

**SDM COLLEGE OF ENGINEERING AND TECHNOLOGY,  
DHARWAD  
Department of Mechanical Engineering**

List of courses having focus on employability/ entrepreneurship/ skill development offered by the institution during the last five years

I Semester B.E.  
Physics cycle

Course Code	Course Category	Course Title	Teaching		Examination				
			L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
					Max. Marks	*Max. Marks	Duration in Hrs.	Max. Marks	Duration In Hrs.
18UMAC100	BS	Engineering Mathematics-I	3 - 1 - 0	4	50	100	3	-	-
18UPHC100	BS	Engineering Physics	3 - 1 - 0	4	50	100	3	-	-
18UEEC100	ES	Basic Electrical Engineering	3 - 0 - 0	3	50	100	3	-	-
18UCVC100	ES	Engineering Mechanics	3 - 0 - 0	3	50	100	3	-	-
18UMEC100	ES	Elements of Mechanical Engineering	2 - 0 - 0	2	50	100	--	-	-
18UPHL100	BS	Engineering Physics Lab	0 - 0 - 2	1	50	--	--	50	3
18UESL100	ES	Basic Engineering Skills Lab	0 - 0 - 3	1	50	--	--	50	3
18UHUC100	HU	Kannada	2- 0 -0	1	50	50	2		
18UHUA100	HU	Constitution of India & Professional Ethics	2- 0 - 0	Audit	100	--	--	--	--
<b>Total</b>			<b>18 - 2 - 5</b>	<b>19</b>	<b>500</b>	<b>550</b>		<b>100</b>	

### III Semester

Course Code	Course Category	Course Title	Teaching		Examination				
			L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
					Max. Marks	*Max. Marks	Duration in Hrs.	Max. Marks	Duration In Hrs.
18UMAC300	BS	Engineering Mathematics-III	3 - 0 - 0	3	50	100	3	-	-
18UMEC300	PC	Basic Thermodynamics	3 - 2 - 0	4	50	100	3	-	-
18UMEC301	PC	Materials Science	4 - 0 - 0	4	50	100	3	-	-
18UMEC302	PC	Strength of Materials	3 - 2 - 0	4	50	100	3	-	-
18UMEC303	PC	Manufacturing Processes - I	3 - 0 - 0	3	50	100	3	--	--
18UMEC304	PC	Machine Drawing	2 - 0 - 2	3	50	100	3	--	--
18UMEL305	PC	Materials Science & Materials Testing Lab	0 - 0 - 3	1.5	50	--	--	50	3
18UMEL306	PC	Foundry & Forging Lab	0 - 0 - 3	1.5	50	--	--	50	3
		<b>Total</b>	<b>18- 4- 8</b>	<b>24</b>	<b>400</b>	<b>600</b>		<b>100</b>	

**BS-** Basic Science, **PC-** Program Core

**CIE:** Continuous Internal Evaluation

**SEE:** Semester End Examination

**L:** Lecture

**T:** Tutorials

**P:** Practical

\*SEE for theory courses is conducted for 100 marks and reduced to 50 marks

### IV Semester

Course Code	Course Category	Course Title	Teaching		Examination				
			L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
					Max. Marks	*Max. Marks	Duration in Hrs.	Max. Marks	Duration In Hrs.
18UMAC400	BS	Engineering Mathematics-IV	3 - 0 - 0	3	50	100	3	-	-
18UMEC400	PC	Fluid Mechanics	3 - 2 - 0	4	50	100	3	-	-
18UMEC401	PC	Manufacturing Processes - II	4 - 0 - 0	4	50	100	3	-	-
18UMEC402	PC	Applied Thermodynamics	3 - 2 - 0	4	50	100	3	-	-
18UMEC403	PC	Metrology and Measurements	3 - 0 - 0	3	50	100	3	--	--
18UMEC404	PC	Design of Machine Elements-I	2 - 2 - 0	3	50	100	3	--	--
18UMEL405	PC	Measurements Lab	0 - 0 - 3	1.5	50	--	--	50	3
18UMEL406	PC	Thermal Engineering Lab - I	0 - 0 - 3	1.5	50	--	--	50	3
18UMEL407	PC	Introductory Project	0 - 0 - 2	1	50	--	--	--	--
		<b>Total</b>	<b>18 - 6 - 8</b>	<b>25</b>	<b>450</b>	<b>600</b>		<b>100</b>	

