Dr. Babasaheb Ambedkar Technological Engineering

Teaching and Evaluation Scheme for Second Year B. Tech. (Chemical Engineering)

	Semester III									
Course Category	**Course Code**	**Course Title**	**Teaching Scheme**			**Evaluation Scheme**				
			L	T	P	CA	MSE	ESE	Total	Credit
BSC	BTBS301	Engineering Mathematics – III	3	1	-	20	20	60	100	4
PCC	BTCHC302	Fluid Flow Operations	3	1	-	20	20	60	100	4
PCC	BTCHC303	Process Calculations	3	1	-	20	20	60	100	4
PCC	BTCHC304	Mechanical Operations	3	-	-	20	20	60	100	3
PEC	BTCHE305	Professional Elective I	3	-	-	20	20	60	100	3
LC	BTCHL306	Fluid Flow Operations + Mechanical Operations Lab	-	-	3	60	-	40	100	2
Seminar	BTCHS307	Seminar I	-	-	4	60	-	40	100	2
Internship	BTCHI308	Internship – 1 (Evaluation)	-	-	-	-	-	-	-	Audit
		Total	**15**	**3**	**7**	**220**	**100**	**380**	**700**	**22**
	Semester IV									
PCC	BTCHC401	Chemical Engineering Thermodynamics	4	1	-	20	20	60	100	5
PCC	BTCHC402	Heat Transfer Operations	3	1	-	20	20	60	100	4
HSSMC	BTHM403	Basic human rights	4	-	-	20	20	60	100	4
OEC	BTCHO404	Open Elective I	3	-	-	20	20	60	100	3
PEC	BTCHE405	Professional Elective – II	3	-	-	20	20	60	100	3
LC	BTCHL406	Heat Transfer Operations Lab	-	-	3	60	-	40	100	2
Seminar	BTCHS407	Seminar II	-	-	4	60	-	40	100	2
Internship		Field Training / Internship 2/Industrial Training (minimum of 4 weeks which can be completed partially in third semester and fourth semester or in at one time).	**-**	**-**	**-**	-	-	-	-	Credits To be evaluate d in V Sem.
		Total	**17**	**2**	**7**	**220**	**100**	**380**	**700**	**23**

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

Teaching and Evaluation Scheme for Third Year B. Tech. (Chemical Engineering)

	Semester V									
Course Category	**Course Code**	**Course Title**	**Teaching Scheme**			**Evaluation Scheme**				
			L	T	P	CA	MSE	ESE	Total	Credit
PCC	BTCHC501	Mass Transfer Operations - I	3	1	-	20	20	60	100	4
PCC	BTCHC502	Chemical Reaction Engineering - I	3	1	-	20	20	60	100	4
PCC	BTCHC503	Chemical Technology	3	-	-	20	20	60	100	3
OEC	BTCHO504	Open Elective - II	3	-	-	20	20	60	100	3
PEC	BTCHE505	Professional Elective – III	3	-	-	20	20	60	100	3
LC	BTCHL506	Chemical Reaction Engineering Lab	-	-	3	60	-	40	100	2
Project	BTCHM507	Mini Project - 1	-	-	4	60	-	40	100	2
Internship	BTCHI508	Internship – 2 (Evaluation)	-	-	-	-	-	-	-	Audit
		Total	**15**	**2**	**7**	**220**	**100**	**380**	**700**	**21**
	Semester VI									
PCC	BTCHC601	Chemical Reaction Engineering - II	3	1	-	20	20	60	100	4
PCC	BTCHC602	Mass Transfer Operations - II	3	1	-	20	20	60	100	4
PCC	BTCHC603	Process Instrumentation and Control	4	1	-	20	20	60	100	5
HSSMC	BTHM604	Engineering Economics and Project management	4	-	-	20	20	60	100	4
OEC	BTCHO605	Open Elective - III	3	-	-	20	20	60	100	3
LC	BTCHL606	Mass Transfer Operations Lab	-	-	3	60	-	40	100	2
Project	BTCHM607	Mini Project - 2	-	-	4	60	-	40	100	2
Internship		Field Training / Internship3/Industrial Training (minimum of 4 weeks which can be completed partially in fifth semester and sixth semester or in at one time).	**-**	**-**	**-**	-	-	-	-	Credits To be evaluate d in VII Sem.
		Total	**17**	**3**	**7**	**220**	**100**	**380**	**700**	**24**

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

Teaching and Evaluation Scheme for Final Year B. Tech. (Chemical Engineering)

