

B.Tech, Me  
(2018)

**Choice Based Credit System  
SCHEME  
*B.Tech, Mechanical Engineering***



**Department of Mechanical Engineering  
UIET**

**Sant Baba Bhag Singh University**

**2018**

*AS*  
HOD, M.E.

Sant Baba Bhag Singh University  
VIII-Khiala, Jalandhar-144030



## SEMESTER I / II

### Scheme for B. Tech. 1<sup>st</sup> Year (Common to all disciplines) (Physics Group)

#### I. Theory Subjects

S. No.	Course area	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	*PHY 105-18	Engineering Physics	3:0:0	3:0:0	3	3
2	BS	MAT103/ MAT104-18	Engineering Mathematics-I/ Engineering Mathematics-II	4:1:0	4:1:0	5	5
3	ES	*EE101-18	Basic Electrical Engineering	2:0:0	2:0:0	2	2
4	ES	*CSE101-18	Fundamentals of Computer Technology	3:0:0	3:0:0	3	3

#### II. practical Subjects

S. No	Course area	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	*PHY107-18	Engineering Physics Laboratory	0:0:2	0:0:1	2	1
2	ES	*EE103-18	Basic Electrical Engineering Laboratory	0:0:2	0:0:1	2	1
3	ES	*CSE103-18	Fundamentals of Computer Technology Laboratory	0:0:4	0:0:2	4	2
4	ES	*ME107-18	Engineering Workshop	0:0:6	0:0:3	6	3
5		*PT101/PT103 PT105	Physical training-I NSO/NCC/NSS	0:0:2	NC	2	NC

- In the 2<sup>nd</sup> Semester the scheme for Physics and Chemistry group will interchange
- In the 2<sup>nd</sup> Semester Engineering Mathematics-1 will be replaced by Engineering Mathematics-2
- Training after the 2<sup>nd</sup> Semester will be focused on Engineering workshop skills.
- \*Indicates that the subject will be offered in both the Semesters

Total Contact Hours:29

Total credit Hours:20

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## SEMESTER I / II

Scheme for B. Tech. 1<sup>st</sup> Year (Common to all disciplines) (Chemistry Group)

### I. Theory Subjects

S. No	Course area	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	*CHM105-18	Engineering Chemistry	3:0:0	3:0:0	3	3
2	BS	MAT103/ MAT104-18	Engineering Mathematics-1/ Engineering Mathematics-2	4:1:0	4:1:0	5	5
3	ES	*ECE101-18	Basic Electronics & Communication Engineering	2:0:0	2:0:0	2	2
4	HSMC	*ENG121-18	Communication Skills-I	2:0:0	2:0:0	2	2
5	ES	*ME103-18	Engineering Drawing	1:0:6	1:0:3	7	4

### II. practical Subjects

S. No	Course area	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	*CHM107-18	Engineering Chemistry Laboratory	0:0:2	0:0:1	2	1
2	ES	*ECE103-18	Basic Electronics & Communication Engineering Laboratory	0:0:2	0:0:1	2	1
3	HSMC	*ENG123-18	Communication Skills-I Practical	0:0:2	0:0:1	2	1
4		*PT102/ PT104/PT105	Physical training-II NSO/NCC/NSS	0:0:2	NC	2	NC

- In the 2<sup>nd</sup> Semester the scheme for Physics and Chemistry group will interchange and Engineering Mathematics-1 will be replaced by Engineering Mathematics-2
- \*Indicates that the subject will be offered in both the Semesters

**Total Contact Hours:27**

**Total credit Hours:19**

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### SEMESTER III

#### I. Theory subjects (including non-credit courses)

S.No	Category	Sub code	Category	Contact Hours (L:T:P)	Credits (L:T:P)	Total contact Hours	Total Credit Hours
1	BS	MAT205 - 18	Engineering Mathematics-III	3:1:0	3:1:0	4	4.
2	ES	ME201-18	Strength of Materials-I	3:1:0	3:1:0	4	4.
3	PC	ME203-18	Applied Thermodynamics-I	3:1:0	3:1:0	4	4
4	PC	ME205-18	Manufacturing Technology -I	4:0:0	4:0:0	4	4
5	ES	ME207-18	Machine Drawing	1:0:6	1:0:3	7	4

#### II. Practical subjects

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ES	ME209-18	Strength of Materials Lab	0:0:2	0:0:1	2	1
2	PC	ME211-18	Manufacturing Process Lab-I	0:0:2	0:0:1	2	1
3	PC	ME213-18	Applied Thermodynamics-I Lab	0:0:2	0:0:1	2	1
4		*PT201/	Physical Training-III (NSO/NCC/NSS)	0:0:2	NC	2	NC

**Total Contact hrs: 31**

**Total Credit Hours: 23**

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## SEMESTER IV

### I. Theory subjects (including non-credit courses)

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ES	ME202-18	Strength of Materials –II	3:1:0	3:1:0	4	4
2	PC	ME204-18	Applied Thermodynamics-II	3:1:0	3:1:0	4	4
3	PC	ME206-18	Mechanics of Machines - I	3:1:0	3:1:0	4	4
4	PC	ME208-18	Manufacturing Technology-II	3:0:0	3:0:0	3	3
5	MC	EVS101-18	Environmental Sciences	3:0:0	NC	3	NC
6	PC	ME212-18	Material Science and Metallurgy	3:0:0	3:0:0	3	3
7			*Educational Tour				

\*At least one Educational Tour must be carried out in the semester for practical exposure of the students. The tour must augment existing or previous lesson plans and synchronize with classroom learning.

### II. Practical Subjects:

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME214-18	Mechanics of Machines - I	0:0:2	0:0:1	2	1
2	PC	ME216-18	Manufacturing Process-II Lab	0:0:2	0:0:1	2	1
3	PC	ME218-18	Material Science and Metallurgy Lab	0:0:2	0:0:1	2	1
4		*PT202/PT204/PT206	Physical Training-IV (NSO/NCC/NSS)	0:0:2	NC	2	NC

— 4 weeks industrial training

**Total Contact hrs: 29**

**Total Credit Hours: 21**

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## SEMESTER V

### I. Theory subjects (including non-credit courses)

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME301-18	Fluid Mechanics	3:1:0	3:1:0	4	4
2	PC	ME303-18	Machine Design-I	4:1:0	4:1:0	5	5
3	PC	ME305-18	MOM II	3:1:0	3:1:0	4	4
4	PE		PE-1	3:0:0	3:0:0	3	3
5	HMSC	SSC303-18	Human values and professional ethics	3:0:0	3:0:0	3	3
6	MC	PLS303-18	Constitution of india	3:0:0	NC	3	NC

### II. Practical Subjects:

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME309-18	Fluid Mechanics Lab	0:0:2	0:0:1	2	1
2	MC	ME307-18	*Industrial Training undertaken after 4th sem		4 weeks		3

### Professional Elective-I

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME315-18	Automobile Engineering	3:0:0	3:0:0	3	3
2	ME317-18	Environmental Pollution and Abatement	3:0:0	3:0:0	3	3
3	ME319-18	Mechanical Handling Systems and Equipment	3:0:0	3:0:0	3	3

\*the students will undertake training in the industry of course relevance for 4 weeks after completion of 4<sup>th</sup> semester. The evaluation of the students will be done in 5<sup>th</sup> Semester on the basis of report writing and presentation for the training done in the industry.