### V Semester

Course Code	Course Category	Course Title	Teaching		Examination				
			L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
					Max. Marks	*Max Marks	Duration in Hrs.	Max. Marks	Duration In Hrs.
18UHUC500	HU	Management, Economics & Intellectual Property Rights	4-0-0	4	50	100	3	-	-
18UMEC500	PC	Theory of Machines	3-2-0	4	50	100	3	-	-
18UMEC501	PC	Design of Machine Elements-II	3-2-0	4	50	100	3	-	-
18UMEC502	PC	Turbo machines	2-2-0	3	50	100	3	-	-
18UMEC503	PC	Renewable Energy Technology	3-0-0	3	50	100	3	--	--
18UMEE5XX	PE	Program Elective-1	3-0-0	3	50	100	3	--	--
18UMEL504	PC	Machine shop Practice	0-0-3	1.5	50	--	--	50	3
18UMEL505	PC	Thermal Engg. Lab - II	0-0-3	1.5	50	--	--	50	3
18UMEL506	PC	Minor Project-1	0-0-2	1	50	--	--	--	--
18UHUL507	HU	Soft skills/Aptitude	0-0-2	1	50	--	--	--	--
		<b>Total</b>	<b>18-6-10</b>	<b>26</b>	<b>500</b>	<b>600</b>		<b>100</b>	

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### Electives

Course code	Elective Courses (PE – 1)
18UMEE521	CAD/CAM (Computer aided design / Computer aided manufacturing)
18UMEE522	Non -traditional machining
18UMEE523	CNC Machine technology
18UMEE524	Introduction to composite materials
18UMEE525	Production Planning & control
18UMEE526	Advanced Metal Joining Technology
18UMEE527	Fundamentals of Automobile Design (Ready Engineer by TATA Technologies)

### VI Semester

Course Code	Course Category	Course Title	Teaching		Examination				
			L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
					Max. Marks	*Max. Marks	Duration in Hrs.	Max. Marks	Duration In Hrs.
18UMEC600	PC	Heat Transfer	3-2-0	4	50	100	3	-	-
18UMEC601	PC	Finite Element Methods	3-2-0	4	50	100	3	-	-
18UMEE6XX	PE	Program Elective-2	3-0-0	3	50	100	3	-	-
18UMEE6XX	PE	Program Elective-3	3-0-0	3	50	100	3	-	-
18UMEO6XX	OE	Open Elective-1	3-0-0	3	50	100	3	--	--
18UMEL602	PC	Computer Aided Engineering Analysis Lab	0-0-3	1.5	50	--	--	50	3
18UMEL603	PC	Thermal Engg. Lab - III	0-0-3	1.5	50	--	--	50	3
18UMEL604	PC	Minor Project-2	0-0-4	2	50	--	--	50	3
18UHUL605	HU	Soft skills/Aptitude	0-0-2	1	50	--	--	--	--
		<b>Total</b>	<b>15-4-12</b>	<b>23</b>	<b>450</b>	<b>500</b>		<b>150</b>	

### Electives

Course code	Elective Courses (PE-2)	Course code	Elective Courses (PE- 3)	Course code	Elective Courses (OE-1)
18UMEE621	Refrigeration & Air conditioning	18UMEE631	Tool Design Engg.	18UMEO641	Mechatronics
18UMEE622	Nuclear Energy Systems	18UMEE632	Theory of Elasticity	18UMEO642	Total Quality Management
18UMEE623	Advanced Fluid Dynamics	18UMEE633	Mechanical Behavior of Engg. Materials.	18UMEO643	Sustainable Building Technology
18UMEE624	Internal Combustion Engines	18UMEE634	Design and Drawing of Mech. Assemblies	18UMEO644	Work Flow Management
18UMEE625	Cryogenics	18UMEE635	Experimental stress analysis	18UMEO645	Design Thinking
18UMEE626	Alternate Fuels	18UMEE636	Design of IC Engine Components	18UMEO646	Smart Materials and Structures
18UMEE627	Gas Dynamics	18UMEE637	Advanced Automobile Design (Ready Engineer by TATA Technologies)	18UMEO647	Introduction to Scientific programming

