

**ACADEMIC CURRICULA 2024 - 2025**

**BACHELOR'S DEGREE PROGRAMME**  
**B.Tech.(Hons. / Res.) in**  
**CONSTRUCTION TECHNOLOGY**  
**Curricula & Syllabi**



**Kalinga Institute of Industrial Technology (KIIT)**  
Deemed to be University U/S 3 of UGC Act, 1956  
Bhubaneswar, Odisha, India

**COURSE STRUCTURE**  
**B. Tech. in Construction Technology**

**SEMESTER-I**

Theory							
Sl. No.	Course Code	Courses	L	T	P	Total	Credit
1	PH10001	Physics	3	0	0	3	3
2	MA11001	Differential Equations and Linear Algebra	3	1	0	4	4
3		Science Elective	2	0	0	2	2
4		Engineering Elective	2	0	0	2	2
5	LS10001	Science of Living Systems	2	0	0	2	2
6	CH10003	Environmental Science	2	0	0	2	2
<b>Total Theory</b>						<b>15</b>	<b>15</b>
Practical							
1	PH19001	Physics Laboratory	0	0	2	2	1
2	CS13001	Programming Laboratory	0	2	4	6	4
Sessional							
1	CE18001	Engineering Drawing & Graphics	0	0	2	2	1
<b>Total Practical</b>						<b>10</b>	<b>6</b>
<b>Total Semester</b>						<b>25</b>	<b>21</b>

**SEMESTER-II**

Theory							
Sl. No.	Course Code	Courses	L	T	P	Total	Credit
1	CH10001	Chemistry	3	0	0	3	3
2	MA11002	Transform Calculus and Numerical Analysis	3	1	0	4	4
3	HS10001	English	2	0	0	2	2
4	EC10001	Basic Electronics	2	0	0	2	2
5	ME10001	Engineering Mechanics	2	0	0	2	2
6		HASS Elective - I	2	0	0	2	2
<b>Total Theory</b>						<b>15</b>	<b>15</b>
Practical							
1	CH19001	Chemistry Laboratory	0	0	2	2	1
2	EX19001	Engineering Laboratory	0	0	2	2	1
Sessional							
1	ME18001	Workshop	0	0	2	2	1

2	YG18001	Yoga	0	0	2	2	1
3	HS18001	Communication Laboratory	0	0	2	2	1
<b>Total Practical</b>						<b>10</b>	<b>5</b>
<b>Semester Total</b>						<b>25</b>	<b>20</b>

### SEMESTER-III

Theory							
Sl. No.	Course Code	Courses	L	T	P	Total	Credit
1	EX20003	Scientific & Technical Writing	2	0	0	2	2
2	MA21001	Probability & Statistics	3	1	0	4	4
3	CE20001	Solid Mechanics	3	0	0	3	3
4	CT20001	Construction Material & Technology	3	0	0	3	3
5	CE20005	Surveying & Geomatic Engineering	3	0	0	3	3
6	CT21001	Fluid Mechanics & Hydraulic Machines	3	1	0	4	4
<b>Total Credit (Theory Courses)</b>						<b>19</b>	<b>19</b>
Practical							
1	CE29001	Environmental Quality Analysis Laboratory	0	0	2	2	1
2	CE29003	Material Testing Laboratory	0	0	2	2	1
3	CT29001	Fluid Mechanics & Hydraulic Machines Laboratory	0	0	2	2	1
<b>Total Credit (Practical Courses)</b>						<b>6</b>	<b>3</b>
Vocational Course							
1	CT28001	Computer Aided Construction Drawing	0	0	2	2	1
<b>Total Credit (Vocational)</b>						<b>2</b>	<b>1</b>
<b>Total Credit (Semester)</b>						<b>27</b>	<b>23</b>