	Semester VII									
Course Category	**Course Code**	**Course Title**	**Teaching Scheme**			**Evaluation Scheme**				
			L	T	P	CA	MSE	ESE	Total	Credit
PCC	BTCHC701	Transport Phenomena	4	1	-	20	20	60	100	5
ESC	BTES702	Process Equipment Design and Drawing	4	-	-	20	20	60	100	4
PEC	BTCHE703	Professional Elective - IV	3	-	-	20	20	60	100	3
OEC	BTCHO704	Open Elective - IV	3	-	-	20	20	60	100	3
LC	BTCHL705	Process Instrumentation and Control Lab	-	-	3	60	-	40	100	2
LC	BTESL706	Process Equipment Design and Drawing Laboratory	-	-	3	60	-	40	100	2
Project	BTCHM707	Mini-Project - III	-	-	4	60	-	40	100	2
Internship	BTCHI708	Internship – 3 Evaluation	-	-	-	-	-	-	-	Audit
		Total	**14**	**1**	**10**	**260**	**80**	**360**	**700**	**21**
	Semester VIII									
Project/ Internship	BTCHP/ BTCHI - 801	Project work/ Internship	-	-	24	60	--	40	100	12
		Total	**-**	**-**	**24**	**60**		**40**	**100**	**12**

Total Credits for entire course structure = 18+19+22+23+21+24+21+12 = 160 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

List of Electives

1) Professional Elective I
   A. Strength of Materials
   B. Advanced Engineering Chemistry
   C. Energy Technology and Conversion
   D. Reliable Energy Sources
   E. Materials for Engineering applications
2) Professional Elective II
   A. Numerical methods
   B. Introduction to Bioprocess Engineering
   C. Nanotechnology
   D. Introduction to Polymer Science and Engineering
   E. Green technology

3) Professional Elective III
    A. Industrial Safety and Hazard Mitigation
    B. Optimization Techniques
    C. Petroleum refining and Petrochemicals
    D. Pollution Control in Process Industries
    E. Heat Transfer Equipment Design
4) Professional Elective IV
    A. Plant Utilities and Safety
    B. Mathematical methods in Chemical Engineering
    C. Membrane Technology
    D. Advanced Petroleum Refining
    E. Entrepreneurship Development
5) Open Elective I
    A. NSS I
    B. Development Engineering
6) Open Elective II
    A. NSS II
    B. Food Technology
7) Open Elective III
    A. Pharmaceuticals and fine Chemicals
    B. Disaster Management in Chemical Industries
8) Open Elective IV
    A. Management Information Systems
    B. Corporate Communication

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
		Total	**15**	**05**	**06**	**210**	**100**	**440**	**750**	**21**

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.
		Total	**13**	**03**	**06**	**180**	**120**	**450**	**750**	**19**

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	BTCVC501	Design of Steel Structures	2	1	-	20	20	60	100	3
PCC 11	BTCVC502	Geotechnical Engineering	3	1	-	20	20	60	100	4
PCC 12	BTCVC503	Structural Mechanics –II	2	1	-	20	20	60	100	3
PCC 13	BTCVC504	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
		Total	**17**	**3**	**6**	**230**	**120**	**450**	**800**	**21**

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
PCC 16	BTCVC603	Transportation Engineering	3	-	-	20	20	60	100	3
PEC 2	BTCVPE604	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	BTCVOE605	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	BTHM606	Indian Constitution	2	-	-	50	-	-	50	Audit
LC 10	BTCVL607	SDD of RC Structures Lab.	-	-	2	20	-	30	50	1
LC 11	BTCVL608	Transportation Engineering Lab	-	-	2	20	-	30	50	1
Project	BTCVM609	Mini Project	-	-	2	20	-	30	50	1
Internship		**Mandatory (BTCVP610)** 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
Total			**17**	**2**	**6**	**210**	**100**	**390**	**700**	**20**

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
BTCVL708	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
		Total	**16**	**3**	**12**	**160**	**150**	**490**	**800**	**23**

***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[$]				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.***

Semester –III (Second Year)

Proposed Scheme w.e.f. July – 2021

Course Category	Course Code	Course Title	Weakly 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
		TOTAL	**15**	**5**	**8**	**220**	**100**	**380**	**700**	**24**

Semester –IV (Second Year)

Proposed Scheme w.e.f. January – 2022

Course Category	Course Code	Course Title	Weakly 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.
TOTAL			**16**	**3**	**8**	**220**	**100**	**380**	**700**	**23**

*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	Weakly 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
TOTAL			**15**	**3**	**8**	**220**	**100**	**380**	**700**	**22**

Semester –VI (Third Year)

Proposed Scheme w.e.f. January – 2023

Course Category	Course Code	Course Title	Weakly Teaching Hrs			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
	BTCOC601	Compiler Design	3	1	-	20	20	60	100	4
	BTCOC602	Computer Networks	3	1	-	20	20	60	100	4
	BTCOC603	Machine Learning	3	1	-	20	20	60	100	4
	BTCOE604	Elective – IV (A) Geographic Information System (B) Internet of Things (C) Embedded Systems	3	-	-	20	20	60	100	3
	BTHM605	Elective – V (A) Development Engineering (B) Employability and Skill Development (C) Consumer Behaviour	3	-	-	20	20	60	100	3
	BTCOL606	Competitive Programming & Machine Learning Lab	1*	-	4	60	-	40	100	3
	BTCOM607	Mini-project – II	-	-	4	60	-	40	100	2
	BTCOF608	Field Training / Internship / Industrial Training	-	-	-	-	-	-	-	Audit to be Evaluated in VII Sem.
TOTAL			**16**	**3**	**8**	**220**	**100**	**380**	**700**	**23**

