

Teaching and Evaluation Scheme for First Year B. Tech. (All Branches)

**Group A**

<b>Semester I</b>									
Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
		L	T	P	CA	MSE	ESE	Total	
Mandatory	<b>Induction Program</b>	<b>3-weeks duration in the beginning of semester.</b>							
BTBS101	Engineering Mathematics- I	3	1	-	20	20	60	100	4
BTBS102	Engineering Physics	3	1	-	20	20	60	100	4
BTES103	Engineering Graphics	2	-	-	20	20	60	100	2
BTHM104	Communication Skills	2	-	-	20	20	60	100	2
BTES105	Energy and Environment Engineering	2	-	-	20	20	60	100	2
BTES106	Basic Civil and Mechanical Engineering	2	-	-	50	-	-	50	Audit
BTBS107L	Engineering Physics Lab	-	-	2	60	-	40	100	1
BTES108L	Engineering Graphics Lab	-	-	4	60	-	40	100	2
BTHM109L	Communication Skills Lab.	-	-	2	60	-	40	100	1
		<b>14</b>	<b>2</b>	<b>8</b>	<b>330</b>	<b>100</b>	<b>420</b>	<b>850</b>	<b>18</b>
<b>Semester II</b>									
BTBS201	Engineering Mathematics-II	3	1	-	20	20	60	100	4
BTBS202	Engineering Chemistry	3	1	-	20	20	60	100	4
BTES203	Engineering Mechanics	2	1	-	20	20	60	100	3
BTES204	Computer Programming in C	3	-	-	20	20	60	100	3
BTES205	Workshop Practices	-	-	4	60	-	40	100	2
BTES206	Basic Electrical and Electronics Engineering	2	-	-	50	-	-	50	Audit
BTBS207L	Engineering Chemistry Lab	-	-	2	60	-	40	100	1
BTES208L	Engineering Mechanics Lab	-	-	2	60	-	40	100	1
BTES210S	Seminar	-	-	2	60	-	40	100	1
BTES211P	Field Training / Internship/Industrial Training (minimum of 4 weeks which can be completed partially in first semester and second Semester or in at one time).	-	-	-	-	-	-	-	Credits To be evaluated in III Sem.
		<b>15</b>	<b>3</b>	<b>10</b>	<b>430</b>	<b>80</b>	<b>440</b>	<b>950</b>	<b>19</b>
				<b>27</b>					

Teaching and Evaluation Scheme for First Year B. Tech. (All Branches)

**Group B**

<b>Semester I</b>									
Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
		L	T	P	CA	MSE	ESE	Total	
Mandatory	<b>Induction Program</b>	<b>3-weeks duration in the beginning of semester.</b>							
BTBS101	Engineering Mathematics- I	3	1	-	20	20	60	100	4
BTBS102	Engineering Chemistry	3	1	-	20	20	60	100	4
BTES103	Engineering Mechanics	2	1	-	20	20	60	100	3
BTES104	Computer Programming in C	3	-	-	20	20	60	100	2
BTES105L	Workshop Practices	-	-	4	60	-	40	100	2
BTES106	Basic Electrical and Electronics Engineering	2	-	-	50	-	-	50	Audit
BTBS107L	Engineering Chemistry Lab	-	-	2	60	-	40	100	1
BTES108L	Engineering Mechanics Lab	-	-	2	60	-	40	100	1
		<b>13</b>	<b>03</b>	<b>10</b>	<b>370</b>	<b>80</b>	<b>400</b>	<b>850</b>	<b>18</b>
		<b>25</b>							
<b>Semester II</b>									
BTBS201	Engineering Mathematics-II	3	1	-	20	20	60	100	4
BTBS202	Engineering Physics	3	1	-	20	20	60	100	4
BTES203	Engineering Graphics	2	-	-	20	20	60	100	2
BTHM204	Communication Skills	2	-	-	20	20	60	100	2
BTES205	Energy and Environment Engineering	2	-	-	20	20	60	100	2
BTES206	Basic Civil and Mechanical Engineering	2	-	-	50	-	-	50	Audit
BTBS207L	Engineering Physics Lab	-	-	2	60	-	40	100	1
BTES208L	Engineering Graphics Lab	-	-	3	60	-	40	100	2
BTHM209L	Communication Skills Lab.	-	-	2	60	-	40	100	1
BTES210S	Seminar	-	-	2	60	-	40	100	1
BTES211P	Field Training / Internship/Industrial Training (minimum of 4 weeks which can be completed partially in first semester and second Semester or in at one time)	-	-	-	-	-	-	-	Credits To be evaluated in III Sem.
		<b>14</b>	<b>02</b>	<b>09</b>	<b>390</b>	<b>100</b>	<b>460</b>	<b>950</b>	<b>19</b>
		<b>26</b>							

Teaching and Evaluation Scheme for First Year B. Tech. (All Branches)

**Group A**

<b>Semester I</b>									
Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
		L	T	P	CA	MSE	ESE	Total	
Mandatory	<b>Induction Program</b>	<b>3-weeks duration in the beginning of semester.</b>							
BTBS101	Engineering Mathematics- I	3	1	-	20	20	60	100	4
BTBS102	Engineering Physics	3	1	-	20	20	60	100	4
BTES103	Engineering Graphics	2	-	-	20	20	60	100	2
BTHM104	Communication Skills	2	-	-	20	20	60	100	2
BTES105	Energy and Environment Engineering	2	-	-	20	20	60	100	2
BTES106	Basic Civil and Mechanical Engineering	2	-	-	50	-	-	50	Audit
BTBS107L	Engineering Physics Lab	-	-	2	60	-	40	100	1
BTES108L	Engineering Graphics Lab	-	-	4	60	-	40	100	2
BTHM109L	Communication Skills Lab.	-	-	2	60	-	40	100	1
		<b>14</b>	<b>2</b>	<b>8</b>	<b>330</b>	<b>100</b>	<b>420</b>	<b>850</b>	<b>18</b>
<b>Semester II</b>									
BTBS201	Engineering Mathematics-II	3	1	-	20	20	60	100	4
BTBS202	Engineering Chemistry	3	1	-	20	20	60	100	4
BTES203	Engineering Mechanics	2	1	-	20	20	60	100	3
BTES204	Computer Programming in C	3	-	-	20	20	60	100	3
BTES205	Workshop Practices	-	-	4	60	-	40	100	2
BTES206	Basic Electrical and Electronics Engineering	2	-	-	50	-	-	50	Audit
BTBS207L	Engineering Chemistry Lab	-	-	2	60	-	40	100	1
BTES208L	Engineering Mechanics Lab	-	-	2	60	-	40	100	1
BTES210S	Seminar	-	-	2	60	-	40	100	1
BTES211P	Field Training / Internship/Industrial Training (minimum of 4 weeks which can be completed partially in first semester and second Semester or in at one time).	-	-	-	-	-	-	-	Credits To be evaluated in III Sem.
		<b>13</b>	<b>3</b>	<b>10</b>	<b>430</b>	<b>80</b>	<b>440</b>	<b>950</b>	<b>19</b>
		<b>27</b>							

Teaching and Evaluation Scheme for First Year B. Tech. (All Branches)

**Group B**

<b>Semester I</b>									
Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
		L	T	P	CA	MSE	ESE	Total	
Mandatory	<b>Induction Program</b>	<b>3-weeks duration in the beginning of semester.</b>							
BTBS101	Engineering Mathematics- I	3	1	-	20	20	60	100	4
BTBS102	Engineering Chemistry	3	1	-	20	20	60	100	4
BTES103	Engineering Mechanics	2	1	-	20	20	60	100	3
BTES104	Computer Programming in C	3	-	-	20	20	60	100	2
BTES105L	Workshop Practices	-	-	4	60	-	40	100	2
BTES106	Basic Electrical and Electronics Engineering	2	-	-	50	-	-	50	Audit
BTBS107L	Engineering Chemistry Lab	-	-	2	60	-	40	100	1
BTES108L	Engineering Mechanics Lab	-	-	2	60	-	40	100	1
		<b>13</b>	<b>03</b>	<b>10</b>	<b>370</b>	<b>80</b>	<b>400</b>	<b>850</b>	<b>18</b>
		<b>25</b>							
<b>Semester II</b>									
BTBS201	Engineering Mathematics-II	3	1	-	20	20	60	100	4
BTBS202	Engineering Physics	3	1	-	20	20	60	100	4
BTES203	Engineering Graphics	2	-	-	20	20	60	100	2
BTHM204	Communication Skills	2	-	-	20	20	60	100	2
BTES205	Energy and Environment Engineering	2	-	-	20	20	60	100	2
BTES206	Basic Civil and Mechanical Engineering	2	-	-	50	-	-	50	Audit
BTBS207L	Engineering Physics Lab	-	-	2	60	-	40	100	1
BTES208L	Engineering Graphics Lab	-	-	3	60	-	40	100	2
BTHM209L	Communication Skills Lab.	-	-	2	60	-	40	100	1
BTES210S	Seminar	-	-	2	60	-	40	100	1
BTES211P	Field Training / Internship/Industrial Training (minimum of 4 weeks which can be completed partially in first semester and second Semester or in at one time)	-	-	-	-	-	-	-	Credits To be evaluated in III Sem.
		<b>14</b>	<b>02</b>	<b>09</b>	<b>390</b>	<b>100</b>	<b>460</b>	<b>950</b>	<b>19</b>
		<b>26</b>							

**Teaching & Evaluation Scheme for Second Year B. Tech. Civil Engg.**

Semester- III										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
BSC 5	BTBS301	Mathematics – III	3	1	-	20	20	60	100	4
ESC 8	BTCVES302	Mechanics of Solids	3	1	-	20	20	60	100	4
PCC 1	BTCVC303	Building Construction & Drawing	2	1	-	20	20	60	100	3
PCC 2	BTCVC304	Hydraulics -I	3	1	-	20	20	60	100	4
PCC 3	BTCVC305	Surveying	2	1	-	20	20	60	100	3
HSSMC2	BTHM306	Soft Skill Development	2	-	-	50	-	-	50	Audit
LC 1	BTCVL 307	Solid Mechanics Laboratory	-	-	2	20	-	30	50	1
LC 2	BTCVL 308	Hydraulics-I Laboratory	-	-	2	20	-	30	50	1
LC 3	BTCVL 309	Surveying Laboratory	-	-	2	20	-	30	50	1
Internship	BTES210P	Internship –I Evaluation (From Sem II)	-	-	-	-	-	50	50	Audit
<b>Total</b>			<b>15</b>	<b>05</b>	<b>06</b>	<b>210</b>	<b>100</b>	<b>440</b>	<b>750</b>	<b>21</b>

