

# BHARAT INSTITUTE OF ENGINEERING & TECHNOLOGY

**SIVARAM VIHAR, GHATAKESWAR HILLS  
MOHADA, BERHAMPUR (GM.)**




## STUDENT'S ATTENDANCE REGISTER

| Time |                       |                       |                       |                       |  |
|------|-----------------------|-----------------------|-----------------------|-----------------------|--|
| Day  | 09.55<br>10.45        | 11.35<br>12.25        | 10.45<br>11.35        | 9.55<br>10.45         |  |
| TOE  | Electrical<br>Machine |                       |                       |                       |  |
| WED  |                       | Electrical<br>Machine |                       |                       |  |
| FRI  |                       |                       | Electrical<br>Machine |                       |  |
| SAT  |                       |                       |                       | Electrical<br>Machine |  |

|                            |  |                                  |
|----------------------------|--|----------------------------------|
| Year/ Session              | 20 <sup>th</sup> /2023 (C)                   | From - 14/02/2023 to: 23/05/2023 |
| Semester & Branch          | 4 <sup>th</sup> Sem / E & Telecommunication. |                                  |
| Subject with Code          | Electrical Machine (Th-1)                    |                                  |
| Name of the Faculty Member | Er. R. Srinivas                              |                                  |

# B.I.E.T., COURSE PLAN

| Month         | Week            | Class Day | Theory/Practical Topic  |
|---------------|-----------------|-----------|---|
| February 2023 | 3 <sup>rd</sup> | 14/02/23  | <u>Unit-1</u><br><u>Electrical Material:</u><br><u>1.1:</u> Properties & uses of different conducting material.<br><u>1.2:</u> Properties & uses of various insulating material used in electrical engineering.<br><u>1.3:</u> Various magnetic materials & their uses. |
|               |                 | 15/02/23  |   |
|               |                 | 17/02/23  |   |
|               | 4 <sup>th</sup> | 21/02/23  | <u>Unit-2:</u><br><u>DC Generator:</u><br><u>2.1:</u> Construction, principle & application of DC Generator.<br><u>2.2:</u> Classify DC Generator including voltage equation.   |
|               |                 | 22/02/23  |   |
|               |                 | 24/02/23  |   |
|               |                 | 25/02/23  |   |
|               |                 |           |   |

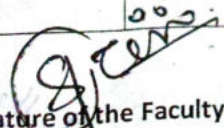
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| Month      | Week            | Class Day | Theory/Practical Topic  |
|------------|-----------------|-----------|---|
| February   | 5 <sup>th</sup> | 28/02/23  | <u>2.3</u> : Derive EMF equation & 5 sample problems.                                   |
| March 2023 | 1 <sup>st</sup> | 01/03/23  | <u>2.4</u> : Parallel operation of DC Generators.                                       |
|            |                 | 03/03/23  | <u>Unit: 3</u> :<br><u>DC Motor</u> :<br><u>3.1</u> : Principle of working of DC motor. |
|            |                 | 04/03/23  | <u>3.2</u> : Concept of development of torque & back EMF in DC                          |
|            | 2 <sup>nd</sup> | 10/03/23  | <u>3.3</u> : motor including simple problems.   |
|            |                 | 11/03/23  | <u>3.3</u> : Derive equation relating to back emf, current, speed & torque equation.    |
|            | 3 <sup>rd</sup> | 14/03/23  |   |
|            |                 | 15/03/23  | <u>3.4</u> : Classify DC motors & explain characteristics, application.                 |

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| March 2023 | 3 <sup>rd</sup> | 17/03/23  | <u>3.5</u> : Three point & four point static of DC motor by solid state converter.  |
|            |                 | 18/03/23  |   |
|            | 4 <sup>th</sup> | 21/03/23  | <u>3.6</u> : Speed of DC motor by field control and armature control method.  |
|            |                 | 22/03/23  | <u>3.7</u> : Power stages of DC motors & derive efficiency of a DC motors   |
|            |                 | 24/03/23  | <u>Unit: 4</u> :<br><u>AC Circuits</u> :<br><u>4.1</u> : Mathematical representation of phasors, Significant of operator "j".   |
|            |                 | 25/03/23  | <u>4.2</u> : Addition, subtraction, Multiplication and Division of phasor quantities.   |
|            | 5 <sup>th</sup> | 28/03/23  | <u>4.3</u> : AC Series circuits containing resistance, capacitance, Conception of active, reactive and apparent power and Q-factor of series circuits & solve related problems. |
|            |                 | 29/03/23  |   |
| 31/03/23   |                 |           |   |