Total Contact hrs: 24

Total Credit: 23

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## SEMESTER VI

### I. Theory subjects (including non-credit courses)

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME302-18	Heat Transfer	4:1:0	4:1:0	5	5
2	PC	ME304-18	Machine Design-II	4:1:0	4:1:0	5	5
3	PC	ME306-18	Computer Aided Design and Manufacturing	3:0:0	3:0:0	3	3
4	PC	ME308-18	Industrial meteorology	3:0:0	3:0:0	3	3
5	OE		OE-1	3:0:0	3:0:0	3	3

### II. Practical Subjects:

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME-310-18	Heat Transfer Lab	0:0:2	0:0:1	2	1
2	PC	ME312-18	Industrial meteorology	0:0:2	0:0:1	2	1
3	PC	ME314-18	*Seminar-II	0:0:2	0:0:1	2	1
4	PC	ME316-18	DESIGN SOFTWARE LAB	0:0:2	0:0:1	2	1

— 4 weeks industrial training

Total Contact hrs: 27

Total Credit : 23

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## SEMESTER VII

### I. Theory subjects (including non-credit courses)

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME401 -18	Fluid Machinery	3:1:0	3:1:0	4	4
2	PE		PE-II	3:0:0	3:0:0	3	3
3	PE		PE-III	3:1:0	3:1:0	4	4
4	OE		OE-II	3:0:0	3:0:0	3	3
5	OE		OE-III	3:0:0	3:0:0	3	3
Educational Tour							

### II. Practical Subjects:

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME403-18	Fluid Machinery	0:0:2	0:0:1	2	1
3	PC	ME405-18	Minor Project Work	0:0:6	0:0:3	6	3
5	PC	ME318-18	Industrial training	-	-	-	3

### Professional Elective-II

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME421-18	Industrial Automation & Robotics	3:0:0	3:0:0	3	3
2	ME423-18	Management of Supply chain	3:0:0	3:0:0	3	3
3	ME425-18	Introduction to Mechatronics	3:0:0	3:0:0	3	3

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## SEMESTER VIII

### I. Theory subjects (including non-credit courses)

S.No	Category	Subject code	Subject	L:T:P	L:T:P	Contact hours	Credits
1	PC	ME402-18	Refrigeration and Air Conditioning	3:1:0	3:1:0	4	4
2	PE		PE-IV	3:0:0	3:0:0	3	3
3	OE		OE-IV	3:0:0	3:0:0	3	3
4	OE		OE-V	3:0:0	3:0:0	3	3

### II. Practical Subjects:

S No.	CATEGORY	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME404-18	Refrigeration and air conditioning LAB	0:0:2	0:0:1	2	1
3	PC	ME406-18	*Project Work	0:0:8	0:0:4	8	4

### Professional Elective-IV

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME422-18	Advanced Manufacturing Processes	4:0:0	4:0:0	4	4
2	ME424-18	Non-Destructive Evaluation & Testing	4:0:0	4:0:0	4	4
3	ME426-18	Technology of Surface Coating	4:0:0	4:0:0	4	4

**Total Contact hrs: 23**

**Total Credit Hours: 18**

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## List of Open Electives

### ELECTIVE -I\*

S. No	Code	Course Title	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSE371-18	Basics of Database Design	3:0:0	3:0:0	3	3
2	CSE373-18	Fuzzy Logic	3:0:0	3:0:0	3	3
3	ME371-18	Total Quality Management	3:0:0	3:0:0	3	3
4	ME373-18	Production Planning & Control	3:0:0	3:0:0	3	3
5	EE371-18	Electrical Energy Conservation and Auditing	3:0:0	3:0:0	3	3
6	EE373-18	Element of power System	3:0:0	3:0:0	3	3
7	ECE371-18	Signal Systems	3:0:0	3:0:0	3	3
8	ECE373-18	Micro Controller & Applications	3:0:0	3:0:0	3	3
9	CE371-18	Renewable Energy Resources	3:0:0	3:0:0	3	3
10	CE373-18	Architecture and Town Planning	3:0:0	3:0:0	3	3

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**ELECTIVE –II\***

S. No	Code	Course Title	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSE372-18	Communication Networks	3:0:0	3:0:0	3	3
2	CSE374-18	Computer Organization	3:0:0	3:0:0	3	3
3	ME372-18	Industrial Engineering Management	3:0:0	3:0:0	3	3
4	ME374-18	Lean Manufacturing	3:0:0	3:0:0	3	3
5	EE372-18	Industrial Electrical System	3:0:0	3:0:0	3	3
6	EE374-18	Fundamentals of Electrical Machines	3:0:0	3:0:0	3	3
7	ECE372-18	Analog & Digital Communications	3:0:0	3:0:0	3	3
8	ECE374-18	Analog Circuits	3:0:0	3:0:0	3	3
9	CE372-18	Construction of Metro System	3:0:0	3:0:0	3	3
10	CE374-18	Traffic Engineering	3:0:0	3:0:0	3	3

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**ELECTIVE III\***

S. No	Code	Course Title	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSE471-18	Concepts of Operating System	3:0:0	3:0:0	3	3
2	CSE473-18	Data Warehouse & Data Mining	3:0:0	3:0:0	3	3
3	ME471-18	Material Management	3:0:0	3:0:0	3	3
4	ME473-18	Mechatronics	3:0:0	3:0:0	3	3
5	EE471-18	Wind and Solar Energy System	3:0:0	3:0:0	3	3
6	EE473-18	Instrumentation Engineering	3:0:0	3:0:0	3	3
7	ECE471-18	Biomedical Electronics	3:0:0	3:0:0	3	3
8	ECE473-18	Principles of VLSI Design	3:0:0	3:0:0	3	3
9	CE471-18	Rural Technology and Community Development	3:0:0	3:0:0	3	3
10	CE473-18	Waste Water Engineering	3:0:0	3:0:0	3	3

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**ELECTIVE IV\***

S. No	Code	Course Title	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSE472-18	Image Analysis	3:0:0	3:0:0	3	3
2	CSE474-18	Concepts of Cloud Computing	3:0:0	3:0:0	3	3
3	ME472-18	Production Operation Management	3:0:0	3:0:0	3	3
4	ME474-18	Industrial Safety	3:0:0	3:0:0	3	3
5	EE472-18	Electrical Materials	3:0:0	3:0:0	3	3
6	EE474-18	Electrical & Hybrid Vehicles	3:0:0	3:0:0	3	3
7	ECE472-18	Embedded System	3:0:0	3:0:0	3	3
8	ECE474-18	Advanced Optical Comm. System	3:0:0	3:0:0	3	3
9	CE472-18	Tall Building	3:0:0	3:0:0	3	3
10	CE474-18	Remote Sensing and Geographical Information System	3:0:0	3:0:0	3	3

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### ELECTIVE V\*

S. No	Code	Course Title	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSE476-18	Big Data	3:0:0	3:0:0	3	3
2	CSE478-18	Network Security	3:0:0	3:0:0	3	3
3	ME476-18	Supply Chain Management	3:0:0	3:0:0	3	3
4	ME478-18	Power Plant Engineering	3:0:0	3:0:0	3	3
5	EE476-18	Electrical Measurement	3:0:0	3:0:0	3	3
6	EE478-18	Energy Auditing & Management	3:0:0	3:0:0	3	3
7	ECE476-18	Digital System Design	3:0:0	3:0:0	3	3
8	ECE478-18	Broadband Comm.	3:0:0	3:0:0	3	3
9	CE476-18	Infrastructure and real estate management	3:0:0	3:0:0	3	3
10	CE478-18	Site investigation	3:0:0	3:0:0	3	3

#### Note :

1. "\*" open electives can be offered in accordance to other branches .
2. Students can earn extra 15 cradis for their degree with honour through online courses as available on MOOCs portal during their studies.

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## COURSE SCHEME SUMMARY

Sem	L	T	P	Contact hrs/wk	Credits	HS	BS	ES	PC	PE	OE	Project (prj)/ Training (trg) /Seminar (semi)	MC
1	12	1	16	29	20	-	9	11	-	--	-	-	-
2	12	1	14	27	19	3	9	7	-	--	--	-	-
3	14	3	14	31	23	0	4	8	11	0	0	0	0
4	18	3	8	29	21	0	0	4	17	0	0	2	0
5	19	3	2	25	23	3	0	0	14	3	0	3	0
6	17	2	8	27	23	0	0	0	20	0	3	4	0
7	15	2	8	25	24	0	0	0	8	7	6	3	0
8	12	1	10	23	18	0	0	0	5	3	6	4	0
<b>Total</b>	<b>113</b>	<b>19</b>	<b>74</b>	<b>196</b>	<b>169</b>	<b>6</b>	<b>22</b>	<b>30</b>	<b>59</b>	<b>20</b>	<b>15</b>	<b>14</b>	<b>6 unit</b>

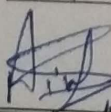
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### CHOICE BASED CREDIT SYSTEM

Sem	PC (61)	BS (23)	ES (29)	HS (6)	PE (18)	OE (17)	Project/ Training/ Seminar (09)	MC (6)
I		Engineering Physics	Basic Electrical Engineering					
		Engineering Mathematics-I	Fundamentals of Computer Technology					
			Engineering Workshop					
II		Engineering Chemistry	Basic Electronics & Communication Engineering	Communication Skills				
		Engineering Mathematics-II	Engineering Drawing					
III	C1	Engineering mathematics-III	Strength of materials I					
	C2		Strength of materials lab					
	C3		Machine drawing					
	C4							
IV	C5		Strength of materials -II					Environmental Science
	C6							
	C7							

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	C8						
	C9						
	C10						
	C11						
V	C12		Human resources and management	PE-I		Industrial Training	Constitution of India
	C13						
	C14						
	C15						
VI	C16				OE-1	Industrial Training	
	C17						
	C18						
	C19						
	C20						
	C21						
	C19						
VII	C20			PE-2	OE-2	MINOR PROJECT	
	C21			PE-3	OE-3		
VII I	C22			PE-4	OE-4		
	C23				OE-5	Major Project	

