


## LESSON PLAN

Name of Faculty	Rajni Sharma
Department	Applied Science & Humanities
Semester	2nd (Automobile Engg.)
Subject	Mathematics - II
Lesson Plan for the Duration	27 Jan. 2026 to 27 May 2026

Week	Unit	Details
1st (27Jan. - 02Feb.)	Determinants	Determinants: Elementary properties of determinants upto 3rd order, consistency of equations, Cramer's rule.
2nd (03 Feb. - 09 Feb.)	Matrices	Matrix: Algebra of matrices, Inverse of a matrix, matrix
3rd(10 Feb.- 17 Feb.)	Matrices	Matrix: Matrix inverse Method to solve a system of linear equations in 3 variables.
4th (18 Feb. - 24Feb.)	Integral Calculus	Integration as inverse operation of differentiation.
5th (25 Feb. - 03 Mar.)	Integral Calculus	Simple integration by substitution, by parts and by partial fraction(for linear factors only.
6th(05 Mar. - 11 Mar.)	Integral Calculus	Use of formulas for solving problems. When m, are positive integers.
7th (12 Mar. -19 Mar.)	Integral Calculus	Applications for: (i) simple problems on evaluation of area bounded by a curve and axis .
8th (20 Mar. - 28 Mar.)	Integral Calculus	Applications for: (ii)Calculation of volume of a solid formed by revolution of an area about axis.
9th (30 Mar. - 06 April)	Co-ordinate Geometry	Co-ordinate Geometry Equations of straight lines in various standard forms (without proof), intersection of two straight lines .
10th (07 April - 16 April)	Co-ordinate Geometry	Angle between two lines .Parallel and perpendicular lines,Perpendicular Distance formula
11th (17 April - 23 April)	Co-ordinate Geometry	General equation of a circle and its characteristics. To find the equation of a circle given: center and radius, Three points lying on it, coordinates of end points of a diameter.
12th (24 April - 30 May)	Co-ordinate Geometry	Definition of conics( parabola,Ellipse,Hyperbola) their standard equations without proof.
13th (02 May - 08 May)	Co-ordinate Geometry	Problems on conics when their foci, directrices or vertices are given.
<b>House Test Second Week of May</b>		
14th(18 May - 26 May)	Differential Equations	Solution of first order and first degree differential equation by variable separation

  
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Signature of Subject Teacher

## LESSON PLAN

Name of Teacher :- Nemjel Choudhary

Subject: Applied Physics -II Class: 2nd Semester Automobile Engg.

S. No.	Month	Week	Date	Name of Chapter	Contents to be taught	Remarks
1	Jan	5th Week	28,29	Wave motion and its applications	Introduction, Wave motion, transverse and longitudinal waves with examples, definitions of wave velocity, frequency and wave length	
2	Feb.	1st week				
3		2nd week	2,3,4,5	Wave motion and its applications	Sound and light waves and their properties, wave equation ( $y = r \sin \omega t$ ) amplitude, phase, phase difference, Principle of superposition of waves and beat formation	
4		3rd week	9,10,11,12	Wave motion and its applications	Simple Harmonic Motion (SHM): definition, expression for displacement, velocity, acceleration, time period, frequency etc. Free, Forced and Resonant Vibrations and their Examples	
5		4th week	16,17,18,19	Wave motion and its applications and Optics	Acoustics of buildings – reverberation, reverberation time, echo, noise, coefficient of absorption of sound, methods to control reverberation time and their applications. and Ultrasonic wave, basic law optics	
6		5th Week	23,24,25,26	Optics	reflection and refraction, refractive index, Images and image formation by mirrors, lens and thin lenses, lens formula, power of lens, magnification.	
7	March	1st week	2,3,5	Optics	Total internal reflection, Critical angle and conditions for total internal reflection, applications of total internal reflection in optical fibre	
8		2nd week	9,10,11,12	Optics	Optical Instruments- simple and compound microscope, astronomical telescope in normal adjustment and their magnifying powers	Class Test - I
9		3rd week	16,17,18,19	Optics & Electrostatics	astronomical telescope in normal adjustment and their magnifying powers, Coulomb's law, unit of charge.	
10		4th Week	23,24,25	Electrostatics	Electric field, Electric lines of force and their properties, Capacitor and its working.	
11		5th week	30,31	Electrostatics	Capacitance and its units. Capacitance of a parallel plate capacitor, Series and parallel combination of capacitors (related numerical), dielectric and its effect on capacitance, dielectric break down	

