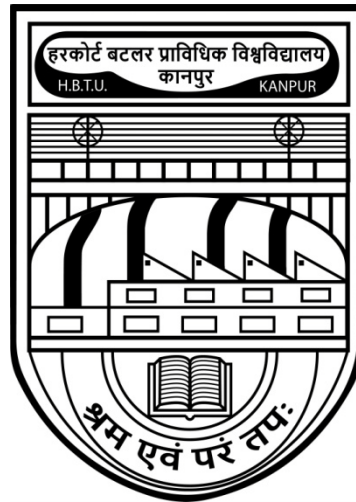


**SEMESTER WISE COURSE STRUCTURE  
&  
EVALUATION SCHEME**

**CIVIL ENGINEERING**

**(Effective from the session 2017-18 for new entrants)**



**HARCOURT BUTLER TECHNICAL UNIVERSITY**

**KANPUR-208002 (UP) – INDIA**

**SEMESTER WISE COURSE STRUCTURE & EVALUATION SCHEME**  
**B.TECH. CIVIL ENGINEERING**

**I SEMESTER**

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Mark
					MSE	TA	Lab	Total		
1.	BSC	BPH 101	Physics	4(3-0-2)	15	20	15	50	50	100
2.	BSC	BMA 101	Maths -I	4(3-1-0)	30	20	-	50	50	100
3.	ESC	EEE 101	Electrical Engg.	4(3-0-2)	15	20	15	50	50	100
4.	ESC	EME 101	Engg. Mechanics	3(3-0-0)	30	20	-	50	50	100
5.	HSMC	HHS 103	Professional Communication	3(2-0-2)	15	20	15	50	50	100
6.	HSMC	HHS 101	English Language & Composition	2(2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>					<b>20</b>					

**II SEMESTER**

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Mark
					MSE	TA	Lab	Total		
1.	BSC	BCY 102	Engg. Chemistry	4(3-0-2)	15	20	15	50	50	100
2.	BSC	BMA 102	Maths-II	4(3-1-0)	30	20	-	50	50	100
3.	ESC	EET 102	Electronics & Instrumentation Engg.	3(3-0-0)	30	20	-	50	50	100
4.	ESC	ECE 102	Engg. Graphics	3(0-0-6)	30	20	-	50	50	100
5.	ESC	ECS 102	Computer Concept & C Programming	4(3-0-2)	15	20	15	50	50	100
6.	ESC	EWS 102	Workshop Practice	2(0-0-4)	-	20	30	50	50	100
7.	MC (Non-credit)	ECE 104	Environment and Ecology	2(2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>					<b>20</b>					

BSC- Basic Science Course; ESC-Engineering Science Course; PCC-Programme Core course; PEC-Programme Elective Course; OEC-Open Elective Course; MC-Mandatory Course; HSMC-Humanities, Social Science & Management Course

### III SEMESTER

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Marks	
					MSE	TA	Lab	Total			
1.	BSC	BMA 201	Maths-III	4(3-1-0)	30	20	-	50	50	100	
2.	ESC	EME 201	Strength of Material	5(3-1-2)	15	20	15	50	50	100	
3.	PCC	ECE 201	Building Material & Construction	4(3-0-2)	15	20	15	50	50	100	
4.	PCC	ECE-203	Surveying-I	4(2-1-2)	15	20	15	50	50	100	
5.	PCC	ECE-205	Engineering Geology	2(2-0-0)	15	20	15	50	50	100	
6.	HSMC	HHS 201	Engineering Economics & Management	3(3-0-0)	30	20	-	50	50	100	
7.	MC (Non-credit)	HHS 205	Indian Constitution	2(2-0-0)	30	20	-	50	50	100	
<b>Total Credits</b>					<b>22</b>						

### IV SEMESTER

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Marks	
					MSE	TA	Lab	Total			
1.	BSC	BMA 206	CONM	4(3-1-0)	30	20	-	50	50	100	
2.	ESC	ECE 202	Engineering Fluid Mechanics	5(3-1-2)	15	20	15	50	50	100	
3.	PCC	ECE-204	Structural Analysis-I	3(2-1-0)	30	20	-	50	50	100	
4.	PCC	ECE-206	Design of Concrete Structure-I	4(2-1-2)	15	20	15	50	50	100	
5.	PCC	ECE-208	Surveying-II	3(2-1-0)	30	20	-	50	50	100	
6.	HSMC	HHS-204	Organisational Behaviour	3(3-0-0)	30	20	-	50	50	100	
7.	MC (Non-credit)	ECS 206	Cyber Security	2(2-0-0)	30	20	-	50	50	100	
<b>Total Credits</b>					<b>22</b>						

## V SEMESTER

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1.	PCC	ECE-301	Hydraulics and Hydraulics Machine	4(2-1-2)	15	20	15	50	50	100
2.	PCC	ECE-303	Geotech Engg.-I	4(2-1-2)	15	20	15	50	50	100
3.	PCC	ECE-305	Structural Analysis-II	5(3-1-2)	15	20	15	50	50	100
4.	PCC	ECE-307	Design of Concrete Structure-II	3(2-1-0)	30	20	-	50	50	100
5.	PCC	ECE-309	Transportation Engg-I	3(2-1-0)	30	20	-	50	50	100
6.	OEC (Maths)	BMA 341	Operation Research	3(3-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

## VI SEMESTER

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1.	PCC	ECE-302	Design of Steel Structure	4(3-1-0)	30	20	-	50	50	100
2.	PCC	ECE-304	Transportation Engineering -II	3(2-0-2)	15	20	15	50	50	100
3.	PCC	ECE-306	Engineering Hydrology	3(2-1-0)	30	20	-	50	50	100
4.	PCC	ECE-308	Environmental Engineering-I	3(2-1-0)	30	20	-	50	50	100
5.	PCC	ECE-310	Geotech. Engineering-II	3(2-1-0)	30	20	-	50	50	100
6.	PCC	ECE-312	Irrigation & Hydraulic Design	3(3-0-0)	30	20	-	50	50	100
7.	OEC (Humanities)	HHS-342	Entrepreneurship Development	3(3-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

## VII SEMESTER

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1.	PCC	ECE-401	Estimation Construction & Management	2(2-0-0)	30	20	-	50	50	100
2.	PCC	ECE-403	Environmental Engineering-II	3(2-0-2)	15	20	15	50	50	100
3.	PEC	PEC-I	PEC-I	3(3-0-0)	30	20	-	50	50	100
4.	PEC	PEC-II	PEC-II	3(3-0-0)	30	20	-	50	50	100
5.	OEC	OEC-I	OEC-I	3(3-0-0)	30	20	-	50	50	100
6.	Industrial Training	ECE-461	Industrial Training	2(0-0-4)	-	50	-	50	50	100
7.	Seminar	ECE-471	Seminar	2(0-0-4)	-	50	-	50	50	100
8.	Project	ECE-497	Project	4(0-0-8)	-	50	-	50	50	100
<b>Total Credits</b>					<b>22</b>					

## VIII SEMESTER

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1.	PEC	PEC-III	PEC-III	4(3-1-0)	30	20	-	50	50	100
2.	PEC	PEC-IV	PEC-IV	4(3-1-0)	30	20	-	50	50	100
3.	OEC	OEC-II	OEC-II	4(3-1-0)	30	20	-	50	50	100
4.	Project	ECE 498	Project	10(0-0-20)	-	50	-	50	50	100
<b>Total Credits</b>					<b>22</b>					

**Total Programme Credits : 172**

ECE 497 Project will have Internal Evaluation while ECE 498 Project will have External Evaluation.

