



**S**ARALA  
**B**IRLA  
**U**NIVERSITY

Established under the Sarala Birla University Act 2017 Govt. of Jharkhand as per Section 2(f)  
of UGC Act. 1956

## **CURRICULUM FOR**

**B.Tech**

**in**

**Mechanical Engineering**

**( Specialization with Aerospace Engineering & Aircraft Maintenance )**

**(Based on UGC & AICTE- CBCS)**

**Effective from 2021-22**

## Breakup of Credits

Sl. No.	Category	Credits
1	Humanities & Social Sciences including Management courses	6
2	Basic Science courses	23
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc	33
4	Professional Core Courses	52
5	Professional Elective Courses for Specialization	39
6	Open subjects – Electives from other technical and /or emerging subjects	11
7	Project work, seminar and internship in industry or elsewhere	16
8	Mandatory Courses	2
<b>Total Credits:</b>		<b>182</b>

**CREDITS DISTRIBUTION (SEMESTER-WISE AND COURSE-WISE )**

<b>Semester</b>	<b>HSMC</b>	<b>BSC</b>	<b>ESC</b>	<b>PCC</b>	<b>PECS</b>	<b>OEC</b>	<b>PROJECT</b>	<b>MC</b>	<b>Total Credit Semester-wise</b>
<b>1st</b>	3	9.5	13	0	0	0	0	0	<b>25.5</b>
<b>2nd</b>	3	9.5	13	0	0	0	0	2	<b>27.5</b>
<b>3rd</b>	0	4	5	14	0	0	0	0	<b>23</b>
<b>4th</b>	0	0	2	19	0	3	0	0	<b>24</b>
<b>5th</b>	0	0	0	9	10	3	0	0	<b>22</b>
<b>6th</b>	0	0	0	10	8	5	2	0	<b>25</b>
<b>7th</b>	0	0	0	0	13	0	5	0	<b>18</b>
<b>8th</b>	0	0	0	0	8	0	9	0	<b>17</b>
<b>Total Credit Course-wise</b>	<b>6</b>	<b>23</b>	<b>33</b>	<b>52</b>	<b>39</b>	<b>11</b>	<b>16</b>	<b>2</b>	<b>182</b>

## Definition of Credit

1 Hr. Lecture (L) Per Week	1 Credit
1 Hr. Tutorial (T) Per Week	1 Credit
1 Hr. Practical (P) Per Week	0.5 Credit
2 Hr. Practical (P) Per Week	1 Credit

## Course Code Definitions

Course code	Definitions
BSC	Basic Science Course
ESC	Engineering Science Course
HSMC	Humanities & Social Sciences including Management Course
MC	Mandatory Course
PCC-ME	Professional Core Course
PECS-ME	Professional Elective Courses for Specialization
OEC	Open Electives Course
MOOC'S	Massive Open Online Courses
PDP	Personality Development Programme
ME-P1	Project Stage-I
ME-P2	Project Stage-II
ME-P3	Project Stage-III

**HUMANITIES & SOCIAL SCIENCES INCLUDING MANAGEMENT  
COURSE**

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	HSMC-101	English	3	0	0	3	I
2	HSMC-102	Technical Communication	2	0	0	2	II
3	HSMC-103	Technical Communication Lab	0	0	2	1	II
<b>Total Credit:</b>						<b>6</b>	

## BASIC SCIENCE COURSES

Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	BSC-101	Chemistry	3	1	0	4	I
2	BSC-102	Chemistry Lab	0	0	2	1.5	I
3	BSC-103	Physics	3	1	0	4	II
4	BSC-104	Physics Lab	0	0	2	1.5	II
5	BSC-105	Mathematics-I	3	1	0	4	I
6	BSC-106	Mathematics-II	3	1	0	4	II
7	BSC-107	Mathematics-III	3	1	0	4	III
<b>Total Credit:</b>						<b>23</b>	

