



"Empowerment through quality technical education"
Dr D Y Patil Educational Enterprises Charitable Trust's

AJEENKYA

DY PATIL SCHOOL OF ENGINEERING

(Formerly known as DY Patil School of Engineering)

AICTE ID - 1-3847411

AISHE Code: C-46648

DTE Code: EN6732

SPPU PUN Code: CEGP015720

(Approved by AICTE, Recognized by Govt. of Maharashtra, Affiliated to Savitribai Phule Pune University)

(Accredited by NAAC, NABL & ISO 9001:2015 & 21001:2018 Certified Institute)

Criteria 1

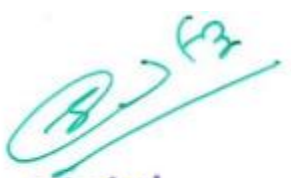
1.1: Curricular Planning and Implementation

1.1.1: The Institution ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of continuous internal Assessment.

List of supporting documents

| Sr. No. | Name of the Document |
|---------|--------------------------------|
| 1. | SPPU academic calendar |
| 2. | Institute academic calendar |
| 3. | Departmental academic calendar |
| 4. | Subject Choice for faculty |
| 5. | Load Distribution |
| 6. | Academic Progress Report |
| 7. | Industrial visit Report |
| 8. | Seminar/Guest Lecture Report |
| 9. | Result Analysis |
| 10. | Course File |




Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune

Savitribai Phule Pune University
(Formerly University of Pune)

Circular No. 484 of 2022

**Dates of Commencement and Conclusion of terms for the Academic Year 2022-23
for University Department / Affiliated Colleges / Recognised Institutes.**

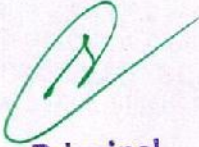
It is hereby informed that, the dates of commencement and conclusion of the First and Second term of University Courses, under various faculties, for the academic year 2022-23 shall be as under as per DTE & CET Cell admission notification:

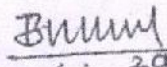
| Sr No | Name of the Courses , Faculties & Year | 2022 - 2023 | | | |
|-------|---|--------------|------------|--------------|------------|
| | | First Term | | Second Term | |
| | | Commencement | Conclusion | Commencement | Conclusion |
| 1 | Science & Technology | | | | |
| | B.E./B.Tech : Ist Year | 04/11/2022 | 20/02/2023 | 20/03/2023 | 15/07/2023 |
| | M.E./M.Tech : Ist Year | 27/10/2022 | 20/02/2023 | 20/03/2023 | 15/07/2023 |
| 2 | Commerce & Management | | | | |
| | M.B.A. : Ist Year | 10/11/2022 | 03/03/2023 | 20/03/2023 | 15/07/2023 |
| | M.C.A. : Ist Year | 09/11/2022 | 03/03/2023 | 20/03/2023 | 15/07/2023 |
| 3 | Humanities | | | | |
| | L.L.B. : Ist Year (3 Years) | 13/12/2022 | 04/04/2023 | 24/04/2023 | 12/08/2023 |
| | L.L.B. : Ist Year (5 Years) | 13/12/2022 | 04/04/2023 | 24/04/2023 | 12/08/2023 |
| | L.L.M. : Ist & IInd Year | 03/10/2022 | 28/01/2023 | 20/02/2023 | 17/06/2023 |
| 4 | Inter-disciplinary Studies | | | | |
| | B.Ed. : Ist Year | 19/12/2022 | 12/04/2023 | 24/04/2023 | 12/08/2023 |
| | B.P.Ed. : Ist Year | 12/12/2022 | 04/04/2023 | 24/04/2023 | 12/08/2023 |
| | M.Ed. /M. P. Ed. | 14/12/2022 | 04/04/2023 | 18/04/2023 | 05/08/2023 |
| | Fine Arts | 12/12/2022 | 04/04/2023 | 24/04/2023 | 12/08/2023 |

NOTE :

1. In case, the Principal of the Affiliated Colleges require to give additional holiday in exceptional circumstances, he/she may do so by compensating the same by keeping the College working on Sunday.

Ganeshkhind, Pune-07
Ref. No. PGS/ 6275
Date: 29/12/2022



Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune


29/12/2022
Assistant Registrar
(P.G. Admission)



| JUNE 2022 | | | | | | | | a. Admission Committee Meeting with Principal b. Staff identification, advertisement, recruitment c. Meeting for preparation of annual budget d. First Meeting of College Development Committee [CDC] e. A. Y. 2021-22 Teacher diary submission f. Staff performance appraisal g. Dead stock verification h. 360 Degree Feedback of Institute Staff i. Service book updation j. A. Y. 2022-23 IQAC plan of action k. AQAR 2022-23 Activity Calendar l. 5 Days (30 hours) Faculty development Program /Workshop for Teaching from department of E&TC Enggining |
|-------------|--------|----------|------------|-----|-----|-----|-------|--|
| SUN | MON | TUE | WED | THU | FRI | SAT | | |
| | | | 1 | 2 | 3 | 4 | a-b | |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 | c-d-e | |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 | f-g-h | |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | i-j-k | |
| 25 | 27 | 28 | 29 | 30 | | | l | |
| JULY 2022 | | | | | | | | a. IQAC Meeting No. 1 for Annual Planning. b. NAAC & AQAR Criterion Chairpersons Meeting with Principal & IQAC Coordinator for execution of AQAR/NAAC activities Calendar c. Department Academic Calendar d. Cell Coordinator Meeting with Principal & IQAC Coordinator e. Meeting of Section Incharges (TPO, CEO, Librarian, SDO) with Principal f. Statutory & Non-Statutory Committee Meeting with Principal g. Load Distribution, Course File, Staff Portfolio & Time table h. Commencement of Teaching: SEM-I (18/07/2022) i. Induction program for Staff & students j. Identification of Slow learners & advanced learners k. 5 Days (30 hours) Faculty development Program/Workshop for Teaching from department of Mechanical Engineering l. Bridge course for Slow Learners m. Approval Process for Staff |
| SUN | MON | TUE | WED | THU | FRI | SAT | | |
| | | | | | 1 | 2 | a-b | |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 | c-d-e | |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | f-g | |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 | h-i-j | |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 | k-l-m | |
| 31 | | | | | | | | |
| AUGUST 2022 | | | | | | | | a. Administrative Training Program for Non-Teaching Staff from IQAC b. Notice for Student Eligibility & Scholarship Form Submission c. University Affiliation d. 15th August - Independence Day Celebration e. Student's Feedback - I, Feedback Analysis & Action Taken Report f. Academic Progress Report - I g. Student's attendance, defaulter List-I & Action Taken Report h. Unit Test -I & Result Analysis i. Remedial Teaching & Retest j. Department Advisory Board Meeting-I |
| SUN | MON | TUE | WED | THU | FRI | SAT | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | a | |
| 7 | 8 | 9 Mouram | 10 | 11 | 12 | 13 | b-c | |
| 14 | 15-Aug | 16-Parsi | 17 | 18 | 19 | 20 | d-e-f | |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | g-h | |
| 28 | 29 | 30 | 31- Ganesh | | | | i-j | |




Principal
 Ajeenkya DY Patil School of
 Engineering, Lohegaon, Pune

| September 2022 | | | | | | | |
|----------------|-----------|------------|------------|-----|-----|-----|-------|
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | | | | 1 | 2 | 3 | a-b |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 | c |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | d |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 | e-f |
| 25 | 26 | 27 | 28 | 29 | 30 | | g-h |
| October 2022 | | | | | | | |
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | | | | | | 1 | |
| 2 | 3 | 4 | 5-Dussehra | 6 | 7 | 8 | a |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | b |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 | c-d-e |
| 23 | 24-Diwali | 25 | 26-Bhaubij | 27 | 28 | 29 | f |
| 30 | 31 | | | | | | |
| November 2022 | | | | | | | |
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | | 1 | 2 | 3 | 4 | 5 | a-b |
| 6 | 7 | 8-Gurmanak | 9 | 10 | 11 | 12 | c |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | d |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 | e |
| 27 | 28 | 29 | 30 | | | | f |

a. Student Notice for Exam form Submission
b. SPPU INSEM EXAM , Invigilation & CAP duty
c. Parents Teacher's Meet-I (PTM-I)
d. Field Projects/Industrial Visits
e. Academic Progress Report - II (APR-II)
f. Student's attendance & defaulter List-II
g. Review Meeting of AQAR chairpersons, Cell coordinators, Committee Coordinators with Principal & IQAC
h. IQAC Meeting No. 2

a. Student's Feedback - II, Feedback Analysis & Action Taken Report
b. Unit Test -II (UT- II) & Result Analysis of UT-II
c. Remedial Teaching & Retest
d. Audits, Review Meeting & Submission of AQAR 2021-22 to NAAC
e. Review Meeting & Submission of NIRF 2023 to MHRD
f. Diwali Holidays

a. Mock Examination (OR/PR), Course Exit Survey, Student Submission
b. Conclusion of Teaching: SEM-I (5/11/2022)
c. SPPU OR / PR EXAM
d. SPPU ENDSEM EXAM - Invigilation, CAP duty & Vacation
e. 5 Days (30 hours) Faculty development Program/Workshop for Teaching from department of Civil Engineering
f. ISO: Surveillance Audit




Principal
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| December 2022 | | | | | | | | a. Second Meeting of College Development Committee [CDC] b. Meeting with Principal to Organize International Conference c. Meeting with Principal to Organize Techfest/Project Competition d. 5 Days (30 hours) Faculty development Program/Workshop for Teaching from department of Computer Engineering e. Meeting for planning of Industrial Visits /Field Projects f. Review Meeting of NAAC/AQAR Chairpersons, Cell coordinators, and Committees with Principal & IQAC Coordinator g. Load Distribution, Staff Portfolio & Time-Table for SEM-II |
|---------------|-----|-----|-----|-----|-----|-----|-----|---|
| SUN | MON | TUE | WED | THU | FRI | SAT | | |
| | | | | 1 | 2 | 3 | a | |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 | b-c | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | d | |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 | e | |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 | f-g | |
| January 2023 | | | | | | | | a. Commencement of Teaching: SEM-II (02/01/2023) b. Identification of Slow learners & Advanced learners c. Bridge course for Slow Learners d. 5 Days (30 hours) Professional development Program for Teaching from IQAC e. 26th January - Republic Day Celebration f. Administrative Training Program for Non-Teaching Staff from IQAC g. Department Advisory Board Meeting-II |
| SUN | MON | TUE | WED | THU | FRI | SAT | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | a | |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | b-c | |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 | d | |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 | e | |
| 29 | 30 | 31 | | | | | f-g | |
| February 2023 | | | | | | | | a. Participation in Institute Rankings b. Student's Feedback – I, Feedback Analysis & Action Taken Report c. Academic Progress Report - I d. Student's attendance, defaulter List-I & Action Taken Report e. Unit Test -I & Result Analysis f. Remedial Teaching & Retest g. 5 Days (30 hours) Faculty development Program/Workshop for Teaching from department of AI&DS h. NSS Activities |
| SUN | MON | TUE | WED | THU | FRI | SAT | | |
| | | | 1 | 2 | 3 | 4 | a | |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 | b-c | |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 | d-e | |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | f-g | |
| 26 | 27 | 28 | | | | | h | |




Principal
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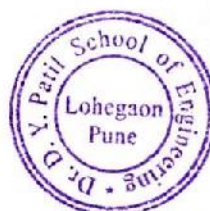
| March 2023 | | | | | | | |
|------------|-----|-----|-----|-----|-----|-----|-------|
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | | | 1 | 2 | 3 | 4 | a |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 | b |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 | c-d |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | e-f |
| 26 | 27 | 28 | 29 | 30 | 31 | | g-h |
| April 2023 | | | | | | | |
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | | | | | | 1 | a |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 | b |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | c-d |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 | e-f-g |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 | h-i |
| 30 | | | | | | | |
| May 2023 | | | | | | | |
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | 1 | 2 | 3 | 4 | 5 | 6 | a |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | b-c |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | d-e |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | f |
| 28 | 29 | 30 | 31 | | | | g |


a. Student Notice for Exam form Submission
b. SPPU INSEM EXAM - Invigilation & CAP duty
c. Parents Teacher's Meet-I (PTM-I)
d. Field Projects/Industrial Visits
e. Academic Progress Report - II (APR-II)
f. Student's attendance, defaulter List-II & Action Taken Report
g. International Conference
h. IQAC Meeting No. 3

a. Student's Feedback - II, Feedback Analysis & Action Taken Report
b. Unit Test -II & Result Analysis
c. Remedial Teaching & Retest
d. Tech Fest/Project Competition
e. Annual Social Gathering
f. Graduation Day Celebration [BE Students Send-off]
g. Convocation
h. Mock OR/PR Exam & Student Submission
i. **Conclusion of Teaching: SEM-II (29/04/2023)**

a. SPPU OR / PR EXAM
b. SPPU ENDSEM EXAM - Invigilation, CAP duty & Vacation
c. Academic & Administrative audits
d. Student Satisfaction Survey, Course & Programme Exit Survey, Stakeholders Feedback, Analysis & Action Taken Report
e. Analysis of activities planned in Academic Calendar, IQAC Plan of action, AQAR activity Calendar, DAB Activities & their action taken reports
f. Website Updation & Annual Report
g. IQAC Meeting No. 4


Mr. Riyaj Kazi
IQAC Coordinator




Dr. F. B. Sayyad
Principal
Principal
Dr. D. Y. Patil School of Engineering
Lohegaon, Pune.



"Empowerment through Quality Technical Education"
Ajeenkya DY Patil School of Engineering
 DY Patil Knowledge City, Charoli (Bk), Via Lohegaon, Pune 412105
Department Academic Calendar 2022-23 [Tentative]

Form No: IQAC/01

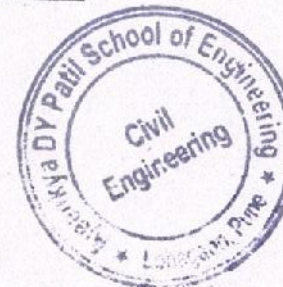
| JUNE 2022 | | | | | | | |
|-------------|--------|--------|--------|-----|-----|-----|---------|
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | | | 1 | 2 | 3 | 4 | b |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 | e |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 | f-g |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | |
| 25 | 27 | 28 | 29 | 30 | | | |
| JULY 2022 | | | | | | | |
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | | | | | 1 | 2 | |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 | c |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | g |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 | h-i-j-a |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 | i-b-m |
| 31 | | | | | | | |
| AUGUST 2022 | | | | | | | |
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | 1 | 2 | 3 | 4 | 5 | 6 | |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | b |
| 14 | 15-Aug | 16-Aug | 17 | 18 | 19 | 20 | d-e-f |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | g-h-a-k |
| 28 | 29 | 30 | 31-Aug | | | | i-j |

b. Staff identification, advertisement, recruitment
 e. A. Y. 2021-22 Teacher diary submission
 f. Staff performance appraisal
 g. Dead stock verification

a. Guest Lecture 1 (AAI) b. Guest Lecture 2 (SPB)
 c. Department Academic Calendar
 g. Load Distribution, Staff Portfolio & Time table
 h. Commencement of Teaching: SEM-I (18/07/2022)
 i. Induction program for Staff & students
 j. Identification of Slow learners & advanced learners
 l. Bridge course for Slow Learners
 m. Base line test for slow learners

b. Guest Lecture 3 (PVK)
 d. 15th August - Independence Day Celebration
 e. Student's Feedback - I, Feedback Analysis & Action Taken Report
 f. Academic Progress Report - I
 g. Student's attendance, defaulter List-I & Action Taken Report
 h. Unit Test - I & Result Analysis
 a. Guest Lecture 4 (MUD)
 k. Tech Nova Event (VK)
 i. Remedial Teaching & Retest
 j. Department Advisory Board Meeting-I

Principal
 Ajeenkya DY Patil School of
 Engineering, Lohegaon, Pune




| September 2022 | | | | | | | |
|----------------|-------------|------------|-------------|-----|-----|-----|-------|
| SUN | MON | TUE | WED | THU | FRI | SAT | |
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| 4 | 5 | 6 | 7 | 8 | 9 | 10 | c-a |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | d |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 | e-f-g |
| 25 | 26 | 27 | 28 | 29 | 30 | | |
| October 2022 | | | | | | | |
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | | | | | | 1 | |
| 2 | 3 | 4 | 5-Dussehra | 6 | 7 | 8 | a |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | b |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 | c-d |
| 23 | 24-Dussehra | 25 | 26-Dussehra | 27 | 28 | 29 | f |
| 30 | 31 | | | | | | |
| November 2022 | | | | | | | |
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | | 1 | 2 | 3 | 4 | 5 | a-b |
| 6 | 7 | 8-Gurunank | 9 | 10 | 11 | 12 | c |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | d |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 | e |
| 27 | 28 | 29 | 30 | | | | |
| December 2022 | | | | | | | |
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | | | | 1 | 2 | 3 | |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | d |
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| 25 | 26 | 27 | 28 | 29 | 30 | 31 | g |

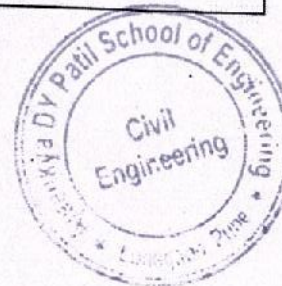
- a. Guest Lecture 5 (ABW)
b. SPPU INSEM EXAM, Invigilation & CAP duty
c. Parents Teacher's Meet- I (PTM-I)
d. Field Projects/Industrial Visits
e. Academic Progress Report - II (APR-II)
f. Student's attendance & defaulter List-II
g. Guest Lecture 6 (AVN)

- a. Student's Feedback - II, Feedback Analysis & Action Taken Report
b. Unit Test - II (UT- II) & Result Analysis of UT-II
c. Remedial Teaching & Retest
d. Guest lecture (SDP)
e. Diwali Holidays

- a. Mock Examination (OR/PR), Course Exit Survey, Student Submission
b. Conclusion of Teaching: SEM-I (5/11/2022)
c. SPPU OR / PR EXAM
d. SPPU ENSEM EXAM - Invigilation, CAP duty & Vacation
e. 5 Days (30 hours) Faculty development Program/Workshop for Teaching from department of Civil Engineering

- d. 5 Days (30 hours) Faculty development Program/Workshop for Teaching from department of Computer Engineering
e. Meeting for planning of Industrial Visits /Field Projects
g. Load Distribution, Staff Portfolio & Time-Table for SEM-II


Principal
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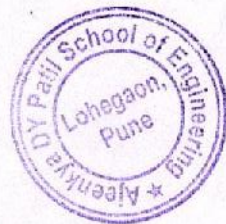
| January 2023 | | | | | | | |
|---------------|-----|-----|-----|-----|-----|-----|-------|
| SUN | MON | TUE | WED | THU | FRI | SAT | |
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| 8 | 9 | 10 | 11 | 12 | 13 | 14 | b-c |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 | h |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 | e |
| 29 | 30 | 31 | | | | | g |
| February 2023 | | | | | | | |
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | | | 1 | 2 | 3 | 4 | |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 | b-c |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 | d-e-g |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | f |
| 26 | 27 | 28 | | | | | |
| March 2023 | | | | | | | |
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | | | 1 | 2 | 3 | 4 | |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 | b-h |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 | c-d |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | e-f |
| 26 | 27 | 28 | 29 | 30 | 31 | | i |

a. Commencement of Teaching: SEM-II (02/01/2023)
b. Identification of Slow learners & Advanced learners
c. Bridge course for Slow Learners
e. 26th January - Republic Day Celebration
g. Department Advisory Board Meeting-II
h. Guest Lecture 1

b. Student's Feedback - I, Feedback Analysis & Action Taken Report
c. Academic Progress Report - I
d. Student's attendance, defaulter List-I & Action Taken Report
e. Unit Test - I & Result Analysis
f. Remedial Teaching & Retest
g. Guest Lecture 2

b. SPPU INSEM EXAM - Invigilation & CAP duty
c. Parents Teacher's Meet- I (PTM-I)
d. Field Projects/Industrial Visits
e. Academic Progress Report - II (APR-II)
f. Student's attendance, defaulter List-II & Action Taken Report
h. Guest Lecture 3
i. Guest Lecture 4

Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune



| April 2023 | | | | | | | |
|------------|-----|-----|-----|-----|-----|-----|-------|
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | | | | | | 1 | a |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 | b-j |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | c-d |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 | e-f-g |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 | h-i |
| 30 | | | | | | | |
| May 2023 | | | | | | | |
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | 1 | 2 | 3 | 4 | 5 | 6 | a |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | b |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | d |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | |
| 28 | 29 | 30 | 31 | | | | |

- a. Student's Feedback - II, Feedback Analysis & Action Taken Report
b. Unit Test-II & Result Analysis
j. Guest Lecture 5
c. Remedial Teaching & Retest
d. Tech Fest/Project Competition
e. Annual Social Gathering
f. Graduation Day Celebration [BE Students Send-off]
g. Convocation
h. Mock OR/PR Exam & Student Submission
i. Conclusion of Teaching: SEM-II (29/04/2023)

- a. SPPU OR / PR EXAM
b. SPPU ENDSEM EXAM - Invigilation, CAP duty & Vacation
d. Student Satisfaction Survey, Course & Programme Exit Survey,
Stakeholders Feedback, Analysis & Action Taken Report

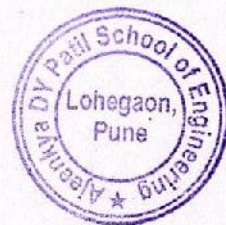
Lt. Col. Sanjay Karodpati (Retd.)

HoD

Dr. F. B. Sayyed

Principal

HOD
Civil Engineering
Ajeenkya DY Patil School of Engineering
Lohegaon, Pune



Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune

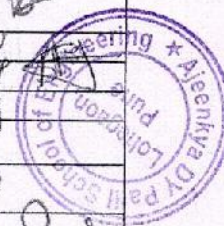
DEPARTMENT OF COMPUTER ENGINEERING

Form No: IQAC/05

Subject Choice for AY: 2022-23 Sem-II

Note: Every faculty must give choice of minimum 1 Subject for all classes (COMP: S.E. to B.E.)

| Sr. No. | Name of the Faculty | Subject Taught- SEM-II | Choice of subject for SEM-II | Sign |
|---------|---------------------------|---|---|------|
| 1 | Dr. Pankaj Agarkar | SE: --- TE: --- BE: HPC, CC | SE: Software Engineering TE: Augmented and Virtual Reality BE: Elective VI- SOFT Computing, EL-V NLP | |
| 2 | Dr. Sunil Rathod | SE: --- TE: Artificial Intelligence BE: AI, ML | SE: Project Based Learning TE: Artificial Intelligence BE: Deep Learning, Natural Language Processing | |
| 3 | Prof. Pallavi Shimpi | SE: --- TE: --- BE: soft Computing and optimization algorithm | SE: Software Engineering TE: Cloud Computing BE: Soft Computing Elective-6 | |
| 4 | Prof. Jayashree Chaudhary | SE: Data Structure & Algorithm TE: Data Science and Big Data Analytics BE: --- | SE: Data Structure & Algorithm TE: Data Science and Big Data Analytics BE: Deep Learning, Elective VI- Soft Computing | |
| 5 | Prof. Amruta Chitambar | SE: Data Structures and Algorithms TE: Data Science and Big Data Analytics BE: --- | SE: Data Structures and Algorithms TE: Data Science and Big Data Analytics BE: Elective VI | |
| 6 | Prof. Ashwini Pandurang | SE: Data Structures and Algorithms TE: Data Science and Big Data Analytics, Web BE: --- | SE: Data Structures and Algorithms TE: Data Science and Big Data Analytics, Web BE: Elective VI | |
| 7 | Prof. Ajita Mahapadi | SE: Software Engineering, Project based learning TE: Web Technology, E-II BE: --- | SE: Software Engineering, Project based learning, code of conduct TE: Web Technology BE: Elective VI | |
| 8 | Prof. Nilesh Pinjarkar | SE: Software Engineering, Project based learning TE: Web Technology BE: Business Intelligence, Elective VI | SE: Software Engineering, Project based learning TE: Web Technology BE: Business Intelligence, Elective VI | |
| 9 | Prof. Minal Toley | SE: Software Engineering TE: Data Science and Big Data Analytics, Web Technology BE: --- | SE: Software Engineering, Project Based Learning, Code of Conduct TE: Data Science and Big Data Analytics, Web Technology BE: Elective V Image processing | |
| 10 | Prof. Swarupa Kambal | SE: Data Structures and Algorithms TE: NIL BE: HPC | SE: DSA TE: --- BE: HPC | |
| 11 | Prof. Bhagyashri Vyas | SE: Software Engineering, Project based learning TE: Elective II (cloud computing), Lp II, Web BE: HPC | SE: Software Engineering, Project based learning TE: Elective II (cloud computing), Web Technology BE: --- | |
| 12 | Prof. Sheetal More | SE: Software Engineering TE: Data Science and Big Data Analytics, Web Technology BE: Business Intelligence- Elective VI | SE: Microprocessor TE: Data Science and Big Data Analytics, Web Technology BE: Deep Learning | |
| 13 | Prof. Anita Mahajan | SE: Data structure and algorithm TE: Data Science and Big Data Analytics, Web BE: Business Intelligence- Elective VI | SE: Data structure and algorithm TE: Data science and big data analytics BE: Business Intelligence, Elective VI | |
| 14 | Prof. Renuka Gavali | SE: Principles of Programming Languages TE: NIL BE: NIL | SE: Principles of Programming Languages TE: Data Science and Big Data Analytics, Web Technology BE: Elective VI- Business Intelligence | |
| 15 | Prof. Priti Rathod | SE: Computer Graphics, Data structure and algorithm TE: Software modeling and architecture, DBMS BE: Soft Computing, cyber security | SE: Data structure and algorithm TE: Software modeling and architecture, Information security (E-II) BE: Soft Computing | |
| 16 | Prof. Ishwar Bharamba | SE: PPL (Principles of Programming Language) TE: AI (Artificial Intelligence) BE: --- | SE: DSA (Data Structure & Algorithm) TE: Web Technology BE: Elective VI - Soft Computing | |



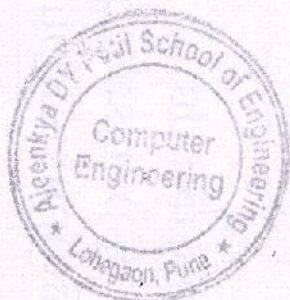
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Ajeenkya DY Patil School of Engineering, Lohegaon, Pune

| | | | | |
|----|-----------------------|--|---|--|
| 17 | Prof. Manisha Wasnik | SE: | SE: | |
| | | TE: Computer Networks | TE: Data Science and Big Data Analytics, Information Security-Elective II. | |
| | | BE: ML (MACHINE LEARNING) | BE: Image Processing EL-V, Natural Language Processing EL-V, Elective VI-Pattern | |
| 19 | Prof. Nebha Rajas | SE: PPL (PRINCIPAL OF PROGRAMING LA | SE: DSA (DATA STRUCTURE & ALGORITHM) | |
| | | TE: WT (WEB TECHNOLOGY) | TE: DSBD (DATA SCIENCE & BIG DATA ANALYTICS) | |
| | | BE: ML (MACHINE LEARNING) | BE: HCI (HUMAN COMPUTER INTERFACE) | |
| 20 | Prof. Ujvala Patil | SE: Software Engineering | SE: Software Engineering | |
| | | TE: Web Technology, Software modeling and | TE: Elective-II Software Modelling and Architecture | |
| | | BE: | BE: Elective VI- Soft Computing | |
| 21 | Prof. Gauri Rasane | SE: Software Engineering | SE: Software Engineering | |
| | | TE: Software modeling and architecture | TE: Elective II - Software modeling and architecture, Information security | |
| | | BE: | BE: Elective V Image processing, Elective VI - Advanced Digital Signal processing | |
| 22 | Prof. Neha Sharma | SE: | SE: Principles of Programming Languages | |
| | | TE: SPOS | TE: Web Technology, Data Science and Big Data Analytics | |
| | | BE: | BE: Image Processing | |
| 23 | Prof. Swati B | SE: Software Engineering | SE: software Engineering, Data Structure & Algorithms | |
| | | TE: Information Security | Modelling and Architecture-Elective2, Cloud computing -Elective 2 | |
| | | BE: Big Data Analysis | BE: Business Intelligence Elective VI, Elective VI- Soft Computing | |
| 24 | Prof. Prajakta Jadhav | SE: Software Engineerint, Project Based Learning | SE: Software Engineerin, Project Based Learning | |
| | | TE: Web Technology | TE: Data science and big data analytics, Web Technology | |
| | | BE: soft Computing and optimization algorithm | BE: Deep Learning, Elective VI- Soft Computing | |

Amrta
Prof. Amruta Chitari
TimeTable In-

Pankaj
Dr. Pankaj Agarkar
HoD (Comp)
HOD

Computer Engineering
Ajeenkya DY Patil School of Engineering
Lohegaon, Pune



Principal
Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune

Load distribution

A. Y. 2022-23

Sem II

| Sr. No. | Name of the Faculty | Class & DIV | Subject | Theory | Practical/ Tutorial | Total | Sign |
|---------|-------------------------|-------------------|---------------------------------|--------|------------------------|-------|------|
| 1 | Dr. Pankaj Agarkar | BE-A | HPC | 3 | | 14 | |
| | | BE-B | Elective -VI | 3 | | | |
| | | BE-A1,A2,A3,A4 | LP-V | | 8 | | |
| 2 | Prof. Pallavi Shimpi | BE-A&B | Elective -VI | 6 | | 14 | |
| | | BE-A1,A2,A3,A4 | LP-VI | | 8 | | |
| 3 | Prof. Amruta Chitari | TE-A | Data Science & Big Data Analyti | 4 | | 16 | |
| | | BE A& B | Honor Subject | 2 | | | |
| | | TE-A1,A2 | DSBDA Lab | | 12 | | |
| 4 | Prof. Ashwini Pandagale | SE-A | Data StructureS & Algorithm | 3 | | 16 | |
| | | SE-A | Code of Conduct | 1 | | | |
| | | SE-A1,A2,A3 | DSL | | 12 | | |
| 5 | Prof. Ajita Mahapadi | SE-A | Software Engineering | 3 | | 15 | |
| | | SE-A1,A2,A3 | PBL | | 12 | | |
| 6 | Prof. Minal Toley | TE-B | Data Science & Big Data Analyti | 4 | | 14 | |
| | | TE-B1,B2 | DSBDA Lab | | 8 | | |
| 7 | Prof. Nilesh Pinjarkar | TE-A&B | Web Technology | 8 | | 16 | |
| | | BE | Honor Subject | 2 | | | |
| | | TE-B1,B2,B3 | WTL | | 6 | | |
| 8 | Prof. Sheetal More | SE-B | Data StructureS & Algorithm | 3 | | 16 | |
| | | SE-B | Code of Conduct | 1 | | | |
| | | SE-B1,B2,B3 | DSL | | 12 | | |
| 9 | Prof. Swarupa Kambale | SE-C | Data StructureS & Algorithm | 3 | | 16 | |
| | | SE-C | Code of Conduct | 1 | | | |
| | | SE-C1,C2,C3 | DSL | | 12 | | |
| 10 | Prof. Bhagyshri Vays | TE-C | Web Technology | 4 | | 16 | |
| | | TE-C1,C2,C3 | WTL | | 6 | | |
| | | SE-C1,C2 | PBL | | 6 | | |
| 11 | Prof. Anita Mahajan | BE- A | Deep Learning | 3 | | 13 | |
| | | BE-A1,A2,A3,A4,B4 | Laboratory Practice V | | 10 | | |
| 12 | Prof. Renuka Gavali | SE-A&B | PPL | 6 | | 16 | |
| | | BE A& B | Honor Subject | 2 | | | |
| | | SE-B3 | PBL | | 2 | | |
| | | TE-A1,A2,A3 | WTL | | 6 | | |
| 13 | Prof. Priti Rathod | TE-A | Elective -II | 4 | | 16 | |
| | | TE-A1,A2,A3 | LP-II | | 12 | | |
| 14 | Prof. Ishwar Bharambe | TE-B&C | Artificial Intelligence | 8 | | 16 | |
| | | TE-C1,C2 | LP-II | | 8 | | |
| 15 | Prof. Ujvala Patil | BE-B | HPC | 3 | | 14 | |
| | | SE-C | Software Engineering | 3 | | | |
| | | TE-B3,A3 | DSBDA Lab | | 8 | | |
| 16 | Prof. Gauri Rasane | TE-B | Elective -II | 4 | | 16 | |
| | | TE-B1,B2,B3 | LP-II | | 12 | | |
| 17 | Prof. Swati B | SE-B | Software Engineering | 3 | | 16 | |
| | | SE-C | PPL | 3 | | | |
| | | SE-B1,B2,B3 | PBL | | 10 | | |
| 18 | Prof. Nehu Sharma | TE-C | Data Science & Big Data Analyti | 4 | | 16 | |
| | | TE-C1,C2,C3 | DSBDA Lab | | 12 | | |
| 19 | Prof. Prajakta Jadhav | BE- B | Deep Learning | 3 | | 15 | |
| | | TE-A | Artificial Intelligence | 4 | | | |
| | | BE-B1,B2,B3,B4 | Laboratory Practice V | | 8 | | |
| | | TE-C | Elective -II | | | | |

| | | | | | | | |
|----|----------------------|----------------|---------------|---|---|----|----------------|
| 20 | Prof. Jayashri Waman | SE-C2,C3 | PBL | | 6 | 16 | <i>Heenan</i> |
| | | BE A & B | Honor Subject | 2 | | | |
| | | TE-C3 | LP-II | | 4 | | |
| 21 | Prof. Suvidha Shah | BE-A&B | Elective -V | 6 | | 14 | <i>Shah</i> |
| | | BE-B1,B2,B3,B4 | LP-VI | | 8 | | |
| 22 | Prof. Manisha Wasnik | ENTC | | | | | <i>Manisha</i> |

Amrta
Prof. Amruta Chitari
TimeTable In-Charge

Pankaj
Dr. Pankaj Agarkar
HoD (Comp)

Niranjan
Dr. Niranjan L. Shegokar
Dean Academics

F3
Dr. F.B. Sayyad
Principal

HOD
Computer Engineering
Ajeenkya DY Patil School of Engineering
Lohegaon, Pune

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Engineering, Lohegaon, Pune



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Engineering, Lohegaon, Pune



Master Time Table of Computer Department, AY 2022-23, Sem – II, w. e. f. 8-2-2023

| Day | Year - Div. | 10:00 – 11:00 | 11:00-12:00 | 12:00-12:45 | 12:45 – 01:45 | 01.45 – 02.45 | 02:45 – 03.00 | 03:00 – 04.00 | 04:00 – 05.00 |
|---------|-------------|---|---------------------|---|--|-------------------------|--|---|--------------------|
| Monday | SE-A | EM-III(DG) [326] | DSA(AP) [326] | Long Break | PPL(RG) [326]SE(AM) [326] | COC(AP) [326] | | A1-DSL(AP)-[327] A2-ML(SP)-[342] A3-PBL(AM)-[338] | |
| | SE-B | DSA(SM) [328] | PPL(RG) [328] | | B1-DSL(SM)-[327] B2-PBL(SB)-[338] B3-ML(MS)-[342] | | | EM-III(DG) [326] | SE(SB) [326] |
| | SE-C | PPL(SB) [312] | DSA(SK) [312] | | SE(UP) [312] | EM-III TUT(DG) [312] | | C1-PBL(BV)-[310] C2-DSL(SK)-[309] C3-LIB | |
| | TE – A | EL-II(PR) [334] | DSBDA(AC) [334] | | A1- DSBDAL(AC)-[330] A2-LIB A3-LP-II(PR)-[333] | | Short Break | AI(PJ) [334] | WT(NP) [334] |
| | TE – B | B1-DSBDL(MT)-[330] B2-WTL(NP)-[331] B3-LP-II(GR)-[333] | | | WT(NP) [328] | EL-II(GR) [328] | | AI(IB) [328] | DSBDA(MT) [328] |
| | TE-C | C1-DSBDAL(NS)-[309] C2-WTL(BV)-[321] C3-LP-II(JW)-[310] | | | AI(IB) [312] | EL-II(JW) [312] | | WT(BV) [312] | DSBDA(NS) [312] |
| | BE – A | DL(PJ) [425] | EL-V(SS) [425] | | EL-VI (PS) [425] | HPC(PA) [425] | | A1- LP-V(PJ)-[325] A2- LP-VI (PS)-[321] A3- LIB A4-LIB | |
| | BE – B | HPC(UP) [425] | EL-VI(PS) [425] | | B1-LP-V(AMM)-[321] B2-LP-VI(SS)-[325] B3-LIB B4-LIB | | | Honor Subject(AC/RG/ JW) | |
| Tuesday | SE-A | DSA(AP) [326] | EM-III(DG) [326] | MP(SP) [326] | | SE(AM) [326] | A1-PBL(AM)-[338] A2-DSL(AP)-[327] A3- ML(SP)-[342] | | |
| | SE-B | MP(MS) [328] | PPL(RG) [328] | B1-ML(MS)-[342] B2-DSL(SM)-[327] B3-PBL(SB)-[338] | | | COC(SM) [326] | EM-III TUT(DG) [326] | |
| | SE-C | SE(UP) [312] | PPL(SB) [312] | DSA(SK) [312] | EM-I. DG) [312] | | C1-LIB C2-PBL(BV)-[310] | | |

| | | | |
|-----------|--------|--|--------------------|
| Wednesday | | [334] | |
| | TE - B | B1- LP-II(GR)-[333] B2-DSBDL(MT)-[330] B3- WTL(NP)-[331] | |
| | TE-C | C1-LP-II(IB)-[310] C2-DSBDL(NS)-[309] C3-WTL(BV)-[321] | |
| | BE - A | EL-V(SS) [312] | EL-VI(PS) [312] |
| | BE - B | DL(AMM) [425] | EL-V(SS) [425] |
| | SE-A | MP(SP) [326] | PPL(RG)* [326] |
| | SE-B | EM-III(DG) [328] | SE(SB) [328] |
| | SE-C | C1- DSL(SK)-[309] C2- LIB C3-PBL(JW)-[310] | |
| | TE - A | EL-II(PR) [334] | DSBDA(AQ) [334] |
| | TE - B | B1- WTL(NP)-[331] B2-LP-II(GR)-[333] B3-DSBDL(UP)-[330] | |
| | TE-C | DSBDA(NS) [312] | AI(IB) [312] |
| | BE - A | DL(PJ) [425] | HPC(PA) [425] |
| | BE - B | B1-LIB B2-LIB B3-LP-V(AMM)-[325] B4-LP-VI(SS)-[321] | |

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| | |
|--|---------------------|
| A3-WTL(RG)-[331] | |
| WT(NP) [328] | AI(IB) [328] |
| WT(BV) [334] | EL-II(JW) [334] |
| DL(PJ) [425] | HPC(PA) [425] |
| B1-LIB B2-LP-V(AMM)-[325] B3-LP-VI(SS)-[321] B4-LIB | |
| SE(AM) [326] | DSA(AP) [326] |
| B1-PBL(SB)-[338] B2-ML(MS)-[342] B3-DSL(SM)-[327] | |
| COC(SK) [312] | EM-III(DG) [312] |
| A1- WTL(RG)-[331] A2- LP-II(PR)-[333] A3-DSBDL(UP)-[330] | |
| EL-II(GR) [328] | WT(NP) [328] |
| C1-DSBDL(NS)-[309] C2-LP-II(IB)-[310] C3-LIB | |
| A1- LIB A2-LIB A3-LP-V(PJ)-[325] A4-LP-VI(PS)-[321] | |
| EL-V(SS) [334] | DL(AMM) [334] |

| | |
|---|--------------------|
| DSBDA(MT) [328] | EL-II(GR) [328] |
| C1- LIB C2 - LP-II (IB)-[310] C3- DSBBDL(NS)-[309] | |
| A1-LIB A2-LP-V(PJ)-[325] A3-LP-VI(PS)-[321] A4-LIB | |
| A1- ML(SP)-[342] A2-PBL(AM)-[338] A3-DSL(AP)-[327] | |
| MP(MS) [328] | DSA(SM) [328] |
| DSA(SK) [312] | MP (MS) [312] |
| AI(PJ) [334] | WT(NP) [334] |
| B1-DSBDL(MT)-[330] B2-LIB B3-LP-II(GR)-[333] | |
| Honor Subject(AC/RG/ JW) | |
| EL-VI(PS) [326] | HPC(UP) [326] |

| | | | |
|----------|--------|--|---------------------|
| Thursday | SE-B | B1-DSL(SM)-[327] B2-PBL(SB)-[338] B3-LIB | |
| | SE-C | MP(MS) [328] | SE(UP) [328] |
| | TE - A | A1-DSBDA(AC)-[330] A2-WTL(RG)-[331] A3-LP-II(PR)-[333] | |
| | TE - B | DSBDA(MT) [334] | AI(IB) [334] |
| | TE-C | AI(IB) [312] | DSBDA(NS) [312] |
| | BE - A | EL-V(SS) [425] | EL-VI(PS) [425] |
| Friday | BE - B | EL-VI(PS) [425] | DL(AMM) [425] |
| | SE-A | A1-LIB A2-PBL(AM)-[338] A3-DSL(AP)-[327] | |
| | SE-B | SE(SB) [328] | EM-III(DG) [328] |
| | SE-C | C1-DSL(SK)-[309] C2-ML(MS)-[342] C3-LIB() | |
| | TE - A | AI(PJ) [334] | DSBDA(AC) [334] |
| | TE - B | B1-LIB B2-LP-II(GR)-[333] B3-DSBDL(UP)-[330] | |

Principal

Ajeenkya DY Patil School of Engineering, Lohegaon, Pune

| | |
|---|-------------------------|
| A3-PBL(AM)-[338] | |
| DSA(SM) [326] | MP(MS) [326] |
| PPL(SB) [328] | EM-III(DG) [328] |
| WT(NP) [334] | EL-II(PR) [334] |
| B1-LP-III(GR)-[333] B2-DSBDL(MT)-[330] B3-LIB | |
| EL-II(JW) [312] | WT(BV) [312] |
| A1-LP-VI(PS)-[321] A2-LIB A3-LIB A4-LP-V(PJ)-[325] | |
| EL-V(SS) [425] | HPC(UP) [425] |
| PPL(RG) [326] | EM-III-TUT(DG) [326] |
| B1-PBL(SB)-[338] B2-LIB B3-DSL(SM)-[327] | |
| MP(MS) [328] | COC(SK) [328] |
| A1-LIB A2-LP-II(PR)-[333] A3-DSBDL(UP)-[330] | |
| AI(IB) [334] | DSBDA(MT) [334] |

| | |
|---|--------------------|
| [326] | |
| B1-LIB B2-DSL(SM)-[327] B3-PBL(RG)-[338] | |
| C1-PBL(BV)-[310] C2-DSL(SK)-[309] C3-ML(MS)-[342] | |
| A1-LP-II(PR)-[333] A2-DSBDAL(AC)-[330] A3-LIB | |
| WT(NP) [328] | EL-II(GR) [328] |
| C1-WTL(BV)-[321] C2-DSBDL(NS)-[309] C3-LP-II(JW)-[310] | |
| B1-LP-VI(SS)-[3221] B2-LIB B3-LIB B4-LP-V(AMM)-[325] | |
| A1-PBL(AM)-[338] A2-DSL(AP)-[327] A3-LIB | |
| PPL(RG) [328] | COC(SM) [328] |
| C1-ML(MS)[342] C2-PBL(JW)-[310] C3-DSL(SK)-[309] | |
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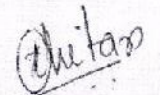
| | | | |
|--------|--------------|--------------|--------------------|
| BE - A | Project Work | Project Work | C3-DSBDL(NS)-[309] |
| BE - B | Project Work | Project Work | Project Work |
| | | Project Work | Project Work |


Note: Lectures and practical session are to be conducted at the allotted location only.


| Year | Notation | Name of The Subject | Notation | Name of The Faculty | Notation | Name of The Faculty | Lab Location |
|-------------|----------|---|----------|-------------------------|----------|------------------------|--------------|
| SE Computer | EM-III | Engineering Mathematics(A & B & C) | DG | Prof. Dilip Ghule | | | |
| | DSA | Data Structure & Algorithm (A & B) | AP | Prof. Ashwini Pandagale | SM | Prof. Shital More | |
| | DSA | Data Structure & Algorithm (C) | SK | Prof. Swaroopa Kambale | | | |
| | SE | Software Engineering(A&B) | AM | Prof. Ajita M | SB | Prof. Swati Bagade | |
| | SE | Software Engineering(C) | UP | Prof. Ujvala Patil | | | |
| | MP | Microprocessor(A) | SP | Prof. Sheetal Patil | | | |
| | MP | Microprocessor(B & C) | MS | Prof. Monali Shirsath | | | |
| | PPL | Principals of Programming Language(A & B) | RG | Prof. Renuka Gavli | | | |
| | PPL | Principals of Programming Language(C) | SB | Prof. Swati Bagade | | | |
| | DSAL | Data Structures & Algorithm Laboratory(A&B) | AP | Prof. Ashwini Pandagale | SM | Prof. Shital More | 327 |
| | DSAL | Data Structures & Algorithm Laboratory(C) | SK | Prof. Swaroopa Kambale | | | |
| | ML | Microprocessor Laboratory(A) | SP | Prof. Sheetal Patil | | | 342 |
| | ML | Microprocessor Laboratory(B & C) | MS | Prof. Monali Shirsath | | | |
| | PBL | Project Based Learning II (A) | AM | Prof. Ajita M | SB | Prof. Swati Bagade | 338 |
| | PBL | Project Based Learning II (C) | BV | Prof. B. Vyas | RG | Prof. Renuka Gavli(B3) | |
| | COC | Code of Conduction(A&B) | AP | Prof. Ashwini Pandagale | JW | Prof. Jayashri Waman | |
| TE Computer | COC | Code of Conduction(C) | SK | Prof. Swaroopa Kambale | SM | Prof. Shital More | |
| | DS & BDA | Data Science and Big Data Analytics(A&B) | AC | Prof. Amruta Chitari | MT | Prof. Minal Toley. | |
| | DS & BDA | Data Science and Big Data Analytics (C) | NS | Prof. Neha Sharma | | | |
| | WT | Web Technology (A&B) | NP | Prof. Nilesh Pinjarkar | | | |
| | WT | Web Technology (C) | BV | Prof. B. Vyas | | | |
| | AI | Artificial Intelligence(A&B) | PJ | Prof. Prajakata Jadhav | IB | Prof. Ishwar Bharambe | |
| | AI | Artificial Intelligence(C) | IB | Prof. Ishwar Bharambe | | | |
| | EL-II | Elective II(A&B) | PR | Prof. Prati Rathod | GR | Prof. Gauri Rasane | |
| | EL-II | Elective II(C) | JW | Prof. Jayashri Waman | | | |
| | DS & BDL | Data Science and Big Data Analytics Laboratory(A&B) | AC | Prof. Amruta Chitari | MT | Prof. Minal Toley. | 330 |
| | DS & BDL | Data Science and Big Data Analytics Laboratory(C) | UP | Prof. Ujvala Patil | UP | Prof. Ujvala Patil | |
| | WTL | Web Technology Laboratory(A&I) | RG | Prof. Renuka Gavli | NP | Prof. Nilesh Pinjarkar | 331 |

| | | | | | | | |
|----------------|-------|--------------------------------|----|------------------------|-----|----------------------|-----|
| BE Computer | LP-II | Laboratory Practice II (A & B) | PR | Prof. Priti Rathod | GR | Prof. Gauri Rasane | 333 |
| | LP-II | Laboratory Practice II (C) | JW | Prof. Jayashri Waman | JW | Prof. Jayashri Waman | |
| | HPC | High Performance Computing | IB | Prof. Ishwar Bharambe | JW | Prof. Jayashri Waman | 309 |
| | DL | Deep Learning | PA | Dr. Pankaj Agarkar | UP | Prof. Ujvala Patil | - |
| | EL-V | Elective V | PJ | Prof. Prajakata Jadhav | AMM | Prof. Anita Mahajan | - |
| | EL-VI | Elective VI | SS | Prof. Suvidha Shah | | | - |
| | LP-V | Laboratory Practice V | PS | Prof. Pallavi Shimpi | | | - |
| | LP-VI | Laboratory Practice VI | PJ | Prof. Prajakata Jadhav | AMM | Prof. Anita Mahajan | 321 |
| | PW | Project Work | PS | Prof. Pallavi Shimpi | SS | New Faculty | 325 |
| | PW | Project Work | - | - | - | - | - |

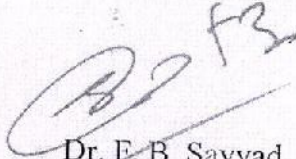
| Year - Div. | Class Teacher | Batch | Mentor | Batch | Mentor | Batch | Mentor | Batch | |
|-------------|-----------------------|-------|-------------------------|-------|----------------------|-------|-----------------------|-------|--|
| SE - A | Prof. Sheetal More | A1 | Prof. Pallavi Shimpi | A2 | Prof. Sheetal More | A3 | Prof. Manisha Wasnik | | |
| SE - B | Prof. Ishwar Bharambe | B1 | Prof. Ishwar Bharambe | B2 | Prof. Suvidha Shah | B3 | Prof. Jayashree Waman | | |
| SE - C | Prof. Swarupa Kamble | C1 | Prof. Swarupa Kamble | C2 | Prof. Priti Rathod | C3 | Prof. Monali Shirsath | | |
| TE - A | Prof. Renuka Gavli | A1 | Prof. Nilesh Pinjarkar | A2 | Prof. Renuka Gavli | A3 | Prof. Minal Toley | -- | |
| TE - B | Prof. Gauri Rasane | B1 | Prof. Ashwini Pandagale | B2 | Prof. Gauri Rasane | B3 | Prof. Suvidha Shah | -- | |
| TE - C | Prof. B. Vyas | C1 | Prof. Neha Sharma | C2 | Prof. Swati Bagade | C3 | Prof. B. Vyas | | |
| BE - A | Prof. Suvidha Shah | A1 | Prof. Prajakata Jadhav | A2 | Prof. Amruta Chitari | A3 | Prof. Anita Mahajan | -- | |
| BE - B | Prof. Ujvala Patil | B1 | Prof. Ujvala Patil | B2 | Prof. Priti Rathod | B3 | Prof. Ajita Mahapadi | -- | |


Prof. Amruta Chitari
Time Table In-Charge


Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune


Dr. Pankaj Agarkar
HoD Computer




Dr. E. B. Sayyad
Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune



"Empowerment through quality technical education"
AJEENKYA DY PATIL SCHOOL OF ENGINEERING
 Dr. D. Y. Patil Knowledge City, Charholi (Bk.), Via. Lohgaon, Pune - 412 105

Form No.:IQAC/27

Department of Mechanical Engineering

ACADEMIC PROGRESS REPORT(Theory & Praticals) AY 2022-23 Term II

26/04/2023

| Sr. No. | Class | Div. | Subject | Name of Faculty | No. of Lectures / Practicals Planned till date (26/04/2023) | | No. of Lectures / Practicals engaged till date (26/04/2023) | | Syllabus Completed as on (26/04/2023) | | | | Remarks | Sign |
|---------|-------|------|------------------------------|----------------------|---|--------|---|---------|---------------------------------------|----|----------------|-------|------------------------|------|
| | | | | | Th | Pr | Th | Pr | Units / No Practicals | | Percentage (%) | | | |
| | | | | | | | | | Th | Pr | Th | Pr | | |
| 1 | SE | A | Engineering Mathematics - II | PRM | 25 | - | 22 | - | 3 | - | 50% | - | Insem Exam & gathering | PRM |
| | | | Kinematics of Machinery | PGK | 25 | 06 | 22 | 05 | 3 | 05 | 50% | 50% | Insem Exam & gathering | PGK |
| | | | Applied Thermodynamics | TH - RNG PR - DDS | 31 | - 8 | 24 | - 06 | 2.8 | 04 | | 40 | Insem Exam & gathering | TH |
| | | | Fluid Mechanics | JCN | 32 | - | 24 | | 03 | 06 | 50% | 70% | Insem exam gathering | JCN |
| | | | Manufacturing Processes | DSM | 26 | - | 22 | - | 2.7 | - | 50% | - | - | DSM |
| | | | Machine Shop | ANP | | 08 | | - | | 05 | - | 62.5% | | ANP |

Academic Coordinator

Principal
 Ajeenkya DY Patil School of Engineering, Lohgaon, Pune



Dean

Dr. F. B. Sayyad
 Principal





"Empowerment through quality technical education"
Dr D Y Patil Educational Enterprises Charitable Trust's

AJEENKYA

DY PATIL SCHOOL OF ENGINEERING

(Formerly known as DY Patil School of Engineering)

AICTE ID - 1-3847411

AISHE Code: C-46648

DTE Code: EN6732

SPPU PUN Code: CEGP015720

(Approved by AICTE, Recognized by Govt. of Maharashtra, Affiliated to Savitribai Phule Pune University)

(Accredited by NAAC, NABL & ISO 9001:2015 & 21001:2018 Certified Institute)

Industry Visit Report – 2022-23

Name of the Event: Industrial visit

Date: 11th Oct, 2022 to 15th Oct, 2022

Students: Students from TE Computer Engineering Department

Location : Pune - Bangalore - Mysore – Pune

Organized By : Ajeenkya DY Patil School of Engineering, Computer Engineering Department Pune.

Tour Organized By : Eduventura Industrial Visit Organizer

No of Students : 59

Staff : 2

Name of Staff:

Prof. Poonam Nagale

Prof. Yogesh Pawar

Tour Coordinators : 2

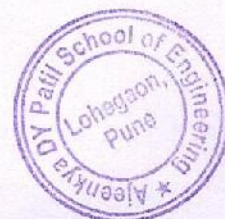
Introduction

The Ajeenkya D.Y Patil University Organized Industrial visit.

Aim for organizing this Industrial Visit is to enhance student practical knowledge and Improve student's practical skills. This Year we Organized Industrial visit to- Pune-Bangalore-Mysore-Pune for AI&DS Engineering students of 3rd year. Before the trip, Our Coordinator Mr. Rafiq Shaikh & Sandip Gaikwad conducted meeting of all trip members. He informed students of the rules and regulations regarding the trip. He gave a consent letter to the students and detailed schedule of Industry Visit. He asked to carry required things, medicine etc.

Principal

Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune



Details of Journey

DAY 1 [13Th October 2022]: PUNE TO BANGALORE

We Assembled at CSMT Railway station at 10:30am in Morning to board Train 11301 Udyan Express and started the journey towards Bangalore.

DAY 2 [14th October 2022]: BANGALORE

We reached Bangalore at Early morning 07:40am. Due to Delay in Train schedule we Freshen up at station itself and proceed for ISRO Industrial visit, With Bus 1(49 seaters & Tempo Traveller 2 (12 seaters).

ISRO Visit Details: Received warm welcome by ISRO officials and we started a Session In ISRO.

- We got to see an Audio & Video Presentation about ISRO.
- Demo Satellite and Other Equipment which is useful for space research program demo, we saw and were explained by ISRO officials.
- Actual satellite working floor also shown from Gallery view
- The concerned person conducted a Question and Answer session for all students where Students had cleared their doubts with the ISRO scientist
- During the industrial visit all students followed all Rules and regulations followed by ISRO officers.

Post Session with ISRO Industrial visit we moved to Explore Bangalore Culture and we went Back to the hotel for Lunch, after lunch proceeded to grab destination knowledge we explored Cubbon Park, Vishveshwarya Technical Museum, Evening at ISKCON temple. Safely we went back to Hotel for Dinner & overnight stay at hotel. (Accommodation in CRN Canary sapphire 3-Star Hotel). Dinner and overnight stay at the hotel.

DAY 3 [15th October 2022]: MYSORE "WELCOME TO THE CULTURAL

CAPITAL OF KARNATAKA" Morning breakfast and check out from the hotel. We proceed to Mysore on the way visit Srirangapatna, Tipu Sultan summer palace we explore and proceed to Lunch in The Quorum Hotel (4 star Hotel) Taken Rest in Hotel and continue with Sighten of Mysore Mysore Palace, one of the major attractions of Mysore, Our coordinator's Guide us to entire Mysore Palace. Later we moved to the Brindavan Garden to enjoy the sound- light - Musical fountain show. Evening we back to The Quorum Hotel for Dinner and Overnight stay at Mysore (Meals: B, L, D)



A handwritten signature in green ink, consisting of a stylized 'A' followed by a long diagonal stroke.

Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune

DAY 4 [16th October 2022]: Morning we had delicious Breakfast and check out from the Hotel and Move to Chamundi devi Temple to Take a Darshan of Chamundi Devi and experience Of south Indian Temple architecture, Late we Go to Nandi Bull Temple 331 Steps from Chamundi devi Temple Down side direction of Chamundi Hill, Both group taken a darshan of Nandi bull temple and proceed at Mourya Residency Hotel where a Rooftop tasty food was waiting for all of us. Post Lunch students Enjoy 20-30 Minutes for shopping at Kaveri shop for Sandalwood Items and Mysore Silk items, 03:15pm we all Boarded our Buses and start Journey towards KSR bangalore Junction to Board our return journey train 11302 Udyan Express, Our Coordinators Inform about train seating arrangements and taken care of everyone received their Luggage and ensure while boarding in train all students was very well coordinated with Tour coordinators of EDUVENTURA and the instructions and timing which they informed students followed it.

During this Industrial Visit students are learn so many things Punctuality

Team work

Gain Destination Knowledge

Explore Cultural Values of Historical Monuments

Industry Exposure of ISRO & RED HAT.

DAY 5 [17th October 2022]: All students were sharing the information with Friends and social media about their visit experience and enjoyed train journey and on time Reach Pune with Industrial Practical world Knowledge.

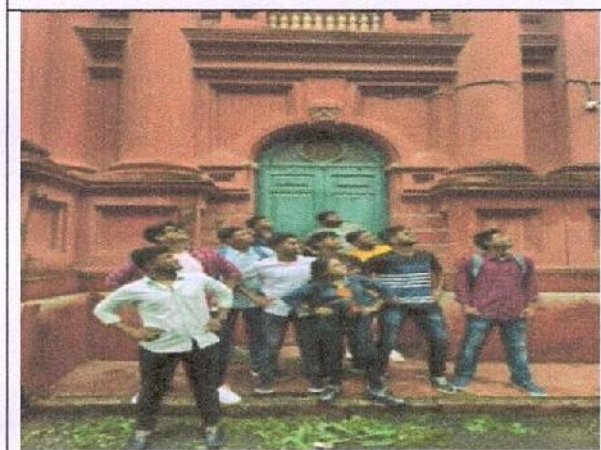
This Industrial visit at ISRO and RedHat Company is very helpful in our future practical Life & bring a positive change in our thinking & practical behavior regarding Education & specializing our technical skills. Other historical places like Tipu Sultan summer palace at srirangpattana, Mysore palace at Mysore, Chamundi devi temple and Nandi bull temple visit was very peaceful, beautiful and enjoyable for all students. Other places and sightseeing was very joyful. Visit management was good by organizer. This visit was very joyful and useful for all students.



A handwritten signature in green ink, consisting of a stylized 'B' followed by a long horizontal stroke.

Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune

Photos:



Prof. Poonam Nagale
Event Coordinator



Prof. Bhagyashree Dhakulkar
Head of AI&DS Department

Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune



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Ajeenkya. DY. PATIL SCHOOL OF ENGINEERING
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NAAC, NABL-ISO/IEC 17025 & ISO 9001:2015&21001:2018 Certified Institute

Department of Civil Engineering and Industry Institute Interaction Cell (IIC)

Ref no:

Date: 20/01/2023

INVITATION LETTER

To,

Dr. Rajesh Katdare

(Assistant professor Civil Engineering Department,
ADYPSOE, Lohegaon, Pune)

Subject: Bridge Course on Process of E-Tendering

Respected Sir,

1. This is to introduce ourselves i.e., Dr DY Patil School of Engineering Lohegaon, Dist.-Pune established in year 2010-11 affiliated to Savitribai Phule Pune University. This college runs degree courses in Civil, Mechanical, Electronics & Tele-Communication, Computer and Artificial Intelligence it also runs 3 PG Courses approved by AICTE, DTE & Savitribai Phule Pune University. From the beginning, we have been continuously delivering very effectual knowledge to our students and we expect very good returns from them for the progress of the country.

2. It is our honour to take valuable guidance from the Professional experts like you. It will add to the knowledge of our faculties.

3. Being a Subject matter expert in the field, may I request you to present your views on "Process of E- Tendering". We request you to deliver your session on 23rd Jan 2023 at 11:00am to 1.00pm, including 10 minutes of Questions and answer Session. Looking forward to encouraging response from you.

Meeting Link https://teams.microsoft.com/l/meetup-join/19%3ameeting_YzEwZWJhYjgtNDgzNC00ZGExLTNmMjktYjA1OGMxODQzMU2%40thread.v2%3Fcontext=%7b%22Tid%22%3a%2213817675-036e-4ca3-bale-d69032c5d0a0%22%2c%22Oid%22%3a%2209b5d536-0333-48b7-98f2-d4713cbef81e%22%7d

Thanking You.

Yours sincerely,

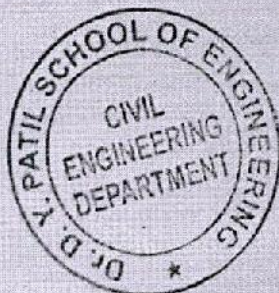
Prof. Lt. Col. Sanjay Karodpati (Retd.)
(Head of Civil Dept. DY Patil School of
Engineering, Lohegaon, Pune)
Department of Civil Engineering
Dr. D. Y. Patil School of Engg. Lohegaon

Vision- Strive for technical excellence in civil engineering

Mission- To impart practical based learning to meet the needs of the industry

To inculcate social and ethical values among the students

To establish a center of excellence by imparting soft technology skills in civil engineering.



Principal

Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune



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NAAC, NABL-ISO/IEC 17025 & ISO 9001:2015 & 21001:2018 Certified Institute

**Department of Civil Engineering and
Industry Institute Interaction Cell (IIIC)**

Ref no:

Date: 20/01/2023

INVITATION LETTER

To,
RAMAKANT DAGADU KOSHTI
(Founder of Constroplanet Civil Engineering Services)

Subject: Bridge Course on Process of E-Tendering

Respected Sir,

1. This is to introduce ourselves i.e., Dr DY Patil School of Engineering Lohegaon, Dist- Pune established in year 2010-11 affiliated to Savitribai Phule Pune University. This college runs degree courses in Civil, Mechanical, Electronics & Tele-Communication, Computer and Artificial Intelligence it also runs 3 PG Courses approved by AICTE, DTE & Savitribai Phule Pune University. From the beginning, we have been continuously delivering very effectual knowledge to our students and we expect very good returns from them for the progress of the country.

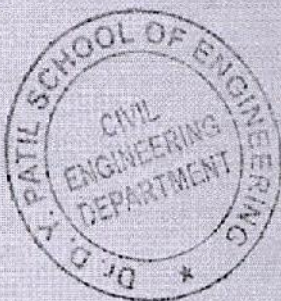
2. It is our honour to take valuable guidance from the Professional experts like you. It will add to the knowledge of our faculties.

3. Being a Subject matter expert in the field, may I request you to present your views on "Process of E- Tendering". We request you to deliver your session on 24th Jan 2023 to 25th Jan 2023 at 11:00am to 1.00pm, including 10 minutes of Questions and answer Session. Looking forward to encouraging response from you.

Meeting

Link https://teams.microsoft.com/l/meetup-join/19%3ameeting_YzEwZWJhYjgtNDgzNC00ZGExLTNmMjktYjA1OGMxODQzMmU2%40thread.v2/0?context=%7b%22Tid%22%3a%2213817675-036e-4ca3-balc-d69032e5d0a0%22%2c%22Oid%22%3a%2209b5d536-0333-48b7-98f2-d4713cbcf81e%22%7d

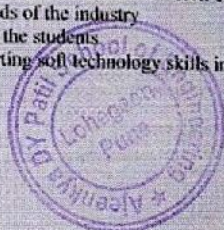
Thanking You.



Yours sincerely,
Prof. Lt. Col. Sanjay Karodpati (Retd.)
(Head of Civil Dept. DY Patil School of Engineering, Lohegaon, Pune)


Department of Civil Engineering
Dr. D. Y. Patil School of Engg. Lohegaon

Vision - Strive for technical excellence in civil engineering
Mission - To impart practical based learning to meet the needs of the industry
To inculcate social and ethical values among the students
To establish a center of excellence by imparting soft technology skills in civil engineering



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Engineering, Lohegaon, Pune

| | |
|---|--|
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| | Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune – 412 105. |
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| | NAAC,NABL-ISO/IEC 17025 & ISO 9001:2015&21001:2018 Certified |
| | Institute |
| | Department of Civil Engineering and |
| | Industry Institute Interaction Cell (IIIC) |

Date: 27th January 2023

Event Report

Academic Year: 2022-2023

Name of the event: Bridge course on Process of E-Tendering

| | |
|-------------------------------------|---|
| Date and Time | Date: 23 th Jan 2023 to 25 th Jan 2023 |
| Event Venue | Online mode |
| Organized by | Department of Civil Engineering Industry and Institute Interaction Cell (IIIC) |
| Targeted Audience | TE And BE CIVIL Engineering Students |
| Resource Person of visit | Dr. Rajesh Katdare Mr. Ramakant Dagadu Koshti |

Event Contents:

To bridge course has provide gap between subjects studied at university level and subjects they would be studying in engineering syllabus.

Objectives:

- Bridge courses are aimed at remolding the students' approach to subjects like technical felid, they are mostly taught by experienced teachers.
- Students had got details of E-Tendering, Contracts.



1

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Engineering, Lohegaon, Pune

Details of Event:

The department of Civil Engineering of Dr. D. Y. Patil School of Engineering, Lohegaon, Pune, had organized an educational course, on dated 23th Jan 2023 to 25th Jan 2023 as a part of curriculum of the subject, "Bridge course on Process of E-Tendering" for T.E and B.E Civil engineering students. The Bridge course was organized with the prior permission and guidance of Hon. Principal Dr. F.B Sayyad and HOD of Civil Engineering Department Lt. Col. Sanjay Karodpati. 60 students of T.E. (Civil) along with faculty members Prof.Sarika kokate , Prof. Sarika Thombre, attended the Educational Visit which started at 11:00 am and concluded at 1 pm.

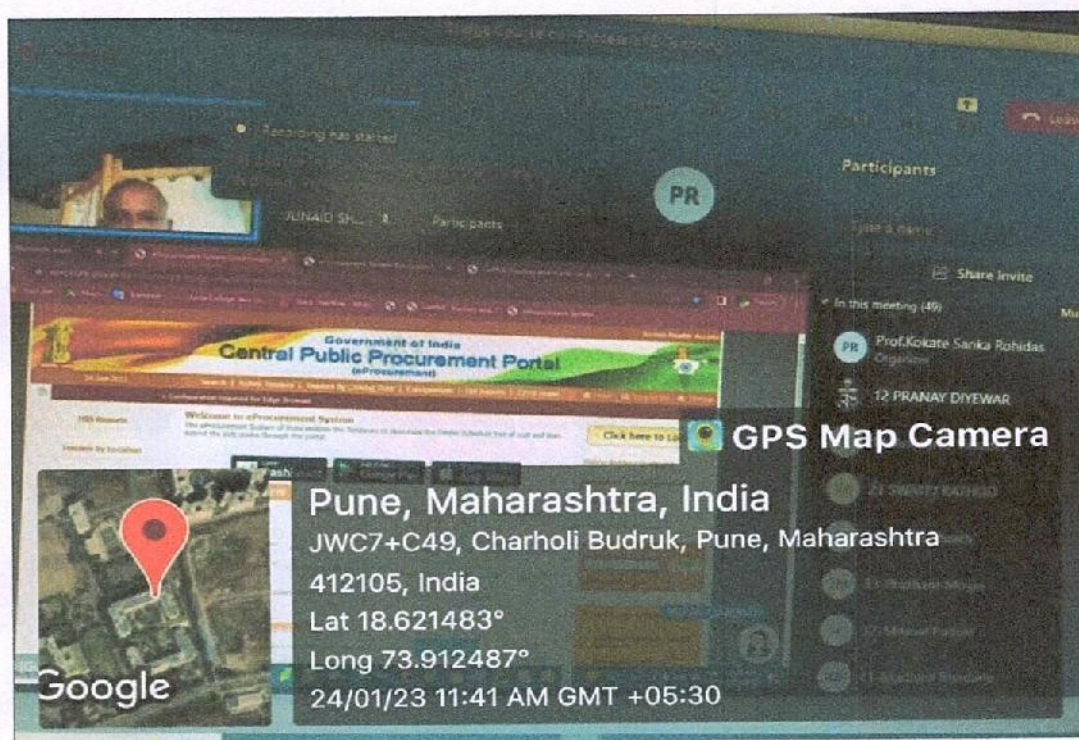


Photo 1: Sir was giving information about Central Public building to the students.



Central Public building:

“Public Buildings” used in this manual applies only to buildings borne on the books of the Works Departments and maintained from funds provided in their budget.

Section 1.- Definition and Classification of Public Buildings

Section 2.- Additions and Alterations to Public Buildings

Section 3.- Capital Cost of Buildings

Section 4- Occupation of Public Buildings by Private persons, etc.

Section 5—Residences for Government Officials

Section 6 & 7-Sale and Dismantlement of Public Buildings Permanent Building

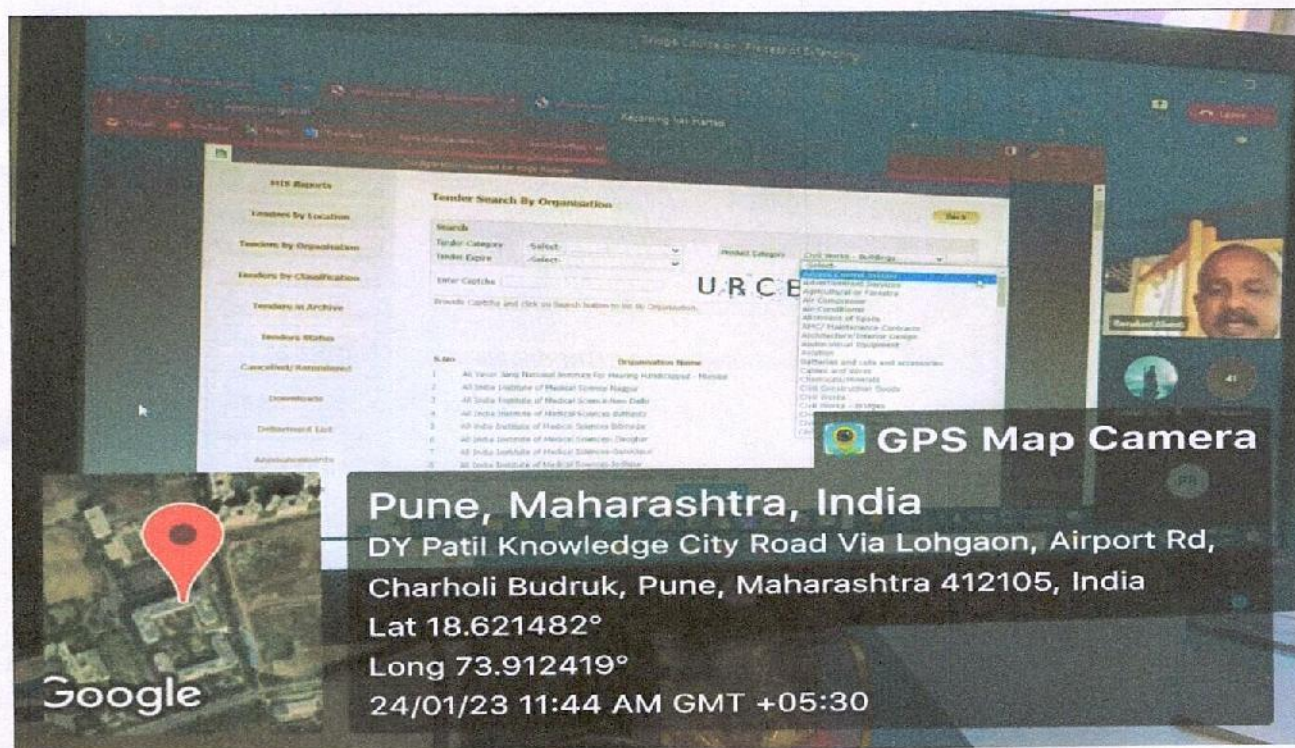


Photo 2: Mr Koshti explaining tender search by organization.

Tender search by Organization

Mahatenders - Search business opportunities from largest Tender Database for **Maharashtra Government tenders**, e tender Maharashtra, Online Tender Notices published on **mahatenders**. This site provides you with the latest news about maharashtra e tenders, maha tenders. You can also get latest information regarding eprocurement maharashtra, **maharashtra tenders** by organization, pmgsy tenders maharashtra and category wise tenders from Maharashtra. To date, 4180992 tenders are published by various Government departments of Maharashtra, Corporations, State PSUs & Private Companies from Maharashtra State. 4180992 live tenders are available on mahatenders gov for various products, services, and Works.




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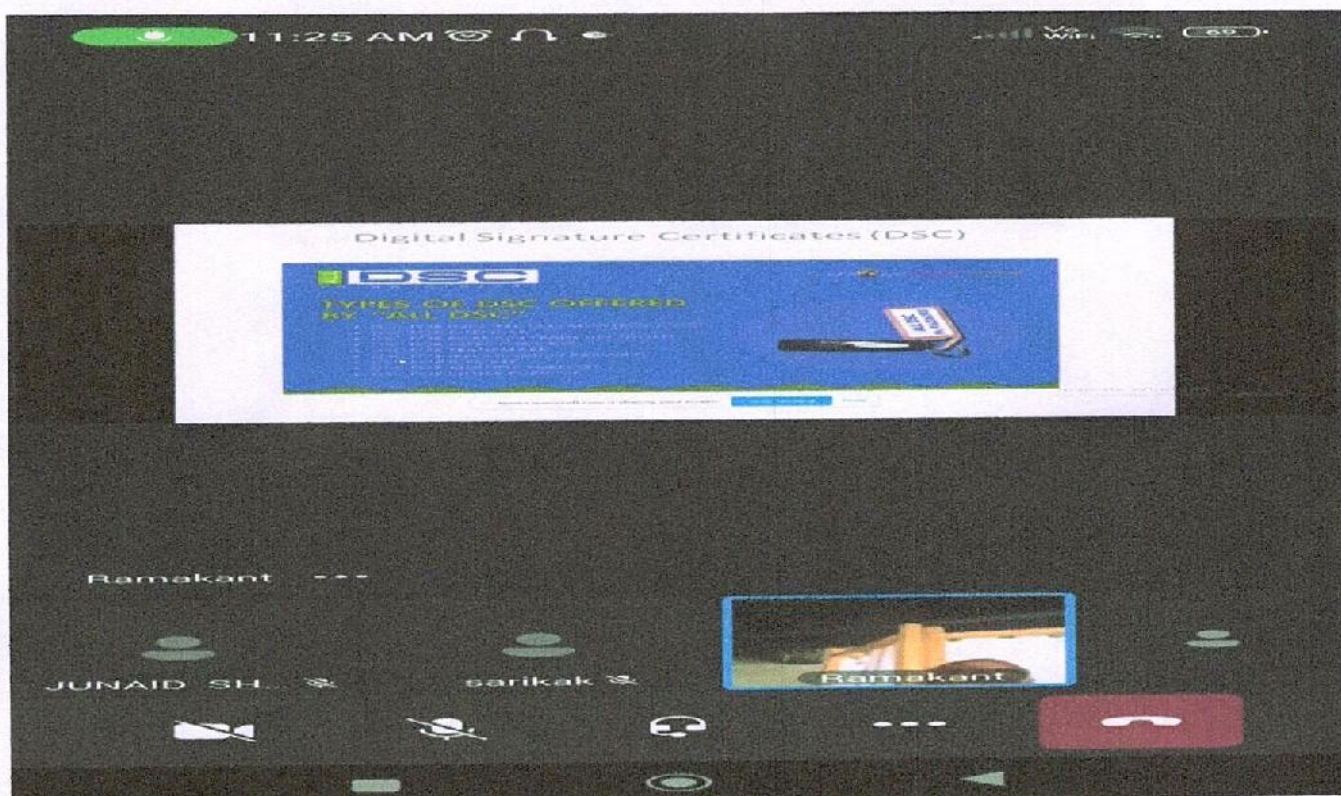


Photo 3: Sir was explaining Digital Signature Certificate's (DSC)

Digital Signature Certificate's (DSC)


Digital Signature Certificates (DSC) are the digital equivalent (that is electronic format) of physical or paper certificates. Few Examples of physical certificates are drivers' licenses, passports or membership cards. Certificates serve as proof of identity of an individual for a certain purpose; for example, a driver's license identifies someone who can legally drive in a particular country. Likewise, a digital certificate can be presented electronically to prove one's identity, to access information or services on the Internet or to sign certain documents digitally.

The different types of Digital Signature Certificates are:

Class 2: Here, the identity of a person is verified against a trusted, pre-verified database.

Class 3: This is the highest level where the person needs to present himself or herself in front of a Registration Authority (RA) and prove his/ her identity.




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Benefits of E- Tendering

The term E-Tendering can be a confusing concept if the term isn't fully explained to a buyer who's just in the process of taking their procurement processes online. Generally speaking, e-Tendering refers to those processes, as it is an electronic (digital) way for the buyer to advertise their needs, connect with a supplier, and ultimately draw up a contract. There are different types of e-Tendering portals where buyers can connect with suppliers, and from there, contracts can be finalized. Procurement software solutions such as e-Tendering can streamline your procurement process overall, making this one of the many benefits of e-Tendering—however, there are many others. Below, let's take a look at the top five benefits of e-Tendering.

1. An Increase in Efficiency with e-Tendering
2. A Higher Quality Vendor Pool with e-Tendering
3. Increased ROI with e-Tendering
4. Transparency and Spend Visibility with e-Tendering
5. e-Tendering is Easy to Use

Prof. Sarika Thombare

Prof. Sarika Kokate

Event Coordinators

Lt. Col. S M Karodpati
HOD



Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune

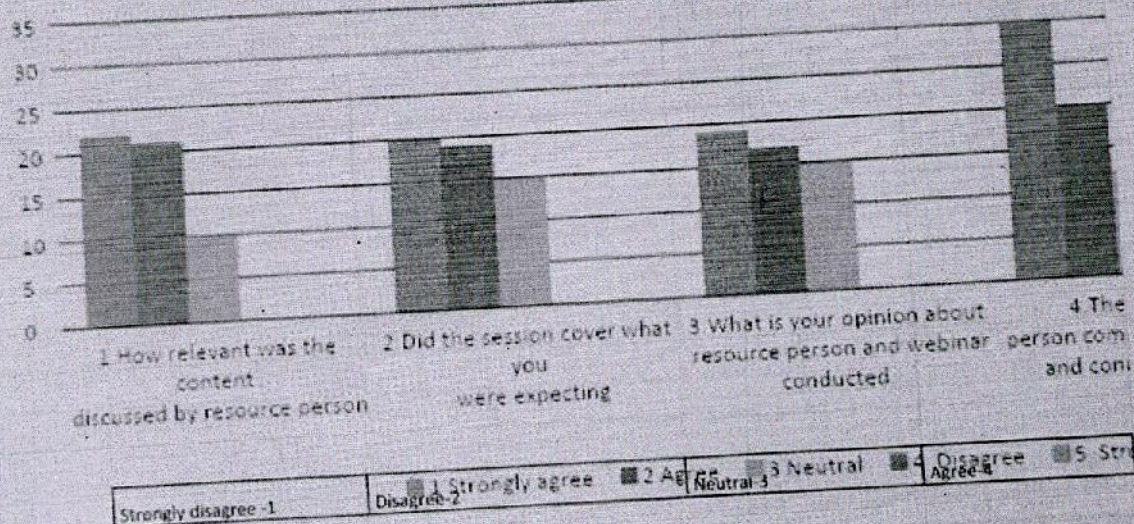


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 Accredited by NAAC, NABL & ISO 9001:2015 & 21001:2018 Certified Institute Department

Feedback Analysis of 1 days "Bridge Course on E-Ten

| Sr.No. | Point (Number of Forms Evaluated=(41) | 1.How relevant was the content discussed by resource person | 2.Did the session cover what you were expecting | 3.What is your opinion about resource person and webinar conducted |
|--------|---|--|---|--|
| 1 | Strongly agree | 22 | 20 | 19 |
| 2 | Agree | 21 | 19 | 17 |
| 3 | Neutral | 10 | 15 | 15 |
| 4 | Disagree | 0 | 0 | 0 |
| 5 | Strongly disagree | 0 | 0 | 0 |

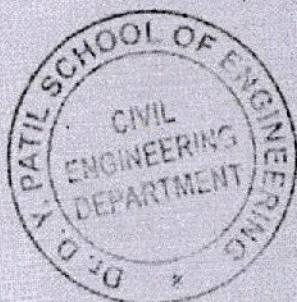
Feedback Analysis of 1 days "Bridge Course on E-Tende



Event Co-ordinator

[Signature]

H.O.D.



[Signature]
Principal
 Ajeenkya DY Patil School of
 Engineering, Lohegaon, Pune

[Signature]
H.O.D.
 Department of Civil Engineering
 Dr. D. Y. Patil School of Engg. Lohegaon





Dr. D. Y. Patil Group of Institutions' Technical Campus

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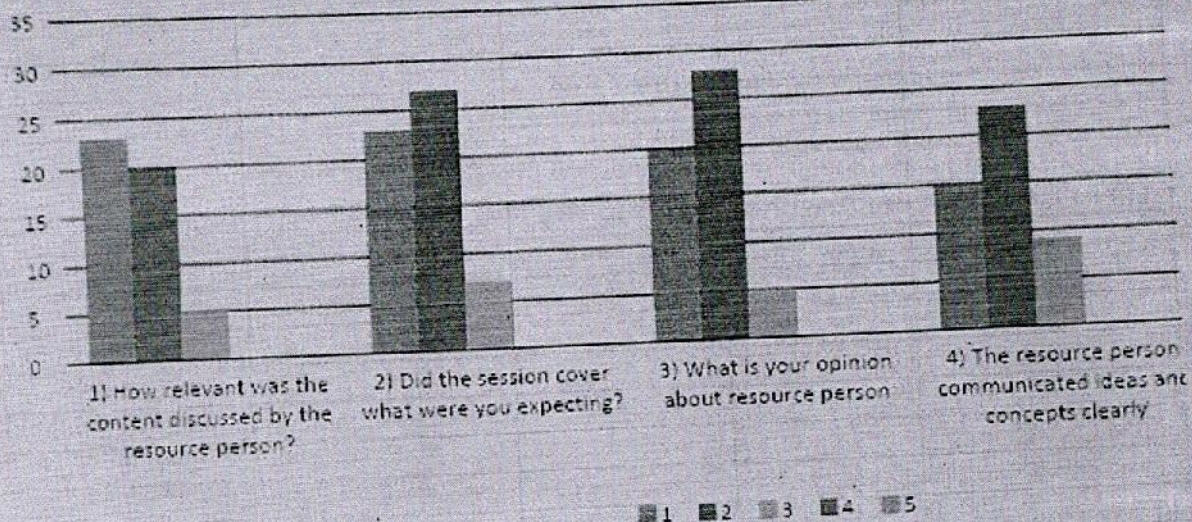
Affiliated to S.P. Pune, University. MSBTE Approved by AICTE & DTE

Accredited by NAAC, NABL & ISO 9001:2015 & 21001:2018 Certified Institute Department of Civil Engg.

Feedback Analysis of 2 days "Bridge Course on E-Tendering"

| Sr.No. | Point (Number of Forms Evaluated=55) | 1) How relevant was the content discussed by the resource person? | 2) Did the session cover what were you expecting? | 3) What is your opinion about resource person | 4) The resource person communicated ideas and concepts clearly |
|--------|--|---|---|---|--|
| 1 | Strongly agree | 23 | 23 | 20 | 15 |
| 2 | Agree | 20 | 27 | 28 | 23 |
| 3 | Neutral | 5 | 7 | 5 | 9 |
| 4 | Disagree | 0 | 0 | 0 | 0 |
| 5 | Strongly disagree | 0 | 0 | 0 | 0 |

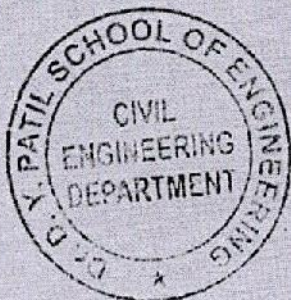
Feedback Analysis of 2 days Bridge Course on "E-Tendering"



Event Co-ordinator

[Signature]

Hod



H.O.D.

Department of Civil Engineering
Dr. D. Y. Patil School of Engg. Lohegaon

[Signature]

Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune



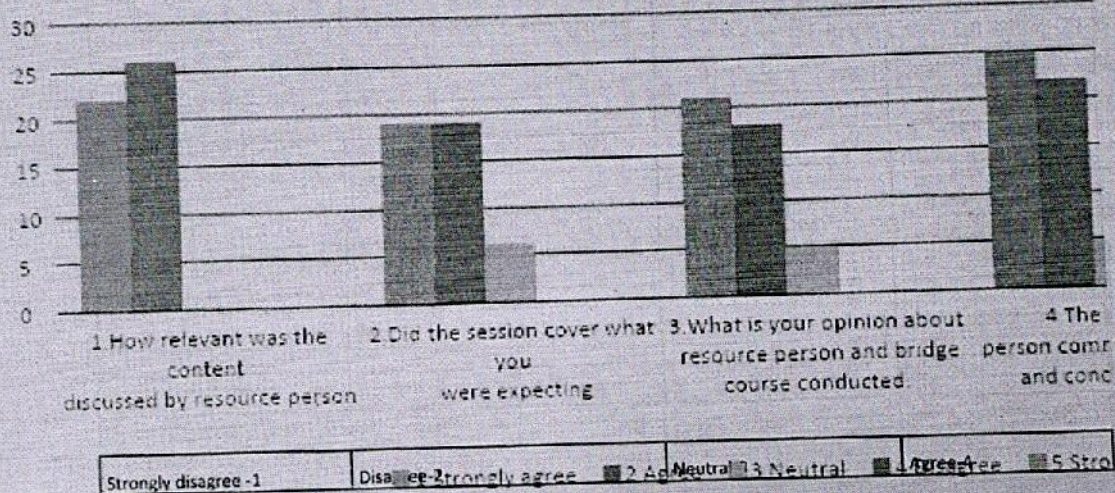


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Feedback Analysis of 3 days "Bridge Course on E-Ten

| Sr.No. | Point (Number of Forms Evaluated=(41) | 1.How relevant was the content discussed by resource person | 2.Did the session cover what you were expecting | 3.What is your opinion about resource person and bridge course conducted. |
|--------|---|--|---|---|
| 1 | Strongly agree | 22 | 19 | 21 |
| 2 | Agree | 26 | 19 | 18 |
| 3 | Neutral | 0 | 6 | 5 |
| 4 | Disagree | 0 | 0 | 0 |
| 5 | Strongly disagree | 0 | 0 | 0 |

Feedback Analysis of 3 days "Bridge Course on E-Tenderi



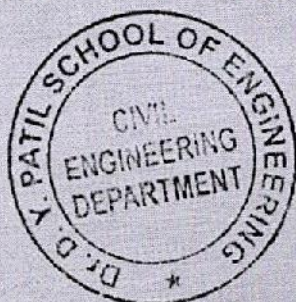
Event Co-ordinator

[Signature]

H.O.D.

[Signature]

Department of Civil Engineering
 Dr. D. Y. Patil School of Engg. Lohegaon

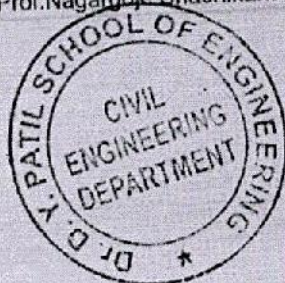


[Signature]
 Principal
 Ajeenkya DY Patil School of
 Engineering, Lohegaon, Pune



| Name of Participant | Name of College | 1) How relevant was the content discussed by the resource person? | 2) Did the session cover what were you expecting? |
|---------------------|-----------------|---|---|
|---------------------|-----------------|---|---|

| | | | |
|--------------------------------------|--|----------------|----------------|
| 1 Prof.kokate Sarika Rohidas | Dr.D.Y.Patil School of Engineering Lohegoan | Strongly agree | Strongly agree |
| 2 Koate Sarika | Dr D.Y.Patil.school of Engineering Lohegoan | Agree | Agree |
| 3 Bhor Amol Sunil | Samarth College Of Engineering Belhe | Strongly agree | Agree |
| 4 Shraddha Sanjaykumar Bendsure | PVPIT | Strongly agree | Strongly agree |
| 5 Dr. Pavan N. Ghumare | MET's Institute of Engineering | Agree | Agree |
| 6 Khating Ashwini Aniruddha | Samarth group of institutions college of Engineering belhe | Strongly agree | Strongly agree |
| 7 Dr VMNatraj | Guru Gobind College of Engineering and Research Centre, Nashik | Agree | Agree |
| 8 Aboli Ravikar | Dr.D.Y Patil Institute of Technology, Pimpri, Pune | Strongly agree | Strongly agree |
| 9 Amar Chipade | DIT Pimpri | Agree | Agree |
| 10 Ashwini Salunkhe | Dr. D. Y. Patil Institute of Technology, Pimpri | Agree | Agree |
| 11 Mr. Manoj Bhila Patil | MVP'S KBTCOE NASHIK | Agree | Strongly agree |
| 12 Ajay Giridhar Chaudhari | Guru Gobind Singh College of Engineering and Research Centre, Nashik | Strongly agree | Strongly agree |
| 13 Aakanksha Ingle | Dr D Y Patil School of Engineering | Agree | Agree |
| 14 POKURI CHAITANYA | TKR Engineering college | Strongly agree | Strongly agree |
| 15 Mehetre Sagar Madhukar | JCOE | Strongly agree | Strongly agree |
| 16 Neha Agrawal | Dr. D. Y. Patil Institute of Technology, Pimpri | Agree | Agree |
| 17 Kshilija Tikhe | Dr.D.Y.Patil Institute of Technology | Strongly agree | Strongly agree |
| 18 Prof. Sheetal Marawar | Dr.D Y Patil School of Engineering Lohagaon Pune | Strongly agree | Strongly agree |
| 19 Prof.Nagargoje Shashikant Mahadev | Jaihind College of Engineering Kuran | Strongly agree | Agree |
| 20 Prof.Nagargoje Shashikant Mahadev | Jaihind college of engineering kuran | Agree | Agree |



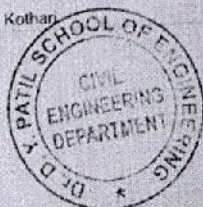
Principal
Ajeenkya DY Patil School of Engineering, Lohegaon, Pune



| | | | | |
|----|-------------------------------|--|----------------|----------------|
| 21 | PRAFULL JAGANNATH BARGE | DYSOET | Neutral | Neutral |
| 22 | Rohan Sadashiv Sawant | Dr. D. Y. Patil Institute of Technology Pimpri, Pune | Neutral | Agree |
| 23 | CHANDRA GUPTA NANNA | Teegala Krishna Reddy Engineering College | Agree | Neutral |
| 24 | Prashant Mandale | Dr D Y Patil School of Engineering | Agree | Neutral |
| 25 | Prof. Sunil Deshpande | Dr D Y Patil Institute of Technology Pimpri | Agree | Neutral |
| 26 | Dighe Bhushan Nanasaheb | Samarth college of engineering, bolhe, pune | Strongly agree | Strongly agree |
| 27 | Prof. Ravindra Narendra Patil | Sandip Foundation's SIEM Nashik | Strongly agree | Strongly agree |
| 28 | Vinayak Kale | DIT Pimpri | Agree | Agree |
| 29 | Dr Anil Shirgire | Dr D Y Patil Institute of Technology Pimpri Pune | Strongly agree | Strongly agree |
| 30 | Veena Bellary | Dr D Y Patil Institute Of Technology Pimpri Pune | Strongly agree | Strongly agree |
| 31 | Mayuri Gadhe | Amrutvahini College of Engineering | Agree | Agree |
| 32 | Tejaswini Suhas Kulkarni | Dr D Y Patil school of Engineering | Neutral | Agree |
| 33 | Nemade Aniket Vilas | Dr D Y Patil School of Engineering, Lohegaon | Strongly agree | Agree |
| 34 | Prof. Kokate Sarika | Dr D.Y. Patil School of Engineering Lohegaon | Strongly agree | Strongly agree |
| 35 | Prof Kokate Sarika | Dr.D.Y. Patil School of Engineering | Strongly agree | Agree |
| 36 | Amit Wamanrao Khandagale | Dr D Y Patil School of Engg Pune | Agree | Strongly agree |
| 37 | K A Salunke | SIEM NASHIK | Neutral | Neutral |
| 38 | KUNDAN SURESH KOLAMBE | DYPSOE | Agree | Agree |
| 39 | Prof. Karale Sandip Ashok | SND COE&RC, Yeola. | Strongly agree | Strongly agree |
| 40 | SHIMPI ABHISHEK LOTAN | Sandip Institute of Engineering and Management | Strongly agree | Agree |
| 41 | Previn Popat Mana | SPPU, Pune | Strongly agree | Strongly agree |
| 42 | nitin n shinde | Dr. D. y. Patil Institute of technology pimpri pune | Agree | Agree |
| 43 | Dr S M Khaimar | DYPSOE Pune | Agree | Agree |
| 44 | Sonal Kothari | Dr. D Y Patil Institute of technology, Pimpri | Agree | Agree |



Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune





Dr. D. Y. Patil Group of Institutions' Technical Campus
Ajeenkya. DY. PATIL SCHOOL OF ENGINEERING
Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune - 412 105.
Affiliated to S.P.Pune, University .MSBTE ,Approved by AICTE &DTE
Accredited by NAAC,NABL-ISO/IEC 17025 & ISO 9001:2015&21001:2018 Certified
Institute
**Department of Civil Engineering and
Industry Institute Interaction Cell (IIIC)**

Date: 20/01/2023

To,
Dr. Rajesh Katdare
(Assistant professor Civil Engineering Department,
ADYPSOE,Lohegaon,Pune)

Subject: -Expression of Gratitude

Respected Sir,

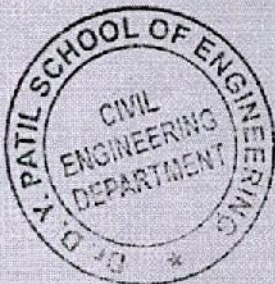
1. On behalf of Dr. D.Y. Patil School of Engineering, Lohegaon Pune, We are thankful to you for delivering the expert speech on subject "**Bridge Course on Process of E-Tendering**" on 23th Jan 2023.

2. We believe that, the knowledge you shared with the participants will help immensely in their personal and academic development. Your presentation was excellent and enjoyed by everyone. We appreciate you for sharing your time, talent and expertise with us.

3. We look forward many more such association in future.

Sincerely,
Prof. Lt. Col. Sanjay Karodpati (Retd.) Mob No - 7709708941
(Head of Civil Dept. DY Patil School of Engineering,
Lohegaon, Pune) **H.O.D.**

Department of Civil Engineering
Dr. D. Y. Patil School of Engg. Lohegaon



Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune

Vision - Strive for technical excellence in civil engineering
Mission- To impart practical based learning to meet the needs of the industry
To inculcate social and ethical values among the students
To establish a center of excellence by imparting soft technology skills in civil engineering





Dr. D. Y. Patil Group of Institutions' Technical Campus
Ajeenkya D. Y. PATIL SCHOOL OF ENGINEERING
Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune - 412 105.
Affiliated to S.P.Pune, University .MSBTE ,Approved by AICTE &DTE
Accredited by NAAC,NABL-ISO/IEC 17025 & ISO 9001:2015&21001:2018 Certified
Institute
**Department of Civil Engineering and
Industry Institute Interaction Cell (IIIC)**

Date: 20/01/2023

To,
Mr. Ramakant Dagadu Koshti
(Founder of Constroplanet Civil Engineering Services)

Subject: -Expression of Gratitude

Respected Sir,

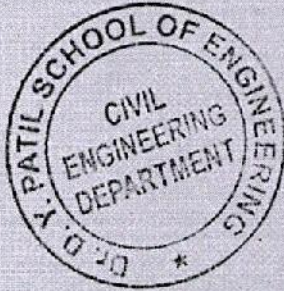
1. On behalf of Dr. D.Y. Patil School of Engineering, Lohegaon Pune, We are thankful to you for delivering the expert speech on subject "**Bridge Course on Process of E-Tendering**" on 24th Jan 2023 to 25th Jan 2023.

2. We believe that, the knowledge you shared with the participants will help immensely in their personal and academic development. Your presentation was excellent and enjoyed by everyone. We appreciate you for sharing your time, talent and expertise with us.

3. We look forward many more such association in future.

Sincerely,
Prof. Lt. Col. Sanjay Karodpati (Retd.) Mob No - 7709708941
(Head of Civil Dept. DY Patil School of Engineering,
Lohegaon, Pune)

H.O.D.
Department of Civil Engineering
Dr. D. Y. Patil School of Engg. Lohegaon



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Mission- To impart practical based learning to meet the needs of the industry
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Principal

Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune





Dr. D. Y. Patil Technical Campus
Dr. D. Y. Patil School of Engineering
Dr. D. Y. Patil Knowledge City, Charholi (Bk), Lohegaon, Pune - 412 105
Website: www.dypic.in Contact No.: 020-6707 7926

RESULT ANALYSIS

SPPU Examination: NOV-2022

Semester: III

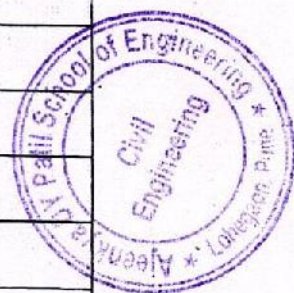
Department: CIVIL

Class: SE

Date of declaration of result: 28/03/2023

A. Overall Result Analysis

| Sr. No. | Details | No. of Students |
|---------|---|-----------------|
| 1 | No. of students appeared | 71 |
| 2 | No. of students passed (All clear) | 01 |
| 3 | No. of students failed (ATKT) | 70 |
| 4 | All clear passing Percentage | 1.41 |
| 5 | All clear passing Percentage (University) | -- |
| 6 | Percentage of passing with ATKT | -- |
| 7 | Percentage of passing with ATKT (University) | -- |
| 8 | No. of students passed with Distinction | 00 |
| 9 | No. of students passed with First Class | 00 |
| 10 | No. of students passed with Higher Second Class | 00 |
| 11 | No. of students passed with Second Class | 01 |
| 12 | No. of students passed with Pass Class | 00 |
| 13 | No. of students failed in 1 Th. Sub | 02 |
| 14 | No. of students failed in 2 Th. Subs | 06 |
| 15 | No. of students failed in 3 Th. Subs | 22 |
| 16 | No. of students failed in more than 3 Th. Subs | 40 |
| 17 | No. of students failed in 1 Pr/Or | 13 |
| 18 | No. of students failed in 2 Pr/Or | 02 |
| 19 | No. of students failed in 3 Pr/Or | 00 |



Principal

Ajeenkya DY Patil School of Engineering, Lohegaon, Pune



B. Subject Wise Result Analysis:

| Sr. No. | Name of the Subject | TH/Pr | Name of the Staff Member | No. of Students Appeared | No. of Students Passed | % of Passing |
|---------|---------------------|-------|--------------------------|--------------------------|------------------------|--------------|
| 1 | BTAP | TH | Prof. Shreedhar D. Patil | 71 | 29 | 40.84 |
| 2 | MOS | TH | Prof. A. V. Nemade | 71 | 13 | 18.30 |
| 3 | FM | TH | Prof. U. A. Shaikh | 71 | 2 | 2.8 |
| 4 | MIII | TH | Prof. Rahul Mali | 71 | 9 | 12.67 |
| 5 | EG | TH | Prof. Gayatri C Sherkar | 71 | 41 | 57.74 |

C. Subject Wise Scoring Pattern:

| Sr. No. | Subject | % of Passing | No. of students appeared | No. of students obtaining marks. in the range | | | | | | |
|---------|---------|--------------|--------------------------|---|----------|----------|----------|----------|----|---------------------|
| | | | | 66 to 100 | 60 to 65 | 55 to 59 | 50 to 54 | 41 to 49 | 40 | Less than 40 (Fail) |
| 1 | BTAP | 40.84 | 71 | 1 | 2 | 4 | 5 | 12 | 5 | 42 |
| 2 | MOS | 18.30 | 71 | 0 | 0 | 0 | 2 | 7 | 4 | 58 |
| 3 | FM | 2.8 | 71 | 0 | 0 | 0 | 0 | 1 | 1 | 69 |
| 4 | MIII | 12.67 | 71 | 0 | 0 | 0 | 0 | 7 | 2 | 62 |
| 5 | EG | 57.74 | 71 | 0 | 3 | 1 | 4 | 22 | 11 | 30 |

Toppers:

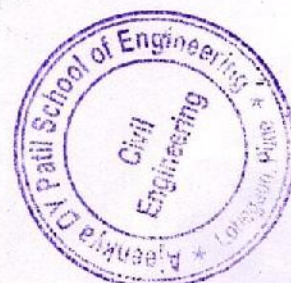
| Rank | Name of students | Total Marks out of 700 | Percentage/SGPA |
|------|---------------------------|------------------------|-----------------|
| 1 | VISHWAJEET SUDHIR CHATAKE | 371 | 5.73 |

HoD **HOD**
Civil Engineering
Ajeenkya DY Patil School of Engineering
Lohegaon, Pune



Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune

Principal





Dr. D. Y. Patil Technical Campus
Dr. D. Y. Patil School of Engineering
Dr. D. Y. Patil Knowledge City, Charholi (Bk), Lohegaon, Pune – 412 105
Website: www.dypic.in Contact No.: 020-6707 7926
Department of Civil Engineering

RESULT ANALYSIS

SPPU Examination: NOV-2022

Semester: IV

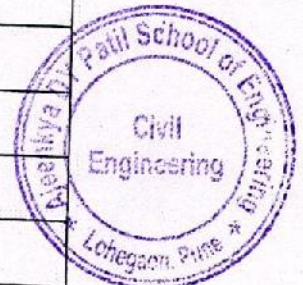
Department: CIVIL

Class: TE

Date of declaration of result: 24/03/202

A. Overall Result Analysis

| Sr. No. | Details | No. of Students |
|---------|---|-----------------|
| 1 | No. of students appeared | 73 |
| 2 | No. of students passed(All clear) | 19 |
| 3 | No. of students failed (With ATKT) | 54 |
| 4 | All clear passing Percentage | 26.02 |
| 5 | All clear passing Percentage(University) | -- |
| 6 | Percentage of passing with ATKT | -- |
| 7 | Percentage of passing with ATKT(University) | -- |
| 8 | No. of students passed with Distinction | 05 |
| 9 | No. of students passed with First Class | 07 |
| 10 | No. of students passed with Higher Second Class | 05 |
| 11 | No. of students passed with Second Class | 02 |
| 12 | No. of students passed with Pass Class | 00 |
| 13 | No. of students failed in 1 Th. Sub | 09 |
| 14 | No. of students failed in 2 Th. Subs | 14 |
| 15 | No. of students failed in 3 Th. Subs | 12 |
| 16 | No. of students failed in more than 3 Th. Subs | 19 |
| 17 | No. of students failed in 1 Pr/Or | 07 |
| 18 | No. of students failed in 2 Pr/Or | 11 |
| 19 | No. of students failed in 3 Pr/Or | 00 |



Principal

Ajeenkya DY Patil School of Engineering, Lohegaon, Pune



B. Subject Wise Result Analysis:

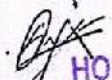
| Sr.No. | Name of the Subject | TH/Pr | Name of the Staff Member | No. of Students Appeared | No. of Students Passed | % of Passing |
|--------|----------------------------------|-------|------------------------------|--------------------------|------------------------|--------------|
| 1 | HWRE | TH | Prof. Uzma A. Shaikh | 73 | 38 | 52.05 |
| 2 | WSE | TH | Prof. Swapnil P. Bijwe | 73 | 34 | 46.57 |
| 3 | DSS | TH | Prof. Jitendra D. Dalvi | 73 | 28 | 38.35 |
| 4 | EEFM | TH | Prof. Gaurav C. Vispute | 73 | 54 | 73.10 |
| 5 | CM | TH | Lt. Col. Sanjay M. Karodpati | 62 | 46 | 74.2 |
| 6 | ACT | TH | Prof. Uday A. Kakde | 11 | 11 | 100 |
| 7 | Urban Housing and Infrastructure | TH | Dr. Milind M. Darade | 8 | 7 | 87.5 |

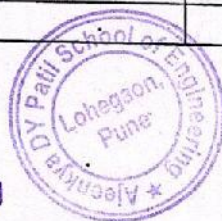
C. Subject Wise Scoring Pattern:

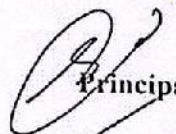
| Sr. No. | Subject | % of Passing | No. of students appeared | No. of students obtaining marks. in the range | | | | | | |
|---------|---------|--------------|--------------------------|---|----------|----------|----------|----------|----|---------------------|
| | | | | 66 to 100 | 60 to 65 | 55 to 59 | 50 to 54 | 41 to 49 | 40 | Less than 40 (Fail) |
| 1 | HWRE | 52.05 | 73 | 2 | 4 | 4 | 4 | 21 | 3 | 35 |
| 2 | WSE | 46.57 | 73 | 5 | 4 | 4 | 4 | 16 | 1 | 39 |
| 3 | DSS | 38.35 | 73 | 0 | 5 | 1 | 3 | 13 | 6 | 45 |
| 4 | EEFM | 73.10 | 73 | 0 | 6 | 7 | 9 | 24 | 8 | 19 |
| 5 | CM | 74.2 | 62 | 8 | 7 | 8 | 6 | 15 | 2 | 16 |
| 6 | ACT | 100 | 11 | 3 | 2 | 2 | 1 | 3 | 0 | 0 |
| 7 | UHI | 87.5 | 8 | 1 | 2 | 1 | 0 | 3 | 0 | 0 |

D. Toppers:

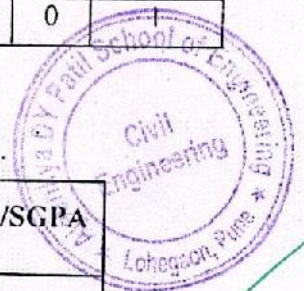
| Rank | Name of students | Total Marks out of 700 | Percentage/SGPA |
|------|---------------------------|------------------------|-----------------|
| 1 | AYUSH AMAR MADIKUNT | 477 | 8.38 |
| 2 | KARAN YADAV | 474 | 8.24 |
| 3 | KHANDARE SAHIL RAVI | 464 | 8.19 |
| 4 | SHINDE MANDAR PURUSHOTTAM | 456 | 8.14 |
| 5 | ROY MITALI ANIL | 457 | 8.16 |

HoD 
HOD
Civil Engineering
Ajeenkya DY Patil School of Engineering
Lohegaon, Pune




Principal

Principal
Ajeenkya DY Patil School of Engineering, Lohegaon, Pune





Dr. D. Y. Patil Technical Campus
Dr. D. Y. Patil School of Engineering
Dr. D. Y. Patil Knowledge City, Charholi (Bk), Lohegaon, Pune – 412 105
Website: www.dypic.in Contact No.: 020-6707 7926

RESULT ANALYSIS

SPPU Examination: NOV-2022

Semester: VII

Department: CIVIL

Class: BE

Date of declaration of result: 16/03/2023

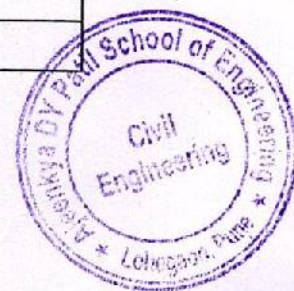
A. Overall Result Analysis

| Sr. No. | Details | No. of Students |
|---------|---|-----------------|
| 1 | No. of students appeared | 100 ✓ |
| 2 | No. of students passed (All clear) | 39 |
| 3 | No. of students failed (With ATKT) | 61 |
| 4 | All clear passing Percentage | 39 ✓ |
| 5 | All clear passing Percentage (University) | - |
| 6 | Percentage of passing with ATKT | - |
| 7 | Percentage of passing with ATKT (University) | - |
| 8 | No. of students passed with Distinction | 16 |
| 9 | No. of students passed with First Class | 13 |
| 10 | No. of students passed with Higher Second Class | 05 |
| 11 | No. of students passed with Second Class | 04 |
| 12 | No. of students passed with Pass Class | 01 |
| 13 | No. of students failed in 1 Th. Sub | 16 |
| 14 | No. of students failed in 2 Th. Subs | 12 |
| 15 | No. of students failed in 3 Th. Subs | 17 |
| 16 | No. of students failed in more than 3 Th. Subs | 14 |
| 17 | No. of students failed in 1 Pr/Or | 11 |
| 18 | No. of students failed in 2 Pr/Or | 06 |
| 19 | No. of students failed in 3 Pr/Or | 05 |



(Signature)

Principal
Ajeenkya DY Patil School of
Engineering, Lohegaon, Pune



B. Subject Wise Result Analysis:

| Sr. No. | Name of the Subject | TH/Pr | Name of the Staff Member | No. of Students Appeared | No. of Students Passed | % of Passing |
|---------|--|-------|--------------------------|--------------------------|------------------------|--------------|
| 1 | Foundation Engineering | TH | Prof. Gayatri C Sherkar | 100 | 54 | 54 |
| 2 | Transportation Engineering | TH | Prof. Uday A. Kakde | 100 | 54 | 54 |
| 3 | Integrated Water Resources Planning & Management | TH | Prof. Sarika Thombare | 100 | 80 | 80 |
| 4 | Air Pollution and Control | TH | Prof. Sheetal Marwar | 100 | 68 | 68 |
| 5 | HON | TH | Prof. Sheetal Marwar | 29 | 25 | 86.20 |

C. Subject Wise Scoring Pattern:

| Sr. No. | Subject | % of Passing | No. of students appeared | No. of students obtaining marks. in the range | | | | | | |
|---------|---------|--------------|--------------------------|---|----------|----------|----------|----------|----|---------------------|
| | | | | 66 to 100 | 60 to 65 | 55 to 59 | 50 to 54 | 41 to 49 | 40 | Less than 40 (Fail) |
| 1 | FE | 54 | 100 | 5 | 6 | 10 | 6 | 21 | 6 | 46 |
| 2 | TRE | 54 | 100 | 4 | 6 | 9 | 13 | 19 | 3 | 46 |
| 3 | IWRPM | 80 | 100 | 20 | 11 | 13 | 10 | 21 | 5 | 20 |
| 4 | APC | 68 | 100 | 10 | 4 | 7 | 13 | 27 | 7 | 32 |
| 5 | HON | 86.20 | 29 | 7 | 5 | 4 | 4 | 03 | 2 | 4 |

D. Toppers:

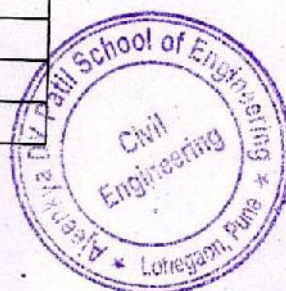
| Rank | Name of students | Total Marks out of 700 | Percentage/SGPA |
|------|-----------------------------|------------------------|-----------------|
| 1 | SAYYED SALMA JAVED | 575 | 9.70 |
| 2 | OZARKAR GUNVANT PRAMOD | 567 | 9.55 |
| 3 | MAHER ARUN SANTOSH | 527 | 9.05 |
| 4 | SHENDAGE MEENAKSHI BAJARANG | 536 | 8.95 |
| 5 | MOKLE PAWAN SANJAY | 493 | 8.55 |

HOD

HOD
Civil Engineering
Ajeenkya DY Patil School of Engineering
Lohegaon, Pune

Principal

Principal
Ajeenkya DY Patil School of Engineering, Lohegaon, Pune





"Empowerment through quality technical education"
AJEENKYA DY PATIL SCHOOL OF ENGINEERING
Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune - 412 105.
Department of E&TC Engineering


Form No. IQAC/10

Course File Index

Class: T.E.