**Department of Civil Engineering**  
**(to be offered in VII & VIII Semester)**

**Programme Elective-I**

S. No.	Course Code	Course Name	Credits
1.	ECE-451	Bridge Engineering	3(3-0-0)
2.	ECE-453	Water Quality Modelling	3(3-0-0)
3.	ECE-455	Transportation System and Planning	3(3-0-0)
4.	ECE-457	Soil Dynamics	3(3-0-0)
5.	ECE-459	Structural Fire Engineering	3(3-0-0)
6.	ECE-463	Advanced Design of Steel Structures	3(3-0-0)

**Programme Elective-II**

1.	ECE-465	Environmental Management	3(3-0-0)
2.	ECE-467	Water Resources Management	3(3-0-0)
3.	ECE-469	Structural Dynamics	3(3-0-0)
4.	ECE-473	Computer Aided Structural Engineering	3(3-0-0)
5.	ECE-475	Pre-Stressed Concrete Design	3(3-0-0)
6.	ECE-477	Geo- Environmental and Geo- Hazard Engineering	3(3-0-0)

**Programme Elective-III**

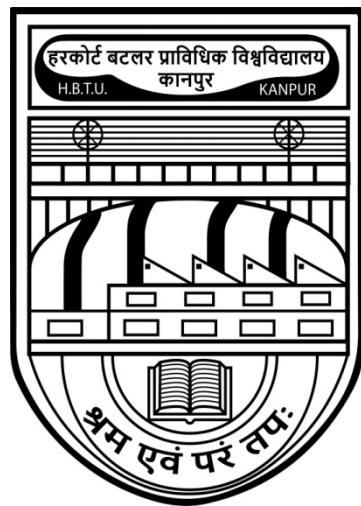
1.	ECE-452	Design of Wastewater Treatment Systems	4(3-1-0)
2.	ECE-454	Environmental Pollution Control	4(3-1-0)
3.	ECE-456	Traffic Engineering	4(3-1-0)
4.	ECE-458	Advanced Foundation Design	4(3-1-0)
5.	ECE-460	Advanced Concrete Technology	4(3-1-0)
6.	ECE-462	RS and GIS Applications in Civil Engineering	4(3-1-0)

**Programme Elective-IV**

1.	ECE-476	Open Channel and River Hydraulics	4(3-1-0)
2.	ECE-478	Advanced Hydrology	4(3-1-0)
3.	ECE-480	Planning and Management of Building	4(3-1-0)
4.	ECE-482	Construction and Contract Management	4(3-1-0)
5.	ECE-484	Precast and Modular Construction Practices	4(3-1-0)
6.	ECE-486	Earthquake Resistant Design Systems	4(3-1-0)

**SEMESTER WISE COURSE STRUCTURE  
&  
EVALUATION SCHEME**

**COMPUTER SCIENCE AND ENGINEERING  
(Effective from the session 2017-18 for new entrants)**



**HARCOURT BUTLER TECHNICAL UNIVERSITY**

**KANPUR-208002 (UP) – INDIA**

**SEMESTER WISE COURSE STRUCTURE & EVALUATION SCHEME  
B.TECH. COMPUTER SCIENCE & ENGINEERING**

**SEMESTER I**

Sr. No.	Course Type	Course Code	Course Name	Credits	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	BSC	BPH-101	Physics	4 (3-0-2)	15	20	15	50	50	100
2	BSC	BMA-101	Mathematics-I	4 (3-1-0)	30	20	-	50	50	100
3	ESC	EEE-101	Electrical Engineering	4 (3-0-2)	15	20	15	50	50	100
4	ESC	EME-101	Engineering Mechanics	3 (3-0-0)	30	20	-	50	50	100
5	HSMC	HHS-103	Professional Communication	3 (2-0-2)	15	20	15	50	50	100
6	HSMC	HHS-101	English Language & Composition	2 (2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>					<b>20</b>					

**SEMESTER II**

Sr. No.	Course Type	Course Code	Course Name	Credits	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	BSC	BCY-102	Engineering Chemistry	4 (3-0-2)	15	20	15	50	50	100
2	BSC	BMA-102	Mathematics-II	4 (3-1-0)	30	20	-	50	50	100
3	ESC	EET-102	Electronics & Instrumentation Engineering	3 (3-0-0)	30	20	-	50	50	100
4	ESC	ECE-102	Engineering Graphics	3 (0-0-6)	30	20	-	50	50	100
5	ESC	ECS-102	Computer Concepts & 'C' Programming	4 (3-0-2)	15	20	15	50	50	100
6	ESC	EWS-102	Workshop Practice	2 (0-0-4)	-	20	30	50	50	100
7	MC (Non-credit)	ECE-104	Environment & Ecology	2 (2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>					<b>20</b>					

BSC- Basic Science Course; ESC-Engineering Science Course; PCC-Programme Core course; PEC-Programme Elective Course; OEC-Open Elective Course; MC-Mandatory Course; HSMC-Humanities, Social Science & Management Course



### SEMESTER III

Sr. No.	Course Type	Course Code	Course Name	Credits	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	PCC	ECS-201	Data Structure using C	5 (3-1-2)	15	20	15	50	50	100
2	PCC	ECS-203	Computer Organisation & Architecture	4 (3-1-0)	30	20	-	50	50	100
3	ESC	EET-203	Digital Electronics	5 (3-1-2)	15	20	15	50	50	100
4	BSC	BMA-203	Computer Oriented Numerical & Statistical Techniques	5 (3-1-2)	15	20	15	50	50	100
5	HSMC	HHS-201	Engineering Economics & Management	3 (3-0-0)	30	20	-	50	50	100
6	MC (Non-credit)	HHS-205	Indian Constitution	2 (2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

### SEMESTER IV

Sr. No.	Course Type	Course Code	Course Name	Credits	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	PCC	ECS-202	Software Engineering	5 (3-1-2)	15	20	15	50	50	100
2	PCC	ECS-204	Object Oriented Systems	5 (3-1-2)	15	20	15	50	50	100
3	ESC	EIT-202	Web Technology	5 (3-1-2)	15	20	15	50	50	100
4	BSC	BMA-204	Discrete Mathematical Structures	4 (3-1-0)	30	20	-	50	50	100
5	HSMC	HHS-204	Organisational Behaviour	3 (3-0-0)	30	20	-	50	50	100
6	MC (Non-credit)	ECS-206	Cyber Security	2 (2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

