



**ZEAL EDUCATION SOCIETY'S  
ZEAL COLLEGE OF ENGINEERING AND RESEARCH  
NARHE | PUNE -41 | INDIA**



**2.6.1 Programme and course outcomes for all Programmes offered by the institution are stated and displayed on website and communicated to teachers and students.**

**1) Link for POs, COs on website**

<https://zcoer.in/peo-pso-po-cos-me/>

**2) CO, PO attainment process**

- The Course Outcomes (COs) are defined for each course using Bloom Taxonomy Levels. Savitribai Phule Pune University - Board of Studies of respective programs have framed COs of courses while revisions and finalizing the syllabus. These COs are retained if domain coordinator and course instructor are convinced/agreed; otherwise reframed by referring the syllabus.
- One CO for each unit is stated. Considering, typical syllabus structure of SPPU, six COs per course are drafted by course coordinator with domain in-charge concern.
- Once Cos for all courses – all units are framed, they are dissipated to students through course notes, website, etc.
- All COs are mapped with relevant Program Outcomes (POs) as per graduate attributes defined by Washington Accord. This Mapping is done in three levels of relevance as; (a) Slight (Low) : 1; (b) Moderate (Medium) : 2; (c) Substantial (High) : 3.
- The Direct and Indirect assessment tools are used for determining the CO-PO attainment. The weightage for direct and indirect assessment tools for the respective academic years are set. Direct Assessment Tools are again sub-classified as internal and external assessment tools. The Weightage for internal and external assessment tools are set for the respective academic year.
- Various internal assessment tools like assignments, unit tests, class tests, prelims, quizzes, oral/ viva, seminar review, project review, and lab performance are used.
- The external assessment tools are examination heads conducted by Savitribai Phule Pune



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University like in-semester, end-semester examination, term work, practical/ oral etc.

- Indirect assessment tools like course exit survey, graduate exit survey, alumni survey, employer survey, co-curricular and extra-curricular activities etc. are used.
- Statistical data obtained from these tools is tabulated and using suitable formulation the computation is done for attainment of CO with PO and PSO.
- In this way attainment of Course Outcomes and Program Outcomes are evaluated.



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Record No.: ZCOER-ACAD/R/18

Revision: 00

Date: 01/04/2021

Department: Mechanical Engineering Semester: II

Academic Year: 2021-2022

Class: BE Course: MSD(402048)

Attainment Year: 2020-21

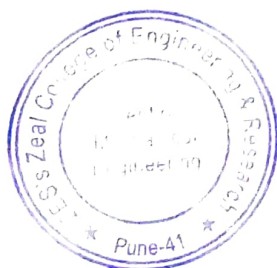
Assessment type	% weightage
Direct	90
External	70
Internal	30
Indirect	10

% CO Attainment	Attainment
75	3
65	2
55	1
	0

Target % Marks	3
70	

CO Mapping		CO 1	CO 2	CO 3	CO 4	CO 5	CO 6	
Direct Attainment	Internal Assessment Tools	Assignment 1	Y					
		Assignment 2		Y				
		Assignment 3			Y			
		Assignment 4				Y		
		Assignment 5					Y	
		Assignment 6						Y
		Unit Test 1						
		Unit Test 2						
		Unit Test 3						
		Unit Test 4						
		Unit Test 5						
		Unit Test 6						
		Class Test 1	Y	Y	Y			
		Class Test 2				Y	Y	Y
		End of class Quiz						
		Prelim Examination						
		Oral/Viva						
		Seminar Review 1						
		Seminar Review 2						
		Seminar Review 3						
		Project Review 1						
		Project Review 2						
		Project Review 3						
		Project Review 4						
		Lab Performance 1						
		Lab Performance 2						
		Lab Performance 3						
		Lab Performance 4						
		Lab Performance 5						
		Lab Performance 6						
	External Assessment Tools	Insem	Y	Y	Y			
		Endsem	Y	Y	Y	Y	Y	Y
		Theory	Y	Y	Y	Y	Y	Y
TW		Y	Y	Y	Y	Y	Y	
Practical								
Oral		Y	Y	Y	Y	Y	Y	