Subject: Power Devices & Circuits

| Sr.No. | Contents | Remark |
|--------|--|--------|
| 1. | Department Academic Calendar | ✓ |
| 2. | Syllabus with Course Objectives | ✓ |
| 3. | Master Time Table | ✓ |
| 4. | Individual Time Table | ✓ |
| 5. | Teaching & Practical Plan | ✓ |
| 6. | Subject Notes (Handwritten Notes, Presentations) | - |
| 7. | Best Practices | ✓ |
| 8. | Additional Topics Covered (other than syllabus) | - |
| 9. | University Question Papers & Model Answer Sheets (Insem & End Sem) | ✓ |
| 10. | Question Bank (Theory) | ✓ |
| 11. | Question Bank (Oral) | ✓ |
| 12. | Assignments/Tutorial | ✓ |
| 13. | Attendance Record | ✓ |
| 14. | Continuous Assessment Record | ✓ |
| 15. | Unit Test I: Question Paper, Attendance Record, Result | ✓ |
| 16. | Unit Test II: Question Paper, Attendance Record, Result | ✓ |
| 17. | Subject Result | ✓ |
| 18. | Lab Manual | ✓ |
| 19. | CO/PO mapping & attainments | ✓ |
| 20. | Faculty Feedback | ✓ |


(Riyaj L. Kazi)
Name and Sign of Faculty

HoD

Dean Academics




PRINCIPAL
ADYOD PUNE



1

Department Academic Calendar




PRINCIPAL
ADYPSOE, PUNE

"Empowerment through Quality Technical Education"
AJEENKYA DY Patil School of Engineering
D Y Patil Knowledge City, Charoli (Bk), Via Lohegaon, Pune 412105
Department Academic Calendar 2022-23 [Tentative] Form No: IQAC/01(b)
Bold Colour Activities for Department Academic Calendar

| JUNE 2022 | | | | | | | |
|-------------|--------|--------|-----------|-----|-----|-----|-------|
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | | | 1 | 2 | 3 | 4 | a-b |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 | c-d-e |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 | f-g-h |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | i-j-k |
| 25 | 27 | 28 | 29 | 30 | | | l |
| JULY 2022 | | | | | | | |
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | | | | | 1 | 2 | a-b |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 | c-d-e |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | f-g |
| 17 | 18 | 19 | 20 | 21 | 22 | 23 | h-i-j |
| 24 | 25 | 26 | 27 | 28 | 29 | 30 | k-l-m |
| 31 | | | | | | | |
| AUGUST 2022 | | | | | | | |
| SUN | MON | TUE | WED | THU | FRI | SAT | |
| | 1 | 2 | 3 | 4 | 5 | 6 | a |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | b-c |
| 14 | 15-Aug | 16-Aug | 17 | 18 | 19 | 20 | d-e-f |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | g-h |
| 28 | 29 | 30 | 31-Ganesh | | | | i-j |

- a. Admission Committee Meeting with Principal
b. Staff identification, advertisement, recruitment
c. Meeting for preparation of annual budget
d. First Meeting of College Development Committee [CDC]
e. A. Y. 2021-22 Teacher diary submission
f. Staff performance appraisal
g. Dead stock verification
h. 360 Degree Feedback of Institute Staff
i. Service book updation
j. A. Y. 2022-23 IQAC plan of action
k. AQAR 2022-23 Activity Calendar
l. 5 Days (30 hours) Faculty development Program /Workshop for Teaching from department of E&TC Engineering
- a. IQAC Meeting No. 1 for Annual Planning
b. NAAC & AQAR Criterion Chairpersons Meeting with Principal & IQAC Coordinator for execution of AQAR/NAAC activities Calendar
c. Department Academic Calendar
d. Cell Coordinator Meeting with Principal & IQAC Coordinator
e. Meeting of Section Incharges (TPO, CEO, Librarian, SDO) with Principal
f. Statutory & Non-Statutory Committee Meeting with Principal
g. Load Distribution, Staff Portfolio & Time table
h. Commencement of Teaching: SEM-I (18/07/2022)
i. Induction program for Staff & students
j. Identification of Slow learners & advanced learners
k. 5 Days (30 hours) Faculty development Program/Workshop for Teaching from department of Mechanical Engineering
l. Bridge course for Slow Learners
m. Approval Process for Staff
- a. Administrative Training Program for Non-Teaching Staff from IQAC
b. Notice for Student Eligibility & Scholarship Form Submission
c. University Affiliation
d. 15th August - Independence Day Celebration
e. Student's Feedback - I, Feedback Analysis & Action Taken Report
f. Academic Progress Report - I
g. Student's attendance, defaulter List-I & Action Taken Report
h. Unit Test - I & Result Analysis
i. Remedial Teaching & Retest
j. Department Advisory Board Meeting-I



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| September 2022 | | | | | | | | a. Student Notice for Exam form Submission b. SPPU INSEM EXAM , Invigilation & CAP duty c. Parents Teacher's Meet- I (PTM-I) d. Field Projects/Industrial Visits e. Academic Progress Report - II (APR-II) f. Student's attendance & defaulter List-II g. Review Meeting of AQAR chairpersons, Cell coordinators, Committee Coordinators with Principal & IQAC h. IQAC Meeting No. 2 |
|----------------|-----------|----------|-----------|-----|-----|-----|-------|--|
| SUN | MON | TUE | WED | THU | FRI | SAT | | |
| | | | | 1 | 2 | 3 | a-b | |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 | c | |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | d | |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 | e-f | |
| 25 | 26 | 27 | 28 | 29 | 30 | | g-h | |
| October 2022 | | | | | | | | a. Student's Feedback – II, Feedback Analysis & Action Taken Report b. Unit Test -II (UT- II) & Result Analysis of UT-II c. Remedial Teaching & Retest d. Audits, Review Meeting & Submission of AQAR 2021-22 to NAAC e. Review Meeting & Submission of NIRF 2023 to MHRD f. Diwali Holidays |
| SUN | MON | TUE | WED | THU | FRI | SAT | | |
| | | | | | | 1 | | |
| 2 | 3 | 4 | 5 Diwali | 6 | 7 | 8 | a | |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | b | |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 | c-d-e | |
| 23 | 24 Diwali | 25 | 26 Ganesh | 27 | 28 | 29 | f | |
| 30 | 31 | | | | | | | |
| November 2022 | | | | | | | | a. Mock Examination (OR/PR), Course Exit Survey, Student Submission b. Conclusion of Teaching: SEM-I (5/11/2022) c. SPPU OR / PR EXAM d. SPPU ENDSEM EXAM - Invigilation, CAP duty & Vacation e. 5 Days (30 hours) Faculty development Program/Workshop for Teaching from department of Civil Engineering f. ISO: Surveillance Audit |
| SUN | MON | TUE | WED | THU | FRI | SAT | | |
| | | 1 | 2 | 3 | 4 | 5 | a-b | |
| 6 | 7 | 8 Ganesh | 9 | 10 | 11 | 12 | c | |
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | d | |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 | e | |
| 27 | 28 | 29 | 30 | | | | f | |



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December 2022

| SUN | MON | TUE | WED | THU | FRI | SAT | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | | 1 | 2 | 3 | a |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 | b-c |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | d |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 | e |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 | f-g |

- a. Second Meeting of College Development Committee (CDC)
- b. Meeting with Principal to Organize International Conference
- c. Meeting with Principal to Organize Techfest/Project Competition
- d. 5 Days (30 hours) Faculty development Program/Workshop for Teaching from department of Computer Engineering
- e. Meeting for planning of Industrial Visits /Field Projects
- f. Review Meeting of NAAC/AQAR Chairpersons, Cell coordinators, and Committees with Principal & IQAC Coordinator
- g. Load Distribution, Staff Portfolio & Time-Table for SEM-II

January 2023

| SUN | MON | TUE | WED | THU | FRI | SAT | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | a |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | b-c |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 | d |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 | e |
| 29 | 30 | 31 | | | | | f-g |

- a. Commencement of Teaching: SEM-II (02/01/2023)
- b. Identification of Slow learners & Advanced learners
- c. Bridge course for Slow Learners
- d. 5 Days (30 hours) Professional development Program for Teaching from IQAC
- e. 26th January - Republic Day Celebration
- f. Administrative Training Program for Non-Teaching Staff from IQAC
- g. Department Advisory Board Meeting-II

February 2023

| SUN | MON | TUE | WED | THU | FRI | SAT | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | 1 | 2 | 3 | 4 | a |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 | b-c |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 | d-e |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | f-g |
| 26 | 27 | 28 | | | | | h |

- a. Participation in Institute Rankings
- b. Student's Feedback - I, Feedback Analysis & Action Taken Report
- c. Academic Progress Report - I
- d. Student's attendance, defaulter List-I & Action Taken Report
- e. Unit Test -I & Result Analysis
- f. Remedial Teaching & Retest
- g. 5 Days (30 hours) Faculty development Program/Workshop for Teaching from department of AI&DS
- h. NSS Activities



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March 2023

| SUN | MON | TUE | WED | THU | FRI | SAT | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| | | | 1 | 2 | 3 | 4 | a |
| 5 | 6 | 7 | 8 | 9 | 10 | 11 | b |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 | c-d |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 | e-f |
| 26 | 27 | 28 | 29 | 30 | 31 | | g-h |

- a. Student Notice for Exam form Submission
- b. SPPU INSEM EXAM - Invigilation & CAP duty
- c. Parents Teacher's Meet- I (PTM-I)
- d. Field Projects/Industrial Visits
- e. Academic Progress Report - II (APR-II)
- f. Student's attendance, defaulter List-II & Action Taken Report
- g. International Conference
- h. IQAC Meeting No. 3

April 2023

| SUN | MON | TUE | WED | THU | FRI | SAT | |
|-----|-----|-----|-----|-----|-----|-----|-------|
| | | | | | | 1 | a |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 | b |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 | c-d |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 | e-f-g |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 | h-i |
| 30 | | | | | | | |

- a. Student's Feedback - II, Feedback Analysis & Action Taken Report
- b. Unit Test-II & Result Analysis
- c. Remedial Teaching & Retest
- d. Tech Fest/Project Competition
- e. Annual Social Gathering
- f. Graduation Day Celebration [BE Students Send-off]
- g. Convocation
- h. Mock OR/PR Exam & Student Submission
- i. Conclusion of Teaching: SEM-II (29/04/2023)

May 2023

| SUN | MON | TUE | WED | THU | FRI | SAT | |
|-----|-----|-----|-----|-----|-----|-----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 | a |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 | b-c |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | d-e |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | f |
| 28 | 29 | 30 | 31 | | | | g |

- a. SPPU OR / PR EXAM
- b. SPPU ENDSEM EXAM - Invigilation, CAP duty & Vacation
- c. Academic & Administrative audits
- d. Student Satisfaction Survey, Course & Programme Exit Survey, Stakeholders Feedback, Analysis & Action Taken Report
- e. Analysis of activities planned in Academic Calendar, IQAC Plan of action, AQAR activity Calendar, DAB Activities & their action taken reports
- f. Website Updation & Annual Report
- g. IQAC Meeting No. 4

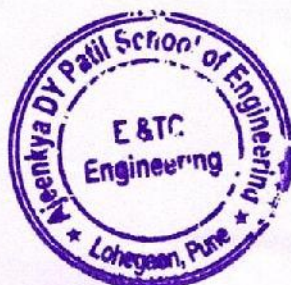
HoD



[Signature]
Dr. F. B. Sayyad

Principal
Principal

Dr. D. Y. Patil School of Engineering
Lohagaon, Pune.



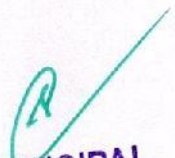
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Syllabus with Course Objectives




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2022-23

Savitribai Phule Pune University

Third Year of E & Tc Engineering (2019 Course)

304194: Power Devices & Circuits

| Teaching Scheme: | Credit | Examination Scheme: |
|------------------------|--------|---|
| Theory: 03 hrs. / week | 03 | In-Sem (Theory): 30 Marks End Sem (Theory): 70 Marks |

Prerequisite Courses, if any:

1. Basic Electrical Engineering
2. Basic Electronics Engineering
3. Electronic Circuits
4. Electrical Circuits

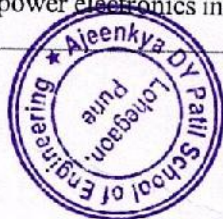
Companion Course, if any: Power Devices & Circuits Lab

Course Objectives:

- To introduce different power devices viz. SCR, GTO, MOSFET and IGBT with construction, characteristics, repetitive and non repetitive ratings and typical triggering/driver circuits.
- To understand working, design and performance analysis and applications of various power converter circuits such as ac to dc converters, inverter and chopper
- To know various protection circuit requirements of power electronic devices.

Course Outcomes: On completion of the course, learner will be able -

- CO1: To differentiate based on the characteristic parameters among SCR, GTO, MOSFET & IGBT and identify suitability of the power device for certain applications and understand the significance of device ratings.
- CO2: To design triggering / driver circuits for various power devices.
- CO3: To evaluate and analyze various performance parameters of the different converters and its topologies.
- CO4: To understand significance and design of various protections circuits for power devices.
- CO5: To evaluate the performance of uninterruptible power supplies, switch mode power supplies and battery.
- CO6: To understand case studies of power electronics in applications like electric vehicles, solar systems etc.



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| Course Contents | | |
|---|--|-----------|
| Unit I | Study of Power Devices | (06 Hrs.) |
| Construction, VI characteristics (input, output and transfer if any), switching characteristics of SCR, GTO, Power MOSFET and IGBT, Performance overview of Silicon, Silicon Carbide & GaN based MOSFET and IGBT, various repetitive and non-repetitive ratings of SCR, GTO, Power MOSFET & IGBT and their significance, requirement of a typical triggering / driver (such as opto isolator) circuits for various power devices, importance of series and parallel operations of various power devices (no derivation and numerical). | | |
| Mapping of Course Outcomes for Unit I | CO1: To differentiate based on the characteristic parameters among SCR, GTO, MOSFET & IGBT and identify suitability of the power device for certain applications and understand the significance of device ratings. CO2: To design triggering / driver circuits for various power devices | |
| Unit II | AC to DC Power Converters | (06 Hrs.) |
| Concept of line & forced commutation, Single phase Semi & Full converters using SCR for R and R-L loads and its performance analysis and numerical, Effect of source inductance, Significance of power factor and its improvement using PWM based techniques, Three phase Full converters using SCR for R load and its performance analysis, Single Phase PWM Rectifier using IGBT, Three Phase Controlled Rectifier Using IGBT, Difference between SCR based conventional rectifiers and IGBT based rectifiers. | | |
| Mapping of Course Outcomes for Unit II | CO3: To evaluate and analyze various performance parameters of the different converters and its topologies. | |
| Unit III | DC to AC Converters | (06 Hrs.) |
| Single phase half and full bridge square wave inverter for R and R-L load using MOSFET / IGBT and its performance analysis and numerical, Cross conduction in inverter, need of voltage control and strategies in inverters, classifications of voltage control techniques, control of voltage using various PWM techniques and their advantages, concept and need of harmonic elimination / reduction in inverters, Three Phase voltage source inverter for balanced star R load with 120 and 180 degree mode of operation, device utilization factor, Advanced Converters like matrix inverter, multi-level inverters and their topologies and its driver circuits (no derivation and numerical). | | |
| Mapping of Course Outcomes for Unit III | CO3: To evaluate and analyze various performance parameters of the different converters and its topologies. | |
| Unit IV | DC to DC Converters | (06 Hrs.) |
| Classification of choppers, Step down chopper for R and RL load and its performance analysis, Step up chopper, various control strategies for choppers, types of choppers (isolated and non isolated) such as type A, B, C, D & E, switch mode power supply (SMPS) viz buck, boost and buck-boost, Fly back, Half and full Bridge isolated and non-isolated interleaved bidirectional topologies, and concept of integrated converter and design of LM3524 based choppers, concept of maximum power point tracking (MPPT). | | |
| Mapping of Course Outcomes for Unit IV | CO3: To evaluate and analyze various performance parameters of the different converters and its topologies. | |

| Unit V | Power Devices Protection and Circuits | (06 Hrs.) |
|--|---|-----------|
| Over voltage, over current, di/dt and dv/dt protection circuits and their design, Various cooling techniques and heat sink design, Resonant converters such as Zero current switching (ZCS) and Zero voltage switching (ZVS), Electromagnetic interference such as radiated and conducted EMI, Difference between EMI and EMC, EMI sources and soft switching and minimizing / shielding techniques for EMI, Various EMI and EMC standards, Importance of isolation transformer. | | |
| Mapping of Course Outcomes for Unit V | CO4: To understand significance and design of various protections circuits for power devices. | |
| | | |
| Unit VI | Power Electronics Applications | (06 Hrs.) |
| AC Voltage Controller using IGBT & SCR, Fan Regulator, Electronic Ballast, LED Lamp driver, DC motor drive for single phase separately excited dc motor, BLDC motor drive, Variable voltage & variable frequency three phase induction motor drive, On-line and Off- line UPS, study of various selection criteria and performance parameters of batteries in battery operated power systems, battery charging models and modes for EVs, Architecture of EVs battery charger, PFC stage circuit topologies with details of Full-bridge boost rectifier and Full-bridge interleaved for EV battery charger, case study of power electronics in electric vehicle and photovoltaic solar system | | |
| Mapping of Course Outcomes for Unit VI | CO5: To evaluate the performance of uninterruptible power supplies, switch mode power supplies and battery. | |
| | CO6: To understand case studies of power electronics in applications like electric vehicles, solar systems etc. | |

| Learning Resources |
|---|
| Text Books: <ol style="list-style-type: none"> 1. M. H. Rashid, "Power Electronics Circuits Devices and Applications", PHI, 4th Edition 2017 New Delhi. 2. M. D. Singh and K. B. Khanchandani, "Power Electronics", TMH, 2nd Edition 2006. |



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Reference Books:

1. Bogdan M. Wilamowski, J. David Irwin, "The Power Electronics and Motor Drives Handbook", CRC Press, 1st Edition, 2011. ; eBook: ISBN 9780429165627, 2019.
2. Muhammad H. Rashid, "Power Electronics Handbook", Academic Press, 2nd Edition, 2001
3. Ned Mohan, T. Undeland & W. Robbins, "Power Electronics Converters Applications and Design, John Willey & sons, Singapore, 2nd Edition Oxford University Press, New Delhi, 2005
4. Ali Emadi Alireza Khaligh Zhong Nie Young Joo Lee, "Integrated Power Electronic Converters and Digital Control", CRC Press, 1st Edition.
5. Vinod Kumar Khanna "Insulated Gate Bipolar Transistor IGBT Theory and Design", John Wiley & Sons, Illustrated Edition.
Print ISBN:9780471238454; Online ISBN:9780471722915, DOI:10.1002/047172291.
6. L. Ashok Kumar, S. Albert Alexander and Madhuvanthani Rajendran, "Power Electronic Converters for Solar Photovoltaic Systems", Elsevier, 1st Edition, 2020.

MOOC / NPTEL Courses:

1. NPTEL Course on "Power Electronics "

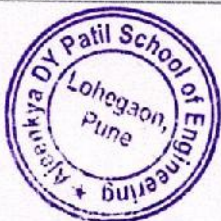
Link of the Course: <https://nptel.ac.in/courses/108/105/108105066/>

<https://nptel.ac.in/courses/108/102/108102145/>

<https://nptel.ac.in/courses/108/107/108107128/>

<https://nptel.ac.in/courses/108/108/108108077/>

<https://batteryuniversity.com/>




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Savitribai Phule Pune University
Third Year of E & Tc Engineering (2019 Course)
304197: Power Devices & Circuits Lab

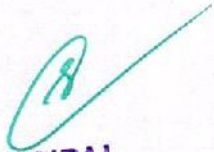
| | | |
|---|---|----------------------------|
| Teaching Scheme: | Credit | Examination Scheme: |
| Practical: 02 hrs. / week | 01 | Practical: 50 Marks |
| Prerequisite Courses, if any: | | |
| 1. Electrical Circuit Laboratory | | |
| 2. Electronic Circuit Laboratory | | |
| Companion Course, if any: Power Devices & Circuits | | |
| List of Laboratory Experiments | | |
| Group A (All Compulsary) | | |
| 1. | VI Characteristics of SCR i) Plot output V-I characteristics to measure I_H , I_L and voltage before and after breakdown , ii) Observe the effect of gate current on forward break down iii) gate characteristics iv) compare with datasheet specifications | |
| 2. | V-I Characteristics of Power MOSFET i) Plot output characteristics and calculate output resistance ii) Plot transfer characteristics and measure threshold voltage iii) compare with datasheet specifications | |
| 3. | V-I Characteristics of IGBT i) Plot output characteristics and calculate output resistance ii) Plot transfer characteristics and measure threshold voltage iii) compare with datasheet specifications | |
| Group B (Any 2) | | |
| 6. | Single phase Full Converter using IGBT / SCR with R & R-L load i) Observe load voltage waveform, ii) Measurement of average o/p voltage across loads, iii) Verification of theoretical values with practically measured values. | |
| 8. | Single-Phase PWM Power MOSFET / IGBT based bridge inverter for R and motor load i) Observe output voltage waveforms and measure set of rms output voltage for varying pulse width and variable input dc voltage for R and motor load, ii) compare measured output voltages with the theoretical findings | |
| 9. | Step down / Step up chopper using power MOSFET / IGBT i) Measure duty cycle and observe effect on average load voltage for DC chopper | |
| Group C (Any 4) | | |
| 11. | SMPS /UPS Performance Evaluation i) find load & line regulation characteristics for no load condition and at 500 mA & 1A load ii) compare the performance with supplier specifications | |
| | Single phase AC voltage controller using IGBT/SCR for R and RL load i) Observe output rms voltage waveforms, ii) Measurement output voltage across load, iii) Verification of theoretical values with practically measured values. Or Simulation of the Single phase AC voltage controller using Power sim / any open source circuit simulation software | |

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|--|--|
| 13. | To study speed control of DC / single phase AC motor |
| 14. | To design and implement a solar cell operated emergency lighting system. |
| 15. | To study battery testing, safety and maintenance of batteries |
| <ul style="list-style-type: none"> • Visit to solar power generation plant is recommended | |

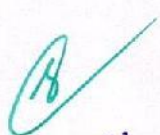



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Master Time Table




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Dr. D. Y. Patil Technical Campus
Ajeenkya D. Y. Patil School of Engineering
 Dr. D. Y. Patil Knowledge City, Charholi (Bk), Lohgaon, Pune - 412 105
 Department of Electronics and Telecommunication Engineering

Form No.: IQAC/7

Revision:01

Date: 06/02/2023

AY 2022-23 Master Time Table SE, TE and BE Sem – II w. e. f. 06/02/2023

| Day | Year -Div. | 10:00 –11:00 | 11:00 –12:00 | 12:00 –12:45 | 12:45 –01:45 | 01:45 – 02:45 | 02:45-3:00 | 03:00 –04.00 | 04:00 –05.00 |
|-------------|------------|--|--------------|----------------|---|----------------------|----------------|---|-----------------|
| Mon day | SE(A) | SS(AB)-227 | CS(KM)-227 | Lunch Break | OOPS(AD)-227 | OOPs(AD)-227 | Short Break | SA1-PCS(SS)-236, SA2-OOPs(AD)-239, SA3- PBL(SA)-240 | |
| | SE(B) | CS(KM)-224 | PCS(SS)-224 | | SB1-DA(MW)-239,SB2-ESD(SD)-223, SB3-SS+CS (KM/AB)-220 | | | SS(AB)-224 | Library Reading |
| | TE(A) | NS(SMK)-232 | PM(SA)-232 | | TA3-CN(KK)-236, TA1-NS(SMK)-239, TA2-PDC(SP)-220 | | | CN(KK)-232 | PDC(RLK)-232 |
| | TE(B) | TB3-CN(KK)-236, TB1-NS(MW)-239, TB2-PDC(SP)-220 | | | PM(SA)-232 | PDC(RLK)-232 | | NS(SMK)-227 | CN(KK)-227 |
| | BE | DM(SI) | MC(SK) | | FOC(PKH) | DBM(SI) | | B2-FOC(PKH), B1-MC(SK) | |
| Tues day | SE(A) | PCS(SS)-227 | SS(AB)-227 | | OOPS(AD)-227 | PCS(SS)-227 | | SA3-PCS(SS)-236, SA1-OOPs(AD)-239, SA2- PBL(SA)-240 | |
| | SE(B) | CS(KM)-224 | PCS(SS)-224 | | SB3-DA(MW)-239,SB1-ESD(SD)-223, SB2-SS+CS (KM/AB)-220 | | | SS(AB)-224 | ESD(KM)-224 |
| | TE(A) | NS(SMK)-232 | PM(SA)-232 | | TA2-CN(KK)-236, TA3-NS(SMK)-239, TA1-PDC(RLK)-220 | | | NS(SMK)-232 | CN(KK)-232 |
| | TE(B) | TB2-CN(KK)-236, TB3-NS(MW)-239, TB1-PDC(RLK)-220 | | | PM(SA)-232 | Mini Project(SK)-232 | | CN(KK)-227 | PDC(RLK)-227 |
| | BE | MC(SK) | FOC(PKH) | | DM(SI) | DBM(SI) | | B1-FOC(PKH), B2-MC(SK) | |
| | | | | | | | | | |

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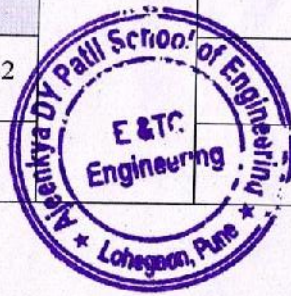


| | | | |
|---------------|-------|--|----------------------|
| Wed nesday | SE(A) | SS(AB)-227 | CS(KM)-227 |
| | SE(B) | PCS(SS)-224 | SS(AB)-224 |
| | TE(A) | PDC(RLK)-232 | PDC(RLK)-232 |
| | TE(B) | TB1-CN(KK)-236, TB2-NS(MW)-239, TB3-PDC(SP)-220 | |
| | BE | DM(SI) | FOC(PKH) |
| Thur sday | SE(A) | SA2-DA(MW)-239, SA3-ESD(PKH)-223, SA1-SS+CS(KM/AB)-220 | |
| | SE(B) | SS(AB)-227 | CS(KM)-227 |
| | TE(A) | PM(SA)-232 | Mini Project(SK)-232 |
| | TE(B) | CN(KK)-224 | PDC(RLK)-224 |
| | BE | PS-II | |
| Frid ay | SE(A) | SA1-DA(MW)-239, SA2-ESD(PKH)-223, SA3-SS+CS(KM/AB)-220 | |
| | SE(B) | ESD(KM)-227 | OOPs(AD)-227 |
| | TE(A) | InternShip(AB)-224 | |
| | TE(B) | Mini Project(SK)-232 | |

| | |
|--|----------------------|
| PCS(SS)-227 | SS(AB)-227 |
| OOPs(AD)-224 | OOPs(AD)-224 |
| TA1-CN(KK)-236, TA2-NS(SMK)-239, TA3-PDC(RLK)-220 | |
| PM(SA)-232 | Mini Project(SK)-232 |
| MC(SK) | I & E(PKH) |
| ESD(PKH)-227 | |
| SB3-PCS(SS)-236, SB1-OOPs(AD)-239, SB2-PBL(SI)-240 | |
| InternShip(A B)-232 | InternShip(AB)-232 |
| InternShip(A B)-232 | Library Reading |
| PS-II | |
| SA3-DA(MW)-239, SA1-ESD(PKH)-223, SA2-SS+CS(KM/AB)-220 | |
| SB2-PCS(SS)-236, SB3-OOPs(AD)-239, SB1-PBL(SI)-240 | |
| Mini Project(SK)-232 | |
| InternShip(AB)-227 | |

| | |
|---|-----------------|
| SA2-PCS(SS)-236, SA3-OOPs(AD)-239, SA1-PBL(SA)-240 | |
| SB2-DA(MW)-239, SB3-ESD(SD)-223, SB1-SS+CS(KM/AB)-220 | |
| CN(KK)-232 | Library Reading |
| NS(SMK)-232 | NS(SMK)-232 |
| I & E(PKH) | PS-II |
| CS(KM)-227 | Library Reading |
| SB1-PCS(SS)-236, SB2-OOPs(AD)-239, SB3-PBL(SI)-240 | |
| Library Reading | Library Reading |
| Library Reading | Library Reading |
| PS-II | |
| Lib. Reading | |
| Lib. Reading | |
| Lib. Reading | |
| Lib. Reading | |

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| | BE | PS-II | PS-II | Lib. Reading |
|-------|----------|-----------------------------------|----------|-------------------------|
| | | | | |
| | Notation | Name of The Subject | Notation | Name of The Faculty |
| SE(A) | SS | Signal and System | AB | Prof. Ashwini Bagde |
| | CS | Control System | KM | Prof. Kalpita Mane |
| | PCS | Principle of Communication System | SS | Prof. Shaurya Shubham |
| | DA | Data Analytics | MW | Prof. Manisha Wasnik |
| | ESD | Employability Skill Development | PK | Prof. Prajakta Khairnar |
| | PBL | Project Based Learning | SA | Prof. Saniya Ansari |
| | OOPS | Object Oriented Programming | AD | Prof. Anjali Dagade |
| SE(B) | SS | Signal and System | AB | Prof. Ashwini Bagde |
| | CS | Control System | KM | Prof. Kalpita Mane |
| | PCS | Principle of Communication System | SS | Prof. Shaurya Shubham |
| | DA | Data Analytics | MW | Prof. Manisha Wasnik |
| | ESD | Employability Skill Development | KM | Prof. Kalpita Mane |
| | | Project Based Learning | SCI | Dr. Sharan Inamdar |
| | | Object Oriented Programming | AD | Prof. Anjali Dagade |
| | | Project Management | SA | Prof. Saniya Ansari |
| | | Power Devices & Circuits | RLK | Prof. Riyaj Kazi |
| TE(A) | NS | Network Security | SMK | Dr. S. M. Koli |
| | CN | Cellular Networks | KK | Prof. Kranti Kamble |

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| | | | | |
|-------|-------|-------------------------------|-----|-------------------------|
| | | Inter | AB | Prof. Ashwini Bagde |
| TE(B) | PM | Project Management | SA | Prof. Saniya Ansari |
| | PDC | Power Devices & Circuits | RLK | Prof. Riyaj Kazi |
| | NS | Network Security | SMK | Dr. S. M. Koli |
| | | | MW | Prof. Manisha Wasnik |
| | CN | Cellular Networks | KK | Prof. Kranti Kamble |
| | | Mini Project | SW | Prof. Swati Khawate |
| | | Internship | AB | Prof. Ashwini Bagde |
| BE | DM | Digital Marketing | SCI | Dr. Sharan Inamdar |
| | DBM | Digital Business Management | SCI | Dr. Sharan Inamdar |
| | FOC | Fiber OPTics Communication | PK | Prof. Prajakta Khairnar |
| | MC | Mobile Computing | SW | Prof. Swati Khawate |
| | I & E | Innovation & Entrepreneurship | PK | Prof. Prajakta Khairnar |

| Class Teachers | | | | | |
|----------------|-----------------------|-------|---------------------|----|---------------------|
| SE(A) | Prof. Anjali Dagde | TE(A) | Prof. Shital Patil | BE | Prof. Swati Khawate |
| SE(B) | Prof. Shaurya Shubham | TE(B) | Prof. Kranti Kamble | | |



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Prof. Shaurya Shubham
Timetable Incharge

Dr. Sharan Inamdar

HOD E&TC

E&TC Engineering
Ajeenkya DY Patil School of Engineering
Lohegaon, Pune



Dr. B. Sayyad
Principal

4

Individual Time Table



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Dr. D. Y. Patil Technical Campus
Ajeenkya D. Y. Patil School of Engineering
 Dr. D. Y. Patil Knowledge City, Charholi (Bk), Lohgaon, Pune - 412 105
 Department of Electronics and Telecommunication Engineering

Form No.: IQAC/7

Revision:01

Date: 06/02/2023

AY 2022-23 Master Time Table SE, TE and BE Sem – II w. e. f. 06/02/2023


Individual Time Table: Mr. Riyaj Kazi

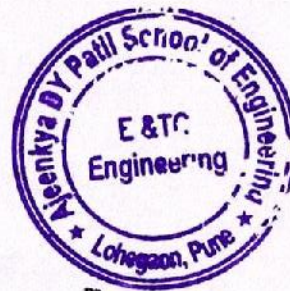
| Day | Year -Div. | 10:00 –11:00 | 11:00 –12:00 | 12:00 – 12:45 | 12:45 – 01:45 | 01:45 – 02:45 | 02:45- 3:00 | 03:00 –04.00 | 04:00 –05.00 |
|-----|------------|------------------|--------------|------------------|------------------|---------------|-------------|--------------|--------------|
| MON | TE(A) | | | | | | | | PDC(RLK)-232 |
| | TE(B) | TB2-PDC(RLK)-220 | | | | PDC(RLK)-232 | | | |
| TUE | SE(A) | | | | | | | | |
| | SE(B) | | | | | | | | |
| | TE(A) | | | | TA1-PDC(RLK)-220 | | | | |
| | TE(B) | TB1-PDC(RLK)-220 | | | | | | | PDC(RLK)-227 |
| | BE | | | | | | | | |
| WED | SE(A) | | | | | | | | |
| | SE(B) | | | | | | | | |
| | TE(A) | PDC(RLK)-232 | PDC(RLK)-232 | | TA3-PDC(RLK)-220 | | | | |
| | TE(B) | | | | | | | | |
| | BE | | | | | | | | |
| THU | SE(A) | | | | | | | | |

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|-----|-------|------------------|--|--|--|--|--|
| | SE(B) | | | | | | |
| | TE(A) | | | | | | |
| | TE(B) | | | | | | |
| | BE | | | | | | |
| FRI | SE(A) | | | | | | |
| | SE(B) | | | | | | |
| | TE(A) | TA2-PDC(RLK)-220 | | | | | |
| | TE(B) | | | | | | |
| | BE | | | | | | |


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5

Teaching & Practical Plan

"Empowerment through Quality Technical Education"
AJEENKYA DY Patil School of Engineering
D Y Patil Knowledge City, Charoli (Bk), Via Lohegaon, Pune 412105
TEACHING PLAN

Department of Electronic & Telecommunication Engineering

Class: TE Div: A Sem II AY 2022-23

Subject: Power Devices & Circuits (304194)

Lectures per Week : 3

Subject In-charge : Mr. Riyaj Kazi

Prerequisite Courses:

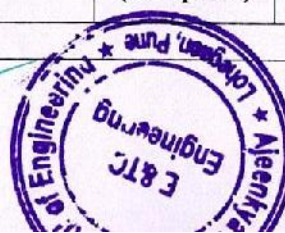
Basic Electrical Engineering, Basic Electronics Engineering, Electronic Circuits, Electrical Circuits

The CO-PO Mapping Matrix

| CO | | | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 |
|-----|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|
| CO1 | To differentiate based on the characteristic parameters among SCR, GTO, MOSFET & IGBT and identify suitability of the power device for certain applications and understand the significance of device ratings. | CO1 | 3 | | | | | | | | | | | 2 |
| CO2 | To design triggering / driver circuits for various power devices. | CO2 | 3 | 2 | 1 | 1 | | | | | | | | 2 |
| CO3 | To evaluate and analyze various performance parameters of the different converters and its topologies. | CO3 | 3 | 2 | 2 | 2 | | | | | | | | 2 |
| CO4 | To understand significance and design of various protection circuits for power devices. | CO4 | 1 | 2 | 1 | 2 | | | | | | | | 2 |
| CO5 | To evaluate the performance of uninterruptible power supplies, switch mode power supplies and battery. | CO5 | 1 | | | | | | | | | | | 2 |
| CO6 | To understand case studies of power electronics in applications like electric vehicles, solar systems etc | CO6 | 3 | | | | 2 | | | | | | | 2 |

| Lect No | Unit No | Planned Date | Details of topic to be covered | Actual date of conduction | Suggested Books (Ex. R1, T1) (Chap No) | * Mode of Teaching with details | ** Competency based Education | Remark by HOD. Dean & Principal |
|---------------------|---------|--------------|--------------------------------|---------------------------|--|---------------------------------|-------------------------------|---------------------------------|
| 50 Minutes Teaching | | | | | | | 10 Minutes Teaching | |


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| | | | | | | |
|---|------------|---|------------|-------------------------------|--------------------------|--|
| 1 | 01-02-2023 | Unit I : Study of Power Devices : SCR Construction & VI characteristics | 01-02-2023 | T1 (Ch 9), T21(Ch 2) | A. Conventional method | GoI Initiative on Electric Vehicle, Green Energy Awareness & Scope of Power Devices & Circuits. https://e-amrit.niti.gov.in/benefits-of-electric-vehicles + EV PPT |
| | | | | | B. Experiential learning | Discover what silicon-controlled rectifiers (SCR) can do for EV charging applications https://www.youtube.com/watch?v=UjJV95XWnbo |
| 2 | 07-02-2023 | Switching characteristics of SCR | 1-02-23 | R3(Ch 23) | A. Conventional method | Switching Devices https://www.tutorialspoint.com/power_electronics/power_electronics_switching_devices.htm & https://www.electronicshub.org/tutorials/ |
| | | | | | F. Interactive Method | |
| 3 | 07-02-2023 | GTO: Construction, VI characteristics | 02-02-23 | R3 (Ch 24), R1(Ch 1) R6(Ch.4) | A. Conventional method | Hitachi Energy's gate turn-off thyristor is optimized for low conduction losses. https://www.hitachienergy.com/in/en/products-and-solutions/semiconductors/gate-turn-off-thyristors-gto |
| | | | | | F. Interactive Method | |
| 4 | 08-02-2023 | | | T1 (Ch 4) | A. Conventional method | MOSFETs with extraordinary SOA for industrial applications |

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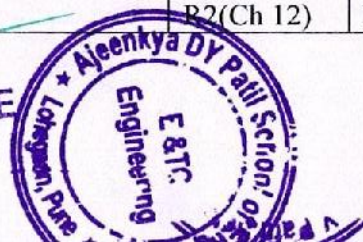
| | | | | | | |
|---|------------|---|----------|-----------|---|---|
| | | | | | | https://www.youtube.com/watch?v=w99HJDnWBDY Ease of use in power MOSFET product development https://www.youtube.com/watch?v=4T-R06Wt6TE |
| | | Power MOSFET: Construction, VI characteristics | 02-02-23 | | F. Interactive Method | |
| 5 | 8-02-2023 | IGBT: : Construction, VI characteristics | 07-02-23 | R3(Ch 2) | A. Conventional method F. Interactive Method | IGBTs in Electric Vehicles https://www.allaboutcircuits.com/news/spike-evs-means-spike-insulated-gate-bipolar-transistors-igbts/ |
| 6 | 14-02-2023 |  Performance Overview of Silicon, Silicon Carbide & GaN based MOSFET and IGBT | 07-02-23 | T1 (Ch 4) | A. Conventional method F. Interactive Method | Experience the difference of Si / SiC / GaN technology: Future Electronics https://www.youtube.com/watch?v=aake09AW1D8 & Enabling the Future of Power Electronics: Yes, We GaN! https://www.powerelectronicsnews.com/enabling-the-future-of-power-electronics-yes-we-gan/ SiC Power Devices https://www.youtube.com/watch?v=iz_QNdhFG0Q |

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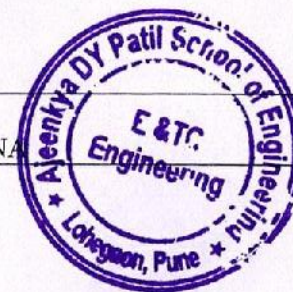
| | | | | | | | |
|----|---|------------|---|----------|---------------------|---|--|
| 7 | 8 | | Various repetitive and non-repetitive ratings of SCR, GTO, Power MOSFET & IGBT and their significance. | 08-02-23 | T1 (Ch 1), R2(Ch 6) | A. Conventional method | NA |
| 8 | | 14-02-2023 | | | | | |
| 9 | | 14-02-2023 | Requirement of a typical triggering / driver (such as opto isolator) circuits for various power devices | 14-02-23 | T1 (Ch 9), R3(Ch 6) | A. Conventional method | MOSFET Gate driver circuit using optocoupler https://www.youtube.com/watch?v=wakrtG4XesE |
| 10 | | 15-02-2023 | Importance of series and parallel operations of various power devices | 14-02-23 | R6(Ch 4) | G. Assessment of Competency based Education | NA |
| 11 | 2 | 21-02-2023 | Unit II : AC to DC Power Converters : Concept of line & forced commutation | 15-02-23 | T1 (Ch 9) | A. Conventional method | AC to DC Switching Converters Market with trend & forecast to 2028. https://www.marketwatch.com/press-release/ac-dc-switching-converter-market-2023-top-manufacturers-key-trends-progression-status-and-business-trends-and-forecast-to-2028-2023-02-10 |
| 12 | | 21-02-2023 | Single phase Semiconverter & Full converters using SCR for R loads | 21-2-23 | R2(Ch 12) | A. Conventional method | Industrial AC to DC Converters: Products, Specifications, & Manufacturers: https://www.everythingpe.com/search/ac-to-dc-converters |
| 13 | | 22-02-2023 | Single phase Semi & Full converters using SCR for R-L loads | 8-3-23 | R2(Ch 12) | A. Conventional method | AI helps optimise power electronic converters https://www.cardiff.ac.uk/news/view/2683943-ai-helps-optimise-power-electronic-converters |

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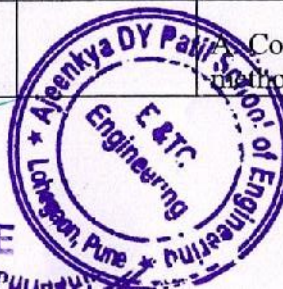
| | | | | | | | |
|----|------------|--|---------|-----------------------|---|---|--------|
| 14 | 22-02-2023 | Performance analysis and numerical on Semi & Full Converter | 8-3-23 | T1 (Ch 11) | A. Conventional method | NA | |
| 15 | 28-02-2023 | Effect of source inductance, Significance of power factor and its improvement using PWM based techniques | 8-3-23 | R3 (Ch 5) + Notes | A. Conventional method F. Interactive Method | Economic Improvement of Power Factor Correction: A Case Study Journal of Power and Energy Engineering > Vol.9 No.6, June 2021 https://www.scirp.org/journal/paperinformation.aspx?paperid=109717 | |
| 16 | 01-03-2023 | Three phase Full converters using SCR for R load and its performance analysis | 9-3-23 | T1(Ch.10) | A. Conventional method F. Interactive Method | Experimenting the 3 Phase Converter https://www.youtube.com/watch?v=xUZKgD1FcIM | Sharma |
| 17 | 01-03-2023 | Single Phase PWM Rectifier using IGBT, Three Phase Controlled Rectifier Using IGBT | 9-3-23 | T1(Ch.4) | A. Conventional method B. Experiential learning | Design and Simulation of Three Phase Controlled Rectifier Using IGBT https://www.ijaiem.org/Volume6Issue8/IJAIEM-2017-08-04-2.pdf | |
| 18 | 07-03-2023 | Difference between SCR based conventional rectifiers and IGBT based rectifiers. | 13-3-23 | T1(Ch.4) & R2 (Ch 12) | A. Conventional method G. Assessment of Competency based Education | NA | |
| 19 | 07-03-2023 | Unit III : DC to AC Power Converters : | | | | | |
| 20 | 8-03-2023 | Single phase half and full bridge square wave inverter for R load using MOSFET / IGBT | 15-3-23 | (Ch 5) | A. Conventional method F. Interactive Method | Direct Industry & Manufacturers: https://www.directindustry.com/industrial-manufacturer/dc-de-ac-inverter-84156.html | |
| 21 | 8-03-2023 | Single phase half and full bridge square wave inverter for R-L load using MOSFET / IGBT | 15-3-23 | T1(Ch 5) | A. Conventional method B. Experiential learning | | |
| 22 | 14-03-2023 | Performance analysis and numericals | 23-3-23 | T1(Ch 6) | | NA | |

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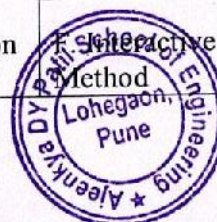
| | | | | | | |
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| 23 | 15-03-2023 | Cross conduction in inverter, need of voltage control and strategies in inverters | 23-3-23 | T1(Ch 6) + Notes | A. Conventional method | Anti-cross conduction drive control circuit and method: Patent. |
| | | | | | F. Interactive Method | https://patents.google.com/patent/US7187226B2/en |
| 24 | 15-03-2023 | Classifications of voltage control techniques, control of voltage using various PWM techniques and their advantages | 12-4-23 | T1(Ch 6) | A. Conventional method | NA |
| 25 | 21-03-2023 | Concept and need of harmonic elimination / reduction in inverters | 12-4-23 | T1(Ch 6) | A. Conventional method | NA |
| 26 | 22-03-2023 | Three Phase voltage source inverter for balanced star R load with 120 and 180 degree mode of operation | 17-4-23 | R6(Ch 8) | A. Conventional method | Article from circuitdigest https://circuitdigest.com/tutorial/three-phase-inverter-circuit-diagram-120-degree-and-180-degree-conduction-mode |
| | | | | | F. Interactive Method | |
| 27 | 22-03-2023 | Device utilization factor, Advanced Converters like matrix inverter | 18-4-23 | T1(Ch 6), https://www.eaton.com/ | A. Conventional method | NA |
| 28 | 28-03-2023 | Multi-level inverters and their topologies and their driver circuits | 19-4-23. | | A. Conventional method | Online Technical Journal: https://www.technicaljournalsonline.com/ijeat/VOL%20VII/IJAET%20VOL%20VII%20ISSUE%20I%20JANUARY%20MARCH%202016/20167128.pdf |
| | | | | | F. Interactive Method | |
| | | | | | G. Assessment of Competency based Education | |
| | | Unit IV: DC to DC Power Converters | | | | |
| 29 | 29-03-2023 | Classification of Choppers, Step down chopper for R | 19-4-23 | | A. Conventional method | DC to DC Converter Market: Research & Methodology |

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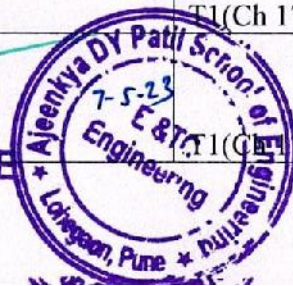
| | | | | | | | | |
|----|------------|--|---|---------|---|--|--|--|
| | | | and RL load and its performance analysis | | T1(Ch 5), R2 (Ch 13) R6(Ch 7) | F. Interactive Method | https://www.marketsandmarkets.com/Market-Reports/global-dc-dc-converter-market-17565254.html | |
| 30 | 29-03-2023 | | Step down chopper for RL load and its performance analysis | 20-4-23 | T1(Ch 5) | A. Conventional method B. Experiential learning | Industrial, Space Qualified, Military, Surface Mount DC to DC Converters https://www.everythingpe.com/search/dc-dc-converters/filters?page=1&country=global&sindustry=:Military; | |
| 31 | 04-04-2023 | | Step up chopper, various control strategies for choppers | 20-4-23 | R6(Ch 7), R1(Ch 11) | A. Conventional method F. Interactive Method | Types, Specifications & Costing: https://www.mouser.in/c/power/dc-dc-converters/ Control Strategies: https://www.tutorialspoint.com/power_electronics/power_electronics_control_methods.htm | |
| 32 | 05-04-2023 | | Types of choppers (isolated and nonisolated) such as type A, B, C, D & E | 24-4-23 | R6(Ch 7), R1(Ch 13) | A. Conventional method | NA | |
| 33 | 05-04-2023 | | Switch mode power supply (SMPS) viz buck, boost and buck-boost, Fly back, Half and full Bridge isolated | 24-4-23 | R1(Ch 13) | A. Conventional method B. Experiential learning | sdDesignSuite: https://eds.st.com/console/tt/app/dc-dc/ic-dcdc-catalogs/filter/%5B%5D/grid | |
| 34 | 11-04-2023 | | Non-isolated interleaved bidirectional topologies | 25-4-23 | R1(Ch 13) | A. Conventional method | NA | |
| 35 | 12-04-2023 | | Concept of integrated converter and design of LM3524 based choppers, concept of maximum power point tracking (MPPT) | 25-4-23 | T1(Ch 16), 3524 Data Sheet Application Note | A. Conventional method F. Interactive Method | Texas Instruments: https://www.ti.com/lit/ds/symlink/lm3524d.pdf MPPT: www.leonics.com https://www.leonics.com/support/article2_14j/articles2_14j_en.php#:text=module%20and%20battery- | |

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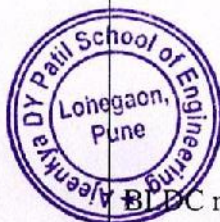


| | | | | | | | | |
|----|------------|---|--------------------|--|-----------|---|---|--|
| | | | | | | G. Assessment of Competency based Education | .What%20is%20MPPT%3F,(or%20peak%20power%20voltage). | |
| 36 | 12-04-2023 | CR-V : Power Devices Protection and Circuits | | | | | | |
| 36 | 18-04-2023 | Over voltage, over current, di/dt and dv/dt protection circuits and their design, | 2-5-23 | | T1(Ch 17) | A. Conventional method F. Interactive Method | Power System Protection Schemes: https://www.allumiax.com/blog/protection-schemes-for-electrical-power-system | |
| 37 | 19-04-2023 | Various cooling techniques and heat sink design | 2-5-23 | | T1(Ch 17) | A. Conventional method F. Interactive Method | Heat Sink Design Guide: https://www.fictiv.com/articles/heat-sink-design-guide Key Factors: https://www.simscale.com/blog/key-factors-heat-sink-design/ | |
| 38 | 19-04-2023 | Resonant converters such as Zero current switching (ZCS) and Zero voltage switching (ZVS) | 7-5-23 (online) | | T1(Ch 7) | A. Conventional method F. Interactive Method | Resonant converters for electric vehicle application: https://www.sciencedirect.com/science/article/pii/S2352484721014517 | |
| 39 | 25-04-2023 | Electromagnetic interference such as radiated and conducted EMI | 7-5-23 (online) | | T1(Ch 17) | A. Conventional method F. Interactive Method | The Difference: https://www.astrodynetdi.com/blog/conducted-emi-vs.-radiated-emi-whats-the-difference | |
| 40 | 26-04-2023 | Difference between EMI and EMC | 7-5-23 (online) | | T1(Ch 17) | A. Conventional method | Regulatory Guidelines & EMC Testing https://www.com-power.com/blog/emi-and-emc-differences | |
| 41 | 26-04-2023 | EMI sources and soft switching and shielding techniques for EMI | 7-5-23 (online) | | T1(Ch 17) | A. Conventional method | Electromagnetic Interference & Impact: https://www.electrical4u.com/electromagnetic-interference/ | |

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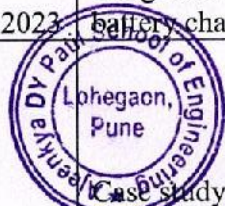
| | | | | | | | | |
|----|--|------------|--|---------|-----------------------|---|--|--|
| | | 26-04-2023 | Various EMI and EMC standards, Importance of isolation transformer. | 7-5-23 | T1(Ch 17), R2 (Ch 14) | A. Conventional method G. Assessment of Competency based Education | EMI and EMC standards, Testing, Benefits https://corpbiz.io/emi-emc-testing | |
| | | | CR-VI : Power Electronic Applications | | | | | |
| 42 | | 02-05-2023 | AC Voltage Controller using IGBT & SCR, Fan Regulator, | 9-5-23 | T1(Ch 11), R6 (Ch 9) | A. Conventional method F. Interactive Method | Power-electronics-revolutionizing-the-world-s-future-energy-systems https://www.hitachienergy.com/in/en/news/perspectives/2021/08/power-electronics-revolutionizing-the-world-s-future-energy-systems | |
| 43 | | 03-05-2023 | Electronic Ballast, LED Lamp driver, DC motor drive for single phase separately excited dc motor | 9-5-23 | R2 (Ch 22), R3(Ch 16) | A. Conventional method F. Interactive Method | Electronic Ballast https://www.electrical4u.com/electronic-ballast/ LED Lamp Drivers: https://www.sunpower-uk.com/glossary/what-is-an-led-driver/ | |
| 44 | | 03-05-2023 | BLDC motor drive, Variable voltage & variable frequency three phase induction motor drive | 11-5-23 | T1(Ch 15), R2(Ch 33) | A. Conventional method F. Interactive Method | BLDC motor drive https://www.infineon.com/cms/en/applications/solutions/motor-control-and-drives/high-power-blde-pmsm-acim-motor-drive-up-to-200v/ Variable Frequency Drives: https://www.invertekdrives.com/support/iknow/vfd-fundamentals/what-is-a-variable-frequency-drive | |



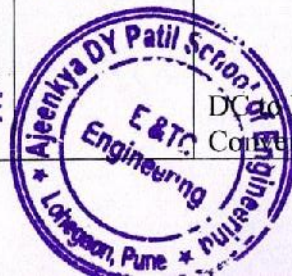
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|----|--|------------|---|---------------------|---------------------|--|--|
| 45 | | 09-05-2023 | On-line and Off- line UPS, study of various selection criteria and performance parameters of batteries in battery operated power systems, | 11-5-23 | T1(Ch 13) | A. Conventional method B. Experiential learning | On-line and Off- line UPS https://www.electricaltechnology.org/2020/05/difference-between-online-ups-offline-ups.html All about batteries: https://batteryuniversity.com/articles |
| 46 | | 10-05-2023 | battery charging models and modes for EVs, Architecture of EVs battery charger | 14-5-23 (online) | T1(Ch 13) + Notes | A. Conventional method F. Interactive Method | Battery charging models: https://www.researchgate.net/publication/263207426_A_Simplified_Charging_Battery_Model_for_Electric_Vehicles_Smart_Charging_Applications Designing Electric Vehicle Battery Charging Solutions: https://www.electronicsforu.com/electronics-projects/electronics-design-guides/electric-vehicle-battery-charging-solutions |
| 47 | | 10-05-2023 | PFC stage circuit topologies with details of Full-bridge boost rectifier and Full-bridge interleaved for EV battery charger | 14-5-23 (online) | Batteries for EV | A. Conventional method F. Interactive Method | Texas Instruments: https://www.ti.com/lit/an/slva896/slva896.pdf?ts=1677734427220&ref_url=https%253A%252F%252Fwww.google.com%252F Journal of Power Electronics: https://jpels.org/digital-library/manuscript/file/17112/4_JPE-16-06-007.pdf |
| 48 | | 10-05-2023 | Case study of power electronics in electric vehicle and photovoltaic solar system | 14-5-23 (online) | DC to DC Conversion | A. Conventional method | Power Electronics for Electric Vehicle: https://www.idtechex.com/en/research-report/power-electronics-for-electric-vehicles-2022-2032 Solar Power Electronics Devices: https://www.energy.gov/eere/solar/solar-power-electronic-devices |



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Chander

| | | | | | | | | |
|--|--|--|--|--|--|--------------------------|---|----------------|
| | | | | | | | Advanced Power Electronics Design for Solar Applications: https://www.energy.gov/eere/solar/advanced-power-electronics-design-solar-applications-power-electronics | <i>Shanali</i> |
| | | | | | | F. Interactive Method | | |

Web References:

<https://nptel.ac.in/courses/108/105/108105066/>

<https://nptel.ac.in/courses/108/102/108102145/>

<https://nptel.ac.in/courses/108/107/108107128/>

<https://nptel.ac.in/courses/108/108/108108077/>

<https://batteryuniversity.com/>

Books:

Text Books:

T1. M. H. Rashid, "Power Electronics Circuits Devices and Applications", PHI, 4th Edition 2017 New Delhi.

T2. M. D. Singh and K. B. Khanchandani, "Power Electronics", TMH, 2nd Edition 2006.

Reference Books:

R1. Bogdan M. Wilamowski, J. David Irwin, "The Power Electronics and Motor Drives Handbook", CRC Press, 1st Edition, 2011. ; eBook: ISBN 9780429165627, 2019.

