



# हरकोर्ट बटलर प्राविधिक विश्वविद्यालय

नवाबगंज, कानपुर - 208002, उ.प्र., भारत

HARCOURT BUTLER TECHNICAL UNIVERSITY

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**100** YEARS  
1921-2021

**Department: Mechanical Engineering**

School: Engineering

Name of Programme: B. Tech. Mechanical Engineering

Academic Session 2021-22

Total no. of courses in the Programme: 28

%Change in the course **curriculum: 21.42%**

Number of Courses where syllabus revision was carried out BoS

Sl. No.	Subject Name	Subject Code	Details
1.	Material Science	EME-203/253	Syllabus change shown in red
2.	Machine Drawing	EME-207/257	Syllabus change shown in red
3.	Applied Thermodynamics	EME-206	Change in credits and syllabus shown in red
4.	Manufacturing Science-II	EME-301	Change in credits and syllabus shown in red
5.	Computer Added Design	EME-306	Change in credits and syllabus shown in red
6.	Finite Element Methods	EME-415/436	Change in syllabus shown in red

Number of Courses related **with employability/ entrepreneurship/ skill** development

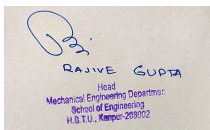
Sl.no.	Name of the Course	Course Code	Year of introduction
1.	Finite Element Methods	EME-415	2017 onwards
2.	Automobile Engineering	EME-417	2017 onwards
3.	Computer Aided Design	EME-306	2017 onwards
4.	Measurement and Control	EME-419	2017 onwards
5.	Mechanical Vibrations	EME-427	2017 onwards
6.	Power Plant Engineering	EME-429	2017 onwards
7.	Production Planning & Control	EME-431	2017 onwards
8.	Computer Aided Manufacturing	EME-421	2017 onwards
9.	Alternative Energy Sources	OME-482	2020 onwards
10.	Mechatronics	EME-467	2020 onwards
11.	Robotics	EME-463	2020 onwards
12.	Additive Manufacturing	EME-459	2020 onwards
13.	Industrial Engineering and Automation	OME-483	2020 onwards
14.	Advance Strength of Material	EME-458	2020 onwards
15.	Optimization Methods in Engineering	OME-486	2020 onwards

## Elective Courses in the Programme

S. No.	Program Elective Courses	Name of Course	Course code
1	PEC I	Mechanical Vibrations	EME-455
		Industrial Engineering	EME-457
		Additive manufacturing	EME-459
		Robotics	EME-463
2	PEC II	Welding Processes	EME-465
		Mechatronics	EME-467
		Non-conventional Energy Resources & Engineering Materials	EME-469
		Engineering Materials	EME-473
3	PEC III	Unconventional Manufacturing Processes	EME-452
		Finite Element Method	EME-454
		Thermal Turbo Machines	EME-456
		Advanced Strength of Material	EME-458
		Production Planning & Control	EME-460
4	PEC IV	Automobile Engineering	EME-462
		Optimization Methods in Engineering	EME-464
		Experimental Stress Analysis	EME-466
		Product Design & Development	EME-468
		Non-Destructive Testing	EME-470

## New Courses Introduced

Sl. No.	Subject Name	Subject Code
1.	Internal Combustion Engine	EME-309/359
2.	Energy Conversion	EME-310
3.	Measurement	EME-358
4.	Power Plant Engineering	EME-362
5.	Computer Added Manufacturing	EME-353
6.	Additive Manufacturing	EME-419
7.	Robotics	EME-421
8.	Welding Processes	EME-425
9.	Mechatronics	EME-429
10.	Advance Strength of Materials	EME-443



Signature and Seal  
Head of Department

**HARCOURT BULTER TECHNICAL UNIVERSITY KANPUR SCHOOL OF ENGINEERING**  
**DEPARTMENT OF MECHANICAL ENGINEERING\**  
 Semester wise Course Structure  
 B. Tech. Mechanical Engineering  
 (Applicable from Session 2017-2018 for new entrants)