*Nemjel Choudhary*

12	April	1st week	1,2	Current Electricity	Electric Current and its units, Direct and alternating current. Resistance and its units, Specific resistance, Conductance, Specific conductance, Series and parallel combination of resistances. Factors affecting resistance of a wire, carbon resistances and colour coding	
13		2nd week	6,7,8,9	Current Electricity	Ohm's law and its verification, Kirchhoff's laws, Concept of terminal potential difference and Electro motive force (EMF), Heating effect of current, Electric power, Electric energy and its units (related numerical problems), Advantages of Electric Energy over other forms of energy	Class Test - II
14		3rd week	13,16	Electromagnetism	Types of magnetic materials: dia, para and ferromagnetic with their properties. Magnetic field and its units, magnetic intensity, magnetic lines of force, magnetic flux and units, magnetization Lorentz force (force on moving charge in magnetic field), Force on current carrying conductor	
15		4th Week	20,21,22,23	Semiconductor Physics	Energy bands in solids, Types of materials (insulator, semi-conductor, conductor), intrinsic and extrinsic semiconductors, p-n junction, junction diode and V-I characteristics	
16		5th week	27,28,29,30	Semiconductor Physics	Diode as rectifier – half wave and full wave rectifier (centre tapped), Photocells, Solar cells; working principle and engineering applications	
17	May	1st week				
18		2nd week	House Test			
19		3rd week	11,12,13,14	Modern Physics	Lasers: Energy levels, ionization and excitation potentials; spontaneous and stimulated emission; population inversion, pumping methods, optical feedback. Types of lasers; Ruby, He-Ne and semiconductor, laser characteristics, engineering and medical applications of lasers	
20		4th Week	18,19,20,21	Modern Physics	laser characteristics, engineering and medical applications of lasers, Fiber Optics: Introduction to optical fibers, light propagation, acceptance angle and numerical aperture, fiber types, applications in; telecommunication	
21		5th week	25,26	Modern Physics	Revision	

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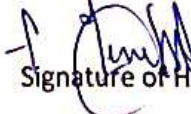


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**Lesson Plan  
(Labs/Workshop)**

Name of Teacher:- Nemjel Choudhary		Designation:- Senior Lecturer(AS&H)	Group:- G1	
Name of Lab/Workshop:- Applied Physics-II Lab		Class/Branch:- Automobile Engg/ 2nd Semester		
Sr. No.	Description of Practical Job	Date	Remarks	
1	To verify Ohm's law by plotting graph between current and potential difference	02-02-2026		
2	To verify laws of resistances in series and parallel combination	09-02-2026 16-02-2026		
3	To verify Kirchhoff's laws using electric circuits	23-02-2026 02-03-2026		
4	To draw V-I characteristics of a semiconductor diode (Ge, Si) and determine its knee voltage	09-03-2026 16-03-2026		
5	To find resistance of a galvanometer by half deflection method	23-03-2026 30-03-2026		
6	To convert a galvanometer into an ammeter	06-04-2026 13-04-2026		
7	To convert a galvanometer into a voltmeter	20-04-2026 27-04-2026		
8	To determine and verify the time period of a cantilever	11-05-2026 18-05-2026		

  
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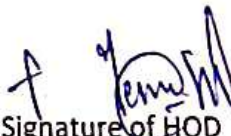
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**Lesson Plan**  
**(Labs/Workshop)**

(Lab/ Workshop)