### SEMESTER-IV

Theory							
Sl. No.	Course Code	Courses	L	T	P	Total	Credit
1		HASS Elective - II	3	0	0	3	3
2	MA21004	Vectors, PDEs and Complex Analysis	3	1	0	4	4
3	CT21002	Irrigation Engineering & Hydraulic Structures	3	1	0	4	4
4	CE21004	Structural Analysis	3	1	0	4	4
5	CT21004	Soil Mechanics & Foundation Engineering	3	1	0	4	4
6	EX20001	Industry 4.0 Technologies	2	0	0	2	2
<b>Total Credit (Theory Courses)</b>						<b>21</b>	<b>21</b>
Practical							
1	CE29004	Soil Mechanics Laboratory	0	0	2	2	1
2	CE29006	Surveying Field Work	0	0	2	2	1
<b>Total Credit (Practical Courses)</b>						<b>4</b>	<b>2</b>
<b>Total Credit (Semester)</b>						<b>25</b>	<b>23</b>

### SEMESTER-V

Theory							
Sl. No.	Course Code	Courses	L	T	P	Total	Credit
1		HASS Elective - III	3	0	0	3	3
2	HS30101	Engineering Economics	3	0	0	3	3
3	CE31001	Environmental Engineering	3	1	0	4	4
4	CT31001	Structural Design	3	1	0	4	4
5	CE31002	Transportation Engineering	3	1	0	4	4
6		<b>Professional Elective-I</b>	3	0	0	3	3
<b>Total Credit (Theory Courses)</b>						<b>21</b>	<b>21</b>
Practical							
1	CE39001	Structural Engineering Laboratory	0	0	2	2	1
2	CE39003	Transportation Engineering Laboratory	0	0	2	2	1
<b>Total Credit (Practical Courses)</b>						<b>4</b>	<b>2</b>
Sessional							
1	CT38001	Computer aided Structural detailing	0	0	2	2	1
2	CT38003	Computer applications in Construction – I	0	0	2	2	1
<b>Total Credit (Sessional Courses)</b>						<b>4</b>	<b>2</b>
K-Explore							
1		K-Explore (Practice-oriented Open Elective I)	0	0	0	-	1
<b>Total Credit (K-Explore)</b>						<b>0</b>	<b>1</b>
<b>Total Credit (Semester)</b>						<b>29</b>	<b>26</b>

### SEMESTER-VI

Theory							
Sl. No.	Course Code	Courses	L	T	P	Total	Credit
1	HS30401	Universal Human Values	3	0	0	3	3
2	CT30002	Quantity Surveying, Estimation & Tendering	3	0	0	3	3
3	CT30004	Construction Planning & Management	3	0	0	3	3
4		<b>Professional Elective-II</b>	3	0	0	3	3
5		<b>Professional Elective-III</b>	3	0	0	3	3
6		Open Elective II/ Industry Elective (MI-1)	3	0	0	3	3
<b>Total Credit (Theory Courses)</b>						<b>18</b>	<b>18</b>
Sessional							
1	CT38002	Building Information Modelling	0	0	2	2	1
3	CT38004	Computer Applications in Construction – II	0	0	2	2	1
4	CT37002	Mini Project	0	0	4	4	2
<b>Total Credit (Sessional Courses)</b>						<b>08</b>	<b>4</b>
<b>Total Credit (Semester)</b>						<b>26</b>	<b>22</b>

### SEMESTER-VII (For Hons. Option Students)

Theory							
Sl. No.	Course Code	Courses	L	T	P	Total	Credit
1		<b>Professional Elective-IV</b>	3	0	0	3	3
2		Open Elective III / Industry Elective (MI-2)	3	0	0	3	3
3	EX40003	Engineering Professional Practice	2	0	0	2	2
(5)		(MI-3)	(3)	(0)	(0)	(3)	(3)
(6)		(MI-4)	(3)	(0)	(0)	(3)	(3)
<b>Total Credit (Theory Courses)</b>						<b>8</b>	<b>8</b>
Sessional							
1	CT48001	Internship	-	-	-	-	2
2	CT47001	Project – I	0	0	10	10	5
(3)		(Project//Lab-Minor)	(0)	(0)	(4)	(4)	(2)
<b>Total Credit (Sessional Courses)</b>						<b>10</b>	<b>7</b>
<b>Total Credit (Semester)</b>						<b>18</b>	<b>15</b>