### SEMESTER V

Sr. No.	Course Type	Course Code	Course Name	Credits	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	PCC	ECS-301	Design & Analysis of Algorithms	5 (3-1-2)	15	20	15	50	50	100
2	PCC	ECS-303	Database Management Systems	5 (3-1-2)	15	20	15	50	50	100
3	PCC	ECS-305	Theory of Automata & Formal Languages	4 (3-1-0)	30	20	-	50	50	100
4	PCC	ECS-307	Principles of Programming Languages	5 (3-1-2)	15	20	15	50	50	100
5	OEC (Maths)	BMA-341	Operation Research	3 (3-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

### SEMESTER VI

Sr. No	Course Type	Course Code	Course Name	Credits	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	PCC	ECS-302	Computer Networks	5 (3-1-2)	15	20	15	50	50	100
2	PCC	ECS-304	Operating Systems	5 (3-1-2)	15	20	15	50	50	100
3	PCC	ECS-306	Compiler Design	4 (3-1-0)	30	20	-	50	50	100
4	PCC	ECS-308	Computer Graphics	5 (3-1-2)	15	20	15	50	50	100
5	OEC (HSS)	HHS-342	Entrepreneurship Development	3 (3-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

### SEMESTER VII

Sr. No.	Course Type	Course Code	Course Name	Credits	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	PCC	ECS-401	Artificial Intelligence	4 (3-1-0)	30	20	-	50	50	100
2	PEC	PEC-I	PEC-I	4 (3-1-0)	30	20	-	50	50	100
3	PEC	PEC-II	PEC-II	3 (3-0-0)	30	20	-	50	50	100
4	OEC	OEC- I	OEC-I	3 (3-0-0)	30	20	-	50	50	100
5	Seminar	ECS-471	Seminar	2 (0-0-4)	-	50	-	50	50	100
6	Industrial Training	ECS-461	Industrial Training	2 (0-0-4)	-	50	-	50	50	100
7	Project	ECS-497	Project	4 (0-0-8)	-	50	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

### SEMESTER VIII

Sr. No.	Course Type	Course Code	Course Name	Credits	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	PEC	PEC-III	PEC-III	4 (3-1-0)	30	10	-	50	50	100
2	PEC	PEC-IV	PEC-IV	4 (3-1-0)	30	10	-	50	50	100
3	OEC	OEC- II	OEC-II	4 (3-1-0)	30	10	-	50	50	100
4	Project	ECS-498	Project	10 (0-0-20)	-	50	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

**Total Programme Credits: 172**

ECS 497 Project will have Internal Evaluation while ECS 498 Project will have External Evaluation.

**Department of Computer Science & Engineering**  
**(to be offered in VII & VIII Semester)**

**Programme Elective-I**

<b>S. No.</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Credits</b>
1	EIT-411	Mobile Application Development	4 (3-1-0)
2	ECS-411	Data Warehousing & Data Mining	4 (3-1-0)
3	ECS-413	Cloud Computing	4 (3-1-0)
4	ECS-415	Advance Computer Architecture	4 (3-1-0)

**Programme Elective-II**

1	ECS-431	Network Security	3 (3-0-0)
2	ECS-433	Digital Image Processing	3 (3-0-0)
3	ECS-435	Real Time Systems	3 (3-0-0)
4	ECS-437	Machine Learning	3 (3-0-0)

**Programme Elective-III**

1.	EIT-412	Mobile Computing	4 (3-1-0)
2.	ECS-412	Embedded Systems	4 (3-1-0)
3.	ECS-414	Big Data Analytics	4 (3-1-0)
4.	ECS-416	Distributed Systems	4 (3-1-0)

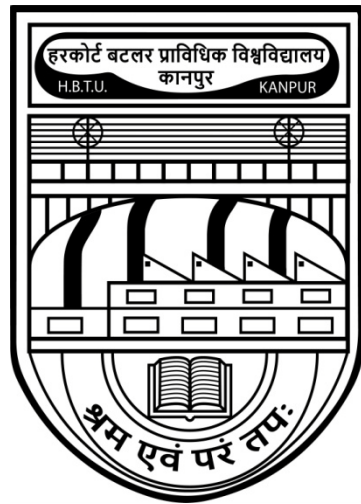
**Programme Elective-IV**

1.	EIT-432	Internet of Things	4 (3-1-0)
2.	ECS-434	Software Project Management	4 (3-1-0)
3.	ECS-436	Software Quality Engineering	4 (3-1-0)
4.	ECS-438	Soft Computing	4 (3-1-0)

**SEMESTER WISE COURSE STRUCTURE  
&  
EVALUATION SCHEME**

**INFORMATION TECHNOLOGY**

**(Effective from the session 2017-18 for new entrants)**



**HARCOURT BUTLER TECHNICAL UNIVERSITY**

**KANPUR-208002 (UP) – INDIA**

**SEMESTER WISE COURSE STRUCTURE & EVALUATION SCHEME  
B.TECH. INFORMATION TECHNOLOGY**

**SEMESTER I**

Sr. No.	Course Type	Course Code	Course Name	Credits	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	BSC	BPH-101	Physics	4 (3-0-2)	15	20	15	50	50	100
2	BSC	BMA-101	Mathematics-I	4 (3-1-0)	30	20	-	50	50	100
3	ESC	EEE-101	Electrical Engineering	4 (3-0-2)	15	20	15	50	50	100
4	ESC	EME-101	Engineering Mechanics	3 (3-0-0)	30	20	-	50	50	100
5	HSMC	HHS-103	Professional Communication	3 (2-0-2)	15	20	15	50	50	100
6	HSMC	HHS-101	English Language & Composition	2 (2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>20</b>						

**SEMESTER II**

Sr. No.	Course Type	Course Code	Course Name	Credits	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	BSC	BCY-102	Engineering Chemistry	4 (3-0-2)	15	20	15	50	50	100
2	BSC	BMA-102	Mathematics-II	4 (3-1-0)	30	20	-	50	50	100
3	ESC	EET-102	Electronics & Instrumentation Engineering	3 (3-0-0)	30	20	-	50	50	100
4	ESC	ECE-102	Engineering Graphics	3 (0-0-6)	30	20	-	50	50	100
5	ESC	ECS-102	Computer Concepts & Programming	4 (3-0-2)	15	20	15	50	50	100
6	ESC	EWS-102	Workshop Practice	2 (0-0-4)	-	20	30	50	50	100
7	MC (non-credit)	ECE-104	Environment & Ecology	2 (2-0-0)	30	20	-	50	50	50
<b>Total Credits</b>				<b>20</b>						

BSC- Basic Science Course; ESC-Engineering Science Course; PCC-Programme Core course; PEC-Programme Elective Course; OEC-Open Elective Course; MC-Mandatory Course; HSMC-Humanities, Social Science & Management Course

### SEMESTER III

Sr. No.	Course Type	Course Code	Course Name	Credits	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	PCC	ECS-201	Data Structure using C	5 (3-1-2)	15	20	15	50	50	100
2	PCC	ECS-203	Computer Organisation & Architecture	4 (3-1-0)	30	20	-	50	50	100
3	ESC	EET-203	Digital Electronics	5 (3-1-2)	15	20	15	50	50	100
4	BSC	BMA-203	Computer Oriented Numerical & Statistical Techniques	5 (3-1-2)	15	20	15	50	50	100
5	HSMC	HHS-201	Engineering Economics & Management	3 (3-0-0)	30	20	-	50	50	100
6	MC (Non-credit)	HHS-205	Indian Constitution	2 (2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