*Note: Lecture should be conducted only for Competitive Programming

Semester –VII (Final Year)

Proposed Scheme w.e.f. July – 2023

Course Category	Course Code	Course Title	Weakly Teaching Hrs			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
	BTCOC701	Artificial Intelligence	3	-	-	20	20	60	100	3
	BTCOC702	Cloud Computing	3	-	-	20	20	60	100	3
	BTCOE703	Elective – VI (A) Bioinformatics (B) Distributed System (C) Big Data Analytics	3	-	-	20	20	60	100	3
	BTCOE704	Open Elective – VII (A) Cryptography and Network Security (B) Business Intelligence (C) Block chain Technology	3	-	-	20	20	60	100	3
	BTCOE705	Open Elective – VIII (A) Virtual Reality (B) Deep Learning (C) Design Thinking	3	-	-	20	20	60	100	3
	BTHM706	Foreign Language Studies	-	-	4	-	-	-	-	Audit
	BTCOL707	Artificial Intelligence & Cloud Computing Lab	-	-	4	60	-	40	100	2
	BTCOS708	Project Phase – I	-	-	-	60	-	40	100	2
	BTCOF608	Field Training / Internship / Industrial Training	-	-	-	-	-	-	-	Audit
TOTAL			**15**	**-**	**8**	**220**	**100**	**380**	**700**	**19**

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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	**Elective - VIII** (A) Big Data Analytics (B) Distributed System (C) Fundamental of Digital Image Processing	3	-	-	20	20	60	3
3	BTCOE703	**Elective - IX** (A) Cloud Computing (B) Business Intelligence (C) Natural Language Processing	3	-	-	20	20	60	3
4	BTCOE704	**Open Elective - X** (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
TOTAL			**14**	**-**	**10**	**380**	**80**	**490**	**20**

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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
		TOTAL	**6**	**-**	**24**	**100**	**40**	**160**	**18**

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: **Elective – XI** #	BTCOE802: **Open Elective – XII** #
(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

Course Structure for Second Year

B. Tech in Artificial Intelligence & Data Science / B. Tech. in Artificial Intelligence & Data Science

Semester III (Term 3)										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
BSC7	BTES301	Engineering Mathematics-III	3	1	-	20	20	60	100	4
PCC1	BTAIC302	An Introduction to Artificial Intelligence	3	1	-	20	20	60	100	4
PCC2	BTAIC303	Data Structure and Algorithm using Python	3	1	-	20	20	60	100	4
ESC11	BTESC304	Computer Architecture & Operating Systems	3	-	-	20	20	60	100	3
ESC12	BTESC305	Digital Logic & Signal Processing	3	-	-	20	20	60	100	3
LC1	BTAIL306	Artificial Intelligence Lab & Data Structure and Algorithm using Python Lab	-	-	4	60	-	40	100	2
Seminar	BTAIS307	Seminar-I	-	-	4	60	-	40	100	2
Internship	BTES211P	Internship –I (Evaluation)	-	-	-	-	-	-	-	Audit
			15	**3**	**8**	**220**	**100**	**380**	**700**	**22**

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 Second Year

B. Tech in Artificial Intelligence & Data Science / B. Tech. in Artificial Intelligence & Data Science

Semester IV (Term 4)										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				
			L	T	P	CA	MSE	ESE	Total	Credit
PCC3	BTAIC401	Data Analysis	3	1	-	20	20	60	100	4
PCC4	BTAIC402	Database Management System	3	1	-	20	20	60	100	4
HSSMC3	BTHM403	Basic Human Rights	3	-	-	20	20	60	100	3
BSC8	BTBS404	Probability Theory and Random Processes	3	-	-	20	20	60	100	3
PEC-1	BTAIPE405	Professional Elective Courses –I	3	1	-	20	20	60	100	4
	BTAIPE405A	1. Numerical Methods and Computer Programming								
	BTAIPE405B	2. Image Processing & Computer Vision								
	BTAIPE405C	3. Internet of Things & Embedded System								
	BTAIPE405D	4. Programming in JAVA								
LC2	BTAIL406	Data Analysis Lab and Database Management System Lab	-	-	4	60	-	40	100	2
Seminar	BTAIS407	Seminar - II	-	-	4	60	-	40	100	2
Internship	BTAIP408	Internship -II	-	-	-	-	-	-	-	Audit
			15	**3**	**8**	**220**	**100**	**380**	**700**	**22**

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

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
			Total	**14**	**0**	**14**	**100**	**240**	**460**	**800**	**22**

Program Elective- 5 (Group A)	Program Elective- 5 (Group B)	Program Elective- 5 (Group C)
(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 in Electronics & Telecommunication Engineering

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
Total			**15**	**5**	**8**	**220**	**100**	**380**	**700**	**24**

