

QLM 2.6.2

ATTAINMENT OF POS AND COS ARE EVALUATED.

COURSE OUTCOMES OF BE COURSE (MECHANICAL COURSES)

Subject Code: 337354(37) Course Name: Mechanics of Solids – I

C204.1	Apply knowledge of mechanics of deformable body for understanding, formulating and solving engineering problems.
C204.2	Acquire knowledge and hands-on competence in applying the concepts mechanics of solid in the design and development of mechanical systems.
C204.3	Demonstrate creativeness in designing new systems components and processes in the field of engineering in general and mechanical engineering in particular.
C204.4	Identify, analysis, and solve mechanical engineering problems useful to the society.
C204.5	Work effectively with engineering and science teams as well as with multi disciplinary designs.

Subject Code: 337453(37) Course Name: Applied Thermodynamics

C214.1	Apply knowledge of classical thermodynamics for formulating and solving
C214.1	engineering problems.
C214.2	Acquire knowledge and hands-on competence in applying the concepts of thermal
	sciences in the design and development of mechanical systems.
C214.3	Demonstrate creativeness in designing new systems components and processes in
	the field of engineering in general and mechanical engineering in particular.
C214.4	Identify, analysis, and solve mechanical engineering problems useful to the society.
C214.5	Work effectively with engineering and science teams as well as with
C214.5	multidisciplinary designs.

Subject Code: 337551(37) Course Name: Machine Design I

C301.1	Apply knowledge of machine design for understanding, formulating and solving
C301.1	engineering problems.
C301.2	Acquire knowledge and hands-on competence in applying the concepts in the design
	and development of mechanical systems.
C301.3	Demonstrate creativeness in designing new systems components and processes in
	the field of engineering in general and mechanical engineering in particular.
C301.4	Identify, analyze, and solve mechanical engineering problems useful to the society.
C301.5	Work effectively with engineering and science teams as well as with
C301.3	multidisciplinary designs.

Subject Code: 337653 (37) Course Name: Internal Combustion Engines

C314.1	Demonstrate a basic understanding of engine design, function and performance.								
C314.2	Acquire knowledge and hands-on competence in the design and development of								
	mechanical systems.								
C314.3	Work effectively with engineering and science teams as well as with								
	multidisciplinary designs.								
C314.4	Demonstrate an understanding of the relationships between the design of the								
	internal combustion engine and environmental issues								
C314.5	Work effectively with engineering and science teams as well as with								
	multidisciplinary designs.								

Subject Code: 337731 (37) Course Name: Automobile Engg.

C401.1	Graduates will gain a strong foundation in core automobile engineering, both in
	theoretical and applied concepts.
C401.2	Acquire knowledge and hands-on competence in the design and development of
	automobile.
C401.3	Graduates will demonstrate the ability to identify and solve automobile engineering
	maintenance problems.
C401.4	Identify, analysis, and solve mechanical engineering problems useful to the society.
C401.4	Identify, analysis, and solve mechanical engineering problems useful to the society. Work effectively with engineering and science teams as well as with
C401.4	Identify analysis and solve machanical angineering problems useful to the society

Subject Code: 337831 (37) Course Name: Robotics

C411.1	Apply knowledge of robotics for understanding, formulating and solving
	engineering problems.
C411.2	Acquire knowledge and hands-on competence in applying the concepts in the design
C411.2	and development of robots.
C411.3	Demonstrate creativeness in designing and development of robotics.
C411.4	Identify, analyze and design of robots useful to the society.
C411.5	Work offoctively with multidisciplinary rehots
C411.5	Work effectively with multidisciplinary robots.

CO-PO MATRICES OF COURSES SELECTED IN ONE PER SEMESTER FROM 3RD TO 8TH SEMESTER

Note:

1.Enter correlation levels 1, 2 or 3 as defined below:

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High), If there is no correlation, put "-"

	Table (a) - Mapping of CO & PO											
2015-19												
Program Outcomes (POs)												
Course Outcomes	Engineering knowledge	Problem analysis	Design/develop ment of	investigations of complex	Modern tool usage	The engineer and society	Environment and	Ethics	Individual and team work:	Communication	Project management and	Life-long learning
COs	PO- 1	PO- 2	PO-3	PO-4	PO- 5	PO- 6	PO- 7	PO- 8	PO- 9	PO- 10	PO- 11	PO- 12

C204.1	3	2	1	2	1	1	1	-	1	1	-	-		
C204.2	1	1	-	-	2	-	-	-	-	1	-	-		
C204.3	3	2	1	1	-	-	-	-	-	-	-	-		
C204.4	2	-	1	-	-	1	-	1	-	-	-	-		
C204.5	2	3	-	1	2	-	1	1	-	1	2	-		
C204	2.2	2.0	1.0	1.3	1.7	1.0	1.0	1.0	1.0	1.0	2.0	-		
	C214.1													
C214.1	3	3	3	2	1	1	1	2	1	2	-	-		
C214.2	1	2	-	-	2	-	-	-	-	1	-	-		
C214.3	3	2	1	-	-	-	1	-	-	-	-	-		
C214.4	3	-	1	-	-	1	-	1	1	-	-	-		
C214.5	2	3	-	1	2	_	1	1	-	_	2	-		
C214	2.4	2.5	1.0	1.5	1.7	1.0	1.0	1.3	1.0	1.5	2.0	-		
C301.1	3	2	1	-	-	1	-	1	-	1	-	1		
C301.2	2	3	2	1	2	-	1	1	-	-	1	_		
C301.3	1	1	-	-	-	-	-	-	1	-				
C301.4	2	2	1	-	-	1	1	-	-	-	1	-		
C301	2.0	2.0	1.3	1.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
C314.1	3	1	-	2	-	1	-	1	-	-	-	-		
C314.2	1	-	1	1	-	-	1	-	1	1	1	-		
C314.3	1	1	-	-	-	1	-	-	-	1	-	-		
C314.4	2	2	2	1	2	-	1	1	-	-	2	-		
C314.5	2	2	1	-	-	1	1	-	-	-	1	-		
C314	1.8	1.5	1.3	1.3	2.0	1.0	1.0	1.0	1.0	1.0	1.3	-		
C401.1	3	2	1	_	_	2	_	1		1		_		
C401.2	1	2	-	1	2	-	2	2	1	-	1	-		
C401.3	2	1	1	-	1	1	1	-	-	-	1	-		
C401.4	1	2	-	-	-	2	-	2	2	1	-	1		
C401.5	2	1	-	1	-	-	1	1	-	-	-	-		

C401	1.8	1.6	1.0	1.0	1.5	1.5	1.5	1.5	1.0	1.0	1.0	-
C411.1	3	3	3	2	1	-	-	-	-	-	-	-
C411.2	3	3	1	3	-	2	-	-	2	-	2	3
C411.3	3	2	2	2	2	2	1	-	2	-	2	3
C411.4	3	3	2	1	1	3	1	-	3	-	2	3
C411.5	3	3	3	2	2	1	1	2	2	1	2	3
C411	3.00	2.80	2.20	2.00	1.50	2.00	1.00	2.00	2.25	1.00	2.00	3.00

Table 3.1.2 (b) - Mapping of CO & PSO										
C204.1	2	2								
C204.2	2	1								
C204.3	1	1								
C204.4	_	1								
C204.5	3	-								
C204	2.0	1.3								
C214.1	3	2								
C214.2	2	3								
C214.3	1	1								
C214.4	2	1								
C214.5	3	-								
C214	2.2	1.8								
C301.1	1	2								
C301.2	2	-								
C301.3	1	3								
C301.4	1	2								
C301	1.3	2.3								
C314.1	2	2								
C314.2	1	1								
C314.3	-	1								
C314.4	1	-								
C314.5	1	3								
C314	1.3	1.8								

C401.1	1	1
C401.2	2	-
C401.3	1	2
C401.4	-	1
C401.5	3	1
C401	1.3	1.5
C411.1	3	3
C411.2	3	3
C411.3	3	3
C411.4	3	3
C411.5	1	2
C411	2.60	2.80