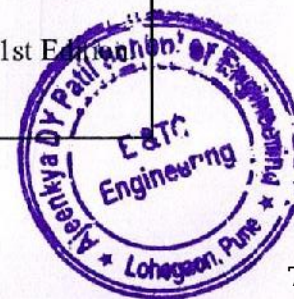
R2. Muhammad H. Rashid, "Power Electronics Handbook", Academic Press, 2nd Edition, 2001

R3. Ned Mohan, T. Undeland & W. Robbins, "Power Electronics Converters Applications and Design, John Wiley & sons, Singapore, 2nd Edition Oxford University Press, New Delhi, 2005

R4. Ali Emadi Alireza Khaligh Zhong Ning Joo Lee, "Integrated Power Electronic Converters and Digital Control", CRC Press, 1st Edition, 2015

R5. Vinod Kumar Khanna "Insulated Gate Bipolar Transistor IGBT Theory and Design", John Wiley & Sons, Illustrated Edition. Print ISBN:9780471238454; Online ISBN:9780471722915 DOI:10.1002/047172291.

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R6. L. Ashok Kumar, S. Albert Alexander and Madhuvanthani Rajendran, "Power Electronic Converters for Solar Photovoltaic Systems", Elsevier, 1 st Edition, 2020.

| * Teaching Methodology (50 Minute) | | |
|------------------------------------|---------------------------|---|
| Traditional Teaching | A. Conventional method | Chalk board, PPT (LCD Projector), Smart Display |
| Student centric learning | B. Experiential learning | Experiential learning practices to improve creativity and cognitive levels of the students - Laboratory Sessions are conducted with content beyond syllabus experiments, Project development on latest technologies by students where they platform their working model in the technical fest, Industrial Visits to engage them in experiential learning while visiting the organization , Internship /In plant training , Field work, Participation in technical events. |
| | C. Participatory Learning | Students participate in different activities such as seminars, group discussions, wallpapers, projects, and skill-based add-on courses. Annual cultural program, Regular Quizzes- Quizzes are organized for student participation at intra or inter-department levels. , Seminar Presentation, Paper and Poster presentation. |

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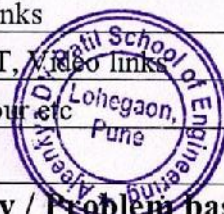
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|--|---|
| D. Reflective learning | One minute paper (Surprise test) during classroom interaction, Open ended questions by teacher by students, Question Bowl taken around the class by teacher or one of students , Preparation of question bank by students at various cognitive levels |
| E. Think, pair, share activity | Think (Individually): Choose a topic that you are about to teach. Come up with one activity that you will implement in class that requires students to talk, write, reflect and express their thinking. (~3 min). Pair (with your neighbour): Examine your neighbour's activity. Does it ensure that majority of students are actively engaged - beyond listening, copying of notes? If not, what modifications do you suggest? (~5 min). Share (with everyone): Your topic and strategy. (~10 min). |
| F. Interactive Method | Motivating student participation in group discussion, role-play, subject quiz, news analysis, discussion, and questions and answers on current affairs |
| G. Assessment of Competency based Education | Conduction of quiz/test on the taught unit through Google form (MCQ type) |

Note: Along with traditional teaching, you have to select any one or more from student centric method depending upon content of topic on that day. You have to design teaching plan so as to cover 70% Traditional teaching and 30% Student centric learning method.

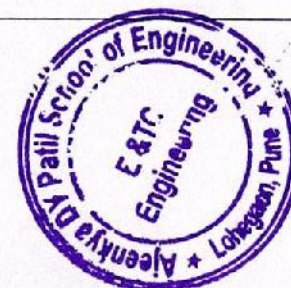
| ** Competency based Education (10 Minute) | | Remark |
|--|---|---|
| 1 | Recent trends/application on a particular topic | Share any one of the information (Sr. No.1 to 8) through the website link or Google drive link on whatsapp with title about 5-10 minutes followed by discussion with students:- |
| 2 | Latest information on National & International updates on current topic | |
| 3 | Minor, Major and Research project related to current topic | |
| 4 | Interesting things / Historical background | |
| 5 | Research Article or Magazine, Current affairs | |
| 6 | Website links | |
| 7 | PDFs, PPT, Video links | |
| 8 | Virtual Tour etc | |

Active Learning Strategy / Problem based learning during Practical Hours

1 Learning by doing, discussion among per group and analysing case studies



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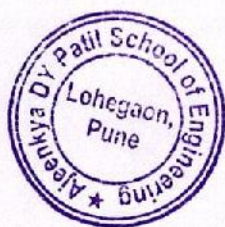
| | |
|---|---|
| 2 | Small group projects, projects in community services |
| 3 | Interdisciplinary and multidisciplinary projects related to real time problem lead to innovations |

Student Centric Activity to be conducted by department

Student-centric methods such as Hackathons, Workshops, Seminars, Virtual Lab, Simulation, Roleplay, Review web literature, Video, Demonstration, Activity-based learning, Flipped Classroom, Guest lecture, Professional practice school, GD/ debate, Peer learning groups, MOOCs, Google Classroom, Project-based learning, Real-time case studies, Worksheets, PPT, Mind map, Journal Review, Proto-type model, Crosswords, Research projects, Language games, Viva, Poster presentation, Public Speaking to encourage Participative, Problem-solving and Experiential learning, Project and Field work

* Prepared by Dean (Academics) and approved in the Principal meeting on 27/01/2023.

Pls
Mr. Riyaj Kazi
(Subject Teacher)



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E&TC Engineering
Alenka DY Patil School of Engineering
Lohegaon, Pune



AJEENKYA
DY Patil School of Engineering

AJEENKYA DY Patil School of Engineering, Pune -412 105
Department of E&TC Engineering

Class: TE
(Batch: A3)

Subject Name: PDC

Sem: II

Practical Plan

Form No. IQAC/12

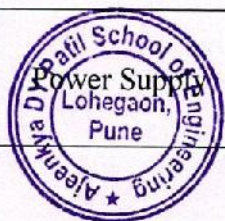
Practical hours per Week: 02

Subject In-charge: Mr. Riyaj Kazi

Note :

1. Conduct experiments as per Syllabus and two additional experiments

| Sr. No. | Expt. No. | Planned Date | Broad Topics To Be Covered | Name of Experiment | Actual Date of Conduction | Remark |
|---------|-----------|--------------|----------------------------------|----------------------------------|---------------------------|--------------------------------|
| 1. | 1 | 8-2-2023 | Characteristics of Power Devices | SCR Characteristics | 21-2-23 | Handwritten signature/initials |
| 2. | 2 | 15-2-2023 | Characteristics of Power Devices | MOSFET Characteristics | 8-3-23 | |
| 3. | 3 | 22-2-2023 | Characteristics of Power Devices | IGBT Characteristics | 08-3-23 | |
| 4. | 4 | 1-3-2023 | AC-DC Converters | Single Phase AC to DC Converters | 15-3-23 | |
| 5. | 5 | 8-3-2023 | DC-DC Converters | Step Down Chopper | 18-3-23 | |
| 6. | 6 | 15-3-2023 | AC-AC Converter | AC Voltage Controller | 12-4-23 | |
| 7. | 7 | 22-3-2023 | Power Supply | Switched Mode Power Supply | 28-4-23 | |




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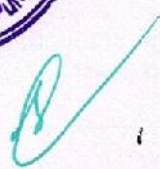


| | | | | | | |
|-----|----|-----------|------------------------------|---|---------|--|
| 8. | 8 | 29-3-2023 | DC Motor | Speed Control of DC Motor | 28-4-23 | |
| 9. | 9 | 05-4-2023 | Battery: Types & maintenance | Study of Batteries for EV & its maintenance | | |
| 10. | 10 | 12-4-2023 | Solar Power Plant | Visit & Demonstration of Solar Power Plant | 26-4-23 | |




Subject In-charge
(Mr. Riyaj Kazi)




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Department of E&TC Engineering

Class: TE
(Batch: A1)

Subject Name: PDC

Sem: II

Practical Plan

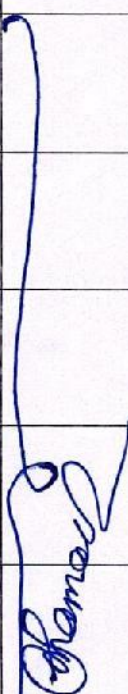
Form No. IQAC/12

Practical hours per Week: 02

Subject In-charge: Mr. Riyaj Kazi

Note :

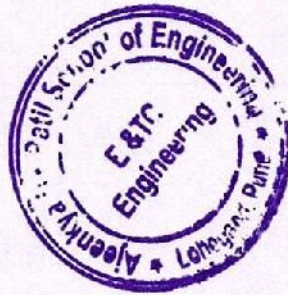
1. Conduct experiments as per Syllabus and two additional experiments

| Sr. No. | Expt. No. | Planned Date | Broad Topics To Be Covered | Name of Experiment | Actual Date of Conduction | Remark |
|---------|-----------|--------------|----------------------------------|----------------------------------|---------------------------|--|
| 1. | 1 | 7-2-2023 | Characteristics of Power Devices | SCR Characteristics | 15-2-23 |  |
| 2. | 2 | 14-2-2023 | Characteristics of Power Devices | MOSFET Characteristics | 14-3-23 | |
| 3. | 3 | 21-2-2023 | Characteristics of Power Devices | IGBT Characteristics | 21-3-23 | |
| 4. | 4 | 28-2-2023 | AC-DC Converters | Single Phase AC to DC Converters | 11-4-23 | |
| 5. | 5 | 7-3-2023 | DC-DC Converters | Step Down Chopper | 18-4-23 | |
| 6. | 6 | 14-3-2023 | AC-AC Converter | AC Voltage Controller | 18-4-23 | |
| 7. | 7 | 21-3-2023 | Power Supply | Switched Mode Power Supply | | |

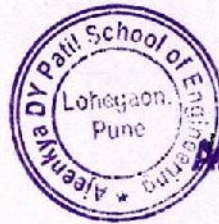


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| | | | | | | |
|-----|----|-----------|------------------------------|---|---------|--|
| 8. | 8 | 28-3-2023 | DC Motor | Speed Control of DC Motor | 28-4-23 | |
| 9. | 9 | 04-4-2023 | Battery: Types & maintenance | Study of Batteries for EV & its maintenance | | |
| 10. | 10 | 11-4-2023 | Solar Power Plant | Visit & Demonstration of Solar Power Plant | 26-4-23 | |



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Subject In-charge
(Mr. Riyaj Kazi)



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6

Subject Notes

(Handwritten Notes , Presentations)



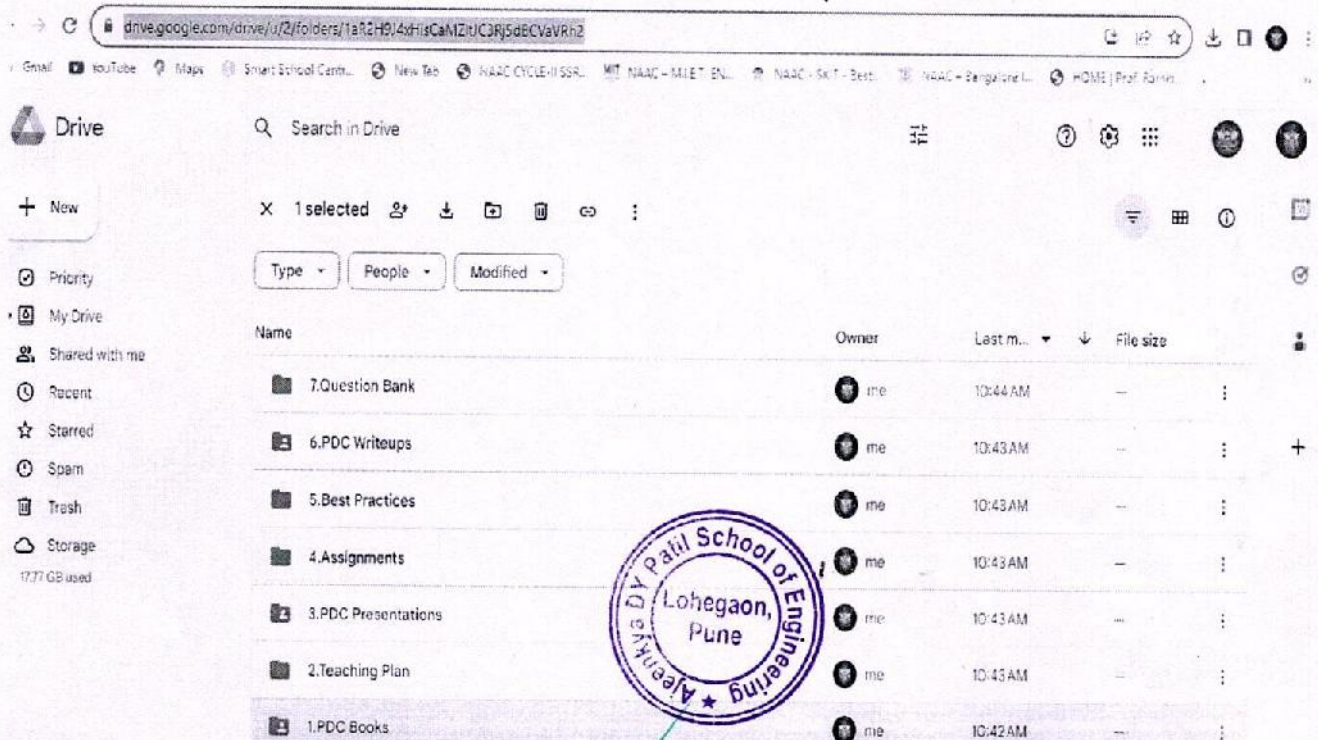
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6b

Subject Notes (e-Notes, PPTs, PDFs)

Google Drive Link:

<https://drive.google.com/drive/u/2/folders/1aR2H9J4xHisCaMZltJC3Rj5dBCVaVRh2>



The screenshot shows a Google Drive interface with a search bar and a list of files and folders. The files are listed in a table with columns for Name, Owner, Last modified, and File size.

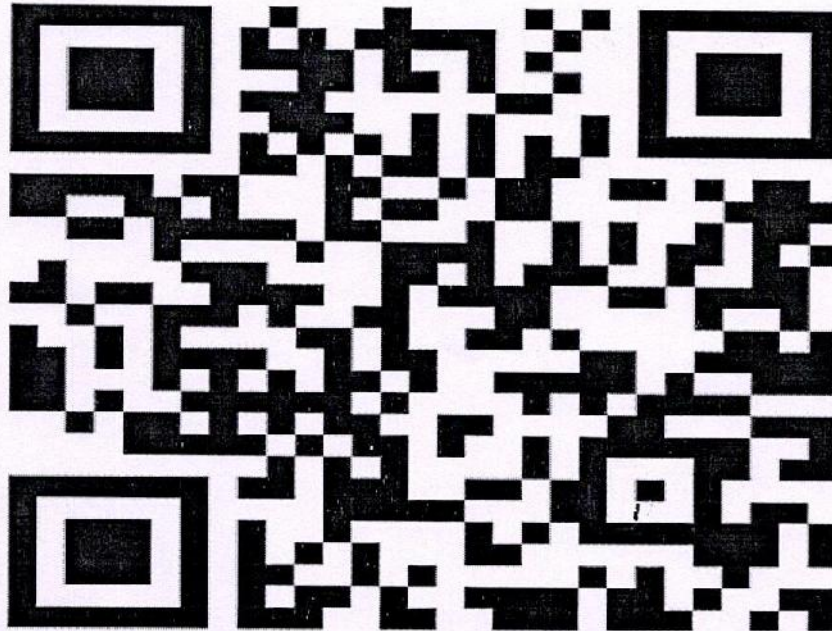
| Name | Owner | Last modified | File size |
|---------------------|-------|---------------|-----------|
| 7.Question Bank | me | 10:44 AM | — |
| 6.PDC Writeups | me | 10:43 AM | — |
| 5.Best Practices | me | 10:43 AM | — |
| 4.Assignments | me | 10:43 AM | — |
| 3.PDC Presentations | me | 10:43 AM | — |
| 2.Teaching Plan | me | 10:43 AM | — |
| 1.PDC Books | me | 10:42 AM | — |



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<https://sites.google.com/dypic.in/central-library/e-content>

Scan QR Code to access e-contents



Click the respective department to view/download the subject wise study material developed by ADYPSOE



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"Empowerment through quality technical education"

AJEENKYA DY Patil School of Engineering

Dr. D. Y. Patil Knowledge City, Charholi (Bk), Lohgaon, Pune – 412 105

Department of E&TC Engineering

7

Best Practices



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"Empowerment through quality technical education"

AJEENKYA DY PATIL SCHOOL OF ENGINEERING

Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune – 412 105.

Academic Year 2022-23

Form No. IQAC/44

Best Practice – I

Competency Based Education and Assessment

Name of the faculty: - Mr. Riyaj L. Kazi

Name of the Subject: - Power Devices and Circuits.

Department: - E&TC

Class: T.E. Div: A&B

Competency Based Learning (Part A and Part B)

It is an active, adaptive, experiential and participatory learning where students' choice and voice are present in order to bring variety and variation in learning.

Note- Part A and B should cover latest developments, advancements, innovations and technologies in the subject domain.

{Select at least Three from each of Part-A & Part-B for every subject and map the outcome of activity}

Part A- Experiential Learning (Learning by Doing) (Reference: NAAC Manual Pg. 72)

Is a process of learning through experience and is more specifically defined as "learning through reflection on doing".

The following statements/ questions are related to the subject you teach in this semester

1. Is it possible to develop any prototype or model by the students related to the subject? Yes No

If Yes, mention the related UNIT No. and Prototype Name -

2. Do you want to show any product demo to the students related to any topic / UNIT? Yes No

If Yes, mention the related UNIT No. VI and Name of the Demo - A.C. Voltage Controller

3. Do you want to assign any mini / major project to the students related to any topic? Yes No

If Yes, mention the related UNIT No. and the Project Name-

4. Are you going to arrange any industrial / Field / Laboratory visit? Yes No

Name of Industry / Field / Lab visit - Visit to Solar Power plant.

Yes No

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5. Do you want to discuss a case studies related to the subject domain?

If Yes, mention the UNIT No. and Title of the case study -

6. Do you want to focus on any simulation/gaming based learning in the subject?

Yes

No

If Yes, mention the UNIT No. and Name of the Simulation/Game-

7. Do you want to assign any mentor from industry /company to the students so that they can understand the subject well?

Yes

No

If Yes, Name of the mentor and Industry name -

8. Is there any student club at department /college level related to the subject domain?

Yes

No

If Yes, Number of students to be enrolled to the club -

9. Do you want to conduct any workshop related to the subject domain?

Yes

No

If Yes, Name of the workshop- No. of students enrolled -

✓ 10. Do you want to invite any expert / guest from an industry related to the subject?

Yes

No

If Yes, Name of the expert- Mr. Ayaz Sayyad Name of the Topic - Power Devices & Applications - Live Demo

11. Do you want to empower the students to join an ad-on- course related to the subject?

Yes

No

If Yes, Name of the Ad-on-courses available -No. of students to be enrolled -

12. Do you want to empower the students to join a skill and practical oriented courses related to the subject?

Yes

No

If Yes, Name of the course available -No. of students to be enrolled -

✓ 13. Do you want to show a few videos on advances, latest development and technology in the domain or subject?

Yes

No

If Yes, Number of Videos to be shown (maintain the record)- 6 videos. One on each unit.

✓ 14. Any course available for the students w.r.t the subject domain at different learning platforms

like Udemy, Coursera, Skillshare, MasterClass, Edx, Udacity etc.

Yes

No

Name of the courses - 4 NPTEL Courses available
1) npTEL.ac.in/courses/108/105/108105066/
2) npTEL.ac.in/courses/108/102/108102145/
3) npTEL.ac.in/courses/108/107/108107128/
4) npTEL.ac.in/courses/108/108/108108077/

Part -B Participative Learning (Learning by participating) (Reference- NAAC Manual Pg. 75)

Participatory Learning and Action is a family of approaches, methods, attitudes, behaviours and relationships, which enable and empower people to share, analyze and enhance their knowledge of their life and conditions, and to plan, act, monitor, evaluate and reflect.

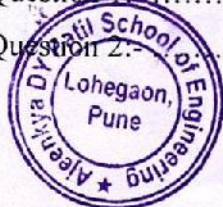
1. Do you want to ask open ended questions in the domain?

Yes

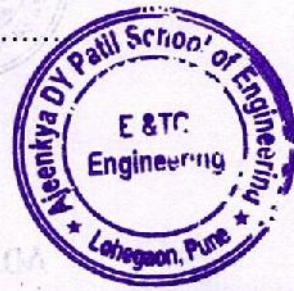
No

UNIT No.- Question 1:-

UNIT No.- Question 2:-



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Best Practice – II

Bridging the Gap between Education and Employment through Industry Connect

Name of the faculty: - **Mr. Riyaj Kazi**

Name of the Subject: - **Power Devices & Circuits** Class: **T.E.** Div: **A+B**

Sector of the industry Identified: - **Power Electronics**

Name of the industry to be connected:-

Plan of Action (PoA):- {Select at least five for each subject and map the outcome of activity}

1. Do you want to sign Sign MoU with the industry? ☒ Yes ☐ No Tentative date to sign the MoU:-/...../2023

2. Are there any hot topics, areas, trends, advances, technologies in the industry sector? ☒ Yes ☐ No
Mention Names:- **Power Electronics in Electric Vehicles**

3. Do you want to identify issues, problems and challenges in the industry? ☐ Yes ☐ No
List the issues.....

4. Do you want to conduct the product survey of the industry with the help of students? ☒ Yes ☐ No

5. Do you want to let the students to understand the website of the industry? ☒ Yes ☐ No

6. Do you want to arrange a physical visit to the industry? ☐ Yes ☐ No

7. Do you want to arrange a virtual visit of the industry? ☐ Yes ☐ No

8. Do you want to arrange a guest lecture? ☐ Yes ☐ No

Title of the guest lecture -

9. Is it possible to get sponsored project(s) from the industry for the final year students? ☐ Yes ☐ No

10. Is it possible to get internship for the SE/TE students from the industry? ☐ Yes ☐ No

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11. Do you want to write a conference paper/article on the best practices of the industry by involving students?

Yes

No

12. Do you want to arrange a hands-on workshop for the subject in collaboration with the industry?

Title of the workshop - Power Electronic system Design, Working & Demonstration

Yes

No

13. Is there any skill development course available in the market w.r.t the subject?

Title of the course - Basics of Power Electronics. [Si, SiC, GaN, LTSPICs, DC/DC Converters, Inverters etc]

Yes

No

14. Are there any skilling, upskilling, reskilling or multiskilling trainings /workshops available at, NSDC/Skill India/Make in India for the subject?

Yes

No

Names of the courses -

15. Do you want to motivate the students to participate in National/international employability tests or exams in the subject?

Yes

No

Name of the tests -

Sign of Subject Teacher:

Alavi



Chamad

Sign of HoD
H.O.D.

Dept. of E. & T.C. Engineering
Dr. D.Y. Patil School of Engg., Lohegaon

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Dr. D. Y. Patil Group of Institutions' Technical Campus
Dr. D. Y. PATIL SCHOOL OF ENGINEERING
Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune – 412 105.
Department of E&TC Engineering

Form No. IQAC/30

Date: 04/05/2023

Event Report

Academic Year: 2022-23

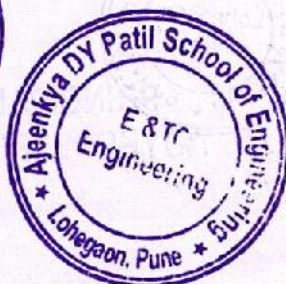
BEST PRACTICE - IV (PART-B) Semester-II

Name of the event: Peer Learning on Advanced Topic:- **Electric Vehicle**:- Battery Management System, Safety and Maintenance of batteries: **Advanced Learner Activity**.

| | |
|-------------------|---|
| Date and Time | Monday, 19/04/23, 10:30 AM and 03/05/2023, 11:30 AM |
| Event Venue | E&TC Department. Room No 232 |
| Organized by | Department of E&TC |
| Targeted Audience | TE – A & B Students |
| Resource Person | TE Students: Ms. Chetna Patil, Mr. Hardik Chotalia, Ms. Vashnavi, Ms. Monali Jatti. |

Contents of Peer Learning:

- 1] Introduction of Battery Management System
- 2] Block Diagram of BMS
- 3] Designing a BMS
- 4] The functions of a BMS suitable for a hybrid electric vehicle.
- 5] Characteristics of Rechargeable Batteries
- 6] Maintenance of batteries
- 7] Precautionary Note
- 8] Geo-Tagged Photos



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INTRODUCTION:

Battery Management System is a component of a much more complex fast acting Energy Management System and must interface with other on board systems such as engine management, climate controls, communications and safety systems. To some it is simply Battery Monitoring, keeping a check on the key operational parameters during charging and discharging such as voltages and currents and the battery internal and ambient temperature. The monitoring circuits would normally provide inputs to protection devices which would generate alarms or disconnect the battery from the load or charger should any of the parameters become out of limits. For the power or plant engineer responsible for standby power who's battery is the last line of defense against a power blackout or a telecommunications network outage BMS means Battery Management Systems. Such systems encompass not only the monitoring and protection of the battery but also methods for keeping it ready to deliver full power when called upon and methods for prolonging its life. This includes everything from controlling the charging regime to planned maintenance.

BLOCK DIAGRAM:

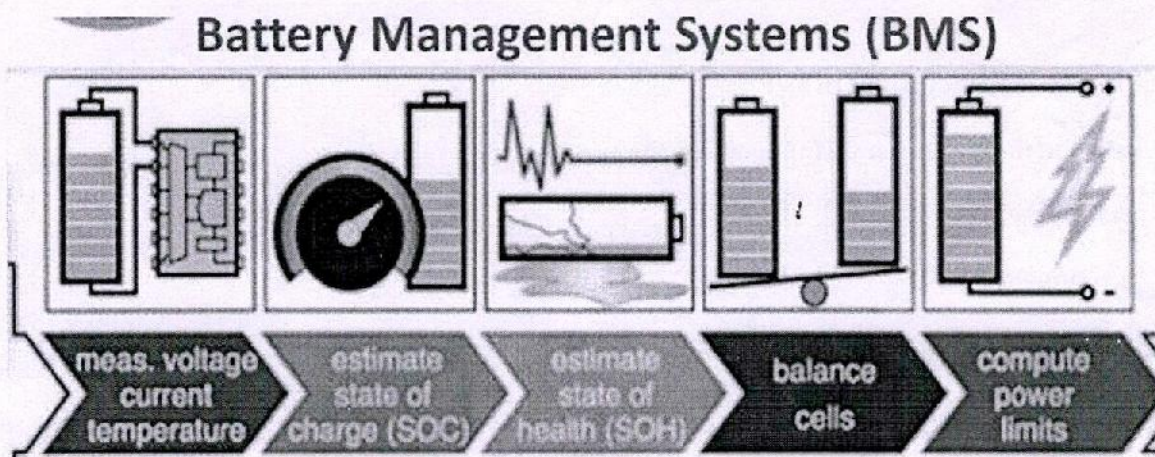


Fig. 1: General Block Diagram of BMS

BMS Building Blocks There are three main objectives common to all Battery Management Systems:

- 1] Protect the cells or the battery from damage
- 2] Prolong the life of the battery

UNIT No.- Question 3:-

2. Do you want to conduct group discussion/ Buzz sessions in the subject domain?

Yes

No

UNIT No.- Topic -

UNIT No.- Topic -

- ✓ 3. Do you want to use a question bowl approach in the discussion?

Yes

No

Topic- Power Devices and Applications

4. Do you want to conduct news analysis with the help of student on any topic?

Yes

No

Unit No. Example

- ✓ 5. Do you want to focus on peer learning w.r.t. the subject?

Yes

No

Unit No. V & VI Example Power Devices Protection & Applications

6. Do you want to use survey methods with the help of student to understand any topic?

Yes

No

Unit No. Example

7. Do you want to use Brainstorming session to understand the topic better?

Yes

No

Unit No. Name of the Topic

8. Do you want to conduct a small scale research in the subject domain with the help of students?

Yes

No

Unit No. Topic

- ✓ 9. Do you take any initiative with the help of the students to collect information related to a topic for better learning?

Yes

No

Unit No. VI Topic Batteries: Architecture/charging models for EV

10. Is there any possibility of using a critical incident in the subject domain for better teaching and learning?

Yes

No

Unit No. Incident

11. Do you want to use the approach of video viewing and discussion?

Yes

No

12. Do you want to use any other participatory approach or method or game in teaching and learning?

Yes

No

Name of the approach /method/game -



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INTRODUCTION:

Battery Management System is a component of a much more complex fast acting Energy Management System and must interface with other on board systems such as engine management, climate controls, communications and safety systems. To some it is simply Battery Monitoring, keeping a check on the key operational parameters during charging and discharging such as voltages and currents and the battery internal and ambient temperature. The monitoring circuits would normally provide inputs to protection devices which would generate alarms or disconnect the battery from the load or charger should any of the parameters become out of limits. For the power or plant engineer responsible for standby power who's battery is the last line of defense against a power blackout or a telecommunications network outage BMS means Battery Management Systems. Such systems encompass not only the monitoring and protection of the battery but also methods for keeping it ready to deliver full power when called upon and methods for prolonging its life. This includes everything from controlling the charging regime to planned maintenance.

BLOCK DIAGRAM:

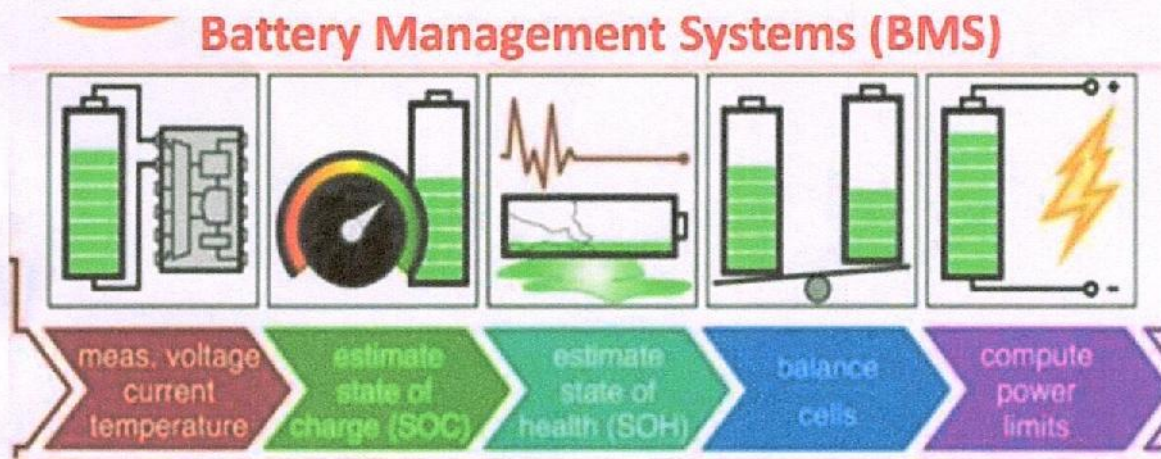
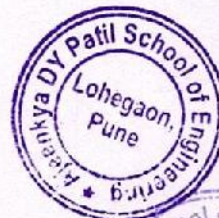


Fig. 1: General Block Diagram of BMS

BMS Building Blocks There are three main objectives common to all Battery Management Systems:

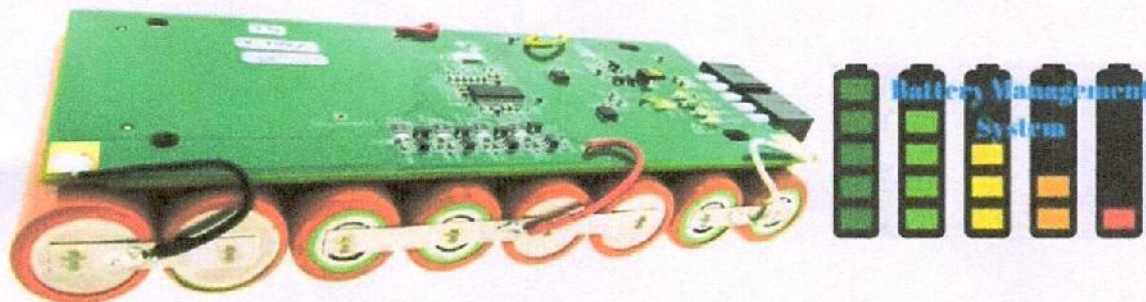
- 1] Protect the cells or the battery from damage
- 2] Prolong the life of the battery


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Engineering, Lohagaon, Pune



3] Maintain the battery in a state in which it can fulfill the functional requirements of the application for which it was specified.

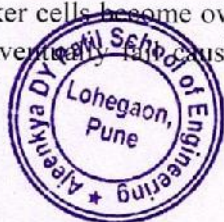
Designing a BMS:




In order to control battery performance and safety it is necessary to understand what needs to be controlled and why it needs controlling. This requires an in depth understanding of the fundamental cell chemistries, performance characteristics and battery failure modes particularly Lithium battery failures.

BMS may incorporate one or more of the following functions Cell Protection Protecting the battery from out of tolerance operating conditions is fundamental to all BMS applications. In practice the BMS must provide full cell protection to cover almost any eventuality. Operating a battery outside of its specified design limits will inevitably lead to failure of the battery. Apart from the inconvenience, the cost of replacing the battery can be prohibitive. This is particularly true for high voltage and high power automotive batteries which must operate in hostile environments and which at the same time are subject to abuse by the user. Charge control This is an essential feature of BMS. More batteries are damaged by inappropriate charging than by any other cause. Demand Management While not directly related to the operation of the battery itself, demand management refers to the application in which the battery is used. Its objective is to minimize the current drain on the battery by designing power saving techniques into the applications circuitry and thus prolong the time between battery charges. SOC Determination

Many applications require a knowledge of the State of Charge (SOC) of the battery or of the individual cells in the battery chain. This may simply be for providing the user with an indication of the capacity left in the battery, or it could be needed in a control circuit to ensure optimum control of the charging process. SOH Determination The State of Health (SOH) is a measure of a battery's capability to deliver its specified output. This is vital for assessing the readiness of emergency power equipment and is an indicator of whether maintenance actions are needed. Cell Balancing In multi-cell battery chains small differences between cells due to production tolerances or operating conditions tend to be magnified with each charge / discharge cycle. Weaker cells become overstressed during charging causing them to become even weaker, until they eventually fail causing premature failure of the battery. Cell balancing is a way of




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- 9] Providing information on the State of Health (SOH) of the battery. This measurement gives an indication of the condition of a used battery relative to a new battery.
- 10] Providing information for driver displays and alarms
- 11] Predicting the range possible with the remaining charge in the battery (Only EVs require this)
- 12] Accepting and implementing control instructions from related vehicle systems
- 13] Providing the optimum charging algorithm for charging the cells
- 14] Providing pre-charging to allow load impedance testing before switch on and two stage charging to limit inrush currents
- 15] Providing means of access for charging individual cells
- 16] Responding to changes in the vehicle operating mode
- 17] Recording battery usage and abuse. (The frequency, magnitude and duration of out of tolerance conditions) Known as the Log Book function
- 18] Emergency "Limp Home Mode" in case of cell failure.

In practical systems the BMS can thus incorporate more vehicle functions than simply managing the battery. It can determine the vehicle's desired operating mode, whether it is accelerating, braking, idling or stopped, and implement the associated electrical power management actions. Cell Protection One of the prime functions of the Battery Management System is to provide the necessary monitoring and control to protect the cells from out of tolerance ambient or operating conditions. This is of particular importance in automotive applications because of the harsh working environment. As well as individual cell protection the automotive system must be designed to respond to external fault conditions by isolating the battery as well as addressing the cause of the fault. For example cooling fans can be turned on if the battery overheats. If the overheating becomes excessive then the battery can be disconnected. Battery State of Charge (SOC) Determining the State of Charge (SOC) of the battery is the second major function of the BMS. The SOC is needed not just for providing the Fuel Gauge indication.

The BMS monitors and calculates the SOC of each individual cell in the battery to check for uniform charge in all of the cells in order to verify that individual cells do not become overstressed. The SOC indication is also used to determine the end of the charging and discharging cycles. Over-charging and over-discharging are two of the prime causes of battery failure and the BMS must maintain the cells within the desired DOD operating limits. Hybrid vehicle batteries require both high power charge capabilities for regenerative braking and high power discharge capabilities for launch assist or boost. For this reason, their batteries must be



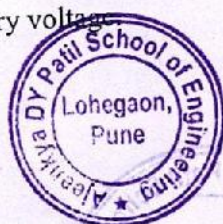
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maintained at a SOC that can discharge the required power but still have enough headroom to accept the necessary regenerative power.

Characteristics of rechargeable batteries:

- A cell is an electro-chemical device capable of supplying the energy that results from an internal chemical reaction to an external electric circuit.
- A battery is composed of one or more cells, either parallel or series connected to obtain required current/voltage capability (batteries comprised of series connected cells are by far the most common).
- ESR (Equivalent Series Resistance) is the internal resistance present in any cell that
 - limits the amount of peak current it can deliver.
- The Amp-hour capacity of a battery (or cell) is its most important figure of merit: it is defined as the amount of current that a battery can deliver for 1 hour before the battery voltage reaches the end-of-life point.
- The "c" rate is a current that is numerically equal to the A-hr rating of the cell. Charge and discharge currents are typically expressed in fractions or multiples of the c rate.
- The MPV (mid-point voltage) is the nominal voltage of the cell, and is the voltage that is measured when the battery has discharged 50% of its total energy.
- The measured cell voltage at the end of its operating life is called the EODV, which stands for End of Discharge Voltage (some manufacturers refer to this as EOL or End of Life voltage).
- The gravimetric energy density of a battery is a measure of how much energy a battery contains in comparison to its weight.
- The volumetric energy density of a battery is a measure of how much energy a battery contains in comparison to its volume.
- A constant-voltage charger is a circuit that recharges a battery by sourcing only enough current to force the battery voltage to a fixed value.
- A constant-current charger is a circuit that charges a battery by sourcing a fixed current into the battery, regardless of battery voltage.



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Maintenance of batteries:

Battery service and maintenance are critical to UPS reliability. A gradual decrease in battery life can be monitored and evaluated through voltage checks, load testing or monitoring. Periodic preventive maintenance extends battery string life by preventing loose connections, removing corrosion and identifying bad batteries before they can affect the rest of the string.

What can go wrong with batteries?

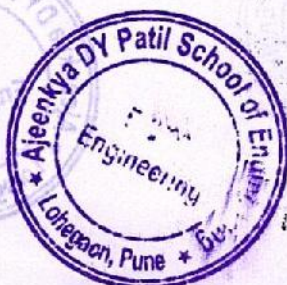
| Condition | Cause |
|------------------------|--|
| Plate separation | Repeated cycling (charging and discharging), damage during handling and shipping, and overcharging |
| Grid corrosion | Normal aging, operating in an acidic environment and high temperatures |
| Internal short circuit | Heat (plates expand causing shorts), separator failure, handling and shipping, and grid corrosion |
| External short circuit | Human error (shorting terminals) and leaks |
| Sulfation of plates | Sitting discharged for an extended period, not on charge or being undercharged, such as battery shelf life being exceeded past manufacturer's guidelines |
| Excessive gassing | Often due to high temperatures or overcharging, electrolyte volume is decreased |
| Drying out | Excessive gassing, high temperatures or overcharging, resulting in too little electrolyte for battery to function and provide full backup time |

Precautionary Note:

- Do not charge by higher current or higher voltage than specified. Doing so may generate gas inside the battery, resulting in swelling, fire, heat generation or bursting.
- Do not heat, disassemble, nor dispose of in fire. Doing so damages the insulation materials and may cause fire, heat generation, leakage or bursting.
- Do not solder directly to the battery. If soldering is performed directly to the battery, the battery is heated up, consequently causing leakage, explosion or fire due to overheating from internal short-circuit.
- Do not short. If the (+) and (-) come into contact with metal materials, short-circuit occurs. As a result, fire, heat generation, leakage or bursting may occur.



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- Keep batteries out of the reach of children. It is dangerous if children swallow the battery. Keep batteries which are considered swallow able out of the reach of children. When designing mechanical hardware around the battery, make sure that the battery cannot be removed by children. Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2 hours of ingestion. In case of ingestion of a battery, seek medical attention immediately.

- Do not reverse placement of (+) and (-). If the (+) and (-) side of the battery is reverse inserted, it may cause a short-circuit or over discharge of the battery on some equipment and it may induce overheating, explosion or fire.

- Do not discharge by force. If the battery is discharged by direct connection to an external power supply etc., voltage of the battery will decline lower than 0 volt (electrical reversal) and will cause the battery case to expand, overheat, leak, explode or burn.

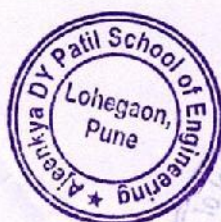
- In case of leakage or a strange smell, keep away from fire to prevent ignition of any leaked electrolyte.

- Do not weld terminals to the battery. The heat by welding may cause fire, heat generation, leakage or bursting. We weld standard terminals under strictly controlled conditions. If you need to weld terminals to the battery, please consult us in advance.

- In case of disposal, insulate between (+) and (-) of battery by an insulating material. Jumbling batteries or with other metal materials cause short-circuit. As a result, fire, heat generation, leakage or bursting may occur.

For More Details:

<https://batteryuniversity.com/>



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Geo- Tagged Photos:

Advanced Topic Discussion among students of different learning Level



Students peer learning activity on Electric Vehicle: BMS, Safety and Maintenance.

Name and Sign of Coordinator (Faculty): Mr. Riyaj Kazi

Departmental Event Coordinator: _____

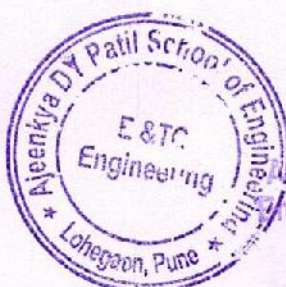
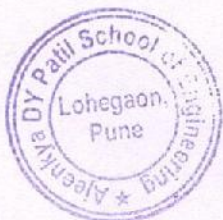
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| | |
|--|---|
|  AJEENKYA DY Patil School of Engineering | "Empowerment through quality technical education" AJEENKYA DY PATIL SCHOOL OF ENGINEERING Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune – 412 105. |
| | Department of E&TC Engineering Form No. IQAC/30 Date: 26/04/2023 |

Event Report

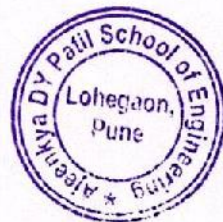
Academic Year: 2022-23 **BEST PRACTICE-I (PART-A)** Semester-II

Name of the event: Educational Visit to Solar Power Plant

| | |
|-------------------|-------------------------------|
| Date and Time | Wednesday, 26/04/23, 10:15 AM |
| Event Venue | Dr. D Y Patil Knowledge City |
| Organized by | Department of E&TC |
| Targeted Audience | TE Students & Staff |
| Resource Person | Mr. Riyaj Kazi |

Contents:

1. Introduction to Solar Power Plant
2. Observations on Solar power Plant
3. Details of daily power generation and utilization
4. Geotagged Photos



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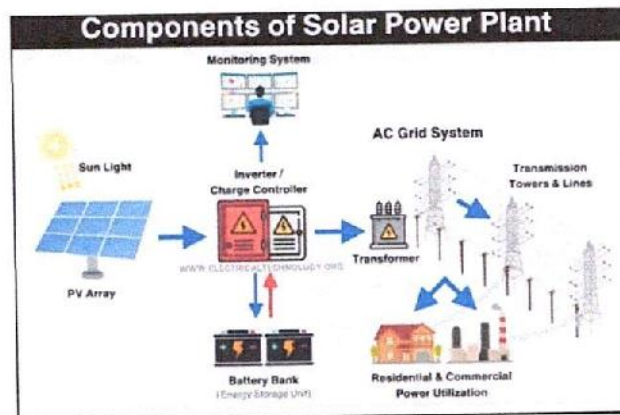


INTRODUCTION:

A solar power plant is based on the conversion of sunlight into electricity, either directly using photovoltaics (PV), or indirectly using concentrated solar power (CSP).

Solar energy is the radiation from the sun capable of producing heat, causing chemical reactions, or generating electricity. The total amount of solar energy incident on Earth is vastly in excess of the world's current and anticipated energy requirements. If suitably harnessed, this highly diffused source has the potential to satisfy all future energy needs. In the 21st century, solar energy is expected to become increasingly attractive as a renewable energy source because of its inexhaustible supply and its nonpolluting character, in stark contrast to the finite fossil fuels coal, petroleum, and natural gas. The main concern of a solar power plant is to provide complete energy independence while also lowering electricity costs.

BLOCK DIAGRAM:



PRINCIPLE:

The working principle is that we use the energy of photons to get the drift current flowing in the circuit using reversed bias p-n junction diode (p-type and n-type silicon combination). Thus, solar energy is converted to electrical energy by photovoltaic cells.

CONSTITUENTS:

1. Solar Panels

It is the heart of the solar power plant. Solar panels consists a number of solar cells. One panel consists of about 35 solar cells.



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2. Solar Cells (Photovoltaic cells)

It is the energy generating unit, made up of p-type and n-type silicon semiconductor that converts the solar energy into electrical energy.

3.. D.C. to A.C. Converter (Inverter)

Solar panels produce direct current which is required to be converted into alternating current to be supplied to homes or power grid.

4. Battery

Batteries are used to produce the power bank or store the excess energy produced during day, to be supplied during night. It is optional and sometimes not preferred due to its high maintenance costs.

5. Transformer

A solar panel transformer has to convert the DC voltage coming out of the photovoltaic systems and step it up to the rated output. Sometimes it is integrated with the inverter.

6. Monitoring system

The system uses data logger and similar other applications for an effective surveillance of power production and consumption.

7. A circuit breaker

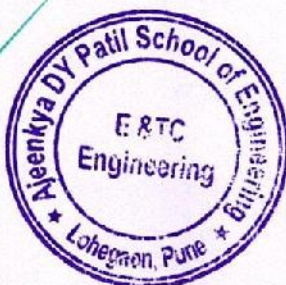
A circuit breaker is an electrical switch designed to protect an electrical circuit from damage caused by overcurrent/overload or short circuit. Its basic function is to interrupt current flow after protective relays detect a fault.

SOLAR POWER PLANT FUNCTIONING:

A batch of third year students of Electronics and Telecommunications of Dr. Ajeenkya DY Patil School of Engineering with their pedagogue Mr. Riyaj Kazi commenced an educational visit to the solar power plant of the university for an explicit evaluation of the mechanism of the solar cells and an insightful comprehension of their consequential role towards sustainable development. The trip made a headway



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with 72 students and halted at the Solar Power plant in the parking sector wherein our mentor Mr Amol Sawant began a comprehensive elucidation of the solar panels.

The illustration covered the 8 unit solar power plant in the Technical Campus that accounts for about 630 kW of power generation per day enabling the university towards a self-reliance and self-sufficiency in perpetuating the cycle of power production and consumption. The project had initiated under the Kusum Yojna Scheme of the Government of India. The output of each panel is DC voltage which is combined together and further supplied to a 60 kW inverter that converts DC into AC. The solar plant is connected in series oriented in the North - South to get maximum solar energy. The efficiency can further be enhanced by removing the dust layer on the panel surface. The same is durable enough not to be damaged easily.

The solar power plant system in the campus doesn't use a storage battery on account of a heavy expenditure on its maintenance and replacement once in every 5 - 15 years of time slot. The power is recorded and tracked online via a data logger that keeps a precise record of everyday production and consumption of power. The online monitoring system also detects any malfunctioning of the system. The institute has the UPS system, which is an uninterrupted supply of energy. Solar panels are placed at the roof of the buildings of engineering schools, hostels and parking areas. The solar water heater is also placed on the hostel's roof.

DETAILS OF DAILY POWER GENERATION AND UTILIZATION:

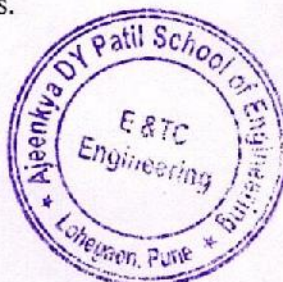
The campus accounts for about 630 kW of power generation per day enabling the university towards a self-reliance and self-sufficiency in terms of energy conversation. The same saves about 6-8 lakhs of electricity bill per month. The power generated doesn't only compete with the exigencies of the campus but also produces an adequate amount of supplemental power that is further supplied to MSEB.

SOLAR POWER PLANT DOCUMENTATION:

The installation of the solar power panel was a joint venture of Renew Power Private Limited and Dr. DY Patil Group of Institutions with Solitis Electrical Solutions PVT LTD as the Electrical Contractor. The Company bore the initial cost of installation and infrastructure signing an agreement for a power supply to the campus for the coming 15 years.

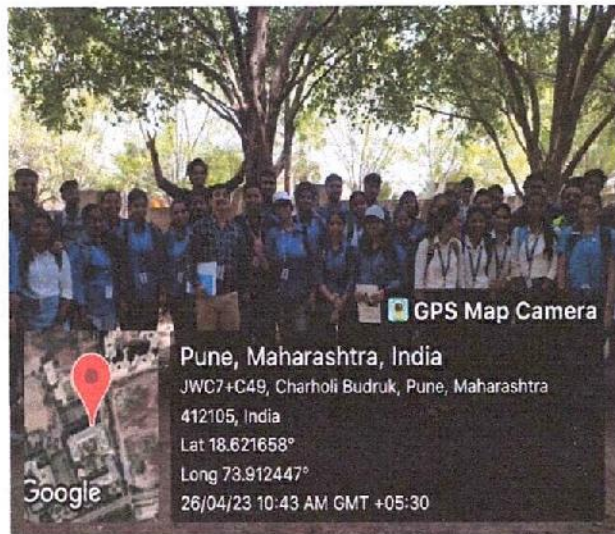


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However the project emerges as a boon for the university in terms of self-reliance and energy sufficiency saving about 6 - 8 lakhs of electricity bill on monthly basis.

Geotagged photos



Visit to Solar Power Plant, DYP SOE



Visit to Control Room



Roofs of the buildings of Engineering Schools and Hostels



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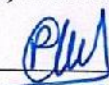


Gist of lessons ascertained during the educational visit :

- 1) We evaluated the structure and mechanism of the solar panels.
- 2) The visit also envisaged their consequential role towards the sustainable development by switching towards renewable and replenishable sources of energy in lieu of the conventional sources.
- 3) We analyzed the implementation, cost, maintenance and surveillance factors profoundly and were able to spot the advantages of being self reliant in power generation by the installation of solar panels.
- 4) The visit also helped us understand the joint venture between the corporate sector and the university for the installation of the solar power plant.

Name and Sign of Coordinator (Faculty): Mr. Riyaj Kazi

Departmental Event Coordinator: _____

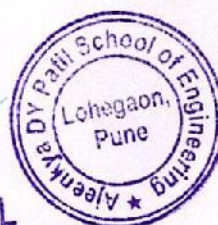

R.L. Kazi

HoD: _____

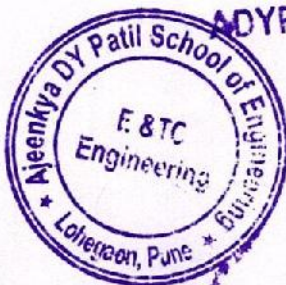


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Discussion:- Components of Solar Power Plant: Capacity, Specifications & Technology



DC to AC Conversion- Inverter (60 KW)



Data Logger



Control Panel and monitoring system



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Ajeenkya DY PATIL SCHOOL OF ENGINEERING
Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune – 412 105.
Department of E&TC Engineering

Form No. IQAC/30
Date: 10/05/2023

Event Report

Academic Year: 2022-23 **BEST PRACTICE-I (PART-B)** Semester-II

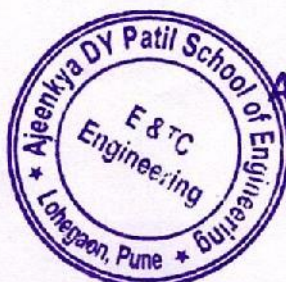
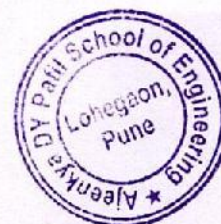
Title of best practice: Competency-based Education & Assessment:

Activity:- Participative Learning (Question bowl approach in the discussion)

| | |
|-------------------|---|
| Date and Time | Wednesday, 10/05/23, 10:30 AM |
| Event Venue | E&TC Department. Room No 232 |
| Organized by | Department of E&TC |
| Targeted Audience | TE – A & B Students |
| Resource Person | TE Students: Ms. Chetna Patil, Mr. Hardik Chotalia, Ms. Vashnavi, Ms. Monali Jatti. |

Topics:

- 1] Study of Power Devices
- 2] AC to DC Converter
- 3] DC to AC Converter
- 4] DC to DC Converters
- 5] Applications of Power Electronics



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In order to boost participative learning among students, one of the methods is to have a question bowl approach in the discussion.

The engagement of students to carry out this activity is essential because the students themselves learn different topics of the subject. They decide the questions to be asked along with solutions.

This activity leads to team building, group discussion, communication skills, and coordination. Participants get an opportunity to perform. This activity ensures edutainment.

In order to execute this activity; three coordinators among students were finalized as follows:

- 1] Ms. Chetana Patil
- 2] Tejas Jadhav
- 3] Choutewar Vaishnavi & Team

Entire class was divided into four teams:

- A] Team-1: Half Circuit
- B] Team-2: Short Circuit
- C] Team-3: Full Circuit
- D] Team-4: Open Circuit

The three team coordinators have prepared questions & answers and get it verified from faculty Mr. Riyaj Kazi.

Students prepared the question bowl & 40 Question chits.

The entire event is coordinated by the students.

The winners of this quiz are declared by Dr. Sharan Inamdar, HoD-E&TC.