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.)
Total			**15**	**4**	**8**	**220**	**100**	**380**	**700**	**23**

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

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,

B. Tech in Electronics & Telecommunication Engineering
Curriculum for Second Year

Semester III

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	Mst.	Est.	Total	
BSC	BSHSC301	Engineering Mathematics – III	3	1	-	20	20	60	100	4
PCC 1	BSHPC302	Electronic Devices & Circuits	3	1	-	20	20	60	100	4
PCC 2	BSHPC303	Digital Electronics	3	1	-	20	20	60	100	4
ESC	BSHESC304	Electrical Machines and Instruments	3	1	-	20	20	60	100	4
LC	BSHLC305	Electronic Devices & Circuits Lab	-	-	2	60	-	40	100	1
LC	BSHLC306	Digital Electronics Lab	-	-	2	60	-	40	100	1
Seminar	BSHSM307	Seminar I	-	-	4	60	-	40	100	2
Mandatory	BSHMC308	Internship Evaluation	-	-	-	-	-	-	-	Audit
		Total	12	4	8	260	80	360	700	20

Semester IV

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	Mst.	Est.	Total	
PCC 3	BSHPC401	Network Theory	3	1	-	20	20	60	100	4
PCC 4	BSHPC402	Signals and Systems	3	1	-	20	20	60	100	4
HSSMC	BSHMC403	Basic Human Rights	3	-	-	20	20	60	100	3
BSC	BSHBSC404	Probability Theory and Random Processes	3	-	-	20	20	60	100	3
PEC 1	BSHPEC405	(A) Numerical Methods and Computer Programming (B) Data Compression & Encryption (C) Computer Organization and Architecture (D) Introduction to MEMS (E) Python Programming	3	1	-	20	20	60	100	4
LC	BSHLC406	Network Theory Lab & Signals and Systems Lab	-	-	4	60	-	40	100	2
Seminar	BSHSM407	Seminar II	-	-	4	60	-	40	100	2
Mandatory	BSHMC408 (Mandatory – 2)	Basic Training /internship/industrial Training (minimum of 4 weeks which can be completed partially in third semester and fourth semester or at a stretch)	-	-	-	-	-	-	-	Audit (evaluation will be in V Sem.)
		Total	15	3	8	220	100	360	700	22

BSC – Basic Sciences 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.

Dr. Babasaheb Ambedkar Technological University, Lonere.

Dr. Babasaheb Ambedkar Technological University (Established as a University of Technology in the State of Maharashtra) (under Maharashtra Act No. XXIX of 2014)

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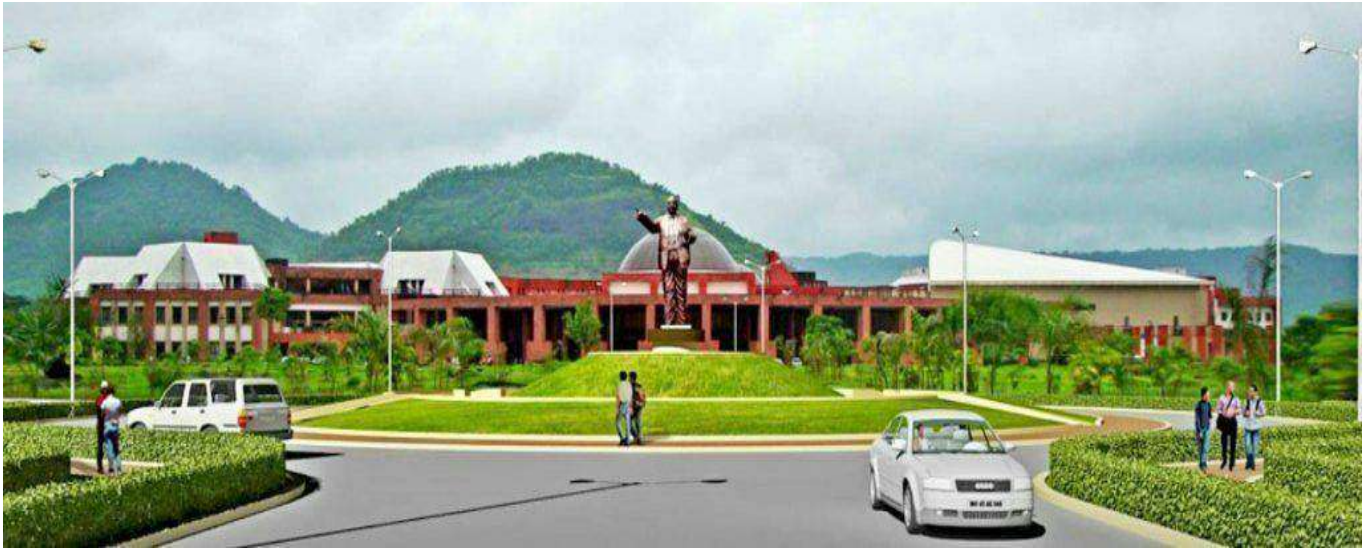
COURSE STRUCTURE AND SYLLABUS

