



SWARNANDHRA COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous)

Accredited by NBA, AICTE, NEW DELHI • Accredited by NAAC with "A" Grade – 3.32/4.00 CGPA
Recognized by UGC Under Sections 2(f) & 12 (B) of UGC Act 1956
Approved by AICTE, New Delhi, Permanent Affiliated to JNTU K, Kakinada

Seetharampuram, NARSAPUR-534 280, W.G-Dist., Andhra Pradesh

Department of Electrical and Electronics Engineering

TEACHING PLAN

| Course Code | Course Title | Semester | Branches | Contact Periods/ Week | Academic Year | Date of Commencement of Semester |
|---|---|-------------------------------|---|-----------------------|---------------|----------------------------------|
| 20EE5E01 | UEE | V | EEE | 6 | 2023-2024 | 05/06/2024 |
| Course Outcomes: After successful completion of this course, students should be able to: | | | | | | |
| 1 | To Understanding of selection of drives for industrial application | | | | | |
| 2 | Distinguish between various types of heating methods and Welding methods | | | | | |
| 3 | To study the basic principles of illumination and its measurement | | | | | |
| 4 | To understand the basic principle of electric traction including speed-time curves | | | | | |
| 5 | To understand the method of calculation of various traction system for braking, acceleration and other related parameters | | | | | |
| Unit | Outcome/ Bloom's Level | Topics No. | Topics/ Activity | Text Book/ Reference | Contact Hour | Delivery Method/ LMS |
| 1 | CO1: To Understanding of selection of drives for industrial application | 1. Selection of Motors | | | | |
| | | 1.1 | Selection of Motors | T1, R1 | 1 | Chalk & Talk |
| | | 1.2 | Choice of motor | T1, R1 | 1 | Chalk & Talk |
| | | 1.3 | type of electric drives | T1, R1 | 1 | Chalk & Talk |
| | | 1.4 | starting and running characteristics | T1, R1 | 1 | Chalk & Talk |
| | | 1.5 | speed control | T1, R1 | 1 | Chalk & Talk |
| | | 1.6 | temperature rise | T1, R1 | 1 | Chalk & Talk |
| | | 1.7 | applications of electric drives | T1, R1 | 1 | Chalk & Talk |
| | | 1.8 | types of industrial loads | T1, R1 | 1 | Chalk & Talk |
| | | 1.9 | Continuous loads | T1, R1 | 1 | Chalk & Talk |
| | | 1.10 | intermittent loads | T1, R1 | 1 | Chalk & Talk |
| | | 1.11 | variable loads | T1, R1 | 1 | Chalk & Talk |
| | | 1.12 | load equalization | T1, R1 | 1 | Chalk & Talk |
| Content beyond syllabus (if need) | | | Introduction to Energy Efficient motors | T1, R1 | 1 | Chalk & Talk |
| Total | | | | | 13 | |



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| | | | | | | |
|-----------------------------------|---|--|--|-----------|---|----------------------|
| II | CO2: Distinguish between various types of heating methods and Welding methods | 2.Electric Heating & Electric Welding | | | | |
| | | 2.1 | Electric Heating & Electric Welding; | T1, R2 | 1 | Chalk & Talk |
| | | 2.2 | Advantages and methods of electric heating | T1, R2 | 1 | Chalk & Talk |
| | | 2.3 | resistance heating | T1, R2 | 1 | Chalk & Talk |
| | | 2.4 | induction heating | T1, R2 | 1 | Chalk & Talk |
| | | 2.5 | dielectric heating | T1, R2 | 1 | Chalk & Talk |
| | | 2.6 | Electric welding | T1, R2 | 1 | Chalk & Talk |
| | | 2.7 | Resistance welding | T1, R2 | 1 | Chalk & Talk |
| | | 2.8 | arc welding | T1, R2 | 1 | Chalk & Talk |
| | | 2.9 | Electric welding equipment | T1, R2 | 1 | Chalk & Talk |
| | | 2.10 | comparison between A.C. and D.C. Welding | T1, R2 | 1 | Chalk & Talk |
| Content beyond syllabus (if need) | | | | | | |
| Total | | | | 10 | | |
| III | CO3: To study the basic principles of illumination and its measurement | 3.Illumination fundamentals & Various Methods | | | | |
| | | 3.1 | Illumination fundamentals | T2, R1 | 1 | Chalk & Talk |
| | | 3.2 | Illumination fundamentals & Various Methods | T2, R1 | 1 | Chalk & Talk |
| | | 3.3 | Introduction | T2, R1 | 1 | Chalk & Talk |
| | | 3.4 | terms used in illumination | T2, R1 | 1 | Chalk & Talk ,PPT |
| | | 3.5 | laws of illumination | T2, R1 | 1 | Chalk & Talk |
| | | 3.6 | polar curves | T2, R1 | 1 | Chalk & Talk |
| | | 3.7 | integrating sphere | T2, R1 | 1 | Chalk & Talk |
| | | 3.8 | lux meter | T1, R1 | 1 | Chalk & Talk |
| | | 3.9 | sources of light | T1, R1 | 1 | Chalk & Talk, PPT |
| | | 3.10 | Discharge lamps, | T2, R1 | 1 | Chalk & Talk |
| | | 3.11 | MV and SV lamps | T2, R1 | 1 | Chalk & Talk |
| | | 3.12 | comparison between tungsten filament lamps and fluorescent tubes | T2, R1 | 1 | Chalk & Talk |
| | | 3.13 | Basic principles of light control | T2, R1 | 1 | Chalk & Talk |