### SEMESTER IV

Sr. No.	Course Type	Course Code	Course Name	Credits	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	PCC	ECS-202	Software Engineering	5 (3-1-2)	15	20	15	50	50	100
2	PCC	ECS-204	Object Oriented Systems	5 (3-1-2)	15	20	15	50	50	100
3	ESC	ECS-208	Internet & Web Technology	5 (3-1-2)	15	20	15	50	50	100
4	BSC	BMA-206	Discrete Mathematical Structures	4 (3-1-0)	30	20	-	50	50	100
5	HSMC	HHS-204	Organisational Behaviour	3 (3-0-0)	30	20	-	50	50	100
6	MC (Non-credit)	ECS-206	Cyber Security	2 (2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

## SEMESTER V

Sr. No.	Course Type	Course Code	Course Name	Credits	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	PCC	ECS-301	Design & Analysis of Algorithms	5 (3-1-2)	15	20	15	50	50	100
2	PCC	ECS-303	Database Management Systems	5 (3-1-2)	15	20	15	50	50	100
3	PCC	ECS-305	Theory of Automata & Formal Languages	4 (3-1-0)	30	20	-	50	50	100
4	PCC	ECS-307	Principles of Programming Languages	5 (3-1-2)	15	20	15	50	50	100
5	OEC (Maths)	BMA-341	Operation Research	3 (3-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

## SEMESTER VI

Sr. No.	Course Type	Course Code	Course Name	Credits	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	PCC	ECS-302	Computer Networks	5 (3-1-2)	15	20	15	50	50	100
2	PCC	EIT-304	Software Project Management	5 (3-1-2)	15	20	15	50	50	100
3	PCC	ECS-306	Compiler Design	4 (3-1-0)	30	20	-	50	50	100
4	PCC	ECS-304	Operating Systems	5 (3-1-2)	15	20	15	50	50	100
5	OEC (HSS)	HHS-342	Entrepreneurship Development	3 (3-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						



## SEMESTER VII

Sr. No.	Course Type	Course Code	Course Name	Credits	Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	PCC	EIT-401	Cryptography & Network Security	4 (3-1-0)	30	20	-	50	50	100
2	PEC	PEC-I	PEC-I	4 (3-1-0)	30	20	-	50	50	100
3	PEC	PEC-II	PEC-II	3 (3-0-0)	30	20	-	50	50	100
4	OEC	OEC-I	OEC-I	3 (3-0-0)	30	20	-	50	50	100
5	Industrial Training	EIT-461	Industrial Training	2 (0-0-4)	-	50	-	50	50	100
5	Seminar	EIT-471	Seminar	2 (0-0-4)	-	50	-	50	50	100
6	Project	EIT-497	Project	4 (0-0-8)	-	50	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

## SEMESTER VIII

Sr. No.	Course Type	Course Code	Course Name	Credits	Details of Sessional Marks				ESM	Total Marks
					MSE	TA	Lab	Total		
1	PEC	PEC-III	PEC-III	4 (3-1-0)	30	20	-	50	50	100
2	PEC	PEC-IV	PEC-IV	4 (3-1-0)	30	20	-	50	50	100
3	OEC	OCE-II	OEC-II	4 (3-1-0)	30	20	-	50	50	100
4	Project	EIT-498	Project	10 (0-0-20)	-	50	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

**Total Programme Credits: 172**

EIT 497 Project will have Internal Evaluation while EIT 498 Project will have External Evaluation.

**Department of Information Technology**  
**(to be offered in VII & VIII Semester)**

**Programme Elective-I**

S.No.	Course Code	Course Name	Credits
1	EIT-411	Mobile Application Development	4 (3-1-0)
2	EIT-413	Information Storage & Retrieval	4 (3-1-0)
3	ECS-413	Cloud Computing	4 (3-1-0)
4	ECS-411	Data Warehousing & Mining	4 (3-1-0)

**Programme Elective-II**

1	EIT-431	ERP systems	3 (3-0-0)
2	ECS-433	Digital Image Processing	3 (3-0-0)
3	ECS-435	Real Time Systems	3 (3-0-0)
4	ECS-437	Machine Learning	3 (3-0-0)

**Programme Elective-III**

1	EIT-412	Mobile Computing	4 (3-1-0)
2	ECS-412	Embedded System	4 (3-1-0)
3	ECS-414	Big Data Analytics	4 (3-1-0)
4	EIT-414	Virtual Reality	4 (3-1-0)

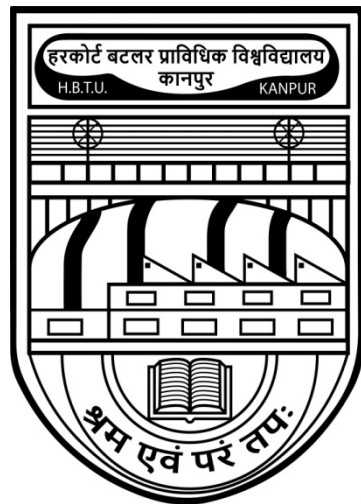
**Programme Elective-IV**

1	ECS-432	Software Testing	4 (3-1-0)
2	ECS-436	Software Quality Engineering	4 (3-1-0)
3	ECS-438	Soft Computing	4 (3-1-0)
4	EIT-432	Internet of Things	4 (3-1-0)

**SEMESTER WISE COURSE STRUCTURE  
&  
EVALUATION SCHEME**

**ELECTRICAL ENGINEERING**

**(Effective from the session 2017-18 for new entrants)**



**HARCOURT BUTLER TECHNICAL UNIVERSITY**

**KANPUR-208002 (UP) – INDIA**

**SEMESTER WISE COURSE STRUCTURE & EVALUATION SCHEME**  
**B. TECH. ELECTRICAL ENGINEERING**

**SEMESTER I**

Sr. No.	Course Type	Subject Code	Course Title	Credits (LTP)	Sessional Marks				ESE	Total
					MSE	TA	Lab	Total		
1.	BSC	BPH-101	Physics	4 (3-0-2)	15	20	15	50	50	100
2.	BSC	BMA-101	Maths-I	4 (3-1-0)	30	20	-	50	50	100
3.	ESC	EEE- 101	Electrical Engg.	4 (3-0-2)	15	20	15	50	50	100
4.	ESC	EME-101	Engg. Mechanics	3 (3-0-0)	30	20	-	50	50	100
5.	HSMC	HHS-103	Professional Communication	3 (2-0-2)	15	20	15	50	50	100
6.	HSMC	HHS-101	English Language and Composition	2 (2-0-0)	30	20	-	50	50	100
<b>Total Credit</b>					<b>20</b>					