Program level Course-PO matrix of all courses 3rdsem to 8thsem year courses

Table PO - CO - Matrix

Cours e Outco mes	Program Outcomes (POs)	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work:	Communication	Project management and finance	Life-long learning
СО	SUBJECT NAME	PO -1	PO -2	PO -3	PO -4	PO -5	PO -6	PO -7	PO -8	PO -9	PO- 10	PO- 11	PO- 12
C104	Engineerin g Graphics	2.2 5	2.6 7	2.0	3.0	2.5	2.0	-	-	2.0	2.00	-	2.00
C108	Workshop Practice	2.7 5	2.7 5	2.2 5	2.7 5	2.5	2.0	1.7 5	2.2 5	2.0	2.00	1.25	2.25
C105	Fundament al of Mechanical Engineerin g (New)	3.0	2.5	2.0	2.7 5	2.2 5	2.0	1.7 5	1.5	2.2 5	2.00	1.50	1.75
C107	Mechanical Engineerin g (Lab)	2.7 5	2.7 5	2.7 5	2.7 5	2.5	1.0	1.7 5	2.2 5	2.2 5	2.25	2.75	2.00

G201	Mathematic	3.0	2.0	2.0	2.0	2.2	2.2	1.2	3.0	2.0	2.00	2.00	2 20
C201	s -III	0	0	0	0	0	0	0	0	0	3.00	2.00	2.20
C202	Machine Drawing	3.0	3.0	3.0	3.0	2.3	1.0	1.3	3.0	3.0	3.00	2.33	2.00
	Material												
C203	Science &	3.0	2.0	3.0	2.3	2.0	2.3	1.3	2.6	2.5	2.50	2.67	2.33
	Metallurgy												
C204	Mechanics of Solids-1	3.0	2.8	2.6	2.2	2.4	2.6	1.7	1.6	1.8 0	2.60	2.25	2.20
	Engineerin	U	0	0	U	0	/	3	U	0			
C205	g	2.6	3.0	2.5	2.6	2.0	2.2	2.2	2.8	2.4	2.50	3.00	3.00
C203	Thermodyn	0	0	0	7	0	0	0	0	0	2.30	3.00	3.00
	amics Mechanical												
	Measureme	2.7	2.7	2.7	2.7	2.5	1.7	3.0	2.5	2.2			
C206	nt and	5	5	5	5	0	5	0	0	5	1.75	1.25	1.00
	Metrology												
C207	Machine	2.5	1.7	2.7	2.0	2.7	1.7	2.2	2.5	1.5	2.00	1.75	1.50
C207	Drawing Lab	0	5	5	0	5	5	5	0	0	2.00	1./3	1.30
C208	Material	2.0	2.0	2.0	2.7	2.3	3.0	2.7	2.7	2.5	2.25	1.25	1.00
C200	Testing Lab	0	0	0	5	3	0	5	5	0	2.23	1.23	1.00
	Engineerin	2.2	2.0	2.6	2.5	2.7	2.0	1.5	1.7	2.2			
C209	g Thermodyn	5	0	2.0 7	0	5	0	0	5	5	1.25	1.25	1.50
	amics Lab	,	,	•		,	,			,			
	Materials												
C210	Measureme nt	2.7	2.0	2.0	2.2	2.0	2.0	2.0	2.3	2.5	3.00	2.33	2.00
C210	Metrology	5	0	0	5	0	0	0	3	0	3.00	2.33	2.00
	Lab												
C211	Value	2.0	1.8	2.2	1.8				2.0		2.00	1.80	1.80
	Education Fluid	1.8	2.0	1.8	1.8	1.8	1.0	1.2	3.0	2.6			
C212	Mechanics	0	0	0	0	0	0	0	0	0	1.80	1.80	1.80
C213	Mechanics	2.6	3.0	2.6	2.6	3.0	1.0	1.0	2.2	2.6	1.00	2.00	3.00
	of Solids-2	0	0	0	0	0	0	0	5	0	1.00	2.00	3.00
C214	Applied Thermodyn	3.0	2.1	2.3	2.1	1.6	2.2	2.2	1.6	1.5	2.33	2.50	2.83
C217	amics	0	7	3	7	7	5	5	7	0	2.33	2.50	2.03
	Kinematics	2.6	3.0	2.5	2.6	2.0	2.0	2.5	3.0	2.4			
C215	of	0	0	0	7	0	0	0	0	0	2.50	1.25	2.00
	Machines Numerical												
GC1.	Analysis &	2.6	3.0	2.5	2.6	2.0	1.0	2.2	2.4	2.2	1.00	2.00	2.00
C216	Computer	0	0	0	7	0	0	5	0	0	1.80	2.00	2.00
	Programmi												

	ng (C & C++)												
C217	Manufactur ing Science – I	2.7 5	3.0	2.3	2.6	2.6	2.3	2.5	2.3	2.0	2.50	2.67	2.50
C218	Fluid Mechanics Lab	2.5	2.0	2.2 5	2.5	2.5	2.7 5	2.7 5	2.5	3.0	1.33	1.50	2.00
C219	Computer Aided Drafting Lab	2.5	2.0	2.2 5	1.7 5	3.0	2.0	2.3	2.7 5	1.5	2.25	1.33	1.50
C220	KOM Lab	2.2 5	2.5	2.0	2.2 5	2.6 7	2.0	2.0	2.3	2.3	1.67	1.67	3.00
C221	NACP Lab	2.7 5	2.5 0	3.0	2.5	3.0	2.0	3.0	3.0	2.5	2.50	1.25	1.00
C222	Health, Hygiene & Yoga	2.0	1.8 0	1.8 0	1.8 0	1.8	1.8 0	2.0	2.0	1.8	1.80	1.80	1.80
C301	Machine Design I	3.0	2.7 5	2.8	1.7 5	3.0	-	-	-	2.6 7	-	-	1.60
C302	Turbo Machinery	2.7 5	2.7 5	2.2 5	2.5	2.3	2.2 5	2.5	1.2 5	2.2 5	1.75	1.25	1.50
C303	Dynamics of Machines	2.6	3.0	2.2	3.0	2.2	1.0	-	-	2.3	2.00	2.00	2.25
C304	Fluid Machinery	3.0	2.8	2.6	3.0	2.8	2.4	2.0	1.6 0	1.8 0	3.00	2.20	2.20
C305	Manufactur ing Science - II	2.7 5	2.7 5	2.7 5	2.7 5	2.5	2.0	2.7 5	2.0	2.0	2.50	2.75	2.50
C306	Operation Research	2.6	2.4	2.8	2.2	2.0	2.2	2.0	2.7 5	2.3	2.00	2.50	1.80
C307	Machine Design Lab	3.0	2.0	2.2 5	2.2 5	3.0	2.2 5	2.2 5	2.5	2.2 5	2.25	1.75	2.00
C308	Manufactur ing Science Lab	3.0	3.0	2.7 5	2.5	2.2 5	1.5	2.0	2.0	2.0	2.25	2.50	2.75
C309	Dom Lab	3.0	2.0	2.0	2.0	2.6 7	2.3	2.6 7	2.6 7	2.0	2.00	2.50	2.00
C310	Fluid Machinery Lab	3.0	2.2 5	2.0	2.5	2.0	2.0	2.0	2.6 7	2.0	2.33	2.00	2.00
C311	Personality Developme nt	2.0	1.8	1.8	2.0	2.0	3.0	2.8	2.4	2.0	1.40	1.20	1.60