Semester- IV										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
PCC 4	BTCVC401	Building Planning and Drawing	2	-	-	20	20	60	100	2
PCC 5	BTCVC402	Environmental Engineering	2	-	-	20	20	60	100	2
PCC 6	BTCVC403	Structural Mechanics - I	2	1	-	20	20	60	100	3
PCC 7	BTCVC404	Water Resources Engineering	3	-	-	20	20	60	100	3
PCC 8	BTCVC405	Hydraulics - II	2	1	-	20	20	60	100	3
PCC 9	BTCVC406	Engineering Geology	2	1	-	20	20	60	100	3
LC 4	BTCVL407	Building Planning and CAD Lab.	-	-	2	20	-	30	50	1
LC 5	BTCVL408	Environmental Engg. Lab.	-	-	2	20	-	30	50	1
LC 6	BTCVL409	HE-II Lab.	-	-	2	20	-	30	50	1
Internship	BTCVP410	Field Training / Internship/Industrial Training (minimum of 4 weeks training in Summer Vacation after Semester IV and appear at examination in Semester V)	-	-	-	-	-	-	-	To be evaluated in V Sem.
<b>Total</b>			<b>13</b>	<b>03</b>	<b>06</b>	<b>180</b>	<b>120</b>	<b>450</b>	<b>750</b>	<b>19</b>

**Teaching & Evaluation Scheme for Third Year B Tech Civil Engg.**

Semester- V										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
PCC 10	BTCVC 501	Design of Steel Structures	2	1	-	20	20	60	100	3
PCC 11	BTCVC 502	Geotechnical Engineering	3	1	-	20	20	60	100	4
PCC 12	BTCVC 503	Structural Mechanics –II	2	1	-	20	20	60	100	3
PCC 13	BTCVC 504	Concrete Technology	2	-	-	20	20	60	100	2
HSSMC3	BTHM505	Project Management	3	-	-	20	20	60	100	3
PEC 1	BTCVPE506	A. Advanced Environmental Engg. B. Applied Geology C. Hydraulic Engineering Design D. Advanced Water Resources E. Geomatics F. Town and Urban Planning G. Material, Testing and Evaluation H. Construction Economics & Finance	3	-	-	20	20	60	100	3
ESC10	BTCVES507	Software applications in Civil Engineering	2	-	-	50	-	-	50	Audit
LC 7	BTCVL508	SDD of Steel Structures Lab.	-	-	2	20	-	30	50	1
LC 8	BTCVL509	Geotechnical Engineering Lab.	-	-	2	20	-	30	50	1
LC 9	BTCVL510	Concrete Technology Lab.	-	-	2	20	-	30	50	1
Internship	BTCVP410	Internship – 2 Evaluation	-	-	-	-	-	-	-	Audit
<b>Total</b>			<b>17</b>	<b>3</b>	<b>6</b>	<b>230</b>	<b>120</b>	<b>450</b>	<b>800</b>	<b>21</b>

**Semester- VI**

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
PCC 14	BTCVC601	Design of RC Structures	3	1	-	20	20	60	100	4
PCC 15	BTCVC602	Foundation Engineering	3	1	-	20	20	60	100	4
ESC 9	BTCVES603	Artificial Intelligence (NPTEL/SWAYAM)	3	-	-	20	20	60	100	3
PCC 16	BTCVC604	Transportation Engineering	3	-	-	20	20	60	100	3
PEC 2	BTCVPE605	A. Industrial Waste Treatment B. Managerial Techniques C. Open Channel Flow D. Water Power Engineering E. Ground Improvement Techniques F. Structural Audit G. Intelligent Transportation Systems H. Plastic Analysis of Structures I. Numerical Methods in Civil Engg. J. Engineering Management	3	-	-	20	20	60	100	3
OEC 1	BTCVOE606	A. Environmental Impact Assessment B. Basic Human Rights C. Business Communication and Presentation Skills D. Composite Materials E. Experimental Stress Analysis F. Python Programming G. Operation Research H. Applications of Remote Sensing and Geographic Information Systems I. Civionics: Instrumentation & Sensor Technologies for Civil Engineering J. Planning for Sustainable Development K. Development Engineering	3	-	-	20	20	60	100	3
HSSMC4	BTHM607	Indian Constitution	2	-	-	50	-	-	50	Audit
LC 10	BTCVL608	SDD of RC Structures Lab.	-	-	2	20	-	30	50	1
LC 11	BTCVL609	Transportation Engineering Lab	-	-	2	20	-	30	50	1
Project	BTCVM610	Mini Project	-	-	2	20	-	30	50	1
Internship	BTCVP611	Field Training/ Internship/Industrial Training (minimum of 4 weeks training in Summer Vacation after Semester VI and appear at examination in Semester VII.)	-	-	-	-	-	-	-	Credits to be evaluated in VII Sem
<b>Total</b>			<b>20</b>	<b>2</b>	<b>6</b>	<b>230</b>	<b>120</b>	<b>450</b>	<b>800</b>	<b>23</b>

## B. Tech. Civil Engineering

### Course Structure for Semester VII (Fourth Year) w.e.f. 2020-2021

Course Code	Type of Course	Course Title	Weekly Teaching Scheme			Evaluation Scheme				Credits
			L	T	P	CA	MSE	ESE	Total	
BTCVC701	Core	Design of Concrete Structures - II	2	1	--	20	20	60	100	3
BTCVC702	Core	Infrastructure Engineering	3	--	--	20	20	60	100	3
BTCVC703	Core	Water Resources Engineering	3	1	--	20	20	60	100	4
BTCVC704	Core	Professional Practices	2	1	--	20	20	60	100	3
BTCVE705A	Elective IV	Construction Techniques	3	--	--	20	20	60	100	3
BTCVE705B		Engineering Economics								
BTCVE705C		Finite Element Method								
BTCVE705D		Limit State Design of Steel Structures								
BTCVE705E		Plastic Analysis and Design								
BTCVE705F		Water Power Engineering								
BTCVOE706A	Open Elective V	Advanced Structural Mechanics	3	--	--	--	--	--	--	Audit (AU/ NP)
BTCVOE706B		Air Pollution Control								
BTCVOE706C		Bridge Engineering								
BTCVOE706D		Introduction to Earthquake Engineering								
BTCVOE706E		Town and Urban Planning								
BTCVOE706F		Tunneling and Underground Excavations								
BTCVL707	Laboratory	Design & Drawing of RC & Steel Structures	--	--	2	30	--	20	50	1
BTCVI 708	Laboratory	Professional Practices	--	--	2	30	--	20	50	1
BTCVT709	Training	Field Training /Internship/Industrial	--	--	--	--	--	50	50	1
BTCVS710	BTS	Seminar	--	--	2	--	--	50	50	1
BTCVP711	BTP	Project Stage-I**	--	--	6	--	50	50	100	3
<b>Total</b>			<b>16</b>	<b>3</b>	<b>12</b>	<b>160</b>	<b>150</b>	<b>490</b>	<b>800</b>	<b>23</b>

*\*\*In case of students opting for Internship and Industry Project in the eighth semester, the Project must be industry-based.*



**B. Tech. Civil Engineering**  
**Course Structure for Semester VIII [Fourth Year] w.e.f. 2020-2021**

Course Code	Type of Course	Course Title	Weekly Teaching Scheme			Evaluation Scheme <sup>§</sup>				Credits
			L	T	P	CA	MSE	ESE	Total	
BTCVSS801A	(Self-Study Course) #	Characterization of Construction Materials	03**	--	--	20	20	60	100	3
BTCVSS801B		Geosynthetics and Reinforced Soil Structures								
BTCVSS801C		Higher Surveying								
BTCVSS801D		Maintenance and Repair of Concrete Structures								
BTCESS801E		Structural Dynamics								
BTCESS802A	(Self-Study Course) #	Energy Efficiency Acoustics and Daylighting in Building	03**	--	--	20	20	60	100	3
BTCESS802B		Environmental Remediation of Contaminated Sites								
BTCESS802C		Remote Sensing Essentials								
BTCESS802D		Mechanical Characterization of Bituminous Materials								
BTCESS802E		Soil Structure Interaction								
BTCEP803	Project Stage-II	In-house Project or Internship and Project in Industry*	-	--	30	50	--	100	150	15
Total			04	--	30	90	40	220	350	21

# The subjects are to be studied on self-study mode using SWAYAM/NPTEL/any other online source approved by the University.

\*\* If required Coordinator may be appointed for each Self study course and an administrative load of 03 hours per week may be considered for monitoring and assisting the students, and to conduct examination (if required), evaluation and preparation of result.

§ If the examination schedule for the online Self study course chosen by student do not match with the University's Academic Schedule, the University/Institute have to conduct exam for such courses.

\* Six months of Internship and Project in the Industry. One Faculty guide from the Institute and one Mentor from the Industry should be identified to monitor the progress of work. During the Project/Internship period of work, a review of work should be taken twice followed by a final presentation at the end of Project period.

## First Semester

Sr. No.	Subject Code	Name of Subject	Hours /Week			Credit	Examination Scheme				
			L	P	T		Theory		CA	PR/OR	Total
							TH	MTE			
01	CVSE101	Theory of Elasticity and Plasticity	03	--	1	04	60	20	20	--	<b>100</b>
02	CVSE102	Matrix Methods of Structural Analysis	03	--	1	04	60	20	20	--	<b>100</b>
03	CVSE103	Structural Dynamics	03	--	1	04	60	20	20	--	<b>100</b>
04	CVSE104	Communication Skills	02	--	--	02	--	--	25	25	<b>50</b>
05	CVSE-L01	PG Lab-I	--	03	--	02	--	--	25	25	<b>50</b>
06	CVSE-E1	Elective-I	03	--	--	03	60	20	20	--	<b>100</b>
07	CVSE-E2	Elective-II	03	--	--	03	60	20	20	--	<b>100</b>
<b>Total for Semester I</b>			<b>17</b>	<b>03</b>	<b>03</b>	<b>22</b>	<b>300</b>	<b>100</b>	<b>150</b>	<b>50</b>	<b>600</b>

### Elective-I

**CVSE-E1-01:** Design of Bridges

**CVSE-E1-02:** Numerical Methods

**CVSE-E1-03:** Approximate Analysis of Structural Systems \*\*

### Elective-II

**CVSE-E2-01:** Advanced Pre-stressed Concrete

**CVSE-E2-02:** Design of Masonry Structures

**CVSE-E2-03:** Assessment of Structural Loading \*\*

\*\* Syllabus of these courses is under preparation.

