

# Government Polytechnic Korea

## Session Plan Jan - Jun 2024

Department- **Mechanical Engineering**

Subject - **Industrial Measurements & Control**

S.no.	Topic to taught	No. of Lecture required (L+T+P)	Date of Theory Deleivery	Topic Covered	Remark
	<b>CO-1 Use relevant measuring instrument as per the requirement</b>				
Unit 1	Measurement System				
1	Introduction to measurement and measuring instruments, Classification of measuring Instruments, their characteristics like sensitivity, accuracy, linearity, threshold, resolution		27/01/25 +0 29/01/25	Topic Covered	
2	Measuring system, Block diagram with example, stages of measuring system with examples – Stage I input signal (detector transducers), Stage II (intermediate modifying), and Stage III (terminating), Types of input signals		31/02/28 4/02/28	Topic Covered	
3	Measurement standards :- Time, frequency, Voltage, Current, 3-15 psi etc., ANSI, ASME, ADA, BS, DIN, CSMR, FCI, API, ISI, and introduction Reliability and safety		5/02/28 +0 8/02/25	Topic Covered	
4	Transducers –primary and secondary transducers, classification, working principle of resistance, inductance, capacitance and piezoelectric transducers with their line sketches, applications of each, sensors, types and applications, difference between transducer and sensor		8/02/28 +0 10/02/28	Topic Covered	
	<b>CO-2 Use control system for the given industrial application</b>				
Unit 2	Introduction to Control system				
1	Definition , Basic terminology, Objective of control system, Types of Control Systems, Effect of Feedback Systems		10/02/28 11/02/28	Topic Covered	
2	Basic elements of open and closed loop system, concept of open loop and closed loop systems, Block diagram of Open loop and closed loop control systems, Effect of feedback, multivariable control systems comparison, Applications and advantage		11/02/28 15/02/28	Topic Covered	
3	Time Response of feedback control systems: Standard test signals -unit step, ramp, impulse and parabolic		18/02/28	Topic Covered	

21/04/24

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	Control and its benefits, Basic control actions, Two position or On/Off control, Introduction to PI, PD and PID Controllers		17/02/22	topic covered
	Control System Components: construction and working, concept of ac servomotor, synchronous and stepper motor		18/02/22	topic covered
	<b>CO- 3 Use relevant instruments for displacement and speed measurement</b>			
Unit 3	Displacement and speed measurement			
1	Working principle & use of Potentiometer, Differential transformer (LVDT & RVDT), capacitive element & Optical encoders		19/02/22	topic covered
2	Mechanical tachometer, Electrical Tachometer, incremental optical encoder, Eddy current drag cup tachometer		20/02/22	topic covered
3	Magnetic pickup tachometer, Stroboscopic tachometer, Photoelectric tachometer, non contacting electrical tachometer (inductive pick up & capacitive pick up)		24/02/22 +0 25/02/22	topic covered
	<b>CO- 4 Use temperature measuring instruments</b>			
Unit 4	Temperature measurement			
1	Principles of temperature measuring devices – change in physical state, expansion, electrical resistance, thermoelectric emf, intensity of radiation, change in chemical state		28/02/22 +0 3/03/22	topic covered
2	Construction, working, measuring range, accuracy, applications, limitations of devices operating on above principles (Bimetal thermometer, pressure spring thermometer, electrical resistance thermometer, thermister, thermocouple, pyrometer)		4/03/22 +0 5/03/22	topic covered
3	Errors in temperature measurement i. Instrument error – calibration error, ambient temperature error, hysteresis error. ii. Thermal probe error – time lay error, conduction error, radiation error, velocity of error		10/03/22 +0 12/03/22	topic covered
4	Calibration of temperature measuring instruments - Direct comparison method, fixed point method		17/03/22	topic covered
	<b>CO- 5 Use flow measurements and pressure measurements instruments</b>			
Unit 5	Flow and Pressure measurement			