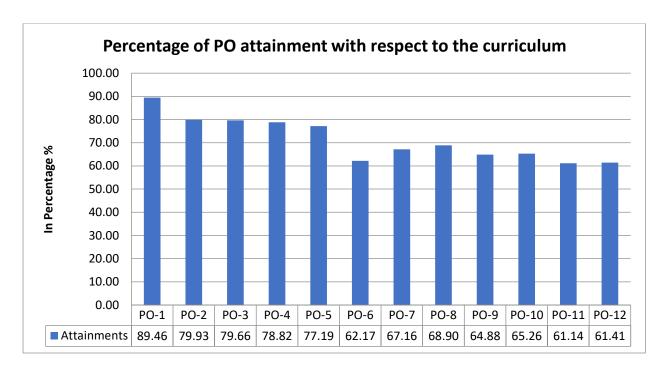
C312	Machine Design 2	2.6	3.0	2.6	2.6	2.7	2.5	1.7	2.2	1.4	3.00	2.00	1.00
C313	Energy Systems	3.0	3.0	2.8	2.8	2.6	2.6	2.6	1.8	2.4	3.00	2.00	2.40
C314	Internal Combustio n Engine	2.5	3.0	3.0	2.7 5	2.5	2.2 5	2.6 7	2.7 5	2.0	2.25	2.50	2.33
C315	Heat and Mass Transfer	2.6	2.8	2.6	2.2	2.0	2.2	2.2 5	1.0	2.4	2.25	2.50	1.75
C316	Production Manageme nt	2.8	2.7 5	2.7 5	2.5	2.5	1.8 0	2.0	2.7 5	2.2	2.50	2.33	1.33
C317	Power Plant Engineerin g	2.4	1.5	1.5	1.2	1.0	1.5	1.5	1.0	-	-	1.20	1.00
C318	Machine Design 2 Lab	3.0	2.2 5	3.0	3.0	3.0	2.0	2.0	2.0	2.3	1.67	2.00	1.00
C319	Internal Combustio n Engine Lab	2.6	3.0	3.0	2.6	2.3	2.0	2.6	2.7 5	2.2	2.40	1.50	1.00
C320	Production Manageme nt Lab	2.6 7	2.0	2.0	2.0	2.7 5	2.0	2.2 5	2.6 7	2.2 5	2.00	2.25	2.00
C321	Heat and Mass Transfer Lab	3.0	2.0	2.0	3.0	3.0	2.0	2.6	2.5	2.2 5	2.33	2.00	1.33
C322	Managerial Skills	2.6 7	1.4 0	2.2 5	2.0	2.3	2.0	2.0	2.2 5	1.8 0	2.00	2.00	1.20
C401	Automobile Engineerin g	3.0	2.0	1.6 7	1.6 7	1.5 0	1.0	2.0	-	1	2.00	1.33	1.00
C402	Refrigerati on & Air Conditionin g	2.6	2.7 5	2.7 5	2.2 5	2.0	1.0	1.6 7	2.3	2.2 5	2.00	1.33	3.00
C403	Computer Aided Design and Manufactur ing	3.0	2.8	2.6	2.8	3.0	1.8	2.0	2.5	1.4	2.40	1.50	3.00
C404	Machine Tool Technology	2.7 5	2.2 5	2.7 5	2.0	2.3	2.0	2.0	2.0	1.5	2.00	2.00	1.00

C405	Product Design and Developme nt	2.6 7	2.3	3.0	2.3	2.0	2.5	2.0	2.3	2.0	2.33	2.33	1.00
C406	Automobile Engineerin g Lab	3.0	2.0	2.0	1.5	1.5	1.0	2.0	-	1.0	2.00	1.50	1.00
C407	RAC Lab	3.0	2.0	2.0	3.0	2.0	2.0	2.0	1.0	1.0 0	1.00	1.50	1.00
C408	CAD CAM Lab	3.0	2.0	2.2 5	2.0	3.0	2.0	3.0	2.0	1.0	1.50	2.00	3.00
C409	Minor Project	3.0	2.0	3.0	2.0	3.0	1.0	2.0	1.8 0	2.4	1.40	1.40	1.80
C410	Innovative and Entreprene urial Skills	2.0	2.0	2.0	2.0	2.2 5	1.0	2.0	2.0	1.2	2.00	2.00	2.00
C411	Robotics	3.0	2.8	2.2	2.0	1.5 0	2.0	1.0	2.0	2.2 5	1.00	2.00	3.00
C412	Finite Element Methods	2.0	2.7 5	2.2 5	2.2 5	2.0	2.0	2.0	3.0	1.0	1.00	3.00	3.00
C413	Industrial Engineerin g & Manageme nt	2.4	2.5	2.0	2.0	2.0	2.0	1.8	2.0	2.0	1.80	2.00	2.50
C414	Environme ntal Pollution & Control	2.6	2.2	2.0	2.0	1.0	1.2	2.0	1.4	1.0	1.00	1.00	1.40
C415	Value Engineerin g	2.7 5	2.5	2.3	2.0	2.0	2.0	2.0	2.0	1.0 0	2.00	2.00	1.25
C416	Robotics Lab	2.7 5	2.5	2.6	2.6 7	2.2 5	2.0	2.0	2.0	2.0	2.00	1.75	1.00
C417	Finite Element Methods Lab	2.7 5	2.0	2.0	2.2 5	2.0	2.0	2.6	2.5	1.0	1.33	1.33	1.00
C418	Industrial Engineerin g & Manageme nt Lab	2.7 5	2.0	2.0	2.5	2.7 5	1.7	2.0	2.0	2.0	1.50	1.00	1.00
C419	Major Project	3.0	2.7 5	3.0	3.0	2.5	1.7 5	3.0	2.0	2.0	1.00	2.25	1.00



C420	Report Writing & Seminar	3.0	2.0	2.5	2.6	2.0	1.0	2.2	2.0	1.6	1.40	1.40	1.80	
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Average of Pos	2.68	2.40	2.39	2.36	2.31	1.87	2.02	2.07	1.94	1.95	1.83	1.84
Maximum Marks	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Percentage of PO attainment	89.46	79.85	79.59	78.83	77.11	62.21	67.20	68.96	64.83	65.10	61.09	61.39



ATTAINMENT OF COURSE OUTCOMES

Data collection process includes:

End semester exams: Semester wise examinations are planned and taken by the university at the end of each semester.

Class Test: Examinations are planned and announced before the commencement of the semester classes in terms of academic calendar, evaluated answer scripts are returned within five days and week students are monitored and mentored.

Teacher's Assessment: On the basis of attendance, assignments, marks for TA is allotted to the student at the end of each semester.

These assessments are carried out periodically and hence allow the faculty members to monitor and provide attention to the students who may not be attaining the PO's to the required level. This ensures that all students attain the minimum level of each programme outcomes

Program shall have set Course Outcome attainment levels for all courses.

(The attainment levels shall be set considering average performance levels in the university examination or any higher value set as target for assessment years attainment level is to be measured in terms of student performance in internal assessments with respect to the course outcomes of a course in addition to the performance in the University examination)

Measuring Course Outcomes attained through University Examinations

Attainment level will be 3, if

If more than 80% of students are scoring pass marks in the end semester examinations.

Pass marks, for CSVTU, it is 28 marks, out of 80.

Attainment level will be 2, if

If more than 60%, but less than 80 % of students are scoring pass marks in the end semester examinations.

Pass marks, for CSVTU, it is 28 marks, out of 80.

Attainment level will be 1, if

If less than 40% of students are scoring pass marks in the end semester examinations.

Pass marks, for CSVTU, it is 28 marks, out of 80.

Measuring CO attainment through Internal Assessments:

We have selected Class Tests marks and Teacher's Assessment marks for the evaluation of Internal Assessment.

Marks for CT & TA is 20 each.

Total sum is 40

Average pass marks, we have selected for the present year calculation is 60 % of 40 i.e. 24

Attainment level will be 3, if

If more than 80% of students are scoring 24 marks out of 40

Attainment level will be 2, if

If more than 60%, but less than 80 % of students are scoring 24 marks out of 40

Attainment level will be 1, if

If less than 40% of students are scoring 24 marks out of 40

If targets are not achieved the program should put in place as action plan to attain the target in subsequent years.