## ENGINEERING SCIENCE COURSES

Sl. No.	Course Code	Course Title	Hours Per Week			Credits	Preferred Semester
			L	T	P		
1	ESC-101	Basic Electrical & Electronics Engineering	3	1	0	4	I
2	ESC-102	Basic Electrical & Electronics Engineering Lab	0	0	2	1	I
3	ESC-103	Introduction to Unix & C Programming	3	1	0	4	I
4	ESC-104	Introduction to Unix & C Programming Lab	0	0	2	1	I
5	ESC-105	Engineering Graphics & Design	1	0	4	3	I
6	ESC-106	Electronic Devices	3	0	0	3	II
7	ESC-107	Electronic Devices Lab	0	0	2	1	II
8	ESC-108	Data Structure	3	1	0	4	II
9	ESC-109	Data Structure Lab	0	0	2	1	II
10	ESC-110	Workshop & Manufacturing Practices	1	0	4	3	II
11	ESC-111	Engineering Mechanics	3	1	0	4	III
12	ESC-112	Programming using MATLAB	0	0	2	1	III
13	ESC-113	Python Programming	1	0	2	2	VI
			<b>Total Credit</b>			<b>32</b>	

## Professional Core Courses(Sem-III & IV)

**Branch: B.Tech in Mechanical Engineering Specialization with Aerospace Engineering & Aircraft Maintenance**

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	PCC-ME-201	Fundamental of Thermodynamics and Heat transfer	3:01:00	4	III/IV
2	PCC-ME-202	Thermal Engineering Lab	0:00:02	1	III/IV
3	PCC-ME-203	Production Technology	3:01:00	4	III/IV
4	PCC-ME-204	Mechanics of Solid	3:01:00	4	III/IV
5	PCC-ME-205	Mechanics of Solid Lab	0:00:02	1	III/IV
6	PCC-ME-206	Fluid Mechanics and Hydraulic Machinery	3:01:00	4	III/IV
7	PCC-ME-207	Fluid Mechanics and Hydraulic Machinery Lab	0:00:02	1	III/IV
8	PCC-ME-208	Material Technology	3:01:00	4	III/IV
9	PCC-ME-209	Fundamental Of CAD	3:01:00	4	III/IV
10	PCC-ME-210	Fundamental Of CAD Lab	0:00:02	1	III/IV
11	PCC-ME-211	Internal Combustion Engine	3:01:00	4	III/IV
12	PCC-ME-212	Internal Combustion Engine Lab	0:00:02	1	III/IV
			<b>Total Credit:</b>	<b>33</b>	

## Professional Core Courses(Sem-V & VI)

**Branch: B.Tech in Mechanical Engineering Specialization with Automotive Technologies**

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	PCC-ME-301	Kinematics & Theory of Machines	3:01:00	4	V/VI
2	PCC-ME-302	Theory of Machine Lab	0:00:02	1	V/VI
3	PCC-ME-303	Power Plant Engineering	3:01:00	4	V/VI
4	PCC-ME-304	Design of Machine Element	3:01:00	4	V/VI
5	PCC-ME-305	Production Technology Lab	0:00:02	1	V/VI
6	PCC-ME-306	Refrigeration & Air Conditioning	3:01:00	4	V/VI
7	PCC-ME-307	Refrigeration & Air Conditioning Lab	0:00:02	1	V/VI
			<b>Total Credit:</b>	<b>19</b>	



## Professional Elective Courses for Specialization

**Branch: B.Tech in Mechanical Engineering Specialization with Aerospace Engineering & Aircraft Maintenance**

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits	Preferred Semester	Selection of Courses
1	PECS-ME-325	Aerodynamics Engineering	3:01:00	4	V/VI	Student can opt any Two Course in Sem-V and Two Courses in Sem-VI
2	PECS-ME-326	Aerodynamics Engineering Lab	0:00:02	1		
3	PECS-ME-327	Microprocessors & Microcontroller	3:01:00	4		
4	PECS-ME-328	Microprocessors & Microcontroller Lab	0:00:02	1		
5	PECS-ME-329	Aerospace Structural Mechanics	3:01:00	4		
6	PECS-ME-330	Gas Turbine Engine	3:01:00	4		
7	PECS-ME-331	Spaceflight Mechanics	3:01:00	4		
8	PECS-ME-332	Aircraft Design	3:01:00	4		
9	PECS-ME-333	Introduction to space technology	3:01:00	4		
10	PECS-ME-334	Aircraft Materials	3:01:00	4		
11	PECS-ME-335	Introduction to composite materials and structure	3:01:00	4		
12	PECS-ME-336	Finite Element Analysis	3:01:00	4		
11	PECS-ME-425	Flight Mechanics	3:01:00	4	VII/VIII	Student can opt any three Course in Sem-VII and Two Courses in Sem-VIII
12	PECS-ME-426	Drone Technology	3:01:00	4		
13	PECS-ME-427	Gas Dynamics & Jet Propulsion	3:01:00	4		
15	PECS-ME-428	Modelling & Simulation Lab	0:00:02	1		
16	PECS-ME-429	Computational Fluid Dynamics(CFD)	3:01:00	4		
17	PECS-ME-430	AirCraft Maintenance Engineering	3:01:00	4		
18	PECS-ME-431	Numerical Analysis	3:01:00	4		
19	PECS-ME-432	Aircraft Stability & Control	3:01:00	4		
20	PECS-ME-433	Vibration and Aeroelasticity	3:01:00	4		
21	PECS-ME-434	Aircraft systems	3:01:00	4		
22	PECS-ME-435	Total Quality Management	3:01:00	4		
23	PECS-ME-436	Maintainence of Power Plant & Maintainence	3:01:00	4		