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**SCHEME & SYLLABUS**  
*B.Tech, Mechanical Engineering*  
**Choice Based Credit System**



**Department of Mechanical Engineering**  
**UIET**  
**Sant Baba Bhag Singh University**  
**2019**

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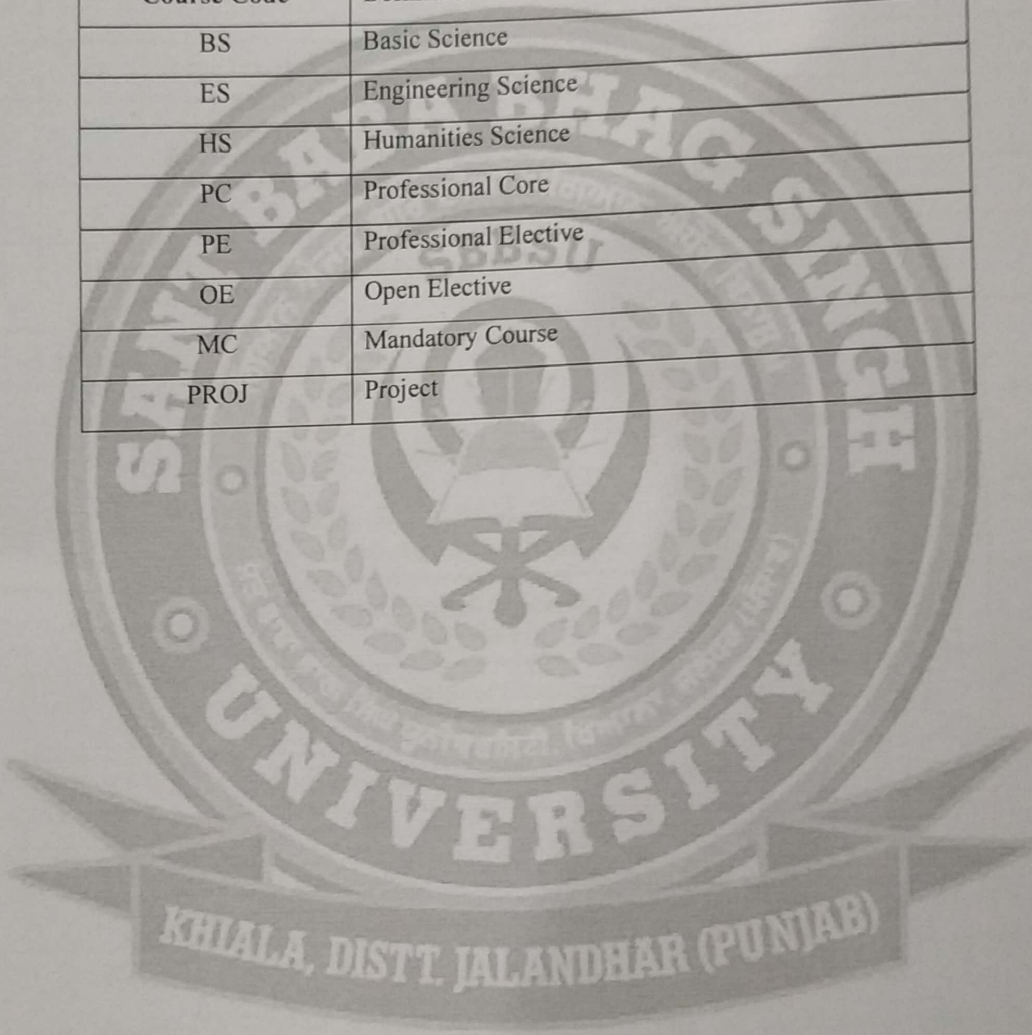
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Course Scheme, B.Tech Mechanical Engineering

General Course Structure

Course Code and Definition

Course Code	Definition
BS	Basic Science
ES	Engineering Science
HS	Humanities Science
PC	Professional Core
PE	Professional Elective
OE	Open Elective
MC	Mandatory Course
PROJ	Project



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## SEMESTER I / II

Scheme for B. Tech. 1<sup>st</sup> Year (Common to all disciplines) (Physics Group)

### I. Theory Subjects

S. No.	Course area	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	*PHY 105-19	Engineering Physics	3:0:0	3:0:0	3	3
2	BS	MAT103/ MAT104-19	Engineering Mathematics-I/ Engineering Mathematics-II	4:1:0	4:1:0	5	5
3	ES	*EE101-19	Basic Electrical Engineering	2:0:0	2:0:0	2	2
4	ES	*CSE101-19	Fundamentals of Computer Technology	3:0:0	3:0:0	3	3

### II. practical Subjects

S. No	Course area	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	PHY107-19	Engineering Physics Laboratory	0:0:2	0:0:1	2	1
2	ES	EE103-19	Basic Electrical Engineering Laboratory	0:0:2	0:0:1	2	1
3	ES	CSE103-19	Fundamentals of Computer Technology Laboratory	0:0:4	0:0:2	4	2
4	ES	ME107-19	Engineering Workshop	0:0:6	0:0:3	6	3
5		PT101/PT103 PT105	Physical training-I NSO/NCC/NSS	0:0:2	NC	2	NC

- In the 2<sup>nd</sup> Semester the scheme for Physics and Chemistry group will interchange
- In the 2<sup>nd</sup> Semester Engineering Mathematics-I will be replaced by Engineering Mathematics-2
- \*Indicates that the subject will be offered in both the Semesters

**Total Contact Hours:29**

**Total credit Hours:20**

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Vill-Khiala, Jalandhar-144030

## SEMESTER I / II

Scheme for B. Tech. 1<sup>st</sup> Year (Common to all disciplines) (Chemistry Group)

### I. Theory Subjects

S. No	Course area	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	CHM105-19	Engineering Chemistry	3:0:0	3:0:0	3	3
2	BS	MAT103/ MAT104-19	Engineering Mathematics-1/ Engineering Mathematics-2	4:1:0	4:1:0	5	5
3	ES	ECE101-19	Basic Electronics & Communication Engineering	2:0:0	2:0:0	2	2
4	HSMC	ENG121-19	Communication Skills-I	2:0:0	2:0:0	2	2
5	ES	ME103-19	Engineering Drawing	1:0:6	1:0:3	7	4

### II. practical Subjects

S. No	Course area	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	CHM107-19	Engineering Chemistry Laboratory	0:0:2	0:0:1	2	1
2	ES	ECE103-19	Basic Electronics & Communication Engineering Laboratory	0:0:2	0:0:1	2	1
3	HSMC	ENG123-19	Communication Skills-I Practical	0:0:2	0:0:1	2	1
4		PT102/ PT104/PT105	Physical training-II NSO/NCC/NSS	0:0:2	NC	2	NC

- In the 2<sup>nd</sup> Semester the scheme for Physics and Chemistry group will interchange and Engineering Mathematics-1 will be replaced by Engineering Mathematics-2
- \*Indicates that the subject will be offered in both the Semesters

**Total Contact Hours:27**

**Total credit Hours:19**

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### SEMESTER III

#### I. Theory subjects (including non-credit courses)

S.No	Category	Sub code	Category	Contact Hours (L:T:P)	Credits (L:T:P)	Total contact Hours	Total Credit Hours
1	BS	MAT205 - 19	Engineering Mathematics-III	3:1:0	3:1:0	4	4.
2	PC	ME201-19	Strength of Materials-I	3:1:0	3:1:0	4	4.
3	PC	ME203-19	Applied Thermodynamics-I	3:1:0	3:1:0	4	4
4	PC	ME205-19	Manufacturing Technology -I	4:0:0	4:0:0	4	4
5	PC	ME207-19	Machine Drawing	1:0:6	1:0:3	7	4

#### II. Practical subjects

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME209-19	Strength of Materials Lab	0:0:2	0:0:1	2	1
2	PC	ME211-19	Manufacturing Process Lab-I	0:0:2	0:0:1	2	1
3	PC	ME213-19	Applied Thermodynamics-I Lab	0:0:2	0:0:1	2	1
4		PT102/ PT104/PT105	Physical Training-III (NSO/NCC/NSS)	0:0:2	NC	2	NC

Total Contact hrs: 31

Total Credit Hours: 23

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## SEMESTER IV

### I. Theory subjects (including non-credit courses)

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME202-19	Strength of Materials –II	3:1:0	3:1:0	4	4
2	PC	ME204-19	Applied Thermodynamics-II	3:1:0	3:1:0	4	4
3	PC	ME206-19	Mechanics of Machines - I	3:1:0	3:1:0	4	4
4	PC	ME208-19	Manufacturing Technology-II	3:0:0	3:0:0	3	3
5	MC	EVS101-19	Environmental Sciences	3:0:0	NC	3	NC
6	ES	ME210 -19	Material Science and Metallurgy	3:0:0	3:0:0	3	3
7			*Educational Tour				

\*At least one Educational Tour must be carried out in the semester for practical exposure of the students. The tour must augment existing or previous lesson plans and synchronize with classroom learning.