Name of Teacher:- Nemjel Choudhary		Designation:- Senior Lecturer(AS&H)		Group:- G2	
Name of Lab/Workshop:- Applied Physics-II Lab		Class/Branch:- Automobile Engg/ 2nd Semester			
Sr. No.	Description of Practical job			Date	Remarks
1	To verify Ohm's law by plotting graph between current and potential difference			28-01-2026 04-02-2026	
2	To verify laws of resistances in series and parallel combination			11-02-2026 18-02-2026	
3	To verify Kirchhoff's laws using electric circuits			25-02-2026 11-03-2026	
4	To draw V-I characteristics of a semiconductor diode (Ge, Si) and determine its knee voltage			18-03-2026 25-03-2026	
5	To find resistance of a galvanometer by half deflection method			01-04-2026 08-04-2026	
6	To convert a galvanometer into an ammeter			22-04-2026	
7	To convert a galvanometer into a voltmeter			29-04-2026	
8	To determine and verify the time period of a cantilever			13-05-2026 20-05-2026	

  
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GP Talwar			Lesson Plan Subject: FEEE	
Dept. of Applied Science			Civil/Automobile Engg. 2nd Semester Session : 27th Jan to 27th May 2026	
			Total theory periods /week: 4	
S.no/unit	Month /week	Lecture		Reference books
1	Jan/4th	1	UNIT I :Overview of Electronic Components & Signals:introduction	1.Basic Electronics and linear Circuits By:NN Bhargava
		2	Passive Components: Resistances, Capacitors, Inductors.	
		3	Active Components: Transistors, FET, MOS	
		4	Active Components: CMOS and their Applications.	
	Feb/1st	5	Signals: DC/AC, voltage/current, periodic/non- periodic signals	
		6	average, rms, peak values, different types of signal waveforms	
		7	Ideal/non-ideal voltage/current sources.	
		8	Independent/dependent voltage current sources.	
2	Feb/2nd	9	UNIT II: Overview of Analog Circuits :Introduction	2.Basic Electrical and Electronics Engineering By: Jegathesan
		10	Operational Amplifiers-Ideal Op-Amp,	
		11	Practical op amp, Open loop and closed loop configurations	
		12	Application of Op-Amp as amplifier.	
	Feb/3rd	13	Application of Op-Amp as amplifier, adder.	
		14	Application of Op-Amp as differentiator and integrator.	
3	Feb/3rd	15	UNIT III :Overview of Digital Electronics: Introduction to Boolean Algebra	
		16	Electronic Implementation of Boolean Operations	
		17	Gates-Functional Block Approach	
		18	Storage elements-Flip Flops-A Functional block approach	
	Feb/4th	19	Counters:Ripple	
		20	Up/Down counter	
		21	Decade counter	
		22	Introduction to digital IC gates (TTL types)	
4	Mar /1st	23	Unit IV :Electric and Magnetic Circuits:Introduction	3. Basic Electrical Engineering By: Ritu Sahdev
		24	EMF, Current, Potential Difference,	
	Mar/2nd	25	Power and energy	
		26	M.M.F, magnetic force, permeability,	
		27	hysteresis loop, reluctance, leakage factor	
		28	BH curve,Electromagnetic induction	
	Mar /3rd	29	Faraday's laws of electromagnetic Induction,Lenz'S law	
		30	Dynamically induced emf; Statically induced emf	
		31	Equations of self and mutual inductance.	
		32	Analogy between electric and magnetic circuits.	