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14/03/22

	Classify flow measuring devices as Volumetric or primary or quantity meters and rate of flow or velocity or secondary meters, their function and examples	18/03/25 to 24/03/25	topic covered	
	Volumetric or Primary meters - Bellow type meter, Rotating impeller type meter, Positive displacement meter, Rotating lobe meter, Nutating disc meter Their function, working principle, sketches, applications and limitations	31/03/25 to 3/04/25	topic covered	
3	Rate of flow or Secondary meters – Obstruction meters Orifice, Venturimeter, Flow nozzles, Variable area meter, Pitot tube Velocity probes Total pressure probes, Static pressure probes Direction sensing probes Special meters Turbine meter, Hot wire anemometer, Magnetic flow meter Their function, working principle, sketches, applications and limitations.	7/04/25 to 21/04/25	topic covered	
4	Pressure Measurement Classify pressure measuring devices – Manometer, Elastic gauges, Diaphragm, Pressure capsules,, Bellows , Pressure springs Electronic pressure sensors/Transducers - Resistance, Inductance and Capacitive type Their function, principle, working, sketches, applications and limitations of above pressure measuring devices. Low pressure gauges- McLeod Gauge, Pirani gauge. Calibration of pressure gauges using Dead weight Pressure tester	23/04/25 to 26/04/25 to 28/04/25 <del>30/04/25</del> <del>1/05/25</del>	topic covered	
	<b>CO- 6 Use relevant instruments for measurement of strain.</b>	<del>29/04/25</del>		
Unit 6	Strain measurements	<del>30/04/25</del>		
1	Strain Measurement Stress- strain relation, types of strain gauges, strain gauge materials	29/04/25 to 30/04/25	topic covered	
2	Resistance strain gauge- bonded and unbonded, types (foil, semiconductor, wire wound gauges)	3/05/25 to 5/05/25	topic covered	
3	Selection and installation of strain gauges, load cells, Strain rosettes	6/05/25	topic covered	

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Govt. Polytechnic Ambikapur  
 Course Completion unit plan  
 29M - JUN - 2025

Department - MCCU  
 Hours / Week -

Subject - JEPW  
 Lab/Week

S.No.	Topic to taught	No. of lecture required	Date of delivery	Actual Date of Delivery :	Topic Covered	Remark
1	UNIT 1					
2	Introduction to		9/01/25	9/01/25	Topic covered	
3	Industry Engineering					
4						
5	Scope and Role of		10/01/25	10/01/25	topic covered	
6	Industry Engineering					
7						
8	Production and Productivity		11/01/25	14/01/25	topic covered	
9	Frontiers of Productivity					
10						
11	Computer and shaft		15/01/25	15/01/25	Topic covered	
12	and Productivity					
13						
14	Objective and application		15/01/25	25/01/25	topic covered	
15	Basic procedure					
16	technical work.					
17	study.					
18						
19						
20						

S.No.	Topic to taught	No. of lecture required	Date of delivery	Actual Date of Delivery	Topic Covered	Remark
21	<u>Unit - 2</u>					
22	definition objective		16/11/21	16/10/21	Topic Covered	
23	of method study					
24						
25	operation process		17/11/21	20/10/21	Topic Covered	
26	Chart man machine					
27	Chart Flow diagram					
28					Covered	
29	motion economy		21/11/21	22/10/21	Covered	
30	Principles Therbligs				Covered	
31	Cycle.					
32					Covered	
33	time study. timing		23/11/21	25/10/21	Covered	
34	job.				Covered	
35	<u>Unit - 3</u>					
36					Covered	
37	maintainance Reliability		26/11/21	28/10/21	Covered	
38	mean time failure				Covered	
39	between tube work					
40	time dependency				Covered	
41						
42	Constant Failure		29/11/21	1/12/21		
43	time dependent					

S.No.	Topic to taught	No. of lecture required	Date of delivery	Actual Date of Delivery	Topic Covered	Remark
44	Reliability system	<del>2</del> 25	3/02/22	3/02/22	Topic covered	
45	Parallel configuration		5/02/22	5/02/22	Topic covered	
46	(FMEA) methods		6/02/22	6/02/22	Topic covered	
47	Reliability					
48	Fault tree analysis		7/02/22	10/02/22	Topic covered	
49	Failure mode					
50	Effect					
51						
52	UNIT - 4		11/02/22	15/02/22	Topic covered	
53	Importance goal					
54	effect on production					
55	principles of economy		15/02/22	18/02/22	Topic covered	
56	forklift Hoisting					
57						
58	mobile motor crane		19/02/22	19/02/22	Topic covered	
59	overhead crane		20/02/22	28/02/22		
60	travelling bridge					
61					Topic covered	
62	Requirement of		5/03/22	7/03/22		
63	good efficiency		12/03/22	13/03/22	Topic covered	
64	bed layout		21/03/22	05/04/22	Topic covered	
65	type of layout		10/04/22	11/04/22	Topic covered	
66						

