



Department of Mechanical Engineering
Raajdhani Engineering College, Bhubaneswar, Odisha-751017

LESSON PLAN

Faculty Name	PROF. MANAS RANJAN DAS		Name of the Program	Diploma in Mechanical Engineering	
Course Name	INDUSTRIAL ENGINEERING & MANAGEMENT		Course Code	TH-1 / (C 310)	
Course Year	3rd year	Semester	6th	Academic Period	2023-24
No. of Classes allotted per Week	04	Planned Classes Required to Complete the Course			60

Sl. No.	Topics to be covered	Module	No. of hours Required	Mode of Teaching	CO	BOOK	CHAPTER (PAGES)	OTHER SOURCE(IM)
1	Selection of Site of Industry, Define plant layout.	I	1	LM/ IM	CO1	T1 T2	T1 :4.1–4.35	https://youtu.be/-AC6Y9Leyak
2	Describe the objective and principles of plant layout.	I	1	LM/ IM	CO1	T1 T2	T1 :4.1–4.35	https://youtu.be/4vq0FKWYud8
3	Explain Process Layout, Product Layout and Combination Layout.	I	1	LM/ IM	CO1	T1 T2	T1 :4.1–4.35	https://youtu.be/DrO5sS51Yk8
4	Techniques to improve layout, Principles of material handling equipment.	I	1	LM/ IM	CO1	T1 T2	T1 :4.1–4.35 T1 :25.1-25.14	https://youtu.be/N733x0iLIHY
5	Plant maintenance, Importance of plant maintenance.	I	1	LM/ IM	CO1	T1	T1 :13.1-13.16	https://youtu.be/4ZXfpfs09g8



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						T2		
6	Break down maintenance.	II	1	LM/ IM	CO1	T1 T2	T1 :13.1-13.16	https://youtu.be/6LIK9XSv-OY
7	Preventive maintenance.	II	1	LM/ IM	CO1	T1 T2	T1 :13.1-13.16	https://youtu.be/TsDsE9fePLk
8	Scheduled maintenance.	II	1	LM/ IM	CO1	T1 T2	T1 :13.1-13.16	https://youtu.be/c0jua6R8EtI
9	.Surprise test/ Quiz test/Assignment	II	1	LM/ IM	CO1	T1 T2	T1 :4.1–4.35 T1 :13.1-13.16	
10	Previous year question paper discussion.	II	1	LM/ IM	CO1	T1 T2	T1 :4.1–4.35 T1 :13.1-13.16	
11	Introduction to Operations Research and its applications.	II	1	LM/ IM	CO2	T1 T2	T1 :11.1-11.39	https://youtu.be/_zhtDJX3kOY
12	Define Linear Programming Problem,	II	1	LM/ IM	CO2	T1 T2	T1 :11.1-11.39	https://youtu.be/uIIh4QgWLfi
13	Solution of L.P.P. by graphical method.	II	1	LM/ IM	CO2	T1 T2	T1 :11.1-11.39	https://youtu.be/SRF84VQP3LU



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14	Solution of L.P.P. by graphical method.	II	1	LM/ IM	CO2	T1 T2	T1 :11.1-11.39	https://youtu.be/q6xPMHry7Aw
15	Evaluation of Project completion time by Critical Path Method and PERT	II	1	LM/ IM	CO3	T1 T2	T1 :10.1-10.22	https://youtu.be/TuoxrttyxpQ
16	Numericals on Evaluation of Project completion time by Critical Path Method and PERT (Simple problems)-	II	1	LM/ IM	CO3	T1 T2	T1 :10.1-10.22	https://youtu.be/-TDh-5n90vk
17	Numericals on Evaluation of Project completion time by Critical Path Method and PERT (Simple problems)-	II	1	LM/ IM	CO3	T1 T2	T1 :10.1-10.22	https://youtu.be/-TDh-5n90vk
18	Explain distinct features of PERT with respect to CPM.	II	1	LM/ IM	CO3	T1 T2	T1 :10.1-10.22	https://youtu.be/dFTG3ohAcso
19	.Surprise test/ Quiz test/Assignment	II	1	LM/ IM	CO2& CO3	T1 T2	T1 :11.1-11.39 T1 :10.1-10.22	
20	Previous year question paper discussion.	II	1	LM/ IM	CO2& CO3	T1 T2	T1 :11.1-11.39 T1 :10.1-10.22	
21	Classification of inventory, Objective of inventory control.	II	1	LM/ IM	CO4	T1 T2	T1 :24.1-24.16	https://youtu.be/-54OFCE_qs