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5	Mar /4th	33	Unit V: A.C. Circuits:Introduction	4.Digital Electronics
		34	Cycle, Frequency, Periodic time, Amplitude, Angular velocity,	By: K S Jamwal
		35	RMS value, Average value, Form Factor, Peak Factor	
		36	impedance, phase angle, and power factor	
	April /1st	37	Mathematical and phasor representation of alternating emf and current	
		38	Voltage and Current relationship in Star and Delta connections	
		39	A.C in resistors, inductors and capacitors	
		40	A.C in R-L series, R-C series	
	April /2nd	41	A.C in R-C series	
		42	A.C in R-L-C series .	5.Fundamentals of Operational Amplifiers & Applications
6	April /2nd	43	A.C in R-L-C parallel circuits.	By: Dr.K.R.Valluvan)
		44	Power in A. C. Circuits.	
	April/3rd	45	Power in A. C. Circuits, power triangle.	
		46	Unit VI :Transformer and Machines:Introduction	6.Fundamental of Electrical and Electronics Engg.
	April /4th	47	General construction and principle of core	By: Avnish Paul
		48	General construction and principle of shell type of transformers;	
	May/1st	49	Emf equation and transformation ratio of transformers	
		50	Auto transformers	
		51	Basic principle of Electromechanical energy conversion.	7.Fundamental of Electrical and Electronics Engg.
	May/2nd		House test	
	May/3rd	53	Revision	By: R S Barwal and R.Choudhary
		54	Revision	
		55	Revision	
	May/4th	56	Revision	


  
Vijay Singh Raghwa  
Lecturer Electronics

  
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**Govt. Polytechnic Talwar**  
**Department of Applied sciences and humanities**  
**LESSON PLAN**

**Name of Teacher :-** Vinay Kumar Guleria **Subject:** Engg. Mechanics **Class:** 2nd sem Semester Auto Eng

S. No.	No. of Lectures	Name of Chapter	Contents to be taught	Remarks
1	12	<b>Unit- 1 Basics of Mechanics &amp; Force System</b>	Significance and relevance of Mechanics, Applied mechanics, Statics, Dynamics. Space, time, mass, particle, flexible body and rigid body. Scalar and vector quantity, Units of measurement (SI units) - Fundamental units and derived units. Force – unit, representation as a vector and by Bow's notation, characteristics and effects of a force, Principle of transmissibility of force, Force system and its classification. Resolution of a force - Orthogonal components of a force, moment of a force, Varignon's Theorem. Composition of forces – Resultant, analytical method for determination of resultant for concurrent, non-concurrent and parallel co-planar force systems – Law of triangle, parallelogram and polygon of forces.	
2	11	<b>Unit- 2 Equilibrium</b>	Equilibrium and Equilibrant, Free body and Free body diagram, Analytical and graphical methods of analyzing equilibrium. Lami's Theorem – statement and explanation, Application for various engineering problems. Types of beam, supports (simple, hinged, roller and fixed) and loads acting on beam (vertical point load, uniformly distributed load), Beam reaction for cantilever, simply supported beam with or without overhang – subjected to combination of Point load and uniformly distributed load. Beam reaction graphically for simply supported beam subjected to vertical point loads only.	
3	11	<b>Unit- 3 Friction</b>	Friction and its relevance in engineering, types and laws of friction, limiting equilibrium, limiting friction, co-efficient of friction, angle of friction, angle of repose, relation between co-efficient of friction and angle of friction. Equilibrium of bodies on level surface subjected to force parallel and inclined to plane. Equilibrium of bodies on inclined plane subjected to force parallel to the plane only.	
4	11	<b>Unit 4 - Centre of Gravity</b>	Centroid of geometrical plane figures (square, rectangle, triangle, circle, semi-circle, quarter circle). Centroid of composite figures composed of not more than two geometrical figures. Centre of Gravity of simple solids (Cube, cuboid, cone, cylinder, sphere, hemisphere) Centre of Gravity of composite solids composed of not more than two simple solids.	
5	11	<b>Unit- 5 Simple Lifting Machines</b>	Simple lifting machine, load, effort, mechanical advantage, applications and advantages. Velocity ratio, efficiency of machines, law of machine. Ideal machine, friction in machine, maximum Mechanical advantage and efficiency, conditions for reversibility. Velocity ratios of Simple axle and wheel, Differential axle and wheel, Worm and worm wheel, Simple screw jack	