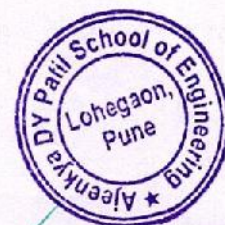
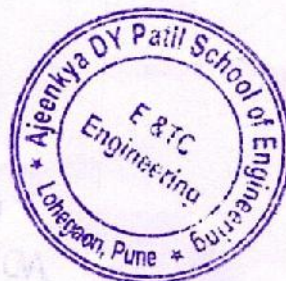
Winner Team: FULL CIRCUIT (34 Marks)

Runner Up: OPEN CIRCUIT (32 Marks)

Enclosed:

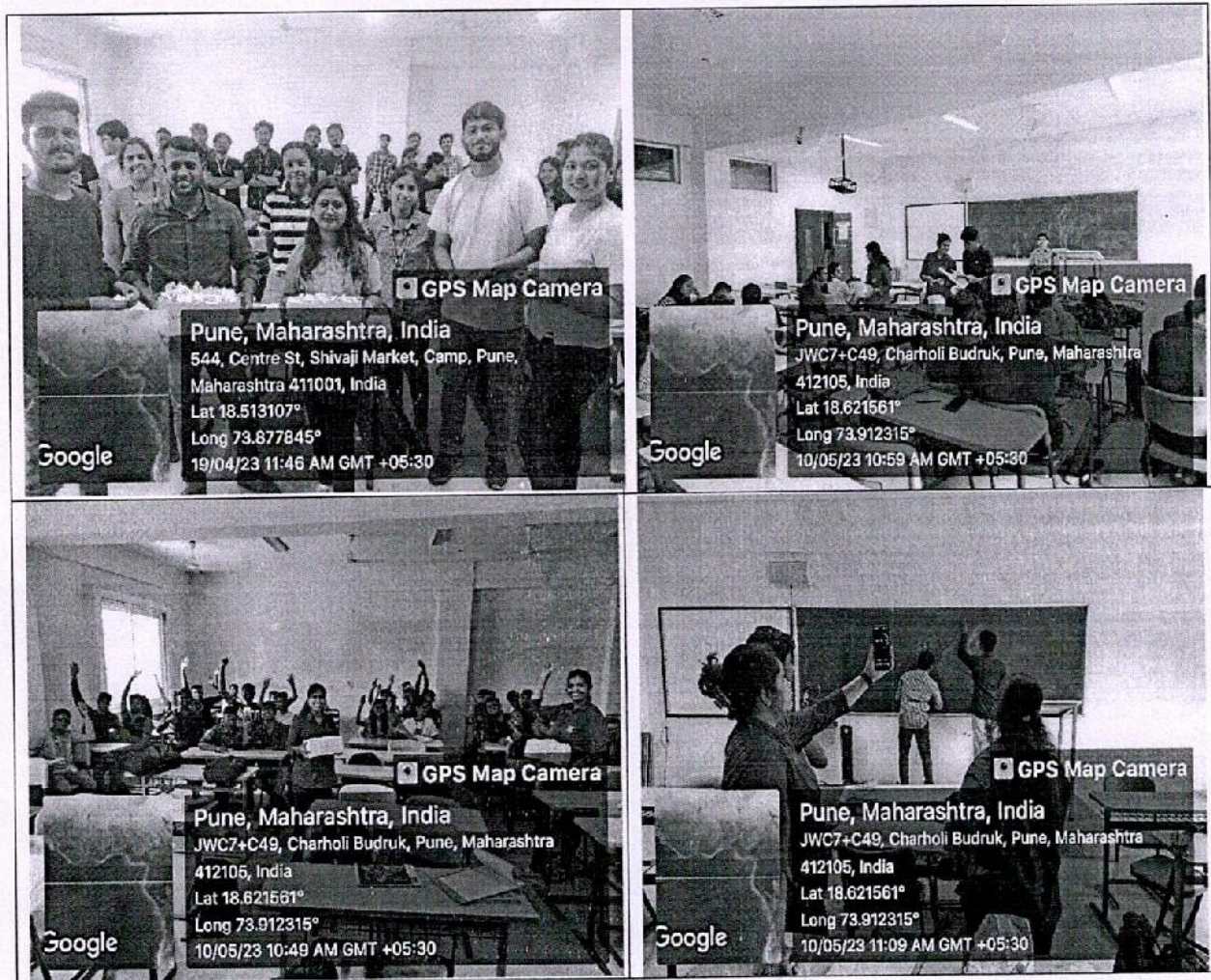
- 1) Team Details
- 2) Attendance

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Geo- Tagged Photos:



Edutainment through question bowl approach in discussion & learning

Name and Sign of Coordinator (Faculty): Mr. Riyaj Kazi

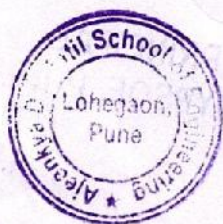
Departmental Event Coordinator:

(R.L. Kori)

HoD:

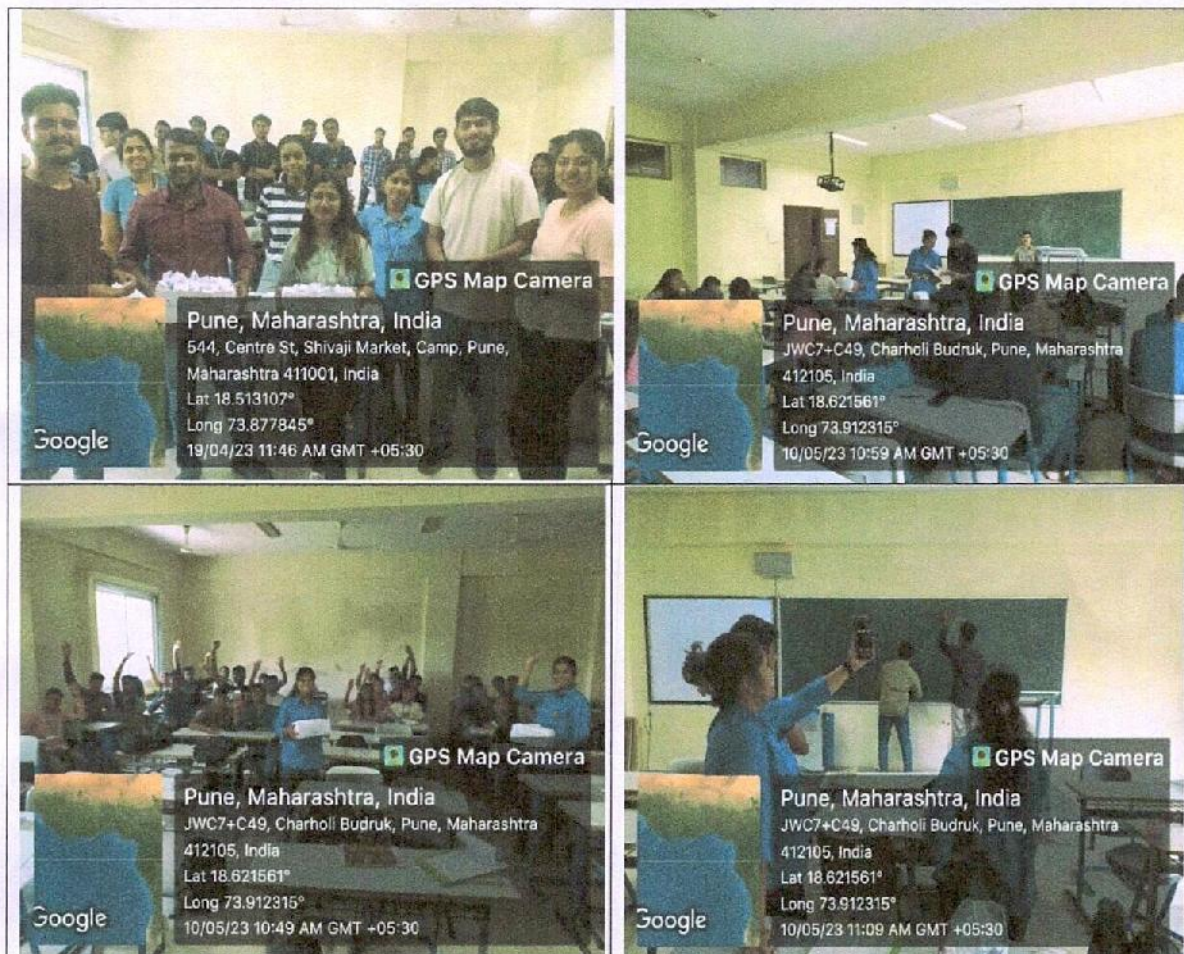
(Anamika)

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Geo- Tagged Photos:

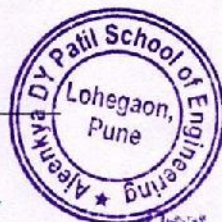


Edutainment through question bowl approach in discussion & learning

Name and Sign of Coordinator (Faculty): Mr. Riyaj Kazi

Departmental Event Coordinator:

(Signature)

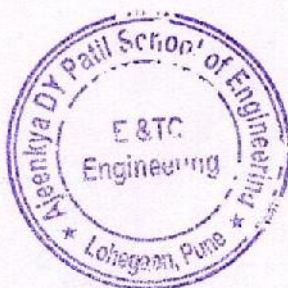


HoD:

(Signature)

H.O.D.

Dept. of E. & T.C. Engineering
Dr. D.Y. Patil School of Engg., Lohegaon



(Signature)
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 Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune – 412 105.
 Department of E&TC Engineering

Form No. IQAC/30

Date: 13/05/2023

Event Report

Academic Year: 2022-23

Semester-II

Title of best practice II (2): Bridging the Gap between Education and Employment through Industry Connect

Activity:- Power Electronics in Electric Vehicle

| | |
|-------------------|---------------------------------|
| Date and Time | Wednesday, 13/05/2023, 11:00 AM |
| Event Venue | E&TC Department. Room No 232 |
| Organized by | Department of E&TC |
| Targeted Audience | TE – A & B Students |
| Resource Person | Mr.Riyaj Kazi |

Topic: Role of Power Electronics in EV Technology

- 1] Electric Vehicle History & Advantages.
- 2] Components of Electric Vehicle
- 3] Types & Benefits of EV
- 4] Comparison of EVs
- 5] Configurations of EVs
- 6] Impact of EV on Grid: Negative & Positive
- 7] Vehicle to Grid Technology



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What are Electric Vehicles

GAA
ADVISORY

An Electric Vehicle is a vehicle that operates on an electric motor, instead of an internal combustion engine that generates power by burning a mix of fuel and gases. Electric vehicle is seen as a possible replacement for the current-generation automobile in near future to address environmental challenges.



Inspired by road going automobiles powered by electricity.



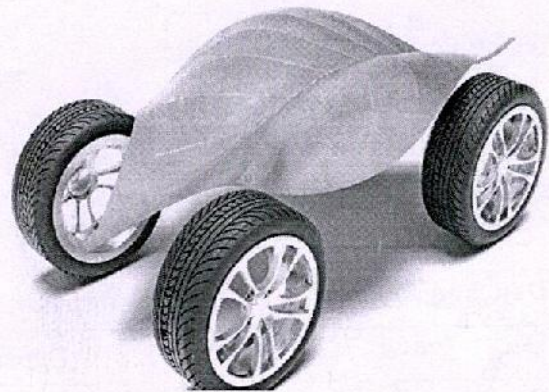
Propelled by one electric motor or more using batteries.



Electric motors give instant torque, and smooth acceleration.

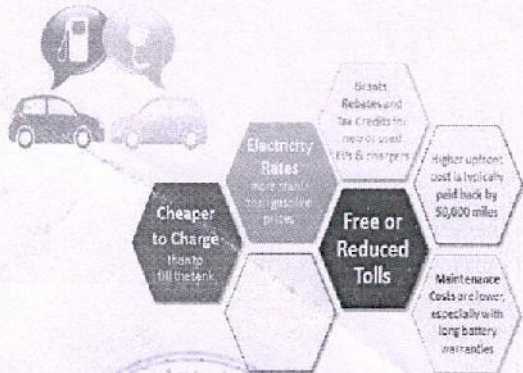


Plug-in electric vehicles (EVs) are fast, fun and efficient. Maintenance is simpler and cheaper.

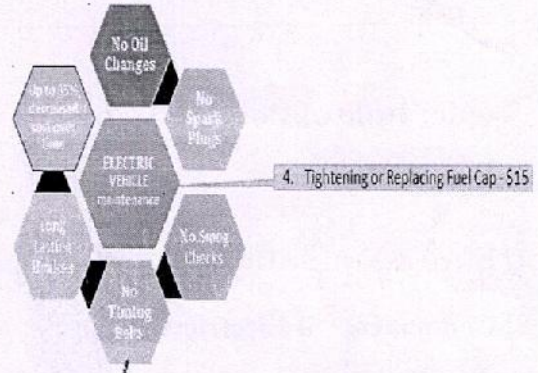


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Lower Lifetime Cost



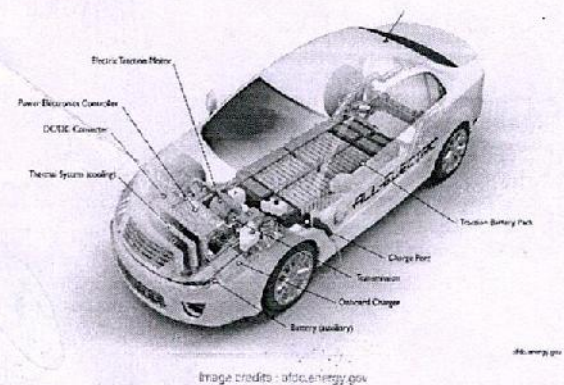
Lower Maintenance...



Lower Emissions



All Electric Vehicle



Components of Electric Vehicle

Electric vehicles consists of an electric motor that is powered by a battery pack. The main advantage of electric vehicles is that they emit zero emissions and are eco-friendly. They also do not consume any fossil fuels, hence use a sustainable form of energy for powering the car. The main components of electric vehicles are :

Traction battery pack

DC-DC Converter

Electric motor

Power inverter

Charge Port

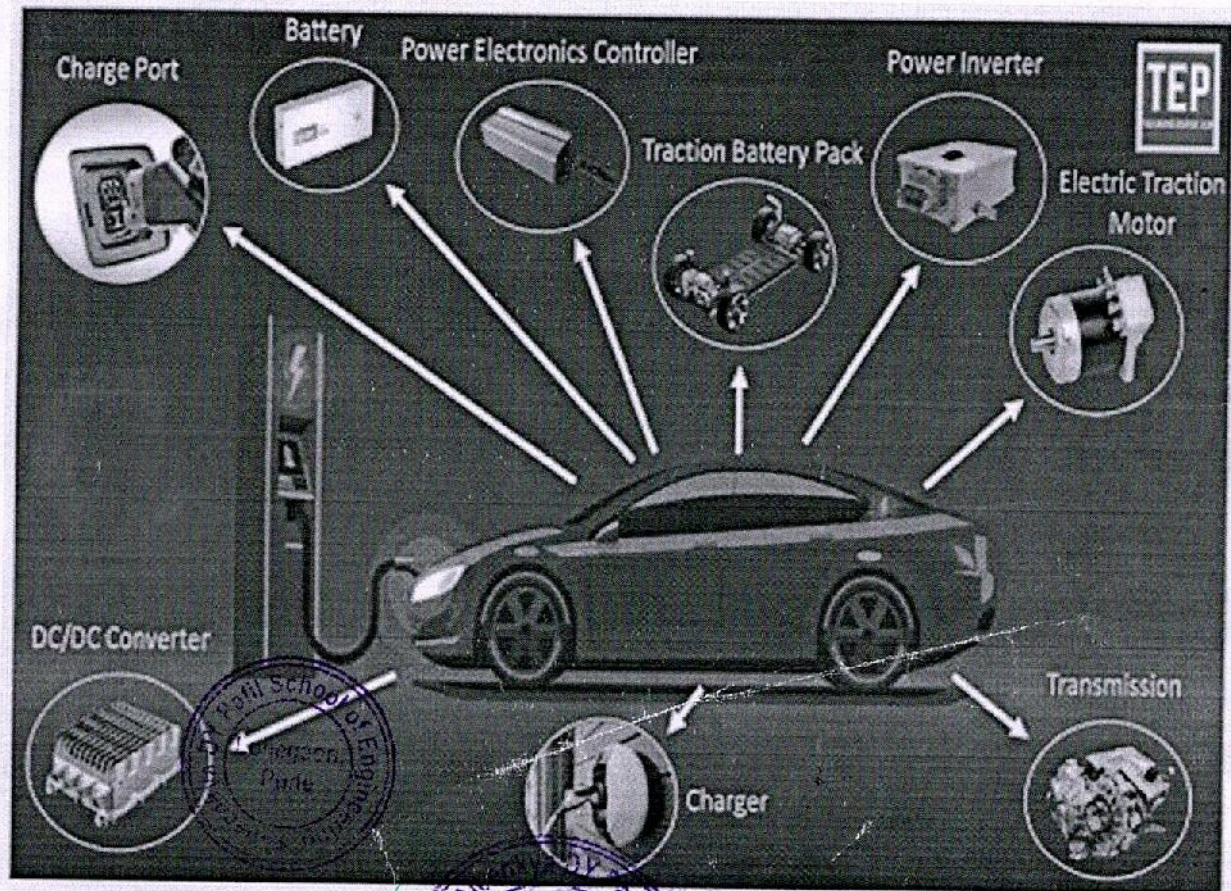
Onboard charger

Controller

Auxiliary batteries

Thermal system (cooling)

Transmission



Types of EVs

There are four types of electric vehicles (EVs) available:

Battery Electric Vehicle (BEV): Fully powered by electricity. These are the more efficient compared to hybrid and plug-in hybrids.

Hybrid Electric Vehicle:

Hybrid Electric Vehicle (HEV): The vehicle uses both, the internal combustion (usually petrol) engine, and the battery powered motor powertrain. The petrol engine is used both to drive and charge when the battery is drained. These vehicles are not as efficient as fully electric or plug in hybrid vehicles.

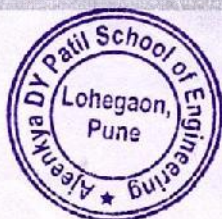
Plug-in Hybrid Electric Vehicle (PHEV): Uses both an internal combustion engine and a battery charged from an external socket (they have a plug). This means the vehicle's battery can be charged with electricity rather than the engine. PHEVs are more efficient than HEVs but less efficient than BEVs.

Fuel Cell Electric Vehicle (FCEV): Electrical energy is produced from fuel cell stacks which converts hydrogen to electricity.

Benefits of EV

- 1] Low Running Cost
- 2] Low Maintenance Cost
- 3] Zero Tailpipe Emission
- 4] Tax & Financial Benefits
- 5] Petrol & Diesel use is destroying our planet
- 6] Electric Vehicles are easy to drive & quiet
- 7] Convenience of Charging at home
- 8] No Noise Pollution

Source: <https://e-amrit.niti.gov.in/benefits-of-electric-vehicles>



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Comparison of Electric Vehicles

COMPARISON

Q. 5.7.1 Distinguish between the various types of Electric Vehicle.

| Sr. No. | Component | (Electric Vehicle) | (Hybrid Electric Vehicle) | (Plug-in Hybrid Vehicle) | (Mild Hybrid Vehicle) |
|---------|------------------|---------------------------------|---|---|---|
| 1. | IC engine | Not Required | Required | Required | Required |
| 2. | Electric Motor | Not Required | Required | Required | Required |
| 3. | Battery Charging | It required only electric drive | The batteries get charged by the engine | The batteries can be charged from an external source (plug) | Turns off the engine and switches to motor when coasting, braking and restarting quickly. |
| 4. | Battery Size | Large upto 20-80 kWh | Medium upto 6-12 kWh | Medium upto 6-12 kWh | Cannot be solely driven on electric motor |
| 5. | Example | Tesla Model S | Honda Civic Hybrid | BMW i-8 | Chevrolet Silverado Hybrid |

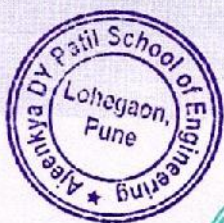
Configurations of EV

Based on drive arrangements

- 1] EV with a Clutch
- 2] EV without a Clutch
- 3] Single Motor Drive
- 4] Multiple Motor Drive
- 5] In wheel Drive
- 6] In wheel wireless drive
- 7] Fixed Gearing Transmission
- 8] Variable Gearing Transmission

Based on power source configurations

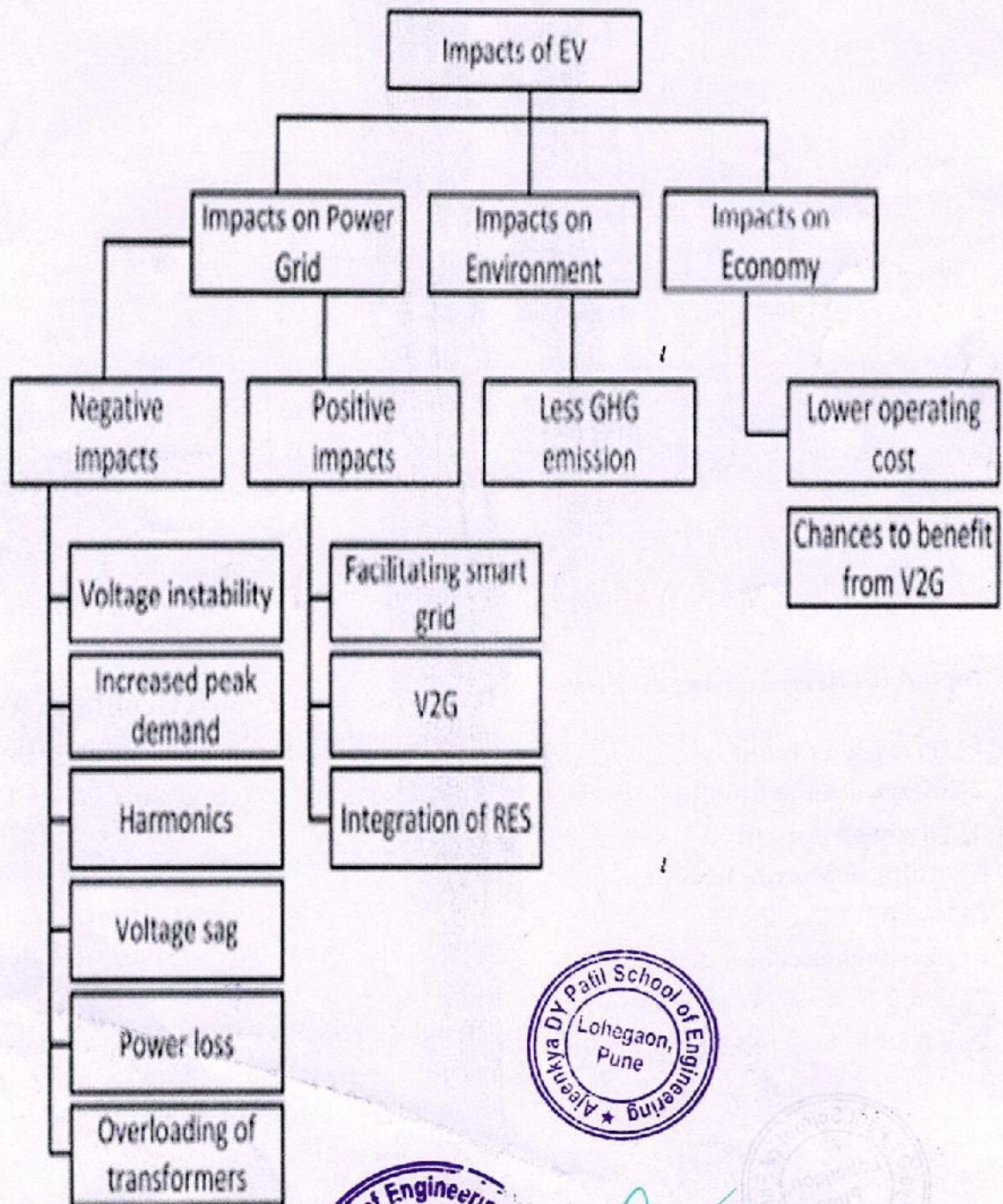
- 1] Simple Battery Power Configuration (Battery connected to motor through a power converter)
- 2] Two Batteries and Power Converter: One battery is optimized for high specific energy and the other for high specific power.
- 3] Fuel Cell based power source
- 4] Hydrogen (Generated on board using liquid fuels such as methanol)
- 5] Battery & Super capacitor combination



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Impact of EV on Grid



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Positive Impact

Smart grid: In the smart grid system, intelligent communication and decision making is incorporated with the grid architecture. In such a system, the much coveted coordinated charging is easily achievable as interaction with the grid system becomes very much convenient even from the user end. The interaction of ES and smart grid can facilitate opportunities like V2G and better integration of renewable energy.

V2G: V2G or vehicle to grid is a method where the EV can provide power to the grid. In this system, the vehicles act as loads when they are drawing energy, and then can become dynamic energy storages by feeding back the energy to the grid. In coordinated charging, the EV loads are applied in the valley points of the load curve, in V2G, EVs can act as power sources to provide during peak hours. V2G is realizable with the smart grid system.

Integration of renewable energy sources: Renewable energy usage becomes more promising with EVs integrated into the picture. EV owners can use RES to generate power locally to charge their EVs. Parking lot roofs have high potential for the placement of PV panels which can charge the vehicles parked underneath as well as supplying the grid in case of excess generation thus serving the increase of commercial RES deployment.

Negative Impact

Voltage instability: EV loads have nonlinear characteristics which are different than the general industrial or domestic loads, and draw large quantities power in a short time period, their power consumptions stay unpredictable; addition of a lot of ES at a time therefore can lead to violation of distribution constraints. To anticipate these loads properly, appropriate modeling methods are required.

Harmonics: The EV charger characteristics, being nonlinear, gives rise to high frequency components of current and voltage, known as harmonics. Harmonics distort the voltage and current waveforms, thus can reduce the power quality.

Voltage sag: A decrease in the RMS value of voltage for half a cycle or 1 min is denoted as voltage sag. It can be caused by overload or during the starting of electric machines, with an EV charger and a power converter in stated 20% EV penetration can exceed the voltage sag limit.

Power loss: The extra loss of power caused by EV charging can be formulated as:

$$P_{LE} = P_{LEV} - P_{L \text{ original}}$$

Power quality degradation: The increased amount of harmonics and imbalance in voltage will degrade the power quality in case of massive scale EV penetration to the grid.

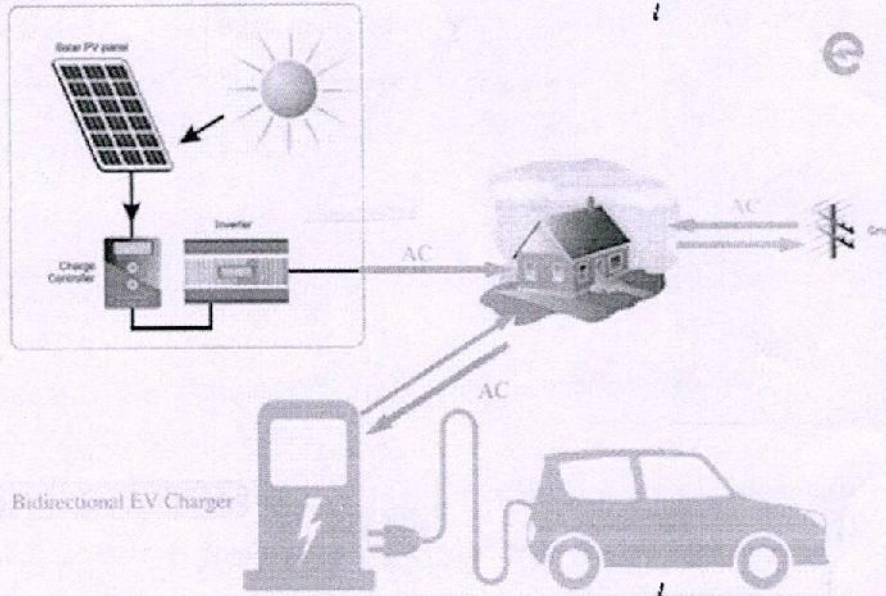
Overloading of transformers: EV charging directly affects the distribution transformers. The extra heat generated by EV loads can lead to increased aging rate of the transformers, but it also depends on the ambient temperature.



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Vehicle to Grid Technology



Vehicle to Grid Technology

- Vehicle to grid' technology, also referred to as 'V2G' enables energy stored in electric vehicles to be fed back into the national electricity network (or 'grid') to help supply energy at times of peak demand.
- This game-changing tech is about far more than potentially making EV owners money, it also plays an important part in helping to 'balance' the national electricity network
- Each vehicle must have following required elements for V2G

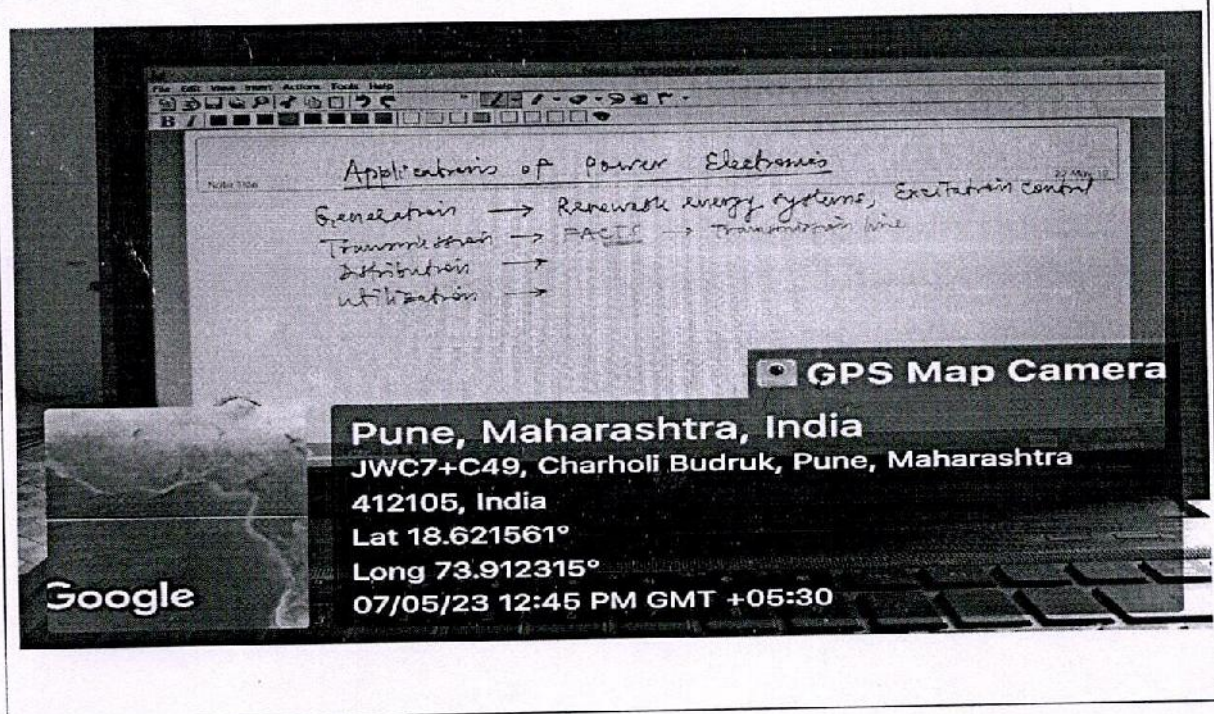
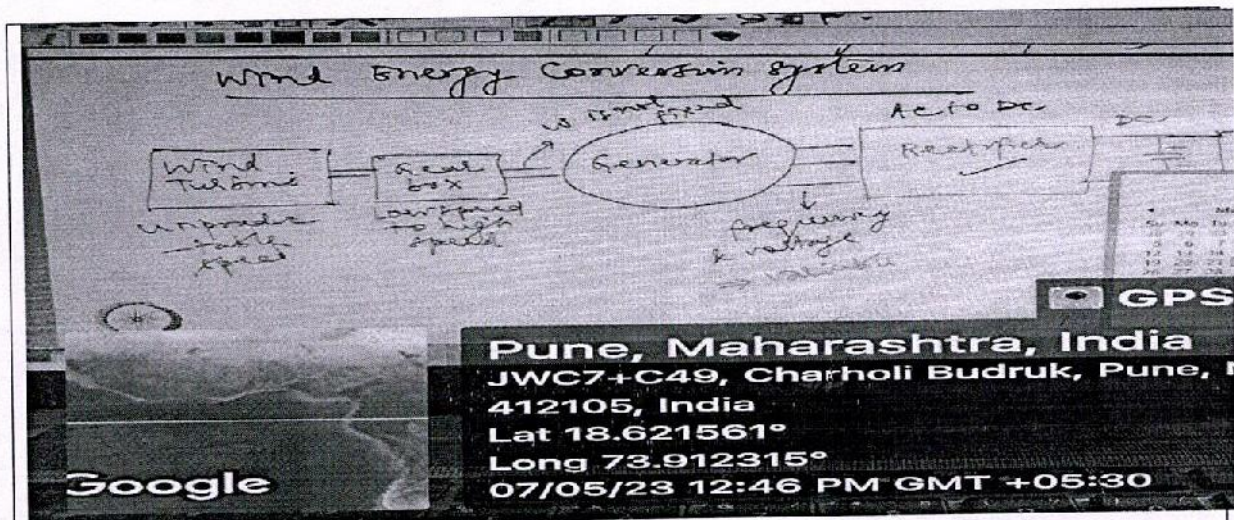
1] Precision metering on-board the vehicle


2] It would require a network of public charging stations capable of bi-directional power transfer, each station incorporating an inverter with precisely controlled voltage and frequency output to feed the energy back into the grid.


3] It would also require the support of a massive communications network to manage the distributed power flows, the billing and feed-in buy back transactions.



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Name and Sign of Coordinator (Faculty): Mr. Riyaj Kazi 

Departmental Event Coordinator: 
 R.L. Kori

HoD: _____



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8

Additional Topics Covered (other than syllabus)

9

University Question Papers & Model Answer Sheets

Total No. of Questions : 4]

SEAT No. :

PA-10059

[Total No. of Pages : 2

[6009]-346

T.E. (E & TC Engineering) (Insem)
POWER DEVICES & CIRCUITS
(2019 Pattern) (Semester-II) (304194)

CEGP019280

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) Answer Q.1 or Q.2, Q.3 or Q.4.
- 2) Neat diagrams and waveforms must be drawn wherever necessary.
- 3) Figures to the right side indicate full marks.
- 4) Use of nonprogrammable calculator is allowed.
- 5) Assume suitable data if necessary.

Q1) a) With the help of construction diagram, Explain the working of SCR. Why it is called as controlled rectifier. [8]

b) Explain with neat diagram the turn on and turn off characteristics of SCR. Write down equation for turn on and turn off time. [7]

OR

Q2) a) Explain with neat diagram the working of power MOSFET. Draw steady state characteristics of it and explain same. [8]

b) Explain isolated gate drive circuit for MOSFET and explain its operation. [7]

Q3) a) Explain operation of single phase full converter for R load with neat circuit diagram and relevant waveforms. [8]

b) A single phase half controlled bridge rectifier supplies a ripple free load current of 10 A and operates from the 110V, 60Hz mains. If the average o/p voltage is 75V, [7]

Calculate:

- i) Firing angle
- ii) RMS o/p voltage
- iii) RMS supply current
- iv) RMS 7th Harmonic supply current

OR

P.T.O.



[6009]-346

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2

Q4) a) Draw the circuit diagram of three phase fully controlled converter with R load. Draw load current and load voltage waveforms with $\alpha=60^\circ$ and 90° . [8]

b) A three phase full converter operated from three phase star connected 208 V, 60 Hz supply with R load of 10 ohm. It is required to obtain 50% of maximum possible output voltage. [7]

Calculate:

- i) Delay angle α
- ii) rms and average currents (Technical Pg2-81 Ex 2.8.3)



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P.T.O.



[6009]-346

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Calculate:

- i) Firing angle
- ii) RMS o/p voltage
- iii) RMS supply current
- iv) RMS 7th Harmonic supply current

OR

$$V_m = 155.58V$$

$$\alpha = 59.02$$

$$V_o(V_m) = 98.522$$

$$I_{rms} = \frac{98.522}{10} = 9.85A$$

P.T.O.

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Calculate:

- i) Delay angle α
- ii) rms and average currents (Technical Pg2-81 Ex 2.8.3)

$$V_o = 162$$

$$V_{ms} = 248$$

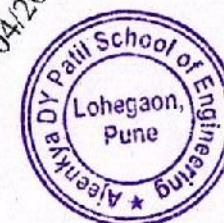
$$V_{ds} = 126.3m$$

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Q4c) various types of chopper (2M)

operation of type 'c' chopper
circuit-diagram + explanation (03+03M)

(d) block schematic + working of SMPS (03+03M)

Q5a) different over voltage protection ~~circuits~~ techniques (02M)
circuit + explanation (03+02M)

(b) ZCS converter - circuit-diagram + waveforms (03+03M)

(c) here $R_{\theta JA} = 0.16 + 0.08 = 0.24 \text{ } ^\circ\text{C/W}$

$$P = \frac{T_J - T_S}{R_{\theta JA}} = \frac{110 - 60}{0.24} = 208.33 \text{ W} \quad (02M)$$

with heatsink temp reduced to 50°C , $T_S = 80^\circ\text{C}$

$$\text{power dissipation } P = \frac{110 - 80}{0.24} = 250 \text{ W} \quad (02M)$$

Q6a) what is EMI — (01M)

various sources of EMI — (02M)

minimizing techniques of EMI — (04M)

(b) comparison ZVS and ZCS (any five points) — (05M)

(c) circuit-diagram + explanation snubber circuit — (03+02M)

Q7a) diagram + explanation BLDC drive (03+03M)

(b) block-diagram + explanation of online and offline
UPS — (06+06M)

Q8a)

diagram + explanation - variable voltage type
three phase induction motor drive (03+02M)

(b) Architectural diagram of battery charger + explanation
(03+02M)

(c) full wave AC voltage controller
circuit diagram + waveforms + explanation



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Dr. D. Y. Patil Knowledge City, Charholi (Bk), Lohgaon, Pune – 412 105

Department of E&TC Engineering

10

Question Bank Theory



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Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune – 112 105.
Department of E&TC Engineering

Unit 4 Question Bank (MCQs + Subjective)

A.Y.: 2022-2023 Semester: II Class: TE

Name of Subject: Power Devices & Circuits

Unit 4: DC-DC Converters and AC Voltage Controller

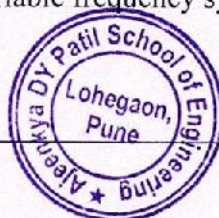
| Question Number | Question |
|-----------------|--|
| 1 | Choppers are used to control: the DC voltage level. a) DC Voltage Level b) AC Voltage Level c) Both AC and DC Voltage Level d) None of the above |
| 2 | Choppers converter a) AC to DC b) DC to AC c) DC to DC d) AC to AC |
| 3 | What is the duty cycle of a chopper ? a) T_{on}/T_{off} b) T_{on}/T c) T/T_{on} d) $T_{off} \times T_{on}$ |
| 4 | The load voltage of a chopper can be controlled by varying the a) duty cycle b) firing angle c) reactor position d) extinction angle |
| 5 | The values of duty cycle (α) lies between a) $0 < \alpha < 1$ b) $0 > \alpha > -1$ c) $0 \leq \alpha \leq 1$ d) $1 < \alpha < 100$ |



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| | |
|----|---|
| 6 | If T is the time period for a chopper circuit and α is its duty cycle, then the chopping frequency is a) T_{on}/α b) T_{off}/α c) α/T_{off} d) α/T_{on} |
| 7 | Find the output voltage expression for a step down chopper with V_s as the input voltage and α as the duty cycle. a) $V_o = V_s/\alpha$ b) $V_o = V_s \times \alpha$ c) $V_o = V_s^2/\alpha$ d) $V_o = 2V_s/\alpha\pi$ |
| 8 | Find the expression for output voltage for a step-up chopper, assume linear variation of load current and α as the duty cycle. a) V_s b) V_s/α c) $V_s/(1-\alpha)$ d) $V_s/\sqrt{2}$ |
| 9 | Find the output voltage for a step-up chopper when it is operated at a duty cycle of 50 % and $V_s = 240$ V. a) 240 V b) 480 V c) 560 V d) 120 V |
| 10 | If a step up chopper's switch is always kept off then (ideally) a) $V_o = 0$ b) $V_o = \infty$ c) $V_o = V_s$ d) $V_o > V_s$ |
| 11 | For a step-up chopper, when the duty cycle is increased the average value of the output voltage a) increases b) decreases c) remains the same d) none of the mentioned |
| 12 | In constant frequency TRC or pulse width modulation scheme, _____ is varied. a) V_s b) T_{on} c) T d) f |
| 13 | In case of variable frequency system _____ is varied a) T b) T_{on} c) T_{off} |



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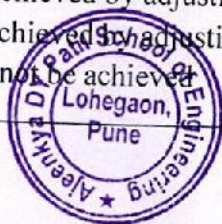
| | |
|----|---|
| | d) supply frequency |
| 14 | In pulse width modulation scheme, _____ is kept constant. a) V_s b) T_{on} c) T d) T_{off} |
| 15 | The control strategy in which on and off time is guided by the previous set of values of a certain parameter is called as a) time ratio control b) pulse width modulation c) current limit control d) constant frequency scheme |
| 16 | In the current limit control method, the chopper is switched off when a) load current reaches the lower limit b) load current reaches the upper limit c) load current falls to zero d) none of the mentioned |
| 17 | SMPS Topologies are: a) Buck b) Boost c) Flyback d) All above |
| 18 | SMPS is used for a) obtaining controlled ac power supply b) obtaining controlled dc power supply c) storage of dc power d) switch from one source to another |
| 19 | SMPS are based on the _____ principle. a) Phase control b) Integral control c) Chopper d) MOSFET |
| 20 | Choose the incorrect statement. a) SMPS is less sensitive to input voltage variations b) SMPS is smaller as compared to rectifiers c) SMPS has low input ripple d) SMPS is a source of radio interference |
| 21 | _____ is used for critical loads where temporary power failure can cause a great deal of inconvenience. a) SMPS b) UPS |



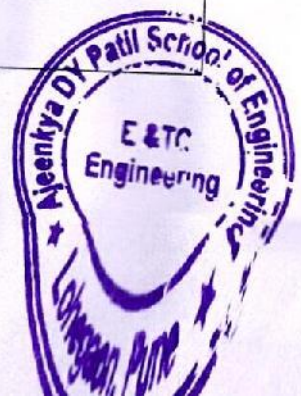
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| | |
|----|--|
| | c) MPS d) RCCB |
| 22 | LM 3524 is used in DC-to DC operation for: a) Step Down Chopper b) Step Up Chopper c) SMPS d) AC Voltage Controller |
| 23 | Flyback converters are used for: a) Low power applications b) Medium power applications c) High power applications d) All of the above |
| 24 | What kind of output rectifier and filter circuit is used in a fly back converter? a) a four-diode bridge rectifier followed by a capacitor b) a single diode followed by an inductor-capacitor filter c) a single diode followed by a capacitor d) will require a center-tapped secondary winding followed by a full wave rectifier and a output filter capacitor. |
| 25 | A fly-back converter has primary to secondary turns ratio of 15:1. The input voltage is constant at 200 volts and the output voltage is maintained at 18 volts. What should be the snubber capacitor voltage under steady state? (a) More than 270 volts. (b) More than 200 volts but less than 270 volts. (c) Less than 18 volts. (d) Not related to input or output voltage. |
| 26 | In the principle of phase control a) the load is on for some cycles and off for some cycles b) control is achieved by adjusting the firing angle of the devices c) control is achieved by adjusting the number of on off cycles d) control cannot be achieved |



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| | |
|----|---|
| 27 | AC Voltage Controllers are: a) AC to DC Converters b) AC to AC Converters c) DC to DC Converters d) None of the above |
| 28 | In AC voltage controllers the a) variable ac with fixed frequency is obtained b) variable ac with variable frequency is obtained c) variable dc with fixed frequency is obtained d) variable dc with variable frequency is obtained |
| 29 | The AC voltage controllers are used in _____ applications. a) power generation b) electric heating c) conveyor belt motion d) power transmission |
| 30 | Single Phase AC Voltage Controller circuit has $V_s = 230V$ and $R = 20 \Omega$. Find the value of the average output voltage at the R load for a firing angle of 45° . a) 224 V b) -15.17 V c) 15.17 V d) -224 V |
| 31 | Choppers are classified on the basis of Quadrants of operation as: a) Single Quadrant b) Two Quadrant c) Four Quadrant d) All the above |
| 32 | Choppers are classified as: a) Step Up Chopper b) Step Down Chopper c) both (a) and (b) d) None of the above |
| 33 | Choppers work on: |



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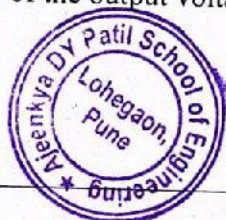
| | |
|----|--|
| | a) Purely Resistive Load b) Medium Inductive Load c) Highly Inductive Load d) All of the above |
| 34 | Chopper Control Strategies Includes: a) Current Limit b) PWM Control c) Variable Frequency Control d) All of the above |
| 35 | The performance parameters of Step down chopper are: a) Ripple Current b) Maximum Switching Frequency c) Continuous and Discontinuous Inductor current d) All the above |
| 36 | The performance parameters of Step UP chopper are: a) Ripple Current b) Maximum Switching Frequency c) Continuous and Discontinuous Inductor current d) All the above |
| 37 | The performance parameters of Step down chopper are: a) Minimum value of inductor to maintain continuous Inductor Current b) Ripple content of output voltage & output current c) Ripple content of input current d) All the above |
| 38 | The performance parameters of Step UP chopper are: a) Minimum value of inductor to maintain continuous Inductor Current |



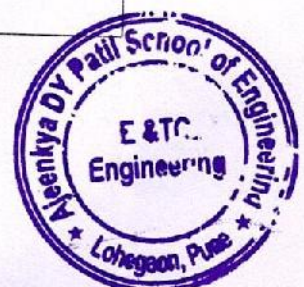
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| | |
|----|---|
| | b) Ripple content of output voltage & output current c) Ripple content of input current d) All the above |
| 39 | SMPS Can be realized using following topology: a) Half Bridge b) Fly back c) LM3524 based d) All the above |
| 40 | Single-Phase full wave AC voltage controller consists of: a) One Thyristor b) Two Thyristors c) Three Thyristors d) Four Thyristors |
| 41 | For bidirectional operation of converters a. A parallel combination of controllable switch and a diode is used b. A parallel combination of controllable switch and capacitor is used c. A series combination of controllable switch and a diode is used d. A series combination of controllable switch and a capacitor is used |
| 42 | A step - down choppers can be used in a. Electric traction b. Electric vehicles c. Machine tools d. All of these |
| 43 | The output current in PWM DC - DC converters is equal to a. Average value of the output inductor current b. Product of an average inductor current and a function of duty ratio c. Either (a) or (b) d. None of these |
| 44 | The control method used for PWM dc - dc converter is a. Voltage mode control b. Current mode control c. Hysteric control d. All of these |
| 45 | The average value of the output voltage in a step - down dc chopper is given by a. $V_0 = V_s$ b. $V_0 = D V_s$ c. $V_0 = V_s / D$ |



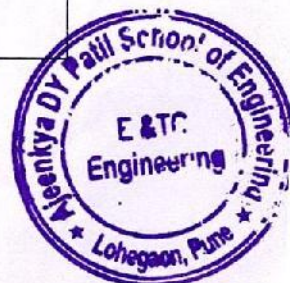
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| | d. $V_o = V_s / (1 - D)$ |
| 46 | Applications of AC Voltage Controller: a) Light dimmers b) Industrial heating application c) Speed control of induction motor d) All of these |
| 48 | Applications of AC Voltage Controller: a) Fan Regulator b) On load tap changing of a transformer c) Control of induction motor d) All of these |
| 49 | Chopper output voltage is: a) Directly Proportional to Input b) Directly Proportional to Duty Cycle c) Both (a) and (b) d) None of the above |
| 50 | Duty Cycle is used for: a) SMPS b) AC Voltage Controller c) Chopper d) All of these |
| 51 | Define choppers? List the types |
| 52 | Define Duty Cycle. Give the equation |
| 53 | Find the output voltage for a step-up chopper when it is operated at a duty cycle of 50 % and $V_s = 240$ V. |
| 54 | What is the need of strategies of chopper?. List the strategies |
| 55 | Single Phase AC Voltage Controller circuit has $V_s = 230$ V and $R = 20$ Ω . Find the value of the average output voltage at the R load for a firing angle of 45° . |
| 56 | What do we mean by performance parameters of chopper? List any two |
| 57 | What is an AC Voltage Controller? Give two applications |
| 58 | What is SMPS? What is its need? |
| 59 | Give any four applications of SMPS |
| 60 | How PWM control is achieved in Chopper Control Strategy? |
| 61 | How current limit control is achieved in Chopper Control Strategy? |
| 62 | How Variable frequency control is achieved in Chopper Control Strategy? |
| 63 | How Phase control is achieved in AC Voltage Controller? |



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| 64 | What is step down chopper? If the duty cycle is increased what is the effect on output voltage? |
| 65 | What is step down chopper? If the duty cycle is decreased what is the effect on output voltage? |
| 66 | What is step up chopper? If the duty cycle is decreased what is the effect on output voltage? |
| 67 | What is step up chopper? If the duty cycle is increased what is the effect on output voltage? |
| 68 | What is PWM control? How chopper output is controlled? |
| 69 | What is current limit control? How chopper output is controlled? |
| 70 | What is Variable frequency control? How chopper output is controlled? |



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Unit 5 Question Bank (MCQs + Subjectives)

A.Y.: 2022-2023

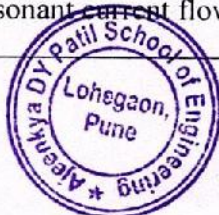
Semester: II

Class: T.E. Div: A&B

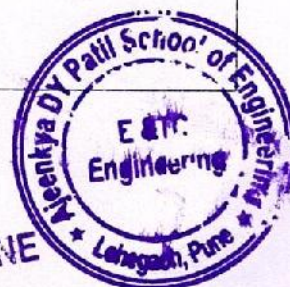
Name of Subject: Power Devices & Circuits

Unit 5: Resonant Converters & Protection of Power Devices & Circuits

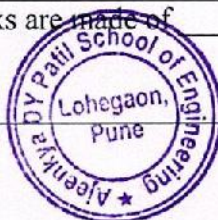
| Question Number | Question |
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| 1 | The converter circuit which employs turn on and turn off when the voltage and/or current through the device is zero at the instant of switching is _____ a) a conventional converter b) a resonant converter c) a zero switching circuit d) none of the mentioned |
| 2 | Resonant Converters are needed to : a) Realize high frequency switching in converter b) Reduce the converter size c) Increase the power density d) All the above |
| 3 | A ZCS converter is one in which: a) Switch turns ON and OFF at zero energy b) Switch turns ON and OFF at zero power c) Switch turns ON and OFF at zero voltage d) Switch turns ON and OFF at zero current |
| 4 | A ZVS converter is one in which: a) Switch turns ON and OFF at zero energy b) Switch turns ON and OFF at zero power c) Switch turns ON and OFF at zero voltage d) Switch turns ON and OFF at zero current |
| 5 | In Zero Current Switching: a) The peak resonant current flows through |



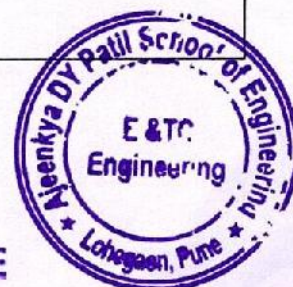
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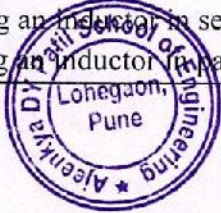
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| | b) Peak switch voltage remains the same c) The peak resonant voltage appear across the switch d) Peak switch current remains the same. e) Both (a) and (b) f) Both (c) and (d) |
| 6 | In Zero voltage Switching: a) The peak resonant current flows through b) Peak switch voltage remains the same c) The peak resonant voltage appear across the switch d) Peak switch current remains the same. e) Both (a) and (b) f) Both (c) and (d) |
| 7 | What is the purpose of heat sink for power devices? a) Protect power devices due to overheating b) Absorb excess heat from power devices c) Keep power devices at desired temperature range d) All of the mentioned |
| 8 | What is the major principle behind heat sink action? a) Avogadro's law b) Fourier's law c) Archimedes principal d) Faraday's law |
| 9 | Comparing high heat objects with cooling objects which one will have slow-moving molecules? a) High heat objects b) Cooling objects c) Both of them have equal molecular movement d) Cannot be predicted |
| 10 | Active heat sinks are also called as _____ a) fans b) on sinks c) high sinks d) normal sinks |
| 11 | Passive heat sinks are made of _____ a) Copper b) Aluminum |



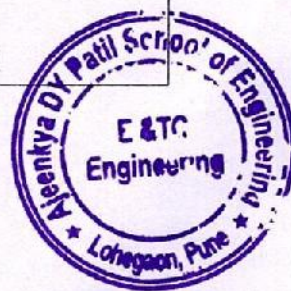
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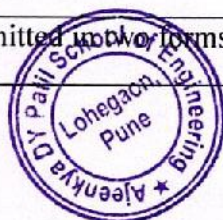
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| | c) Iron d) Zinc |
| 12 | Heat dissipation from heat sink take place primarily by _____ a) Conduction b) Convection c) Radiation d) All of the mentioned |
| 13 | Heat sinks are provided with peripheral fins to _____ a) Provide good appearance b) Increase heat absorption c) Increase surface area of heat dissipation d) Provide material stability |
| 14 | De-rating factor is usually expressed in _____ a) W/°C b) °C/W c) W/s d) kW/K |
| 15 | A metal oxide varistor (MOV) is used for protecting (a) Gate circuit against overcurrents (b) Gate circuit against overvoltages (c) Anode circuit against overcurrents (d) Anode circuit against overvoltages |
| 16 | The snubber circuit connected across an SCR is to (a) Suppress dv/dt (b) Increase dv/dt (c) Decrease dv/dt (d) Keep transient overvoltage at a constant value |
| 17 | The object of connecting resistance and capacitance across gate circuit is to protect the SCR gate against (a) Overvoltages (b) dv/dt (c) Noise signals (d) Over currents |
| 18 | Over current fault is most likely in a) Transformer b) Overhead line equipment c) Alternator d) Motors |
| 19 | di/dt protection is provided to the thyristor by a) connecting an inductor in parallel across the load b) connecting an inductor in series with the load c) connecting an inductor in parallel across the gate terminal |



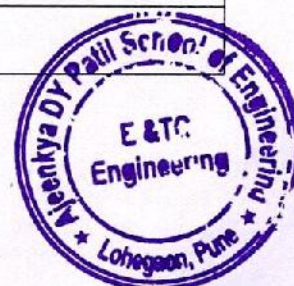
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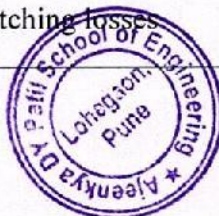
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| | d) connecting an inductor in series with the gate |
| 20 | The dv/dt protection is provided in order to a) limit the power loss b) reduce the junction temperature c) avoid accidental turn-on of the device d) avoiding sudden large voltage across the load |
| 21 | dv/dt protection is provided to the SCR by a) connecting a capacitor in parallel with the load b) connecting an inductor in series with the load c) connecting a capacitor & resistor in parallel with the device d) connecting an inductor & resistor in parallel with the device |
| 22 | The effect of over-voltages on SCR are minimized by using a) RL circuits b) Circuit breakers c) Varistors d) di/dt inductor |
| 23 | Over-current protection in SCRs is achieved through the use of a) Varistors b) Snubber Circuits c) Fast acting current limiting fuse d) Zener diodes |
| 24 | Back up protection is needed for a) Over voltage b) Short circuits c) Over current d) All of these |
| 25 | Sources of Electromagnetic Interference: a) Lighting b) Commercial Radio c) Telephone Communication d) All of the above |
| 26 | EMI is transmitted in two forms: |



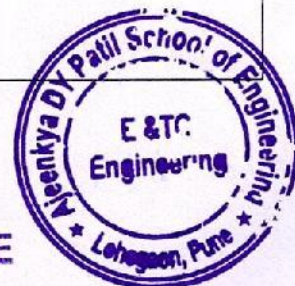
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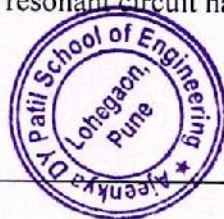
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| | a) Radiated and Conducted b) Radiated and Convection c) Conduction and Covection d) All of the above |
| 27 | Conducted Noise consist of: a) Differential Mode b) Common Mode c) Both (a) and (b) d) None of the above |
| 28 | EMI is reduced by: a) Properly designed snubber b) Resonant Converter c) Use of proper shielding d) All of the above |
| 29 | The objective of shielding is: a) Elimination of incident fields b) Prevent the emission of components of the system c) Avoid radiations outside the boundaries d) All the above |
| 30 | Types of shielding includes: a) Electric Field Shielding b) Magnetic Field Shielding c) Electromagnetic field shielding d) All of the above |
| 31 | Resonant converters are needed: a) To avoid switching losses |



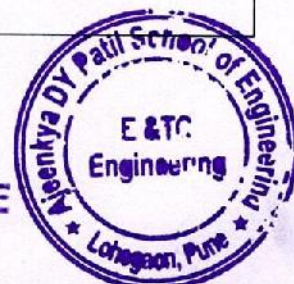
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| | <p>b) To reduce electromagnetic interference due to dv/dt and di/dt</p> <p>c) Both (a) and (b)</p> <p>d) None of these</p> |
| 32 | <p>Switching losses in SMPS are reduced due to:</p> <p>a) Possibility of high speed switching</p> <p>b) Switching losses are reduced due to zero current and zero voltage during switching</p> <p>c) Both (a) and (b)</p> <p>d) None of these</p> |
| 33 | <p>Voltage and current stresses of the switches can be reduced by:</p> <p>a) Snubber circuit</p> <p>b) Changeover Switch</p> <p>c) Protection circuits</p> <p>d) None of the above</p> |
| 34 | <p>Snubber Circuit Works as:</p> <p>a) Losses are transferred from the switch to the R of the RC- Snubber</p> <p>b) Capacitor Discharges through Resistor when switch is turned ON</p> <p>c) Total losses do not necessarily decrease.</p> <p>d) All the above</p> |
| 35 | <p>At resonance, series resonant circuit has power factor equal to:</p> <p>a) 1</p> <p>b) 0</p> <p>c) ∞</p> <p>d) None of these</p> |
| 36 | <p>At resonance, series resonant circuit has an impedance equal to:</p> <p>a) 1</p> <p>b) R</p> |



