

# Bangladesh Polytechnic Institute

Technology: **Mechanical**

Semester: 6<sup>th</sup>

Sub. Name: **PLANT ENGINEERING AND MAINTENANCE (7063)**

T P C: 2 3 3

## Course Outline

Teacher Name: Md. Mominul Islam

Mob.No: 01740 91 87 34

Class No.	Discussion and Explanation of Topics/ Titles	Remarks
Class-1	<p>❖ <b><u>Understand the principles of installation and alignment of plant machinery.</u></b></p> <ul style="list-style-type: none"> <li>➤ Define plant and plant engineering.</li> <li>➤ Define installation and alignment.</li> <li>➤ Explain the need of proper installation and proper alignment of plant machinery.</li> </ul>	
Class-2	<p>❖ <b><u>Understand the principles of installation and alignment of plant machinery.</u></b></p> <ul style="list-style-type: none"> <li>➤ Define site preparation.</li> <li>➤ Explain the factors of site preparation in consideration of the floor.</li> <li>➤ Identify the vibration factor in consideration of the floor.</li> <li>➤ Describe the precedence of alignment of shaft and coupling.</li> </ul>	
Class-3	<p>❖ <b><u>Understand the principles of bearings and journals.</u></b></p> <ul style="list-style-type: none"> <li>➤ Define bearing.</li> <li>➤ Identify the different types of bearing with their uses.</li> <li>➤ Identify the materials used in manufacturing of bearing.</li> </ul>	
Class-4	<p>❖ <b><u>Understand the principles of bearings and journals.</u></b></p> <ul style="list-style-type: none"> <li>➤ Describe the characteristics of a good bearing materials and a good bearing.</li> <li>➤ Describe the bearing characteristic number and bearing module.</li> <li>➤ Describe co-efficient of friction of journal bearing.</li> </ul>	
Class-5	<p>❖ <b><u>Understand the concept of plant maintenance.</u></b></p> <ul style="list-style-type: none"> <li>➤ Define plant maintenance.</li> <li>➤ Describe the basic principles of maintenance.</li> <li>➤ Mention different types of plant maintenance work.</li> </ul>	
Class-6	<p>❖ <b><u>Understand the concept of plant maintenance.</u></b></p> <ul style="list-style-type: none"> <li>➤ Describe the preventive maintenance work of a boiler.</li> <li>➤ Explain the procedure of routine work and periodical inspection of a boiler.</li> <li>➤ Describe break down maintenance.</li> </ul>	

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Class-7	<p>❖ <b><u>Understand the concept of plant maintenance.</u></b></p> <ul style="list-style-type: none"><li>➤ Describe the maintenance work of machines such as lathe machine, milling machine.</li><li>➤ Describe the maintenance work of crane, lift, pump and compressor.</li></ul>	
Class-8	<p> . <b><u>Feedback</u></b></p>	
Class-9	<p> . <b><u>Feedback</u></b></p>	
Class-10	<p>❖ <b><u>Understand the methods of assembling and fitting.</u></b></p> <ul style="list-style-type: none"><li>➤ Describe the concept of assembling and fitting.</li><li>➤ Describe assembling method of fixed joint.</li><li>➤ Describe assembling method of keyed and splined joint.</li></ul>	
Class-11	<p>❖ <b><u>Understand the methods of assembling and fitting.</u></b></p> <ul style="list-style-type: none"><li>➤ Describe assembling method of gear and worm joint.</li><li>➤ Identify the different types of pipe fitting.</li></ul>	
Class-12	<p>❖ <b><u>Understand the concept of pipe work.</u></b></p> <ul style="list-style-type: none"><li>➤ Identify the materials used in manufacturing of pipe.</li><li>➤ Identify different types of pipes with their specification and uses.</li><li>➤ Mention the uses of different types of pipe fitting.</li></ul>	
Class-13	<p>❖ <b><u>Understand the concept of pipe work.</u></b></p> <ul style="list-style-type: none"><li>➤ Define seal and gasket.</li><li>➤ Distinguish between seal and gasket.</li><li>➤ Describe the uses of seal and gasket.</li></ul>	
Class-14	<p>❖ <b><u>Understand the concept of pipe work.</u></b></p> <ul style="list-style-type: none"><li>➤ Explain the methods of corrosion protection of pipe.</li><li>➤ Describe the color code of pipe used in industry.</li></ul>	
Class-15	<p>❖ <b><u>Understand lubricants, additives and their uses.</u></b></p> <ul style="list-style-type: none"><li>➤ Define and classify lubricants.</li><li>➤ List the properties of good lubricant.</li><li>➤ Define and classify additives.</li></ul>	
Class-16	<p>❖ <b><u>Understand lubricants, additives and their uses.</u></b></p> <ul style="list-style-type: none"><li>➤ Describe the function of different types of additives.</li><li>➤ Define grease.</li><li>➤ Indicate the specification of grease.</li></ul>	