### Scheme for VII Semester

Course Code	Course Category	Course Title	Teaching		Examination				
			L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
					Max. Marks	*Max. Marks	Duration in Hrs.	Max. Marks	Duration In Hrs.
18UMEC700	PC	Mechanical Vibrations	3 - 2 - 0	4	50	100	3	-	-
18UMEC701	PC	Control Engineering	3 - 2 - 0	4	50	100	3	-	-
18UMEE7XX	PE	Program Elective-4	3 - 0 - 0	3	50	100	3	-	-
18UMEO7XX	OE	Open Elective-2	3 - 0 - 0	3	50	100	3	--	--
18UMEL702	PC	Dynamics Laboratory	0 - 0 - 2	1	50	--	--	50	3
18UMEL703	PC	Major Project Phase-1	0 - 0 - 4	2	50	--	--	50	3
18UMEL704	PC	Internship	4 w e e k s	2	50	--	--	50	3
<b>Total</b>			<b>12 - 4 - 6</b>	<b>19</b>	<b>350</b>	<b>400</b>		<b>150</b>	

PC- Program Core, PE-Program Elective, OE- Open Elective and HU- Humanities

#### Electives

Course code	Elective Courses (PE-4)	Course code	Elective Courses (OE-2)
18UMEE721	Power Plant Engineering	18UMEO731	Introduction to Aircraft Industry & Aircraft Systems
18UMEE722	Design of Heat Exchangers	18UMEO732	Project Management
18UMEE723	Hybrid Vehicle Technology	18UMEO733	Energy Management
18UMEE724	Computational Fluid Dynamics	18UMEO734	Design of Renewable Energy Systems
18UMEE725	Advanced Heat Transfer		
18UMEE726	Heating Ventilation and Air Conditioning		
18UMEE727	Battery and Fuel Cell Technology		



### Scheme for VIII Semester

Course Code	Course Category	Course Title	Teaching		Examination				
			L-T-P (Hrs /Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
					Max. Marks	*Max. Marks	Duration in Hrs.	Max. Marks	Duration In Hrs.
18UMEC800	PC	Fluid Power Control	4 - 0 - 0	4	50	100	3	-	-
18UMEE8XX	PE	Program Elective-5	3 - 0 - 0	3	50	100	3	-	-
18UMEE8XX	PE	Program Elective-6	3 - 0 - 0	3	50	100	3	--	--
18UMEL801	PC	Technical Seminar / Independent study	0 - 0 - 2	1	50	--	--	--	--
18UMEL802	PC	Major Project Phase-2	0 - 0 - 12	7	50	--	--	50	3
<b>Total</b>			<b>10 - 0 - 14</b>	<b>18</b>	<b>250</b>	<b>300</b>	<b>--</b>	<b>50</b>	<b>--</b>

PC- Program Core, PE-Program Elective and OE- Open Elective  
**Electives**

Course code	Elective Courses (PE- 5)	Course code	Elective Courses (PE- 6)
18UMEE821	Operations Research	18UMEE831	Design of Aircraft structures
18UMEE822	Computer Integrated Manufacturing	18UMEE832	Mechanics of Composite Materials
18UMEE823	Organizational Behavior	18UMEE833	Modeling and Simulation of Dynamic Systems
18UMEE824	Industrial Robotics	18UMEE834	Tribology and Bearing Design
18UMEE825	Rapid Prototyping And Rapid Tooling	18UMEE835	Failure Analysis
18UMEE826	Design For Manufacturing And Assembly	18UMEE836	Surface Engineering
18UMEE827	Estimation and Costing in Mechanical	18UMEE837	Industry 4.0 & Artificial intelligence