Similar targets and achievement are to be stated for the other midterm tests/ internal assessment instruments

Course Outcome attainment:

Assuming 80% weightage to university examination and 20% weightage to Internal assessment, the attainment calculations will be (80% of University level) + (20% of Internal level)

	Direct Attainment 2018-19										
СО	Subject Names	CO ATTAINMEN T (ESE)	CO ATTAINMEN T (CT + TA)	CO ATTAINMEN T							
C10 4	Engineering Graphics	3	2	2.8							
C10 8	Workshop Practice	3	3	3							
C10 5	Fundamental of Mechanical Engineering (New)	3	2	2.8							
C10 7	Mechanical Engineering (Lab)	3	3	3							
C20 1	Mathematics -III	3	2	2.8							
C20 2	Machine Drawing	3	3	3							
C20 3	Material Science & Metallurgy	3	2	2.8							
C20 4	Mechanics of Solids-1	3	2	2.8							
C20 5	Engineering Thermodynamics	3	2	2.8							
C20 6	Mechanical Measurement and Metrology	3	2	2.8							
C20 7	Machine Drawing Lab	3	3	3							
C20 8	Material Testing Lab	3	3	3							
C20 9	Engineering Thermodynamics Lab	3	3	3							
C21 0	Materials Measurement Metrology Lab	3	3	3							
C21	Value Education	-	3	0.6							
C21 2	Fluid Mechanics	3	3	3							
C21	Mechanics of Solids-2	3	2	2.8							
C21 4	Applied Thermodynamics	2	2	2							
C21	Kinematics of Machines	2	2	2							

5				
C21 6	Numerical Analysis & Computer Programming (C & C++)	3	3	3
C21 7	Manufacturing Science – I	3	2	2.8
C21 8	Fluid Mechanics Lab	3	3	3
C21 9	Computer Aided Drafting Lab	3	3	3
C22 0	KOM Lab	3	3	3
C22 1	NACP Lab	3	3	3
C22 2	Health, Hygiene & Yoga	-	3	0.6
C30 1	Machine Design I	3	3	3
C30 2	Turbo Machinery	3	3	3
C30 3	Dynamics of Machines	3	2	2.8
C30 4	Fluid Machinery	3	3	3
C30 5	Manufacturing Science - II	3	2	2.8
C30 6	Operation Research	3	3	3
C30 7	Machine Design Lab	3	3	3
C30 8	Manufacturing Science Lab	3	3	3
C30 9	Dom Lab	3	3	3
C31 0	Fluid Machinery Lab	3	3	3
C31	Personality Development	-	3	0.6
C31 2	Machine Design II	3	2	2.8
C31 3	Energy Systems	3	3	3
C31 4	Internal Combustion Engine	2	2	2
C31 5	Heat and Mass Transfer	2	2	2
C31 6	Production Management	2	2	2

C31	Power Plant Engineering	2	3	2.2
C31 8	Machine Design II Lab	3	3	3
C31	Internal Combustion Engine Lab	3	3	3
C32 0	Production Management Lab	3	3	3
C32	Heat and Mass Transfer Lab	3	3	3
C32 2	Managerial Skills	-	3	0.6
C40 1	Automobile engineering	3	3	3
C40 2	Refrigeration & Air Conditioning	3	2	2.8
C40 3	Computer aided design and manufacturing	3	3	3
C40 4	Machine Tool Technology	3	3	3
C40 5	Product Design and Development	3	3	3
C40 6	Automobile engineering lab	3	3	3
C40 7	RAC Lab	3	3	3
C40 8	CAD CAM lab	3	3	3
C40 9	Minor project	3	3	3
C41 0	Innovative and entrepreneurial skills	-	3	0.6
C41 1	Robotics	3	3	3
C41 2	Finite Element Methods	3	3	3
C41 3	Industrial Engineering & Management	3	3	3
C41 4	Environmental pollution & control	3	3	3
C41 5	Value Engineering	3	3	3
C41 6	Robotics lab	3	3	3
C41 7	Finite Element Methods Lab	3	3	3
C41	Industrial Engineering & Management	3	3	3

8	Lab			
C41 9	Major project	3	3	3
C42 0	Report writing & seminar	-	3	0.6

	Direct Attainment 2019-20										
СО	Subject Names	CO ATTAINMEN T (ESE)	CO ATTAINMEN T (CT + TA)	CO ATTAINMEN T							
C10 4	Engineering Graphics	3	3	3							
C10 8	Workshop Practice	3	3	3							
C10 5	Fundamental of Mechanical Engineering (New)	3	3	3							
C10 7	Mechanical Engineering (Lab)	3	3	3							
C20 1	Mathematics -III	3	3	3							
C20 2	Machine Drawing	3	3	3							
C20 3	Material Science & Metallurgy	3	3	3							
C20 4	Mechanics of Solids-1	3	3	3							
C20 5	Engineering Thermodynamics	3	2	2.8							
C20 6	Mechanical Measurement and Metrology	3	2	2.8							
C20 7	Machine Drawing Lab	3	3	3							
C20 8	Material Testing Lab	3	3	3							
C20 9	Engineering Thermodynamics Lab	3	3	3							
C21 0	Materials Measurement Metrology Lab	3	3	3							
C21	Value Education	-	3	0.6							
C21 2	Fluid Mechanics	3	3	3							
C21	Mechanics of Solids-2	3	3	3							
C21 4	Applied Thermodynamics	2	2	2							

C21	Kinematics of Machines	2	2	2
5 C21	Numerical Analysis & Computer	2	2	2
6	Programming (C & C++)	2	3	2.2
C21 7	Manufacturing Science – I	3	3	3
C21 8	Fluid Mechanics Lab	3	3	3
C21 9	Computer Aided Drafting Lab	3	3	3
C22 0	KOM Lab	3	3	3
C22 1	NACP Lab	3	3	3
C22 2	Health, Hygiene & Yoga	-	3	0.6
C30 1	Machine Design I	3	2	2.8
C30 2	Turbo Machinery	3	3	3
C30 3	Dynamics of Machines	3	2	2.8
C30 4	Fluid Machinery	3	3	3
C30 5	Manufacturing Science - II	3	3	3
C30 6	Operation Research	3	3	3
C30 7	Machine Design Lab	3	3	3
C30 8	Manufacturing Science Lab	3	3	3
C30 9	Dom Lab	3	3	3
C31 0	Fluid Machinery Lab	3	3	3
C31 1	Personality Development	-	3	0.6
C31 2	Machine Design II	3	3	3
C31 3	Energy Systems	3	3	3
C31 4	Internal Combustion Engine	2	2	2
C31 5	Heat and Mass Transfer	3	2	2.8
C31	Production Management	2	2	2

6				
C31 7	Power Plant Engineering	2	3	2.2
C31 8	Machine Design II Lab	3	3	3
C31	Internal Combustion Engine Lab	3	3	3
C32 0	Production Management Lab	3	2	2.8
C32	Heat and Mass Transfer Lab	3	3	3
C32 2	Managerial Skills	-	3	0.6
C40 1	Automobile engineering	3	3	3
C40 2	Refrigeration & Air Conditioning	3	3	3
C40 3	Computer aided design and manufacturing	3	3	3
C40 4	Machine Tool Technology	3	3	3
C40 5	Product Design and Development	3	3	3
C40 6	Automobile engineering lab	3	3	3
C40 7	RAC Lab	3	3	3
C40 8	CAD CAM lab	3	3	3
C40 9	Minor project	3	3	3
C41 0	Innovative and entrepreneurial skills	-	3	0.6
C41 1	Robotics	3	3	3
C41 2	Finite Element Methods	3	3	3
C41 3	Industrial Engineering & Management	3	3	3
C41 4	Environmental pollution & control	3	3	3
C41 5	Value Engineering	3	3	3
C41 6	Robotics lab	3	3	3
C41 7	Finite Element Methods Lab	3	3	3

C41 8	Industrial Engineering & Management Lab	3	3	3
C41 9	Major project	3	3	3
C42 0	Report writing & seminar	-	3	0.6