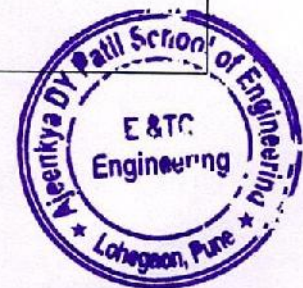
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| | c) ∞ d) None of these |
| 37 | At resonance, series resonant circuit has current equal to: a) Minimum b) 0 c) Maximum d) None of these |
| 38 | At resonance, series resonant circuit has phase angle equal to: a) Minimum b) 0 c) Maximum d) None of these |
| 39 | At resonance, series resonant circuit has capacitive reactance equal to: a) Resistance b) Inductive Reactance c) Maximum d) None of these |
| 40 | At resonance, parallel resonant circuit has an admittance equal to: a) 1 b) R c) ∞ d) None of these |
| 41 | At resonance, parallel resonant circuit has current equal to: a) Minimum b) 0 |



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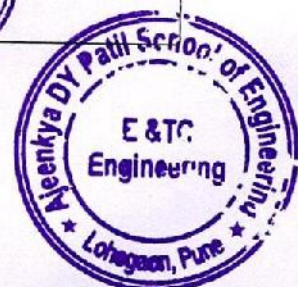
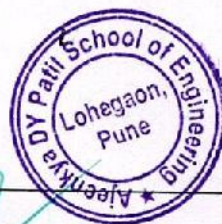
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| | c) ∞ d) None of these |
| 37 | At resonance, series resonant circuit has current equal to: a) Minimum b) 0 c) Maximum d) None of these |
| 38 | At resonance, series resonant circuit has phase angle equal to: a) Minimum b) 0 c) Maximum d) None of these |
| 39 | At resonance, series resonant circuit has capacitive reactance equal to: a) Resistance b) Inductive Reactance c) Maximum d) None of these |
| 40 | At resonance, parallel resonant circuit has an admittance equal to: a) 1 b) R c) ∞ d) None of these |
| 41 | At resonance, parallel resonant circuit has current equal to: a) Minimum b) 0 |


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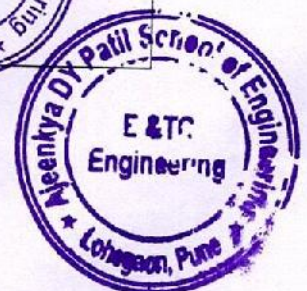
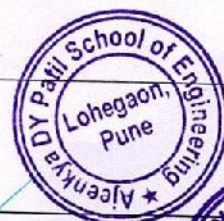
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| | c) Maximum d) None of these |
| 42 | At resonance, parallel resonant circuit has an admittance equal to: a) 1 b) Y c) ∞ d) None of these |
| 43 | At resonance, parallel resonant circuit has an voltage equal to: a) Minimum b) 0 c) Maximum d) None of these |
| 44 | At resonance, series resonant circuit has an voltage equal to: a) Minimum b) 0 c) Maximum d) None of these |
| 45 | Series load resonant (SLR) converter has: a) Discontinues area $W_s < W_0/2$ b) Continues area $W_0/2 < W_s < W_0$ c) both (a) and (b) d) None of the above |
| 46 | Load power in resonant converter is controlled by adjusting: a) Voltage b) Current c) Switching frequency d) All of these |

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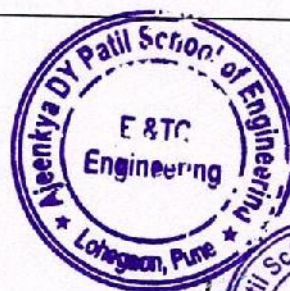


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| 47 | <p>Peak value of current in resonant circuit is:</p> <p>a) much higher than the average of the output current</p> <p>b) much lower than the average of the output current</p> <p>c) much higher than the rms output current</p> <p>d) much higher than the rms output current</p> |
| 48 | <p>During turning ON of the devices in resonant converters:</p> <p>a) Current and voltages are not zero and losses occur.</p> <p>b) Current and voltages are zero</p> <p>c) both (a) and (b)</p> <p>d) None of these.</p> |
| 49 | <p>During turning OFF of the devices in resonant converters:</p> <p>a) Current and voltages are not zero and losses occur.</p> <p>b) Current and voltages are zero</p> <p>c) both (a) and (b)</p> <p>d) None of these.</p> |
| 50 | <p>In ZCS</p> <p>a) Switch turns on and off without current</p> <p>b) Switch turns on and off without voltage</p> <p>c) Switch turns on and off with current</p> <p>d) All of these</p> |
| 51 | <p>In ZVS</p> <p>a) Switch turns on and off without current</p> <p>b) Switch turns on and off without voltage</p> <p>c) Switch turns on and off with current</p> <p>d) All of these</p> |
| 52 | <p>Soft Switching is used to reduce:</p> <p>a) Electromagnetic Interference</p> |

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| | b) Losses c) both (a) and (b) d) None of these |
| 53 | What is the Need for Resonant converters? |
| 54 | What do you mean by ZCS? How it implemented in Resonant Converters? |
| 55 | What do you mean by ZVS? How it implemented in Resonant Converters? |
| 56 | What is the necessity of Cooling & heat sinks? |
| 57 | What is the over voltage conditions? List the protection devices |
| 58 | What is the over current conditions? List the protection devices |
| 59 | How metal oxide varistors works under abnormal condition? |
| 60 | What is an EMI? What are its sources? |
| 61 | List the shielding techniques for EMI |
| 62 | How Snubber circuit protect the devices? |
| 63 | What do you mean by shielding? What is the necessity of shielding? |
| 64 | What is an EMI? How it is reduced? |
| 65 | What is dv/dt rating? How to protects the device from high dv/dt? |
| 66 | What is di/dt rating? How to protects the device from high di/dt? |
| 67 | What is overcurrent protection? How it is achieved? |
| 68 | What is flyback topology of SMPS? |
| 69 | How Half Bridge topology of SMPS works? |
| 70 | What are the methods of ac voltage control? How they are different? |



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Unit 6 Question Bank (MCQs + Subjective)

A.Y.: 2022-2023

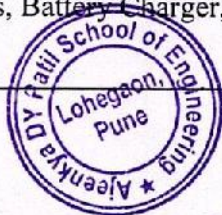
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Class: T.E., DIV: A&B

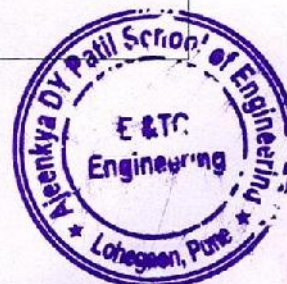
Name of Subject: Power Devices & Circuits

Unit 6: Power Electronics Applications

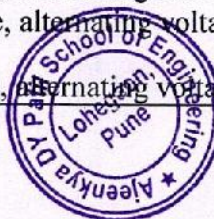
| Question Number | Question |
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| 1 | _____ is used for critical loads where temporary power failure can cause a great deal of inconvenience. a) SMPS b) UPS c) MPS d) RCCB |
| 2 | _____ is used in the rotating type UPS system to supply the mains. a) DC motor b) Self excited DC generator c) Alternator d) Battery bank |
| 3 | Static UPS requires _____ a) only rectifier b) only inverter c) both inverter and rectifier d) none of the mentioned |
| 4 | Usually _____ batteries are used in the UPS systems. a) NC b) Li-On c) Lead acid d) All of the mentioned |
| 5 | OFF line UPS running on Normal Power Supply requires following Subsystems: a) Mains, Battery Charger, Battery, Inverter, Transfer Switch, Load b) Mains, Transfer Switch, Load c) Mains, Transfer Switch, Inverter, Load d) Mains, Battery Charger, Battery, Inverter, Load |



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| 6 | <p>OFF line UPS running on Power Failure requires following Subsystems:</p> <ul style="list-style-type: none"> a) Battery Charger, Battery, Inverter, Transfer Switch, Load b) Mains, Transfer Switch, Load c) Inverter, Transfer Switch, Load d) Mains, Battery Charger, Battery, Inverter, Load |
| 7 | <p>ON-line UPS running on Normal Power Supply requires following Subsystems:</p> <ul style="list-style-type: none"> a) Mains, Battery Charger, Battery, Inverter, Load b) Mains, Transfer Switch, Load c) Mains, Transfer Switch, Inverter, Load d) Mains, Battery Charger, Battery, Inverter, Load |
| 8 | <p>ON-line UPS running on Normal Power Supply requires following Subsystems:</p> <ul style="list-style-type: none"> a) Mains, Battery Charger, Battery, Inverter, Load b) Battery, Transfer Switch, Load c) Mains, Transfer Switch, Inverter, Load d) Battery Charger, Battery, Inverter, Load |
| 9 | <p>UPS backup time indicate:</p> <ul style="list-style-type: none"> a) How long mains supply will charge a battery. b) How long battery charger will remain ON c) How long the UPS will provide AC supply d) How long the UPS will provide DC supply |
| 10 | <p>Electronic Ballast consists of :</p> <ul style="list-style-type: none"> a) Mains, Power factor Corrector, Rectifier, Filter, Inverter, Lamp b) Mains, Rectifier, Filter, Inverter, Lamp c) Mains, Power factor Corrector, Rectifier, Filter, Inverter, Load d) Mains, Rectifier, Filter, Inverter, Load |
| 11 | <p>LED drivers protect LEDs from voltage or current fluctuations</p> <ul style="list-style-type: none"> a) Voltage or power fluctuations b) Voltage or current fluctuations c) Power or current fluctuations d) All of the above |
| 12 | <p>LED drivers convert:</p> <ul style="list-style-type: none"> a) Higher voltage, alternating current to low voltage b) Lower voltage, alternating current to high voltage c) Higher voltage, alternating voltage to low current d) Lower voltage, alternating voltage to low current |

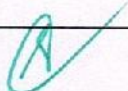


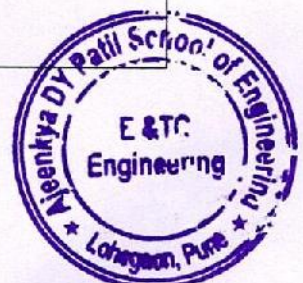
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| 13 | <p>LED light output is proportional to:</p> <p>a) its voltage supply</p> <p>b) its energy supply</p> <p>c) its current supply</p> <p>d) all of the above</p> |
| 14 | <p>Typical LED Driver consists of following subsystems:</p> <p>a) Mains, EMI Filter, Rectifier, DC Filter, PFC, Dimming Control, Voltage-Current Regulator, LED</p> <p>b) Mains, EMI Filter, Inverter, DC Filter, PFC, Dimming Control, Voltage-Current Regulator, LED</p> <p>c) Mains, EMI Filter, Battery, DC Filter, PFC, Dimming Control, Voltage-Current Regulator, LED</p> <p>d) Mains, EMI Filter, Battery Charger, DC Filter, PFC, Dimming Control, Voltage-Current Regulator, LED</p> |
| 15 | <p>Fan regulator provide:</p> <p>a) Continuous speed control High power consumption as compared to resistive type regulators.</p> <p>b) Continuous speed control Low power consumption as compared to resistive type regulators.</p> <p>c) discontinuous speed control Low power consumption as compared to resistive type regulators</p> <p>d) None of the above</p> |
| 16 | <p>A Typical Fan regulator consists of :</p> <p>a) Mains & Fan/Load</p> <p>b) Diac and Triac</p> <p>c) Resistors & Capacitor</p> <p>d) All the above</p> |
| 17 | <p>For a DC motor drive if a diode rectifier is used:</p> <p>a) the energy recovered during regenerative braking is dissipated in a motor</p> <p>b) the energy recovered during regenerative braking is dissipated in a diode</p> |



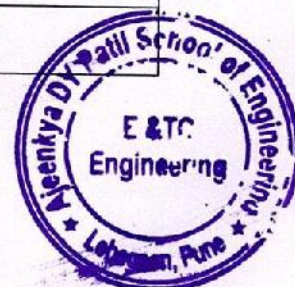

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| | <p>c) the energy recovered during regenerative braking is dissipated in a heat</p> <p>d) the energy recovered during regenerative braking is dissipated in a resistor</p> |
| 18 | <p>Single phase separately excited DC motor drive, for a speed less than base speed:</p> <p>a) Armature current are maintained constant to meet the torque demand</p> <p>b) Field currents are maintained constant to meet the torque demand</p> <p>c) Armature voltage V_a is varied to control the speed.</p> <p>d) All the above.</p> |
| 19 | <p>Single phase separately excited DC motor drive, for a speed higher than base speed:</p> <p>a) The armature voltage is maintained at the rated value</p> <p>b) The field current is varied to control the speed.</p> <p>c) both (a) and (b)</p> <p>d) None of the above</p> |
| 20 | <p>A stepper motor moves one step when:</p> <p>a) The direction of current flow in the field coil(s) changes</p> <p>b) Reversing the magnetic field of the stator poles.</p> <p>c) Both (a) and (b)</p> <p>d) None of the above</p> |
| 21 | <p>Unipolar Steeper motor drives have:</p> <p>a) Two separate field coils</p> <p>b) Change over switch</p> <p>c) both (a) and (b)</p> <p>d) None of the above</p> |
| 22 | <p>Bipolar Steeper motor drives have:</p> |



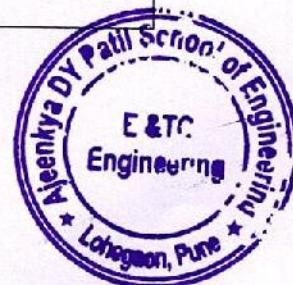
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| | |
|----|---|
| | <p>a) One Field Coil</p> <p>b) Two Chargeover Switches that are Switched in the Opposite Direction.</p> <p>c) both (a) and (b)</p> <p>d) None of the above</p> |
| 23 | <p>A brushed DC motor consists of a commutator and brushes that converts:</p> <p>a) DC current in an armature coil to an AC current</p> <p>b) AC current in an armature coil to a DC current</p> <p>c) Both (a) and (b)</p> <p>d) None of the above</p> |
| 24 | <p>A BLDC motor accomplishes commutation electronically using rotor position feedback to determine:</p> <p>a) When to switch the voltage</p> <p>b) When to switch the current</p> <p>c) When to switch the power</p> <p>d) None of the above</p> |
| 25 | <p>BLDC Motor has:</p> <p>a) Electronic commutation based on rotor position information</p> <p>b) High Efficiency</p> <p>c) Better thermal performance</p> <p>d) All the above</p> |
| 26 | <p>BLDC Motor has:</p> <p>a) High output power</p> <p>b) Fast Dynamic Response</p> <p>c) High Speed Range</p> <p>d) All the above</p> |
| 27 | <p>BLDC Motor has:</p> |



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| | |
|----|---|
| | a) Low Electric Noise b) Flat Speed/Torque c) Little Maintenance d) All the above |
| 28 | Brushless DC motors use _____ switches to realize current commutation, and thus continuously rotate the motor. a) Electric b) Mechanical c) Electromechanical d) All the above |
| 29 | BLDC commutation relies on feedback on the _____ position to decide when to energize the corresponding switches to generate the biggest torque. a) Motor b) Rotor c) Generator d) None of the above |
| 30 | Four quadrant operations of DC motor drives are: a) Motoring in forward and reverse direction b) Braking in forward and reverse direction c) both (a) and (b) d) None of the above |
| 31 | BLDC motor is analogous to _____ a) Permanent magnet synchronous motor b) DC motor c) Rotating Transformer d) Single-phase Induction motor |
| 32 | The speed of a BLDC motor can be controlled by _____ a) Changing input DC voltage b) Changing temperature c) Changing wind speed |



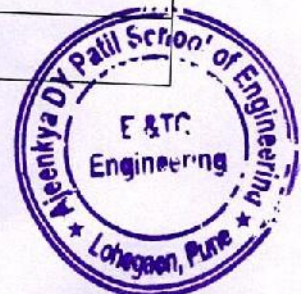
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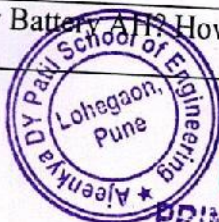
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| | d) Cannot be controlled |
| 33 | Which are the advantages of BLDC motor? a. Low cost b. Simplicity c. Reliability d. Good performance e. All of these |
| 34 | Due to low inertia, BLDC motors have _____ a) Faster acceleration b) Slower acceleration c) High-cost d) Low cost |
| 35 | Which of the following are the types of BLDC motor? a) Unipolar, Bipolar b) Unipolar, PWM c) Bipolar, PWM d) Synchronous, Induction |
| 36 | In the biomedical instruments like artificial heart pumps, the motor used is _____ a) DC shunt motor b) DC series motor c) Induction motor d) BLDC motor |
| 37 | For an application which requires smooth and precise speed control over the wide range, the motor is preferred is a. Squirrel cage Induction Motor b. Synchronous Motor c. DC motor d. Wound Rotor Induction Motor |
| 38 | Which type of drive can be used for Textile Industry? 1. DC Motor 2. Squirrel cage Induction Motor 3. Cumulative Compound Motor 4. Synchronous Motor |
| 39 | Which type of drive can be used for Mining Process? |



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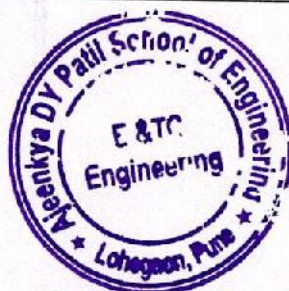
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| | <ol style="list-style-type: none"> 1. DC Motor with Ward Leonard Speed control 2. Double Squirrel cage Induction Motor 3. Slip Ring Induction Motor 4. All of the above |
| 40 | <p>Which motor is usually preferred for the elevator nowadays?</p> <ol style="list-style-type: none"> 1. Induction Motor 2. Synchronous Motor 3. Capacitor Start Single Phase Motor 4. None of the above |
| 41 | <p>In case of a 3 phase induction motor, plugging is done by:</p> <ol style="list-style-type: none"> 1. Starting the motor on load which is more than the rated load 2. Pulling the motor directly on line without a starter 3. Interchanging connections of any two phases of the stator for quick stopping 4. Locking of the rotor due to harmonics |
| 42 | <p>A stepper motor may be considered as a _____ converter.</p> <ol style="list-style-type: none"> a) Dc to dc b) Ac to ac c) Dc to ac d) Digital-to-analogue |
| 43 | <p>The rotational speed of a given stepper motor is determined solely by the</p> <ol style="list-style-type: none"> a) Shaft load b) Step pulse frequency c) Polarity of stator current d) Magnitude of stator current. |
| 44 | <p>What is UPS? Give any two applications</p> |
| 45 | <p>What is online UPS? Does INVERTER remain ON when mains supply is available?</p> |
| 46 | <p>What is offline UPS? Does INVERTER remain ON when mains supply is available?</p> |
| 47 | <p>What do you mean by Battery AH? How it is related to Back up time?</p> |



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| 48 | What is an Electronic Ballast? List any two applications |
| 49 | What is a driver circuit? List any two applications of LED Lamp Driver? |
| 50 | List the components used in Fan Regulator Circuit |
| 51 | What is the function of DC motor drive? List any two applications |
| 52 | What is the function BLDC motor drive? List any two applications |
| 53 | What is the function three phase induction motor drive? List any two applications |
| 54 | List any four specifications of UPS |
| 55 | Comment on battery charging rating |
| 56 | List any four specifications of LED Driver |
| 57 | What are the two circuit topology are preferred in LED Lamp Driver? |
| 58 | List the two necessities of fan regulator |
| 59 | List any four industrial applications of Power Electronics |
| 60 | List any four home applications of Power Electronics |



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Question Bank (Theory)

A.Y.: 2018-2019

Semester: II

Class: T.E.

Div: -

Name of Subject: Power Electronics

| Question Number | Question | Marks |
|-----------------|--|-------|
| 1 | Draw & explain two transistor analogy of SCR | 6 |
| 2 | For an SCR, the gate cathode characteristics has a straight line slope of 130. For triggering source voltage of 15V and allowable gate power dissipation of 0.5W, calculate the gate series resistance (R_g). | 6 |
| 3 | Draw construction diagram of n-channel enhancement type MOSFET and explain its steady state characteristics. | 6 |
| 4 | Compare power MOSFET with SCR | 6 |
| 5 | Draw & explain single phase fully controlled bridge converter for R-L load with various o/p voltage waveforms. | 8 |
| 6 | A single phase semi converter is operated from 120V, 50Hz AC supply. The load is resistive having resistance of 15Ω . If the average output voltage is 25% of the maximum possible average output voltage, determine the firing angle (α) | 8 |
| 7 | Draw & explain three phase half controlled bridge converter for R load with o/p voltage waveforms. | 8 |
| 8 | Explain the significance of free wheeling diode in controlled rectifiers. | 4 |
| 9 | Draw & explain single phase full bridge inverter for R-L load with o/p voltage & current waveforms | 8 |
| 10 | Single phase full bridge inverter is operated from 48V dc supply, it has a resistive load of $R = 2.4 \Omega$. Find its i) Output power (P_o) ii) Total harmonic distortion (THD) | 6 |
| 11 | Explain operation of step up chopper with circuit diagram. | 8 |
| 12 | Explain with block schematic working of SMPS. What are its advantages over linear power supply? | 6 |
| 13 | A DC chopper with R-L Load is operated from 220V dc supply. The load parameters are $R=5\Omega$, $L=7.5mH$ and chopping frequency. $F_c=1KHz$. If peak to peak load ripple current is Maximum, Calculate: i) Peak to peak load ripple | 6 |



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| | current. 2] Average load current. | |
| 14 | Explain with block diagram working of online and offline UPS | 6 |
| 15 | Explain voltage and frequency control method of for 3-phase induction motor drive. | 8 |
| 16 | Explain working of electronic ballast with block diagram. | 6 |
| 17 | What is EMI ? Explain various sources & minimizing techniques of EMI. | 6 |
| 18 | A single phase full wave ac voltage controller has a resistive load of $R=10\Omega$, and the input voltage is $V_s=120V(\text{rms})$, 50Hz. The delay angles of thyristors T1 and T2 are equal: $\alpha_1 = \alpha_2 = 90^\circ$. Determine : V_{orms} , I_{orms} , input ripple factor. | 8 |
| 19 | Explain operation of four quadrant chopper with circuit diagram. | 8 |
| 20 | Write note on 'overvoltage protection' in power electronics | 6 |
| 21 | Explain the terms latching current and holding current and compare them | 4 |
| 22 | Explain the steady state and switching characteristics of SCR | 8 |
| 23 | Draw and explain UJT triggering circuit for SCR | 6 |
| 24 | Draw and explain UJT triggering circuit using TCA785 | 6 |
| 25 | Define and explain the concept of commutation. | 6 |
| 26 | Explain the inversion in single phase full converter | 6 |
| 27 | With the help of circuit diagrams and waveforms explain the working of single phase bridge inverter. | 8 |
| 28 | Explain 120 degree mode of three phase inverters with the help of waveforms | 6 |
| 29 | Explain different control strategies used for chopper | 8 |
| 30 | What are the advantages of SMPS over linear power supply? | 4 |
| 31 | Explain the operation of offline UPS with the help of block diagram | 6 |
| 32 | Explain ZCS and ZVC with circuit diagram | 6 |
| 33 | Explain the following SCR Ratings: 1] dv/dt 2] di/dt 3] Surge current 4] Holding current | 8 |
| 34 | Design UJT Trigger for SCR. Given $V_{BB}=20V$, $n=0.6$, $I_p=10\mu A$, $I_v=10mA$. The frequency of oscillations is 100Hz. The trigger pulse width $=50\mu S$ | 6 |




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| | | |
|----|--|---|
| 35 | Explain the operation of single phase semiconverter with waveforms for R-L Load | 8 |
| 36 | Explain the operation of single phase fullconverter with waveforms for R-L Load | 8 |
| 37 | Explain the performance parameters of AC-DC converters | 8 |
| 38 | Explain the operation of three phase semiconverter with waveforms for R Load | 8 |
| 39 | Explain the operation of three phase fullconverter with waveforms for R Load | 8 |
| 40 | Draw and explain the gate drive circuit for MOSFET & IGBT | 8 |
| 41 | Explain cooling and heat sink in power devices | 8 |
| 42 | What are resonant converters? Explain SLR half bridge converter. | 8 |
| 43 | Explain overcurrent fault conditions and overcurrent protection in power devices | 8 |
| 44 | Explain variable voltage & variable frequency three phase induction motor drive | 8 |
| 45 | Explain single phase separately excited DC motor drive | 6 |
| 46 | Explain in detail performance parameters of DC-DC converter | 6 |
| 47 | Compare 2- quadrant & 4-quadrant choppers | 6 |
| 48 | Explain single phase PWM inverter | 6 |
| 49 | Explain three phase voltage source inverter for balanced star R Load | 8 |
| 50 | Compare three phase semi & full converter for R Load | 6 |


 (Mr. R. L. Kazi)
 Name and Sign of Faculty




 Academic Coordinator




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Question Bank (Oral)



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Department of E&TC Engineering

Question Bank (Oral/Objectives)

A.Y.: 2018-2019

Semester: II

Class: TE

Div:

Name of Subject: Power Electronics

| Question Number | Question | Marks |
|-----------------|--|-------|
| 1 | What is holding current in SCR? | |
| 2 | What is Latching current in SCR? | |
| 3 | What are different turn on methods of SCR? | |
| 4 | What is snubber circuit? | |
| 5 | What is hard switching of thyristor? | |
| 6 | What is firing angle? | |
| 7 | What is meant by SOA? | |
| 8 | What is the main component used for isolating the power circuits, power semiconductor from low power circuits? | |
| 9 | Name some of the current controlled devices? | |
| 10 | Name some of the voltage driven devices? | |
| 11 | What is the duty cycle? | |
| 12 | What are the advantages of free wheeling diode in rectifier circuits? | |
| 13 | What is meant by commutation? | |
| 14 | What are the types of commutation? | |
| 15 | What is natural commutation? | |



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| | | |
|----|--|--|
| 16 | What is forced commutation? | |
| 17 | What are control strategies of chopper? | |
| 18 | Give some examples of power electronics applications from day-to-day life. | |
| 19 | How can a thyristor turned off? | |
| 20 | What is meant by phase controlled rectifier? | |
| 21 | What is meant by power factor in controlled rectifier? | |
| 22 | What are the applications of DC Chopper? | |
| 23 | What is meant by step up and step down chopper? | |
| 24 | What is meant by PWM control in dc chopper? | |
| 25 | What is meant by inverter? | |
| 26 | What are the applications of the inverter? | |
| 27 | What are the advantages of PWM control? | |
| 28 | Compare Voltage Source and Current Source Inverter? | |
| 29 | What are the applications of ac voltage controller? | |
| 30 | What are the advantages of ac voltage controller? | |
| 31 | What are the disadvantages of ac voltage controller? | |
| 32 | What are the two methods of control in voltage controller? | |
| 33 | What is the difference between on-off and phase control? | |
| 34 | What are advantages of on-off control? | |
| 35 | What are disadvantages of on-off control? | |

(Mr. R. L. Kazi)

Name and Sign of Faculty



(Pleas)



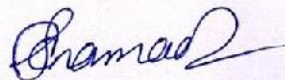
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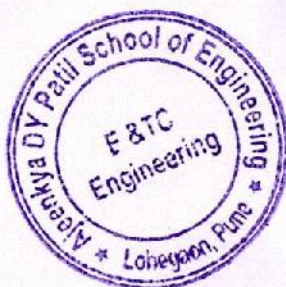


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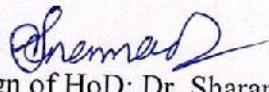
Assignments/Tutorials

| | | |
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| Class: T.E. Div: <u>A&B</u> | Subject: PDC | Form No. IQAC/18a. Subject Incharge: M. Riyaj Kazi |
| Assignment No. 1 | Assignment based on Unit: I | Date of issue: 29/03/2023 |
| <p>Q. 1 State and Define any four ratings of SCR</p> <p>Q.2 Explain Series & Parallel operations of SCR</p> <p>Q.3 Explain requirement of typical triggering circuits for various power devices</p> <p>Q.4 Explain the performance overview of Silicon, Silicon Carbide & GaN based MOSFET and IGBT</p> <p>Q.5 Draw the switching characteristics of SCR, MOSFET, IGBT and GTO</p> <p>Q.6 Compare Power MOSFET & POWER IGBT</p> | | |
|  Sign of subject incharge: Mr. Riyaj Kazi | |  Sign of HoD: Dr. Sharan Inamdar |

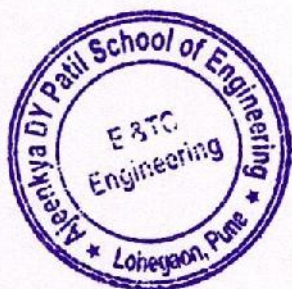
Note: Last Date of Submission: 31-03-2023.




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| | Assignments : Form No. IQAC/18a. | |
| Class: T.E. Div: A & B | Subject: PDC | Subject Incharge: M. Riyaj Kazi |
| Assignment No. 1 | Assignment based on Unit:II | Date of issue: 29/03/2023 |
| <p>Q. 1 Explain the concept of line and forced commutation.</p> <p>Q.2 Explain Single Phase full converter with R-L Load with waveforms.</p> <p>Q.3 If a semi converter is operating from 230V/50Hz supply, driving a load resistance of $10\ \Omega$. Find : i) Avg output power ii) RMS output power iii) Rectification efficiency</p> <p>Q.4 Explain the Significance of power factor and its improvement using PWM based techniques.</p> <p>Q.5 Explain the Three phase Full converters using SCR for R load using waveform.</p> <p>Q.6 If a single phase full converter is operating from 230V, 50 Hz Supply. The load is Find : i) Avg load voltage ii) Average load current. $R=10\ \Omega$, $\alpha=45^\circ$</p> | | |
|  Sign of subject incharge: Mr. Riyaj Kazi | |  Sign of HoD: Dr. Sharan Inamdar |

Note: Last Date of Submission: 31-03-2023.



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Department of E&TC Engineering


Class: TE(E&TC)

Subject: Power Devices & Circuits


Unit IV: DC-DC converters & AC Voltage Controller

ASSIGNMENT-IV

- 1] Draw and explain Working Principle of step down chopper for highly inductive R-L load
- 2] What are the control strategies of chopper. Explain
- 3] What are the Performance Parameters of Chopper? Explain
- 4] Draw and explain Step up chopper with waveforms.
- 5] Distinguish between 2-quadrant & 4-quadrant choppers
- 6] Explain the topology: Fly back/ Half Bridge Converter
- 7] Draw and explain LM3524 based SMPS Circuit
- 8] Explain Single-Phase full wave AC voltage controller by using IGBT with R load


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Sign of subject incharge




Dr. Sharan Inamdar
HoD-E&TC




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Class: TE(E&TC)

Subject: Power Devices & Circuits

Unit V: Resonant Converters & Protection of Power Devices & Circuits

ASSIGNMENT-V

- 1] What is the Need for Resonant converters?
- 2] Explain the Concept of Zero current switching (ZCS)
- 3] Draw and Explain Zero voltage switching (ZVS) resonant converters
- 4] What is the necessity of Cooling & heat sinks
- 5] What is the over voltage conditions? Explain over voltage protection circuits
- 6] Explain metal oxide varistors as a protection device
- 7] Explain over current fault condition
- 8] Draw and explain Over current protection circuit
- 9] Explain Electromagnetic interference and its sources
- 10] What are Interference minimizing techniques? Explain.
- 11] Explain shielding techniques for EMI

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Class: TE(E&TC)

Subject: Power Devices & Circuits

Unit VI: Power Electronics Applications

ASSIGNMENT-VI

- 1] What are types of UPS? Differentiate between ON-line and OFF line UPS
- 2] Explain the ratings: Battery AH, back up time, battery charger rating.
- 3] Draw and explain Electronic Ballast. List the applications.
- 4] Draw and explain LED Lamp with Driver Circuit
- 5] Draw and explain Fan Regulator.
- 6] Explain with Waveforms Single phase separately excited DC motor drive
- 7] Explain stepper motor drive circuit
- 8] Explain BLDC motor drive
- 9] Explain Variable voltage & variable frequency three phase induction motor drive

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AJEENKYA

DY Patil School of Engineering

Department of Electronics and Telecommunication Engineering

Cumulative Attendance

Class : TE E&TC Div-B

SEM-II

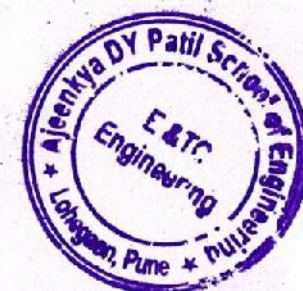
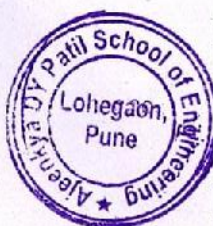
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Date- 01-02-2023 to 19-05-2023

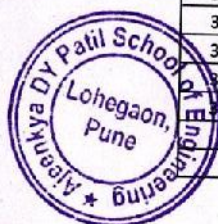
| Roll No | Student's Name | SUBJECTS | | | | | LAB | | | | Extra | Total | Percentage |
|---------|------------------------------|----------|----|-----|----|----------|-----|-----|----|-----------|-------|-------|------------|
| | | CN | PM | PDC | NS | Total TH | CN | PDC | NS | Total Lab | | | |
| | No. of lectures Planed --> | 42 | 40 | 36 | 35 | 153 | 10 | 8 | 11 | 29 | | | |
| | No of Lectures Conducted --> | 40 | 40 | 32 | 30 | 142 | 10 | 8 | 11 | 29 | | 171 | |
| 301 | ADEPU RITHISH BHUPENDRA | 5 | 13 | 1 | 2 | 21 | 2 | 1 | 3 | 6 | | 27 | 15.79 |
| 302 | AKASH KUTE | 6 | 17 | 1 | 0 | 24 | 0 | 0 | 2 | 2 | | 26 | 15.20 |
| 303 | ASHISH SUDHAKAR JAGDHANE | 10 | 21 | 0 | 2 | 33 | 1 | 1 | 2 | 4 | | 37 | 21.64 |
| 304 | BABAR PRATIK SATISH | 10 | 21 | 2 | 3 | 36 | 3 | 0 | 3 | 6 | | 42 | 24.56 |
| 305 | BANSODE DEEP BALAJI | 26 | 28 | 15 | 14 | 83 | 7 | 5 | 6 | 18 | | 101 | 59.06 |
| 306 | BHALE ANSH RAJESH | 10 | 18 | 3 | 2 | 33 | 2 | 0 | 4 | 6 | | 39 | 22.81 |
| 307 | BHOGULKAR AKASH DHONDIBA | 14 | 21 | 3 | 5 | 43 | 4 | 1 | 4 | 9 | | 52 | 30.41 |
| 308 | CHATURE VAISHNAVI DNYANDEV | 32 | 34 | 24 | 22 | 112 | 8 | 6 | 8 | 22 | | 134 | 78.36 |
| 309 | CHIKANE SHUBHAM KALYAN | 15 | 27 | 6 | 0 | 48 | 5 | 1 | 4 | 10 | | 58 | 33.92 |
| 310 | CHOTALIA HARDIK HASMUKH | 32 | 34 | 16 | 15 | 97 | 7 | 8 | 9 | 24 | | 121 | 70.76 |
| 311 | DAFEDAR ADIL SHABBIR | 8 | 18 | 3 | 9 | 38 | 4 | 2 | 4 | 10 | | 48 | 28.07 |
| 312 | DESAI SWARUPANAND SANJAY | 15 | 17 | 9 | 6 | 47 | 4 | 1 | 7 | 12 | | 59 | 34.50 |
| 313 | DHANVE JANHAVI SANTOSH | 27 | 29 | 18 | 14 | 88 | 6 | 5 | 7 | 18 | | 106 | 61.99 |
| 314 | DHAYGUDE SONALI BHARAT | 25 | 27 | 21 | 19 | 92 | 7 | 8 | 8 | 23 | | 115 | 67.25 |
| 315 | FATIMA GAFUR SHAIKH | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0.00 |
| 316 | GAIKWAD SUJIT RAJARAM | 26 | 27 | 12 | 10 | 74 | 8 | 5 | 8 | 19 | | 93 | 54.39 |
| 317 | GANGATHADE NIKITA BHARAT | 10 | 20 | 4 | 2 | 36 | 3 | 1 | 1 | 5 | | 41 | 23.98 |
| 318 | GAURI POPAT MORE | 8 | 16 | 1 | 4 | 29 | 1 | 0 | 3 | 4 | | 33 | 19.30 |
| 319 | HASURE PRATIKSHA ANANDRAO | 18 | 28 | 9 | 7 | 62 | 5 | 3 | 4 | 12 | | 74 | 43.27 |
| 320 | HINGMIRE RAJ RAM | 7 | 17 | 1 | 0 | 25 | 1 | 0 | 1 | 2 | | 27 | 15.79 |
| 321 | INGALE VAISHNAVI VIJAY | 12 | 15 | 7 | 2 | 36 | 3 | 1 | 1 | 5 | | 41 | 23.98 |
| 322 | JADHAV ABHAY SUNIL | 7 | 15 | 1 | 0 | 23 | 1 | 0 | 0 | 1 | | 24 | 14.04 |
| 323 | JADHAV ABHISHEK ANIL | 8 | 15 | 2 | 2 | 27 | 1 | 0 | 0 | 1 | | 28 | 16.37 |
| 324 | JADHAV MRUNAL DEEPAK | 21 | 22 | 18 | 15 | 76 | 5 | 4 | 6 | 15 | | 91 | 53.22 |
| 325 | JADHAV SUHAS SAMPAT | 22 | 32 | 7 | 5 | 66 | 7 | 6 | 7 | 20 | | 86 | 50.29 |
| 326 | JAGDALE VARAD VIKAS | 4 | 16 | 1 | 0 | 21 | 1 | 0 | 0 | 1 | | 22 | 12.87 |
| 327 | JAINKOP VISHAL MALESH | 2 | 8 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | | 10 | 5.85 |
| 328 | JASUD GAYATRI PRAVIN | 27 | 17 | 10 | 8 | 62 | 7 | 3 | 6 | 16 | | 78 | 45.61 |
| 329 | JAWALE PRIYANKA PRAKASH | 24 | 27 | 15 | 12 | 78 | 5 | 3 | 9 | 17 | | 95 | 55.56 |
| 330 | KADAM ADESH SHRINIVAS | 9 | 17 | 2 | 0 | 28 | 1 | 1 | 2 | 4 | | 32 | 18.71 |
| 331 | KALJE OMKAR SHANKAR | 17 | 22 | 14 | 12 | 65 | 4 | 3 | 2 | 9 | | 74 | 43.27 |
| 332 | KAMBLE SAKSHI PUNDLIK | 18 | 28 | 6 | 7 | 59 | 6 | 3 | 8 | 17 | | 76 | 44.44 |
| 333 | KAMBLE SUJAL VASANT | 18 | 29 | 12 | 11 | 70 | 5 | 1 | 8 | 14 | | 84 | 49.12 |
| 334 | KARKE SUSHAMA BHIMASHANKAR | 14 | 24 | 15 | 11 | 64 | 4 | 4 | 8 | 16 | | 80 | 46.78 |
| 335 | KHAN AARISH MAROOF | 6 | 10 | 2 | 4 | 22 | 1 | 0 | 0 | 1 | | 23 | 13.45 |
| 336 | KULKARNI VEDANT RAMESH | 8 | 12 | 0 | 0 | 20 | 1 | 0 | 0 | 1 | | 21 | 12.28 |
| 337 | KUMAR ANANT ARVIND | 32 | 32 | 19 | 15 | 98 | 8 | 5 | 7 | 20 | | 118 | 69.01 |

PRINCIPAL

ADYPSOE, PUNE



| | | | | | | | | | | | | |
|-----|-----------------------------------|-----|----|-----|-----|-----|-----|----|----|----|-----|-------|
| 338 | MALI DARSHANA DATTATRAY | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 339 | MANISH SURESH SHINDE | 11 | 17 | 2 | 2 | 32 | 4 | 0 | 8 | 12 | 44 | 25.73 |
| 340 | MANIYAR MOHD ASIF RIYAZ AHMED | 19 | 25 | 9 | 5 | 58 | 8 | 5 | 8 | 21 | 79 | 46.20 |
| 341 | MANSURI GOUSMOHAMMAD INAMULLA | 25 | 27 | 8 | 5 | 65 | 8 | 5 | 8 | 21 | 86 | 50.29 |
| 342 | MHETRE VINOD BASAPPA | 14 | 26 | 11 | 8 | 59 | 8 | 2 | 8 | 18 | 77 | 45.03 |
| 343 | MOKASHE ROHINI DAGDUBA | 17 | 25 | 13 | 10 | 65 | 4 | 1 | 3 | 8 | 73 | 42.69 |
| 344 | MONDAL AJAY AMAR | 27 | 29 | 11 | 6 | 73 | 7 | 2 | 7 | 16 | 89 | 52.05 |
| 345 | NANAWARE VISHAL CHANDRAKANT | 12 | 17 | 0 | 1 | 30 | 1 | 0 | 0 | 1 | 31 | 18.13 |
| 346 | OMKAR BABU SESHADRI | 26 | 28 | 6 | 3 | 63 | 8 | 5 | 7 | 20 | 83 | 48.54 |
| 347 | PALLAVI PRASHANT SABLE | 11 | 17 | 7 | 5 | 40 | 5 | 3 | 8 | 16 | 56 | 32.75 |
| 348 | PANCHAL SHIVSAI SUNIL | 29 | 22 | 16 | 12 | 79 | 8 | 4 | 8 | 20 | 99 | 57.89 |
| 349 | PANCHMUKH DIVYA MAHESH | 22 | 31 | 7 | 11 | 71 | 6 | 1 | 5 | 12 | 83 | 48.54 |
| 350 | PATIL KALYANI GOPAL | 12 | 19 | 1 | 3 | 35 | 3 | 5 | 7 | 15 | 50 | 29.24 |
| 351 | PATIL PALLAVI SHRIKRISHNA | 26 | 29 | 10 | 7 | 72 | 6 | 1 | 6 | 15 | 87 | 50.88 |
| 352 | PATIL VAISHALI KADUBA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| 353 | PAWAL AKASH DADARAO | 22 | 24 | 8 | 5 | 57 | 8 | 2 | 8 | 18 | 75 | 43.86 |
| 354 | PAWAR ADITEE RAMDAS | 28 | 32 | 15 | 12 | 87 | 7 | 4 | 8 | 19 | 106 | 61.99 |
| 355 | PAWAR KOMAL BHAUSAHEB | 7 | 16 | 0 | 0 | 23 | 1 | 0 | 0 | 1 | 24 | 14.04 |
| 356 | PRATIK GAJANAN SADAR | 32 | 34 | 22 | 22 | 110 | 7 | 6 | 9 | 22 | 132 | 77.19 |
| 357 | RAJPUT PRATIK SINGH SUBHASH SINGH | 25 | 29 | 11 | 7 | 72 | 7 | 1 | 6 | 14 | 86 | 50.29 |
| 358 | RATHOD AJAY SHANTIRAM | 12 | 19 | 2 | 3 | 36 | 2 | 0 | 5 | 7 | 43 | 25.15 |
| 359 | RAUT TUSHAR DILIP | 27 | 30 | 14 | 10 | 81 | 7 | 3 | 8 | 18 | 99 | 57.89 |
| 360 | ROKADE VAISHNAVI DIGAMBAR | 8 | 14 | 0 | 0 | 22 | 1 | 0 | 0 | 1 | 23 | 13.45 |
| 361 | SALALKAR MAYA RAVINDRA | 15 | 22 | 10 | 8 | 55 | 4 | 2 | 8 | 14 | 69 | 40.35 |
| 362 | SAURABH VIJAY JADHAV | 8 | 14 | 0 | 0 | 22 | 1 | 0 | 1 | 2 | 24 | 14.04 |
| 363 | SAYYAD ARSHAD PAIGAMBAR | 26 | 31 | 11 | 6 | 74 | 7 | 3 | 6 | 16 | 90 | 52.63 |
| 364 | SUSHMA SURESH SUPEKAR | 10 | 13 | 7 | 4 | 34 | 4 | 1 | 4 | 9 | 43 | 25.15 |
| 365 | SWAMI RUTUJA VIRBHADRA | 7 | 19 | 0 | 1 | 27 | 2 | 1 | 4 | 7 | 34 | 19.88 |
| 366 | TAKALE KIRAN INDRARAJ | 13 | 21 | 5 | 6 | 45 | 4 | 3 | 6 | 13 | 58 | 33.92 |
| 367 | THAKKANNAVAR BHAIKVNATH BHIMANNA | 19 | 25 | 8 | 3 | 55 | 7 | 1 | 3 | 11 | 66 | 38.60 |
| 368 | KIRAN GANPATRAO UPASE | 17 | 20 | 4 | 2 | 43 | 4 | 0 | 4 | 8 | 51 | 29.82 |
| 369 | VAIBHAVI SUNUL NIMBALKAR | 24 | 27 | 14 | 15 | 80 | 6 | 4 | 8 | 18 | 98 | 57.31 |
| 370 | VAISHNAVI TULSHIRAM SAVARGAVE | 10 | 18 | 3 | 1 | 32 | 3 | 0 | 3 | 6 | 38 | 22.22 |
| 371 | VAISHNAVI JANARDHAN MORE | 23 | 31 | 11 | 8 | 73 | 7 | 2 | 6 | 15 | 88 | 51.46 |
| 372 | VISHAKHA RAOSAHEB PATIL | 21 | 30 | 5 | 1 | 57 | 5 | 2 | 5 | 12 | 69 | 40.35 |
| 373 | WALZADE ABHISHEK BALASAHEB | 19 | 28 | 9 | 5 | 61 | 6 | 3 | 8 | 17 | 78 | 45.61 |
| 374 | YADAV ANUSHKA ANIL | 8 | 11 | 0 | 0 | 19 | 2 | 0 | 1 | 3 | 22 | 12.87 |
| | Faculty Sign | | | | | | | | | | | |
| | | SDD | SA | RLK | SMK | | SDD | SP | MW | | | |



PRINCIPAL
ADYPSOE, PUNE

Prof. Sagar D. Dhawale
Class Teacher TE-B



Dr. S.C. Inamadar
HoD E & TC

HOD
E & TC Engineering
Alankya DY Patil School of Engineering
Lohegaon, Pune

13

Attendance Record

AJEENKYA D Y Patil School of Engineering, Lohegaon, Pune
Department of Electronics and Telecommunication Engineering
Cummulative Attendance

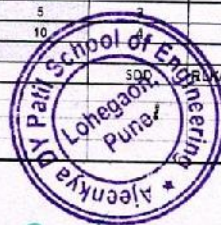
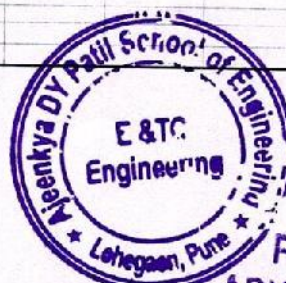
Class : TE-A E&TC

SEM-II

A Y 2022-23

Date: 1-02-2023 to 30-04-2022

| | | SUBJECTS | | | | LAB | | | | | |
|--------------------|---|----------|-----|-----|----|----------|----|-----|----|-----------|-------|
| Roll No | No. of Lectures Planned → No of Lectures Conducted → | CN | PM | PDC | NS | Total TH | CN | PDC | NS | Total Lab | Total |
| | | 28 | 27 | 28 | 28 | 111 | 7 | 7 | 8 | 15 | |
| 301 | JATTI MONALI NANDLAL | 8 | 4 | 7 | 4 | 23 | 5 | 3 | 5 | 13 | 99.21 |
| 302 | AJAY PARITOSH DAS | 4 | 4 | 0 | 2 | 10 | 4 | 3 | 4 | 11 | 28.57 |
| 303 | AMBEKAR ATHARVA ATUL | 5 | 6 | 8 | 0 | 19 | 1 | 1 | 0 | 2 | 16.67 |
| 304 | ANSARI ASIM JAHANGIR | 4 | 4 | 3 | 1 | 12 | 1 | 1 | 1 | 3 | 16.67 |
| 305 | ASHISH PANDA | 9 | 5 | 13 | 6 | 33 | 4 | 5 | 4 | 13 | 11.90 |
| 306 | BAGAL MAYUR HANUMANT | 16 | 11 | 14 | 9 | 50 | 4 | 7 | 2 | 13 | 36.51 |
| 307 | BHERDE RUTUJA MANISH | 12 | 4 | 11 | 9 | 36 | 4 | 4 | 3 | 11 | 50.00 |
| 308 | BHOPE SUMEET PRALHAD | 11 | 6 | 10 | 5 | 32 | 5 | 6 | 4 | 15 | 37.30 |
| 309 | BONDLA TARUN | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 27.30 |
| 310 | CHASKAR AVISHKAR BALU | 2 | 5 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 1.38 |
| 311 | CHATE BHAKTI TUKARAM | 14 | 9 | 7 | 12 | 42 | 5 | 6 | 4 | 15 | 5.56 |
| 312 | CHAVAN AISHWARYA ASHOK | 10 | 5 | 10 | 5 | 30 | 3 | 1 | 2 | 6 | 45.24 |
| 313 | CHAVAN PRAJAKTA PRATAP | 11 | 6 | 6 | 3 | 26 | 4 | 5 | 3 | 12 | 28.57 |
| 314 | CHOUTEWAR VAISHNAVI BALAPRASAD | 22 | 15 | 24 | 19 | 80 | 6 | 9 | 4 | 19 | 30.16 |
| 315 | DEOKAR VIRAJ SANDEEP | 10 | 3 | 11 | 4 | 28 | 5 | 7 | 4 | 16 | 78.57 |
| 316 | DESHPANDE ABHISHEK GANE | 11 | 7 | 9 | 6 | 33 | 4 | 1 | 4 | 9 | 34.92 |
| 317 | DIVYA YUVARAJ SALUNKE | 11 | 10 | 9 | 9 | 39 | 3 | 4 | 3 | 10 | 33.33 |
| 318 | DOLSE GAYATRI DEEPAK | 5 | 3 | 3 | 0 | 11 | 1 | 0 | 0 | 1 | 38.89 |
| 319 | GAIKWAD SHUBHAM SANJAY | 6 | 4 | 2 | 0 | 12 | 3 | 3 | 0 | 6 | 9.52 |
| 320 | GHEGADE SHAMBHAVI SHIRIS | 8 | 6 | 2 | 0 | 16 | 3 | 1 | 0 | 4 | 14.29 |
| 321 | GIRDE PRANAV SATYAWAN | 9 | 7 | 7 | 5 | 29 | 3 | 5 | 3 | 11 | 15.87 |
| 322 | GORE PRANAV DIPAK | 4 | 0 | 6 | 3 | 13 | 3 | 5 | 2 | 10 | 31.75 |
| 323 | GOVIND CHOUDHARY | 1 | 0 | 1 | 0 | 2 | 1 | 0 | 0 | 1 | 18.25 |
| 324 | HIPPARAGI HARDIK BASAVARA | 5 | 2 | 9 | 1 | 17 | 3 | 2 | 3 | 8 | 2.38 |
| 325 | INGALE OMKAR JANARDHAN | 6 | 2 | 5 | 1 | 14 | 3 | 3 | 3 | 9 | 19.84 |
| 326 | JADHAV ANKITA ARJUN | 4 | 2 | 6 | 6 | 18 | 3 | 4 | 3 | 10 | 18.25 |
| 327 | JADHAV TEJAS SANJAY | 17 | 9 | 12 | 12 | 50 | 6 | 7 | 5 | 18 | 22.22 |
| 328 | JADHAV VAIBHAV TATERAO | 1 | 0 | 2 | 0 | 3 | 1 | 0 | 0 | 1 | 53.97 |
| 329 | JAGTAP SHRAVANKUMAR DATTATRAY | 4 | 1 | 2 | 1 | 8 | 3 | 3 | 3 | 9 | 3.17 |
| 330 | JALGAONKAR HAMID NIYAZALI | 7 | 3 | 8 | 4 | 22 | 3 | 2 | 3 | 8 | 13.49 |
| 331 | KADAM POOJA PRAMOD | 7 | 0 | 2 | 0 | 9 | 2 | 0 | 0 | 2 | 23.81 |
| 332 | KALE VAISHNAVI RAJKUMAR | 0 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 8.73 |
| 333 | KAMBLE AJINKYA PRADEEP | 19 | 11 | 11 | 14 | 55 | 7 | 7 | 7 | 21 | 3.17 |
| 334 | KATE ADITI NAMDEV | 13 | 7 | 7 | 10 | 37 | 6 | 6 | 6 | 18 | 60.32 |
| 335 | KATORE ROHAN VILAS | 5 | 2 | 1 | 0 | 8 | 1 | 0 | 0 | 1 | 43.65 |
| 336 | KHUMKAR ANUJA ANIL | 11 | 3 | 10 | 3 | 27 | 3 | 3 | 3 | 9 | 7.14 |
| 337 | KONDAWALE PUNAM BHASKA | 14 | 7 | 9 | 6 | 36 | 6 | 6 | 6 | 18 | 28.57 |
| 338 | KORHALE MAYUR VITTHAL | 4 | 2 | 7 | 0 | 13 | 3 | 3 | 3 | 9 | 42.86 |
| 339 | MAU ANKITA SUNIL | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 17.46 |
| 340 | MANE DESHMUKH DIGVIJAYSINH UDAYSINH | 4 | 2 | 2 | 1 | 9 | 3 | 3 | 3 | 9 | 1.59 |
| 341 | MANISH KUMAR MISHRA | 3 | 1 | 2 | 0 | 6 | 1 | 1 | 1 | 3 | 14.29 |
| 342 | OMKAR DATTATRAY KALBHOR | 5 | 2 | 4 | 0 | 11 | 0 | 0 | 0 | 0 | 7.14 |
| 343 | PABALKAR VAISHNAVI KIRAN | 9 | 5 | 3 | 4 | 21 | 3 | 3 | 3 | 9 | 8.73 |
| 344 | PARATE PIYUSH DEEPAKRAO | 5 | 6 | 0 | 0 | 11 | 1 | 0 | 1 | 2 | 23.81 |
| 345 | PATIL CHETANA ALIAS VARSHI | 21 | 17 | 18 | 18 | 74 | 6 | 6 | 6 | 18 | 10.32 |
| 346 | PATIL VAISHNAVI ASHOK | 14 | 10 | 9 | 6 | 39 | 2 | 1 | 2 | 5 | 73.02 |
| 347 | PAWANE VANDANA VIJAY | 13 | 8 | 4 | 12 | 37 | 3 | 3 | 3 | 9 | 34.92 |
| 348 | PINGAT ADVAIT VINAYAK | 0 | 2 | 0 | 0 | 2 | 3 | 0 | 3 | 6 | 36.51 |
| 349 | PRINCE SINGH | 15 | 14 | 13 | 11 | 53 | 5 | 4 | 4 | 13 | 6.25 |
| 350 | PRIYOTKARSH DWIVEDI | 13 | 12 | 13 | 10 | 48 | 2 | 1 | 2 | 5 | 52.38 |
| 351 | PURI ASHUTOSH NARAYAN | 6 | 4 | 5 | 1 | 17 | 3 | 0 | 3 | 6 | 42.06 |
| 352 | PURNIMA DHURVEY | 14 | 9 | 11 | 10 | 44 | 5 | 3 | 5 | 13 | 18.25 |
| 353 | RAJ RANJAN | 11 | 7 | 7 | 6 | 31 | 2 | 2 | 2 | 6 | 45.24 |
| 354 | RAMPURE VISHWESH LINGRA | 4 | 1 | 3 | 1 | 9 | 2 | 2 | 2 | 6 | 29.37 |
| 355 | RAPATWAR SHANTANU PRAD | 2 | 1 | 0 | 0 | 3 | 2 | 0 | 2 | 4 | 11.90 |
| 356 | ROHIT RANA | 14 | 12 | 9 | 8 | 41 | 2 | 1 | 2 | 5 | 5.56 |
| 357 | RUKME SRUSHTI GOVIND | 11 | 4 | 9 | 8 | 32 | 2 | 4 | 2 | 8 | 36.51 |
| 358 | SAHANE RUTURAJ PRAMOD | 7 | 4 | 0 | 0 | 11 | 3 | 0 | 0 | 3 | 31.75 |
| 359 | SAROLKAR GARGI SANJAY | 11 | 7 | 8 | 6 | 32 | 2 | 1 | 2 | 5 | 11.11 |
| 360 | SATOTE JAYESH SANJIV | 8 | 5 | 0 | 0 | 14 | 2 | 0 | 0 | 2 | 29.37 |
| 361 | SHAIKH FAHED AKIL | 14 | 10 | 10 | 10 | 44 | 5 | 5 | 2 | 12 | 12.70 |
| 362 | SHAIKH SAMEER KHAJAMIYA | 6 | 3 | 5 | 3 | 18 | 2 | 2 | 2 | 6 | 44.44 |
| 363 | SHINDE NUTAN BALASAHEB | 10 | 5 | 5 | 10 | 30 | 3 | 3 | 3 | 9 | 19.05 |
| 364 | SHINDE RUTUJA PRAVIN | 12 | 8 | 7 | 14 | 41 | 3 | 3 | 3 | 9 | 30.95 |
| 365 | SHINDE SANIL SANJAY | 13 | 8 | 7 | 7 | 35 | 5 | 2 | 3 | 10 | 39.68 |
| 366 | SHINDE SNEHA ABASAHEB | 9 | 6 | 4 | 5 | 24 | 3 | 2 | 3 | 8 | 35.71 |
| 367 | SOMWANE ANIKET VILAS | 9 | 7 | 4 | 5 | 25 | 3 | 0 | 3 | 6 | 25.40 |
| 368 | SUBODH GAJANAN DHOKE | 10 | 7 | 2 | 2 | 21 | 3 | 2 | 3 | 8 | 24.60 |
| 369 | SURYAWANSHI MAYURI SATIS | 16 | 12 | 15 | 13 | 56 | 5 | 4 | 3 | 12 | 23.02 |
| 370 | SUTAR TUSHAR RAJENDRA | 2 | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 53.97 |
| 371 | TATHE BHAGYASHREE SOMNA | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 3.17 |
| 372 | THORAT SAHIL SHIVAJI | 11 | 8 | 5 | 5 | 30 | 2 | 3 | 2 | 7 | 1.59 |
| 373 | VAHILE MONDIP SURESH | 2 | 1 | 2 | 0 | 5 | 2 | 0 | 0 | 3 | 29.37 |
| 374 | WAGHMARE SHUBHAM SURESH | 4 | 1 | 2 | 3 | 10 | 1 | 1 | 4 | 9 | 6.35 |
| Faculty Sign | | | | | | | | | | | 15.08 |
| SDD | | SA | RLK | SMK | | | | | | | |
| Prof. Shital Patil | | | | | | | | | | | |
| Class Teacher | | | | | | | | | | | |