### II. Practical Subjects:

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME212-19	Mechanics of Machines - I	0:0:2	0:0:1	2	1
2	PC	ME214-19	Manufacturing Process-II Lab	0:0:2	0:0:1	2	1
3	ES	ME216-19	Material Science and Metallurgy Lab	0:0:2	0:0:1	2	1
4		*PT202/PT204/PT206	Physical Training-IV (NSO/NCC/NSS)	0:0:2	NC	2	NC

**Note -It is Mandatory that a student undergo a 4 weeks industrial training after 4<sup>th</sup> Semester**

**Total Contact hrs: 29**

**Total Credit Hours: 21**

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## SEMESTER V

### I. Theory subjects (including non-credit courses)

S No	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME301-19	Fluid Mechanics	3:1:0	3:1:0	4	4
2	PC	ME303-19	Machine Design-I	4:1:0	4:1:0	5	5
3	PC	ME305-19	MOM II	3:1:0	3:1:0	4	4
4	PE		Professional Elective-I	3:0:0	3:0:0	3	3
5	HMSC	SSC303-19	Human values and professional ethics	3:0:0	3:0:0	3	3
6	MC	PLS303-19	Constitution of india	3:0:0	NC	3	NC

### II. Practical Subjects:

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME309-19	Fluid Mechanics Lab	0:0:2	0:0:1	2	1
2	PC	ME307-19	*Industrial Training undertaken after 4th sem		4 weeks		3

### Professional Elective-I

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME311-19	Automobile Engineering	3:0:0	3:0:0	3	3
2	ME313-19	Environmental Pollution and Abatement	3:0:0	3:0:0	3	3
3	ME315-19	Mechanical Handling Systems and Equipment	3:0:0	3:0:0	3	3

**Note:** The students will undertake training in the industry of course relevance for 4 weeks after completion of 4<sup>th</sup> semester. The evaluation of the students will be done in 5<sup>th</sup> Semester on the basis of report writing and presentation for the training done in the industry.

**Total Contact hrs: 24**

**Total Credit: 23**

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## SEMESTER VI

### I. Theory subjects (including non-credit courses)

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME302-19	Heat Transfer	4:1:0	4:1:0	5	5
2	PC	ME304-19	Machine Design-II	4:1:0	4:1:0	5	5
3	PC	ME306-19	Computer Aided Design and Manufacturing	3:0:0	3:0:0	3	3
4	PC	ME308-19	Industrial meteorology	3:0:0	3:0:0	3	3
5	OE		OE-1	3:0:0	3:0:0	3	3

### II. Practical Subjects:

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME-310-19	Heat Transfer Lab	0:0:2	0:0:1	2	1
2	PC	ME312-19	Industrial meteorology	0:0:2	0:0:1	2	1
3	PC	ME314-19	Seminar	0:0:2	0:0:1	2	1
4	PC	ME316-19	DESIGN SOFTWARE LAB	0:0:2	0:0:1	2	1

**Note -It is Mandatory that a student undergo a 4 weeks industrial training after 6<sup>th</sup> Semester**

**Total Contact hrs: 27**

**Total Credit : 23**

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## SEMESTER VII

### I. Theory subjects (including non-credit courses)

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME401 -19	Fluid Machinery	3:1:0	3:1:0	4	4
2	PE		PE-II	3:0:0	3:0:0	3	3
3	PE		PE-III	3:1:0	3:1:0	4	4
4	OE		OE-II	3:0:0	3:0:0	3	3
5	OE		OE-III	3:0:0	3:0:0	3	3
Educational Tour							

### II. Practical Subjects:

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME403-19	Fluid Machinery	0:0:2	0:0:1	2	1
3	PC	ME405-19	Minor Project Work	0:0:6	0:0:3	6	3
5	PC	ME407-19	Industrial training	-	-	-	3

### Professional Elective-II

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME409-19	Industrial Automation & Robotics	3:0:0	3:0:0	3	3
2	ME411-19	Management of Supply chain	3:0:0	3:0:0	3	3
3	ME413-19	Introduction to Mechatronics	3:0:0	3:0:0	3	3

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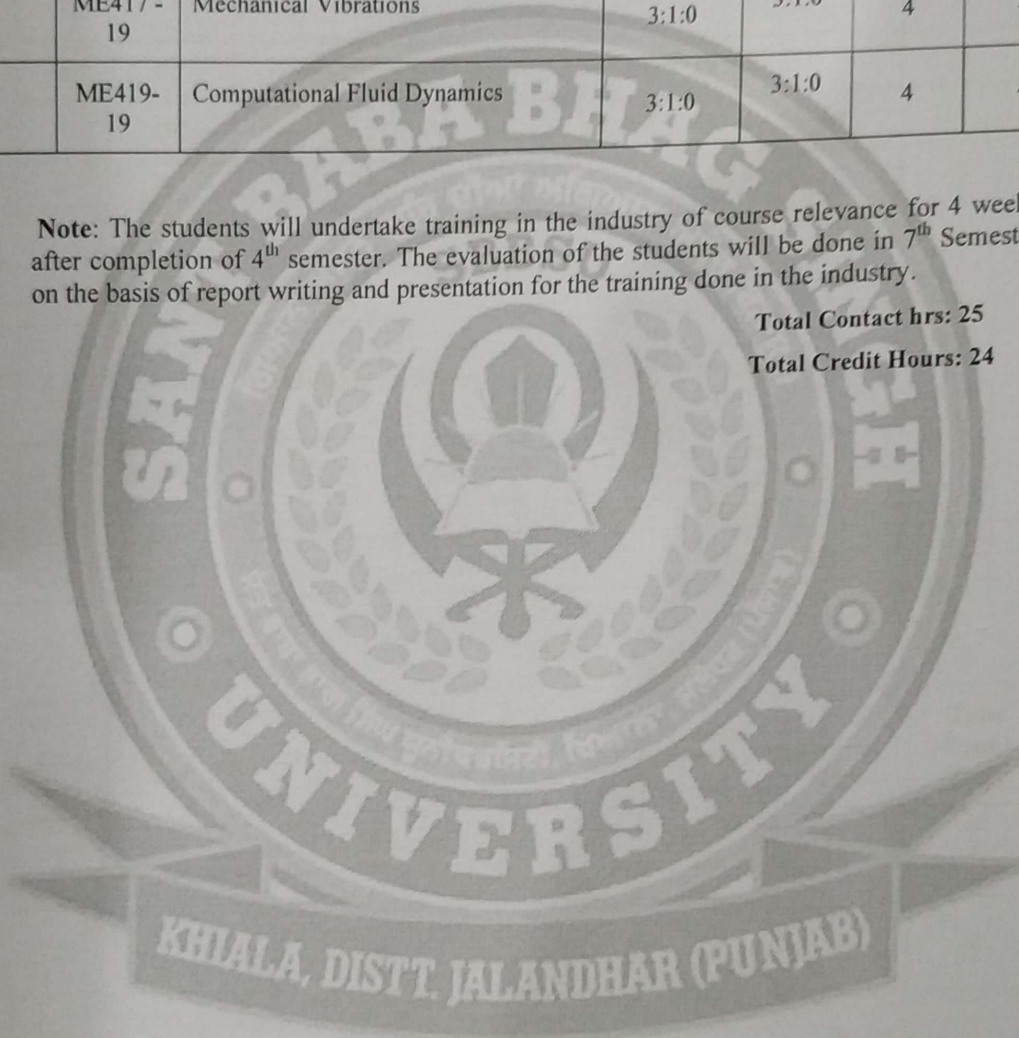
Professional Elective-III

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME415 - 19	Finite Element Methods	3:1:0	3:1:0	4	4
2	ME417 - 19	Mechanical Vibrations	3:1:0	3:1:0	4	4
3	ME419- 19	Computational Fluid Dynamics	3:1:0	3:1:0	4	4

Note: The students will undertake training in the industry of course relevance for 4 weeks after completion of 4<sup>th</sup> semester. The evaluation of the students will be done in 7<sup>th</sup> Semester on the basis of report writing and presentation for the training done in the industry.