S.No.	Topic to taught	No. of lecture required	Date of delivery	Actual Date of Delivery	Topic Covered	Remark
44	<u>Unit-5</u>					
45	Productivity System		01/04/28	2/04/28	Covered	
46	PPC; Function of					
47	goal Place of					
48	PPC					
49	Job set the goal		2/04/28	2/04/28	Covered	
50	limits size buffer					
51	product's concept					
52						
53	Control chart		5/04/28	5/04/28	Covered	
54	scheduling advantages					
55	goal of Control					
56	chart					
57						
58	<u>UNIT-6</u>					
59						
60						
61	Structure purpose		8/04/28	8/04/28	Covered	
62	goal object busi	3				
63	Function					
64						
65	Function goal					
66						

S.No.	Topic to taught	No. of lecture required	Date of delivery	Actual Date of Delivery	Topic Covered	Remark
21	Purchase system					
22	different techniques		5/04/22	11/09/20	covered	
23	of Inventory control					
24	A-B-C analysis					
25						
26	Correlation Stock		11/04/22	11/04/22	covered	
27	turn over order					
28	quantity control time					
29						
30	Economic order		11/04/22	12/04/22	covered	
31	quantity simple					
32	numerical problems					
33	safety stock					
34						
35	store management		12/04/22	17/04/22	covered	
36	definition and					
37	importance					
38						
39	Project planning		17/04/22	17/04/22	covered	
40	networking					
41	one object network					
42						
43						

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12/04/22

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Govt. Polytechnic Ambikapur  
Course Completion unit plan

Subject - PHYSICS  
Lab/Week

Department - MECH  
Hours / Week -

JAN - JUN - 2025

S.No.	Topic to taught	No. of lecture required	Date of delivery	Actual Date of Delivery	Topic Covered	Remark
1	(UNIT-1)					
2	UNIT-1 of physical quantity		25/03/25	26/03/25	Covered	
3	Force, momentum and impulse					
4	UNIT SYSTEM - CGS, MKS		26/03/25	26/03/25	Covered	
5	and SI Advantages, Disadvantages					
6	Dimension analysis:	12	29/03/25	10/4/25	Covered	
7	Dimension formula & equation	↑				
8	Application of dimension		2/04/25	02/04/25	Covered	
9	Numerical problem on					
10	measurement					
11						
12	UNIT-2					
13	Force - Type of force		5/04/25	8/04/25	Covered	
14	Conservative and					
15	non conservative		8/04/25	9/04/25	Covered	
16	Fractional force -					
17	Centripetal and centrifugal	12	2/04/25	12/04/25	Covered	
18	of and their interrelation					
19	Factors		19/04/25	19/04/25	Covered	
20						

2/04/25

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S.No.	Topic to taught	No. of lecture required	Date of delivery	Actual Date of Delivery	Topic Covered	Remark
21	Elasticity - Hook's	1				
22	Low elastic limit	1	22/04/25	23/04/25	Covered	
23	modulus of elasticity	1				
24	young modulus bulk		23/04/25	23/04/25	covered	
25	modulus					
26	surface energy effect	16	26/04/25	26/04/25	Covered	
27	cohesive and adhesive					
28	force	1				
29	viscosity - coefficient		29/04/25	29/04/25	Covered	
30	of viscosity Newton					
31			30/04/25	30/04/25	covered	
32	Stress and Strain					
33						
34	Unit - 3					
35	Refraction - Law of	1	6/05/25	07/05/25	Covered	
36	Reflection - Causes					
37	absolute and Relative		10/05/25	13/05/25	Covered	
38	Index					
39	Dispersion angle of minimum		13/05/25	14/05/25	Covered	
40	critical angle	16				
41	optical fiber NA and NA				Covered	
42	Compound microscope		14/05/25	17/05/25	Covered	
43	pure and Impure.					

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 Principal

S.No.	Topic to taught	No. of lecture required	Date of delivery	Actual Date of Delivery	Topic Covered	Remark
44	<u>UNIT-4</u>					
45	Electric Charge · Coulomb	1	20/05/22	20/05/22	Covered	
46	Electric Field Potential					
47	between two point					
48	Types of dielectrics	1	21/05/22	21/05/22	Covered	
49	dielectric strength					
50	capacity unit principle					
51						
52	Magnetic Lines of force	1	24/05/22	27/05/22	Covered	
53	Line of induction					
54	Current · Electricity					
55	Resistance · Specific	1	27/05/22	28/05/22	Covered	
56	Series and parallel					
57	potential Resistance cell					
58	potential difference	1	28/05/22	21/06/22	covered	
59	and e.m.f. of a cell					
60	combination of cell					
61	in series and parallel	1	21/6/22	28/08/22	covered	
62						
63	Electric power					
64						
65						
66						