**SEMESTER II**

Sr. No.	Course Type	Subject Code	Course Title	Credits (LTP)	Sessional Marks				ESE	Total
					MSE	TA	Lab	Total		
1.	BSC	BCY-102	Engineering Chemistry	4 (3-0-2)	15	20	15	50	50	100
2.	BSC	BMA-102	Maths-II	4 (3-1-0)	30	20	-	50	50	100
3.	ESC	EET-102	Electronics & Instrumentation Engg.	3 (3-0-0)	30	20	-	50	50	100
4.	ESC	ECE-102	Engg. Graphics	3 (0-0-6)	30	20	-	50	50	100
5.	ESC	ECS-102	Computer Concept & C Programming	4 (3-0-2)	15	20	15	50	50	100
6.	ESC	EWS-102	Workshop Practice	2 (0-0-4)	-	20	30	50	50	100
7.	MC (Non-credit)	ECE-104	Environment and Ecology	2 (2-0-0)	30	20	-	50	50	100
<b>Total Credit</b>					<b>20</b>					

BSC- Basic Science Course; ESC-Engineering Science Course; PCC-Programme Core course; PEC-Programme Elective Course; OEC-Open Elective Course; MC-Mandatory Course; HSMC-Humanities, Social Science & Management Course

### SEMESTER III

Sr. No.	Course Type	Subject Code	Course Title	Credits	Sessional Marks				ESE	Total
					MSE	TA	Lab	Total		
1.	BSC	BMA-201	Maths-III	4 (3-1-0)	30	20	-	50	50	100
2.	ESC	EET-201	SSDC	5 (3-1-2)	15	20	15	50	50	100
3.	ESC	EET-203	Digital Electronics	5 (3-1-2)	15	20	15	50	50	100
4.	PCC	EEE-201	BSA	5 (3-1-2)	15	20	15	50	50	100
5.	HSMC	HHS-201	Engineering Economics and Management	3 (3-0-0)	30	20	-	50	50	100
6.	MC (Non-credit)	HHS-205	Indian Constitution	2 (2-0-0)	30	20	-	50	50	100
<b>Total Credit</b>				<b>22</b>						

### SEMESTER IV

Sr. No.	Course Type	Subject Code	Course Title	Credits	Sessional Marks				ESE	Total
					MSE	TA	Lab	Total		
1.	BSC	BMA-206	CONM	4 (3-1-0)	30	20	-	50	50	100
2.	PCC	EEE-206	Electrical Circuit Analysis	5 (3-1-2)	15	20	15	50	50	100
3.	PCC	EEE-202	Electrical Machines-I	5 (3-1-2)	15	20	15	50	50	100
4.	PCC	EEE-204	EMMI	5 (3-1-2)	15	20	15	50	50	100
5.	HSMC	HHS-204	Organizational Behaviour	3 (3-0-0)	30	20	-	50	50	100
6.	MC (Non-credit)	ECS-202	Cyber Security	2 (2-0-0)	30	20	-	50	50	100
<b>Total Credit</b>				<b>22</b>						

### SEMESTER V

Sr. No.	Course Type	Subject Code	Course Title	Credits	Sessional Marks				ESE	Total
					MSE	TA	Lab	Total		
1.	PCC	EEE-301	Electrical Machines-II	5 (3-1-2)	15	20	15	50	50	100
2.	PCC	EEE-303	Control System	5 (3-1-2)	15	20	15	50	50	100
3.	PCC	EEE-305	Power System-I	4 (3-1-0)	30	20	-	50	50	100
4.	PCC	EEE-307	Microprocessors	5 (3-1-2)	15	20	15	50	50	100
5.	OEC (Maths)	BMA-341	Operation Research	3 (3-0-0)	30	20	-	50	50	100
<b>Total Credit</b>				<b>22</b>						

### SEMESTER VI

Sr. No.	Course Type	Subject Code	Course Title	Credits	Sessional Marks				ESE	Total
					MSE	TA	Lab	Total		
1.	PCC	EEE-302	Power System-II	5 (3-1-3)	15	20	15	50	50	100
2.	PCC	EEE-304	Power Electronics	6 (3-2-2)	15	20	15	50	50	100
3.	PCC	EEE-306	Power Station Practice	4 (3-1-0)	30	20	-	50	50	100
4.	PCC	EET-310	Electromagnetic Field Theory	4 (3-1-0)	30	20	-	50	50	100
5.	OEC (Humanities)	HHS-342	Entrepreneurship Development	3 (3-0-0)	30	20	-	50	50	100
<b>Total Credit</b>				<b>22</b>						

## SEMESTER VII

Sr. No.	Course Type	Subject Code	Course Title	Credits (LTP)	Sessional Marks				ESE	Total
					MSE	TA	Lab	Total		
1.	PCC	EEE-401	Electric Drives	5 (3-1-2)	15	20	15	50	50	100
2.	PEC	PEC-I	PEC-I	3 (3-0-0)	30	20	-	50	50	100
3.	PEC	PEC-II	PEC-II	3 (3-0-0)	30	20	-	50	50	100
4.	OEC	OEC-I	OEC-I	3 (3-0-0)	30	20	-	50	50	100
5.	Industrial Training	EEE-461	Industrial Training	2 (0-0-4)	-	50	-	50	50	100
6.	Seminar	EEE-471	Seminar	2 (0-0-4)	-	50	-	50	50	100
7.	Project	EEE-497	Project	4 (0-0-8)	-	50	-	50	50	100
<b>Total Credit</b>					<b>22</b>					

## SEMESTER VIII

Sr. No.	Course Type	Subject Code	Course Title	Credits	Sessional Marks				ESE	Total
					MSE	TA	Lab	Total		
1.	PEC	PEC-III	PEC-III	4 (3-1-0)	30	20	-	50	50	100
2.	PEC	PEC-IV	PEC-IV	4 (3-1-0)	30	20	-	50	50	100
3.	OEC	OEC-II	OEC-II	4 (3-1-0)	30	20	-	50	50	100
4.	Project	EEE-498	Project	10 (0-0-20)	-	50	-	50	50	100
<b>Total Credit</b>					<b>22</b>					

**Total Programme Credits : 172**

EEE-497 Project will have Internal Evaluation while EEE-498 Project will have External Evaluation.

**Department of Electrical Engineering**  
**(to be offered in VII & VIII Semester)**

**Programme Elective-I**

S. No.	Course Code	Course Name	Credits
1.	EEE-411	Instrumentation and Process Control	3 (3-0-0)
2.	EEE-413	HVDC Transmission Systems	3 (3-0-0)
3.	EEE-415	Special Topics in Control Systems	3 (3-0-0)
4.	EEE-417	Electrical Energy Conservation and Auditing	3 (3-0-0)
5.	EEE-419	Power System Design	3 (3-0-0)
6.	EEE-421	Advanced Power Electronics	3 (3-0-0)

**Programme Elective-II**

1.	EEE-423	Advanced control System	3 (3-0-0)
2.	EEE-425	Special Electrical Machines	3 (3-0-0)
3.	EEE-427	Optimal Control System	3 (3-0-0)
4.	EEE-429	Power System Protection	3 (3-0-0)
5.	EEE-431	Electrical Machine Design	3 (3-0-0)
6.	EEE-433	Real Time Simulation Techniques of Power Electronic Converters	3 (3-0-0)