HOD
E&TC Engineering
Ajeenkya DY Patil School of Engineering
Lohegaon, Pune

PRINCIPAL
ADYPSOE, PUNE

14

Continuous Assessment Record

Batch : B1

| Roll No. | Name of the Student | Attendance | | | | | | | | | | | | |
|----------|-------------------------|------------|------|------|------|------|------|------|------|-----|----|----|----|----|
| | | Date | 21/2 | 14/3 | 21/3 | 28/3 | 11/4 | 18/4 | 25/4 | 2/5 | | | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 1 | Adepu Rithish B | | | P | | | | | | | | | | |
| 2 | Akash Kute | | | | | | | | | | | | | |
| 3 | Ashish S. Jagdhane | | | P | | | | | | | | | | |
| 4 | Baben Pratik S | | | | | | | | | | | | | |
| 5 | Barwade Deep B. | P | P | P | P | P | | | | | | | | |
| 6 | Bhale Ansh P | | | | | | | | | | | | | |
| 7 | Bhagulkar Akash D | | | | | | P | | | | | | | |
| 8 | Chaturva Vaishnavi D | | | P | | | | | | | | | | |
| 9 | Chikane Shubham Kalyan | | | | | | P | | | | | | | |
| 10 | Chokale Hardik H | P | P | P | P | P | P | P | | | | | | |
| 11 | Dafadar Adil Shabbir | | | P | | | | P | | | | | | |
| 12 | Desai Swarupand S. | | | | P | | | | | | | | | |
| 13 | Dhanve Jyoti S. | P | P | | P | P | | P | | | | | | |
| 14 | Dhargude Sonali B. | P | P | P | P | P | P | P | | | | | | |
| 15 | Fahma Gafur S. | | | | | | | | | | | | | |
| 16 | Gaikwad Smit Rajaram | | P | | P | P | P | P | | | | | | |
| 17 | Gangathade Nikita B | | | | | | | P | | | | | | |
| 18 | Gauri Popat more | | | | | | | | | | | | | |
| 19 | Hadure Pratiksha A | | | | | P | P | P | | | | | | |
| 20 | Hingmire Raj R. | | | | | | | | | | | | | |
| 21 | Ingle Vaishnavi V. | | | | | | | P | | | | | | |
| 22 | Jadhav Abhay S. | | | | | | | | | | | | | |
| 23 | Jadhav Abhishek A. | | | | | | | | | | | | | |
| 24 | Jadhav Abhishek Arun D. | P | | | | | P | | | | | | | |
| 25 | Jadhav Subhas Samant | P | P | P | P | P | P | P | | | | | | |

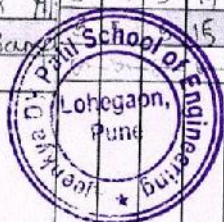
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Batch : B1

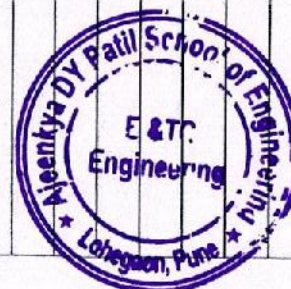
| Roll No. | Name of the Student | Expt.4 step-down chappi | | | | Expt.5 smps Performance | | | | Expt.6 Ac. approx. Cavity | | | |
|----------|-----------------------|----------------------------|---|---|----|----------------------------|---|---|----|------------------------------|---|----|----|
| | | Ts | P | U | To | Ts | P | U | To | Ts | P | U | To |
| 1 | ADEPU Rithish B. | 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 | 5 | 4 | 5 | 14 |
| 2 | AKASH Kudu | 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 | 5 | 4 | 5 | 14 |
| 3 | Ashish S. Jagadham | 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 | 5 | 4 | 5 | 14 |
| 4 | Babun Pratik S. | 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 | 5 | 4 | 5 | 14 |
| 5 | Barbadee Deep B. | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | 5 | 4 | 5 | 14 |
| 6 | Bhale Ansh R. | 5 | 5 | 4 | 14 | 5 | 5 | 4 | 14 | 5 | 5 | 5 | 15 |
| 7 | Bhagulkar Akash D. | 5 | 5 | 4 | 14 | 5 | 5 | 4 | 14 | 5 | 5 | 5 | 15 |
| 8 | Chaturse Vaishnavi D. | 5 | 5 | 4 | 14 | 5 | 5 | 4 | 14 | 5 | 5 | 5 | 15 |
| 9 | Chikane Shubham Ka | 5 | 5 | 4 | 14 | 5 | 5 | 4 | 14 | 5 | 5 | 5 | 15 |
| 10 | Chobalia Hardik H | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 11 | Dafedar Adil Shabbir | 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 | 5 | 4 | 5 | 14 |
| 12 | Dasai Swarupand S. | 5 | 5 | 4 | 14 | 5 | 5 | 4 | 14 | 5 | 5 | 5 | 15 |
| 13 | Dhanve Janhavi S. | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 14 | Dhargude Sonali B. | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 15 | Fatima Gafar S. | | | | | | | | | | | | |
| 16 | Gaikwad Sujit Raja | 5 | 4 | 5 | 14 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 17 | Gangathade Nikita I | 5 | 4 | 5 | 14 | 5 | 4 | 5 | 14 | 5 | 5 | 15 | 15 |
| 18 | Gauri Popat More | 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 | 5 | 4 | 5 | 14 |
| 19 | Haduse Pratiksha A | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 20 | Hingmire Raj R. | 5 | 5 | 4 | 14 | 5 | 5 | 4 | 14 | 5 | 5 | 4 | 14 |
| 21 | Ingle Vaishnavi V. | 3 | 4 | 5 | 14 | 5 | 5 | 4 | 14 | 5 | 5 | 5 | 15 |
| 22 | Jadhav Abhay S. | | | | | | | | | | | | |
| 23 | Jadhav Abhishek A. | 5 | 3 | 5 | 13 | 5 | 5 | 3 | 13 | 5 | 3 | 5 | 13 |
| 24 | Jadhav Abhishek M. | 5 | 4 | 5 | 14 | 5 | 5 | 5 | 15 | 5 | 4 | 5 | 14 |
| 25 | Jadhav Sahas Ganesh | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |

Signature of Faculty



PRINCIPAL
ADYPSOE, PUNE


| Expt. 7 | | | | Expt. 8 | | | | Expt. 9 | | | |
|----------------------------------|--------------|--------------|---------------|-------------------------------|--------------|--------------|---------------|---------|---|---|---|
| D (m/s) ρ ω α | | | | UJT \sim E_{B-H} γ | | | | | | | |
| Ts | P | U | To | Ts | P | U | To | Ts | P | U | T |
| 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 | | | | |
| 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 | | | | |
| 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 | | | | |
| 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 | | | | |
| 5 | 5 | 4 | 14 | 5 | 5 | 5 | 15 | | | | |
| 5 | 5 | 4 | 14 | 5 | 5 | 5 | 15 | | | | |
| 5 | 4 | 5 | 14 | 5 | 4 | 5 | 14 | | | | |
| 4 | 5 | 5 | 14 | 5 | 5 | 5 | 15 | | | | |
| 4 | 5 | 5 | 14 | 5 | 5 | 5 | 15 | | | | |
| 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | | | | |
| 5 | 4 | 5 | 14 | 5 | 5 | 5 | 15 | | | | |
| 5 | 4 | 5 | 14 | 5 | 5 | 5 | 15 | | | | |
| 5 | 5 | 5 | 15 | 5 | 5 | 4 | 14 | | | | |
| 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | | | | |
| | | | | | | | | | | | |
| 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | | | | |
| 4 | 5 | 5 | 14 | 4 | 5 | 5 | 14 | | | | |
| 3 | 5 | 5 | 13 | 5 | 5 | 5 | 15 | | | | |
| 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | | | | |
| 5 | 5 | 4 | 14 | 5 | 5 | 3 | 13 | | | | |
| 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | | | | |
| | | | | | | | | | | | |
| 5 | 4 | 5 | 14 | 5 | 5 | 5 | 15 | | | | |
| 5 | 4 | 5 | 14 | 5 | 5 | 5 | 15 | | | | |
| 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | | | | |
| 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | | | | |

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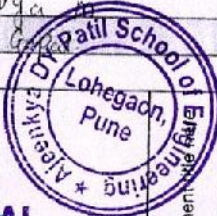
Batch : 82

| Roll No. | Name of the Student | Attendance | | | | | | | | | | | |
|----------|------------------------|------------|------|-----|------|------|------|------|------|---|----|----|----|
| | | Date | 20/2 | 6/3 | 13/3 | 27/3 | 10/4 | 17/4 | 24/4 | | | | |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 26 | Jagdale Varad V | | | | | | | | | | | | |
| 27 | Jainkop Vishal M | | | | | | | | | | | | |
| 28 | Jainkop Vishal M | | | P | P | | P | | | | | | |
| 29 | Jawale Priyanka P | | P | | P | | P | | | | | | |
| 30 | Kadam Adesh Shrinivas | | | | | | | | | | | | |
| 31 | Kalje Omkar Bhankar | | | P | P | | P | | | | | | |
| 32 | Kamble Sakshi P. | | | | P | P | | P | | | | | |
| 33 | Kamble Sujal Varad | | | | P | | | | | | | | |
| 34 | Kashe Sushama B | | P | P | | P | | P | | | | | |
| 35 | Khan Aarish M. | | | | | | | | | | | | |
| 36 | Kulkarni Vedant R | | | | | | | | | | | | |
| 37 | Kumar Anant A. | | P | P | P | P | | P | P | | | | |
| 38 | Mali Parshana D. | | | | | | | | | | | | |
| 39 | Manish Suresh Shinde | | | | | | | | | | | | |
| 40 | Mangar Mohol Asif R. A | | P | P | P | | P | P | | | | | |
| 41 | Mansuri Goushamammad L | | P | P | P | | P | P | | | | | |
| 42 | Mhetre Vinod B. | | | | P | | | P | | | | | |
| 43 | Mokaihe Rohini D. | | | | | | | P | | | | | |
| 44 | Mondal Ajay A. | | | P | | | | P | | | | | |
| 45 | Nanaware Vishal G. | | | | | | | | | | | | |
| 46 | Omkar Babu S. | | P | P | P | | P | P | | | | | |
| 47 | Pallavi Prashant Sable | | | P | P | | | P | | | | | |
| 48 | Panchal Shrusai S | | P | | P | P | | P | | | | | |
| 49 | Panchmukh Divya | | | | | | | P | | | | | |
| 50 | Patil Kalyani | | P | P | | P | | P | P | | | | |

Signature of Faculty



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Write the experiment name

VI character of 5K

VI character of 10K

VI character of 20K

| Ts - Timely Submission | | | | U - Understanding | | | | Avg - Average | | | |
|---------------------------|---|---|----|----------------------|---|---|----|------------------------|---|---|----|
| P - Presentation | | | | To | | | | | | | |
| Marks | | | | | | | | | | | |
| Expt.1 characteristics | | | | Expt.2 MUSTE/1ABT | | | | Expt.3 Full Control | | | |
| Ts | P | U | To | Ts | P | U | To | Ts | P | U | To |
| 5 | 4 | 5 | 14 | 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 |
| 5 | 4 | 5 | 14 | 5 | 5 | 5 | 14 | 5 | 5 | 5 | 15 |
| 5 | 4 | 5 | 14 | 5 | 4 | 5 | 14 | 5 | 4 | 5 | 14 |
| 5 | 4 | 5 | 14 | 5 | 3 | 5 | 13 | 5 | 5 | 5 | 13 |
| 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | 5 | 4 | 5 | 14 |
| 5 | 3 | 5 | 13 | 3 | 5 | 5 | 13 | 5 | 3 | 5 | 13 |
| 5 | 3 | 5 | 13 | 3 | 5 | 5 | 13 | 5 | 4 | 5 | 14 |
| 5 | 3 | 5 | 13 | 3 | 5 | 5 | 13 | 5 | 3 | 5 | 13 |
| 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 |
| 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 |
| 3 | 5 | 5 | 13 | 3 | 5 | 5 | 13 | 3 | 5 | 5 | 13 |
| 3 | 5 | 5 | 13 | 3 | 5 | 5 | 13 | 3 | 5 | 5 | 13 |
| 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 3 | 5 | 5 | 13 | 3 | 5 | 5 | 13 | 4 | 5 | 5 | 14 |
| 3 | 5 | 5 | 13 | 4 | 5 | 5 | 14 | 4 | 5 | 5 | 14 |
| 3 | 5 | 5 | 13 | 3 | 5 | 5 | 13 | 3 | 5 | 5 | 13 |
| 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | 4 | 5 | 5 | 14 |
| 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |


[illegible]

| | |
|--|---------------------|
| | Name of the Student |
|--|---------------------|

| | | |
|--------------------------|---------------------------------|--------------------------|
| Expt.4 Chopper + SMPS | Expt.5 AC voltage controller | Expt.6 AC motor speed |
|--------------------------|---------------------------------|--------------------------|

Signature of Faculty


| | | |
|------------------------|-----------------------------|--------|
| Expt.7 H.F. Pradyan | Expt.8 Dudleyfest-mende. | Expt.9 |
|------------------------|-----------------------------|--------|



| | | | | | |
|----------------|----------------|---|---|----------------|-----|
| | | | | | Avg |
| T _D | T _S | P | U | T _O | |

[illegible]


Batch : B3

Signature of Faculty

Write the experiment time to

| | |
|--------------------------------|--|
| V-E characteristics of 50 | |
| V-E characteristics of 200 | |
| Semiconductor / Full Converter | |
| spms Performance | |
| Step-down chopper | |
| the inductor capacitor + diode | |
| Rectifier Battery, inverter | |

| | |
|------------------------|----------------------------|
| Ts - Timely Submission | U - Understanding |
| P - Presentation | n - Total Avg - Average |

[illegible]

Batch : B3

Marks

| Roll No. | Name of the Student | Expt.4 Sms Performance | | | | Expt.5 step down chopper | | | | Expt.6 Armature only | | | |
|----------|---------------------|---------------------------|---|---|----|-----------------------------|---|---|----|-------------------------|---|---|----|
| | | Ts | P | U | To | Ts | P | U | To | Ts | P | U | To |
| 51 | Patil Pallavi S. | 4 | 5 | 5 | 14 | 5 | 5 | 5 | 15 | 5 | 5 | 4 | 14 |
| 52 | Patil Vaishali K | 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 | 5 | 5 | 4 | 14 |
| 53 | Pawar Akash D | 4 | 5 | 5 | 14 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 54 | Pawar Aditya R. | 4 | 5 | 5 | 14 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 55 | Pawar Komal B | 4 | 5 | 5 | 14 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 56 | Pratik Gajanan | 4 | 5 | 5 | 14 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 57 | Rajput Pratik Sine | 4 | 5 | 5 | 14 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 58 | Rathod Ajay Sha | 4 | 5 | 5 | 14 | 5 | 4 | 5 | 14 | 5 | 5 | 5 | 15 |
| 59 | Raut Tushar Dili | 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 | 5 | 4 | 5 | 14 |
| 60 | Rokade Vaishnavi | 5 | 3 | 5 | 13 | 5 | 4 | 5 | 14 | 5 | 3 | 5 | 13 |
| 61 | Salunkar Mayya | 4 | 5 | 5 | 14 | 5 | 4 | 5 | 14 | 5 | 5 | 5 | 15 |
| 62 | Sarmah Vijay T | 5 | 3 | 5 | 13 | 5 | 5 | 4 | 14 | 5 | 5 | 5 | 15 |
| 63 | Singh Arshad P | 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 |
| 64 | Sushma Suresh S | 4 | 5 | 5 | 14 | 5 | 4 | 5 | 14 | 5 | 5 | 5 | 15 |
| 65 | Swami Rutuja V | 4 | 5 | 5 | 14 | 5 | 4 | 5 | 14 | 5 | 4 | 5 | 14 |
| 66 | Takale Kiran D | 4 | 5 | 5 | 14 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 67 | Thakkar Anurag B | 5 | 4 | 5 | 14 | 5 | 3 | 5 | 13 | 5 | 5 | 5 | 15 |
| 68 | Kiran Ganpatrao | 5 | 4 | 5 | 14 | 5 | 4 | 5 | 14 | 5 | 3 | 5 | 13 |
| 69 | Vaibhavi Sunil M | 4 | 5 | 5 | 14 | 5 | 5 | 5 | 15 | 5 | 5 | 5 | 15 |
| 70 | Varshanavi T Sa | 5 | 4 | 5 | 14 | 5 | 4 | 5 | 14 | 5 | 5 | 3 | 13 |
| 71 | Varshanavi J M | 5 | 4 | 5 | 14 | 5 | 4 | 5 | 14 | 5 | 5 | 5 | 15 |
| 72 | Vishakha R Pati | 5 | 4 | 5 | 14 | 5 | 4 | 5 | 14 | 5 | 5 | 5 | 15 |
| 73 | Walade Abhishek | 5 | 4 | 5 | 14 | 5 | 4 | 5 | 14 | 5 | 5 | 5 | 15 |
| 74 | Yadav Anuska A | 5 | 4 | 5 | 14 | 5 | 3 | 5 | 13 | 5 | 3 | 5 | 13 |
| 75 | | | | | | | | | | | | | |

Signature of Faculty



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Mars

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15

Unit Test I: Question Paper, Attendance Record, Result



Ajeenkya D Y PATIL SCHOOL OF ENGINEERING
Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune – 412 105.
Department of E&TC Engineering

Unit Test I Question Paper

A.Y.: 2022-2023

Semester: II

Class: T.E.

Div:- A

Name of Subject: Power Devices & Circuits

Date of Examination: 15/03/2023

Total Marks: 30

Duration: 1 hour

Instructions:

1. Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10.
2. Neat diagram must be drawn whenever necessary.
3. Assume suitable data whenever necessary.

Q.1 Draw and explain the static V-I Characteristics of SCR

6M

OR

Q.2 If a semi converter is operating from 230V/50Hz supply, driving a load resistance of 10 Ω .

Find : i) Avg output power ii) RMS output power iii) Rectification efficiency

6M

Q.3 Draw and explain the static V-I Characteristics of GTO

6M

OR

Q.4 If a single phase full converter is operating from 230V, 50 Hz Supply. The load is

Find : i) Avg load voltage ii) Average load current. $R=10\Omega$, $\alpha=45^\circ$

Q.5 Explain the importance of series and parallel connection of SCR

6M

OR

Q.6 Explain the concept of line and forced commutation.

6M

OR

Q.7 Distinguish between Power MOSFET & Power IGBT

6M

OR

Q. 8 Draw & explain single phase semi converter with waveforms

6M

Q.9 Draw & explain three phase full converter with R Load & $\alpha=45^\circ$

6M

OR

Q. 10 Write a short note on effect of source inductance on single phase full converter.

6M



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Ajeenkya D Y PATIL SCHOOL OF ENGINEERING
Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune – 412 105.
Department of E&TC Engineering

Unit Test I Question Paper

A.Y.: 2022-2023

Semester: II

Class: T.E.

Div:- B

Name of Subject: Power Devices & Circuits

Date of Examination: 14/03/2023

Total Marks: 30

Duration: 1 hour

Instructions:

1. Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10.
2. Neat diagram must be drawn whenever necessary.
3. Assume suitable data whenever necessary.

Q.1 Draw and explain the static V-I Characteristics of IGBT

6M

OR

Q.2 If a semi converter is operating from 230V/50Hz supply, driving a load resistance of 10 Ω .

Find : i) Avg output power ii) RMS output power iii) Rectification efficiency

6M

Q.3 Draw and explain the static V-I Characteristics of Power MOSFET.

6M

OR

Q.4 If a single phase full converter is operating from 230V, 50 Hz Supply. The load is

Find : i) Avg load voltage ii) Average load current. $R=10\Omega$, $\alpha=45^\circ$

Q.5 Define Latching Current, Holding Current, di/dt & dv/dt ratings of SCR

6 M

OR

Q.6 Explain the requirement of a typical triggering / driver (such as opto isolator) circuits for various power devices

6M

OR

Q.7 Distinguish between SCR & Power MOSFET

6M

OR

Q. 8 Draw & explain single phase full converter with R-L Load & waveforms

6M

Q.9 Draw & explain three phase full converter with R Load & waveforms

6M

OR

Q. 10 Write a note on rectification & inversion mode of two quadrant converter

6M



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AJINKYA D. Y. PATIL SCHOOL OF ENGINEERING
 Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune – 412 105.
 Department of E&TC Engineering

A.Y.: 2022-2023

Semester: II

Class: TE (E & TC)

Div.: - A

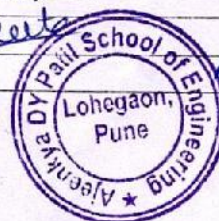
Subject Name:

Unit Test 1 Attendance

| Roll Number | Student Name | Sign |
|-------------|--------------------------------|------|
| 1 | JATTI MONALI NANDLAL | |
| 2 | AJAY PARITOSH DAS | AB |
| 3 | AMBEKAR ATHARVA ATUL | |
| 4 | ANSARI ASIM JAHANGIR | |
| 5 | ASHISH PANDA | |
| 6 | BAGAL MAYUR HANUMANT | |
| 7 | BHERDE RUTUJA MANISH | |
| 8 | BHOPLE SUMEET PRALHAD | |
| 9 | BONDLA TARUN | AB |
| 10 | CHASKAR AVISHKAR BALU | AB |
| 11 | CHATE BHAKTI TUKARAM | |
| 12 | CHAVAN AISHWARYA ASHOK | |
| 13 | CHAVAN PRAJAKTA PRATAP | |
| 14 | CHOUTEWAR VAISHNAVI BALAPRASAD | |
| 15 | DEOKAR VIRAJ SANDEEP | |
| 16 | DESHIPANDE ABHISHEK GANESH | AB |
| 17 | DIVYA YUVARAJ SALUNKE | |
| 18 | DOLSE GAYATRI DEEPAK | |
| 19 | GAIKWAD SHUBHAM SANJAY | AB |
| 20 | GHEGADE SHAMBHAVI SHIRISH | AB |
| 21 | GIRDE PRANAY SATYAWAN | |
| 22 | GORE PRANAV DIPAK | |
| 23 | GOVIND CHOUDHARY | AB |
| 24 | HIPPARAGI HARDIK BASAVARAJ | |
| 25 | INGALE OMKAR JANARDHAN | |
| 26 | JADHAV ANKITA ARJUN | |
| 27 | JADHAV TEJAS SANJAY | |
| 28 | JADHAV VAIBHAV TATERAO | |
| 29 | JAGTAP SHRAVANKUMAR DATTATRAY | |
| 30 | JALGAONKAR HAMID NIYAZALI | |
| 31 | KADAM POOJA PRAMOD | |
| 32 | KALE VAISHNAVI RAJKUMAR | AB |
| 33 | KAMBLE AJINKYA PRADEEP | |
| 34 | KATE ADITI NAMDEV | |
| 35 | KATORE ROHAN VILAS | AB |



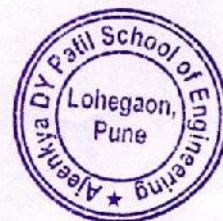
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| | | | |
|----|----------------------------|--------------|----|
| 36 | KHUMKAR ANUJA ANIL | A.A.khumkars | |
| 37 | KONDAWALE PUNAM BHASKAR | P. Gondal | |
| 38 | KORHALE MAYUR VITTHAL | Mayur | |
| 39 | MALI ANKITA SUNIL | | AB |
| 40 | MANE DESHMUKH DIGVIJAYSINH | Mane | |
| 41 | MANISH KUMAR MISHRA | Manish | |
| 42 | OMKAR DATTATRAY KALBHOR | Omkar | |
| 43 | PABALKAR VAISHNAVI KIRAN | Naish | |
| 44 | PARATE PIYUSH DEEPAKRAO | | AB |
| 45 | PATIL CHETANA ALIAS VARSHA | Patil | |
| 46 | PATIL VAISHNAVI ASHOK | Vaishnavi | |
| 47 | PAWANE VANDANA VIJAY | Pawane V.V | |
| 48 | PINGAT ADVAIT VINAYAK | | AB |
| 49 | PRINCE SINGH | Prince | |
| 50 | PRIYOTKARSH DWIVEDI | Priyotkarsh | |
| 51 | PURI ASHUTOSH NARAYAN | Ashu | |
| 52 | PURNIMA DHURWEY | Purnima | |
| 53 | RAJ RANJAN | | AB |
| 54 | RAMPUERE VISHWESH LINGRAJ | Vishwesh | |
| 55 | RAPATWAR SHANTANU PRADEEP | | AB |
| 56 | ROHIT RANA | Rohit | |
| 57 | RUKME SRUSHTI GOVIND | Srushti | |
| 58 | SAHANE RUTURAJ PRAMOD | | AB |
| 59 | SAROLKAR GARGI SANJAY | Gargi | |
| 60 | SATOTE JAYESH SANJIV | | AB |
| 61 | SHAIKH FAHED AKIL | Fahed | |
| 62 | SHAIKH SAMEER KHAJAMIYA | Sameer | |
| 63 | SHINDE NUTAN BALASAHEB | Nutan | |
| 64 | SHINDE RUTUJA PRAVIN | Rutuja | |
| 65 | SHINDE SANIL SANJAY | Sanil | |
| 66 | SHINDE SNEHA ABASAHEB | Sneha | |
| 67 | SONWANE ANIKET VILAS | Aniket | |
| 68 | SUBODH GAJANAN DHOKE | Subodh | |
| 69 | SURYAWANSHI MAYURI SATISH | Mayuri | |
| 70 | SUTAR TUSHAR RAJENDRA | | AB |
| 71 | TATHE BHAGYASHREE SOMNATH | | AB |
| 72 | THORAT SAHIL SHIVAJI | Sahil | |
| 73 | VAHILE MONDIP SURESH | Mondip | |
| 74 | WAGHMARE SHUBHAM SURESH | | AB |



Prof. *Riyaj* Kori
Subject Incharge



2

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Dr. D. Y. Patil Group of Institutions' Technical Campus
AJINKYA D. Y. PATIL SCHOOL OF ENGINEERING
 Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune - 412 105.
Department of E&TC Engineering

A.Y.: 2022-2023

Semester: II

Class: TE (E & TC)

Div.: - B

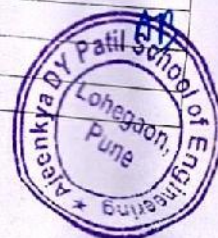
Subject Name:

Unit Test 1 Attendance

| Roll Number | Student Name | Sign |
|-------------|-------------------------------|-----------------|
| 1 | ADEPU RITHISH BHUPENDRA | <i>Rithish</i> |
| 2 | AKASH KUTE | <i>AB</i> |
| 3 | ASHISH SUDHAKAR JAGDHANE | <i>AB</i> |
| 4 | BABAR PRATIK SATISH | <i>Pratik</i> |
| 5 | BANSODE DEEP BALAJI | <i>Deep</i> |
| 6 | BHALE ANSH RAJESH | <i>AB</i> |
| 7 | BHOGULKAR AKASH DHONDIBA | <i>AB</i> |
| 8 | CHATURE VAISHNAVI DNYANDEV | <i>Chature</i> |
| 9 | CHIKANE SHUBHAM KALYAN | <i>Chikane</i> |
| 10 | CHOTALIA HARDIK HASMUKH | <i>Hardik</i> |
| 11 | DAFEDAR ADIL SHABBIR | <i>Adil</i> |
| 12 | DESAI SWARUPANAND SANJAY | <i>Desai</i> |
| 13 | DHANVE JANHAVI SANTOSH | <i>Dhanve</i> |
| 14 | DHAYGUDE SONALI BHARAT | <i>Dhaygude</i> |
| 15 | FATIMA GAFUR SHAIKH | <i>AB</i> |
| 16 | GAIKWAD SUJIT RAJARAM | <i>Sujit</i> |
| 17 | GANGATHADE NIKITA BHARAT | <i>AB</i> |
| 18 | GAURI POPAT MORE | <i>Gauri</i> |
| 19 | HASURE PRATIKSHA ANANDRAO | <i>AB</i> |
| 20 | HINGMIRE RAJ RAM | <i>AB</i> |
| 21 | INGALE VAISHNAVI VIJAY | <i>AB</i> |
| 22 | JADHAV ABHAY SUNIL | <i>AB</i> |
| 23 | JADHAV ABHISHEK ANIL | <i>AB</i> |
| 24 | JADHAV MRUNAL DEEPAK | <i>AB</i> |
| 25 | JADHAV SUHAS SAMPAT | <i>AB</i> |
| 26 | JAGDALE VARAD VIKAS | <i>AB</i> |
| 27 | JAINKOP VISHAL MALLESH | <i>AB</i> |
| 28 | JASUD GAYATRI PRAVIN | <i>AB</i> |
| 29 | JAWALE PRIYANKA PRAKASH | <i>AB</i> |
| 30 | KADAM ADESH SHRINIVAS | <i>AB</i> |
| 31 | KALJE OMKAR SHANKAR | <i>AB</i> |
| 32 | KAMBLE SAKSHI PUNDLIK | <i>AB</i> |
| 33 | KAMBLE SUJAL VASANT | <i>AB</i> |
| 34 | KARKE SUSHAMA BHIMASHANKAR | <i>AB</i> |
| 35 | KHAN AARISH MAROOF | <i>AB</i> |
| 36 | KULKARNI VEDANT RAMESH | <i>AB</i> |
| 37 | KUMAR ANANT ARVIND | <i>AB</i> |
| 38 | MALI DARSHANA DATTATRAY | <i>AB</i> |
| 39 | MANISH SURESH SHINDE | <i>AB</i> |
| 40 | MANIYAR MOHD ASIF RIYAZ AHMED | <i>AB</i> |



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| | | | |
|----|------------------------------------|--|----|
| 41 | MANSURI GOUSMOHAMMAD INAMULLA | | |
| 42 | MHETRE VINOD BASAPPA | | |
| 43 | MOKASHE ROHINI DAGDUBA | | |
| 44 | MONDAL AJAY AMAR | | |
| 45 | NANAWARE VISHAL CHANDRAKANT | | AB |
| 46 | OMKAR BABU SESHADRI | | |
| 47 | PALLAVI PRASHANT SABLE | | |
| 48 | PANCHAL SHIVSAI SUNIL | | |
| 49 | PANCHMUKH DIVYA MAHESH | | |
| 50 | PATIL KALYANI GOPAL | | AB |
| 51 | PATIL PALLAVI SHRIKRISHNA | | AB |
| 52 | PATIL VAISHALI KADUBA | | AB |
| 53 | PAWAL AKASH DADARAO | | |
| 54 | PAWAR ADITEE RAMDAS | | |
| 55 | PAWAR KOMAL BHAUSAHEB | | AB |
| 56 | PRATIK GAJANAN SADAR | | |
| 57 | RAJPUT PRATIK SINGH SUBHASHI SINGH | | |
| 58 | RATHOD AJAY SHANTIRAM | | AB |
| 59 | RAUT TUSHAR DILIP | | |
| 60 | ROKADE VAISHNAVI DIGAMBAR | | |
| 61 | SALALKAR MAYA RAVINDRA | | |
| 62 | SAURABH VIJAY JADHAV | | |
| 63 | SAYYAD ARSHAD PAIGAMBAR | | |
| 64 | SUSHMA SURESH SUPEKAR | | |
| 65 | SWAMI RUTUJA VIRBHADRA | | |
| 66 | TAKALE KIRAN INDRARAJ | | |
| 67 | THAKKANNAVAR BHAIKVNATH BHIMANNA | | |
| 68 | KIRAN GANPATRAO UPASE | | AB |
| 69 | VAIBHAVI SUNUL NIMBALKAR | | |
| 70 | VAISHANAVI TULSHIRAM SAVARGAVE | | AB |
| 71 | VAISHNAVI JANARDHAN MORE | | |
| 72 | VISHAKHA RAOSAHEB PATIL | | AD |
| 73 | WALZADE ABHISHEK BALASAHEB | | |
| 74 | YADAV ANUSHKA ANIL | | |



Prof. Rishaj Kari
Subject Incharge



PRINCIPAL
ADYPSOE, PUNE

Department of Electronics and Telecommunication Engineering

A.Y.: 2022-23

Class: TE A

Result Analysis of Unit Test - 1

| Sr.No | Roll No | Name of Student | Power Devices & Circuits | | |
|-------|---------|--|----------------------------|----------------------------|-------------|
| | | | Unit- 1 Marks (Q.1/Q.2) | Unit- 2 Marks (Q.3/Q.4) | Total Marks |
| 1 | 301 | JATTI MONALI NANDAL | 8 | 6 | 14 |
| 2 | 302 | AJAY PARITOSH DAS | AB | AB | AB |
| 3 | 303 | AMBEKAR ATHARVA ATUL | 9 | 7 | 16 |
| 4 | 304 | ANSARI ASIM JAHANGIR | 8 | 6 | 14 |
| 5 | 305 | ASHISH PANDA | 9 | 5 | 14 |
| 6 | 306 | BAGAL MAYUR HANUMANT | 6 | 5 | 11 |
| 7 | 307 | BHERDE RUTUJA MANISH | 10 | 8 | 18 |
| 8 | 308 | BHOPE SUMEET PRALHAD | 11 | 7 | 18 |
| 9 | 309 | BONDLA TARUN | AB | AB | AB |
| 10 | 310 | CHASKAR AVISHKAR BALU | AB | AB | AB |
| 11 | 311 | CHATE BHAKTI TUKARAM | 9 | 7 | 16 |
| 12 | 312 | CHAVAN AISHWARYA ASHOK | 10 | 7 | 17 |
| 13 | 313 | CHAVAN PRAJAKTA PRATAP | 5 | 4 | 9 |
| 14 | 314 | CHOTTEYAR VISHAKHVI BALASARAD | 11 | 9 | 20 |
| 15 | 315 | DODKAR VIRAJ SANDEEP | 9 | 6 | 15 |
| 16 | 316 | DISHPANDE ABHISHEK GANESH | AB | AB | AB |
| 17 | 317 | DIVYA YUVARAJ SALUNKE | 7 | 7 | 14 |
| 18 | 318 | DOLSE GAYATRI DEEPAK | 9 | 10 | 19 |
| 19 | 319 | DAKWARD SHUBHAM SANJAY | AB | AB | AB |
| 20 | 320 | DHESGADE SHAMBHAV SHRISH | AB | AB | AB |
| 21 | 321 | GIRDE PRANAY SATYAWAN | 7 | 6 | 13 |
| 22 | 322 | GORE PRANAV DIPAK | 8 | 6 | 14 |
| 23 | 323 | GOWND CHOUDHARY | AB | AB | AB |
| 24 | 324 | HIPPARGI HARSH BASAVARAJ | 8 | 5 | 13 |
| 25 | 325 | INGALE OMKAR JANARDHAN | 9 | 7 | 16 |
| 26 | 326 | JADHAV ANKITA ARJUN | 9 | 5 | 14 |
| 27 | 327 | JADHAV TEJAS SANJAY | 10 | 8 | 18 |
| 28 | 328 | JADHAV VAIBHAV TATERAO | 9 | 6 | 15 |
| 29 | 329 | JATAP SHRAVANKUMAR DATTATRAY | 8 | 6 | 14 |
| 30 | 330 | JALGAONKAR HAMID NIYAZALI | 10 | 9 | 19 |
| 31 | 331 | KADAM POOJA PRAMOD | 11 | 9 | 20 |
| 32 | 332 | KALE VAISHNAVI RAJKUMAR | AB | AB | AB |
| 33 | 333 | KAMBLE AJINKYA PRADEEP | 7 | 5 | 12 |
| 34 | 334 | KATE ADITI NAMDEV | 9 | 7 | 16 |
| 35 | 335 | KATORE ROHAN VILAS | AB | AB | AB |
| 36 | 336 | KHUMKAR ANUJA ANIL | 10 | 8 | 18 |
| 37 | 337 | KONDAYALE PUNAM BHASKAR | 9 | 9 | 18 |
| 38 | 338 | KORHALE MAYUR VITHAL | 10 | 8 | 18 |
| 39 | 339 | Kulkarni Sunil Mali | AB | AB | AB |
| 40 | 340 | KURDE DESHMUKH DEVIKATYASIRI JAYASHILPI | 11 | 9 | 20 |
| 41 | 341 | MANISH KUMAR MISHRA | 8 | 5 | 13 |
| 42 | 342 | OMKAR DATTATRAY KALBHOR | 7 | 5 | 12 |
| 43 | 343 | PABALKAR VAISHNAVI KIRAN | 9 | 6 | 15 |
| 44 | 344 | PARATE PIYUSH DEEPAKRAO | AB | AB | AB |
| 45 | 345 | PATIL CHETANA ALIAS VARSHA | 10 | 9 | 19 |
| 46 | 346 | PATIL VAISHNAVI ASHOK | 11 | 13 | 24 |
| 47 | 347 | PAWANE VANDANA VIJAY | 8 | 10 | 18 |
| 48 | 348 | PINGAT ADVAIT VINAYAK | AB | AB | AB |
| 49 | 349 | PRINCE SINGH | 8 | 5 | 13 |
| 50 | 350 | PRIYOTKARSH DWIVEDI | 6 | 6 | 12 |
| 51 | 351 | PURI ASHUTOSH NARAYAN | 9 | 6 | 15 |
| 52 | 352 | PURNIMA DHURVEY | 10 | 7 | 17 |
| 53 | 353 | RAJ RAJAN | AB | AB | AB |
| 54 | 354 | RAMPURE VISHWESH LINGRAJ | 9 | 7 | 16 |
| 55 | 355 | RAPATWAR SHANTANU PRADEEP | AB | AB | AB |
| 56 | 356 | ROHIT RANA | 8 | 8 | 16 |
| 57 | 357 | RUKME BRUSHITI GOVIND | 11 | 12 | 23 |
| 58 | 358 | SAHANE RUTURAJ PRAMOD | AB | AB | AB |
| 59 | 359 | SAROLKAR GARGI SANJAY | 12 | 11 | 23 |
| 60 | 360 | SATOTE JAYESH SANJIV | AB | AB | AB |
| 61 | 361 | SHAIKH FAHED AKIL | 10 | 11 | 21 |
| 62 | 362 | SHAIKH SAMEER KHAJAMIYA | 11 | 10 | 21 |
| 63 | 363 | SHINDE NUTAN DALASAHEB | 12 | 10 | 22 |
| 64 | 364 | SHINDE RUTUJA PRAVIN | 11 | 10 | 21 |
| 65 | 365 | SHINDE SANIL SANJAY | 9 | 9 | 18 |
| 66 | 366 | SHINDE SNEHA ABASAHEB | 11 | 10 | 21 |
| 67 | 367 | SONWANE ANIKET VILAS | 10 | 9 | 19 |
| 68 | 368 | SUBODH GAJANAN DHOKE | 9 | 6 | 15 |
| 69 | 369 | SURYAWANSHI MAYURI SATISH | 10 | 10 | 20 |
| 70 | 370 | SUTAR TUSHAR RAJENDRA | AB | AB | AB |
| 71 | 371 | TATHE BHAGYASHREE SOMNATH | AB | AB | AB |
| 72 | 372 | THORAT SAHIL SHIVAJI | 9 | 10 | 19 |
| 73 | 373 | WAHILE MONDIP SURESH | 7 | 11 | 18 |
| 74 | 374 | WAGHMARE SHUBHAM SURESH | AB | AB | AB |

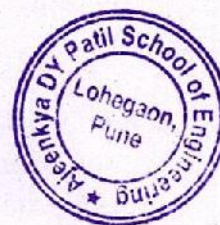
K. Kamble
Prof. Kamli Kamble
Exam Incharge

Shamala
Dr. S.C. Inamdar
HOD
HoE & TC

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Ajeenkya DY Patil School of Engineering
Lohegaon, Pune





Dr. D. Y. Patil Group of Institutions' Technical Campus
AJEENKYA D. Y. PATIL SCHOOL OF ENGINEERING
Dr. D. Y. Patil Knowledge City, Charnoli Bld. Via. Lohegaon, Pune - 412 105.
Department of E&TC Engineering

Form No. IQAC/23 (B)

Department of Electronics and Telecommunication Engineering

A.Y.: 2022-23

Div: B

Result Analysis of Unit Test - 1

| Sr.No | Roll No | Name of Student | Power Devices & Circuits | | |
|-------|---------|-----------------------------------|----------------------------|----------------------------|----------------|
| | | | Unit- 1 Marks (Q.1/Q.2) | Unit- 2 Marks (Q.3/Q.4) | Total Marks |
| 1 | 1 | ADEPU RUTHISH BHUPENDRA | 11 | 10 | 21 |
| 2 | 2 | AKASH KUTE | AB | AB | AB |
| 3 | 3 | ASHISH SUDHAKAR JAGDHANE | 10 | 12 | 22 |
| 4 | 4 | BABAR PRATIK SATISH | 7 | 9 | 16 |
| 5 | 5 | BANSODE DEEP BALAJI | 13 | 11 | 24 |
| 6 | 6 | BHALE ANSH RAJESH | 10 | 9 | 19 |
| 7 | 7 | BHOGULKAR AKASH DHONIDUA | 5 | 5 | 11 |
| 8 | 8 | CHATURE VAISHNAVI DNYANDEV | 8 | 11 | 19 |
| 9 | 9 | CHIKANE SHUBHAM KALYAN | 10 | 8 | 18 |
| 10 | 10 | CHOTALIA HARDIK HASMUKH | 11 | 10 | 21 |
| 11 | 11 | DAFEDAR ADIL SHABBIR | 7 | 7 | 14 |
| 12 | 12 | DESAI SWARUPANAND SANJAY | 10 | 8 | 18 |
| 13 | 13 | DHANVE JANHAVI SANTOSH | 7 | 11 | 18 |
| 14 | 14 | DHAYGUDE SONALI BHARAT | 9 | 10 | 19 |
| 15 | 15 | FATIMA GAFUR SHAIKH | AB | AB | AB |
| 16 | 16 | GAIKWAD SUJIT RAJARAM | 6 | 5 | 11 |
| 17 | 17 | GANGATHADE NIKITA BHARAT | AB | AB | AB |
| 18 | 18 | GAURI POPAT MORE | 6 | 4 | 10 |
| 19 | 19 | HASURE PRATIKSHA ANANDRAO | AB | AB | AB |
| 20 | 20 | HINGMIRE RAJ RAM | AB | AB | AB |
| 21 | 21 | INGALE VAISHNAVI VIJAY | 9 | 10 | 19 |
| 22 | 22 | JADHAV ABHAY SUNIL | 11 | 9 | 20 |
| 23 | 23 | JADHAV ABHISHEK ANIL | 10 | 12 | 22 |
| 24 | 24 | JADHAV MRUNAL DEEPAK | 9 | 10 | 19 |
| 25 | 25 | JADHAV SUHAS SAMPAT | 10 | 7 | 17 |
| 26 | 26 | JAGDALE VARAD VIKAS | 11 | 10 | 21 |
| 27 | 27 | JAINKOP VISHAL MALLESH | AB | AB | AB |
| 28 | 28 | JASUD GAYATRI PRAVIN | 10 | 7 | 17 |
| 29 | 29 | JAWALE PRIYANKA PRAKASH | 9 | 11 | 20 |
| 30 | 30 | KADAM ADESH SHRINIVAS | 6 | 5 | 11 |
| 31 | 31 | KALJE OMKAR SHANKAR | 7 | 6 | 13 |
| 32 | 32 | KAMBLE SAKSHI PUNDLIK | 8 | 10 | 18 |
| 33 | 33 | KAMBLE SUJAL VASANT | 13 | 11 | 24 |
| 34 | 34 | KARKE SUSHAMA BHIMASHANKAR | 8 | 10 | 18 |
| 35 | 35 | KHAN AARISH MAROOF | 10 | 10 | 20 |
| 36 | 36 | KULKARNI VEDANT RAMESH | AB | AB | AB |
| 37 | 37 | KUMAR ANANT ARVIND | 12 | 11 | 23 |
| 38 | 38 | MALI DARSHANA DATTATRAY | AB | AB | AB |
| 39 | 39 | MANISH SURESH SHINDE | 11 | 10 | 21 |
| 40 | 40 | MANIYAR MOHD ASIF RIYAZ AHMED | 12 | 10 | 22 |
| 41 | 41 | MANSURI GOUSMOHAMMAD INAMULLA | 10 | 11 | 21 |
| 42 | 42 | MHETRE VINOD BASAPPA | 12 | 11 | 23 |
| 43 | 43 | MOKASHE ROHINI DAGDUBA | 9 | 6 | 15 |
| 44 | 44 | MONDAL AJAY AMAR | 13 | 10 | 23 |
| 45 | 45 | NANAWARE VISHAL CHANDRAKANT | AB | AB | AB |
| 46 | 46 | OMKAR BABU SESHADRI | 9 | 7 | 16 |
| 47 | 47 | PALLAVI PRASHANT SABLE | 14 | 10 | 24 |
| 48 | 48 | PANCHAL SHIVSAI SUNIL | 11 | 13 | 24 |
| 49 | 49 | PANCHMUKH DIVYA MAHESH | 12 | 11 | 23 |
| 50 | 50 | PATIL KALYANI GOPAL | AB | AB | AB |
| 51 | 51 | PATIL PALLAVI SHRIKRISHNA | AB | AB | AB |
| 52 | 52 | PATIL VAISHALI KADUBA | AB | AB | AB |
| 53 | 53 | PAWAL AKASH DADARAO | 13 | 10 | 23 |
| 54 | 54 | PAWAR ADITEE RAMDAS | 11 | 13 | 24 |
| 55 | 55 | PAWAR KOMAL BHUSAHEB | AB | AB | AB |
| 56 | 56 | PRATIK GAJANAN SADAR | 10 | 8 | 18 |
| 57 | 57 | RAJPUT PRATIK SINGH SUBHASH SINGH | 11 | 10 | 21 |
| 58 | 58 | RATHOD AJAY SHANTIRAM | AB | AB | AB |
| 59 | 59 | RAUT TUSHAR DILIP | 12 | 10 | 22 |
| 60 | 60 | ROKADE VAISHNAVI DIGAMBAR | 11 | 9 | 20 |
| 61 | 61 | SALALKAR MAYA RAVINDRA | 13 | 9 | 22 |
| 62 | 62 | SAURABH VIJAY JADHAV | 6 | 5 | 11 |
| 63 | 63 | SAYYAD ARSHAD PAIGAMBAR | 11 | 9 | 20 |
| 64 | 64 | SUSHMA SURESH SUPEKAR | 10 | 6 | 16 |
| 65 | 65 | SWAMI RUTUJA VIRBHADRA | 10 | 8 | 18 |
| 66 | 66 | TAKALE KIRAN INDRARAJ | 9 | 9 | 19 |
| 67 | 67 | THAKKANNAVAR BHAIKUNATH BHIMANN | 7 | 5 | 12 |
| 68 | 68 | KIRAN SANPATRAO UPASE | AB | AB | AB |
| 69 | 69 | VAIRHAVI SUNIL NIMBALKAR | 12 | 11 | 23 |
| 70 | 70 | VAISHANAVI TILSHIRAM SAVARGAVE | AB | AB | AB |
| 71 | 71 | VAISHNAVI JANARDHAN MORE | 11 | 12 | 23 |
| 72 | 72 | VISHAKHA RAOSAHEB PATIL | AB | AB | AB |
| 73 | 73 | WALZADE ABHISHEK BALASAHEB | 8 | 7 | 15 |
| 74 | 74 | YADAV ANUSHKA ANIL | 9 | 7 | 16 |



Dr. S.C. Inamdar HOD
HoDE & TC


E&TC Engineering
Ajeenkya DY Patil School of Engineering
Lohegaon, Pune

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ADYPSOE, PUNE



16

**Unit Test II: Question Paper,
Attendance Record, Result**

| | |
|--|---|
|  AJEENKYA DY Patil School of Engineering | "Empowerment through quality technical education" AJEENKYA DY Patil School of Engineering Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune - 412 105. |
| | Department of E&TC Engineering Unit Test (II) Question Paper |
| | Form No. IQAC/18b. |
| | |

A.Y.: 2022-2023

Semester: II

Class: **TE-A (E&TC)**

Name of Subject: PDC

Date of Examination: 03/05/2023

Total Marks: 30 Marks

Duration: 1 hours

Instructions (if any):

- 1) Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6
- 2) Figures to right indicate full marks.
- 3) Assume suitable data if necessary.

Q.1 Explain with waveforms Single phase full bridge square wave inverter for R load using MOSFET (10)

OR

Q.2 Draw & explain step down chopper with R-L Load & waveforms (10)

Q.3 What are the control strategies of Inverter? Explain any two. (10)

OR

Q.4 List the SMPS Topologies. Explain any two. (10)

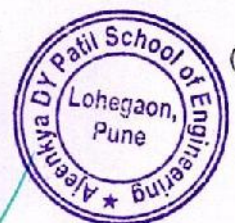
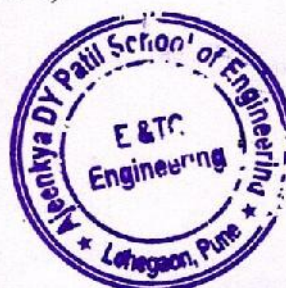
Q.5 Compare 180° and 120° conduction mode of Inverter (10)

OR


Q.6 Write short note on: (10)

i) LM3524 based chopper

ii) Concept of maximum power point tracking (MPPT).



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| | |
|--|--|
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| | AJEENKYA DY Patil School of Engineering |
| | Dr. D. Y. Patil Knowledge City, Charholi Bk., Via. Lohegaon, Pune - 412 105. |
| | Department of E&TC Engineering |
| | Unit Test (II) Question Paper |
| | Form No. IQAC/18b. |

A.Y.: 2022-2023

Semester: II

Class: **TE-B (E&TC)**

Name of Subject: PDC

Date of Examination: 03/05/2023

Total Marks: 30 Marks

Duration: 1 hours

Instructions (if any):

- 1) Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6
- 2) Figures to the right indicate full marks.
- 3) Assume suitable data if necessary.

Q.1 Explain with waveforms Single phase full bridge square wave inverter for R-L load using IGBT (10)

OR

Q.2 Draw & explain step down chopper with R Load & waveforms (10)

Q.3 What are the control strategies of the Inverter? Explain any two. (10)

OR

Q.4 List the SMPS Topologies. Explain any two. (10)

Q.5 Compare 180° and 120° conduction modes of Inverter (10)

OR

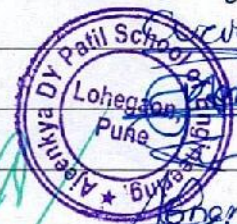
Q.6 Write short note on:

- i) LM3524 based chopper
- ii) Concept of maximum power point tracking (MPPT).