# Open Elective Course

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits	Preferred Semester	Selection of Courses
1	OEC-101	Philosophy	3:00:00	3	IV	Student can opt any one Course
2	OEC-102	Introduction to Psychology	3:00:00	3		
3	OEC-103	Entrepreneurship & Startups	3:00:00	3		
4	OEC-104	Economics for Engineers	3:00:00	3		
5	OEC-105	Organisational Behaviour	3:00:00	3		
6	OEC-106	Principles of Management	3:00:00	3		
7	OEC-107	Supply Chain Management	3:00:00	3		
8	OEC-108	Intellectual Property Rights	3:00:00	3		
9	OEC-109	Digital & Social Media Marketing	3:00:00	3		
10	OEC-110	Consumer Behaviour	3:00:00	3		
11	OEC-121	Sanskrit	3:00:00	3	V	Student can opt any one Course
12	OEC-122	Indian Constitution	3:00:00	3		
13	OEC-123	Vedic Mathematics	3:00:00	3		
14	OEC-124	Essence of Indian Traditional Knowledge	3:00:00	3		
15	OEC-125	Indian Classical Music	3:00:00	3		
16	OEC-126	Mass Media and Society	3:00:00	3		
17	OEC-127	Values & Ethics	3:00:00	3		
18	OEC-141	Computer Networks	3:01:00	4	VII	Student can opt any one Course
19	OEC-142	Computer Networks Lab	3:01:00	1		
20	OEC-143	Fundamentals of Cyber Laws	3:01:00	4		
21	OEC-144	Artificial Intelligence with Python	3:01:00	4		
22	OEC-145	Data Mining	3:01:00	4		
23	OEC-146	Applied Linear Algebra	3:01:00	4		
24	OEC-147	Cloud Computing and Information Security	3:01:00	4		
25	OEC-148	Control System	3:01:00	4		
26	OEC-149	Control System Lab	3:01:00	4		

## Mandatory Courses

Sl. No.	Course Code	Course Title	Hours per week			Credits	Preferred Semester
			L	T	P		
1	MC-101	Induction Programme	0	0	0	0	I
2	MC-102	Environmental Science	2	0	0	2	IV
3	MC-103	PDP-I	2	0	0	0	I
4	MC-104	PDP-II	2	0	0	0	II
5	MC-105	PDP-III	2	0	0	0	III
6	MC-106	PDP-IV	2	0	0	0	IV
7	MC-107	PDP-V	2	0	0	0	V
8	MC-108	PDP-VI	2	0	0	0	VI
9	MC-109	PDP-VII	2	0	0	0	VII
10	MC-110	PDP-VIII	2	0	0	0	VIII
11	MC-111	PT & Games/NSS/NCC-I	0	0	0	0	I
12	MC-112	PT & Games/NSS/NCC-II	0	0	0	0	II
			<b>Total Credit:</b>			<b>2</b>	

