

<b>RGPV (DIPLOMA WING) BHOPAL</b>		<b>OBE CURRICULUM FOR THE COURSE</b>		<b>FORMAT-3</b>	<b>Sheet No. 1/5</b>
<b>Branch</b>	<b>AUTOMOBILE ENGINEERING</b>		<b>Semester</b>	<b>Fifth</b>	
<b>Course Code</b>	<b>501</b>	<b>Course Name</b>	<b>Auto Design &amp; Drafting</b>		
<b>Course Outcome 1</b>	<b>Student will be able to apply design related basic concepts in the given design problem situation</b>			<b>T-L Hrs</b>	<b>Marks</b>
<b>Learning Outcome 1</b>	<b>Student will be able to explain the various design related basic concepts with suitable examples</b>			<b>9</b>	<b>10</b>
<b>Contents</b>	Types of designs, design considerations, morphology of design, design optimization, factor of safety, factors governing FS, critical dimension, impact load and fatigue considerations, Interchangeability, standardization, limits, fits, tolerances, legal aspects of design.				
<b>Method of Assessment</b>	Theory exam				
<b>Learning Outcome 2</b>	<b>Student will be able to conceptualize the design for the given simple machine element using the basic engineering design process</b>			<b>11</b>	<b>10</b>
<b>Contents</b>	Engineering design process, design need identification, analysis of design need, standards of performance and constraints, product design specifications, searching for design approach, conceptualizing design, assessing the conceptualized design for physical reliability, economic feasibility and utility. Design of keys, cotter, pins, bolts, rivets, simple shaft, levers				
<b>Method of Assessment</b>	Theory exam				

<b>RGPV (DIPLOMA WING) BHOPAL</b>		<b>OBE CURRICULUM FOR THE COURSE</b>		<b>FORMAT-3</b>	<b>Sheet No. 2/5</b>
<b>Branch</b>	<b>AUTOMOBILE ENGINEERING</b>		<b>Semester</b>	<b>Fifth</b>	
<b>Course Code</b>	<b>501</b>	<b>Course Name</b>	<b>Auto Design &amp; Drafting</b>		
<b>Course Outcome 2</b>	<b>Student will be able to apply appropriate design approach to design the given machine element</b>			<b>T-L Hrs</b>	<b>Marks</b>
<b>Learning Outcome 1</b>	<b>Student will be able to functionally design the given simple machine element</b>			<b>8</b>	<b>10</b>
<b>Contents</b>	Concept of design for function, functional requirements and constraints for any machine component, deciding shape, size, material selection and surface finish on basis of functional requirements				
<b>Method of Assessment</b>	Theory assignment				
<b>Learning Outcome 2</b>	<b>Student will be able to design the given simple machine element for its strength using IS Codes/Design data book/ design handbooks</b>			<b>10</b>	<b>10</b>
<b>Contents</b>	Concept of design for strength, strength requirements, and constrains for the component, different types of loading conditions, stress calculations at different portions / sections, critical dimension, factor of safety, material selection on basis of strength requirements, design of C-clamp, bell crank lever, overhang crank, arm of pulley, flange coupling				
<b>Method of Assessment</b>	Theory exam				
<b>Learning Outcome 3</b>	<b>Student will be able to design the given simple machine element using empirical relationships</b>			<b>8</b>	<b>10</b>
<b>Contents</b>	Concept of empirical design, empirical design relationships, procedure of developing empirical design relationships, sources of empirical design relationships, procedure for designing the component using empirical relationships, calculation of dimensions using empirical relationships for water jacket, cylinder head studs or bolts, crank shaft crank web, crank shaft sleeve bearing, design of knuckle and cotter joints				
<b>Method of Assessment</b>	Theory exam				