For

Final Year

B. Tech. Electronics Engineering Programme

for the Academic Year 2021-22



B. Tech (Electronics Engineering)

Proposed Curriculum for Semester VII [Final Year]

S.N.	Course Code	Type of Course	Course Title	Hours Per Week			Evaluation Scheme			Total Marks	Credits
				L	T	P	MSE	CA	ESE		
1	BTEXC701	Professional Core Course 1	Antennas and Wave Propagation	3	0	0	20	20	60	100	3
2	BTEXPE702	Program Elective 3	Group A	3	0	0	20	20	60	100	3
3	BTEXPE703	Program Elective 4	Group B	3	0	0	20	20	60	100	3
4	BTEXPE704	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	--	50	--	50	2
6	BTEXL706	Program Elective 3 Lab		0	0	2	--	30	20	50	1
7	BTEXL707	Program Elective 4 Lab		0	0	2	--	30	20	50	1
8	BTEXL708	Program Elective 5 Lab		0	0	2	--	30	20	50	1
9	BTEXP709	Project Part-I		0	0	8	--	50	50	100	4
10	BTEXS710	Seminar		0	0	2	--	30	20	50	1
11	BTEXF612	Field Training/ Internship/Industrial Training Evaluation		--	--	--	--	--	50	50	1
			Total	**14**	**0**	**16**	**80**	**300**	**420**	**800**	**23**

Program Elective 3 (Group A)	Program Elective 4 (Group B)	Program Elective 5 (Group C)
(A) Digital Image Processing	(A) IOT 4.0	(A) Microwave Theory & Techniques
(B) Data Compression and Encryption /Cryptography	(B) Wireless Sensor Networks	(B) Satellite Communication
(C) NSQF (Level 7 Course)	(C) CMOS Design	(C) Fiber Optic Communication
(D) Parallel Processing	(D) Process Instrumentation	(D) Wireless Communication

B. Tech (Electronics Engineering)

Course Structure for Semester VIII [Fourth Year]

Course Code	Type of Course	Course Title	Weekly Teaching Scheme			Evaluation Scheme				Credits
			L	T	P	MSE	CA	ESE	Total	
• Introduction to Internet of Things • Computer Vision and Image Processing • Biomedical Signal Processing • Industrial Automation and Control • Cryptography and Network Security • Digital IC Design # Student to opt any two subjects from above list			3	-	--	20*	20*	60*	100	3
			3	-	--	20*	20*	60*	100	3
BTMEP803	Project Part-II or Internship*		--	--	30	--	--	100	150	15
		Total	--	--				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, Lonere.

B. Tech in (Electronics Engineering)

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	BTEXC501	Analog Circuits	2	2	-	20	20	60	100	4
PCC 6	BTEXC502	Digital Signal Processing	3	1	-	20	20	60	100	4
PCC 7	BTEXC503	Microelectronics	3	1	-	20	20	60	100	4
PEC 2	BTEXPE504	Group A	3	1	-	20	20	60	100	4
OEC 1	BTEXOE505	Group B	3	1	-	20	20	60	100	4
LC	BTEXL507	Analog Circuits Lab & Digital Signal Processing Lab	-	-	4	60	-	40	100	2
Project	BTEXM508	Mini Project – 1	-	-	4	60	-	40	100	2
Internship	BTEXP408	Internship – 2 Evaluation	-	-	-	-	-	50	50	Audit
		Total	**14**	**6**	**8**	**220**	**100**	**430**	**750**	**24**

Semester VI

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
PCC 8	BTEXC601	Power Electronics	3	1	-	20	20	60	100	4
PCC 9	BTEXC602	Microprocessors and Microcontrollers	3	1	-	20	20	60	100	4
PEC 3	BTEXPE603	Group A	3	1	-	20	20	60	100	4
OEC 2	BTEXOE604	Group B	3	1	-	20	20	60	100	4
HSSMC	BTHM605	Employability & Skill Development	3	-	-	20	20	60	100	3
LC	BTEXL606	Power Electronics Lab & Microprocessors and Microcontrollers Lab	-	-	4	60	-	40	100	2
Project	BTEXM607	Mini Project – 2	-	-	4	60	-	40	100	2
Internship	BTEXP608 (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).	-	-	-	-	-	-	-	Credits To be evaluated in VII Sem.
		Total	**15**	**4**	**8**	**220**	**100**	**380**	**700**	**23**

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

HSSMC = Humanities and Social Science including Management Courses

Semester V

(BTEXPE 504) Program Elective 2 (Group A)	(BTEXOE 505) Open Elective 1 (Group B)
(A) Electromagnetic Field Theory	(A) Digital System Design
(B) VLSI Design & Technology	(B) Artificial Intelligence and Machine learning
(C) Electronics in Smart City	(C) Optimization Techniques
(D) Electronics Measurements and Instruments	(D) Project Management and Operation Research
(E) Mixed Signal Design	(E) Augmented, Virtual and Mixed Reality
(F) Automotive Electronics	