## Second Semester

Sr. No.	Subject Code	Name of Subject	Hours /Week			Credit	Examination Scheme				
			L	P	T		Theory		CA	PR/OR	Total
							TH	MTE			
01	CVSE201	Theory of Plates and Shells	03	--	1	04	60	20	20	--	<b>100</b>
02	CVSE202	Finite Element Analysis	03	--	1	04	60	20	20	--	<b>100</b>
03	CVSE-S01	Seminar-I	--	04	--	02	--	--	50	50	<b>100</b>
04	CVSE-L02	PG Lab-II or Mini -Project	--	04	--	02	--	--	50	50	<b>100</b>
05	CVSE-E3	Elective-III (Departmental)	03	--	--	03	60	20	20	--	<b>100</b>
06	CVSE-E4	Elective-IV (Departmental)	03	--	--	03	60	20	20	--	<b>100</b>
07	CVSE-E5	Elective-V (Open)	03	--	--	03	60	20	20	--	<b>100</b>
<b>Total for Semester II</b>			<b>15</b>	<b>08</b>	<b>02</b>	<b>21</b>	<b>300</b>	<b>100</b>	<b>200</b>	<b>100</b>	<b>700</b>

### Elective-III

**CVSE-E3-01:** Design of Cold Formed Steel Structures

**CVSE-E3-02:** Structural Health Monitoring

**CVSE-E3-03:** Retrofitting of Structures

### Elective- IV

**CVSE-E4-01:** Design of Tall Buildings

**CVSE-E4-02:** Earthquake Engineering & Design of Earthquake Resistant Structures

**CVSE-E4-03:** Structural Audits

### Elective-V (Open)

**CVSE-E5-01:** Research Methodology

**CVSE-E5-02:** Soil Dynamics & Machine Foundations

**CVSE-E5-03:** Solution Procedures in Civil Engineering

### Third Semester

Sr. No.	Subject Code	Name of the subject	Hours/Week			Credit	Examination scheme				
			L	P	T		Theory		CA	PR / OR	Total
							TH	Test			
1	CVSE301	Project Management and Intellectual Property Rights (Self Study)*	--	--	--	02	--	--	50	50	<b>100</b>
2	CVSEPS1	Project Stage -I	--	--	--	10	--	--	50	50	<b>100</b>
<b>Total for Semester III</b>			--	--	--	<b>12</b>	--	--	<b>100</b>	<b>100</b>	<b>200</b>

### Fourth Semester

Sr. No.	Subject Code	Name of the subject	Hours/Week			Credit	Examination scheme				
			L	P	T		Theory		CA	PR / OR	Total
							TH	Test			
1	CVSEPS2	Project Stage-II	--	--	--	20	--	--	100	100	<b>200</b>
<b>Total for Semester IV</b>			--	--	--	<b>20</b>	--	--	<b>100</b>	<b>100</b>	<b>200</b>
<b>GRAND TOTAL</b>											<b>1700</b>

\* Student may select this course either from NPTEL/MOOC pool or any other approved reputed source. The submission of course completion certificate is mandatory.

**Semester –III (Second Year)**  
**Proposed Scheme w.e.f. July – 2021**

Course Category	Course Code	Course Title	Weekly Teaching Hrs			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
	BTBS301	Engineering Mathematics – III	3	1	-	20	20	60	100	4
	BTCOC302	Discrete Mathematics	3	1	-	20	20	60	100	4
	BTCOC303	Data Structures	3	1	-	20	20	60	100	4
	BTCOC304	Computer Architecture & Organization	3	1	-	20	20	60	100	4
	BTCOC305	Elective –I (a) Object - oriented Programming in C++ (b) Object Oriented Programming in Java	3	1	-	20	20	60	100	4
	BTCOL306	Data Structures Lab & Object Oriented Programming Lab	-	-	4	60	-	40	100	2
	BTCOS307	Seminar – I	-	-	4	60	-	40	100	2
	BTES211P	Field Training / Internship / Industrial Training Evaluation	-	-	-	-	-	-	-	Audit
<b>TOTAL</b>			<b>15</b>	<b>5</b>	<b>8</b>	<b>220</b>	<b>100</b>	<b>380</b>	<b>700</b>	<b>24</b>

**Semester –IV (Second Year)**  
**Proposed Scheme w.e.f. January – 2022**

Course Category	Course Code	Course Title	Weekly Teaching Hrs			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
	BTCOC401	Design & Analysis of Algorithms	3	1	-	20	20	60	100	4
	BTCOC402	Operating Systems	3	1	-	20	20	60	100	4
	BTHM403	Basic Human Rights	3	-	-	20	20	60	100	3
	BTBS404	Probability Theory and Random Processes	3	-	-	20	20	60	100	3
	BTES405	Digital Logic Design & Microprocessors	3	1	-	20	20	60	100	4
	BTCOL406	Operating Systems & Python Programming Lab	1*	-	4	60	-	40	100	3
	BTCOS407	Seminar – II			4	60	-	40	100	2
	BTCOF408	Field Training / Internship / Industrial Training Evaluation						-	-	Audit to be evaluated in V Sem.
<b>TOTAL</b>			<b>16</b>	<b>3</b>	<b>8</b>	<b>220</b>	<b>100</b>	<b>380</b>	<b>700</b>	<b>23</b>

\*Note: Lecture should be conducted only for Python Programming

**Semester –V (Third Year)**  
**Proposed Scheme w.e.f. July – 2022**

Course Category	Course Code	Course Title	Weekly Teaching Hrs			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
	BTCOC501	Database Systems	3	1	-	20	20	20	100	4
	BTCOC502	Theory of Computation	3	1	-	20	20	20	100	4
	BTCOC503	Software Engineering	3	1	-	20	20	20	100	4
	BTCOE504	Elective – II (A) Human computer Interaction (B) Numerical Methods	3	-	-	20	20	20	100	3
	BTHM505	Elective – III (A) Economics and Management (B) Business Communication	3	-	-	20	20	20	100	3
	BTCOL506	Database Systems & Software Engineering Lab	-	-	4	60	-	40	100	2
	BTCOM507	Mini-project – I	-	-	4	60	-	40	100	2
	BTCOF408	Field Training / Internship / Industrial Training Evaluation	-	-	-	-	-	-	-	Audit
<b>TOTAL IS</b>			<b>5</b>	<b>5</b>	<b>8</b>	<b>220</b>	<b>100</b>	<b>380</b>	<b>700</b>	<b>22</b>

**Semester –V (Third Year)**  
**Proposed Scheme w.e.f. July – 2022**

Course Category	Course Code	Course Title	Weekly Teaching Hrs			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
	BTCOC501	Database Systems	3	1	-	20	20	20	100	4
	BTCOC502	Theory of Computation	3	1	-	20	20	20	100	4
	BTCOC503	Software Engineering	3	1	-	20	20	20	100	4
	BTCOE504	Elective – II (A) Human computer Interaction (B) Numerical Methods	3	-	-	20	20	20	100	3
	BTHM505	Elective – III (A) Economics and Management (B) Business Communication	3	-	-	20	20	20	100	3
	BTCOL506	Database Systems & Software Engineering Lab	-	-	4	60	-	40	100	2
	BTCOM507	Mini-project – I	-	-	4	60	-	40	100	2
	BTCOF408	Field Training / Internship / Industrial Training Evaluation	-	-	-	-	-	-	-	Audit
<b>TOTAL</b>			<b>15</b>	<b>3</b>	<b>8</b>	<b>220</b>	<b>100</b>	<b>380</b>	<b>700</b>	<b>22</b>



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Semester - VII

Sr. No.	Course Code	Course Title	Weekly Teaching hrs			Evaluation Scheme			Credit
			L	T	P	CA	MSE	ESE	
1	BTCOC701	Software Engineering	3	-	-	20	20	60	3
2	BTCOE702	<b>Elective - VIII</b> (A) Big Data Analytics (B) Distributed System (C) Fundamental of Digital Image Processing	3	-	-	20	20	60	3
3	BTCOE703	<b>Elective - IX</b> (A) Cloud Computing (B) Business Intelligence (C) Natural Language Processing	3	-	-	20	20	60	3
4	BTCOE704	<b>Open Elective - X</b> (A) Blockchain Technology (B) Computer Graphics (C) Embedded Systems (D) Design Thinking	3	-	-	20	20	60	3
5	BTCOL705	Full Stack Development (LAMP / MEAN)	1	-	2	60	-	40	2
6	BTCOL706	System Administration	1	-	2	60	-	40	2
7	BTCOL707	Elective – VIII Lab	-	-	2	60	-	40	1
8	BTCOL708	Elective – IX Lab	-	-	2	60	-	40	1
9	BTCOP709	Project phase - I	-	-	2	60	-	40	1
10	BTCOF609	Field Training / Internship / Industrial Training	-	-	-	-	-	50	1
<b>TOTAL</b>			<b>14</b>	<b>-</b>	<b>10</b>	<b>380</b>	<b>80</b>	<b>490</b>	<b>20</b>

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Semester – VIII

Sr. No.	Course Code	Course Title	Weekly Teaching hrs			Evaluation Scheme			Credit
			L	T	P	CA	MSE	ESE	
1	BTCOE801	Elective – XI #	3	-	-	20	20	60	3
2	BTCOE802	Open Elective – XII #	3	-	-	20	20	60	3
3	BTCOE803	Project phase - II (In-house) \$ / Internship and project in the Industry		-	24	60	-	40	12
<b>TOTAL</b>				-	<b>24</b>	<b>100</b>	<b>40</b>	<b>160</b>	<b>18</b>

# These subjects are to be studied on self-study mode using SWAYAM/ NPTEL. The list of self-study online courses is given below.