**Programme Elective-III**

1.	EEE-440	Neural Network and Fuzzy System	4 (3-1-0)
2.	EEE-442	Power System Security and Analysis	4 (3-1-0)
3.	EEE-444	Applied System Theory	4 (3-1-0)
4.	EEE-446	Power Quality and FACTS	4 (3-1-0)
5.	EEE-448	Wind and Solar Energy Systems	4 (3-1-0)
6.	EEE-450	Modeling and Simulation Electrical Machines	4 (3-1-0)

**Programme Elective-IV**

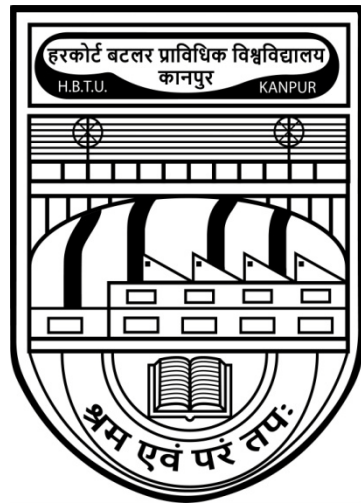
1.	EEE-452	Robotics and Automation	4 (3-1-0)
2.	EEE-454	Power System Dynamics and Control	4 (3-1-0)
3.	EEE-456	Industrial Instrumentation	4 (3-1-0)
4.	EEE-458	Electrical and Electronics Engineering Materials	4 (3-1-0)
5.	EEE-460	Electrical and Hybrid Vehicles	4 (3-1-0)
6.	EEE-462	Advanced Electric Drives	4 (3-1-0)



**SEMESTER WISE COURSE STRUCTURE  
&  
EVALUATION SCHEME**

**ELECTRONICS ENGINEERING**

**(Effective from the session 2017-18 for new entrants)**



**HARCOURT BUTLER TECHNICAL UNIVERSITY**

**KANPUR-208002 (UP) – INDIA**

**SEMESTER WISE COURSE STRUCTURE & EVALUATION SCHEME  
B.TECH. ELECTRONICS ENGINEERING**

**SEMESTER I**

Sl. No.	Course Type	Subject Code	Course Title	Credits (LTP)	Sessional Marks				ESE	Total Marks
					MSE	TA	Lab	Total		
1.	BSC	BPH-101	Physics	4(3-0-2)	15	20	15	50	50	100
2.	BSC	BMA-101	Mathematics-I	4(3-1-0)	30	20	-	50	50	100
3.	ESC	EEE-101	Electrical Engineering	4(3-0-2)	15	20	15	50	50	100
4.	ESC	EME-101	Engineering Mechanics	3(3-0-0)	30	20	-	50	50	100
5.	HSMC	HHS-103	Professional Communication	3(2-0-2)	15	20	15	50	50	100
6.	HSMC	HHS-101	English Language and Composition	2(2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>20</b>						

**SEMESTER II**

Sl. No.	Course Type	Subject Code	Course Title	Credits (LTP)	Sessional Marks				ESE	Total Marks
					MSE	TA	Lab	Total		
1.	BSC	BCY-102	Engineering Chemistry	4(3-0-2)	15	20	15	50	50	100
2.	BSC	BMA-102	Mathematics -II	4(3-1-0)	30	20	-	50	50	100
3.	ESC	EET-102	Electronics & Instrumentation Engineering	3(3-0-0)	30	20	-	50	50	100
4.	ESC	ECE-102	Engineering Graphics	3(0-0-6)	30	20	-	50	50	100
5.	ESC	ECS-102	Computer Concept & C Programming	4(3-0-2)	15	20	15	50	50	100
6.	ESC	EWS-102	Workshop Practice	2(0-0-4)	-	20	30	50	50	100
7.	MC (Non-credit)	ECE-104	Environment and Ecology	2(2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>20</b>						

BSC- Basic Science Course; ESC-Engineering Science Course; PCC-Programme Core course; PEC-Programme Elective Course; OEC-Open Elective Course; MC-Mandatory Course; HSMC-Humanities, Social Science & Management Course

### SEMESTER III

Sl. No.	Course Type	Subject Code	Course Title	Credits (LTP)	Sessional Marks				ESE	Total Marks
					MSE	TA	Lab	Total		
1.	BSC	BMA-201	Mathematics -III	4(3-1-0)	30	20	-	50	50	100
2.	ESC	EEE-203	Electrical Circuit Analysis	5(3-1-2)	15	20	15	50	50	100
3.	PCC	EET-201	Solid State Devices and Circuits	5(3-1-2)	15	20	15	50	50	100
4.	PCC	EET-203	Digital Electronics	5(3-1-2)	15	20	15	50	50	100
5.	HSMC	HHS-201	Engineering Economics & Management	3(3-0-0)	30	20	-	50	50	100
6.	MC (Non-credit)	HHS-205	Indian Constitution	2(2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

### SEMESTER IV

Sl. No.	Course Type	Subject Code	Course Title	Credits (LTP)	Sessional Marks				ESE	Total Marks
					MSE	TA	Lab	Total		
1.	BSC	BMA-206	CONM	4(3-1-0)	30	20	-	50	50	100
2.	ESC	ECS- 201	Data Structures using C	5(3-1-2)	15	20	15	50	50	100
3.	PCC	EET-202	Electromagnetic Field Theory	4(3-1-0)	30	20	-	50	50	100
4.	PCC	EET-204	Signal and Systems	4(3-1-0)	30	20	-	50	50	100
5.	HSMC	HHS-204	Organizational Behavior	3(3-0-0)	30	20	-	50	50	100
6.	PCC	EET-206	EWPCB Lab	2(0-0-4)	-	20	30	50	50	100
7.	MC (Non-credit)	ECS-206	Cyber Security	2(2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

### SEMESTER V

Sl. No.	Course Type	Subject Code	Course Title	Credits (LTP)	Sessional Marks				ESE	Total Marks
					MSE	TA	Lab	Total		
1.	PCC	IEE-503	Control System	5(3-1-2)	15	20	15	50	50	100
2.	PCC	EET-301	Analog Communication	5(3-1-2)	15	20	15	50	50	100
3.	PCC	EET-303	Antenna and Wave Propagation	5(3-1-2)	15	20	15	50	50	100
4.	PCC	EET-305	Microprocessors	4(3-0-2)	15	20	15	50	50	100
5.	OEC	BMA-341	Operation Research	3(3-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

### SEMESTER VI

Sl. No.	Course Type	Subject Code	Course Title	Credits (LTP)	Sessional Marks				ESE	Total Marks
					MSE	TA	Lab	Total		
1.	PCC	EET-302	Analog Integrated Circuits	5(3-1-2)	15	20	15	50	50	100
2.	PCC	EET-304	Digital Communication	5(3-1-2)	15	20	15	50	50	100
3.	PCC	EET-306	Advanced Instrumentation	4(3-1-0)	15	20	15	50	50	100
4.	PCC	EET-308	VLSI Design	5(3-1-2)	15	20	15	50	50	100
5.	OEC	HHS-342	Entrepreneurship Development	3(3-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