<b>RGPV (DIPLOMA WING) BHOPAL</b>		<b>OBE CURRICULUM FOR THE COURSE</b>		<b>FORMAT-3</b>	<b>Sheet No. 3/5</b>
<b>Branch</b>	<b>AUTOMOBILE ENGINEERING</b>		<b>Semester</b>	<b>Fifth</b>	
<b>Course Code</b>	<b>501</b>	<b>Course Name</b>	<b>Auto Design &amp; Drafting</b>		
<b>Course Outcome 3</b>	<b>Student will be able to follow the industrial design / drawing practice in solving the given design modification problem</b>			<b>T-L Hrs</b>	<b>Marks</b>
<b>Learning Outcome 1</b>	<b>Student will be able to design / draw the given simple machine component using any design / drawing software</b>			<b>12</b>	<b>5</b>
<b>Contents</b>	Design / drawing soft-wares and their benefits, introduction to various design drawing soft-wares, their salient features, settings, commands, viewing and editing the design created, practice for designing / drawing any simple machine component using any design/ drawing software.				
<b>Method of Assessment</b>	Theory assignment				
<b>Learning Outcome 2</b>	<b>Student will be able to explain the industrial design modification process with the help of examples</b>			<b>6</b>	<b>10</b>
<b>Contents</b>	Introduction to basic design modification process performed in the industry, different departments involved, examples of industrial design modification process for simple machine components, component design modification with the help of field failure data or lab research data				
<b>Method of Assessment</b>	Paper pen test				

<b>RGPV (DIPLOMA WING) BHOPAL</b>		<b>OBE CURRICULUM FOR THE COURSE</b>		<b>FORMAT-3</b>	<b>Sheet No. 4/5</b>
<b>Branch</b>	<b>AUTOMOBILE ENGINEERING</b>		<b>Semester</b>	<b>Fifth</b>	
<b>Course Code</b>	<b>501</b>	<b>Course Name</b>	<b>Auto Design &amp; Drafting</b>		
<b>Course Outcome 4</b>	<b>Student will be able to design various automobile components</b>			<b>T-L Hrs</b>	<b>Marks</b>
<b>Learning Outcome 1</b>	<b>Student will be able to design the given simple engine component under given design conditions</b>			<b>10</b>	<b>10</b>
<b>Contents</b>	Study of important engine components regarding their working conditions and functional constraints, design for strength of cylinder head, cylinder, piston, piston pin, rocker arm				
<b>Method of Assessment</b>	Theory exam				
<b>Learning Outcome 2</b>	<b>Student will be able to design the given simple chassis component under given design conditions</b>			<b>10</b>	<b>10</b>
<b>Contents</b>	Study of important chassis components regarding their working conditions and functional constraints, design for strength of single plate friction clutch, flywheel, simple internal expanding brake, helical tension & compression springs, leaf spring				
<b>Method of Assessment</b>	Theory exam				

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<b>Branch</b>	<b>AUTOMOBILE ENGINEERING</b>		<b>Semester</b>	<b>Fifth</b>	
<b>Course Code</b>	<b>501</b>	<b>Course Name</b>	<b>Auto Design &amp; Drafting</b>		
<b>Course Outcome 5</b>	<b>Student will be able to select standard machine components and fasteners for the given design problem situation</b>			<b>T-L Hrs</b>	<b>Marks</b>
<b>Learning Outcome 1</b>	<b>Student will be able to select the appropriate bearing to be used in any automobile sub assembly</b>			<b>10</b>	<b>10</b>
<b>Contents</b>	Standardized machine components, examples, need and function of bearings, types of bearings and their uses, ball and roller bearings, series, specifications, codes for different standard ball bearings and roller bearings, procedure for selection of ball bearing for the given design situation				
<b>Method of Assessment</b>	Theory exam				
<b>Learning Outcome 2</b>	<b>Student will be able to select the appropriate fastener to be used in any automobile sub assembly</b>			<b>11</b>	<b>5</b>
<b>Contents</b>	Various types of fasteners, their specific uses, examples, specifications, codes, series, general procedure for selection of common nuts, bolts and washers for the given design situation, selection of appropriate bolts, nuts and washers for the given design situation				
<b>Method of Assessment</b>	Theory assignment				