	Direct Attainment 2020-21				
СО	Subject Names	CO ATTAINMEN T (ESE)	CO ATTAINMEN T (CT + TA)	CO ATTAINMEN T	
C10 4	Engineering Graphics	3	3	3	
C10 8	Workshop Practice	3	3	3	
C10 5	Fundamental of Mechanical Engineering (New)	3	3	3	
C10 7	Mechanical Engineering (Lab)	3	3	3	
C20 1	Mathematics -III	3	3	3	
C20 2	Machine Drawing	3	2	2.8	
C20 3	Material Science & Metallurgy	3	3	3	
C20 4	Mechanics of Solids-1	3	2	2.8	
C20 5	Engineering Thermodynamics	3	3	3	
C20 6	Mechanical Measurement and Metrology	3	2	2.8	
C20 7	Machine Drawing Lab	3	3	3	
C20 8	Material Testing Lab	3	3	3	
C20 9	Engineering Thermodynamics Lab	3	3	3	
C21 0	Materials Measurement Metrology Lab	3	3	3	
C21 1	Value Education	-	3	0.6	
C21 2	Fluid Mechanics	3	3	3	
C21 3	Mechanics of Solids-2	3	2	2.8	
C21	Applied Thermodynamics	2	2	2	

4				
C21 5	Kinematics of Machines	2	2	2
C21 6	Numerical Analysis & Computer Programming (C & C++)	3	2	2.8
C21 7	Manufacturing Science – I	3	3	3
C21 8	Fluid Mechanics Lab	3	3	3
C21 9	Computer Aided Drafting Lab	3	3	3
C22 0	KOM Lab	3	3	3
C22	NACP Lab	3	3	3
C22 2	Health, Hygiene & Yoga	-	3	0.6
C30 1	Machine Design I	3	2	2.8
C30 2	Turbo Machinery	3	3	3
C30 3	Dynamics of Machines	3	3	3
C30 4	Fluid Machinery	3	3	3
C30 5	Manufacturing Science - II	3	3	3
C30 6	Operation Research	3	3	3
C30 7	Machine Design Lab	3	3	3
C30 8	Manufacturing Science Lab	3	3	3
C30 9	Dom Lab	3	3	3
C31 0	Fluid Machinery Lab	3	3	3
C31	Personality Development	-	3	0.6
C31 2	Machine Design II	3	3	3
C31	Energy Systems	3	3	3
C31 4	Internal Combustion Engine	2	2	2
C31 5	Heat and Mass Transfer	3	3	3

C31	Production Management	2	2	2
C31 7	Power Plant Engineering	2	3	2.2
C31 8	Machine Design II Lab	3	3	3
C31 9	Internal Combustion Engine Lab	3	3	3
C32 0	Production Management Lab	3	2	2.8
C32	Heat and Mass Transfer Lab	3	3	3
C32 2	Managerial Skills	-	3	0.6
C40 1	Automobile engineering	3	2	2.8
C40 2	Refrigeration & Air Conditioning	3	2	2.8
C40 3	Computer aided design and manufacturing	3	3	3
C40 4	Machine Tool Technology	3	3	3
C40 5	Product Design and Development	3	3	3
C40 6	Automobile engineering lab	3	3	3
C40 7	RAC Lab	3	3	3
C40 8	CAD CAM lab	3	3	3
C40 9	Minor project	3	3	3
C41 0	Innovative and entrepreneurial skills	-	3	0.6
C41 1	Robotics	3	3	3
C41 2	Finite Element Methods	3	3	3
C41 3	Industrial Engineering & Management	3	3	3
C41 4	Environmental pollution & control	3	3	3
C41 5	Value Engineering	3	3	3
C41 6	Robotics lab	3	3	3
C41	Finite Element Methods Lab	3	3	3

7				
C41 8	Industrial Engineering & Management Lab	3	3	3
C41 9	Major project	3	2	2.8
C42 0	Report writing & seminar	-	3	0.6

Attainment of program Outcomes and Program Specific Outcomes

(a) List & Description of assessment processes:

Assessment Tools	Direct/Indirect	Remark
	Assessment	
End Semester Exam	Direct	Conducted by the University during each semester
		for every course.
Class Tests	Direct	Two number of Class tests are given duringeach
		semester for every course.
Oral Exams/VivaVoce	Direct	Viva Voce conducted during lab sessions. End
		semester course viva is also used to measure the
		same.
Project Evaluation	Direct	Project Evaluation conducted among the students
		towards the end of their final year.
Teachers Assessment		It is collected from the faculty at the end of each
(TA)		sem. Mode of evaluation are Internal Theory &
		Practical Exams, Assignments, Seminars.
Alumni Survey	Indirect	Alumni Survey conducted among alumni at the

		end of each academic year
Employer Survey	Indirect	Employer Survey conducted among employers
		both as formal and informal mode of
		communication
Graduating Student	Indirect	Student Exit Survey conducted among the
Exit Survey		graduates
Course Exit Survey	Indirect	It is collected from the students, at the end of
		every semester

The PO attainment level will be 80% of direct assessment + 20 % of indirect assessment.

Direct assessment:

• End Semester Exam = 80%

Internal assessment has the 20 %

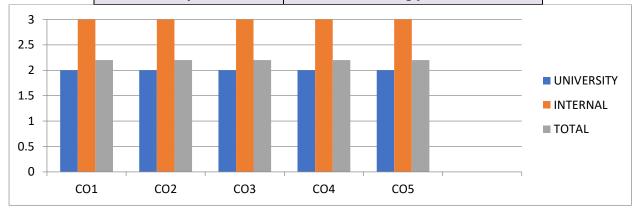
Indirect assessment:

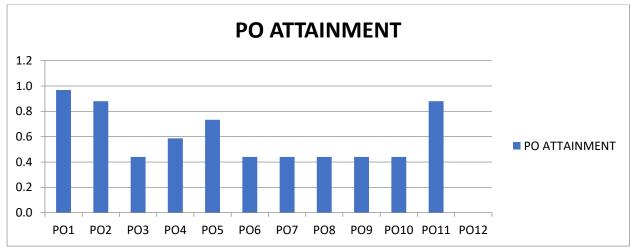
- Students Exit Survey =10%
- Course End Survey= 5%
- Alumini Survey=5%

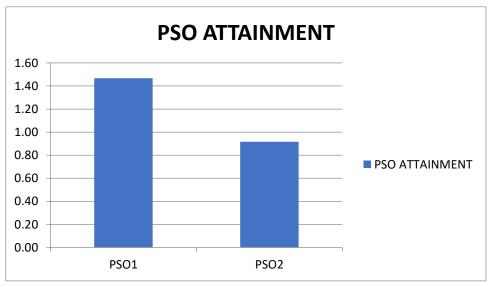
Program shall set program Outcome attainment levels for all Pos and PSOs.

(The attainment levels by direct (student performance) and indirect(surveys) are to be presented through Program level course - PO and PSO matrix as indicated).

Subject Name:	Mechanics of Solids – I
Paper code :	C - 204
Assessment Year :	2017-18
Semester	3
Total number of students	
:	84

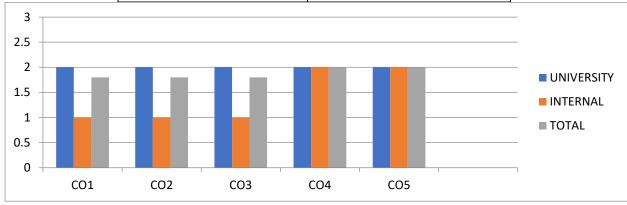


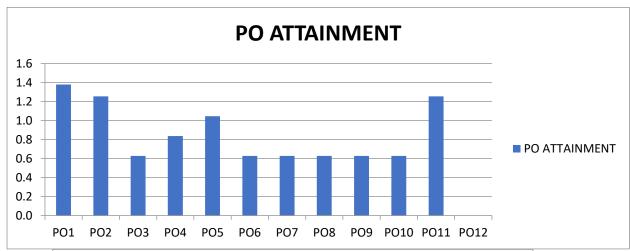


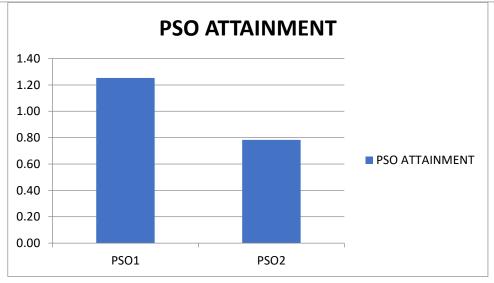


Subject Name: Mechanics of Solids – I

Paper code :	C - 204
Assessment Year :	2019-20
Semester	3
Total number of students	
:	121