### SEMESTER VII

Sl. No.	Course Type	Subject Code	Course Title	Credits (LTP)	Sessional Marks				ESE	Total Marks
					MSE	TA	Lab	Total		
1.	PCC	EET-401	Digital Signal Processing	5(3-1-2)	15	20	15	50	50	100
2.	PEC	PEC-I	PEC-I	3(3-0-0)	30	20	-	50	50	100
3.	PEC	PEC-II	PEC-II	3(3-0-0)	30	20	-	50	50	100
4.	OEC	OEC-I	OEC-I	3(3-0-0)	30	20	-	50	50	100
5.	Industrial Training	EET-461	Industrial Training	2(0-0-4)	-	50	-	50	50	100
6.	Seminar	EET-471	Seminar	2(0-0-4)	-	50	-	50	50	100
7.	Project	EET-497	Project	4(0-0-8)	-	50	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

### SEMESTER VIII

Sl. No.	Course Type	Subject Code	Course Title	Credits (LTP)	Sessional Marks				ESE	Total Marks
					MSE	TA	Lab	Total		
1.	PEC	PEC-III	PEC-III	4(3-1-0)	30	20	-	50	50	100
2.	PEC	PEC-IV	PEC-IV	4(3-1-0)	30	20	-	50	50	100
3.	OEC	OEC-II	OEC-II	4(3-1-0)	30	20	-	50	50	100
4.	Project	EET-498	Project	10(0-0-20)	-	50	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

**Total Programme Credit: 172**

EET 497 Project will have Internal Evaluation while EET 498 Project will have External Evaluation.

**Department of Electronics Engineering**  
**(to be offered in VII & VIII Semester)**

**Programme Elective-I**

S. No.	Course Code	Course Name	Credits
1	EET-453	Bio Medical processing	3(3-0-0)
2	EET-455	Satellite Communication	3(3-0-0)
3	EET-457	Digital System Design using VHDL	3(3-0-0)
4	EET-459	Computer Networks	3(3-0-0)

**Programme Elective-II**

1	EET-475	Opto Electronics	3(3-0-0)
2	EET-477	Wireless Communication	3(3-0-0)
3	EET-479	VLSI Technology	3(3-0-0)
4	EET-481	Radar and Microwave Engineering	3(3-0-0)

**Programme Elective-III**

1	EET-452	AADSP	4(3-1-0)
2	EET-454	Information theory & coding	4(3-1-0)
3	EET-456	Advanced Semiconductor Devices	4(3-1-0)
4	EET-458	RF Systems	4(3-1-0)

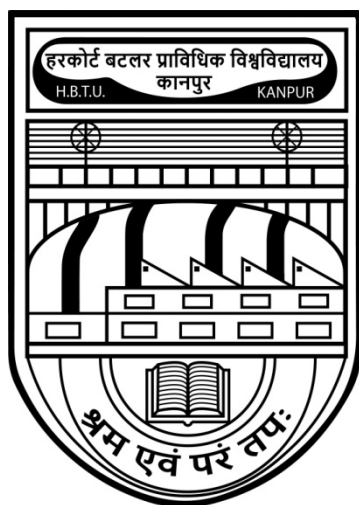
**Programme Elective-IV**

1	EET-476	Image Processing	4(3-1-0)
2	EET-478	Optical Fiber Communication	4(3-1-0)
3	EET-480	Embedded Systems	4(3-1-0)
4	EET-482	Data Analytics	4(3-1-0)

**SEMESTER WISE COURSE STRUCTURE  
&  
EVALUATION SCHEME**

**MECHANICAL ENGINEERING**

**(Effective from the session 2017-18 for new entrants)**



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**KANPUR-208002 (UP) – INDIA**

**SEMESTER WISE COURSE STRUCTURE & EVALUATION SCHEME**  
**B.TECH. MECHANICAL ENGINEERING**

**SEMESTER I**

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Mark
					MSE	TA	Lab	Total		
1.	BSC	BPH 101	Physics	4(3-0-2)	15	20	15	50	50	100
2.	BSC	BMA 101	Maths -I	4(3-1-0)	30	20	-	50	50	100
3.	ESC	EEE 101	Electrical Engg.	4(3-0-2)	15	20	15	50	50	100
4.	ESC	EME 101	Engg. Mechanics	3(3-0-0)	30	20	-	50	50	100
5.	HSMC	HHS 103	Professional Communication	3(2-0-2)	15	20	15	50	50	100
6.	HSMC	HHS 101	English Language & Composition	2(2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>20</b>						

**SEMESTER II**

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Mark
					MSE	TA	Lab	Total		
1.	BSC	BCY 102	Engg. Chemistry	4(3-0-2)	15	20	15	50	50	100
2.	BSC	BMA 102	Maths-II	4(3-1-0)	30	20	-	50	50	100
3.	ESC	EET 102	Electronics & Instrumentation Engg.	3(3-0-0)	30	20	-	50	50	100
4.	ESC	ECE 102	Engg. Graphics	3(0-0-6)	30	20	-	50	50	100
5.	ESC	ECS 102	Computer Concept & Programming	4(3-0-2)	15	20	15	50	50	100
6.	ESC	EWS 102	Workshop Practice	2(0-0-4)	-	20	30	50	50	100
7.	MC (Non-credit)	ECE 104	Environment and Ecology	2(2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>20</b>						

BSC- Basic Science Course; ESC-Engineering Science Course; PCC-Programme Core course; PEC-Programme Elective Course; OEC-Open Elective Course; MC-Mandatory Course; HSMC-Humanities, Social Science & Management Course



### SEMESTER III

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Mark
					MSE	TA	Lab	Total		
1.	BSC	BMA 201	Maths-III	4(3-1-0)	30		-	50	50	100
2.	ESC	EME 201	Strength of Material	5(3-1-2)	15	20	15	50	50	100
3.	PCC	EME 203	Material Science	4(3-0-2)	15	20	15	50	50	100
4.	PCC	EME 205	Engineering Thermodynamics	4(3-1-0)	30	20	-	50	50	100
5.	PCC	EME 207	Machine Drawing	2(0-0-4)	-	20	30	50	50	100
6.	HSMC	HHS 201	Engg. Economics & Management	3(3-0-0)	30	20	-	50	50	100
7.	MC (Non-credit)	HHS 205	Indian Constitution	2(2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

### SEMESTER IV

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Mark
					MSE	TA	Lab	Total		
1.	BSC	BMA 206	CONM	4(3-1-0)	30	20	-	50	50	100
2.	ESC	ECE 202	Engineering Fluid Mechanics	5(3-1-2)	15	20	15	50	50	100
3.	PCC	EME 202	Manufacturing Science-I	5(3-1-2)	15	20	15	50	50	100
4.	PCC	EME 206	Applied Thermodynamics	4(3-1-0)	30	20	-	50	50	100
5.	PCC	EME 208	Kinematics of Machine	4(3-1-0)	30	20	-	50	50	100
6.	MC (Non-credit)	ECS 202	Cyber Security	2(2-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