Total Contact hrs: 25

Total Credit Hours: 24



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## SEMESTER VIII

### I. Theory subjects (including non-credit courses)

S.No	Category	Subject code	Subject	L:T:P	L:T:P	Contact hours	Credits
1	PC	ME402-19	Refrigeration and Air Conditioning	3:1:0	3:1:0	4	4
2	PE		PE-IV	3:0:0	3:0:0	3	3
3	OE		OE-IV	3:0:0	3:0:0	3	3
4	OE		OE-V	3:0:0	3:0:0	3	3

### II. Practical Subjects:

S No.	CATEGORY	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME404-19	Refrigeration and air conditioning LAB	0:0:2	0:0:1	2	1
3	PC	ME406-19	*Project Work	0:0:8	0:0:4	8	4

### Professional Elective-IV

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME408-19	Advanced Manufacturing Processes	4:0:0	4:0:0	4	4
2	ME410-19	Non-Destructive Evaluation & Testing	4:0:0	4:0:0	4	4
3	ME412-19	Technology of Surface Coating	4:0:0	4:0:0	4	4

**Total Contact hrs: 23**

**Total Credit Hours: 18**

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## List of Open Electives

### ELECTIVE -I\*

S. No	Code	Course Title	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSE371-19	Basics of Database Design	3:0:0	3:0:0	3	3
2	CSE373-19	Fuzzy Logic	3:0:0	3:0:0	3	3
3	ME371-19	Total Quality Management	3:0:0	3:0:0	3	3
4	ME373-19	Production Planning & Control	3:0:0	3:0:0	3	3
5	EE371-19	Electrical Energy Conservation and Auditing	3:0:0	3:0:0	3	3
6	EE373-19	Element of power System	3:0:0	3:0:0	3	3
7	ECE371-19	Signal Systems	3:0:0	3:0:0	3	3
8	ECE373-19	Micro Controller & Applications	3:0:0	3:0:0	3	3
9	CE371-19	Renewable Energy Resources	3:0:0	3:0:0	3	3
10	CE373-19	Architecture and Town Planning	3:0:0	3:0:0	3	3

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ELECTIVE -II\*

S. No	Code	Course Title	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSE372-19	Communication Networks	3:0:0	3:0:0	3	3
2	CSE374-19	Computer Organization	3:0:0	3:0:0	3	3
3	ME372-19	Industrial Engineering Management	3:0:0	3:0:0	3	3
4	ME374-19	Management Information SYSTEM	3:0:0	3:0:0	3	3
5	EE372-19	Industrial Electrical System	3:0:0	3:0:0	3	3
6	EE374-19	Fundamentals of Electrical Machines	3:0:0	3:0:0	3	3
7	ECE372-19	Analog & Digital Communications	3:0:0	3:0:0	3	3
8	ECE374-19	Analog Circuits	3:0:0	3:0:0	3	3
9	CE372-19	Construction of Metro System	3:0:0	3:0:0	3	3
10	CE374-19	Traffic Engineering	3:0:0	3:0:0	3	3

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**ELECTIVE III\***

S. No	Code	Course Title	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSE471-19	Concepts of Operating System	3:0:0	3:0:0	3	3
2	CSE473-19	Data Warehouse & Data Mining	3:0:0	3:0:0	3	3
3	ME471-19	Material Management	3:0:0	3:0:0	3	3
4	ME473-19	Maintenance and reliability engineering	3:0:0	3:0:0	3	3
5	EE471-19	Wind and Solar Energy System	3:0:0	3:0:0	3	3
6	EE473-19	Instrumentation Engineering	3:0:0	3:0:0	3	3
7	ECE471-19	Biomedical Electronics	3:0:0	3:0:0	3	3
8	ECE473-19	Principles of VLSI Design	3:0:0	3:0:0	3	3
9	CE471-19	Rural Technology and Community Development	3:0:0	3:0:0	3	3
10	CE473-19	Waste Water Engineering	3:0:0	3:0:0	3	3

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ELECTIVE IV\*

S. No	Code	Course Title	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSE472-19	Image Analysis	3:0:0	3:0:0	3	3
2	CSE474-19	Concepts of Cloud Computing	3:0:0	3:0:0	3	3
3	ME472-19	Operation Management	3:0:0	3:0:0	3	3
4	ME474-19	Industrial Safety	3:0:0	3:0:0	3	3
5	EE472-19	Electrical Materials	3:0:0	3:0:0	3	3
6	EE474-19	Electrical & Hybrid Vehicles	3:0:0	3:0:0	3	3
7	ECE472-19	Embedded System	3:0:0	3:0:0	3	3
8	ECE474-19	Advanced Optical Comm. System	3:0:0	3:0:0	3	3
9	CE472-19	Tall Building	3:0:0	3:0:0	3	3
10	CE474-19	Remote Sensing and Geographical Information System	3:0:0	3:0:0	3	3

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### ELECTIVE V\*

S. No	Code	Course Title	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSE476-19	Big Data	3:0:0	3:0:0	3	3
2	CSE478-19	Network Security	3:0:0	3:0:0	3	3
3	ME476-19	IC ENGINE	3:0:0	3:0:0	3	3
4	ME478-19	Power Plant Engineering	3:0:0	3:0:0	3	3
5	EE476-19	Electrical Measurement	3:0:0	3:0:0	3	3
6	EE478-19	Energy Auditing & Management	3:0:0	3:0:0	3	3
7	ECE476-19	Digital System Design	3:0:0	3:0:0	3	3
8	ECE478-19	Broadband Comm.	3:0:0	3:0:0	3	3
9	CE476-19	Infrastructure and real estate management	3:0:0	3:0:0	3	3
10	CE478-19	Site investigation	3:0:0	3:0:0	3	3

**Note :**

1. “\*” open electives can be offered in accordance to other branches .
2. Students can earn extra 15 credits for their degree with honour through online courses as available on MOOCs portal during their studies.

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## COURSE SCHEME SUMMARY

Sem	L	T	P	Contact hrs/wk	Credits	HS	BS	ES	PC	PE	OE	Project (prj)/ Training (trg) /Seminar (semi)	MC
1	12	1	16	29	20	-	9	11	-	--	-	-	-
2	12	1	14	27	19	3	9	7	-	--	--	-	-
3	14	3	14	31	23	0	4	-	19	0	0	0	0
4	18	3	8	29	21	0	0	4	17	0	0	2	0
5	19	3	2	25	23	3	0	0	14	3	0	3	0
6	17	2	8	27	23	0	0	0	20	0	3	4	0
7	15	2	8	25	24	0	0	0	8	7	6	3	0
8	12	1	10	23	18	0	0	0	5	3	6	4	0
<b>Total</b>	<b>113</b>	<b>19</b>	<b>74</b>	<b>196</b>	<b>169</b>	<b>6</b>	<b>22</b>	<b>22</b>	<b>67</b>	<b>20</b>	<b>15</b>	<b>14</b>	<b>6 unit</b>

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### CHOICE BASED CREDIT SYSTEM

Sem	PC	BS	ES	HS	PE	OE	Project/ Training/ Seminar	MC
	67	(22)	(22)	(6)	(20)	(15)	(14)	(6)
I		Engineering Physics	Basic Electrical Engineering					
		Engineering Mathematics-I	Fundamentals of Computer Technology					
			Engineering Workshop					
II		Engineering Chemistry	Basic Electronics & Communication Engineering	Communication Skills				
		Engineering Mathematics-II	Engineering Drawing					
III	C1	Engineering mathematics-III						
	C2							
	C3							
	C4							
IV	C5		Material Science and Metallurgy					Environmental Science
	C6							
	C7							
	C8							
	C9							



	C10						
	C11						
V	C12		Human resources and management	PE-I		Industrial Training	Constitution of India
	C13						
	C14						
	C15						
VI	C16				OE-1	Industrial Training	
	C17						
	C18						
	C19						
	C20						
	C21						
VII	C20			PE-2	OE-2	MINOR PROJECT	
	C21			PE-3	OE-3		
VII I	C22			PE-4	OE-4		
	C23				OE-5	Major Project	

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# SCHEME & SYLLABUS

## *B.Tech, Mechanical Engineering*

Choice Based Credit System



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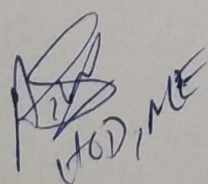


## Course Scheme, B.Tech Mechanical Engineering

### General Course Structure

#### Course Code and Definition

Course Code	Definition
BS	Basic Science
ES	Engineering Science
HS	Humanities Science
PC	Professional Core
PE	Professional Elective
OE	Open Elective
MC	Mandatory Course
PROJ	Project