**The list of self-study online courses**

BTCOE801: <b>Elective – XI #</b>	BTCOE802: <b>Open Elective – XII #</b>
(A) Deep Learning	(A) Introduction to Industry 4.0 and Industrial Internet of Things
(B) Social Networks	(B) Cryptography and Network Security ##
(C) Randomized Algorithms ##	(C) Model Checking

\* Six months of Internship and Project in the industry.

**\$ This is for those students who are not doing Internship and project in the Industry, they can do project in the department.**

**## Digital contents should be developed by University for the subjects:**

- 1. Randomized Algorithm**
- 2. Cryptography and Network Security**

**Department of Computer Engineering**  
**Master of Technology (Computer Engineering)**

Sr No	Code	Course Name	Teaching Scheme				Examination Scheme				
			L	P	T	CR	IA	MSE	ESE	OR	Total
<b>Semester I</b>											
1	MTCE1101	Computer Algorithms	3		1	4	20	20	60		100
2	MTCE1102	Machine Learning	3		1	4	20	20	60		100
3	MTCE1103	Advanced Computer Networks	3		1	4	20	20	60		100
4	MTCE1104	Elective I	3			3	20	20	60		100
5	MTCE1105	Elective II	3			3	20	20	60		100
6	MTCE1106	Communication Skill	2			2	25			25	50
7	MTCE1107	Software Lab I		4		2	25			25	50
		Total	17	4	3	22	150	100	300	50	600
<b>Semester II</b>											
1	MTCE1201	Data Science	3		1	4	20	20	60		100
2	MTCE1202	Software Architecture	3		1	4	20	20	60		100
3	MTCE1203	Elective III	3			3	20	20	60		100
4	MTCE1204	Elective IV	3			3	20	20	60		100
5	MTCE1205	Elective V	3			3	20	20	60		100
7	MTCE1207	Software Lab II		4		2	50			50	100
8	MT CE1208	Seminar I		4		2	50			50	100
		Total	15	8	2	21	200	100	300	100	700
<b>Semester III</b>											
1	MTCE2101	Project Management and Intellectual Property Rights (Self Study)				2	50			50	100
3	MTCE2103	Project- I				10	50			50	100
		Total				12	100			100	200
<b>Semester IV</b>											
1	MTCE2201	Project-II				20	100			100	200
		Total				20	100			100	200

## **List of Electives**

### **Elective 1**

1. Cloud Computing
2. Game Theory
3. Natural Language Processing
4. Social Network Analysis

### **Elective 3**

1. Software Testing
2. Algorithms for Big Data
3. Software Language Engineering
4. Cryptography and Network Security

### **Elective 5:**

1. Functional Programming
2. Object Oriented Systems
3. Reinforcement Learning
4. Pattern Recognition

### **Elective 2**

1. Intrusion Detection System
2. Model Checking
3. Artificial Intelligence and Knowledge Reasoning
4. High Performance Computing

### **Elective 4**

1. Introduction to Cognitive Sciences
2. Virtual Reality
3. Mobile Computing
4. Storage Systems

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**Curriculum of Second Year**

**Semester III**

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
BSC	BTBS301	Engineering Mathematics-III	3	1	-	20	20	60	100	4
PCC1	BTEEC302	<b>Electrical Machines-I</b>	3	1	-	20	20	60	100	4
PCC2	BTEEC303	Electrical and Electronics Measurement	3	1	-	20	20	60	100	4
HSSMC	BTHM304	Basic Human Rights	2	-	-					<b>Audit</b>
ESC	BTES305	<b>Engineering Material Science</b>	3	-	-	20	20	60	100	3
LC	BTEEL306	Electrical Machines-I Lab			2	60		40	100	1
LC	BTEEL307	Electrical and Electronics Measurement Lab			2	60		40	100	1
Project	BTEEP308	Mini Project-I			4	60		40	100	2
Internship	BTES211P	Internship-I Evaluation						50	50	1
			14	3	8	260	80	410	750	20

**Semester IV**

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
PCC3	BTEEC401	<b>Network Theory</b>	3	1	-	20	20	60	100	4
PCC4	BTEEC402	<b>Power System</b>	3	1	-	20	20	60	100	4
PCC5	BTEEC403	Electrical Machine-II	3	1	-	20	20	60	100	4
BSC	BTBS404	Analog and Digital Electronics	3	-	-	20	20	60	100	3
PEC1	BTEEPE405	Group A	3	-	--	20	20	60	100	3
LC	BTEEL406	Network Theory Lab	-	-	2	30		20	50	1
LC	BTEEL407	Power System Lab	-	-	2	30		20	50	1
LC	BTEEL408	Electrical Machine-II Lab	-	-	2	30		20	50	1
LC	BTEEL409	Analog and Digital Electronics lab	-	-	2	30		20	50	1
Internship	BTEEP410	Internship-II (minimum of 4 weeks which can be completed partially in third or fourth semester or in at one time)	-	-	-	-	-	-	-	-
						220	100	380	700	22

**Group-A**

- (A) Electromagnetic Field Theory
- (B) **Signals and System**
- (C) Advance Renewable Energy Sources
- (D) **Electronic Devices and Circuits**

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**Curriculum for Semester V**

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MS E	ESE	Total	
PCC4	BTEEC501	Power System Analysis	3	1	-	20	20	60	100	4
PCC5	BTEEC502	Microprocessor and Microcontroller	3	-	-	20	20	60	100	3
PCC6	BTEEC503	Power Electronics	3	1	-	20	20	60	100	4
PCC2	BTEEPLE504	Group B	3	-	-	20	20	60	100	3
OEC1	BTEEOE505	Group C	3	-	-	20	20	60	100	3
HSSMC	BTHM506	Foreign Language #	-	-	-	-	-	-	-	Audit
LC	BTEEL507	Power System Analysis Lab	-	-	2	60	-	40	100	1
LC	BTEEL508	Microprocessor and Microcontroller Lab	-	-	2	60	-	40	100	1
LC	BTEEL509	Power Electronics Lab	-	-	2	60	-	40	100	1
Project	BTEEPE510	Mini project-II	-	-	2	60	-	40	100	1
Internship	BTEEP410	Internship-II Evaluation	-	-	-	-	-	50	50	1
<b>Total</b>			<b>15</b>	<b>2</b>	<b>10</b>	<b>340</b>	<b>100</b>	<b>510</b>	<b>950</b>	<b>22</b>

**Semester VI**

PCC7	BTEEC601	Switchgear and Protection	3	-	-	20	20	60	100	3
PCC8	BTEEC602	Electrical Machine Design	3	1	-	20	20	60	100	4
PCC9	BTEEC603	Control System Engineering	3	1	-	20	20	60	100	4
PEC3	BTEEPE604	Group D	3	-	-	20	20	60	100	3
OEC2	BTEEOE605	Group E	3	-	-	20	20	60	100	3
LC	BTEEL606	Switchgear and Protection Lab	-	-	2	60	-	40	100	1
LC	BTEEL607	Electrical Machine Design Lab	-	-	2	60	-	40	100	1
LC	BTEEL608	Control System Engineering Lab	-	-	2	60	-	40	100	1
Seminar	BTEEM609	Seminar	-	-	4	60	-	40	100	2
Internship	BTEEP610	Internship-III (minimum of 4 weeks which can be completed partially in third or fourth semester or in at one time)	-	-	-	-	-	-	-	Credits to be evaluated in VII sem.
<b>Total</b>			<b>15</b>	<b>2</b>	<b>10</b>	<b>340</b>	<b>100</b>	<b>460</b>	<b>900</b>	<b>22</b>

BSC= Basic Science Course, ESC= Engineering Science Course, PCC= Professional Core Course, PEC= Professional Elective Course, OEC= Open Elective Course, LC= Laboratory Course, HSSMC= Humanities and Social Science including Management Course

# Online NPTEL Course

### Semester V

<b>BTEEPE504 Professional Elective (Group B)</b>	<b>BTEEOE505 Open Elective (Group C)</b>
(A) HVDC	(A) Embedded System
(B) Power Quality Issues	(B) Electrical Safety
(C) Industrial Automation	(C) Condition Monitoring of Electric Apparatus

<b>BTHM506 Foreign Language</b>
(A) Japanese Language
(B) German Language

### Semester VI

<b>BTEEPE604 Professional Elective (Group D)</b>	<b>BTEEOE605 Open Elective (Group E)</b>
(A) Flexible AC Transmission System	(A) E-waste Management
(B) Smart Grid Technology	(B) Power Plant Engineering
(C) Modeling, Simulation and Control of Electric Drives	(C) Sensor Technology
	(D) Lightning Interaction with Power System

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Electrical & Electronics Engg / Electrical & Power Engineering)**

**Curriculum for Semester VII [Final Year]**

Sr. No.	Course Code	Type of Course	Course Title	Hours per week			Evaluation Scheme			Total Marks	Credits
				L	T	P	MSE	CA	ESE		
1	BTEEC701	PCC1	Power System Operation & Control	3	0	0	20	20	60	100	3
2	BTEEC702	PCC2	High Voltage Engineering	3	0	0	20	20	60	100	3
3	BTEEC703	PCC3	Electrical Drives	3	0	0	20	20	60	100	3
4	BTEEE704	PEC1	Elective-IX	3	0	0	20	20	60	100	3
5	BTEEE705	PEC2	Elective-X	3	0	0	20	20	60	100	3
6	BTEEL706	Lab	Power System Operation & Control Lab	0	0	2	--	30	20	50	1
7	BTEEL707	Lab	High Voltage Engineering Lab	0	0	2	--	30	20	50	1
8	BTEEL708	Lab	Electrical Drives Lab	0	0	2	--	30	20	50	1
9	BTEES709	Seminar	Seminar	0	0	2	--	30	20	50	1
10	BTEEP710	Project	Project Part-I	0	0	6	--	30	20	50	3
11	BTEEF711	--	Field Training /Internship/Industrial Training III	--	--	--	--	--	50	50	1
<b>Total</b>				<b>15</b>	<b>0</b>	<b>14</b>	<b>100</b>	<b>250</b>	<b>450</b>	<b>800</b>	<b>23</b>