**SEMESTER VI**

r. 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.	<b>PCC</b>	<b>EME 306</b>	<b>Computer Aided Design</b>	<b>5(3-1-2)</b>	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.	<b>PEC</b>	<b>PEC-I</b>	<b>PEC-I</b>	<b>4(3-1-0)</b>	30	20	-	50	50	100	
3.	<b>PEC</b>	<b>PEC-II</b>	<b>PEC-II</b>	<b>3(3-0-0)</b>	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>						

## Department of Mechanical Engineering(to be offered in VII & VIII Semester, 2017-18)

### Programme Elective-I

S. No.	Course Code	Course Name	Credits
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)

**Semester wise Course Structure**  
**(Applicable from Session 2019-2020 for new entrants)**  
**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 451	Refrigeration & Air Conditioning	4(3-0-2)	15	20	15	50	50	100
2.	PCC	EME 453	Computer Aided Manufacturing	3(3-0-0)	15	20	15	50	50	100
3.	PEC	PEC-I	List is attached	3(3-0-0)	30	20	-	50	50	100
4.	PEC	PEC-II	List is attached	3(3-0-0)	30	20	-	50	50	100
5.	OEC	OEC-I	List is attached	3(3-0-0)	30	20	-	50	50	100
6.	Industrial Training	EME-461	Industrial Training	1(0-0-2)	-	50	-	50	50	100
7.	Seminar	EME-471	Seminar	1(0-0-2)	-	50	-	50	50	100
8.	Project	EME-497	Project	4(0-0-8)	-	50	-	50	50	100
Total Credits				22						

**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	List is attached	4(3-1-0)	30	20	-	50	50	100
2.	PEC	PEC-IV	List is attached	4(3-1-0)	30	20	-	50	50	100
3.	OEC	OEC-II	List is attached	4(3-1-0)	30	20	-	50	50	100
4.	Project	EME-498	Project	10(0-0-20)	-	50	-	50	50	100
Total Credits				22						

Total Programme Credits : 172

**Department of Mechanical Engineering**  
**Elective courses to be offered in VII & VIII Semesters (2019-20)**

<b>Programme Elective-I</b>		<b>3(3-0-0)</b>	
1.	EME-455	Mechanical Vibrations	3(3-0-0)
2.	EME-457	Industrial Engineering	3(3-0-0)
3.	EME-459	Additive manufacturing	3(3-0-0)
4.	EME-463	Robotics	3(3-0-0)
<b>Programme Elective-II</b>		<b>3(3-0-0)</b>	
1.	EME-465	Welding Processes	3(3-0-0)
2.	EME-467	Mechatronics	3(3-0-0)
3.	EME-469	Non-conventional Energy Resources & Utilization	3(3-0-0)
4.	EME-473	Engineering Materials	3(3-0-0)
<b>Programme Elective-III</b>		<b>4(3-1-0)</b>	
1.	EME-452	Unconventional Manufacturing Processes	4(3-1-0)
2.	EME-454	Finite Element Method	4(3-1-0)
3.	EME-456	Thermal Turbo Machines	4(3-1-0)
4.	EME-458	Advanced Strength of Material	4(3-1-0)
5.	EME-460	Production Planning & Control	4(3-1-0)
<b>Programme Elective-IV</b>		<b>4(3-1-0)</b>	
1.	EME-462	Automobile Engineering	4(3-0-2)
2.	EME-464	Optimization Methods in Engineering	4(3-1-0)
3.	EME-466	Experimental Stress Analysis	4(3-1-0)
4.	EME-468	Product Design & Development	4(3-1-0)
5.	EME-470	Non-Destructive Testing	4(3-1-0)
<b>Open Elective-I</b>		<b>3(3-0-0)</b>	
1.	OME-481	Solar Energy	3(3-0-0)
2.	OME-483	Industrial Engineering and Automation	3(3-0-0)
3.	OME-485	Artificial Intelligence in Manufacturing	3(3-0-0)
<b>Open Elective-II</b>		<b>4(3-1-0)</b>	
1.	OME-482	Alternative Energy Sources	4(3-1-0)
2.	OME-484	Composite Materials	4(3-1-0)
3.	OME-486	Optimization Methods in Engineering	4(3-1-0)