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| | | | | | | |
|-----------------------------------|---|----------------------------------|--|-----------|----------------|-------------------|
| | | 3.14 | Types and design of lighting | T2, R1 | 1 | Chalk & Talk |
| | | 3.15 | flood lighting | T2, R1 | 1 | Chalk & Talk |
| | | 3.16 | LED lighting | T2, R1 | 2 | Chalk & Talk |
| Content beyond syllabus (if need) | | | | | | |
| Total | | | | | 17 | |
| IV | CO4: To understand the basic principle of electric traction including speed-time curves of different traction services | 4. Electric Traction – I | | | | |
| | | 4.1 | Electric Traction – I | T2, R1 | 1 | Chalk & Talk |
| | | 4.2 | System of electric traction and track electrification | T2, R1 | 2 | Chalk & Talk, PPT |
| | | 4.3 | Review of existing electric traction systems in India | T2, R1 | 2 | Chalk & Talk |
| | | 4.4 | Special features of traction motor | T2, R1 | 2 | Chalk & Talk |
| | | 4.5 | Mechanics of train movement | T1, R2 | 2 | Chalk & Talk |
| | | 4.6 | Speed-time curves for different services | T1, R1 | 1 | Chalk & Talk |
| | | 4.7 | Trapezoidal speed time curves | T1, R1 | 1 | Chalk & Talk |
| | | 4.8 | quadrilateral speed time curves | T1, R1 | 1 | Chalk & Talk |
| Content beyond syllabus (if need) | | | | | | |
| Total | | | | | 12 | |
| V | CO5: To understand the method of calculation of various traction system for braking, acceleration and other | 5. Electric Traction – II | | | | |
| | | 5.1 | Electric Traction – II | T2, R1 | 3 | Chalk & Talk |
| | | 5.2 | Calculations of tractive effort | T2, R1 | 2 | Chalk & Talk |
| | | 5.3 | Specific energy consumption for given run | T2, R1 | 2 | Chalk & Talk |
| | | 5.4 | Effect of varying acceleration and braking retardation | T2, R1 | 1 | Chalk & Talk |
| | | 5.5 | Adhesive weight | T2, R1 | 1 | Chalk & Talk |
| | | 5.6 | braking retardation | T2, R1 | 1 | Chalk & Talk |
| | 5.7 | adhesive weight and | T2, | 1 | Chalk & Talk , | |



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| | | | coefficient | RI | | PPT |
|------------------------------------|---|------------------------|---------------------------------------|----------------------------|----|--------------|
| | 5.8 | | Principles of energy efficient motors | T2, RI | 1 | Chalk & Talk |
| Content beyond syllabus (if need) | | | | | | |
| Total | | | | | 12 | |
| Cumulative Proposed Periods | | | | | 64 | |
| Text Books: | | | | | | |
| S. No. | Author, Book Title, Edition, Publisher, Year of Publication | | | | | |
| 1 | Utilization of Electric Energy - by E. Openshaw Taylor, Orient Longman | | | | | |
| 2 | Art & Science of Utilization of electrical Energy - by Partab, Dhanpat Rai & Sons | | | | | |
| Reference Books: | | | | | | |
| S. No | Authors, Book Title, Edition, Publisher, Year of Publication | | | | | |
| 1 | Utilization of Electrical Power including Electric drives and Electric traction - by N.V.Suryanarayana, New Age International (P) Limited, Publishers, 1996 | | | | | |
| 2 | Generation, Distribution and Utilization of electrical Energy - by C.L. Wadhwa, New Age International (P) Limited, Publishers, 1997 | | | | | |
| 3 | Technical manual on uninterruptible power supply system by headquarters, department of the army available at: http://webbooks.net/freestuff/ups.pdf | | | | | |
| Web Details: | | | | | | |
| 1 | https://www.youtube.com/watch?v=djblm-xWo2w&t=183s | | | | | |
| 2 | https://www.youtube.com/watch?v=kl-TmerCvDE&t=35s | | | | | |
| 3 | https://www.youtube.com/watch?list=PLp6ek2hDcoND7i5-DAD9mPmYF1Wg6ROdO&v=pwjrtljGak | | | | | |
| 4 | https://www.youtube.com/watch?v=WuOq_k3jj2A | | | | | |
| 5 | https://www.youtube.com/watch?v=aPY3NYaNSpc&list=PLTv19Zbw92D-OLuFP_u6xDeJobKxPe176 | | | | | |
| 6 | https://www.youtube.com/watch?v=9Xmo_cKHtmw&list=PLs5_Rtf2P2r7Cii8XOcYx9pOeuU7XsnJO | | | | | |
| | | | Name | Signature with Date | | |
| i. | Course Coordinator | Mr.P.Ramachandramurthy | <i>P.R.C. Murthy</i> 06/06/24 | | | |
| ii. | Module Coordinator | Dr. V.Madhu | <i>V. Madhu</i> 16/6/24 | | | |
| iii. | Programme Coordinator | Dr.M. Sridhar, | <i>M. Sridhar</i> 16/6/24 | | | |

S
Principal