Semester VI

(BTEXPE 603) Program Elective 3 (Group A)	(BTEXOE 604) Open Elective 2 (Group B)
(A) Information Theory and Coding	(A) IoT and Industry 4.0
(B) Control System Engineering	(B) Communication Engineering
(C) Electronics Circuit Design	(C) Computer Network & Cloud Computing
(D) Nano Electronics	(D) Industrial Drives and Control
(E) Advanced Digital Signal Processing	(E) Robotics Design

Course Structure for Second Year

B. Tech in Electronics and Computer Engineering

Semester III (Term 3)										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	ESE	Total	
BSC	BTES301	Engineering Mathematics-III	3	1	-	20	20	60	100	4
PCC1	BTECPC302	Electronics Devices & Circuits	3	1	-	20	20	60	100	4
PCC2	BTECPC303	Programming, Data Structure and Algorithm using C	3	1	-	20	20	60	100	4
ESC11	BTESC304	Computer Architecture & Operating System	3	-	-	20	20	60	100	3
ESC12	BTESC305	Digital Electronics and Microprocessor	3	-	-	20	20	60	100	3
LC1	BTECPL306	Electronics Devices & Circuits Lab & Programming, Data Structure and Algorithm using C Lab	-	-	4	60	-	40	100	2
Seminar	BTECS307	Seminar-I	-	-	4	60	-	40	100	2
Internship	BTES211P	Internship –I (Evaluation)	-	-	-	-	-	-	-	Audit
			15	**3**	**8**	**220**	**100**	**380**	**700**	**22**

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 Second Year

B. Tech in Electronics and Computer Engineering

Semester IV (Term 4)										
Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				
			L	T	P	CA	MSE	ESE	Total	Credit
PCC3	BTECPC401	Python Programming	3	1	-	20	20	60	100	4
PCC4	BTECPC402	Database Management System	3	1	-	20	20	60	100	4
HSSMC3	BTHM403	Basic Human Rights	3	-	-	20	20	60	100	3
BSC8	BTBS404	Probability Theory and Random Processes	3	-	-	20	20	60	100	3
PEC-1	**BTECPE405**	**Professional Elective Courses –I**	3	1	-	20	20	60	100	4
	BTECPE405 A	1.Microcontroller and Advanced Processor								
	BTECPE405 B	2. Data Analysis								
	BTECPE405 C	3.Electromagnetic Engineering and Wave Propagation								
	BTECPE405 D	4.Linux OS								
LC2	BTECPL406	Python Programming Lab and Database Management System Lab	-	-	4	60	-	40	100	2
Seminar	BTECS407	Seminar - II	-	-	4	60	-	40	100	2
Internship	BTECP408	Internship -II	-	-	-	-	-	-	-	Audit
			15	**3**	**8**	**220**	**100**	**380**	**700**	**22**

Note: The Lab of Professional Elective Courses –I (PEC1) (BTECPE405) should be conducted as per syllabus contents.

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

Dr. Babasaheb Ambedkar Technological University, Lonere.

B.Tech (Electrical Engineering / Electrical Engineering (Electronics and Power)/ Electrical & Electronics Engg / Electrical & Power Engineering)

Curriculum for Semester V

Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
			L	T	P	CA	MSE	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
		Total	**15**	**2**	**10**	**340**	**100**	**510**	**950**	**22**

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.
		Total	**15**	**2**	**10**	**340**	**100**	**460**	**900**	**22**

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 # Online NPTEL Course

Dr. Babasaheb Ambedkar Technological University, Lonere.

B.Tech (Electrical Engineering / Electrical Engineering (Electronics and Power)/ 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
			Total	**15**	**0**	**14**	**100**	**250**	**450**	**800**	**23**

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

Dr. Babasaheb Ambedkar Technological University, Lonere.

B.Tech (Electrical Engineering / Electrical Engineering (Electronics and Power)/ 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
		Total	**6**	**0**	**30**	**40**	**240**	**270**	**450**	**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 byuniversity 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

Dr. Babasaheb Ambedkar Technological University, Lonere.

B.Tech (Electrical Engineering / Electrical Engineering (Electronics and Power)/ Electrical & Electronics Engg / Electrical & Power Engineering)

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	**Electrical Machines-I**	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	-	-					**Audit**
ESC	BTES305	**Engineering Material Science**	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	**Network Theory**	3	1	-	20	20	60	100	**4**
PCC4	BTEEC402	**Power System**	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**