Elective-IX	Elective-X
A) Special Purpose Electrical Machines	A) Digital Signal Processing
B) Electrical Traction and Utilization	B) Energy Audit and Conservation
C) Engineering System Design and Optimization	C) Electrical Power Quality
D) Financial Management	D) HVDC Transmission and FACTS



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Electrical & Electronics Engg / Electrical & Power Engineering)**

**Curriculum for Semester VIII [Final Year]**

Sr. No.	Course Code	Course Title	Hours per week			Evaluation Scheme			Total Marks	Credits
			L	T	P	MSE	CA	ESE		
		1.Power Management Integrated Circuits 2.DC Power Transmission Systems 3.High Power Multilevel Converters 4.Fuzzy Sets, Logic and Systems & Applications 5.The Joy of Computing using Python 6.Introduction to Industry 4.0 and Industrial Internet of Things 7.Entrepreneurship Essentials # Student to opt any two subjects from above list	3	0	0	20*	20*	60*	100	3
			3	0	0	20*	20*	60*	100	3
6	BTEEP803	Project - II	0	0	30	--	100	150	250	15
		<b>Total</b>	<b>6</b>	<b>0</b>	<b>30</b>	<b>40</b>	<b>240</b>	<b>270</b>	<b>450</b>	<b>21</b>

\* Six months of Internship in the industry

\*Students doing project at institute will have to appear for CA/MSE/ESE

\* Student doing project at Industry will give NPTEL examination / Examination conducted by university i.e. CA/MSE/ESE

# These subjects are to be studied on self –study mode using SWAYAM/NPTEL/Any other source

# Teacher who work as a facilitator for the course should be allotted 3 hrs/week load.

# Project Load: 2hrs/week/project.

**Mapping of Courses with MOOCs Platform SWYAM / NPTEL**

S.N.	Course Name	Duration	Name of Professor	Institute offering Course
1	Power Management Integrated Circuits	12 Weeks	Prof. Qadeer Ahmad Khan	IITM
2	DC Power Transmission Systems	12 Weeks	Prof. Krishna S	IITM
3	High Power Multilevel Converters	12 Weeks	Prof. Anandarup Das	IITD
4	Fuzzy Sets, Logic and Systems & Applications	12 Weeks	Prof. Nishchal Kumar Verma	IITK
5	The Joy of Computing using Python	12 Weeks	Prof. Sudarshan Iyengar Prof. Yayati Gupta	IIT Ropar
6	Introduction to Industry 4.0 and Industrial Internet of Things	12 Weeks	Prof. Sudip Misra	IIT KGP
7	Entrepreneurship Essentials	12 Weeks	Prof. Manoj Kumar Mondal	IIT KGP

## Curriculum for Second Year

### Semester III

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
BSC	BTBS301	Engineering Mathematics – III	3	1	-	20	20	60	100	4
PCC 1	BTETC302	Electronic Devices & Circuits	3	1	-	20	20	60	100	4
PCC 2	BTETC303	Digital Electronics	3	1	-	20	20	60	100	4
ESC	BTES304	Electrical Machines and Instruments	3	1	-	20	20	60	100	4
LC	BTETL305	Electronic Devices & Circuits Lab	-	-	2	60	-	40	100	1
LC	BTETL306	Digital Electronics Lab	-	-	2	60	-	40	100	1
Seminar	BTETS307	Seminar I	-	-	4	60	-	40	100	2
Internship	BTES211P	Internship – 1 Evaluation	-	-	-	-	-	-	-	Audit
<b>Total</b>			<b>12</b>	<b>4</b>	<b>8</b>	<b>260</b>	<b>80</b>	<b>360</b>	<b>700</b>	<b>20</b>

### Semester IV

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
PCC 3	BTETC401	Network Theory	3	1	-	20	20	60	100	4
PCC 4	BTETC402	Signals and Systems	3	1	-	20	20	60	100	4
HSSMC	BTHM403	Basic Human Rights	3	-	-	20	20	60	100	3
BSC	BTBS404	Probability Theory and Random Processes	3	-	-	20	20	60	100	3
PEC 1	BTETPE405	(A) Numerical Methods and Computer Programming	3	1	-	20	20	60	100	4
		(B) Data Compression & Encryption								
		(C) Computer Organization and Architecture								
		(D) Introduction to MEMS								
		(E) Python Programming								
LC	BTETL406	Network Theory Lab & Signals and Systems Lab	-	-	4	60	-	40	100	2
Seminar	BTETS407	Seminar II	-	-	4	60	-	40	100	2
Internship	BTETP408 (Internship – 2)	Field Training /Internship/Industrial Training (minimum of 4 weeks which can be completed partially in third semester and fourth semester or in at onetime).	-	-	-	-	-	-	-	Audit (evaluation will be in V Sem.)
<b>Total</b>			<b>5</b>	<b>3</b>	<b>8</b>	<b>220</b>	<b>100</b>	<b>380</b>	<b>700</b>	<b>22</b>

BSC = Basic Science Course, ESC = Engineering Science Course, PCC = Professional Core Course  
 PEC = Professional Elective Course, OEC = Open Elective Course, LC = Laboratory Course  
 HSSMC = Humanities and Social Science including Management Courses

## Curriculum for Third Year

### Semester V

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
PCC 5	BTETC501	Electromagnetic Field Theory	3	1	-	20	20	60	100	4
PCC 6	BTETC502	Digital Signal Processing	3	1	-	20	20	60	100	4
PCC 7	BTETC503	Analog Communication	3	1	-	20	20	60	100	4
PEC 2	BTETPE504	Group A	3	1	-	20	20	60	100	4
OEC 1	BTETOE505	Group B	3	1	-	20	20	60	100	4
LC	BTETL506	Digital Signal Processing Lab & Analog Communication Lab	-	-	4	60	-	40	100	2
Project	BTETM507	Mini Project – 1	-	-	4	60	-	40	100	2
Internship	BTETP408	Internship – 2 Evaluation	-	-	-	-	-	-	-	Audit
<b>Total</b>			<b>15</b>	<b>5</b>	<b>8</b>	<b>220</b>	<b>100</b>	<b>380</b>	<b>700</b>	<b>24</b>

### Semester VI

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
PCC 8	BTETC601	Antennas and Wave Propagation	3	1	-	20	20	60	100	4
PCC 9	BTETC602	Digital Communication	3	1	-	20	20	60	100	4
PEC 3	BTETPE603	Group A	3	1	-	20	20	60	100	4
OEC 2	BTETOE604	Group B	3	1	-	20	20	60	100	4
HSSMC	BTHM605	Employability and Skill Development	3	-	-	20	20	60	100	3
LC	BTETL606	Digital Communication Lab & Professional Elective Course 3 Lab	-	-	4	60	-	40	100	2
Project	BTETM607	Mini Project – 2	-	-	4	60	-	40	100	2
Internship	BTETP608 (Internship – 3)	Field Training / Internship/Industrial Training (minimum of 4 weeks which can be completed partially in third semester and fourth semester or in at one time).	-	-	-	-	-	-	-	Audit (evaluation will be in VII Sem.)
<b>Total</b>			<b>15</b>	<b>4</b>	<b>8</b>	<b>220</b>	<b>100</b>	<b>380</b>	<b>700</b>	<b>23</b>

**BSC = Basic Science Course, ESC = Engineering Science Course, PCC = Professional Core Course PEC = Professional Elective Course, OEC = Open Elective Course, LC = Laboratory Course HSSMC = Humanities and Social Science including Management Courses.**

**Semester V**

<b>BTETPE504 Program Elective 2 (Group A)</b>	<b>BTETOE505 Open Elective 1 (Group B)</b>
(A) Analog Circuits	(A) Control System Engineering
(B) Embedded System Design	(B) Artificial Intelligence and Machine learning
(C) Digital System Design	(C) Optimization Techniques
(D) Automotive Electronics	(D) Project Management and Operation Research
(E) Mixed Signal Design	(E) Augmented, Virtual and Mixed Reality
(F) Power Electronics	(F) Open Source Technologies

**Semester VI**

<b>BTETPE603 Program Elective 3 (Group A)</b>	<b>BTETOE604 Open Elective 2 (Group B)</b>
(A) Microprocessors and Microcontrollers	(A) IoT and Industry 4.0
(B) CMOS Design	(B) Deep Learning
(C) Nano Electronics	(C) Computer Network
(D) Advanced Digital Signal Processing	(D) Industrial Drives and Control
(E) Information Theory and Coding	(E) Robotics Design
(F) VLSI Signal Processing	(F) Patents and IPR
(G) VLSI Design & Technology	(G) Acoustic Engineering

**Dr. Babasaheb Ambedkar Technological University, Lonere.**

**B. Tech (Electronics & Telecommunication Engineering)  
Proposed Curriculum for Semester VII [Final Year]**

Sr. No.	Course Code	Type of Course	Course Title	Hours Per Week			Evaluation Scheme			Total Marks	Credits
				L	T	P	MSE	CA	ESE		
1	BTETC701	Professional Core Course 1	Digital Communication	3	0	0	20	20	60	100	3
2	BTETPE702	Program Elective 3	Group A	3	0	0	20	20	60	100	3
3	BTETPE703	Program Elective 4	Group B	3	0	0	20	20	60	100	3
4	BTETPE704	Program Elective 5	Group C	3	0	0	20	20	60	100	3
5	BTHM705	Humanities & Social Science including Management Courses	Financial Management	2	0	0	20	20	60	100	2
6	BTETL706	Program Elective 3 Lab		0	0	2	--	30	20	50	1
7	BTETL707	Program Elective 4 Lab		0	0	2	--	30	20	50	1
8	BTETL708	Program Elective 5 Lab		0	0	2	--	30	20	50	1
9	BTETP709	Project Part I		0	0	8	--	50	50	100	4
10	BTETF611	Field Training/ Internship/Industrial Training Evaluation		--	--	--	--	--	50	50	1
<b>Total</b>				<b>14</b>	<b>0</b>	<b>14</b>	<b>100</b>	<b>240</b>	<b>460</b>	<b>800</b>	<b>22</b>