# Massive Open Online Courses

**Branch: B.Tech in Mechanical Engineering Specialization with Aerospace Engineering & Aircraft Maintenance**

Sl. No.	Course Code	Course Title	Hrs./ Week L: T: P	Credits
1	MOOCs -101	Artificial Intelligence for Real-World Application	3:01:00	4
2	MOOCs -102	Applications of Deep Learning & Neural Networks	3:01:00	4
3	MOOCs -103	Usability Design of Software Applications	3:01:00	4
4	MOOCs -104	Applied Cloud Computing	3:01:00	4
5	MOOCs -105	Information Security - Practitioner's Perspective	3:01:00	4
6	MOOCs -106	Innovation & Entrepreneurship	3:01:00	4
7	MOOCs -107	Practical Approach to Data Mining & Analytics	3:01:00	4
8	MOOCs -108	IoT & its Applications	3:01:00	4
9	MOOCs -109	Intelligent Game Design & its Applications	3:01:00	4
10	MOOCs -110	Industrial Mechatronic Systems	3:01:00	4
11	MOOCs -111	Solar Energy Technology & its Applications	3:01:00	4

**Note: A student will be eligible to get Under Graduate degree with Honours or additional Minor Engineering, if he/she completes an additional 20 credits. These could be acquired through MOOCs.**

## Project Work

**Branch: B.Tech in Mechanical Engineering Specialization with Aerospace Engineering & Aircraft Maintenance**

Sl. No.	Course Code	Course Title	Hrs. /Week L: T: P	Credits	Preferred Semester
1	ECE-P1	Project Stage-I (Mini Project/ Industrial Training)	0:00:04	2	VI
2	ECE-P2	Project Stage-II (Minor Project) <b>(To be continued in next Semester)</b>	0:00:10	5	VII
3	ECE-P3	Project Stage-III (Major Project Work & Dissertation)	0:00:18	9	VIII
<b>Total Credits:</b>				<b>16</b>	

# COURSE STRUCTURE

## SEMESTER-I (1st YEAR)

**Branch: B.Tech in Mechanical Engineering Specialization with Aerospace Engineering & Aircraft Maintenance**

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
<b>Theory</b>										
1	Basic Science Course	BSC-101	Chemistry	3	1	0	4	30	70	100
2	Basic Science Course	BSC-105	Mathematics-I	3	1	0	4	30	70	100
3	Engineering Science Course	ESC-101	Basic Electrical & Electronics	3	1	0	4	30	70	100
4	Engineering Science Course	ESC-103	Introduction to Unix & C Programming	3	1	0	4	30	70	100
5	Humanities & Social Sciences including Management Course	HSMC-101	English	3	0	0	3	30	70	100
<b>Total(A)</b>							<b>19</b>	<b>150</b>	<b>350</b>	<b>500</b>
<b>Practical/Drawing/Design</b>										
1	Engineering Science Course	ESC-105	Engineering Graphics & Design	1	0	4	3	30	20	50
2	Basic Science Course	BSC-102	Chemistry Lab	0	0	3	1.5	30	20	50
3	Engineering Science Course	ESC-102	Basic Electrical & Electronics Lab	0	0	2	1	30	20	50
4	Engineering Science Course	ESC-104	Introduction to Unix & C Programming Lab	0	0	2	1	30	20	50
<b>Total(B)</b>							<b>6.5</b>	<b>120</b>	<b>80</b>	<b>200</b>
<b>Mandatory Courses/MOOC'S</b>										
1	Mandatory Course	MC-101	Induction Programme	0	0	0	0	0	0	0
2	Mandatory Course	MC-110	PT & Games/NSS/NCC-I	0	0	2	0	0	0	0
3	Mandatory Course	MC-103	PDP-I	2	0	0	0	0	0	0
<b>Total(C)</b>							<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Grand Total (A+B+C)</b>							<b>25.5</b>	<b>270</b>	<b>430</b>	<b>700</b>
<b>L-Lecture, T-Tutorial, P-Practical</b> <b>IA- Internal Assessment, ESE-End Semester Examination</b>										