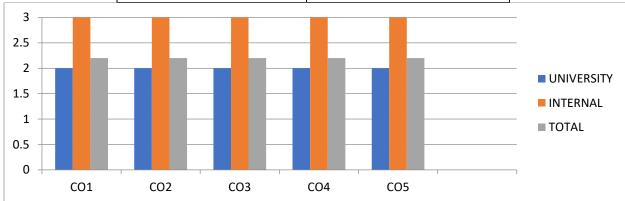


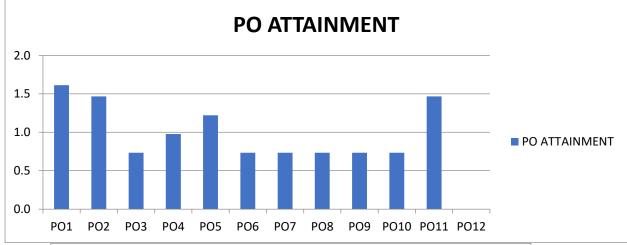


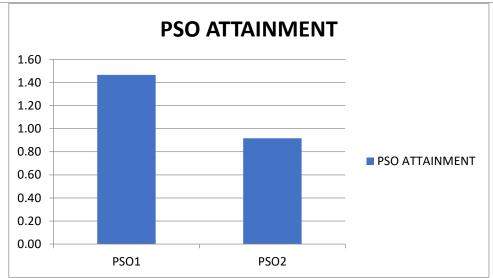


Subject Name:	MOS 1
Paper code :	C - 204

Assessment Year :	2020-21
Semester	3
Total number of students	
:	125

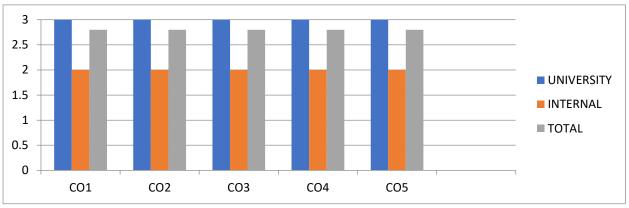


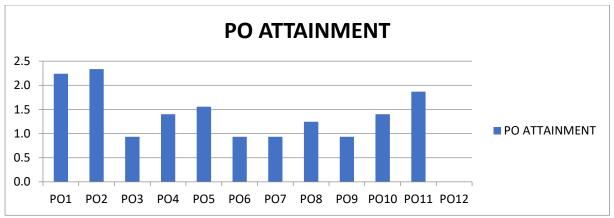


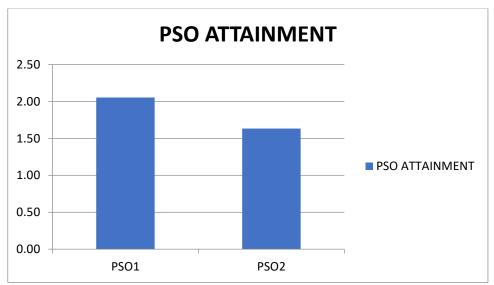


Subject Name:	Applied Thermodynamics
Subject value:	Abblied Inermodynamics

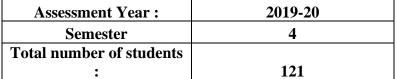
Paper code :	C - 214
Assessment Year :	2020-21
Semester	4
Total number of students	
:	84