**Dr. Babasaheb Ambedkar Technological University, Lonere.**

<b>Program Elective - 3 (Group A)</b>	<b>Program Elective -4 (Group B)</b>	<b>Program Elective- 5 (Group C)</b>
(A) Microwave Theory & Techniques	(A) Embedded System Design	(A) Consumer Electronics
(B) RF Circuit Design	(B) Artificial Intelligence Deep learning	(B) Analog Integrated Circuit Design
(C) Satellite Communication	(C) VLSI Design & Technology	(C) Soft Computing
(D) Fiber Optic Communication	(D) Data Compression & Encryption	(D) Advance Industrial Automation-1
(E) Wireless Sensor Networks	(E) Big Data Analytics	(E) Mechatronics
(F) Mobile Computing	(F) Cyber Security	(F) Electronics in Smart City

**B. Tech (Electronics & Telecommunication Engineering)**  
**Course Structure for Semester VIII [Fourth Year] w.e.f. 2020-2021**

Course Code	Type of Course	Course Title	Weekly Teaching Scheme			Evaluation Scheme				Credits
			L	T	P	MSE	CA	ESE	Total	
		<ul style="list-style-type: none"> <li>Introduction to Internet of Things</li> <li>Computer Vision and Image Processing</li> <li>Biomedical Signal Processing</li> <li>Industrial Automation and Control</li> <li>Cryptography and Network Security</li> <li>Digital IC Design</li> </ul>	3	-	--	20*	20*	60*	100	3
		# Student to opt any two subjects from above list	3	-	--	20*	20*	60*	100	3
BTMEP803	Project Part-II or Internship*		--	--	30	--	--	100	150	15
<b>Total</b>				--				220	350	21

\* Six months of Internship in the industry

\*Students doing project at institute will have to appear for CA/MSE/ESE

\* Student doing project at Industry will give NPTEL examination / Examination conducted by university i.e. CA/MSE/ESE

# These subjects are to be studied on self –study mode using SWAYAM/NPTEL/Any other source

# Teacher who work as a facilitator for the course should be allotted 3 hrs/week load.

# Project Load: 2hrs/week/project.

**Mapping of Courses with MOOCs Platform SWYAM / NPTEL**

No	Course Name	Duration (Weeks)	Institute Offering Course	Name of Professor
1	Introduction to internet of things	12	IIT Kharagpur	Prof. Sudip Misra
2	Computer Vision and Image Processing	12	IIT Gandhinagar	Prof. M. K. Bhuyan
3	Biomedical Signal Processing	12	IIT Kharagpur	Prof. Sudipta Mukhopadhyay
4	Industrial Automation and Control	12	IIT Kharagpur	Prof. Siddhartha Mukhopadhyay
5	Cryptography & Network Security	12	IIT Kharagpur	Prof. Sourav Mukhopadhyay
6	Digital IC Design	12	IIT Madras	Prof. Janakiraman

# Dr. Babasaheb Ambedkar Technological University

Teaching and Examination Scheme for

M.Tech. (Electronics & Telecommunication Engineering) w.e.f. July 2017

Sr. No.	Course Code	Name of the Course	Hours/Week			Credit	Examination scheme				
			L	P	T		Theory		IA	PR/OR	TOTAL
							TH	Test			
<b>First Semester</b>											
01	MTETC101	Signal Theory	03	--	1	04	60	20	20	--	<b>100</b>
02	MTETC102	Radiation and Microwave Techniques	03	--	1	04	60	20	20	--	<b>100</b>
03	MTETC103	Signal Processing Algorithms & Applications	03	--	1	04	60	20	20	--	<b>100</b>
04	MTETE114	Elective-I	03	--	--	03	60	20	20	--	<b>100</b>
05	MTETE125	Elective-II	03	--	--	03	60	20	20	--	<b>100</b>
06	MTETC106	Communication Skills	02	--	--	02	--	--	25	25	<b>50</b>
07	MTETL107	PG Lab-I*	--	03	--	02	--	--	25	25	<b>50</b>
<b>Total for Semester I</b>			<b>17</b>	<b>03</b>	<b>03</b>	<b>22</b>	<b>300</b>	<b>100</b>	<b>150</b>	<b>50</b>	<b>600</b>
<b>Second Semester</b>											
01	MTETC201	Estimation and Detection Theory	03	--	1	04	60	20	20	--	<b>100</b>
02	MTETC202	Information Theory and Coding	03	--	1	04	60	20	20	--	<b>100</b>
03	MTETE233	Elective-III	03	--	--	03	60	20	20	--	<b>100</b>
04	MTETE244	Elective- IV	03	--	--	03	60	20	20	--	<b>100</b>
05	MTETE255	Elective-V- (Open to all)	03	--	--	03	60	20	20	--	<b>100</b>
06	MTETS206	Seminar-I	--	04	--	02	--	--	50	50	<b>100</b>
07	MTETP207	Mini-Project	--	04	--	02	--	--	50	50	<b>100</b>
<b>Total for Semester II</b>			<b>15</b>	<b>8</b>	<b>02</b>	<b>21</b>	<b>300</b>	<b>100</b>	<b>200</b>	<b>100</b>	<b>700</b>
<b>Third Semester</b>											
1	MTETC301	Project Management & Intellectual Property Rights (Self Study)#	--	--	--	02	--	--	50	50	<b>100</b>
2	MTETP302	Project-I	--	--	--	10	--	--	50	50	<b>100</b>
<b>Total for Semester III</b>			<b>--</b>	<b>--</b>	<b>-</b>	<b>12</b>	<b>--</b>	<b>--</b>	<b>100</b>	<b>100</b>	<b>200</b>
<b>Fourth Semester</b>											
1	MTETP401	Project-II	--	--	--	20	--	--	100	100	<b>200</b>
<b>Total for Semester IV</b>			<b>--</b>	<b>--</b>	<b>--</b>	<b>20</b>	<b>--</b>	<b>--</b>	<b>100</b>	<b>100</b>	<b>200</b>
<b>GRAND TOTAL</b>											<b>1700</b>

\* PG Lab-I –Practical shall be based on courses of first semester.

# Student has to choose this course either from NPTEL/MOOC pool and submission of course completion certificate is mandatory.



**Elective-I**

1. Artificial Neural Networks and Applications
2. Electromagnetic Interference and Compatibility
3. Mobile Communication
4. Fault Tolerant Systems
5. Analog and Mixed Signal Processing

**Elective-II**

1. RF and Millimeter Wave circuit Design
2. System On-Chip
3. Optical Fiber Communication
4. Statistical Signal Processing
5. Microelectronics

**Elective-III**

1. Multirate Digital Signal Processing
2. Embedded System Design
3. Wireless Sensor Network Design
4. VLSI and Microsystems
5. Numerical Methods in Electromagnetics

**Elective-IV**

1. Advanced Biomedical Signal Processing
2. Reconfigurable Computing
3. Digital VLSI Design
4. Radar Signal Processing
5. Electromagnetics, Antenna and Propagation

**Elective-V (Open)**

1. Internet of Things
2. Linear Algebra
3. Neural Networks in Embedded Applications
4. Research Methodology
5. Wavelet Transforms and its Applications

**Course Structure for Semester III**

**B. Tech in Mechanical Engineering / B. Tech. in Mechanical Engineering (Sandwich)  
(w.e.f. 2021-22)**

Semester III										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				No. of Credits
			L	T	P	CA	MSE	ESE	Total	
BSC7	BTBS301	Engineering Mathematics – III	3	1	-	20	20	60	100	4
PCC1	BTMC302	Fluid Mechanics	3	1	-	20	20	60	100	4
PCC2	BTMC303	Thermodynamics	3	1	-	20	20	60	100	4
ESC10	BTMES304	Materials Science and Metallurgy	3	1	-	20	20	60	100	4
PCC3	BTMCL305	Machine Drawing and CAD Lab	-	-	4	60	-	40	100	2
PCC4	BTMCL306	Mechanical Engineering Lab – I	-	-	4	60	-	40	100	2
PROJ-1	BTES209P	IT – 1 Evaluation	-	-	-	-	-	100	100	1
		Constitution of India*								Audit
<b>Total</b>			<b>12</b>	<b>4</b>	<b>8</b>	<b>200</b>	<b>80</b>	<b>420</b>	<b>700</b>	<b>21</b>

BSC = Basic Science Course, ESC = Engineering Science Course, PCC = Professional Core Course  
 PEC = Professional Elective Course, OEC = Open Elective Course, LC = Laboratory Course  
 HSSMC = Humanities and Social Science including Management Courses

**Course Structure for Semester IV**

**B. Tech in Mechanical Engineering / B. Tech. in Mechanical Engineering (Sandwich)  
(w.e.f. 2021-22)**

Semester IV										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				No. of Credits
			L	T	P	CA	MSE	ESE	Total	
PCC 5	BTMC401	Manufacturing Processes – I	3	1	-	20	20	60	100	4
PCC 6	BTMC402	Theory of Machines-I	3	1	-	20	20	60	100	4
HSSMC3	BTHM403	Basic Human Rights	3	-	-	20	20	60	100	3
ESC11	BTMES404	Strength of Materials	3	1	-	20	20	60	100	4
PEC 1	BTMPE405A-C	Elective-I	3	1	-	20	20	60	100	4
PCC7	BTMCL406	Mechanical Engineering Lab-II	-	-	4	60	-	40	100	2
PROJ-2	BTMI407	Field Training /Industrial Training (minimum of 4 weeks which can be completed partially in the third and fourth semester or in one semester itself)	-	-	-	-	-	-	-	Credits to be evaluated in Sem V
<b>Total</b>			<b>15</b>	<b>4</b>	<b>4</b>	<b>160</b>	<b>100</b>	<b>340</b>	<b>600</b>	<b>21</b>

BSC = Basic Science Course, ESC = Engineering Science Course, PCC = Professional Core Course  
 PEC = Professional Elective Course, OEC = Open Elective Course, LC = Laboratory Course

HSSMC = Humanities and Social Science including Management Courses

**Elective I**

Sr. No	Course code	Course Name
1	BTMPE405A	Numerical Methods in Engineering
2	BTMPE405B	Sheet Metal Engineering
3	BTMPE405C	Fluid Machinery