# COURSE STRUCTURE

## SEMESTER-II (1st YEAR)

**Branch: B.Tech in Mechanical Engineering Specialization with Aerospace Engineering & Aircraft Maintenance**

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks					
				L	T	P		IA	ESE	Total			
<b>Theory</b>													
1	Basic Science Course	BSC-106	Mathematics-II	3	1	0	4	30	70	100			
2	Humanities & Social Sciences including Management Course	HSMC-102	Technical Communication	2	0	0	2	30	70	100			
3	Engineering Science Course	ESC-106	Electronic Devices	3	1	0	4	30	70	100			
4	Basic Science Course	BSC-103	Physics	3	1	0	4	30	70	100			
5	Engineering Science Course	ESC-108	Data Structures	3	1	0	4	30	70	100			
<b>Total(A)</b>							<b>18</b>	<b>150</b>	<b>350</b>	<b>500</b>			
<b>Practical/Drawing/Design</b>													
1	Engineering Science Course	ESC-110	Engineering Workshop Practices	1	0	4	3	30	20	50			
2	Engineering Science Course	ESC-107	Electronic Devices Lab	0	0	2	1	30	20	50			
3	Basic Science Course	BSC-104	Physics Lab	0	0	3	1.5	30	20	50			
4	Humanities & Social Sciences including Management Course	HSMC-103	Technical Communication Lab	0	0	2	1	30	20	50			
5	Engineering Science Course	ESC-109	Data Structures Lab	0	0	2	1	30	20	50			
<b>Total(B)</b>							<b>1</b>	<b>0</b>	<b>13</b>	<b>7.5</b>	<b>150</b>	<b>100</b>	<b>250</b>
<b>Mandatory Courses/MOOC'S</b>													
1	Mandatory Course	MC-102	Environmental Science	2	0	0	2	30	70	100			
2	Mandatory Course	MC-111	PT & Games/NSS/NCC-II	0	0	2	0	0	0	0			
3	Mandatory Course	MC-104	PDP-II	2	0	0	0	0	0	0			
<b>Total(C)</b>							<b>2</b>	<b>30</b>	<b>70</b>	<b>100</b>			
<b>Grand Total (A+B+C)</b>							<b>27.5</b>	<b>330</b>	<b>520</b>	<b>850</b>			
<b>L-Lecture, T-Tutorial, P-Practical</b>													
<b>IA- Internal Assessment, ESE-End Semester Examination</b>													

# COURSE STRUCTURE

**SEMESTER-III (2nd YEAR)**

**Branch: B.Tech in Mechanical Engineering Specialization with Aerospace Engineering & Aircraft Maintenance**

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
<b>Theory</b>										
1	Basic Science Course	BSC-107	Mathematics-III	3	1	0	4	30	70	100
2	Engineering Science Course	ESC-110	Engineering Mechanics	3	1	0	4	30	70	100
3	Professional Core Course	PCC-ME-201	Fundamental of Thermodynamics and Heat transfer	3	1	0	4	30	70	100
4	Professional Core Course	PCC-ME-203	Production Technology	3	1	0	4	30	70	100
5	Professional Core Course	PCC-ME-204	Mechanics of Solid	3	1	0	4	30	70	100
<b>Total(A)</b>							<b>20</b>	<b>150</b>	<b>350</b>	<b>500</b>
<b>Practical/Drawing/Design</b>										
1	Professional Core Course	PCC-ME-205	Mechanics of Solid Lab		0	2	1	30	20	50
2	Engineering Science Course	ESC-109	Programming using MATLAB	0	0	2	1	30	20	50
3	Professional Core Course	PCC-ME-202	Thermal Engineering Lab	0	0	2	1	30	20	50
<b>Total(B)</b>							<b>3</b>	<b>90</b>	<b>60</b>	<b>150</b>
<b>Mandatory Courses/MOOC'S</b>										
2	Mandatory Course	MC-105	PDP-III	2	0	0	0	0	0	0
<b>Total(C)</b>							<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Grand Total (A+B+C)</b>							<b>23</b>	<b>240</b>	<b>410</b>	<b>650</b>