**SEMESTER-VIII (For Hons. Option Students)**

Theory							
Sl. No.	Course Code	Courses	L	T	P	Total	Credit
1		<b>Professional Elective-V</b>	3	0	0	3	3
2		Open Elective IV/ Industry Elective (MI-5)	3	0	0	3	3
(3)		(MI-6)	(3)	(0)	(0)	(3)	(3)
<b>Total Credit (Theory Courses)</b>						<b>6</b>	<b>6</b>
Sessional							
1	CT47002	Project – II	0	0	18	18	9
<b>Total Credit (Sessional Course)</b>						<b>18</b>	<b>9</b>
<b>Total Credit (Semester)</b>						<b>24</b>	<b>15</b>

**SEMESTER-VII (For Research Option Students)**

Theory							
Sl. No.	Course Code	Courses	L	T	P	Total	Credit
1		<b>Research Elective-I</b>	3	0	0	3	3
2		(MI-2)	(3)	(0)	(0)	(3)	(3)
3	EX40003	Engineering Professional Practice	2	0	0	2	2
(4)	EX40001	Research Methods & Ethics	3	0	0	3	3
(5)		(MI-3)	(3)	(0)	(0)	(3)	(3)
(6)		(MI-4)	(3)	(0)	(0)	(3)	(3)
<b>Total Credit (Theory Courses)</b>						<b>8</b>	<b>8</b>
Sessional							
1	CT48001	Internship	-	-	-	-	2
2	CT47003	Research Project-I	0	0	10	10	5
(3)		(Project/Lab-Minor)	(0)	(0)	(4)	(4)	(2)
<b>Total Credit (Sessional Courses)</b>						<b>10</b>	<b>7</b>
<b>Total Credit (Semester)</b>						<b>18</b>	<b>15</b>

**SEMESTER-VIII (For Research Option Students)**

Theory							
Sl. No.	Course Code	Courses	L	T	P	Total	Credit
1		<b>Research Elective-II</b>	3	0	0	3	3
2		(MI-5)	(3)	(0)	(0)	(3)	(3)
(3)		(MI-6)	(3)	(0)	(0)	(3)	(3)
<b>Total Credit (Theory Courses)</b>						<b>3</b>	<b>3</b>
Sessional							
1	CT47004	Research Project-II	0	0	24	24	12
<b>Total Credit (Sessional Course)</b>						<b>24</b>	<b>12</b>
<b>Total Credit (Semester)</b>						<b>27</b>	<b>15</b>

## PROFESSIONAL ELECTIVES (PEs)

Professional Elective (PE)	List of Courses
PE – I	<ul style="list-style-type: none"><li>• Green Building (CE30021)</li><li>• Prefabrication Construction Techniques (CT30021)</li><li>• Infrastructure Planning (CT30023)</li><li>• Formwork Engineering Practices</li></ul>
PE – II	<ul style="list-style-type: none"><li>• Concrete Technology (CE30024)</li><li>• Quality Assurance &amp; Control in Construction (CT30026)</li><li>• Building Science (CE60137)</li><li>• Highway Construction Practices (CE30028)</li></ul>
PE – III	<ul style="list-style-type: none"><li>• Construction Equipment &amp; Management (CT30030)</li><li>• Construction Safety &amp; Risk Management (CT30032)</li><li>• Project Formulation &amp; Appraisal (CE60150)</li><li>• Geospatial Techniques in Practice</li></ul>
PE - IV	<ul style="list-style-type: none"><li>• Construction Engineering Practices (CE60102)</li><li>• Repair &amp; Rehabilitation of Structures (CT40021)</li><li>• Infrastructure Financing (CT40023)</li><li>• Deep Foundation Systems &amp; Tunnels</li><li>• Heavy Lifting Techniques &amp; Machinery</li></ul>
PE - V	<ul style="list-style-type: none"><li>• Contract Laws &amp; Regulations (CT40022)</li><li>• Sustainable &amp; Smart Construction Techniques (CT40024)</li><li>• Public Private Partnership for Infrastructure Project (CT40026)</li><li>• Transportation Infrastructure Engineering (Metros, Airports &amp; Seaports)</li></ul>