**Course Structure for Semester V**

**B. Tech in Mechanical Engineering / B. Tech. in Mechanical Engineering (Sandwich)  
(w.e.f. 2022-23)**

Semester V										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				No. of Credits
			L	T	P	CA	MSE	ESE	Total	
PCC 8	BTMC 501	Heat Transfer	3	1	-	20	20	60	100	4
PCC 9	BTMC 502	Machine Design – I	3	1	-	20	20	60	100	4
PCC 10	BTMC 503	Theory of Machines- II	3	1	-	20	20	60	100	4
PEC 2	BTMPE 504A-C BTAPE504A,D	Elective-II	3	-	-	20	20	60	100	3
OEC 1	BTMOE 505A-D	Open Elective-I	3	-	-	20	20	60	100	3
PCC 11	BTMC 506	Applied Thermodynamics	3	1	-	20	20	60	100	4
PCC12	BTMCL 507	Mechanical Engineering Lab – III	-	-	6	60	-	40	100	3
PROJ-2	BTMI 408	IT – 2 Evaluation	-	-	-	-	-	100	100	1
		Artificial Intelligence*	3							3*
<b>Total</b>			<b>18+ 3</b>	<b>4</b>	<b>6</b>	<b>180</b>	<b>120</b>	<b>500</b>	<b>800</b>	<b>26+3*</b>

BSC = Basic Science Course, ESC = Engineering Science Course, PCC = Professional Core Course

PEC = Professional Elective Course, OEC = Open Elective Course, LC = Laboratory Course

HSSMC = Humanities and Social Science including Management Courses

**Elective II**

Sr. No	Course code	Course Name
1	BTMPE504A	Refrigeration and Air conditioning
2	BTMPE504B	Steam and Gas Turbines
3	BTMPE504C	Engineering Tribology
4	BTAPE504A	Automobile Design
5	BTAPE504D	Automobile Engineering

**Open Elective I**

Sr.No.	Course code	Course Name
1	BTMOE505A	Solar Energy
2	BTMOE505B	Renewable Energy Sources
3	BTMOE505C	Human Resource Management
4	BTMOE505D	Product Design Engineering

\*over and above of 160 credits

Course Structure for Semester VI

B. Tech in Mechanical Engineering / B. Tech. in Mechanical Engineering (Sandwich)  
(w.e.f. 2022-23)

Semester VI										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				No. of Credits
			L	T	P	CA	MSE	ESE	Total	
PCC12	BTMC 601	Manufacturing Processes-II	3	1	-	20	20	60	100	4
PCC13	BTMC 602	Machine Design-II	3	1	-	20	20	60	100	4
PEC3	BTMPE 603A-C BTAPE 603C,E	Elective-III	3		-	20	20	60	100	3
PEC4	BTMPE 604A-D BTAPE 604B	Elective-IV	3		-	20	20	60	100	3
OEC2	BTMOE 605A-E	Open Elective-II	3	1	-	20	20	60	100	3
PCC14	BTMCL 606	Mechanical Engineering Lab – IV	-	-	6	60	-	40	100	3
PROJ-3	BTMS607	B Tech Seminar	-	-	2	60		40	100	1
PROJ-4	BTMP 608	Mini Project (TPCS)	-	-	2	60	-	40	100	2
PROJ-5	BTMI 609 (IT-3)	Field Training / Industrial Training (minimum of 4 weeks which can be completed partially in fifth semester and sixth semester or in one semester itself).	-	-	-	-	-	-	-	Credits to be evaluated in Sem VII
<b>Total</b>			<b>15</b>	<b>3</b>	<b>10</b>	<b>280</b>	<b>100</b>	<b>420</b>	<b>800</b>	<b>23</b>

BSC = Basic Science Course, ESC = Engineering Science Course, PCC = Professional Core Course  
PEC = Professional Elective Course, OEC = Open Elective Course, LC = Laboratory Course  
HSSMC = Humanities and Social Science including Management Courses

Elective III:

Sr.No	Course code	Course Name
1	BTMPE603A	IC Engines
2	BTMPE603B	Mechanical Vibrations
3	BTMPE603C	Machine Tool Design
4	BTMPE603D	Engineering Metrology and Quality Control
5	BTAPE603C	Automobile Body Design (Pre-requisite: Automobile Design)
6	BTAPE603E	E – Vehicles

**B. Tech. Mechanical Engineering**  
**Course Structure for Semester VII [Fourth Year] w.e.f. 2020-2021**

Course Code	Type of Course	Course Title	Weekly Teaching Scheme			Evaluation Scheme				Credits
			L	T	P	CA	MSE	ESE	Total	
BTMEC701	PCC 29	Mechatronics	2	1	--	20	20	60	100	3
BTMEC702	PCC 30	CAD/CAM	2	1	--	20	20	60	100	3
BTMEC703	PCC 31	Manufacturing Processes - III	2	1	--	20	20	60	100	3
BTMEC704A	PEC 2	Fluid Machinery	2	1	--	20	20	60	100	3
BTMEC704B		Industrial Engineering and Management								
BTMEC704C		Finite Element Method								
BTMEC704D		Surface Engineering								
BTMEC704E		Refrigeration and Air Conditioning								
BTAMC704C		Automobile Design (Product Design, PLM, CAE, Catia)								
BTMEC705A	OEC 5	Engineering Economics	3	--	--	--	--	--	--	Audit (AU/ NP)
BTMEC705B		Intellectual Property Rights								
BTMEC705C		Wind Energy								
BTMEC705D		Knowledge Management								
BTMEL706	PCC 32	Manufacturing Processes Lab - II	--	--	2	30	--	20	50	1
BTMEL707	PCC 33	Mechatronics Lab	--	--	2	30	--	20	50	1
BTMEL708	PCC 34	CAD/CAM Lab	--	--	2	30	--	20	50	1
BTMES709	Project 4	Seminar	--	--	2	30	--	20	50	1
BTMEF710	Project 5	Field Training /Internship/Industrial Training III	--	--	--	--	--	50	50	1
BTMEP711	Project 6	Project Stage-I**	--	--	6	30	--	20	50	3
<b>Total</b>			<b>11</b>	<b>4</b>	<b>14</b>	<b>230</b>	<b>80</b>	<b>390</b>	<b>700</b>	<b>20</b>

*\*\*In case of students opting for Internship in the eighth semester, the Project must be industry-based.*

**B. Tech. Mechanical Engineering**  
**Course Structure for Semester VIII [Fourth Year] w.e.f. 2020-2021**

Course Code	Type of Course	Course Title	Weekly Teaching Scheme			Evaluation Scheme				Credits
			L	T	P	CA	MSE	ESE	Total	
Choose any two subjects from ANNEXURE-A#			-	-	--	20	20	60	100	3
			-	-	--	20	20	60	100	3
BTMEP803	Project 7	Project Stage-II or Internship and Project*	--	--	30	50	--	100	150	15
Total			--	--	30	90	40	220	350	21

\* Six months of Internship in the industry

# These subjects are to be studied on self-study mode using SWAYAM/NPTEL/Any other source

# Student doing project in Industry will give NPTEL Examination/Examination conducted by the University i.e. CA/MSE/ESE

# Students doing project in the Institute will have to appear for CA/MSE/ESE

**ANNEXURE-A#**  
**Recommendations of 8<sup>th</sup> Semester Courses in Self-study Mode from NPTEL/ SWYAM Platform**

Sr No	Course Code	Course Name	Duration (Weeks)	Institute Offering Course	Name of Professor
1	BTMEC801A	Fundamentals of Automotive Systems	12 Weeks	IITM	Prof. C. S. Shankar Ram
2	BTMEC801B	Mechanics of Fiber Reinforced Polymer Composite Structures	12 Weeks	IITG	Prof. Debabrata Chakraborty
3	BTMEC801C	Explosions and Safety	12 Weeks	IITM	Prof. K. Ramamurthi
4	BTMEC801D	Material Characterization	12 Weeks	IITM	Prof. Sankaran.S
5	BTMEC801E	Dealing with materials data : collection, analysis and interpretation	12 Weeks	IISc	Prof. M P Gururajan

**MASTER OF TECHNOLOGY  
(Mechanical Engineering)**

Syllabus with effect from July 2018

**Semester-I**

Course Code	Type of Course	Name of the Course	Hours/Week			Credit	Examination Scheme				
			L	T	P		Theory		CA	PR/OR	Total
							TH	Test			
MMECH11	PCC	Engineering Thermodynamics	3	1	--	4	60	20	20	--	100
MMECH12	PCC	Machining and Forming Processes	3	1	--	4	60	20	20	--	100
MMECH13	PCC	Mechanical Vibrations	3	1	--	4	60	20	20	--	100
MDE14A	Elective I	Advanced Machine Design	3	--	--	3	60	20	20	--	100
MTE14B		Utilization of Solar Energy									
MTE14C		Advanced I.C. Engines									
MME14D		Additive Manufacturing									
MMECH15A	Elective II	Manufacturing Planning and Control	3	--	--	3	60	20	20	--	100

ME-XX15C		Hydraulic, Pneumatic and Fluidic Control										
MTE15D		Wind Energy										
MME15E		Finite Element Method										
BSH16	HSMC	Communication Skills	2	--	--	2	--	--	25	25	50	
MMECH17	PCC	Mechanical Engineering Lab	--	--	3	2	--	--	25	25	50	
<b>Total</b>			<b>17</b>	<b>3</b>	<b>3</b>	<b>22</b>	<b>300</b>	<b>100</b>	<b>150</b>	<b>50</b>	<b>600</b>	



### Semester-II

Course Code	Type of Course	Name of the Course	Hours/Week			Credit	Examination Scheme				
			L	T	P		Theory		CA	PR/OR	Total
							TH	Test			
MMECH21	PCC	Advanced Fluid Mechanics and Heat Transfer	3	1	--	4	60	20	20	--	100
MMECH22	PCC	Mechanical Design Analysis	3	1	--	4	60	20	20	--	100
MMECH23A	Elective III	Numerical Methods and Computational Techniques	3	--	--	3	60	20	20	--	100
ME-XX23B		CAD- CAE									
MTE23B		Computational Fluid Dynamics									
MTE23C		Advanced Refrigeration									
MTE23D		Design of Heat Exchangers									
MTE23E		Alternative Fuels for I.C. Engines									
MTE24A	Elective IV	Steam and Gas Turbines	3	--	--	3	60	20	20	--	100
MME24B		Surface Engineering									
MTE24B		Cryogenic Engineering									