  
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## SEMESTER I / II

### Scheme for B. Tech. 1<sup>st</sup> Year (Common to all disciplines) (Physics Group)

#### I. Theory Subjects

S. No.	Course area	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	PHY 105	Engineering Physics	3:0:0	3:0:0	3	3
2	BS	MAT103/ MAT104	Engineering Mathematics-I/ Engineering Mathematics-II	4:1:0	4:1:0	5	5
3	ES	EE101	Basic Electrical Engineering	2:0:0	2:0:0	2	2
4	ES	CSE101	Fundamentals of Computer Technology	3:0:0	3:0:0	3	3

S. No	Course area	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	PHY107	Engineering Physics Laboratory	0:0:2	0:0:1	2	1
2	ES	EE103	Basic Electrical Engineering Laboratory	0:0:2	0:0:1	2	1
3	ES	CSE103	Fundamentals of Computer Technology Laboratory	0:0:4	0:0:2	4	2
4	ES	ME107	Engineering Workshop	0:0:6	0:0:3	6	3
5		PT101/PT103 PT105	Physical training-I NSO/NCC/NSS	0:0:2	NC	2	NC

- In the 2<sup>nd</sup> Semester the scheme for Physics and Chemistry group will interchange
- In the 2<sup>nd</sup> Semester Engineering Mathematics-I will be replaced by Engineering Mathematics-II
- \*Indicates that the subject will be offered in both the Semesters

**Total Contact Hours:29**

**Total credit Hours:20**

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## SEMESTER I / II

Scheme for B. Tech. 1<sup>st</sup> Year (Common to all disciplines) (Chemistry Group)

### I. Theory Subjects

S. No	Course area	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	CHM105	Engineering Chemistry	3:0:0	3:0:0	3	3
2	BS	MAT103/ MAT104	Engineering Mathematics-1/ Engineering Mathematics-2	4:1:0	4:1:0	5	5
3	ES	ECE101	Basic Electronics & Communication Engineering	2:0:0	2:0:0	2	2
4	HSMC	ENG121	Communication Skills-I	2:0:0	2:0:0	2	2
5	ES	ME103	Engineering Drawing	1:0:6	1:0:3	7	4

S. No	Course area	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	CHM107	Engineering Chemistry Laboratory	0:0:2	0:0:1	2	1
2	ES	ECE103	Basic Electronics & Communication Engineering Laboratory	0:0:2	0:0:1	2	1
3	HSMC	ENG123	Communication Skills-I Practical	0:0:2	0:0:1	2	1
4		PT102/ PT104/PT106	Physical training-II NSO/NCC/NSS	0:0:2	NC	2	NC

- In the 2<sup>nd</sup> Semester the scheme for Physics and Chemistry group will interchange and Engineering Mathematics-1 will be replaced by Engineering Mathematics-2
- \*Indicates that the subject will be offered in both the Semesters

**Total Contact Hours:27**  
**Total credit Hours:19**

*ASD*  
*HOD, ME*

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### SEMESTER III

#### I. Theory subjects (including non-credit courses)

S.No	Category	Sub code	Category	Contact Hours (L:T:P)	Credits (L:T:P)	Total contact Hours	Total Credit Hours
1	BS	MAT205	Engineering Mathematics-III	3:2:0	3:2:0	5	5
2	PC	ME201	Strength of Materials-I	3:1:0	3:1:0	4	4
3	PC	ME203	Applied Thermodynamics-I	3:1:0	3:1:0	4	4
4	PC	ME205	Manufacturing Technology -I	3:0:0	3:0:0	3	3
5	PC	ME207	Machine Drawing	1:0:6	1:0:3	7	4

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME209	Strength of Materials Lab	0:0:2	0:0:1	2	1
2	PC	ME211	Manufacturing Process Lab-I	0:0:2	0:0:1	2	1
3	PC	ME213	Applied Thermodynamics-I Lab	0:0:2	0:0:1	2	1
4		PT101/ PT103/PT105	Physical Training-III (NSO/NCC/NSS)	0:0:2	NC	2	NC

**Total Contact Hours:31**  
**Total credit Hours:23**

KHALA, DISTT JALANDHAR (PUNJAB)

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HOD, ME

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## SEMESTER IV

### I. Theory subjects (including non-credit courses)

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME202	Strength of Materials –II	3:1:0	3:1:0	4	4
2	PC	ME204	Applied Thermodynamics-II	3:1:0	3:1:0	4	4
3	PC	ME206	Mechanics of Machines - I	3:1:0	3:1:0	4	4
4	PC	ME208	Manufacturing Technology-II	3:0:0	3:0:0	3	3
5	MC	EVS101	Environmental Sciences	3:0:0	NC	3	NC
6	ES	ME210	Material Science and Metallurgy	3:0:0	3:0:0	3	3
7			*Educational Tour				

\*At least one Educational Tour must be carried out in the semester for practical exposure of the students. The tour must augment existing or previous lesson plans and synchronize with classroom learning.

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME212	Mechanics of Machines - I	0:0:2	0:0:1	2	1
2	PC	ME214	Manufacturing Process-II Lab	0:0:2	0:0:1	2	1
3	ES	ME216	Material Science and Metallurgy Lab	0:0:2	0:0:1	2	1
4		PT202/PT204/PT206	Physical Training-IV (NSO/NCC/NSS)	0:0:2	NC	2	NC

Note -It is Mandatory that a student undergo a 4 weeks industrial training after 4<sup>th</sup> Semester

Total Contact hrs: 29  
Total Credit Hours: 21

*AS*  
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## SEMESTER V

### I. Theory Subjects (including non-credit courses)

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME301	Fluid Mechanics	03:01:00	03:01:00	4	4
2	PC	ME303	Machine Design-I	03:01:00	03:01:00	4	4
3	PC	ME305	MOM II	03:01:00	03:01:00	4	4
4	PE		Professional Elective-I	03:00:00	03:00:00	3	3
5	HMSC	SSC303	Human values and Professional Ethics	03:00:00	03:00:00	3	3
6	MC	PLS303	Constitution of India	03:00:00	NC	3	NC

### II. Practical Subjects

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME309	Fluid Mechanics Lab	00:00:02	00:00:01	2	1
2		ME307	4-week Industrial Training-I	4 weeks			3

### PROFESSIONAL ELECTIVE-I

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME311	Automobile Engineering	03:00:00	03:00:00	3	3
2	ME313	Environmental Pollution and Abatement	03:00:00	03:00:00	3	3
3	ME315	Mechanical Handling Systems and Equipment	03:00:00	03:00:00	3	3

**Total Contact Hours: 23**

**Total Credit Hours: 22**

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## SEMESTER VI

### I. Theory subjects (including non-credit courses)

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME302	Heat Transfer	3:1:0	3:1:0	4	4
2	PC	ME304	Machine Design-II	3:1:0	3:1:0	4	4
3	PC	ME306	Industrial Metrology	3:0:0	3:0:0	3	3
4	PE		Professional Elective-II	3:0:0	3:0:0	3	3
5	OE		OE-I	3:0:0	3:0:0	3	3
6	OE		OE-II	3:0:0	3:0:0	3	3

### II. Practical Subjects

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME308	Heat Transfer Lab	0:0:2	0:0:1	2	1
2	PC	ME310	Industrial metrology	0:0:2	0:0:1	2	1
3	PC	ME312	Design Software Lab	0:0:2	0:0:1	2	1

**It is Mandatory that a student undergo a 4-weeks industrial training after 6<sup>th</sup> Semester**

### PROFESSIONAL ELECTIVE II

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME314	Advanced Manufacturing Processes	3:0:0	3:0:0	3	3
2	ME316	Non-Destructive Evaluation & Testing	3:0:0	3:0:0	3	3
3	ME318	Computer Aided Design and Manufacturing	3:0:0	3:0:0	3	3

**Note -It is Mandatory that a student undergo a 4 weeks industrial training after 6<sup>th</sup> Semester**

Total Contact Hours: 26

Total Credit Hours: 23

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## SEMESTER VII

### I. Theory subjects (including non-credit courses)

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME401	Fluid Machinery	3:1:0	3:1:0	4	4
2	PC	ME403	Refrigeration and Air Conditioning	3:1:0	3:1:0	4	4
3	PE		Professional Elective-II	3:0:0	3:0:0	3	3
4	PE		Professional Elective-III	3:1:0	3:1:0	4	4
5	OE		Open Elective-III	3:0:0	3:0:0	3	3
6	OE		Open Elective-IV	3:0:0	3:0:0	3	3
Educational Tour							