2/6/22

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S.No.	Topic to taught (UNIT-5)	No. of lecture required	Date of delivery	Actual Date of Delivery	Topic Covered	Remark	
1	photoelectric effect	16	2/07/22	05/07/22	covered		
2	Law of photoelectric						
3	Equation frequency			8/07/22	8/07/22	covered	
4	photo cell						
5	X-Rays			9/07/22	9/07/22	covered	
6	Production of X Rays						
7	properties uses			9/07/22	12/07/22	covered	
8	Cathode						
9	spontaneous stimulation			12/07/22	15/07/22	covered	
10	emission.						
11	population inversion.			15/07/22	16/07/22	covered	
12	lasing scheme						
13	Ruby laser			29/07/22	29/07/22	covered	
14	semiconductor						
15	ultra sonics			23/07/22	26/07/22	covered	
16	method of production						
17	properties. ultra-sonic		27/07/22	21/08/22	covered		
18							
19							
20							

2/07/22

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 Course Completion unit plan  
 JAN - JUN - 2025

Department - mech  
 Hours / Week -

Subject - EP (Engineering Drawing)  
 Lab/Week

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S.No.	Topic to taught	No. of lecture required	Date of delivery	Actual Date of Delivery	Topic Covered	Remark
1	(UNIT 1)					
2	Importance of Engineering drawing.	↑	24/03/25	24/03/25	Covered	
3						
4	Drawing Instrument	↓	26/03/25	26/03/25	Covered	
5	Lettering and dimensioning					
6	P.T.S B.T.S 9604	09				
7	Line - Different type of		28/03/25	28/03/25	Covered	
8	Line					
9	Dimensioning - Terms of	↑				
10	Scale as per B.T.S.		21/04/25	21/04/25	Covered	
11	Extension Line and					
12	leads.					
13	(UNIT 2)					
14						
15	Conic section - definition	↓	4/04/25	4/04/25	Covered	
16	of locus. axis, vertex	↓				
17	Ellipse - construction	12	9/04/25	9/04/25	Covered	
18	of ellipse by concentric					
19	Parabola - Const.		11/04	11/04/25	Covered	
20	Parabola Rectangular					

21/04/25

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S.No.	Topic to taught	No. of lecture required	Date of delivery	Actual Date of Delivery	Topic Covered	Remark
21	Hyperbola - construction					
22	cut hyperbola by Reta		16/04/22	16/04/22	Covered	
23	eccentricity method.	↑				
24						
25	(Unit - 8)					
26						
27	Projections of points	↓	23/04/22	23/04/22	Covered	
28	concept of quadrant					
29	first angle projection					
30	projection of straight		25/04/22	25/04/22	Covered	
31	lines. projection of					
32	straight lines.	16				
33	projection of plane.	↑	31/04/22	31/04/22	Covered	
34	(a) projection of					
35	planes. parallel.					
36	(b) projection of		02/05/22	02/05/22	Covered	
37	plane inclined					
38	to one of the					
39						
40	(Unit - 4)	↓				
41			07/05/22	07/05/22	Covered	
42	Introduction - first	16				
43	angle projection.					

1/4/22

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S.No.	Topic to taught	No. of lecture required	Date of delivery	Actual Date of Delivery	Topic Covered	Remark
44	Three angle projection		15/05/25	15/05/25	Covered	
45	projection of simple object					
46	front view / top view.		16/05/25	16/05/25	covered	
47	concept of section by					
48	planes - auxiliary.	16				
49	Planes.					
50	projection of solid types		21/05/25	21/05/25	Covered	
51	of solids. projections of					
52	solids					
53	section of solids -		28/05/25	28/05/25	covered	
54	practices. problems					
55	UNIT-5					
56	Isometric axis lines		02/07/25	02/07/25	covered	
57	and planes Isometric					
58	isometric projection		08/07/25	08/07/25	covered	
59	of - objects construction	12	11/07/25	11/07/25	covered	
60	Rectangle. Circle.					
61	(UNIT-6)					
62	(i) Basic - orthographic		16/07/25	16/07/25	covered	
63	(ii) auxiliary basic		23/07/25	23/07/25	covered	
64	line, arc -	18				
65	modify commands -		11/08/25	11/08/25		
66	primary and orthographic					

11/08/25

Dr. Sakshi

Principal

Reference

1	ND. Bhatt
2	deepak prakashan.
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2/11/2023  
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Faculty Name & Sign

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