B. Tech in Instrumentation Engineering

Curriculum for Second Year

Semester III												
SR. No.	Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
				L	T	P	CA	MSE	ESE	Total	
1	BSC	BTBS301	Engineering Mathematics – III	3	1	-	20	20	60	100	4
2	PCC 1	BTINC302	Sensor and Transducer	3	1	-	20	20	60	100	4
3	PCC 2	BTINC303	Network Analysis and Synthesis	3	1	-	20	20	60	100	4
4	ESC	BTINES304	Analog Electronics	3	1	-	20	20	60	100	4
5	LC	BTINL305	Sensor and Transducer Lab	-	-	2	60	-	40	100	1
6	LC	BTINL306	Analog Electronics Lab	-	-	2	60	-	40	100	1
7	Seminar	BTINS307	Seminar I	-	-	4	60	-	40	100	2
8	Internship	BTINS211P	Internship – 1 Evaluation	-	-	-	-	-	50	50	1
Total				**12**	**4**	**8**	**260**	**80**	**410**	**750**	**21**

Semester IV											
SR. No	Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
				L	T	P	CA	MSE	ESE	Total	
1	PCC 1	BTINC401	Digital Electronics	3	1	-	20	20	60	100	4
2	PCC 2	BTINC402	Feedback Control System	3	1	-	20	20	60	100	4
3	HSSMC	BTHM403	Industrial Management and Economics	4	-	-	20	20	60	100	4
4	BSC	BTINBS404	Electrical and Electronics Measurement	3	1	-	20	20	60	100	4
5	PEC 1	BTINPE405	Group A	3	1	-	20	20	60	100	4
6	LC	BTINL406	Digital Electronics Lab	-	-	2	60	-	40	100	1
7	LC	BTINL407	Feedback Control System Lab	-	-	2	60	-	40	100	1
8	Seminar	BTINM408	Mini Project I	-	-	4	60	-	40	100	2
9	Internship	BTINP409	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).	-	-	-	-	-	-	-	Credits To be evaluated in V Sem.
Total				**16**	**4**	**8**	**220**	**100**	**380**	**700**	**24**

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

- **Important Note: Minimum Eight Experiment to perform based on the syllabus for the laboratory subject.**

Group A [Sem- IV] (Professional Elective)

Sr. No.	Course Code	Course Title
01	BTINPE405 A	Microprocessor based systems
02	BTINPE405 B	Industrial Safety
03	BTINPE405 C	Signals and Systems

B. Tech in Instrumentation Engineering

Curriculum for Third Year

Semester V												
SR. No	Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
				L	T	P	CA	MSE	ESE	Total	
1	PCC 1	BTINC501	Process Loop Components	3	1	-	20	20	60	100	4
2	PCC 2	BTINC502	Microprocessor and Microcontroller	3	1	-	20	20	60	100	4
3	PCC 3	BTINC503	Digital Signal Processing	3	1	-	20	20	60	100	4
4	PEC 2	BTINPE504	Group B	3	-	-	20	20	60	100	3
5	OEC 1	BTINOE505	Group C	3	-	-	20	20	60	100	3
6	HSSMC	BTHM506	Human Rights	-	-	-	-	-	-	-	Audit
7	LC	BTINNL507	Process Loop Components Lab	-	-	2	60	-	40	100	1
8	LC	BTINNL508	Digital Signal Processing Lab	-	-	2	60	-	40	100	1
9	Project	BTINM509	Mini Project I	-	-	4	60	-	40	100	2
10	Internship	BTINP408	Internship – 2 Evaluation	-	-	-	-	-	50	50	1
Total				**15**	**3**	**8**	**220**	**100**	**430**	**850**	**23**

Semester VI												
SR. No	Course Category	Course Code	Course Title	Teaching Scheme			Evaluation Scheme				Credit
				L	T	P	CA	MSE	ESE	Total	
1	PCC 1	BTINC601	Digital Control System	3	1	-	20	20	60	100	4
2	PCC 2	BTINC602	Industrial Automation and Control	3	1	-	20	20	60	100	4
3	PCC 3	BTINC603	Power Electronics and Drives	3	1	-	20	20	60	100	4
4	PEC 3	BTINPE604	Group D	3	-	-	20	20	60	100	3
5	OEC 2	BTINOE605	Group E	3	-	-	20	20	60	100	3
6	LC	BTINL606	Industrial Automation and Control Lab	-	-	2	60	-	40	100	1
7	LC	BTINL607	Power Electronics and Drives Lab	-	-	2	60	-	40	100	1
8	Project	BTINM608	Mini Project II	-	-	4	60	-	40	100	2
9	Internship	BTINP609	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).	-	-	-	-	-	-	-	Credits To be evaluated in VII Sem.
Total				**15**	**3**	**8**	**220**	**100**	**380**	**800**	**22**

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

- **Important Note: Minimum Eight Experiment to perform based on the syllabus for the laboratory subject.**