Indirect Attainment	End of Course Survey	ECS Q 1	Y				
		ECS Q 2		Y			
		ECS Q 3			Y		
		ECS Q 4				Y	
		ECS Q 5					Y
		ECS Q 6					





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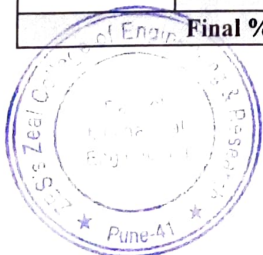
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Attainment Year: 2020-21

% CO Attainment		CO 1	CO 2	CO 3	CO 4	CO 5	CO 6	
Direct Attainment	Internal Assessment Tools	Assignment 1	93.64					
		Assignment 2		91.873				
		Assignment 3			92.226			
		Assignment 4				92.226		
		Assignment 5					91.166	
		Assignment 6						92.58
		Unit Test 1						
		Unit Test 2						
		Unit Test 3						
		Unit Test 4						
		Unit Test 5						
		Unit Test 6						
		Class Test 1	93.993	93.993	93.993			
		Class Test 2				93.993	93.993	93.993
		End of class Quiz						
		Prelim Examination						
		Oral/Viva						
		Seminar Review 1						
		Seminar Review 2						
		Seminar Review 3						
		Project Review 1						
		Project Review 2						
		Project Review 3						
		Project Review 4						
		Lab Performance 1						
		Lab Performance 2						
		Lab Performance 3						
	Lab Performance 4							
	Lab Performance 5							
	Lab Performance 6							
	<b>Internal Attainment</b>	<b>93.816</b>	<b>92.933</b>	<b>93.11</b>	<b>93.11</b>	<b>92.58</b>	<b>93.286</b>	
	External Assessment Tools	Insem	85.866	85.866	85.866			
		Endsem	93.993	93.993	93.993	93.993	93.993	
Theory		96.47	96.47	96.47	96.47	96.47		
TW		99.293	99.293	99.293	99.293	99.293		
Practical								
Oral		99.293	99.293	99.293	99.293	99.293		
<b>External Attainment</b>	<b>94.98</b>	<b>94.98</b>	<b>94.98</b>	<b>97.26</b>	<b>97.26</b>	<b>97.26</b>		
<b>Direct Attainment</b>	<b>94.633</b>	<b>94.367</b>	<b>94.42</b>	<b>96.016</b>	<b>95.857</b>	<b>96.069</b>		
Indirect Attainment	End of Course Survey	ECS Q 1	65.0177					
		ECS Q 2		100				
		ECS Q 3			63.8889			
		ECS Q 4				68.1979		
		ECS Q 5					98.2639	
		ECS Q 6						100
<b>Indirect Attainment</b>	<b>65.018</b>	<b>100</b>	<b>63.889</b>	<b>68.198</b>	<b>98.264</b>	<b>100</b>		
<b>Final % CO Attainment</b>		<b>91.671</b>	<b>94.931</b>	<b>91.367</b>	<b>93.234</b>	<b>96.098</b>	<b>96.462</b>	
		<b>93.96</b>						







