization 2: CONSTRUCTION MANAGEMENT									
6	DE	ECE51526	Construction Quality Control and Assurance	2	0	2	3	2	4
6	DE	ECE51527	PERT and CPM for Project Management	2	0	2	3	2	4
Specialization 3: ENVIRONMENTAL/ WATER SOURCES									

6	DE	ECE51528	Green and Smart Buildings	2	0	2	3	2	4
6	DE	ECE51529	Indoor Air Quality	2	0	2	3	2	4
<b>Specialization 4: GEOTECHNICAL / TRANSPORTATION ENGINEERING</b>									
6	DE	ECE51530	Tunnel Engineering	2	0	2	3	2	4
6	DE	ECE51531	Seaport planning and Management	2	0	2	3	2	4

Department Elective-5									
Specialization 1: STRUCTURAL ENGINEERING									
SEM	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
7	DE	ECE51532	Industrial Structures	2	0	2	3	2	4
7	DE	ECE51533	Prefabricated Structures	2	0	2	3	2	4
7	DE	ECE51534	Finite Element Analysis	2	0	2	3	2	4
Specialization 2: CONSTRUCTION MANAGEMENT									
7	DE	ECE51535	Repair and Rehabilitation of Structures	2	0	2	3	2	4
7	DE	ECE51536	Construction project laws and regulations	2	0	2	3	2	4
Specialization 3: ENVIRONMENTAL/ WATER SOURCES									
7	DE	ECE51537	Water Resources Engineering	2	0	2	3	2	4
7	DE	ECE51538	Municipal Solid Waste management	2	0	2	3	2	4
Specialization 4: GEOTECHNICAL / TRANSPORTATION ENGINEERING									
7	DE	ECE51539	Offshore foundation Engineering	2	0	2	3	2	4
7	DE	ECE51540	Pavement Design and Engineering	2	0	2	3	2	4

**LIST OF NON-DEPARTMENTAL ELECTIVES****Non-Department Elective-1**

SEM	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
4	NE	ECE51700	Solid Waste Management	2	0	2	3	2	4
4	NE	ECE51701	Air and Noise PollutionControl	2	0	2	3	2	4

**Non-Department Elective-2**

SEM	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
5	NE	ECE51702	Sustainable Engineering Practices	2	0	2	3	2	4
5	NE	ECE51703	Environmental Impact Assessment for Engineering Projects	2	0	2	3	2	4

**Non-Department Elective-3**

SEM	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
6	NE	ECE51704	Project Safety Management	2	0	2	3	2	4
6	NE	ECE51705	Introduction to Oceanography	2	0	2	3	2	4

**Non-Department Elective-4**

SEM	COURSE CATEGORY	COURSE CODE	NAME OF THE COURSE	L	T	P	C	S	TCH
7	NE	ECE51706	Intelligent Transportation systems	2	0	2	3	2	4
7	NE	ECE51707	Introduction to Road Safety and Management	2	0	2	3	2	4
7	NE	ECE51708	Standards and Practices in Civil Engineering	2	0	2	3	2	4