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22	Describe the functions of inventories.	II	1	LM/ IM	CO4	T1 T2	T1 :24.1- 24.16	https://youtu.be/QLj54CBVPhA
23	Benefits of inventory control.	III	1	LM/ IM	CO4	T1 T2	T1 :24.1- 24.16	https://youtu.be/0lrRvcSsVtE
24	Costs associated with inventory, Terminology in inventory control.	III	1	LM/ IM	CO4	T1 T2	T1 :24.1- 24.16	https://youtu.be/KdCVvZanwKM
25	Explain and Derive economic order quantity for Basic model	III	1	LM/ IM	CO4	T1 T2	T1 :24.1- 24.16	https://youtu.be/9_dqevGgG-o
26	Explain and Derive economic order quantity for Basic model. (Solve numerical)	III	1	LM/ IM	CO4	T1 T2	T1 :24.1- 24.16	https://youtu.be/4ml2s7IS9-c
27	Define and Explain ABC analysis.	III	1	LM/ IM	CO4	T1 T2	T1 :24.1- 24.16	https://youtu.be/tZxS7uCmIcU
28	Define and Explain ABC analysis. (Solve numerical)	III	1	LM/ IM	CO4	T1 T2	T1 :24.1- 24.16	https://youtu.be/fzY_wPtPkbM
29	.Surprise test/ Quiz test/Assignment	III	1	LM/ IM	CO4	T1 T2	T1 :24.1- 24.16	
30	Previous year question paper discussion.	III	1	LM/ IM	CO4	T1 T2	T1 :24.1- 24.16	



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31	Define Inspection and Quality control.	III	1	LM/ IM	CO5	T1 T2	T1 :8.1-8.48	https://youtu.be/Ey4MqC7Kp7g https://youtu.be/hSKxFRz2tvQ
32	Describe planning of inspection.	IV	1	LM/ IM	CO5	T1 T2	T1 :8.1-8.48	https://youtu.be/afrwuQXu2pE
33	Describe types of inspection.	IV	1	LM/ IM	CO5	T1 T2	T1 :8.1-8.48	https://youtu.be/Wn9kshbL3aE
34	Advantages and disadvantages of quality control, Study of factors influencing the quality of manufacture.	IV	1	LM/ IM	CO5	T1 T2	T1 :8.1-8.48	https://youtu.be/zYCDu9C8Jus
35	Explain the Concept of statistical quality control, Control charts (X, R, P and C - charts).	IV	1	LM/ IM	CO5	T1 T2	T1 :8.1-8.48 R2:266-301	https://youtu.be/7osSAKtss1Q
36	Numericals on Control charts (X, R, P and C - charts).	IV	1	LM/ IM	CO5	T1 T2	T1 :8.1-8.48	https://youtu.be/wJwHdXqYXZE
37	Numericals on Control charts (X, R, P and C - charts).	IV	1	LM/ IM	CO5	T1 T2	T1 :8.1-8.48	https://youtu.be/wJwHdXqYXZE
38	Methods of attributes, Concept of ISO 9001-2008.	IV	1	LM/ IM	CO5	T1 T2	T2 :489-513 R2:479-514	https://youtu.be/zFf4fe5wZ4c?t=222
39	Quality management system, Registration /certification procedure.	IV	1	LM/ IM	CO5	T1 T2	T2 :489-513	https://youtu.be/gKyecFOnFVI