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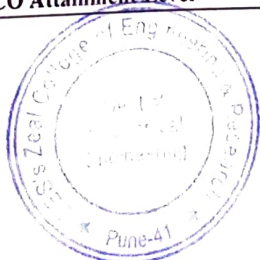
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CO Attainment Level		CO 1	CO 2	CO 3	CO 4	CO 5	CO 6	
Direct Attainment	Internal Assessment Tools	Assignment 1	3.00					
		Assignment 2		3.00				
		Assignment 3			3.00			
		Assignment 4				3.00		
		Assignment 5					3.00	
		Assignment 6						3.00
		Unit Test 1						
		Unit Test 2						
		Unit Test 3						
		Unit Test 4						
		Unit Test 5						
		Unit Test 6						
		Class Test 1	3.00	3.00	3.00			
		Class Test 2				3.00	3.00	3.00
		End of class Quiz						
		Prelim Examination						
		Oral/Viva						
		Seminar Review 1						
		Seminar Review 2						
		Seminar Review 3						
		Project Review 1						
		Project Review 2						
		Project Review 3						
		Project Review 4						
		Lab Performance 1						
	Lab Performance 2							
	Lab Performance 3							
	Lab Performance 4							
	Lab Performance 5							
	Lab Performance 6							
<b>Internal Attainment</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>		
External Assessment Tools	Insem	3.00	3.00	3.00				
	Endsem	3.00	3.00	3.00	3.00	3.00		
	Theory	3.00	3.00	3.00	3.00	3.00		
	TW	3.00	3.00	3.00	3.00	3.00		
	Practical							
	Oral	3.00	3.00	3.00	3.00	3.00		
	<b>External Attainment</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>		
<b>Direct Attainment</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>		
Indirect Attainment	End of Course Survey	ECS Q 1	2.00					
		ECS Q 2		3.00				
		ECS Q 3			1.89			
		ECS Q 4				2.32		
		ECS Q 5					3.00	
		ECS Q 6						3.00
	<b>Indirect Attainment</b>	<b>2.00</b>	<b>3.00</b>	<b>1.89</b>	<b>2.32</b>	<b>3.00</b>	<b>3.00</b>	
<b>Final CO Attainment Level</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>	<b>3.00</b>		
<b>3.00</b>								





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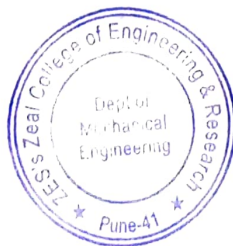
Attainment Year: 2020-21

CO-PO-PSO Mapping		PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3	PSO 4
	CO 1	3	3	1	1	1					1	1			3	1	
CO 2	3	2	1	1	1									3			3
CO 3	3	2	1	1	1			1		1	1		1	3	2		3
CO 4	3	3	2	1	2			1		1	1		1	3	3		3
CO 5	3	3	3	2	3	1	1			1	1		1	3	3		3
CO 6	3	3	3	1	1								1	3			

PO-PSO Attainment		PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3	PSO 4
	CO 1	91.95	91.95	55.17	55.17	55.17					55.17	55.17			91.95	55.17	
CO 2	94.93	75.94	56.96	56.96	56.96									94.93			94.93
CO 3	91.37	73.09	54.82	54.82	54.82		54.82		54.82	54.82		54.82	91.37	73.09			91.37
CO 4	93.06	93.06	74.45	55.83	74.45		55.83		55.83	55.83		55.83	93.06	93.06			93.06
CO 5	96.10	96.10	96.10	76.88	96.10	57.66	57.66			57.66	57.66		57.66	96.10	96.10		96.10
CO 6	96.46	96.46	96.46	57.88	57.88								57.88	96.46			
Average	93.98	87.77	72.33	59.59	65.90	57.66	56.10			55.87	55.87		56.55	93.98	79.36		93.48

PO-PSO Attainment Level		PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3	PSO 4
	CO 1	3.00	3.00	1.80	1.80	1.80					1.80	1.80			3.00	1.80	
CO 2	3.00	2.40	1.80	1.80	1.80									3.00			3.00
CO 3	3.00	2.40	1.80	1.80	1.80		1.80		1.80	1.80		1.80	3.00	2.40			3.00
CO 4	3.00	3.00	2.40	1.80	2.40		1.80		1.80	1.80		1.80	3.00	3.00			3.00
CO 5	3.00	3.00	3.00	2.40	3.00	1.80	1.80		1.80	1.80		1.80	3.00	3.00			3.00
CO 6	3.00	3.00	3.00	1.80	1.80								1.80	3.00			
Average	3.00	2.80	2.30	1.90	2.10	1.80	1.80			1.80	1.80		1.80	3.00	2.55		3.00

*Dr. P. P. Ritapure*  
course faculty



*Head of Department*