### II. Practical Subjects

S No.	Category	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME405	Fluid Machinery Lab	0:0:2	0:0:1	2	1
2	PC	ME407	Refrigeration and air conditioning LAB	0:0:2	0:0:1	2	1
3		ME409	Minor Project Work	0:0:6	0:0:3	6	3
4		ME411	4-week Industrial Training-II	-	-	-	3

#### PROFESSIONAL ELECTIVE III

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME413	Industrial Automation & Robotics	3:0:0	3:0:0	3	3
2	ME415	Management of Supply chain	3:0:0	3:0:0	3	3
3	ME417	Introduction to Mechatronics	3:0:0	3:0:0	3	3

#### PROFESSIONAL ELECTIVE IV

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME419	Finite Element Methods	3:1:0	3:1:0	4	4
2	ME421	Mechanical Vibrations	3:1:0	3:1:0	4	4
3	ME423	Computational Fluid Dynamics	3:1:0	3:1:0	4	4

Total Contact Hours: 31

Total Credit Hours: 29

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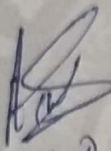


## SEMESTER VIII

### I. Practical Subjects

S.No	Category	Subject code	Subject	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1		ME402	Six-Month Industrial Training				20

Total Credit Hours: 20

  
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## List of Open Electives

### OPEN ELECTIVE -I

S. No	Code	Course Title	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSE371	Basics of Database Design	3:0:0	3:0:0	3	3
2	CSE373	Fuzzy Logic	3:0:0	3:0:0	3	3
3	ME371	Total Quality Management	3:0:0	3:0:0	3	3
4	ME373	Production Planning & Control	3:0:0	3:0:0	3	3
5	EE371	Electrical Energy Conservation and Auditing	3:0:0	3:0:0	3	3
6	EE373	Element of power System	3:0:0	3:0:0	3	3
7	ECE371	Signal Systems	3:0:0	3:0:0	3	3
8	ECE373	Micro Controller & Applications	3:0:0	3:0:0	3	3
9	CE371	Renewable Energy Resources	3:0:0	3:0:0	3	3
10	CE373	Architecture and Town Planning	3:0:0	3:0:0	3	3

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### OPEN ELECTIVE –II

S. No	Code	Course Title	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSE372	Communication Networks	3:0:0	3:0:0	3	3
2	CSE374	Computer Organization	3:0:0	3:0:0	3	3
3	ME372	Industrial Engineering Management	3:0:0	3:0:0	3	3
4	ME374	Management Information SYSTEM	3:0:0	3:0:0	3	3
5	EE372	Industrial Electrical System	3:0:0	3:0:0	3	3
6	EE374	Fundamentals of Electrical Machines	3:0:0	3:0:0	3	3
7	ECE372	Analog & Digital Communications	3:0:0	3:0:0	3	3
8	ECE374	Analog Circuits	3:0:0	3:0:0	3	3
9	CE372	Construction of Metro System	3:0:0	3:0:0	3	3
10	CE374	Traffic Engineering	3:0:0	3:0:0	3	3

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### OPEN ELECTIVE III

S. No	Code	Course Title	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSE471	Concepts of Operating System	3:0:0	3:0:0	3	3
2	CSE473	Data Warehouse & Data Mining	3:0:0	3:0:0	3	3
3	ME471	Material Management	3:0:0	3:0:0	3	3
4	ME473	Maintenance and reliability engineering	3:0:0	3:0:0	3	3
5	EE471	Wind and Solar Energy System	3:0:0	3:0:0	3	3
6	EE473	Instrumentation Engineering	3:0:0	3:0:0	3	3
7	ECE471	Biomedical Electronics	3:0:0	3:0:0	3	3
8	ECE473	Principles of VLSI Design	3:0:0	3:0:0	3	3
9	CE471	Rural Technology and Community	3:0:0	3:0:0	3	3
10	CE473	Waste Water Engineering	3:0:0	3:0:0	3	3

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### OPEN ELECTIVE IV

S. No	Code	Course Title	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	CSE472	Image Analysis	3:0:0	3:0:0	3	3
2	CSE474	Concepts of Cloud Computing	3:0:0	3:0:0	3	3
3	ME472	Operation Management	3:0:0	3:0:0	3	3
4	ME474	Industrial Safety	3:0:0	3:0:0	3	3
5	EE472	Electrical Materials	3:0:0	3:0:0	3	3
6	EE474	Electrical & Hybrid Vehicles	3:0:0	3:0:0	3	3
7	ECE472	Embedded System	3:0:0	3:0:0	3	3
8	ECE474	Advanced Optical Comm. System	3:0:0	3:0:0	3	3
9	CE472	Tall Building	3:0:0	3:0:0	3	3
10	CE474	Remote Sensing and Geographical Information System	3:0:0	3:0:0	3	3

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**COURSE SCHEME SUMMARY**

Sem	L	T	P	Contact hrs/wk	Credits	HS	BS	ES	PC	PE	OE	Project (prj)/ Training (trg) /Semi	MC
1	12	1	16	29	20	-	9	11	-	--	-	-	-
2	12	1	14	27	19	3	9	7	-	--	--	-	-
3	13	4	14	31	23	0	5	-	18	0	0	0	0
4	18	3	8	29	21	0	0	4	17	0	0	0	3 unit /NC
5	18	3	2	23	22	3	0	0	13	3	0	3 (Training)	3 unit /NC
6	18	2	6	26	23	0	0	0	14	3	6	-	0
7	18	3	10	31	29	0	0	0	10	7	6	3 (Training) 3 (Project)	0
8					20	0	0	0	0	0	0	20	0
<b>Total</b>	<b>109</b>	<b>17</b>	<b>70</b>	<b>196</b>	<b>177</b>	<b>6</b>	<b>23</b>	<b>22</b>	<b>72</b>	<b>13</b>	<b>12</b>	<b>29</b>	<b>0</b>

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# SCHEME & SYLLABUS

## *B.Tech, Mechanical Engineering*

Choice Based Credit System

Department of Mechanical Engineering



University Institute of Engineering and Technology

Sant Baba Bhag Singh University

2021

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A.S.  
A.D.M.E

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## SEMESTER I

Scheme for B. Tech. 1<sup>st</sup> Year

## I. Theory Subjects

S. No.	Course Type	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	MAT151	Engineering Mathematics-I	3:1:0	3:1:0	4	4
2	BS	CHM105	Engineering Chemistry	3:1:0	3:1:0	4	4
3	ES	CSE111	Programming for Problem Solving	3:0:0	3:0:0	3	3
4	HS	ENG121	Communication Skill-I	2:0:0	2:0:0	2	2

## II. Practical Subjects

S. No	Course Type	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	CHM107	Engineering Chemistry Laboratory	0:0:3	0:0:1.5	3	1.5
2	ES	CSE113	Programming for Problem Solving Laboratory	0:0:4	0:0:2	4	2
3	HS	ENG123	Communication Skills-I Laboratory	0:0:2	0:0:1	2	1
4	ES	ME105	Workshop/Manufacturing Practices	1:0:4	1:0:2	5	3
5	MC	PT101/ PT103/ PT105	Physical Training-I NSO/NCC/NSS	0:0:2	NC	2	NC

Total Contact Hours: 29

Total credit Hours: 20.5

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## SEMESTER II

Scheme for B. Tech. 1<sup>st</sup> Year

## I. Theory Subjects

S. No.	Course Type	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	MAT152	Engineering Mathematics-II	3:1:0	3:1:0	4	4
2	BS	PHY105	Engineering Physics	3:1:0	3:1:0	4	4
3	ES	EE102	Basic Electrical Engineering	3:1:0	3:1:0	4	4
4	ES	ME101	Engineering Graphics and Design	1:0:4	1:0:2	5	3
5	MC	PT102/ PT104/ PT106	Physical Training-II (NSO/NCC/NSS)	0:0:2	NC	2	NC

## II. Practical Subjects

S. No	Course Type	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	PHY107	Engineering Physics Laboratory	0:0:3	0:0:1.5	3	1.5
2	ES	EE104	Basic Electrical Engineering Laboratory	0:0:2	0:0:1	2	1

Total Contact Hours: 24

Total credit Hours: 17.5

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HOD, NCC

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## SEMESTER III

## I. Theory Subjects

S. No.	Course Type	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	PHY205	Introduction to Electromagnetic	3:1:0	3:1:0	4	4
2	BS	MAT251	Engineering Mathematics-III	3:1:0	3:1:0	4	4
3	BS	BOT002	General Biology	2:1:0	2:1:0	3	3
4	ES	EE001	Basic Electronics Engineering	3:1:0	3:1:0	4	4
5	ES	ME221	Engineering Mechanics	3:1:0	3:1:0	4	4
6	PC	ME223	Thermodynamics	3:1:0	3:1:0	4	4
7	PC	ME225	Machine Drawing	1:0:4	1:0:4	5	3
8	MC	PT201/ PT203/ PT205	Physical Training-III (NSO/NCC/NSS)	0:0:2	NC	2	NC