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40	Benefits of ISO to the organization.	IV	1	LM/ IM	CO5	T1 T2	T2 :489-513	https://youtu.be/MIssDGB7pJc
41	JIT, Six sigma	IV	1	LM/ IM	CO5	T1 T2	T2 :514-525 R2:479-514	https://youtu.be/4EDYfSI-fmc https://youtu.be/zCTmN17ZDek
42	7S, Lean manufacturing	IV	1	LM/ IM	CO5	T1 T2	R2:511-513	https://youtu.be/renlXcpK9sk https://youtu.be/gixa9MHNPaM
43	Solve related problems on JIT, Six sigma, 7S, Lean manufacturing.	V	1	LM/ IM	CO5	T1 T2	T2 :514-525 R2:479-514	https://youtu.be/pzzku4PqdHQ https://youtu.be/8IkOrYgjz28
44	.Surprise test/ Quiz test/Assignment	V	1	LM/ IM	CO5	T1 T2	T2 :514-525 R2:479-514	
45	Previous year question paper discussion.	V	1	LM/ IM	CO5	T1 T2	T2 :514-525 R2:479-514	
46	PRODUCTION PLANNING AND CONTROL - Introduction	V	1	LM/ IM	C65	T1 T2	T1 :7.1-7.52	https://youtu.be/0x6A3YXOAtY
47	Major functions of production planning and control.	V	1	LM/ IM	CO6	T1 T2	T1 :7.1-7.52	https://youtu.be/bjz4pKsXyMs



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48	Methods of forecasting, Routing.	V	1	LM/ IM	CO6	T1 T2	T1 :7.1-7.52	https://youtu.be/M8Kiwv9gDJU
49	Routing	V	1	LM/ IM	CO6	T1 T2	T1 :7.1-7.52	https://youtu.be/M8Kiwv9gDJU
50	Scheduling.	V	1	LM/ IM	CO6	T1 T2	T1 :7.1-7.52	https://youtu.be/M8Kiwv9gDJU
51	Dispatching.	V	1	LM/ IM	CO6	T1 T2	T1 :7.1-7.52	https://youtu.be/M8Kiwv9gDJU
52	Controlling.	V	1	LM/ IM	CO6	T1 T2	T1 :7.1-7.52	https://youtu.be/M8Kiwv9gDJU
53	Solve numerical on Methods of forecasting.	VI	1	LM/ IM	CO6	T1 T2	T1 :7.1-7.52	https://youtu.be/PIvvWrvFDvY
54	Types of production, Mass production.	VI	1	LM/ IM	CO6	T1 T2	T1 :7.1-7.52	https://youtu.be/TWXAzr-Bhfc
55	Batch production.	VI	1	LM/ IM	CO6	T1 T2	T1 :7.1-7.52	https://youtu.be/TWXAzr-Bhfc



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56	Job order production.	VI	1	LM/ IM	CO6	T1 T2	T1 :7.1-7.52	https://youtu.be/TWXAzr-Bhfc
57	Solve numerical on Types of production.	VI	1	LM/ IM	CO6	T1 T2	T1 :7.1-7.52	https://youtu.be/epI_s4hITNw
58	Principles of product and process planning.	VI	1	LM/ IM	CO6	T1 T2	T1 :7.1-7.52	https://youtu.be/JNzvLWC2cGQ
59	Quiz Test/Assignment.	VI	1	LM/ IM	CO6	T1 T2	T1 :7.1-7.52	
60	Previous year question paper discussion.	VI	1	LM/ IM	CO6	T1 T2	T1 :7.1-7.52	



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LM: Learner Mode: Chalk & Talk, Lecture

IM: Interactive Mode: PPT, VIDEO and Animation

T1: INDUSTRIAL ENGINEERING & MANAGEMENT, O.P.KHANNA, DHANPAT RAI & SONS

T2: STATISTICAL QUALITY CONTROL, M.MAHAJAN, DHANPAT RAI & SONS (Selected portion of Chapter)

R1: INDUSTRIAL ENGG & PRODUCTIONS MANAGEMENT, MARTAND TELSANG, S.CHAND

R2: PRODUCTION & OPERATIONS MANAGEMENT, R.PANNEERSELVAM, PHI

Suggested link from NPTEL video/Suggested web reading:

<https://archive.nptel.ac.in/courses/112/107/112107292/#watch>

<https://archive.nptel.ac.in/courses/112/107/112107142/#watch>

<https://archive.nptel.ac.in/courses/112/107/112107143/#watch>

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Signature of the Faculty

Signature of the HOD