  
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Lesson Plan

Session: January 2026 - June 2026

Name of Teacher:- Nemjel Choudhary		Designation:-Senior Lecturer (AS&H)	Group:G1
Name of Lab/Workshop:- Engineering Mechanics Lab		Class/Branch:- 2nd Sem/Auto Engg.	
Sr. No.	Name of Practical	Date	Remarks
1	To study various equipment related to Engineering Mechanics.	05-02-2026	
2	To find the M.A., V.R., Efficiency and law of machine for Differential Axle and Wheel.	19-02-2026	
3	To find the M.A., V.R., Efficiency and law of machine for Simple Screw Jack.	26-02-2026	
4	Derive Law of machine using Worm and worm wheel	05-03-2026	
5	Determine resultant of concurrent force system applying Law of Polygon of forces using forcetable.	12-03-2026	
6	Determine resultant of concurrent force system graphically.	19-03-2026	
7	Determine resultant of parallel force system graphically.	02-04-2026	
8	Verify Lami's theorem.	09-04-2026	
9	Study forces in various members of Jib crane.	16-04-2026	
10	Determine support reactions for simply supported beam.	23-04-2026	
11	Obtain support reactions of beam using graphical method.	30-04-2026	
12	Determine coefficient of friction for motion on horizontal and inclined plane.	07-05-2026	
13	Determine centroid of geometrical plane figure	14-05-2026	Revision- 21/5

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Lesson Plan

Session: January 2026 - June 2026

Name of Teacher:- Nemjel Choudhary		Designation:-Senior Lecturer (AS&H)	Group:G2
Name of Lab/Workshop:- Engineering Mechanics Lab		Class/Branch:- 2nd Sem/Auto Engg.	
Sr. No.	Name of Practical	Date	Remarks
1	To study various equipment related to Engineering Mechanics.	07-02-2026	
2	To find the M.A., V.R., Efficiency and law of machine for Differential Axle and Wheel.	12-02-2026	
3	To find the M.A., V.R., Efficiency and law of machine for Simple Screw Jack.	21-02-2026	
4	Derive Law of machine using Worm and worm wheel	28-02-2026	
5	Determine resultant of concurrent force system applying Law of Polygon of forces using forcetable.	07-03-2026	
6	Determine resultant of concurrent force system graphically.	28-03-2026	
7	Determine resultant of parallel force system graphically.	18-04-2026	
8	Verify Lami's theorem.	25-04-2026	
9	Study forces in various members of Jib crane.	25-04-2026	
10	Determine support reactions for simply supported beam.	02-05-2026	
11	Obtain support reactions of beam using graphical method.	02-05-2026	
12	Determine coefficient of friction for motion on horizontal and inclined plane.	16-05-2026	
13	Determine centroid of geometrical plane figure	23-05-2026	

  
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**GOVT. POLYTECHNIC TALWAR**  
**DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES**  
**LESSON PLAN**

Name of Teacher :- Nidhi Katoch Subject: Environmental Science Class: 2nd Semester Automobile Engg.