## II. Practical Subjects

S. No	Course Type	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	BS	PHY207	Introduction to Electromagnetic Laboratory	0:0:3	0:0:1.5	3	1.5

Total Contact Hours: 33

Total credit Hours: 27.5

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## SEMESTER IV

## I. Theory Subjects

S. No.	Course Type	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME220	Applied Thermodynamics	3:1:0	3:1:0	4	4
2	PC	ME222	Fluid Mechanics and Fluid Machines	3:1:0	3:1:0	4	4
3	PC	ME224	Strength of Materials	2:1:0	2:1:0	3	3
4	ES	ME226	Materials Engineering	3:0:0	3:0:0	3	3
5	PC	ME228	Instrumentation and Control	3:1:0	3:1:0	4	4
6	HS	SSC007	Universal Human Values: Understanding Harmony	3:0:0	3:0:0	3	3
7	MC	EVS002	Environmental Sciences	3:0:0	NC	3	NC
8	MC	PT202/ PT204/ PT206	Physical Training-IV (NSO/NCC/NSS)	0:0:2	NC	2	NC

After 4<sup>th</sup> semester, the student will opt for summer training for minimum 30 hours, which will be evaluated in next semester.

Total Contact Hours: 26

Total credit Hours: 21

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## SEMESTER V

## I. Theory Subjects

S. No.	Course Type	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME321	Heat Transfer	3:1:0	3:1:0	4	4
2	PC	ME323	Solid Mechanics	3:1:0	3:1:0	4	4
3	PC	ME325	Manufacturing Processes	3:0:0	3:0:0	3	3
4	PC	ME327	Kinematics and Theory of Machines	3:1:0	3:1:0	4	4
5	PE		Professional Elective-I	3:0:0	3:0:0	3	3
6	OE-1	SSC006	Human Values and Professional Ethics	3:0:0	3:0:0	3	3
7	MC	LAW005	Constitution of India	3:0:0	NC	3	NC
8	MC	PT301/ PT303/ PT305	Physical Training—V (NSO/NCC/NSS)	0:0:2	NC	2	NC

## II. Practical Subjects

S. No	Course Type	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME329	Mechanical Engineering Laboratory I - Thermal	0:0:4	0:0:2	4	2
2	Project	ME331	Project-I	0:0:2	0:0:1	2	1
3	Training	ME333	4-Week Industrial Training				3

## Professional Elective-I

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME335	Automobile Engineering	3:0:0	3:0:0	3	3
2	ME337	Composite Materials	3:0:0	3:0:0	3	3
3	ME339	Internal Combustion Engines	3:0:0	3:0:0	3	3

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Total Contact Hours: 32  
Total credit Hours: 24  
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## SEMESTER VI

## I. Theory Subjects

S. No.	Course Type	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME320	Manufacturing Technology	4:0:0	4:0:0	4	4
2	PC	ME322	Design of Machine Elements	3:1:0	3:1:0	4	4
3	PE		Professional Elective-II	3:0:0	3:0:0	3	3
4	PE		Professional Elective III	3:0:0	3:0:0	3	3
5	OE-II	SSC008	Gender Culture and Development	3:0:0	3:0:0	3	3
5	MC	PT302/ PT304/ PT306	Physical Training-VI (NSO/NCC/NSS)	0:0:2	NC	2	NC

## Practical Subjects

S. No	Course Type	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME324	Mechanical Engineering Laboratory II – Design	0:0:4	0:0:2	4	2
2	Project	ME326	Project-II	0:0:6	0:0:3	6	3

## Professional Elective-II

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME328	Energy Conservation and Management	3:0:0	3:0:0	3	3
2	ME330	Process Planning and Cost Estimation	3:0:0	3:0:0	3	3
3	ME332	Industrial Automation and Robotics	3:0:0	3:0:0	3	3

## Professional Elective-III

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME334	Refrigeration and Air-Conditioning	3:0:0	3:0:0	3	3
2	ME336	Gas Dynamics and Jet Propulsion	3:0:0	3:0:0	3	3
3	ME338	Computational Fluid Dynamics	3:0:0	3:0:0	3	3

Total Contact Hours: 29

Total Credit Hours: 22

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## SEMESTER VII

## I. Theory Subjects

S. No.	Course Type	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME421	Mechanical Vibrations	3:0:0	3:0:0	3	3
2	PE		Professional Elective-IV	3:0:0	3:0:0	3	3
3	PE		Professional Elective-V	3:0:0	3:0:0	3	3
4	OE-III		Open Elective- III	3:0:0	3:0:0	3	3
5	OE-IV		Open Elective-IV	3:0:0	3:0:0	3	3

## II. Practical Subjects

S. No	Course Type	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	PC	ME423	Mechanical Engineering Laboratory III - Manufacturing	0:0:4	0:0:2	4	2
2	Project	ME425	Project-III	0:0:10	0:0:5	10	5

## Professional Elective-IV

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME427	Advanced Manufacturing Processes	3:0:0	3:0:0	3	3
2	ME429	Computer Aided Design	3:0:0	3:0:0	3	3
3	ME431	Microprocessors in Automation	3:0:0	3:0:0	3	3
4	ME433	Power Plant Engineering	3:0:0	3:0:0	3	3

## Professional Elective-V

S No.	Sub Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1	ME435	Non-Destructive Evaluation and Testing	3:0:0	3:0:0	3	3
1	ME437	Finite Element Analysis	3:0:0	3:0:0	3	3
3	ME439	Mechatronic Systems	3:0:0	3:0:0	3	3
4	ME441	Condition Monitoring of Rotating Machines	3:0:0	3:0:0	3	3

Total Contact Hours: 29

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Total credit Hours: 22

## SEMESTER VIII

## I. Practical Subjects

S. No	Course Type	Subject Code	Subject Name	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
1		ME402	6-Month Industrial Training				20

Total credit Hours: 20

## List of Open Electives offered by Mechanical Engineering

S. No	Code	Course Title	Contact Hours (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours	Semester
1	ME371	Total Quality Management	3:0:0	3:0:0	3	3	5 <sup>th</sup>
2	ME372	Environmental Pollution and Abatement	3:0:0	3:0:0	3	3	6 <sup>th</sup>
3	ME373	Industrial Engineering Management	3:0:0	3:0:0	3	3	5 <sup>th</sup>
4	ME374	Management Information System	3:0:0	3:0:0	3	3	6 <sup>th</sup>
5	ME375	Material Management	3:0:0	3:0:0	3	3	5 <sup>th</sup>
6	ME376	Maintenance and Reliability Engineering	3:0:0	3:0:0	3	3	6 <sup>th</sup>
7	ME471	Operations Management	3:0:0	3:0:0	3	3	7 <sup>th</sup>
8	ME472	Industrial Safety and Environment	3:0:0	3:0:0	3	3	8 <sup>th</sup>
9	ME473	Production Planning and Control	3:0:0	3:0:0	3	3	7 <sup>th</sup>
10	ME474	Group Technology and Flexible Manufacturing Systems	3:0:0	3:0:0	3	3	8 <sup>th</sup>

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11	ME475	Smart Materials and Devices	3:0:0	3:0:0	3	3	7 <sup>th</sup>
12	ME476	Work Study and Ergonomics Engineering	3:0:0	3:0:0	3	3	8 <sup>th</sup>

### COURSE SCHEME SUMMARY

Sem.	L	T	P	Contact hrs/wk	Credits	HS	BS	ES	PC	PE	OE	Project/ Training	MC
1	12	2	15	29	20.5	3	9.5	8	-	-	-	-	-
2	10	3	11	24	17.5	-	9.5	8	-	-	-	-	-
3	18	6	9	33	27.5	-	11	9.5	7	-	-	-	-
4	20	4	2	26	21	3	-	3	15	-	-	-	-
5	21	3	6	32	27	-	-	-	17	3	3	4	-
6	16	1	10	29	22	-	-	-	10	6	3	3	-
7	15	0	14	29	22	-	-	-	5	6	6	5	-
8					20	-	-	-	-			20	-
<b>Total</b>	<b>112</b>	<b>19</b>	<b>67</b>	<b>202</b>	<b>177.5</b>	<b>6</b>	<b>30</b>	<b>28.5</b>	<b>54</b>	<b>15</b>	<b>12</b>	<b>32</b>	<b>-</b>

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