## SEMESTER V

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Mark
					MSE	TA	Lab	Total		
1.	PCC	EME 301	Manufacturing Science-II	5(3-1-2)	15	20	15	50	50	100
2.	PCC	EME 303	Heat & Mass Transfer	5(3-1-2)	15	20	15	50	50	100
3.	PCC	EME 305	Dynamics of Machine	5(3-1-2)	15	20	15	50	50	100
4.	PCC	EME 307	Machine Design-I	4(3-0-2)	15	20	15	50	50	100
5.	OEC (Maths)	BMA 341	Operation Research	3(3-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

## SEMESTER VI

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Mark
					MSE	TA	Lab	Total		
1.	PCC	EME 302	Fluid Machinery	5(3-1-2)	15	20	15	50	50	100
2.	PCC	EME 304	Machine Design II	5(3-1-2)	15	20	15	50	50	100
3.	PCC	EME 306	Computer Aided Design	5(3-1-2)	15	20	15	50	50	100
4.	PCC	EME 310	I C Engine & Energy Conversion	4(3-0-2)	15	20	15	50	50	100
5.	OEC (Humanities)	HHS 342	Entrepreneurship Development	3(3-0-0)	30	20	-	50	50	100
<b>Total Credits</b>				<b>22</b>						

## SEMESTER VII

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Mark
					MSE	TA	Lab	Total		
1.	PCC	EME 401	Refrigeration & Air Conditioning	4(3-0-2)	15	20	15	50	50	100
2.	PEC	PEC-I	PEC-I	4(3-1-0)	30	20	-	50	50	100
3.	PEC	PEC-II	PEC-II	3(3-0-0)	30	20	-	50	50	100
4.	OEC	OEC-I	OEC-I	3(3-0-0)	30	20	-	50	50	100
5.	Industrial Training	EME-461	Industrial Training	2(0-0-4)	-	50	-	50	50	100
6.	Seminar	EME-471	Seminar	2(0-0-4)	-	50	-	50	50	100
7.	Project	EME-497	Project	4(0-0-8)	-	50	-	50	50	100
<b>Total Credits</b>					<b>22</b>					

## SEMESTER VIII

Sr. No.	Course Type	Subject Code	Course Title	Credits (L-T-P)	Sessional Marks				ESM	Total Mark
					MSE	TA	Lab	Total		
1.	PEC	PEC-III	PEC-III	4(3-1-0)	30	20	-	50	50	100
2.	PEC	PEC-IV	PEC-IV	4(3-1-0)	30	20	-	50	50	100
3.	OEC	OEC-II	OEC-II	4(3-1-0)	30	20	-	50	50	100
4.	Project	EME-498	Project	10(0-0-20)	-	50	-	50	50	100
<b>Total Credits</b>					<b>22</b>					

**Total Programme Credits : 172**

EME 497 Project will have Internal Evaluation while EME 498 Project will have External Evaluation.

**Department of Mechanical Engineering**  
**(to be offered in VII & VIII Semester)**

**Programme Elective-I**

<b>S. No.</b>	<b>Course Code</b>	<b>Course Name</b>	<b>Credits</b>
1.	EME-415	Finite Element Method	4(3-1-0)
2.	EME-417	Automobile Engineering	4(3-1-0)
3.	EME-419	Measurement & Control	4(3-1-0)
4.	EME-421	Computer Aided Manufacturing	4(3-1-0)

**Programme Elective-II**

1.	EME-425	Advance Materials	3(3-0-0)
2.	EME-427	Mechanical Vibration	3(3-0-0)
3.	EME-429	Power Plant Engineering	3(3-0-0)
4.	EME-431	Production Planning & Control	3(3-0-0)
5.	EME-433	Non-conventional Energy Resources & Utilization	3(3-0-0)

**Programme Elective-III**

1.	EME-436	Non-Destructive Evaluation	4(3-1-0)
2.	EME-438	Non-conventional Manufacturing	4(3-1-0)
3.	EME-440	Product Design & Development	4(3-1-0)
4.	EME-442	Industrial Engineering	4(3-1-0)
5.	EME-444	Fracture Mechanics	4(3-1-0)

**Programme Elective-IV**

1.	EME-452	Rapid Prototyping & Rapid Tooling	4(3-1-0)
2.	EME-454	Machine Tool Design	4(3-1-0)
3.	EME-456	Optimization Methods in Engineering	4(3-1-0)
4.	EME-458	Experimental Stress Analysis	4(3-1-0)
5.	EME-460	Thermal Turbo Machines	4(3-1-0)

**List of Open Electives offered  
by Various Departments in VII & VIII Semester**

**School of Engineering**

<b>Name of Departments</b>	<b>OEC I</b>			<b>OEC II</b>		
Computer Science & Engineering (CS / IT)	OCS 433	Machine Learning	3(3-0-0)	OIT 444	Human Computer Interaction	4(3-1-0)
Electronics Engineering	OET 433	Mobile Communication	3(3-0-0)	OET 444	Image Processing	4(3-1-0)
	OET 435	Biomedical Electronics	3(3-0-0)	OET 446	Fuzzy logic with Electronics Engineering applications	4(3-1-0)
Electrical Engineering	OEE 433	Non-Conventional Energy Sources	3(3-0-0)	OEE 444	Industrial Measurements	4(3-1-0)
	OEE 435	Power Plant Engineering	3(3-0-0)	OEE 446	Industrial Control Systems	4(3-1-0)
Civil Engineering	OCE 433	Environmental Pollution and Management	3(3-0-0)	OCE 444	Introduction to RS and GIS	4(3-1-0)
	OCE 435	Disaster Management	3(3-0-0)	OCE 446	Introduction to Infrastructure Engineering	4(3-1-0)
Mechanical Engineering	OME 433	Solar Energy	3(3-0-0)	OME 444	Alternative Energy Resources	4(3-1-0)
	OME 435	Composite Materials	3(3-0-0)	OME 446	Industrial Engineering & Automation	4(3-1-0)

**School of Chemical Technology**

<b>Name of Departments</b>	<b>OEC I</b>			<b>OEC II</b>		
Chemical Engineering	OCH 433	Energy Resources and Utilization	3(3-0-0)	OCH 446	Air Pollution Monitoring and Control	4(3-1-0)
Bio-Chemical Engineering	OBE 433	Principal of Biochemical Engineering	3(3-0-0)	OCH 444	Transport Phenomenon	3(2-1-0)
Oil Technology	OOT 433	Technology of Oil, Oil Seeds & Surfactants	3(3-0-0)	OCH 444	Transport Phenomenon	3(2-1-0)
Plastic Technology	OPL 433	Introduction to Polymer Technology	3(3-0-0)	OCH 444	Transport Phenomenon	3(2-1-0)
Food Technology	OFT 433	Nutritional aspects of Natural & Processed Foods	3(3-0-0)	OCH 444	Transport Phenomenon	3(2-1-0)
Leather Technology	OLT 433	Introduction to Leather Technology	3(3-0-0)	OCH 444	Transport Phenomenon	3(2-1-0)
Paint Technology	OPT 433	Basic Paint Technology	3(3-0-0)	OCH 444	Transport Phenomenon	3(2-1-0)