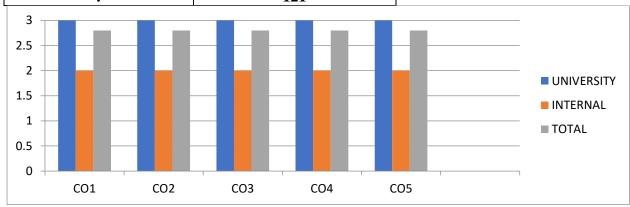


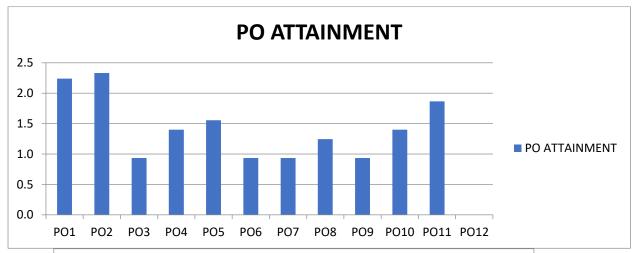


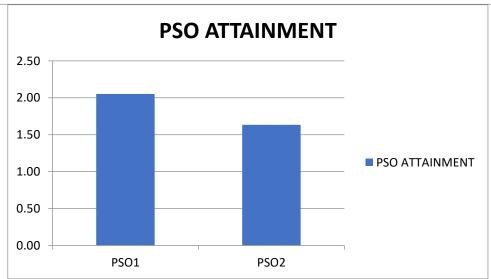


Subject Name:	Applied Thermodynamics
Paper code :	C - 214



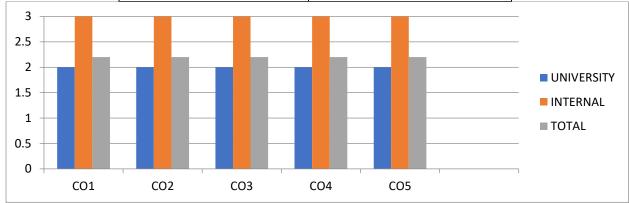


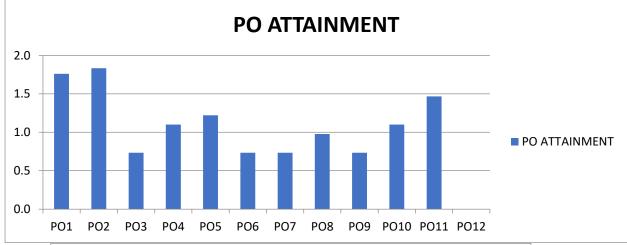


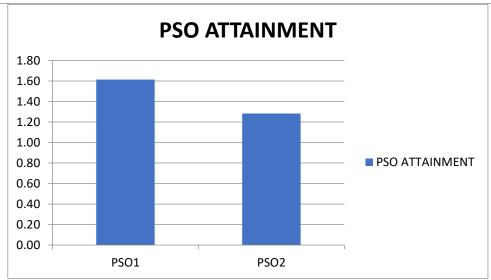


Subject Name:	ATD
Paper code :	C - 214

Assessment Year :	2018-19
Semester	4
Total number of students	
:	125

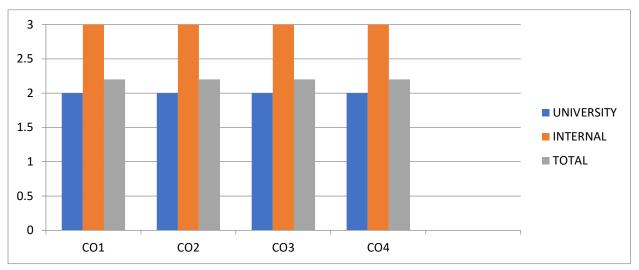


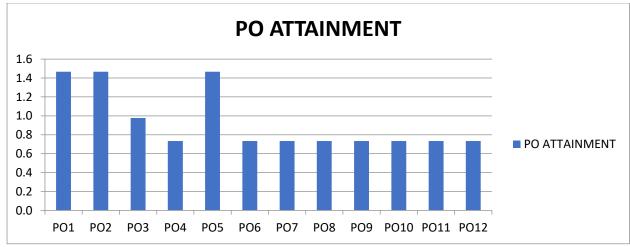


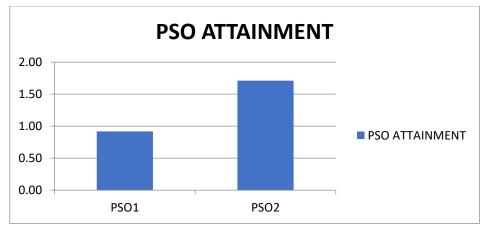


Paper code :	C - 301 (MD1)
Assessment Year :	2020-21

Semester	5
Total number of students :	122

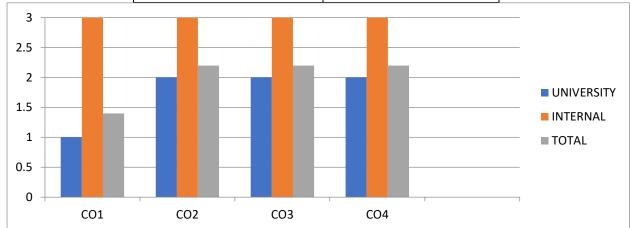


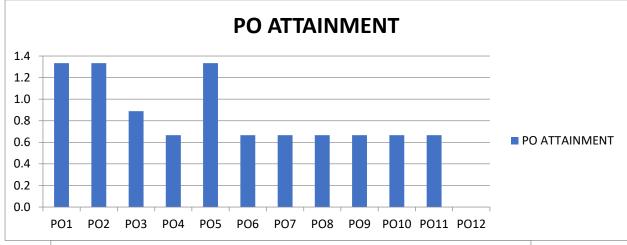


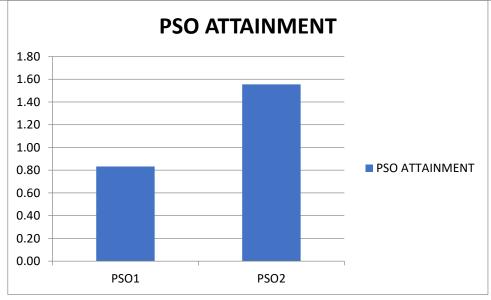


Paper code : C - 301

Assessment Year :	2019-20
Semester	5
Total number of students :	124

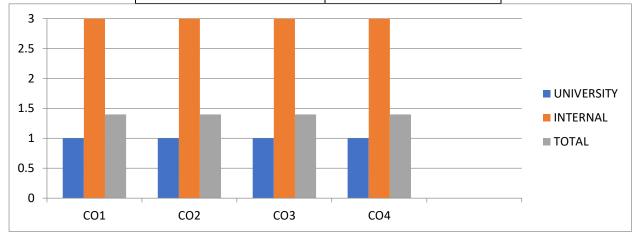


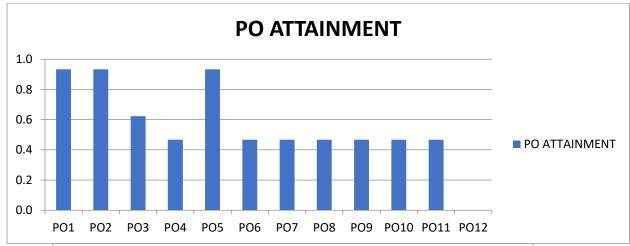


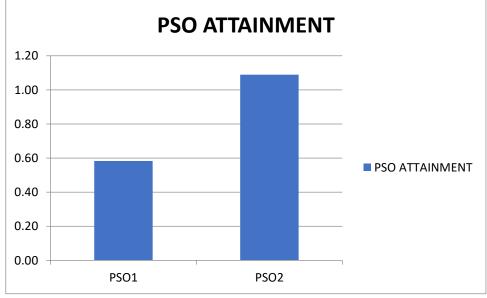


Paper code : C - 301

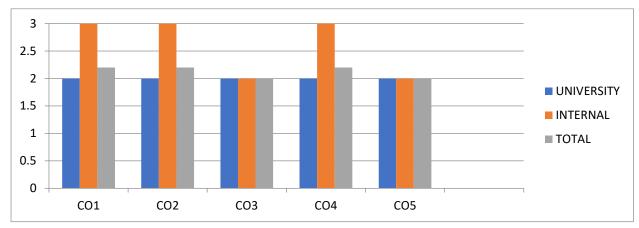
Assessment Year :	2019-20
Semester	5
Total number of students :	118

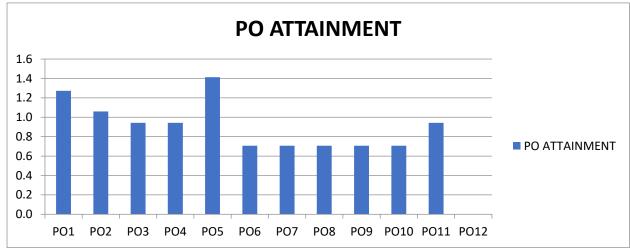


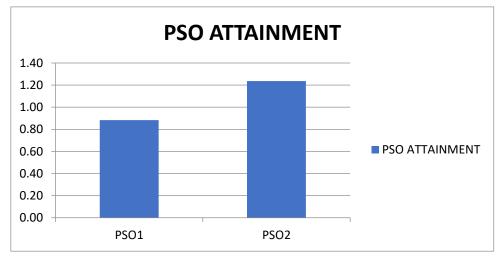




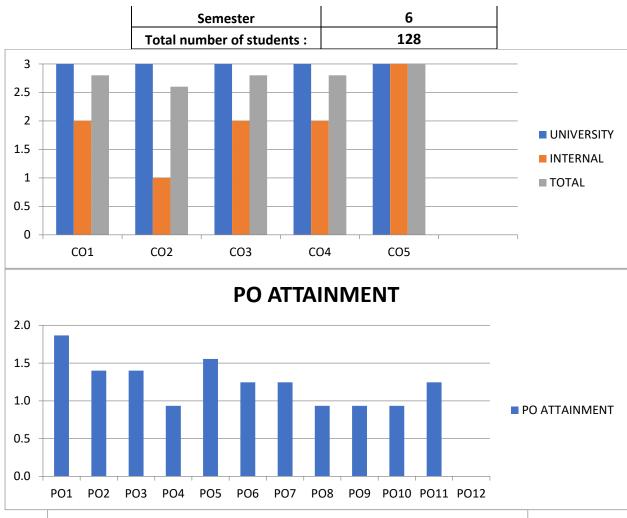
Paper code :	C - 314 (ICE)
Assessment Year :	2020-21
Semester	6
Total number of students :	122

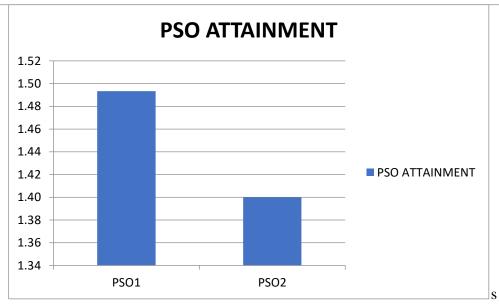




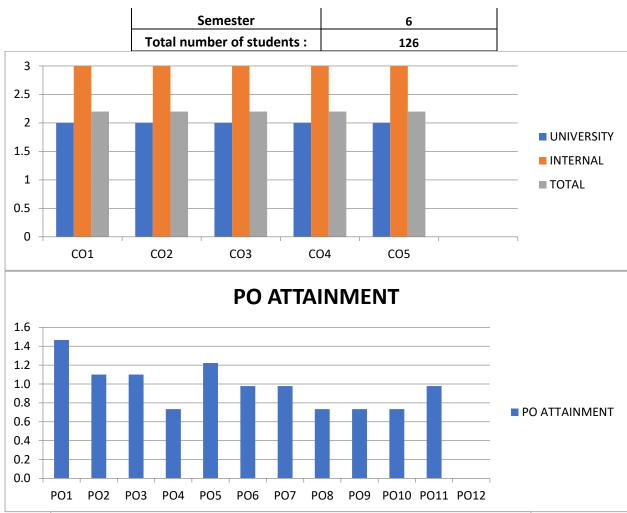


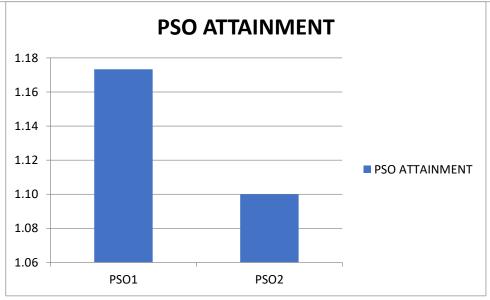
Paper code :	C - 314
Assessment Year:	2020-21