**L-Lecture, T-Tutorial, P-Practical**

**IA- Internal Assessment, ESE-End Semester Examination**



<b>COURSE STRUCTURE</b>										
<b>SEMESTER-IV (2nd YEAR)</b>										
<b>Branch: B.Tech in Mechanical Engineering Specialization with Aerospace Engineering &amp; Aircraft Maintenance</b>										
Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
<b>Theory</b>										
1	Professional Core Course	PCC-ME-206	Fluid Mechanics & Hydraulic Machinery	3	1	0	4	30	70	100
2	Professional Core Course	PCC-ME-208	Material Technology	3	1	0	4	30	70	100
3	Professional Core Course	PCC-ME-209	Fundamental of CAD/CAM	3	1	0	4	30	70	100
4	Professional Core Course	PCC-ME-211	Internal Combustion Engine	3	1	0	4	30	70	100
5	Open Elective Course	OEC-103	Entrepreneurship & Startups	3	0	0	3	30	70	100
<b>Total(A)</b>							<b>19</b>	<b>150</b>	<b>350</b>	<b>500</b>
<b>Practical/Drawing/Design</b>										
1	Professional Core Course	PCC-ME-207	Fluid Mechanics & Hydraulic Machinery Lab	0	0	2	1	30	20	50
2	Professional Core Course	PCC-ME-212	IC Engine Lab	0	0	2	1	30	20	50
3	Engineering Science Course	ESC-111	Python Programming	1	0	2	2	30	20	50
4	Professional Core Course	PCC-ME-210	Fundamental of CAD/CAM Lab	0	0	2	1	30	20	50
<b>Total(B)</b>							<b>5</b>	<b>120</b>	<b>80</b>	<b>200</b>
<b>Mandatory Courses/MOOC'S</b>										
1	Mandatory Course	MC-105	PDP-IV	2	0	0	0	0	0	0
<b>Total(C)</b>							<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Grand Total (A+B+C)</b>							<b>24</b>	<b>270</b>	<b>430</b>	<b>700</b>
<b>L-Lecture, T-Tutorial, P-Practical</b>										
<b>IA- Internal Assessment, ESE-End Semester Examination</b>										

# COURSE STRUCTURE

## SEMESTER-V (3rd YEAR)

**Branch: B.Tech in Mechanical Engineering Specialization with Aerospace Engineering & Aircraft Maintenance**

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
<b>Theory</b>										
1	Professional Elective Courses for Specialization	PECS-ME-325	Aerodynamics Engineering	3	1	0	4	30	70	100
2	Professional Core Course	PCC-ME-301	Kinematics & Theory of Machines	3	1	0	4	30	70	100
3	Professional Core Course	PCC-ME-303	Power Plant Engineering	3	1	0	4	30	70	100
4	Professional Elective Courses for Specialization	PECS-ME-327	Microprocessors & Microcontroller	3	1	0	4	30	70	100
5	Open Elective Course	OEC-122	Indian Constitution	3	0	0	3	30	70	100
<b>Total(A)</b>							<b>19</b>	<b>150</b>	<b>350</b>	<b>500</b>
<b>Practical/Drawing/Design</b>										
1	Professional Core Course	PCC-ME-302	Theory of Machine lab	0	0	2	1	30	20	50
2	Professional Elective Courses for Specialization	PECS-ME-326	Aerodynamics Engineering Lab	0	0	2	1	30	20	50
3	Professional Elective Courses for Specialization	PECS-ME-328	Microprocessors & Microcontroller Lab	0	0	2	1	30	20	50
<b>Total(B)</b>							<b>3</b>	<b>90</b>	<b>60</b>	<b>150</b>
<b>Mandatory Courses/MOOC'S</b>										
1	Mandatory Course	MC-107	PDP-V	2	0	0	0	0	0	0
<b>Total(C)</b>							<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Grand Total (A+B+C)</b>							<b>22</b>	<b>240</b>	<b>410</b>	<b>650</b>
<b>L-Lecture, T-Tutorial, P-Practical</b> <b>IA- Internal Assessment, ESE-End Semester Examination</b>										