## RESEARCH ELECTIVES

### Research Elective-I

#### SEMESTER-VII

Sl. No.	Course Code	Courses	Credit
1	CE60102	Construction Engineering Practices	3
2	CT40021	Repair & Rehabilitation of Structures	3
3	CT40023	Infrastructure Financing	3
4		Deep Foundation Systems & Tunnels	3
5		Heavy Lifting Techniques & Machinery	3

### Research Elective-II

#### SEMESTER-VIII

Sl. No.	Course Code	Courses	Credit
1	CT40022	Contract Laws & Regulations	3
2	CT40024	Sustainable & Smart Construction Techniques	3
3	CE40026	Public Private Partnership for Infrastructure Project	3
4		Transportation Infrastructure Engineering (Metros, Airports & Seaports)	3

#### SCIENCE ELECTIVE

Sl. No.	Course Code	Courses
1	CH10005	Nanoscience
2	PH10003	Smart Materials
3	LS10003	Molecular Diagnostics
4	PE10002	Science of Public Health
5	MA10003	Optimization Techniques

## ENGINEERING ELECTIVES

Sl. No.	Course Code	Courses
1	CE10001	Basic Civil Engineering <sup>@</sup>
2	ME10003	Basic Mechanical Engineering
3	ME10003	Basic Mechanical Engineering <sup>#</sup>
4	EE10001	Elements of Machine Learning <sup>*</sup>
5	EC10003	Biomedical Engineering
6	EE10003	Basic Instrumentation

<sup>@</sup> Not for students of Construction Technology

<sup>#</sup> Not for students of Mechanical Engineering

<sup>\*</sup> Not for students of Computer Engineering

## HASS ELECTIVES

### HASS Elective-I

### SEMESTER-II

Sl. No.	Course Code	Courses	Credit
1	HS10321	Society, Science, and Technology	2
2	HS10121	Shades of Economics	2
3	HS10123	Indian Economy Post Liberalisation	2
4	HS10221	Essentials of Management	2
5	HS10223	Human Resource Management	2
6	HS10323	Socio-political Environment	2
7	PS10045	Creativity, Innovation and Entrepreneurship	2
8	EX17001	Community/Environment-based Group Project	2
9	PS10043	Thinking Perspectives	2

**HASS Elective-II**  
**SEMESTER-IV**

Sl. No.	Course Code	Courses	Credit
1	HS20220	Organizational Behaviour	3
2	HS20120	Economics of Development	3
3	HS20122	International Economic Cooperation	3

**HASS Elective-III**  
**SEMESTER-V**

Sl. No.	Course Code	Courses	Credit
1	HS30225	Business Ethics and Corporate Social Responsibility	3
2	HS30227	Leadership and Team Effectiveness	3
3	HS30125	Market Structure and Pricing Policies	3
4	HS30127	Pragmatic Inquiry	3
5	HS30129	Economic Analysis of Decision Rules	3
6	HS30131	Economics of Health and Education	3
7	HS30421	Gender Studies	3
8	HS30423	Tribal Resource Management	3
9	HS30425	Indian Knowledge System	3

**K-Explore—Practice-based Open Elective I**

Sl. No.	Course Code	Course
1	SA38001	Robotics
2	SA38003	Web Designing
3	SA38005	Civil-Tech
4	SA38007	Circuit Design & Control
5	SA38009	Indian Classical, Folk & Bollywood Dance
6	SA38011	Indian Classical & Western Music
7	SA38013	Graphic Designing & Editing

8	SA38015	Art & Craft
9	SA38017	Theatre & Street Play
10	SA38019	Film Making
11	SA38021	Debating, Public Speaking & Anchoring
12	SA38023	Creative Writing
13	SA38025	Photography & Videography
14	SA38027	Fashion Styling
15	SA38029	Culinary Arts
16	SA38031	Quiz Activity
17	SA38033	Social Outreach
18	SA38035	Health & Emergency Care