S.N.	Month	Week	Date	Name of Chapter	Contents to be taught	Remarks
1	January	5th week	30	UNIT - I: Ecosystem	Structure of ecosystem, Biotic & Abiotic components Food chain and food web	
2	February	1st week	2,6		Aquatic (Lentic and Lotic) and terrestrial ecosystem(Carbon, Nitrogen, Sulphur, Phosphorus cycle)	
3		2nd Week	9,13		Global warming: Causes, effects, process, Green House Effect, Ozone depletion	
4		3rd week	16,20	Unit- 2 Air and Noise Pollution	Definition of pollution and pollutant, Natural and manmade sources of air pollution (Refrigerants, I.C., Boiler).	
5		4th week	23,27		Gaseous Pollution Control: Absorber, Catalytic Converter, Effects of air pollution due to Refrigerants, I.C., Boiler.	
6	March	1st week	2,6		Noise pollution: sources of pollution, measurement of pollution level, Effects of Noise pollution, Noise pollution (Regulation and Control) Rules, 2000	
7		2nd Week	9,13	Unit- 3 Water and Soil Pollution	Sources of water pollution, Types of water pollutants, Characteristics of water pollutants Turbidity, pH, total suspended solids, total solids BOD and COD	Class Test - I
8		3rd week	16,20		Definition, calculation. 62 Waste Water Treatment: Primary methods: sedimentation, froth floatation, Secondary methods: Activated sludge treatment,	
9		4th week	23,27		Trickling filter, Bioreactor, Tertiary Method: Membrane separation technology, RO (reverse osmosis).	
9	April	5th week	30		Causes, Effects and Preventive measures of Soil Pollution: Causes-Excessive use of Fertilizers, Pesticides and Insecticides, Irrigation, E-Waste.	
10		2nd Week	6,10	Unit- 4 Renewable sources of Energy	Solar Energy: Basics of Solar energy. Flat plate collector (Liquid & Air). Theory of flat plate collector.	Class -Test -II
11		3rd week	13,17		Importance of coating: Advanced collector: Solar pond: Solar water heater, solar dryer Solar stills. Biomass: Overview of biomass as energy source: Thermal characteristics of biomass as fuel: Anaerobic digestion	
12		4th week	20,24		Biogas production mechanism: Utilization and storage of biogas. Wind energy: Current status and future prospects of wind energy: Wind energy in India: Environmental benefits and problem of wind energy.	
13		5th week	27		New Energy Sources: Need of new sources. Different types new energy sources. Applications of (Hydrogen energy, Ocean energy resources, Tidal energy conversion) Concept, origin and power plants of geothermal energy	
14	May	1st week	4,8	Unit-5 Solid Waste Management, ISO 14000 & Environmental Management	Solid waste generation: Sources and characteristics of: Municipal solid waste, E-waste, bio-medical waste Metallic wastes and Non-Metallic wastes (lubricants, plastics, rubber) from industries.	
		2nd Week				House Test
		3rd week	18,22		Collection and disposal: MSW (3R, principles, energy recovery, sanitary landfill), Hazardous Waste Air quality act 2004, air pollution control act 1981 and water pollution and control act 1996 Structure and role of Central and state pollution control board	
15		4th week	25		Concept of Carbon Credit, Carbon Footprint. Environmental management in fabrication industry ISO14000: Implementation in industries, Benefits.	

*Nidhi*  
27/01/2026  
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Name of Teacher:- Vikram Chand		Designation:- W.S. Instructor	
Name of Lab/Engineering Workshop Practise: Electrical		Class/Branch:- Automobile Engg/ 2nd Semester	
Description of Practical job		Group:- G1 and G2	
Sr. No		Date	Remarks
		G1 2	G2
1	Introduction of Electrical Material and Tools	28/3/21 1/2/21 28/3/21	27/2/21 01/2/21 27/2/21
2	Practical of Job. Lamp controlled by one switch and Two Switch.	9, 11	4, 10
3	Practical of Tube Light circuit checking Method of its Material	17, 23, 25	16, 18, 24
4	House Wiring of Two Room set with M.C.B. Box.	3, 10, 16	2, 9, 11
5	What is Multimeter How to use it.	18, 24, 30	17, 23, 25
6	Measurement of Voltage current, Resistance with Multimeter	1, 7, 13	31, 6, 8
7	Re-Practice of Electrical circuit and practical checking the Point used in college.	21, 27, 29	20, 22, 28
8	Battery, Combination Method of Battery.	11, 13, 19 25.	12, 18, 20 26

  
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25/1/26  
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**GOVT. POLYTECHNIC TALWAR**  
**DEPARTMENT OF APPLIED SCIENCES AND HUMANITIES**  
**LESSON PLAN**

Name of Teacher :- Rakesh Kumar    Subject: Engineering Workshop Practice (Welding Workshop)    Class: 2nd Semester Automobile Engg.

S.N.	Month	Contents to be taught	Remarks	
			G1	G2
1	January to February	Demonstration of different welding tools /Machines	30,5,7,13,20,26,28	29,31,6,12,19,21,27
2	March to April	Demonstration on Arc welding, gas welding, Mig, Mag welding, gas cutting and rebuilding of broken parts with welding.	6,12,19,27,2,9,16	5,7,13,20,28,4,10
3	April to May	One simple job involving Butt and Lap joint.	18,24,30,14,21,23	17,23,25,2,16,22

  
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29/01/26  
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