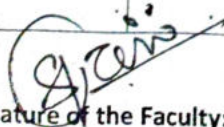
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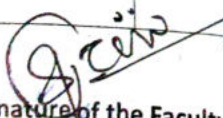
| Month      | Week            | Class Day | Theory/Practical Topic   |  |
|------------|-----------------|-----------|--|--|
| April 2023 | 2 <sup>nd</sup> | 04/04/23  | <u>4.4:</u> Find the relation of AC parallel circuits containing Resistances, Inductances & Capacitances. Q-factor of parallel circuits. |  |
|            |                 | 05/04/23  |  |  |
|            |                 | 08/04/23  |  |  |
|            | 3 <sup>rd</sup> |           | 11/04/23   | <u>Unit: 5:</u><br><u>Transformer:</u><br><u>5.1:</u> Ideal transformer.   |
|            |                 |           | 12/04/23   | <u>5.2:</u> Construction & working principle of transformer.   |
|            |                 |           | 15/04/23   | <u>5.3:</u> Derive emf equation of transformer, voltage transformation ratio.                                      |
|            |                 |           | 18/04/23   | <u>5.4:</u> Discuss flux, current, EMF components of transformer and their phasor diagram under no load condition. |
|            | 19/04/23        |           |  |  |

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| Month      | Week            | Class Day  | Theory/Practical Topic   |
|------------|-----------------|--|--|
| April 2023 | 4 <sup>th</sup> | 21/04/23   | <u>5.5</u> : Phasor representation of transformer flux, currents in primary and secondary. Voltage under loaded condition. |
|            |                 | 22/04/23   | <u>5.6</u> : Types of losses on single phase (1- $\phi$ ) transformer.   |
|            | 25/04/23        | <u>5.7</u> : Open Circuit & Short-circuit test (simple problems) |  |
|            | 26/04/23        | <u>5.8</u> : Parallel operation of transformer.                  |  |
|            | 28/04/23        | <u>5.9</u> : Auto transformer.                                   |  |

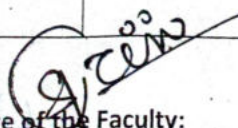
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|------------|-----------------|-----------|--|
| April 2023 | 5 <sup>th</sup> | 29/04/23  | <u>Unit: 6:</u><br><u>Induction Motor:</u><br>6.1: Construction feature, types of three-phase induction motor. |
|            |                 | 02/05/23  | 6.2: Principle of development of rotating magnetic field in the stator.  |
| May 2023   | 1 <sup>st</sup> | 03/05/23  | 6.3: Establish relationship between synchronous speed, actual speed and slip of induction motor.               |
|            |                 | 06/05/23  |  |
|            | 2 <sup>nd</sup> | 09/05/23  | 6.4: Establish relationship between torque, rotor current and power factor.                                    |
|            |                 | 10/05/23  | 6.5: Explain starting of an induction motor by using DOL and Star-Delta starter.                               |
|            |                 | 12/05/23  | State industrial use of induction motor.   |

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|----------|-----------------|-----------|--|
| May 2023 | 2 <sup>nd</sup> | 13/05/23  | <u>Unit: 7:</u><br><u>Single phase induction motor:</u><br><u>7.1: Construction features and principle of operation of capacitor type and shaded pole type of single phase induction motor.</u><br><u>7.2: Explain construction &amp; operation of AC series motor.</u><br><u>7.3: Concepts of alternator &amp; its application.</u> |
|          |                 | 16/05/23  |  |
|          | 3 <sup>rd</sup> | 17/05/23  |  |
|          |                 | 20/05/23  |  |
|          | 4 <sup>th</sup> | 23/05/23  |  |

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