# COURSE STRUCTURE

## SEMESTER-VI (3rd YEAR)

**Branch: B.Tech in Mechanical Engineering Specialization with Aerospace Engineering & Aircraft Maintenance**

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
<b>Theory</b>										
1	Professional Core Course	PCC-ME-304	Design of Machine Elements	3	1	0	4	30	70	100
2	Professional Core Course	PCC-ME-306	Refrigeration & Air Conditioning	3	1	0	4	30	70	100
3	Professional Elective Courses for Specialization	PECS-ME-329	Aerospace Structural Mechanics	3	1	0	4	30	70	100
4	Professional Elective Courses for Specialization	PECS-ME-330	Gas Turbine Engine	3	1	0	4	30	70	100
5	Open Elective Course	OEC-148	Control System	3	1	0	4	30	70	100
<b>Total(A)</b>							<b>20</b>	<b>150</b>	<b>350</b>	<b>500</b>
<b>Practical/Drawing/Design</b>										
1	Professional Core Course	PCC-ME-307	Refrigeration & Air Conditioning	0	0	2	1	30	20	50
2	Professional Core Course	PCC-ME-305	Production Technology Lab	0	0	2	1	30	20	50
3	Open Elective Course	OEC-149	Control System Lab	0	0	2	1	30	20	50
4	Project Work	ME-P1	Project Stage-I (Mini Project/ Industrial Training)	0	0	4	2	75	25	100
<b>Total(B)</b>							<b>5</b>	<b>165</b>	<b>85</b>	<b>250</b>
<b>Mandatory Courses/MOOC'S</b>										
1	Mandatory Course	MC-109	PDP-VI	2	0	0	0	0	0	0
<b>Total(C)</b>							<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Grand Total (A+B+C)</b>							<b>25</b>	<b>315</b>	<b>435</b>	<b>750</b>
<b>L-Lecture, T-Tutorial, P-Practical</b>										
<b>IA- Internal Assessment, ESE-End Semester Examination</b>										

# COURSE STRUCTURE

## SEMESTER-VII (4th YEAR)

**Branch: B.Tech in Mechanical Engineering Specialization with Aerospace Engineering & Aircraft Maintenance**

Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
<b>Theory</b>										
1	Professional Elective Courses for Specialization	PECS-ME-425	Flight Mechanics	3	1	0	4	30	70	100
2	Professional Elective Courses for Specialization	PECS-ME-426	Drone Technology	3	1	0	4	30	70	100
3	Professional Elective Courses for Specialization	PECS-ME-427	Gas Dynamics & Jet Propulsion	3	1	0	4	30	70	100
<b>Total(A)</b>							<b>12</b>	<b>90</b>	<b>210</b>	<b>300</b>
<b>Practical/Drawing/Design</b>										
2	Professional Elective Courses for Specialization	PECS-ME-428	Modelling & Simulation Lab	0	0	2	1	30	20	50
3	Project Work	ME-P2	Project Stage-II (Minor Project)	0	0	10	5	75	25	100
<b>Total(B)</b>							<b>6</b>	<b>105</b>	<b>45</b>	<b>150</b>
<b>Mandatory Courses/MOOC'S</b>										
1	Mandatory Course	MC-109	PDP-VII	2	0	0	0	0	0	0
<b>Total(C)</b>							<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Grand Total (A+B+C)</b>							<b>18</b>	<b>195</b>	<b>255</b>	<b>450</b>
<b>L-Lecture, T-Tutorial, P-Practical</b>										
<b>IA- Internal Assessment, ESE-End Semester Examination</b>										

<b>COURSE STRUCTURE</b>										
<b>SEMESTER-VIII (4th YEAR)</b>										
<b>Branch: B.Tech in Mechanical Engineering Specialization with Aerospace Engineering &amp; Aircraft Maintenance</b>										
Sl. No.	Category	Course Code	Course Title	Hours			Credit	Marks		
				L	T	P		IA	ESE	Total
<b>Theory</b>										
1	Professional Elective Courses for Specialization	PECS-ME-429	Computational Fluid Dynamics(CFD)	3	1	0	4	30	70	100
2	Professional Elective Courses for Specialization	PECS-ME-430	AirCRAFT Maintenance Engineering	3	1	0	4	30	70	100
<b>Total(A)</b>							<b>8</b>	<b>60</b>	<b>140</b>	<b>200</b>
<b>Practical/Drawing/Design</b>										
1	Project Work	ME-P3	Project Stage-III (Major Project Work & Dissertation)	0	0	18	9	75	25	100
<b>Total(B)</b>							<b>9</b>	<b>75</b>	<b>25</b>	<b>100</b>
<b>Mandatory Courses/MOOC'S</b>										
1	Mandatory Course	MC-110	PDP-VIII	2	0	0	0	0	0	0
<b>Total(C)</b>							<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Grand Total (A+B+C)</b>							<b>17</b>	<b>135</b>	<b>165</b>	<b>300</b>
<b>L-Lecture, T-Tutorial, P-Practical</b>										
<b>IA- Internal Assessment, ESE-End Semester Examination</b>										