	Engineering		
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I Semester

Course Code	Course Title	Teaching		Examination				
		L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration in hours
18PEADC100	Computational Methods in Engineering	4-0-0	4	50	100	3		
18PEADC101	Theoretical Stress Analysis	4-0-0	4	50	100	3		
18PEADEXXX	Elective 1	4-0-0	4	50	100	3		
18PEADEXXX	Elective 2	4-0-0	4	50	100	3		
18PEADEXXX	Elective 3	4-0-0	4	50	100	3		
18PEADL131	Design Engineering Lab – I	0-0-3	2	50			50	3
18PEADL132	**Seminar	0-0-2	1	50				
<b>Total</b>		<b>20-0-5</b>	<b>23</b>	<b>350</b>	<b>500</b>		<b>50</b>	

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<b>Course Code</b>	<b>Elective Courses</b>
18PEADE125	Advanced Fluid Dynamics
18PEADE126	Finite Element Methods
18PEADE127	Advanced Material Technology
18PEADE128	Design of Renewable Energy Systems
18PEADE129	Design Optimization
18PEADE130	Design for Manufacture

**Scheme of Teaching and Examination**

## II- Semester

Course code	Course Title	Teaching		Examination				
		L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration in hours
18PEADC200	Automobile System Design	4-0-0	4	50	100	3		
18PEADC201	Computational Fluid Dynamics	4-0-0	4	50	100	3		
18PEADEXXX	Elective4	3-0-2	4	50	100	3		
18PEADEXXX	Elective5	4-0-0	4	50	100	3		
18PEADEXXX	Elective6	3-0-2	4	50	100	3		
18PEADL231	Design Engineering lab -II	0-0-3	2	50			50	3
18PEADL232	** Seminar	0-0-2	1	50				
<b>Total</b>		<b>18-0-09</b>	<b>23</b>	<b>350</b>	<b>500</b>		<b>50</b>	

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Course Code	Elective Courses
18PEADE225	Dynamics & Mechanism Design Simulation
18PEADE226	Power Plant Design
18PEADE227	Fracture Mechanics
18PEADE228	Heating Ventilation & Air Conditioning (HVAC)

18PEADE229	Advanced Theory of Vibrations
18PEADE230	Advanced Product Design

### III Semester M. Tech.

Course code	Course Title	Teaching		Examination				
		L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration in hours
18PEADC300	Experimental Techniques	4-0-0	4	50	100	3		
18PEADEXXX	Elective 7	4-0-0	4	50	100	3		
18PEADL328	Internship in Industry/R&D organization / Elective 8	** Min 4 weeks during vacation after 2nd sem	3	50	100	3	50	3
18PEADL329	*** Project phase 1	0-0-15	9	50			50	3
<b>Total</b>		<b>08/15</b>	<b>20</b>	<b>200</b>	<b>200/ 300</b>		<b>100</b>	

Course Code	Elective Courses
18PEADE325	Design of Heat Exchangers
18PEADE326	Failure Analysis of Materials

18PEADE327	Robust Design
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### Scheme of Teaching and Examination

#### IV Semester M. Tech.

Course code	Course Title	Teaching		Examination				
		L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration in hours
18PEADL425	Project phase-II	0-0-20	22	100	--	--	100	3
<b>Total</b>		<b>0-0-20</b>	<b>22</b>	<b>100</b>	<b>--</b>	<b>--</b>	<b>100</b>	

I Semester M. Tech.

Course Code	Course Title	Teaching		Examination				
		L-T-P (Hrs/Week)	Credits	CIE	Theory (SEE)		Practical (SEE)	
				Max. Marks	*Max. Marks	Duration in hours	Max. Marks	Duration in hours
20PRMIC100	Research Methodology and IPR	2-0-0	2	50	50	2		
20PMEAC100	Computational Methods in Engineering	4-0-0	4	50	100	3		
20PEADC101	Theoretical Stress Analysis	3-2-0	4	50	100	3		
20PEADC102	Finite Element Methods	4-0-0	4	50	100	3		
20PEADE11X	Elective 1	4-0-0	4	50	100	3		
20PEADL103	Design Engineering Lab 1	0-0-3	2	50			50	3
20PEADL104	Seminar	0-0-2	1	50				
<b>Total</b>		<b>17-2-5</b>	<b>21</b>	<b>350</b>	<b>450</b>		<b>50</b>	

  
 HOD of Mech. Engg.  
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