MMECH24C		Nanotechnology										
MME24F		World Class Manufacturing										
MOE25A	Elective V	Research Methodology	3	--	--	3	60	20	20	--	100	
MOE25B		Design of Experiments										
MOE25C		Advanced Optimization Techniques										
MOE25D		Environmental Engineering and Pollution Control										
MOE25E		Soft Computing Techniques										
MOE25F		Manufacturing Automation										
MOE25G		Modeling and Simulation										
MMECH26	PCC	Seminar	--	4	--	2	--	--	50	50	100	
MMECH27	PCC	Mini Project	--	--	4	2	--	--	50	50	100	
<b>Total</b>			<b>15</b>	<b>6</b>	<b>4</b>	<b>21</b>	<b>300</b>	<b>100</b>	<b>200</b>	<b>100</b>	<b>700</b>	

### Semester-III

Course Code	Type of Course	Name of the Course	Hours/Week			Credit	Examination Scheme				
			L	T	P		Theory		CA	PR/OR	Total
							TH	Test			
MMECH31	PCC	Project Management (Self Study Course)	--	--	--	2	--	--	50	50	100
MMECH32		OR Intellectual Property Rights (Self Study Course)	--	--	--	2	--	--	50	50	100
MMECH33	PCC	Project Stage -I	---	--	--	10	--	--	50	50	100
<b>Total</b>			---	--	--	<b>12</b>	--	--	<b>100</b>	<b>100</b>	<b>200</b>

### Semester-IV

Course Code	Type of Course	Name of the Course	Hours/Week			Credit	Examination Scheme				
			L	T	P		Theory		CA	PR/OR	Total
							TH	Test			
MMECH41	PCC	Project Stage -II	---	--	--	20	--	--	100	100	200
<b>Total</b>			---	--	--	<b>20</b>	--	--	<b>100</b>	<b>100</b>	<b>200</b>

ME-XX15C		Hydraulic, Pneumatic and Fluidic Control										
MTE15D		Wind Energy										
MME15E		Finite Element Method										
BSH16	HSMC	Communication Skills	2	--	--	2	--	--	25	25	50	
MMECH17	PCC	Mechanical Engineering Lab	--	--	3	2	--	--	25	25	50	
<b>Total</b>			<b>17</b>	<b>3</b>	<b>3</b>	<b>22</b>	<b>300</b>	<b>100</b>	<b>150</b>	<b>50</b>	<b>600</b>	

### 15. Structure of MBA Programme under CBC&GS

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
		IC 001	Constitution of India	2	30 -02	1.5	10	40	50
		MANB401	Management Practices and Organizational Behavior	4	60 -02	3	20	80	100
I	Generic Foundation Course	MANB402	Statistical Methods	4	60 -02	3	20	80	100
		MANB403	Managerial Economics	4	60 -02	3	20	80	100
		MANB404	Research Methodology	4	60 -02	3	20	80	100
		MANB405	Accounting for Managers	4	60 -02	3	20	80	100
		MANB406	Environment Management	2	30 -02	1.5	10	40	50
	Skill Based Foundation Course	MANB407	IT for Managers	2	30 -02	1.5	10	40	50
		MANB408	Yoga	2	30 -02	--	50	--	50
		MANB409	Community Service	2	30 -02	--	50	--	50
	Core Course	MANB452	Mini Project	2	30 -02	--	50	--	50
	<b>Total</b>				<b>32</b>	<b>480</b>		<b>280</b>	<b>520</b>

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
II	Generic Foundation Course	MANB409	Optimization Techniques	4	60 -02	3	20	80	100
		MANB410	Human Resource Management	4	60 -02	3	20	80	100
		MANB411	Financial Management	4	60 -02	3	20	80	100
		MANB412	Marketing Management	4	60 -02	3	20	80	100
		MANB413	Production and Operation Management	4	60 -02	3	20	80	100
		MANB414	Business Laws	4	60 -02	3	20	80	100
		MANB415	Indian Ethos & Values	2	30-02	1.5	10	40	50
		MANB416	International Business Environment	2	30 -02	1.5	10	40	50
	Skill Based Foundation Course	MANB417	Creativity and Innovations	2	30 -02	1.5	10	40	50
	<b>Total</b>				<b>30</b>	<b>450</b>		<b>150</b>	<b>600</b>

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
III	<b>Specialization- Finance/Marketing/Human Resource Mgmt/Production and Operations/IT/Media Mgt/Hosp.Admin.</b>								
	Core Course as per specialization	*Given in following table	Subject I	4	60 -02	3	20	80	100
			Subject II	4	60 -02	3	20	80	100
			Subject III	4	60 -02	3	20	80	100
			Subject IV	4	60 -02	3	20	80	100
			Subject V	4	60 -02	3	20	80	100
			Subject VI	4	60 -02	3	20	80	100
			MANB551	Inplant Training Report	4	60	--	--	100
<b>Total</b>			<b>28</b>	<b>420</b>		<b>120</b>	<b>580</b>	<b>700</b>	

\*Table showing Electives as per specialization.

#### Specialization- Finance

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
III	Core Course (Finance)	MANB501F	Money & Banking	4	60 -02	3	20	80	100
		MANB502F	Working Capital Management	4	60 -02	3	20	80	100
		MANB503F	Corporate Taxation	4	60 -02	3	20	80	100
		MANB504F	Investment Management	4	60 -02	3	20	80	100
		MANB505F	Financial Decision Analysis	4	60 -02	3	20	80	100
		MANB506F	Financial Services	4	60 -02	3	20	80	100

#### Specialization- Marketing

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
III	Core Course (Marketing)	MANB501M	Consumer Behavior	4	60 -02	3	20	80	100
		MANB502M	Advertising Management	4	60 -02	3	20	80	100
		MANB503M	Retail Management	4	60 -02	3	20	80	100
		MANB504M	Brand Management	4	60 -02	3	20	80	100
		MANB505M	Sales & CRM	4	60 -02	3	20	80	100
		MANB506M	Digital Marketing	4	60 -02	3	20	80	100

## Specialization- Human Resource Management

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
		MANB501H	Law's Governing HR	4	60 -02	3	20	80	100
		MANB502H	Human Resource Planning and Development	4	60 -02	3	20	80	100
		MANB503H	Training and Development	4	60 -02	3	20	80	100
III	Core Course (HRM)	MANB504H	Performance & Compensation Management	4	60 -02	3	20	80	100
		MANB505H	HRD – Strategies and Systems	4	60 -02	3	20	80	100
		MANB506H	Cross Culture and Global HRM	4	60 -02	3	20	80	100

## Specialization- Production &amp; Operations

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
		MANB501P	Production Planning & Control	4	60 -02	3	20	80	100
		MANB502P	Purchasing and Materials Management	4	60 -02	3	20	80	100
		MANB503P	Service Operations Management	4	60 -02	3	20	80	100
		MANB504P	Applied Operation Research	4	60 -02	3	20	80	100
		MANB505P	Logistics Management	4	60 -02	3	20	80	100
		MANB506P	World Class Manufacturing	4	60 -02	3	20	80	100

## Specialization- Information Technology

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
		MANB501I	Strategic Management & IT	4	60 -02	3	20	80	100
		MANB502I	System Analysis and Design	4	60 -02	3	20	80	100
		MANB503I	Database Management System	4	60 -02	3	20	80	100
		MANB504I	Internet Programming for E-Commerce	4	60 -02	3	20	80	100
		MANB505I	RDBMS and SQL Concepts	4	60 -02	3	20	80	100
		MANB506I	Application Development Using Oracle	4	60 -02	3	20	80	100

## Specialization- Media Management

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
		MANB501E	Media Management & Media Planning	4	60 -02	3	20	80	100
		MANB502E	Media Law, ethics & Governance	4	60 -02	3	20	80	100
III	Core Course (ME)	MANB503E	Media Economics	4	60 -02	3	20	80	100
		MANB504E	Entertainment Marketing	4	60 -02	3	20	80	100
		MANB505E	Social Media	4	60 -02	3	20	80	100
		MANB506E	Public Relations & Corporate Communications	4	60 -02	3	20	80	100

## Specialization- Hospital Administration

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
III	Core Course (HA)	MANB501A	MANAGEMENT PROCESS IN HOSPITALS	4	60 -02	3	20	80	100
		MANB502A	FINANCIAL MANAGEMENT AND ACCOUNTING	4	60 -02	3	20	80	100
		MANB503A	HUMAN RESOURCE MANAGEMENT IN HEALTH ORGANIZATIONS	4	60 -02	3	20	80	100
		MANB504A	MARKETING MANAGEMENT IN HOSPITALS	4	60 -02	3	20	80	100
		MANB505A	OPERATIONS MANAGEMENT IN HOSPITALS	4	60 -02	3	20	80	100
		MANB506A	LEGAL ASPECTS GOVERNING HOSPITALS	4	60 -02	3	20	80	100

Sem	Course	Ref. No	Subject Title	Credit	No. of Hrs. per Sem/Minm Assessment/ Tutorial	Exam Hrs.	Marks		Total
							Internal	End Sem Exam	
IV	Core Course	MANB507	Business Policies and Strategic Management	4	60 -02	3	20	80	100
		MANB508	DSS and MIS	2	30 -02	1.5	10	40	50
		MANB509	Entrepreneurship Development	4	60 -02	3	20	80	100
		MANB510	Quality Management	4	60 -02	3	20	80	100
		MANB511	Indian Economy	4	60 -02	3	20	80	100
		MANB553	Major Project	8	120	--	--	200	200
			<b>Total</b>	<b>26</b>	<b>390</b>		<b>90</b>	<b>560</b>	<b>650</b>

			<b>Course Total</b>	<b>116</b>	<b>1740</b>		<b>640</b>	<b>2260</b>	<b>2900</b>
			<b>Service Course</b>	<b>4</b>	<b>60</b>		<b>20</b>	<b>80</b>	<b>100</b>
			<b>GRAND TOTAL</b>	<b>120</b>	<b>1830</b>		<b>660</b>	<b>2340</b>	<b>3000</b>

## MBA First Semester