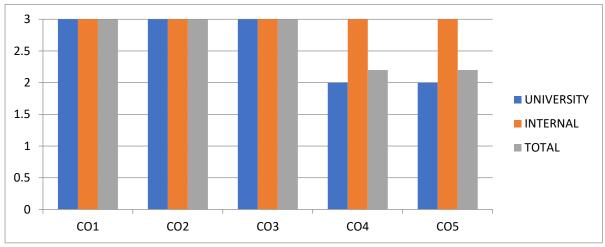
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Assessment Year:	2019-20

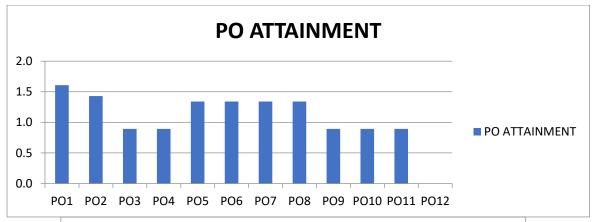


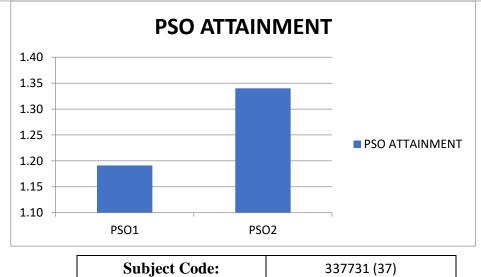


Subject Code:337731

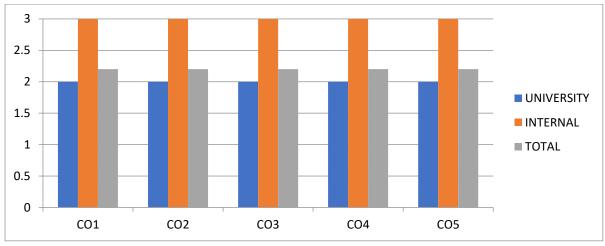
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Paper code :	C - 401 (Automobile Engg)
Assessment Year :	2020-21
Semester	7
Total number of students :	127

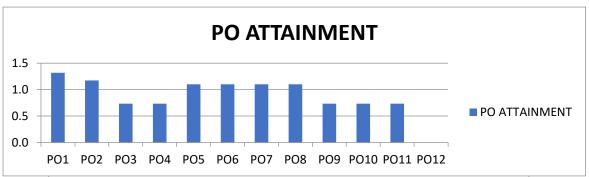


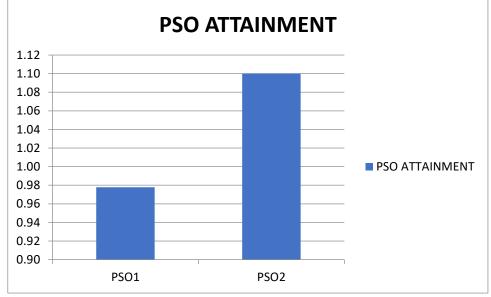




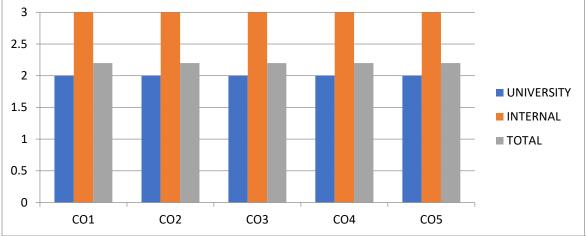
Paper code :	C - 401
Assessment Year :	2019-20
Semester	7
Total number of students :	115

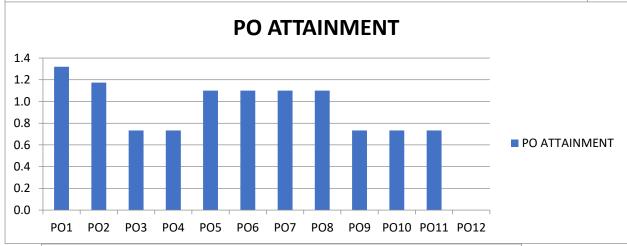


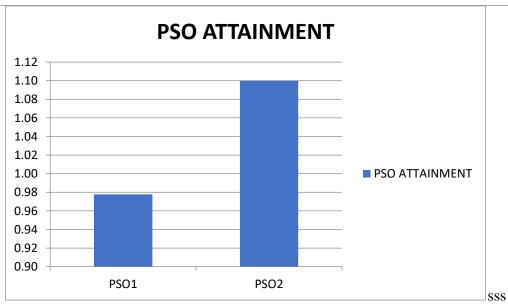




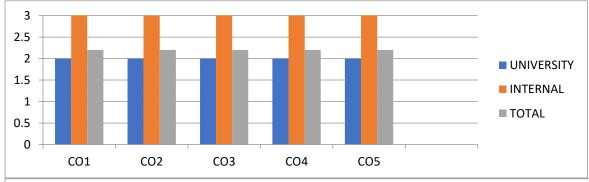
Paper code :	C - 401
Assessment Year :	2018-19
Semester	7
Total number of students:	122

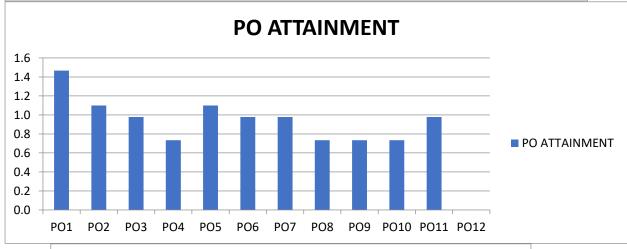


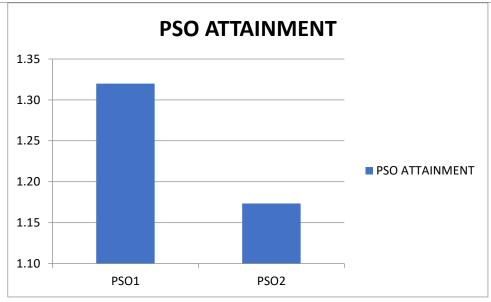




Paper code :	C - 411 (robotics)
Assessment Year :	2020-21
Semester	8
Total number of students :	127

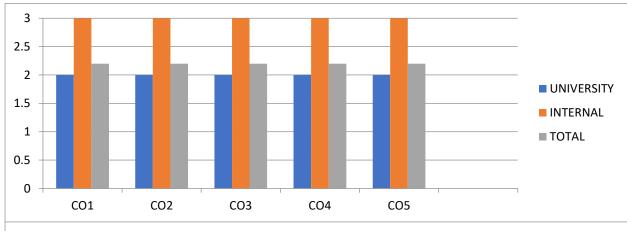


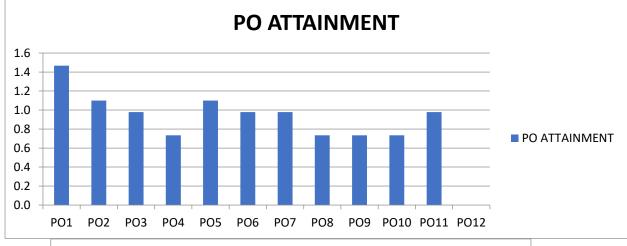


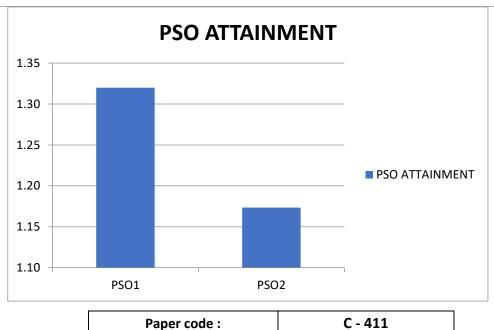


Paper code : C - 411

Assessment Year :	2019-20
Semester	8
Total number of students :	121







Assessment Year :	2018-29
Semester	8
Total number of students :	120