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

B. Tech (Instrumentation 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		
01.	BTIEC701	PCC1	Process Instrumentation and Control	3	-	0	20	20	60	100	3
02.	BTIEC702	PCC2	Instrumentation System Design	3	-	0	20	20	60	100	3
03.	BTIEC703	PCC3	Industrial Project Planning and Estimation	3	-	-	20	20	60	100	3
04.	BTIEPE704A	PEC1 (Elective - IX)	Image Processing	3	-	0	20	20	60	100	3
	BTIEPE704B		Internet of things								
	BTIEPE704C		Clinical Instrumentation								
05.	BTIEOE705A	OEC1 Open (Elective - X)	Analytical Instrumentation	3	0	0	20	20	60	100	3
	BTIEOE705B		Adaptive Control System								
	BTIEOE705C		Automobile Instrumentation								
06.	BTIEL706	Lab	Process Instrumentation and Control Lab	0	0	2	-	30	20	50	1
07.	BTIEL707	Lab	Instrumentation System Design Lab	0	0	2	-	30	20	50	1
08.	BTIEL708	Lab	PEC1 Elective - IX Lab	0	0	2	-	30	20	50	1
09.	BTIES709	Seminar	Seminar	0	0	2	-	30	20	50	1
10.	BTIEP710	Project	Project Part-I	0	0	12	-	30	20	50	3
11.	BTIEF711	-	Industrial Training	-	-	-	-	-	50	50	1
			Total	15	0	20	100	250	450	800	23

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

B.Tech (Instrumentation Engineering)
Proposed Curriculum for Semester VIII [Final Year]

Course Code	Type of Course	Course Title	Hours Per Week			Evaluation Scheme			Total Marks	Credits
			L	T	P	MSE	CA	ESE		
1. Control Engineering 2. The Joy of Computing using Python			3	-	-	20*	20*	60*	100	3
3. Biomedical Signal Processing 4. Industrial Automation and Control 5. Sensors and Actuators 6. Fuzzy Sets, Logic, Systems & Applications 7. Optical Engineering # *Student to opt any two subjects from above list*			3	-	-	20*	20*	60*	100	3
BTIEP803	Project	Project Part-II	-	-	30	-	100	150	250	15
		Total	06	-	30	40	140	270	450	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 works 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

Sr. No.	Course Name	Duration (Weeks)	Institute offering course	Name of Professor
1.	Control Engineering	12 Week	IIT Madras	Prof. Ramkrishna Pasumarthy
2.	The Joy of Computing using Python	12 Week	IIT Ropar	Prof. Sudarshan Iyengar Prof. Yayati Gupta
3.	Biomedical Signal Processing	12 Week	IIT Kharagpur	Prof. Sudipta Mukhopadhyay
4.	Industrial Automation and Control	12 Week	IIT Kharagpur	Prof. Siddhartha Mukhopadhyay
5.	Sensors and Actuators	12 Week	IISc Bangalore	Pro. Hardik Jeetendra Pandya
6.	Fuzzy Sets, Logic, Systems & Applications	12 Week	IIT Kanpur	Prof. Nischal K. Verma
7.	Optical Engineering	12 Week	IIT Madras	Prof. Shanti Bhattacharya

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
		Total	11	4	14	230	80	390	700	20

***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 8th 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

Course Structure for Semester III
B. Tech in Mechanical Engineering / B. Tech. in Mechanical Engineering (Sandwich) (2022-23)

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-2	BTES209P	IT – 1 Evaluation	-	-	-	-	-	100	100	1
		Total	**12**	**4**	**8**	**200**	**80**	**420**	**700**	**21**

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) (2022-23)

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	-	-	20	20	60	100	3
PCC7	BTMCL406	Mechanical Engineering Lab-II	-	-	4	60	-	40	100	2
PROJ-3	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
		Total	**15**	**4**	**4**	**160**	**100**	**340**	**600**	**20**

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) (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		-	20	20	60	100	3
PCC12	BTMCL 507	Mechanical Engineering Lab – III	-	-	6	60	-	40	100	3
PROJ-3	BTMI 408	IT – 2 Evaluation	-	-	-	-	-	100	100	1
		Total	**18**	**3**	**6**	**180**	**120**	**500**	**800**	**25**

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	Fundamentals of 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

Course Structure for Semester VI
B. Tech in Mechanical Engineering / B. Tech. in Mechanical Engineering (Sandwich) (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	-	-	20	20	60	100	3
PCC14	BTMCL 606	Mechanical Engineering Lab – IV	-	-	6	60	-	40	100	3
PROJ-4	BTMS607	B Tech Seminar	-	-	2	60		40	100	1
PROJ-5	BTMP 608	Mini Project (TPCS)	-	-	2	60	-	40	100	1
PROJ-6	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
		Total	**15**	**2**	**10**	**280**	**100**	**420**	**800**	**22**

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	Advance Automobile Design
6	BTAPE603E	E – Vehicles

Elective IV:

SrNo	Course code	Course Name
1	BTMPE604A	Process Equipment Design
2	BTMPE604B	Product Life Cycle Management
3	BTMPE604C	Finite Element Method
4	BTMPE604D	Robotics
5	BTAPE604B	Computational Fluid Dynamics

Open Elective II:

Sr.No	Course code	Course Name
1	BTMOE605A	Quantitative Techniques and Project Management
2	BTMOE605B	Nanotechnology
3	BTMOE605C	Energy Conservation and Management
4	BTMOE605D	Wind Energy
5	BTMOE605E	Introduction to Probability Theory and Statistics