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Class-17	<p>❖ <b><u>Understand lubricants, additives and their uses.</u></b></p> <ul style="list-style-type: none"> <li>➤ Point out the application field of grease.</li> <li>➤ Identify lubricants used in bearing. <ul style="list-style-type: none"> <li>➤ Describe the characteristics of good lubricants used in bearing..</li> </ul> </li> </ul>	
Class-18	<p> <b><u>Class test-1</u></b></p>	
	<p> <b><u>Mid term Exam</u></b></p>	
Class-19	<p>❖ <b><u>Understand the boiler for effective and economic steam generation.</u></b></p> <ul style="list-style-type: none"> <li>➤ Describe boiler.</li> <li>➤ Identify different types of boiler.</li> <li>➤ Describe different types of boiler.</li> <li>➤ Differentiate water and fire tube boiler.</li> </ul>	
Class-20	<p>❖ <b><u>Understand the boiler for effective and economic steam generation.</u></b></p> <ul style="list-style-type: none"> <li>➤ State the meaning of boiler accessories and mountings.</li> <li>➤ Identify and list the boiler accessories and mountings.</li> <li>➤ Describe boiler capacity and specification.</li> </ul>	
Class-21	<p> <b><u>Feedback</u></b></p>	
Class-22	<p> <b><u>Feedback</u></b></p>	
Class-23	<p>❖ <b><u>Understand the boiler for effective and economic steam generation.</u></b></p> <ul style="list-style-type: none"> <li>➤ Explain the necessity of water treatment.</li> <li>➤ Mention the advantages of economizer and super heater.</li> <li>➤ Describe the uses of steam.</li> </ul>	
Class-24	<p>❖ <b><u>Understand the use of different types of steam turbines.</u></b></p> <ul style="list-style-type: none"> <li>➤ State the meaning of steam turbine.</li> <li>➤ Identify the different types of steam turbine.</li> </ul>	
Class-25	<p>❖ <b><u>Understand the use of different types of steam</u></b></p>	

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	<b><u>turbines.</u></b> <ul style="list-style-type: none"><li>➤ Describe the principle of impulse and reaction turbine.</li><li>➤ Describe the procedure of operation of turbine.</li></ul>	
Class-26	❖ <b><u>Understand the use of different types of gas turbines.</u></b> <ul style="list-style-type: none"><li>➤ State the meaning of gas turbine.</li><li>➤ Identify the different types of gas turbine.</li></ul>	
Class-27	❖ <b><u>Understand the use of different types of gas turbines.</u></b> <ul style="list-style-type: none"><li>➤ Describe the operation of closed cycle constant pressure and constant volume combustion gas turbine.</li><li>➤ Mention the uses of gas turbine.</li></ul>	
Class-28	❖ <b><u>Understand the industrial faults and its causes.</u></b> <ul style="list-style-type: none"><li>➤ Describe the industrial faults.</li><li>➤ Identify the different types of faults.</li><li>➤ Outline the causes of faults.</li></ul>	
Class-29	❖ <b><u>Understand the industrial faults and its causes.</u></b> <ul style="list-style-type: none"><li>➤ Describe the techniques of finding faults.</li><li>➤ Mention the safety and controlling devices of electric supply.</li></ul>	
Class-30	 <b><u>Feedback</u></b>	
Class-31	 <b><u>Feedback</u></b>	
Class-32	 <b><u>Class test-2</u></b>	

### Reference Book:-

1. Plant Engineering and Maintenance – R. K. Jain/R. S. Khurmi.
2. Production Technology – R. K. Jain.