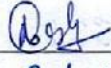
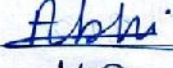

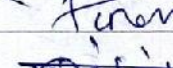
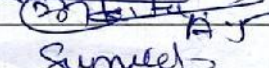
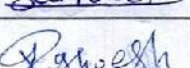
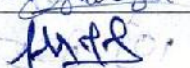
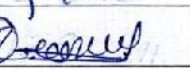
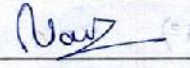
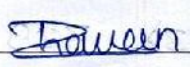
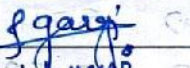
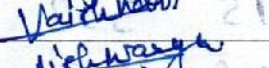

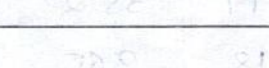


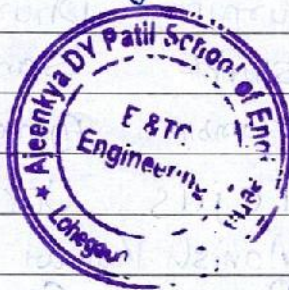
PRINCIPAL
ADYPSOE, PUNE

| | Roll No. | Name | Sign |
|-----|----------|----------------------------|--------------|
| 1) | 368 | Subodh Dhoke | |
| 2) | 340 | Digvijaysinh Mane Deshmukh | |
| 3) | 338 | Mayur Vithhal Korhale | |
| 4) | 342 | Omkar Dattatray Kalbhor | |
| 5) | 361 | Fahed. AKPI Shorikh | |
| 6) | 336 | Anuja khumkar | A.A. khumkar |
| 7) | 357 | Sowhi Rukme | |
| 8) | 303 | Atthava Ambekar | |
| 9) | 324 | Haradik Hipparagi | |
| 10) | 325 | Ingebe omkar | |
| 11) | 351 | Ashutosh Puri | |
| 12) | 306 | mayur Bagal | |
| 13) | 329 | Jagtap Shrivankumar | |
| 14) | 374 | Waghmare Shubham | |
| 15) | 353 | Raj Ranjan | |
| 16) | 367 | Aniket V. Sonwane | |
| 17) | 352 | Purnima Dhurwey | |
| 18) | 365 | Shinde Sanil | |
| 19) | 333 | Kamble Ajinkya | |
| 20) | 327 | Tejas Jadhav | |
| 21) | 341 | Manish Kumar Mishra | |
| 22) | 321 | Pranav Gurde | |
| 23) | 317 | Divya Salunke | |
| 24) | 345 | chetana patil | |
| 25) | 314 | Chaturvor Urushmani | |
| 26) | 301 | E. Jatti Monali | |
| 27) | 364 | Rutuja Shinde | |
| 28) | 366 | sneha shinde | |
| 29) | 363 | shinde Nutan | |
| 30) | 334 | Aditi Keete | |
| 31) | 318 | Dolse Grayatej | |
| 32) | 369 | Mayuri Suryanlanshi | |



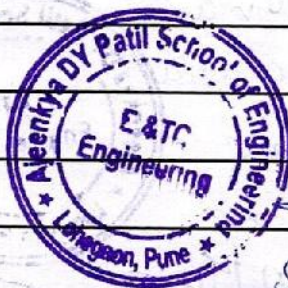
PRINCIPAL
ADYPSOE, PUNE

| Roll no. | Name | Sign |
|----------|--------------------|---|
| 33. 349 | Prince Singh |  |
| 34. 356 | Pohit Rana |  |
| 35. 305 | Ashish Panda |  |
| 36. 316 | Abhishhek deshpane |  |
| 37. 315 | Deokar Viraj |  |
| 38. 337 | Punam kondawale |  |
| 39. 326 | Ankita Radhav |  |
| 40. 308 | Sumeet Bhople |  |
| 41. 354 | Vishwesh Rampure |  |
| 42. 372 | Sahil Thorat |  |
| 43. 322 | Gore pranav |  |
| 44. 348 | Vaishnavi Pabalkar |  |
| 45. 313 | Pranjakta Chavan |  |
| 46. 359 | Gargi sarolkar |  |
| 47. 346 | Vaishnavi Patil |  |
| 48. 312 | Aishwarya Chavan |  |



ATTENDANCE

| Sr No. | Roll No. | Name | Sign |
|--------|----------|----------------------|--------------------|
| 1 | 14 | Sonali B. Dhaygude | <u>Sa</u> |
| 2 | 60 | Rokade Vaishnavi | <u>Rokade</u> |
| 3 | 47 | Pallavi Sable | <u>Pallavi</u> |
| 4 | 34 | Sushma Karke | <u>Sushma</u> |
| 5 | 64 | Sushma Supelcor | <u>Sushma</u> |
| 6 | 33 | Sujal Kamble | <u>Sujal</u> |
| 7 | 70 | Vaishnavi Savaregave | <u>Vaishnavi</u> |
| 8 | 17 | Nikita Gangathade | <u>Nikita</u> |
| 9 | 65 | Swami Rutuja | <u>Rutuja</u> |
| 10 | 58 | ATAY. Rethod | <u>Atay</u> |
| 11 | 12 | Swarupanand Desai | <u>Desai</u> |
| 12 | 21 | Ingale Vaishnavi | <u>Ingale</u> |
| 13 | 41 | Mansavi Gousmohammad | <u>Mansavi</u> |
| 14 | 63 | Aashad P Sayyad | <u>Sayyad A.P.</u> |
| 15 | 42 | MHETRE VINOD :B | <u>Vinod</u> |
| 16 | 32 | Sakshi Kamble | <u>Sakshi</u> |
| 17 | 43 | Rohini Morekar | <u>Rohini</u> |
| 18 | | Sujal Kamble | |
| 19 | | | |
| 20 | 04 | Anant Kumar | <u>Anant</u> |
| 21 | 37 | Gayatri Jasud | <u>Gayatri</u> |
| 22 | 28 | Tushar D. Raut | <u>Tushar</u> |
| 23 | 59 | Shiv Sai Panchal | <u>Shiv Sai</u> |
| 24 | 48 | Patil Kalyani | <u>Patil</u> |
| 25 | 50 | | <u>Patil</u> |



| | Sr. No | Roll No | Name | Sign |
|----|--------|---------|------------------------|------------------|
| 38 | 26 | 61 | Maya Ravindra Salunkar | <u>Maya</u> |
| | 27 | 49 | Divya M. Pandharkar | <u>Divya</u> |
| | 28 | 69 | Vaibhavi S. Nimbalkar | <u>Nimbalkar</u> |
| | 29 | 58 | Pratik G. Sadekar | <u>Pratik</u> |
| | 30 | 08 | Vaishnavi Chature | <u>Chature</u> |
| | 31 | 51 | Patil Pallavi | <u>Patil</u> |
| | 32 | 13 | Janhavi Dhanve | <u>Janhavi</u> |
| | 33 | 02 | Akash Kure | <u>Akash</u> |
| | 34 | 26 | Varad Jagdale | <u>Jagdale</u> |
| | 35 | 25 | Suhag Jadhav | <u>Suhag</u> |
| | 36 | 01 | Rithish Adepu | <u>Rithish</u> |
| | 37 | 67 | Thakkar Navar. B.T. | <u>Thakkar</u> |
| | 38 | 53 | Akash D. Pawar | <u>Akash</u> |
| | 39 | 16 | Sujit Gaikwad | <u>Sujit</u> |
| | 40 | 19 | Hasure Pratishtha | <u>Hasure</u> |
| | 41 | 39 | Munish Shinde | <u>Munish</u> |
| | 42 | 72 | Vishakha Patil | <u>Patil</u> |
| | 43 | 54 | Pawar Aditee | <u>Aditee</u> |
| | 44 | 57 | Rajput Pratik Singh | <u>Pratik</u> |
| | 45 | 05 | Deep B. B. B. B. | <u>Deep</u> |
| | 46 | 68 | Kiran Upase | <u>Kiran</u> |
| | 47 | 44 | Ajay Mondal | <u>Ajay</u> |
| | 48 | 06 | Ansh. Bhale | <u>Ansh</u> |
| | 49 | 24 | Mrunal Jadhav | <u>Jadhav</u> |
| | 50 | 10 | Hardik Chotalia | <u>Chotalia</u> |
| | 51 | 3 | Ashish Jagdhane | <u>Ashish</u> |
| | 52 | 9 | Shreshth Chikane | <u>Shreshth</u> |
| | 53 | 31 | Kabir Sonkar | <u>Kabir</u> |



4/5/2023
TE-B-POL
UT-II



Department of Electronics and Telecommunication Engineering
A.Y.: 2022-23
Class: TE - A

Result Analysis of Unit Test - II

| Sr.No | Roll No | Name of Student | Power Devices & Circuits | | |
|-------|---------|--------------------------------------|----------------------------|----------------------------|-------------|
| | | | Unit- 1 Marks (Q.1/Q.2) | Unit- 2 Marks (Q.3/Q.4) | Total Marks |
| 1 | 301 | JATTI MONALI NANDLAL | 14 | 20 | 34 |
| 2 | 302 | AJAY PARTOSH DAS | AB | AB | AB |
| 3 | 303 | AMBEKAR ATHARVA ATUL | 16 | 22 | 38 |
| 4 | 304 | ANSARI ASIM JAHANGIR | 14 | AB | 14 |
| 5 | 305 | ASHISH PANDA | 14 | 16 | 30 |
| 6 | 306 | BAGAL MAYUR HANUMANT | 11 | 16 | 27 |
| 7 | 307 | BHERDE RUTUJA MANISH | 18 | AB | 18 |
| 8 | 308 | BHOPLE SUVEET PRALHAD | 18 | 15 | 33 |
| 9 | 309 | BONDLA TARUN | AB | AB | AB |
| 10 | 310 | CHASKAR AVISHKAR BALU | AB | AB | AB |
| 11 | 311 | CHATE BHAKTI TUKARAM | 16 | AB | 16 |
| 12 | 312 | CHAVAN AISHWARYA ASHOK | 17 | 20 | 37 |
| 13 | 313 | CHAVAN PRAJAKTA PRATAP | 9 | 16 | 25 |
| 14 | 314 | CHITUTEWAR VAISHNAVI BALASOBB | 20 | 25 | 45 |
| 15 | 315 | DECKAR VIRAJ SANDEEP | 15 | 20 | 35 |
| 16 | 316 | DESHPANDE ADHISHEK GANESH | AB | 19 | 19 |
| 17 | 317 | DIVYA YUVARAJ SALUNKE | 14 | 18 | 32 |
| 18 | 318 | DOLSE GAYATRI DEEPAK | 19 | 24 | 43 |
| 19 | 319 | GARKWAD SHUBHAM SANJAY | AB | AB | AB |
| 20 | 320 | GHEGADE SHAMDHAVI SHIRISH | AB | AB | AB |
| 21 | 321 | GIRDE PRANAY SATYANWAN | 13 | 17 | 30 |
| 22 | 322 | GORE PRANAV DIPAK | 14 | 16 | 30 |
| 23 | 323 | GOVIND CHOUDHARY | AB | AB | AB |
| 24 | 324 | HIPPARGI HARDIK BASAVARAJ | 13 | 16 | 29 |
| 25 | 325 | INGALE OMKAR JANARDHAN | 16 | 16 | 32 |
| 26 | 326 | JADHAV ANKITA ARJUN | 14 | 16 | 30 |
| 27 | 327 | JADHAV TEJAS SANJAY | 18 | 23 | 41 |
| 28 | 328 | JADHAV VAISHAV TATERAO | 15 | AB | 15 |
| 29 | 329 | JAGTAP SHIVAN KUNWAR DATTATRAY | 14 | 16 | 30 |
| 30 | 330 | JALGAONKAR HAMID NIYAZALI | 19 | AB | 19 |
| 31 | 331 | KADAM POOJA PRAMOD | 20 | AB | 20 |
| 32 | 332 | KALE VAISHNAVI RAJKUMAR | AB | AB | AB |
| 33 | 333 | KAMBLE AJINKYA PRADEEP | 12 | 20 | 32 |
| 34 | 334 | KATE ADITI NAMDEV | 16 | 21 | 37 |
| 35 | 335 | KATCRE ROHAN VILAS | AB | AB | AB |
| 36 | 336 | KHUMKAR ANUJA ANIL | 18 | 24 | 42 |
| 37 | 337 | KONDAWALE PUNAM BHASKAR | 18 | 18 | 36 |
| 38 | 338 | KORHALE MAYUR VITHTAL | 18 | 20 | 38 |
| 39 | 339 | Ankita Sunil Mali | AB | AB | AB |
| 40 | 340 | KRIVE DESHMUKH DIOVIJAYSINH LOKANATH | 20 | 20 | 40 |
| 41 | 341 | MANISH KUMAR MISHRA | 13 | 22 | 35 |
| 42 | 342 | OMKAR DATTATRAY KALBHOR | 12 | 24 | 36 |
| 43 | 343 | PABALKAR VAISHNAVI KIRAN | 15 | 17 | 32 |
| 44 | 344 | PARATE PIYUSH DEEPAKRAO | AB | AB | AB |
| 45 | 345 | PATIL CHETANA ALIAS VARGHA | 19 | 27 | 46 |
| 46 | 346 | PATIL VAISHNAVI ASHOK | 24 | 27 | 51 |
| 47 | 347 | PAWANE VANDANA VIJAY | 18 | AB | 18 |
| 48 | 348 | PINGAT ADVAIT VINAYAK | AB | AB | AB |
| 49 | 349 | PRINCE SINGH | 13 | AB | 13 |
| 50 | 350 | PRYOTKARSH DWIVEDI | 12 | AB | 12 |
| 51 | 351 | PURI ASHUTOSH NARAYAN | 15 | 23 | 38 |
| 52 | 352 | PURNIMA DHURWEY | 17 | 24 | 41 |
| 53 | 353 | RAJ RANJAN | AB | 16 | 16 |
| 54 | 354 | RAMPURE VISHWESH LINGRAJ | 16 | 21 | 37 |
| 55 | 355 | RAPATWAR SHANTANU PRADEEP | 16 | AB | 16 |
| 56 | 356 | ROHIT RANA | 23 | 15 | 38 |
| 57 | 357 | RUKME SRUSHTI GOVIND | 23 | 24 | 47 |
| 58 | 358 | SAHANE RUTURAJ PRAMOD | AB | AB | AB |
| 59 | 359 | SARDKAR GARGI SANJAY | 23 | 25 | 48 |
| 60 | 360 | SATOTE JAYESH SANJIV | AB | AB | AB |
| 61 | 361 | SHAIKH FAHED AKIL | 21 | 26 | 47 |
| 62 | 362 | SHAIKH SAMEER KHAJAMIYA | 21 | AB | 21 |
| 63 | 363 | SHINDE NUTAN BALASAHEB | 22 | 23 | 45 |
| 64 | 364 | SHINDE RUTUJA PRAVIN | 21 | 19 | 40 |
| 65 | 365 | SHINDE SANIL SANJAY | 18 | 18 | 36 |
| 66 | 366 | SHINDE SNEHA ABASAHEB | 21 | 22 | 43 |
| 67 | 367 | SOMWANE ANIKET VILAS | 19 | 19 | 38 |
| 68 | 368 | SUBODH GAJANAN DHOKE | 15 | 19 | 34 |
| 69 | 369 | SURYAWANSHI MAYURI SATISH | 20 | 24 | 44 |
| 70 | 370 | SUTAR TUSHAR RAJENDRA | AB | AB | AB |
| 71 | 371 | TATHE BHAGYASHREE SOMNATH | AB | AB | AB |
| 72 | 372 | THORAT SAHIL SHIVAJI | 19 | 20 | 39 |
| 73 | 373 | VAHLE MONDIP SURESH | 16 | AB | 16 |
| 74 | 374 | WAGHMARE SHUBHAM SURESH | AB | 25 | 25 |

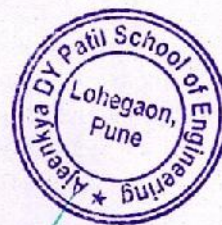
Dr. Shourya Shubham
Exam Incharge



Dr. S.C. Inamdar
HOD E & TC

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E&TC Engineering
Ajeenkya DY Patil School of Engineering
Lohegaon, Pune

PRINCIPAL
ADYPSOE, PUNE





Department of Electronics and Telecommunication Engineering

A.Y.: 2022-23

Div: B

Result Analysis of Unit Test - II

| Sr.No | Roll No | Name of Student | Power Devices & Circuits | | |
|-------|---------|------------------------------------|---------------------------|---------------------------|----------------|
| | | | Unit-1 Marks (Q.1/Q.2) | Unit-2 Marks (Q.3/Q.4) | Total Marks |
| 1 | 1 | ADEPU RITHISH BHUPENDRA | 21 | 25 | 46 |
| 2 | 2 | AKASH KUTE | AB | 13 | 13 |
| 3 | 3 | ASHISH SUDHAKAR JAGDHANE | 22 | 21 | 43 |
| 4 | 4 | BABAR PRATIK SATISH | 16 | AB | 16 |
| 5 | 5 | BANSODE DEEP BALAJI | 24 | 25 | 49 |
| 6 | 6 | BHALE ANSH RAJESH | 19 | 26 | 45 |
| 7 | 7 | BHOGLKAR AKASH DHONDIBA | 11 | AB | 11 |
| 8 | 8 | CHATURE VAISHNAVI DNYANDEV | 19 | 27 | 46 |
| 9 | 9 | CHIKANE SHUBHAM KALYAN | 18 | 14 | 32 |
| 10 | 10 | CHOTALIA HARDIK HASMUKH | 21 | 22 | 43 |
| 11 | 11 | DAFEDAR ADIL SHAEBIR | 14 | AB | 14 |
| 12 | 12 | DESAI SWARUPANAND SANJAY | 18 | 14 | 32 |
| 13 | 13 | DHANVE JANHAVI SANTOSH | 18 | 17 | 35 |
| 14 | 14 | DHAYGUDE SONALI BHARAT | 19 | 26 | 45 |
| 15 | 15 | FATIMA GAFUR SHAIKH | AB | AB | AB |
| 16 | 16 | GAIKWAD SUJIT RAJARAM | 11 | 17 | 28 |
| 17 | 17 | GANGATHADE NIKITA BHARAT | AB | 24 | 24 |
| 18 | 18 | GAURI POPAT MORE | 10 | AB | 10 |
| 19 | 19 | HASURE PRATIKSHA ANANDRAO | AB | 22 | 22 |
| 20 | 20 | HINGMIRE RAJ RAM | AB | AB | AB |
| 21 | 21 | JINGALE VAISHNAVI VIJAY | 19 | 24 | 43 |
| 22 | 22 | JADHAV ABHAY SUNIL | 20 | AB | 20 |
| 23 | 23 | JADHAV ABHISHEK ANIL | 22 | AB | 22 |
| 24 | 24 | JADHAV MRUNAL DEEPAK | 19 | 18 | 37 |
| 25 | 25 | JADHAV SUHAS SAMPAT | 17 | 26 | 43 |
| 26 | 26 | JAGDALE VARAD VIKAS | 21 | 16 | 37 |
| 27 | 27 | JAINKOP VISHAL MALLESH | AB | AB | AB |
| 28 | 28 | JASUD GAYATRI PRAVIN | 17 | 23 | 40 |
| 29 | 29 | JAWALE PRIYANKA PRAKASH | 20 | AB | 20 |
| 30 | 30 | KADAM ADESH SHRINIVAS | 11 | AB | 11 |
| 31 | 31 | KALJE OMKAR SHANKAR | 13 | 7 | 20 |
| 32 | 32 | KAMBLE SAKSHI PUNDLIK | 18 | 15 | 33 |
| 33 | 33 | KAMBLE SUJAL VASANT | 24 | 25 | 49 |
| 34 | 34 | KARKE SUSHAMA BHIMASHANKAR | 18 | 19 | 37 |
| 35 | 35 | KHAN AARISH MAROOF | 20 | AB | 20 |
| 36 | 36 | KULKARNI VEDANT RAMESH | AB | AB | AB |
| 37 | 37 | KUMAR ANANT ARVIND | 23 | 24 | 47 |
| 38 | 38 | MALI DARSHANA DATTATRAY | AB | AB | AB |
| 39 | 39 | MANISH SURESH SHINDE | 21 | AB | 21 |
| 40 | 40 | MANIYAR MOHD ASIF RIYAZ AHMED | 22 | AB | 22 |
| 41 | 41 | MANSURI GOUSMOHAMMAD INAMULLA | 21 | 23 | 44 |
| 42 | 42 | MHETRE VINOD BASAPPA | 23 | 17 | 40 |
| 43 | 43 | MOKASHE ROHINI DAGDUEA | 15 | 13 | 28 |
| 44 | 44 | MONDAL AJAY AMAR | 23 | 16 | 39 |
| 45 | 45 | NANAWARE VISHAL CHANDRAKANT | AB | AB | AB |
| 46 | 46 | OMKAR BABU SESHADRI | 23 | AB | 23 |
| 47 | 47 | PALLAVI PRASHANT SABLE | 16 | AB | 16 |
| 48 | 48 | PANCHAL SHIVSAI SUNIL | 24 | 26 | 50 |
| 49 | 49 | PANCHMUKH DIVYA MAHESH | 23 | 25 | 48 |
| 50 | 50 | PATIL KALYANI GOPAL | AB | 18 | 18 |
| 51 | 51 | PATIL PALLAVI SHRIKRISHNA | AB | 26 | 26 |
| 52 | 52 | PATIL VAISHALI KADUBA | AB | AB | AB |
| 53 | 53 | PAWAL AKASH DADARAO | 23 | 22 | 45 |
| 54 | 54 | PAWAR ADITEE RAMDAS | 24 | 24 | 48 |
| 55 | 55 | PAWAR KOMAL BHAUSAHEB | AB | AB | AB |
| 56 | 56 | PRATIK GAJANAN SADAR | 18 | 25 | 43 |
| 57 | 57 | RAJPUT PRATIK SINGH SUBHASH SINGH | 21 | 24 | 45 |
| 58 | 58 | RATHOD AJAY SHANTIRAM | AB | 18 | 18 |
| 59 | 59 | RAUT TUSHAR DILIP | 22 | 16 | 38 |
| 60 | 60 | ROKADE VAISHNAVI DIGAMBAR | 20 | 23 | 43 |
| 61 | 61 | SALALKAR MAYA RAVINDRA | 24 | 26 | 50 |
| 62 | 62 | SAURABHI VIJAY JADHAV | 11 | AB | 11 |
| 63 | 63 | SAYYAD ARSHAD PAIGAMBAR | 20 | 16 | 36 |
| 64 | 64 | SUSHMA SURESH SUPEKAR | 16 | 12 | 28 |
| 65 | 65 | SWAMI RUTUJA VIRBHADRA | 18 | 22 | 40 |
| 66 | 66 | TAKALE KIRAN INDRARAJ | 18 | AB | 18 |
| 67 | 67 | THAKKANNAVAR BHAI RAVINATH BHIMANN | 12 | 24 | 36 |
| 68 | 68 | KIRAN GANPATRAO UPASE | AB | 24 | 24 |
| 69 | 69 | VAIBHAVI SUNIL NIMBALKAR | 23 | 27 | 50 |
| 70 | 70 | VAISHANAVI TULSHIRAM SAVARGAVE | AB | 25 | 25 |
| 71 | 71 | VAISHNAVI JANARDHAN MORE | 23 | AB | 23 |
| 72 | 72 | VISHAKHA RAOSAHEB PATIL | AB | 24 | 24 |
| 73 | 73 | WALZADE ABHISHEK BALASAHEB | 15 | AB | 15 |
| 74 | 74 | YADAV ANUSHKA ANIL | 16 | AB | 16 |



Dr. S.C. Inamdar

Dr. S.C. Inamdar
HOD E & TC

HOD

E&TC Engineering
Ajeenkya DY Patil School of Engineering
Lohegaon, Pune



A

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AJEENKYA
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"Empowerment through quality technical education"

AJEENKYA DY Patil School of Engineering

Dr. D. Y. Patil Knowledge City, Charholi (Bk), Lohgaon, Pune – 412 105

Department of E&TC Engineering

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Subject Result



Dr. D. Y. Patil Technical Campus
Dr. D. Y. Patil School of Engineering
Dr. D. Y. Patil Knowledge City, Charholi (Bk), Lohegaon, Pune – 412 105
Website: www.dypic.in Contact No.: 020-6707 7926

Form No: IQAC/6

RESULT ANALYSIS

SPPU Examination: AY 2021-22

Department: E&TC

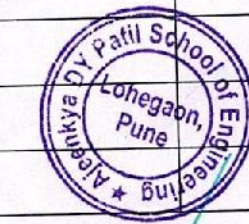
Date of declaration of result: 12 sept 2022

Semester: II

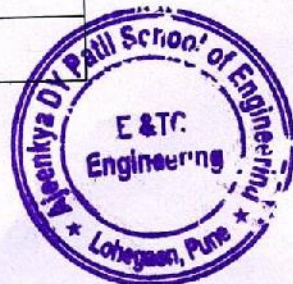
Class: TE-E&TC

Overall Result Analysis

| Sr. No. | Details | No. of Students |
|---------|---|-----------------|
| 1 | No. of students appeared | 54 |
| 2 | No. of students passed(All clear) | 41 |
| 3 | No. of students failed | 13 |
| 4 | All clear passing Percentage | 75.92 |
| 5 | All clear passing Percentage(University) | - |
| 6 | Percentage of passing with ATKT | 7.40% |
| 7 | Percentage of passing with ATKT(University) | - |
| 8 | No. of students passed with Distinction | 10 |
| 9 | No. of students passed with First Class | 11 |
| 10 | No. of students passed with Higher Second Class | 13 |
| 11 | No. of students passed with Second Class | 03 |
| 12 | No. of students passed with Pass Class | 04 |
| 13 | No. of students failed in 1 Th. Sub | 05 |
| 14 | No. of students failed in 2 Th. Subs | 03 |
| 15 | No. of students failed in 3 Th. Subs | 04 |
| 16 | No. of students failed in more than 3 Th. Subs | 09 |
| 17 | No. of students failed in 1 Pr/Or | 06 |
| 18 | No. of students failed in 2 Pr/Or | 02 |
| 19 | No. of students failed in 3 Pr/Or | 01 |



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A. Subject Wise Result Analysis:

| Sr. No. | Name of the Subject | TH/P R | Name of the Staff Member | No. of Students Appeared | No. of Students Passed | % of Passing |
|---------|--------------------------|--------|--------------------------|--------------------------|------------------------|--------------|
| 1 | DIGITAL IMAGE PROCESSING | TH | Dr. S.M.Koli | 54 | 33 | 61.11 |
| 2 | POWER DEVICES & CIRCUITS | TH | Prof. Riyaj Kazi | 54 | 34 | 62.96 |
| 3 | CELLULAR NETWORKS | TH | Prof. S.B. Chougale | 54 | 41 | 75.92 |
| 4 | PROJECT MANAGEMENT | TH | Dr. Saniya Ansari | 54 | 45 | 83.33 |

| Sr. No. | Subject | No. of students appeared | No. of students obtaining marks in the range | | | | Name of Topper | Marks Obtained |
|---------|--------------------------|--------------------------|--|----------|----------|----------|------------------------------------|----------------|
| | | | 66 to 100 | 60 to 65 | 55 to 59 | 54 to 40 | | |
| 1 | DIGITAL IMAGE PROCESSING | 54 | 05 | 02 | 07 | 18 | VIKESH BHARTI GOSWAMI | 73 |
| 2 | POWER DEVICES & CIRCUITS | 54 | 08 | 06 | 06 | 17 | HANNAMSHETTY ABHIJEET | 79 |
| 3 | CELLULAR NETWORKS | 54 | 03 | 07 | 11 | 19 | CHIRIVELLA LAKSHMIMANASA SHRINIVAS | 73 |
| 4 | PROJECT MANAGEMENT | 54 | 09 | 06 | 06 | 23 | KANKATE VAISHNAVI PRITAM | 81 |

B. Toppers:

| Rank | Examination Seat Number | Name of students | Total Marks out of 700 | SGPA | Class Obtained |
|------|-------------------------|------------------------|------------------------|------|----------------|
| 1 | T190883044 | SAURAV SUMAN | 532 | 9.36 | FCWD |
| 2 | T190883024 | KAPADNE PRADNYA KISHOR | 507 | 9.19 | FCWD |
| 3 | T190883029 | LAWANDE SEJAL ROHIDAS | 500 | 9.14 | FCWD |

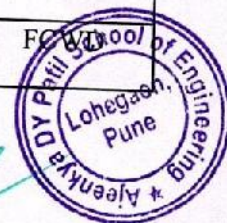
Dr. S.M. Koli
HOD

Head
Department of E&TC Engg.
Dr. D. Y. Patil School of Engg.
Charholi (Bk), Via Lohgaon, Pune



Dr. F. B. Sayyad
Principal

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Lab Manual

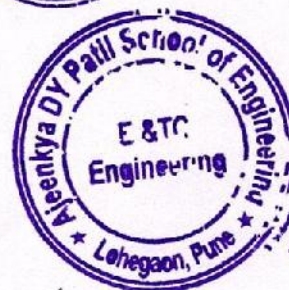



Ajeenkya DY Patil School of Engineering, Lohegaon

Department of Electronics & Telecommunication Engg.

LAB MANUAL

Power Devices & Circuits




PRINCIPAL
ADYPSOE, PUNE



Ajeenkya DY Patil School of Engineering, Lohegaon

CERTIFICATE

This is to certify that

Mr. / Ms. _____

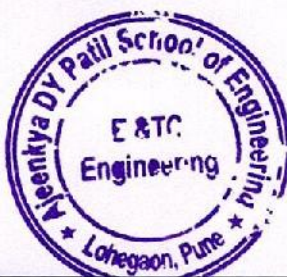
*Of Class TE - _____ Roll No. _____ Has completed all the practical
work in the subject **Power Devices & Circuits** Satisfactorily in the
Department of E&TC Engineering
as prescribed by University of Pune, in the academic year 20__ - .*

Staff In-charge

Head of the Department


Principal

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ADYPSOE, PUNE**



Department of Electronics & Telecommunication Engineering,
ADYPSOE, Lohegaon

Power Devices and Circuits



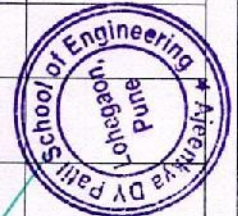
Ajeenkya DY Patil School of Engineering, Lohegaon

INDEX

Name: _____ Roll No. _____

Class: _____ Subject: _____

| Sr. No. | Title of Experiment & Assignment | Date | Page No. | Remark | Sign of Teacher |
|---------|---|------|----------|--------|-----------------|
| 1. | VI Characteristics of SCR i) Plot output V-I characteristics to measure I_H , I_L | | | | |
| 2. | Drain & Transfer Characteristics of Power MOSFET & IGBT | | | | |
| 3. | To Study UJT Triggering Circuit for SCR | | | | |
| 4. | A single phase semi converter with R & RL Load | | | | |
| 5. | Single phase Full Converter using IGBT / SCR with R & R-L load | | | | |
| 6. | Step down / Step up chopper using power MOSFET / IGBT | | | | |
| 7. | SMPS /UPS Performance Evaluation i) find load & line regulation characteristics | | | | |
| 8. | Single phase AC voltage controller using IGBT/SCR for R and RL load | | | | |
| 9. | To study speed control of DC / single phase AC motor | | | | |
| 10. | To Study Automatic Voltage Regulator and UPS | | | | |
| 11. | To study battery testing, safety and maintenance of batteries | | | | |



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Department of Electronics & Telecommunication Engineering,
ADYPSOE, Lohegaon

Experiment No.: 01

Date:

V-I CHARACTERISTICS OF SCR**AIM:** To plot V-I Characteristics & measure I_L , I_H of SCR**EQUIPMENTS & COMPONENTS:**

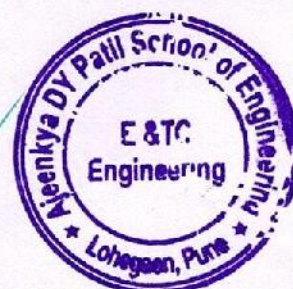
1. Trainer kit
2. VARIAC
3. 3 Multimeters (2 as ammeters & 1 as a voltmeter)
4. 15W or 25W load lamp (230V)
5. CRO
6. Connectors, etc.

THEORY:

The SCR is a four layer device with three terminals, namely the anode, cathode and gate. When the anode is made positive w.r.t. cathode, junction J2 is reversed biased and only the leakage current will flow through the device. SCR is then said to be in forward biased blocking state or OFF state. When the cathode is made positive w.r.t. anode junction J1 and J3 reverse biased and a small reverse current will flow through SCR. This is the reverse blocking state of the device. When the anode to cathode voltage is increased, the reverse biased junction J2 will breakdown due to large voltage gradient across the depletion layers. This is the avalanche breakdown. Since the other junctions J1 and J3 are forward biased, there will be free carrier movement across the three junctions resulting in a large anode to cathode forward current. The voltage drop across the device will be ohmic drop in the four layers and device is in conduction state or ON state.

If anode to cathode voltage is now reduced, since the original depletion layer and reversed biased J2 no longer remains in conducting state or ON state when the forward current will flow below the level of the holding current I_H . The depletion layer will begin to establish across the junction J2 due to the reduced number of carriers and the device will go into the blocking state. Similarly, when the SCR is switched ON, the resulting forward current has to be more than the latching current I_L , holding current is usually lower but very close to the latching current, and its magnitude is of the order of mA.

When SCR is reversed biased, the device will behave in the same manner as two diodes connected in series with the reversed voltage applied across them.



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PROCEDURE:**(A) V-I Characteristics:**

1. Connect a VARIAC at zero position to given terminals (ac input) on trainer kit.
2. Connect a 230V, 15W lamp as a load at given terminals.
3. Connect one ammeter for anode current I_a and another ammeter for gate current I_g at given terminals.
4. Ensuring that both VARIAC & V_g potentiometer are at 0 position, switch on the trainer kit & VARIAC.
5. Now increase VARIAC voltage gradually to $V_s (V_{AK}) = 100V$ or $200V$, then increase I_g gradually till load activation (glowing of lamp load) & measure load current (I_a). Note these readings as $I_{g1} = \dots$, $V_{AK1} = 100V / 200V$, $I_{a1} = \dots$
6. Reset the system, Now keeping V_{AK} zero increase $I_{g2} = I_{g1} + 0.03mA / 0.05mA$ and then increase V_{AK} gradually till SCR conduction. Note these readings as I_{g2} , V_{AK2} & I_{a2} .
7. Repeat the step 6 for different values of gate currents I_{g3}, I_{g4} , etc.
8. Tabulate the readings and plot the I_a versus V_{AK} .

**** Note / Precaution:** Do not use lamp load more than 25W other wise kit will gets damaged.

(B) Measurement of latching current: I_L

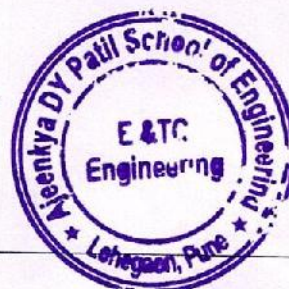
1. Apply $V_{AK} = 50V - 60V$, turn on the SCR by increasing sufficient I_g .
2. After conduction of SCR make gate current zero, SCR will remain in ON state which is called latching condition.
3. Now reduce V_{AK} gradually by observing I_a on ammeter. I_a will reduce w.r.t. V_{AK}
4. At one stage I_a becomes zero from a non zero current value. Note this non zero I_a as a latching current.

(C) Measurement of holding current: I_H

1. Apply $V_{AK} = 50V - 60V$, turn on the SCR by increasing sufficient I_g .
2. After conduction of SCR keep gate current as it is, (do not make I_g zero as in latching current case) SCR will remain in ON state
3. Now reduce V_{AK} gradually by observing I_a on ammeter. I_a will reduce w.r.t. V_{AK}
4. At one stage I_a becomes zero from a non zero current value. Note this non zero I_a as a holding current.

(D) Characteristics curve on CRO:

- 1) Keep CRO in X-Y mode
- 2) Connect anode to X (channel-1), connect cathode to Y (channel-2)
- 3) Vary the potentiometer, observe the effect of gate current on characteristics curve on CRO.

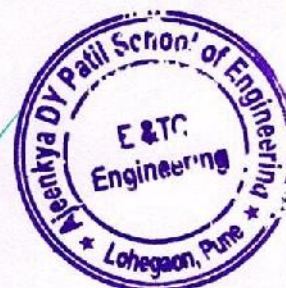


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OBSERVATIONS:

| $I_{G1} = \text{mA}$ | | $I_{G2} = \text{mA}$ | |
|----------------------|--------------|----------------------|--------------|
| $V_{AK1} (V)$ | $I_{A1} (A)$ | $V_{AK2} (V)$ | $I_{A2} (A)$ |
| 10 | | | |
| 20 | | | |
| 30 | | | |
| | | | |
| 200 | | | |

| $I_{G3} = \text{mA}$ | | $I_{G4} = \text{mA}$ | |
|----------------------|--------------|----------------------|--------------|
| $V_{AK3} (V)$ | $I_{A3} (A)$ | $V_{AK4} (V)$ | $I_{A4} (A)$ |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Latching current (I_L) = mAHolding current (I_H) = mA**CONCLUSIONS:**

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Experiment No.:02 Class: T.E. (E&TC) Subject: Power Electronics Date:

DRAIN & TRANSFER CHARACTERISTICS OF POWER MOSFET & IGBT**AIM:** To study $V-I$ & Transfer characteristics of power MOSFET / IGBT**EQUIPMENTS & COMPONENTS:**

1. Trainer kit
2. Dual power supply (does not require in case of inbuilt power supply)
3. Multimeters (3)
4. Connectors, etc.

THEORY:**1) MOSFET:**

The MOSFET is a Metal oxide silicon di-oxide field effect transistor. It is a three terminal device which are gate, drain and source. The MOSFET is a voltage controlled device where as BJT is a current controlled device.

There are two types of MOSFETs: i) Depletion type MOSFET and
ii) Enhancement type MOSFET

The channel in the center is absent for enhancement type MOSFET but the channel is present in depletion type MOSFET. The gate voltage can either be positive or negative in depletion type MOSFET. but enhancement MOSFET responds only for positive gate voltage.

The n- drift region increases the onstage drop of MOSFET and also the thickness of this region determines the breakdown voltage of MOSFET. The different symbols are as below:

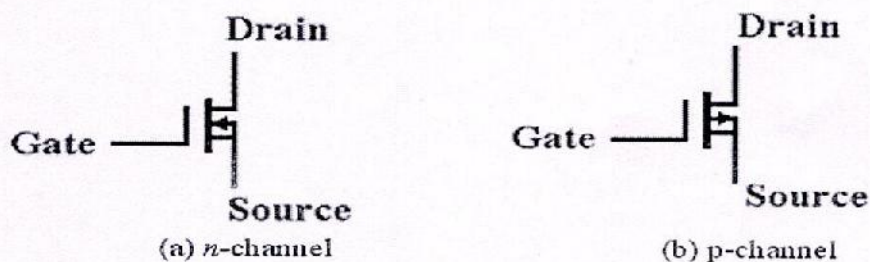


Fig.1: Symbols of depletion type MOSFET

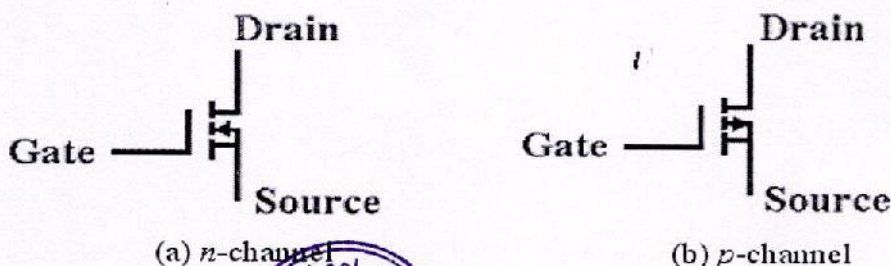


Fig.2: Symbols of enhancement type MOSFET

2) IGBT:

The Insulated Gate Bipolar Transistor, (IGBT) uses the insulated gate (hence the first part of its name) technology of the MOSFET with the output performance characteristics of a conventional bipolar transistor, (hence the second part of its name). The result of this hybrid combination is that the "IGBT Transistor" has the output switching and conduction characteristics of a bipolar transistor but is voltage-controlled like a MOSFET.

The insulated gate bipolar transistor or IGBT is a three-terminal power device, noted for high efficiency and fast switching. The structure is very similar to that of a vertically diffused MOSFET featuring a double diffusion of a p-type region and an n-type region. An inversion layer can be formed under the gate by applying the correct voltage to the gate contact as with a MOSFET. The main difference is the use of a p+ substrate layer for the drain. The effect is to change this into a bipolar device as this p-type region injects holes into the n-type drift region.

The main advantages of IGBT over a Power MOSFET and a BJT are:

1. It has a very low on-state voltage drop due to conductivity modulation and has superior on-state current density. So smaller chip size is possible and the cost can be reduced.
2. Low driving power and a simple drive circuit due to the input MOS gate structure. It can be easily controlled as compared to current controlled devices (thyristor, BJT) in high voltage and high current applications.
3. Wide SOA. It has superior current conduction capability compared with the bipolar transistor. It also has excellent forward and reverse blocking capabilities.

The main drawbacks are:

1. Switching speed is inferior to that of a Power MOSFET and superior to that of a BJT. The collector current tailing due to the minority carrier causes the turn-off speed to be slow.
2. There is a possibility of latchup due to the internal PNP thyristor structure

PROCEDURE:**A) V-I Characteristics:**

1. Make the connection as per the diagram.
2. Keep the gate source voltage constant at 0V ($V_{GS} = 0V$).
3. Apply the $V_{DS} = 1V$, still drain current I_D will be zero
4. Now increase V_{GS} gradually till I_D becomes nonzero, ($200\mu A - 300\mu A$) note this V_{GS} as V_{GS1}
5. Now Vary the V_{DS} from 0 to 12V as per the steps mention in the observation table.
6. Note down the corresponding readings of I_D .
7. Repeat the above procedure for different $V_{GS2} = V_{GS1} + 0.2V$, $V_{GS3} = V_{GS2} + 0.2V$, $V_{GS4} = V_{GS3} + 0.2V$,
8. Plot the drain characteristics V_{DS} Vs I_D for various values of V_{GS} on graph paper

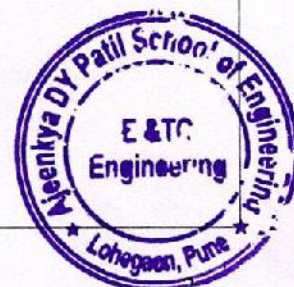
B) Transfer Characteristics:

1. Make the connection as per the diagram.

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2. Keep the gate source voltage constant at V_{GS1} as above part (A) and increase V_{DS} to 5V, note down corresponding I_D
3. Now increase gate source voltage at constant V_{DS} in step of 0.1V and note down corresponding I_D values
4. Plot the transfer characteristics V_{GS} vs I_D for constant value of V_{DS}

*** Repeat same procedure for IGBT

OBSERVATION TABLE:

(A) V - I Characteristics :

| Sr No | V_{DS} (volts) | I_D (mA) | | | |
|-------|------------------|------------|------------|------------|------------|
| | | $V_{GS1}=$ | $V_{GS2}=$ | $V_{GS3}=$ | $V_{GS4}=$ |
| 1 | 0.2 | | | | |
| 2 | 0.4 | | | | |
| 3 | 0.6 | | | | |
| 4 | 0.8 | | | | |
| 5 | 1.0 | | | | |
| 6 | 2.0 | | | | |
| 7 | 3.0 | | | | |
| 8 | 4.0 | | | | |
| 9 | 5.0 | | | | |
| 10 | 6.0 | | | | |
| 11 | 7.0 | | | | |
| 12 | 8.0 | | | | |
| 13 | 9.0 | | | | |
| 14 | 10.0 | | | | |
| 15 | 11.0 | | | | |
| 16 | 12.0 | | | | |

(ii) Transfer Characteristics:

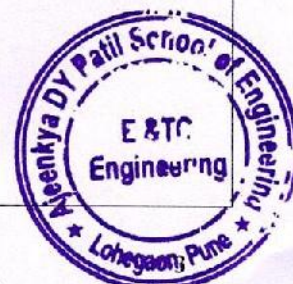
| Sr No | $V_{DS} = 5V$ | |
|-------|---------------|------------|
| | V_{GS} (V) | I_D (mA) |
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |

CONCLUSIONS:

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EXPT. No. 03

Experiment No.:**Date:****AIM:** To study UJT Triggering Circuit for SCR**APPARATUS:**

1. Dual Trace SCR
2. Digital Multimeter
3. Trainer kit
4. Load resistors, Connectors, etc.

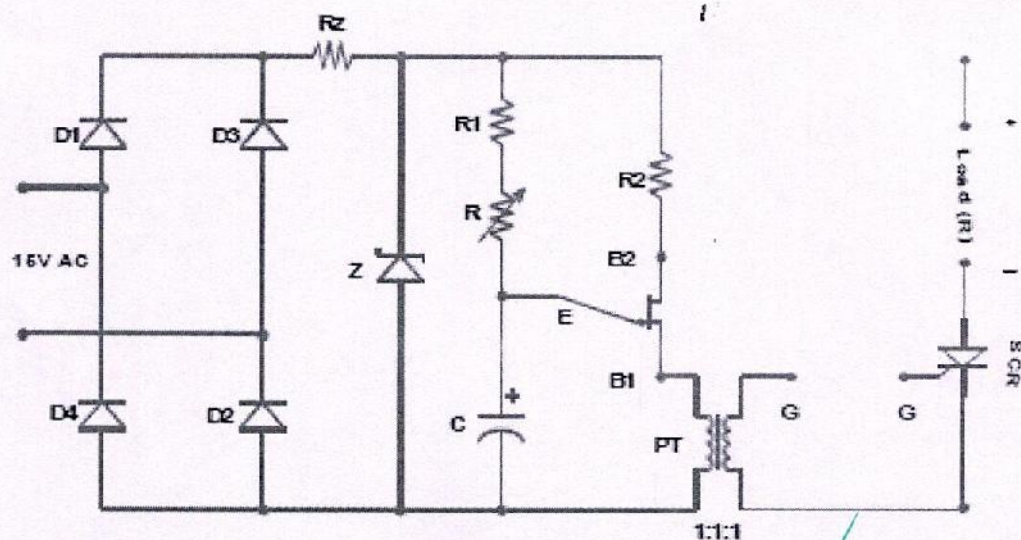
THEORY:

This training system is designed to explain working principles of UJT triggering circuit.

UJT exhibits negative resistance characteristics hence it is operating under relaxation mode.

Basically R & R-C triggering circuits provide long duration gate pulses which increases gate losses so that sharp & narrow pulses are preferred for SCR which can be obtained from UJT relaxation oscillator.

Here a line synchronized UJT triggering circuit is used which consists of a bridge rectifier (without filter), a zener regulator & an UJT relaxation oscillator.

Circuit Operation:**UJT Triggering Circuit for SCR (Line Synchronized)****Circuit Diagram**

AC input applied to bridge rectifier provides pulsated full wave dc voltage. The o/p of bridge rectifier is regulated by a zener regulator to a predetermined value. Resistor R_z is current limiting resistor through zener. The regulated o/p V_z is given to UJT relaxation oscillator as V_{BS} .

When supply is switched ON capacitor starts charging towards V_z through R_1 & R . When capacitor voltage reaches to V_p , junction E-B1 breaks & UJT starts conducting. As UJT conducts, capacitor C discharges through UJT and a sharp & narrow current pulse is obtained across secondary of pulse transformer which is given to gate of SCR.

PROCEDURE:

1. Ensuring all pots at minimum position switch on the trainer kit.
2. Observe waveforms at o/p of bridge rectifier, across zener.
3. Observe waveforms across C (Charging & discharging)
4. Now rotate 'pot R ' on kit gradually and observe the change in waveform on CRO.
5. Also Observe waveforms (pulse) across primary of pulse transformer.
6. Now connect gate pulse to gate of SCR, connect J1 of bridge to J1 of SCR.
7. Connect a load of 220Ω or 330Ω , observe different waveforms across load by varying 'pot R ' at different firing angles!
8. Also note down α_{min} & α_{max}
9. Sketch the waveforms across load & SCR at α_{min} & α_{max}
10. Tabulate the readings.

OBSERVATION TABLE:

| Sr. No. | Firing Angle | V_o |
|---------|------------------|-------|
| 1 | $\alpha_{max} =$ | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | $\alpha_{min} =$ | |

Graph: Firing Angle Vs Speed

Conclusion:



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Experiment No.: 04

Date:

SINGLE PHASE HALF CONTROLLED CONVERTER (SEMICONVERTER)**AIM:** To study Single Phase Half controlled Rectifier (Semi converter) for R / R-L load**EQUIPMENTS & COMPONENTS:**

1. Trainer kit
2. Unearthed Dual Trace CRO/ Power scope
3. Multimeters
4. Load lamp, 15 – 25W
5. Connectors, etc.

THEORY:

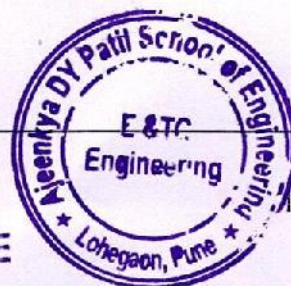
- This training system is designed to explain working principle of semiconverter.
- Here the Phase Angle Control technique is used using UJT triggering circuit..
- The position of firing angle may be from 10° to 170° on half cycle to obtain maximum to minimum voltage across the load.

CIRCUIT OPERATION:**(i) Control Circuit:**

Control circuit consists of a line synchronized UJT relaxation oscillator. Bridge rectifier converts 15V ac input to pulsating dc voltage o/p. During +ve half cycle of input diodes D1-D2 conduct, while during -ve half cycle of i/p diodes D3-D4 conduct. The output of this bridge is regulated by a zener diode. Resistor R_z controls current through zener.

When circuit is switched ON, capacitor C starts charging through R & R1 towards source voltage. When capacitor voltage reaches to peak voltage of UJT i.e. V_p , emitter-base junction (E-B1) of UJT breaks and UJT conducts. During UJT conduction capacitor C discharges through UJT and a pulse is obtained across primary of pulse transformer which is used as a gate pulse. Here R is a potentiometer which controls charging rate of capacitor. Pulse transformer has 1:1:1 turn ratio, therefore pulses of same rating will appear across both secondary windings. Pulse transformer also provides isolation between triggering circuit & power converter circuit. Pulses at first secondary are given to SCR T1 as G1-K1, similarly Pulses at next secondary are given to SCR T2 as G2-K2.

- Advantages:**
1. UJT triggering circuit provides sharp & narrow gate pulses which reduces the gate losses.
 2. It provides isolation between triggering circuit & power circuit.
 3. Firing angle range is $0 - 180^\circ$
 4. It exhibits ~~no~~ ^{good} ~~poor~~ ^{excellent} ~~poor~~ ^{excellent} characteristics hence used under relaxation Mode.



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(ii) Power Converter Circuit:

Power converter circuit consists of two SCRs & two diodes connected in symmetrical configuration. During +ve half cycle T1 & D2 become forward biased, after gating gate pulse to T1, both T1 & D2 conduct in one direction and load voltage is positive. During -ve half cycle T2 & D1 become forward biased, after gating gate pulse to T2, both T2 & D1 conduct in the same direction and hence load voltage remains positive. In this way by controlling firing angle by pot R in control circuit dc voltage gets controlled.

During firing angle duration there is inherent freewheeling by either T1-D1 or T2-D2 when R-L load is connected.

PROCEDURE:

1. Observe & sketch different waveforms in control circuit i.e. o/p of bridge, voltage across zener, voltage across capacitor C and voltage across primary of pulse transformer.
2. Now connect G1 of control circuit to G1 of power converter, similarly connect K1 to K1, G2 to G2 & K2 to K2.
3. Connect a lamp load (R load) of 25W / 40W in given bulb socket.
4. AC input can be connected either from VARIAC or from 0-36V (rms), 50Hz transformer..
5. Connect a power scope / CRO & a multimeter across the load.
6. Observe load voltage waveform on CRO, measure corresponding o/p voltage & firing angle.
7. Now vary the firing angle by pot, observe different waveforms across load, measure corresponding o/p voltages & firing angles.
8. Tabulate the readings, compare with theoretical o/p, plot the graph α vs V_o
9. Repeat the all procedure for R - L load.
10. Repeat the all procedure for R - L load with freewheeling diode

OBSERVATION TABLE:

$$V_{in} = \text{-----} V \text{ (rms)}$$

$$V_m = 1.414 * V_{in} = \text{-----} V$$

Formulae: 1) For R load

$$V_o = \frac{V_m}{\pi} (1 + \cos \alpha)$$

2) For R-L load

$$V_o = \frac{V_m}{\pi} (1 + \cos \alpha)$$

3) For R-L load with freewheeling diode

$$V_o = \frac{V_m}{\pi} (1 + \cos \alpha)$$



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1) For R load:-

| Sr. No. | Firing Angle | V0 (Practical) | V0 (Theoretical) |
|---------|--------------|------------------|--------------------|
| 1 | 30 | | |
| 2 | 45 | | |
| 3 | 65 | | |
| 4 | 90 | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |

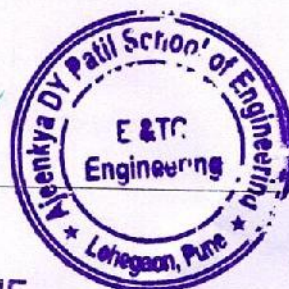
2) For R – L load:-

| Sr. No. | Firing Angle | V0 (Practical) | V0 (Theoretical) |
|---------|--------------|------------------|--------------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |

3) For R – L load with freewheeling diode:-

| Sr. No. | Firing Angle | V0 (Practical) | V0 (Theoretical) |
|---------|--------------|------------------|--------------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |

CONCLUSIONS:



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Experiment No.: 05

Date:

SINGLE PHASE FULL CONTROLLED CONVERTER**AIM:** To Study Single Phase Full converter for R / R-L load**EQUIPMENTS & COMPONENTS:**

1. Trainer kit
2. Unearthed Dual Trace CRO/ Power scope
3. Multimeters
4. Load lamp, 15 – 25W
5. Connectors, etc.

THEORY:

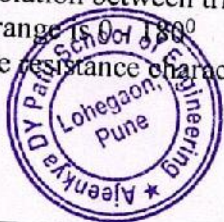
- This training system is designed to explain working principle of full converter
- Here the Phase Angle Control technique is used using UJT triggering circuit..
- The position of firing angle may be from 10° to 170° on half cycle to obtain maximum to minimum voltage across the load.

CIRCUIT OPERATION:**(i) Control Circuit:**

Control circuit consists of a line synchronized UJT relaxation oscillator. Bridge rectifier converts 15V ac input to pulsating dc voltage o/p. During +ve half cycle of input diodes D1-D2 conduct, while during -ve half cycle of i/p diodes D3-D4 conduct. The output of this bridge is regulated by a zener diode. Resistor R_z controls current through zener.

When circuit is switched ON, capacitor C starts charging through R & R_1 towards source voltage. When capacitor voltage reaches to peak voltage of UJT i.e. V_p , emitter-base junction (E-B1) of UJT breaks and UJT conducts. During UJT conduction capacitor C discharges through UJT and a pulse is obtained across primary of pulse transformer which is used as a gate pulse. Here R is a potentiometer which controls charging rate of capacitor. Pulse transformer has 1:1:1 turn ratio, therefore pulses of same rating will appear across both secondary windings. Pulse transformer also provides isolation between triggering circuit & power converter circuit. Pulses at first secondary are given to SCR T1 as G1-K1, similarly Pulses at next secondary are given to SCR T2 as G2-K2.

- Advantages:**
1. UJT triggering circuit provides sharp & narrow gate pulses which reduces the gate losses.
 2. It provides isolation between triggering circuit & power circuit.
 3. Firing angle range is 0° to 180°
 4. It exhibits -ve resistance characteristics hence used under relaxation Mode.



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(ii) Power Converter Circuit:

Power converter circuit consists of four SCRs connected in symmetrical configuration. During +ve half cycle T1 & T2 become forward biased, after gating pulse both T1 & T2 conduct in one direction and load voltage is positive. During -ve half cycle T3 & T4 become forward biased, after gating gate pulse T3 & T4, both conduct in the same direction and hence load voltage remains positive. In this way by controlling firing angle by pot R in control circuit dc voltage gets controlled.

There is no inherent freewheeling action in full converter

PROCEDURE:

1. Observe & sketch different waveforms in control circuit i.e. o/p of bridge, voltage across zener, voltage across capacitor C and voltage across primary of pulse transformer.
2. Now connect G1 of control circuit to G1 of power converter, similarly connect K1 to K1, G2 to G2 & K2 to K2.
3. Connect a lamp load (R load) of 25W / 40W in given bulb socket.
4. AC input can be connected either from VARIAC or from 0-36V (rms), 50Hz transformer..
5. Connect a power scope / CRO & a multimeter across the load.
6. Observe load voltage waveform on CRO, measure corresponding o/p voltage & firing angle.
7. Now vary the firing angle by pot, observe different waveforms across load, measure corresponding o/p voltages & firing angles.
8. Tabulate the readings, compare with theoretical o/p, plot the graph α vs V_o
9. Repeat the all procedure for R - L load.
10. Repeat the all procedure for R - L load with freewheeling diode

OBSERVATION TABLE:

$$V_{in} = \text{-----} V \text{ (rms)}$$

$$V_m = 1.414 * V_{in} = \text{-----} V$$

Formulae: 1) For R load

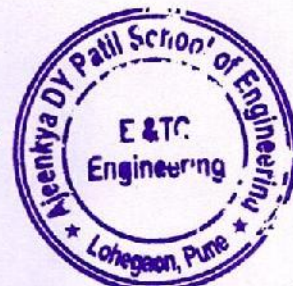
$$V_o = \frac{V_m}{\pi} (1 + \cos \alpha)$$

2) For R-L load

$$V_o = [2V_m/\pi] \times \cos \alpha$$

3) For R-L load with freewheeling diode

$$V_o = [2V_m/\pi] \times \cos \alpha$$



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1) For R load:-

| Sr. No. | Firing Angle | V0 (Practical) | V0 (Theoretical) |
|---------|--------------|------------------|--------------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |

2) For R – L load:-

| Sr. No. | Firing Angle | V0 (Practical) | V0 (Theoretical) |
|---------|--------------|------------------|--------------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |

3) For R – L load with freewheeling diode:-

| Sr. No. | Firing Angle | V0 (Practical) | V0 (Theoretical) |
|---------|--------------|------------------|--------------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |

CONCLUSIONS:

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Experiment No: 1

Date:

AIM: To study DC Chopper (step down) using MOSFET.

APPARATUS:

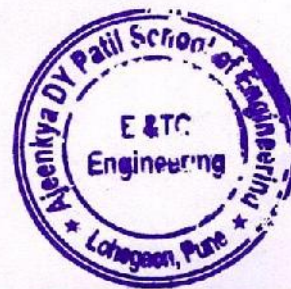
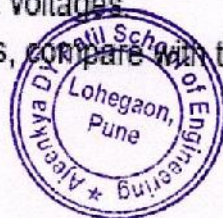
1. Dual trace CRO
2. Digital Multimeter
3. Trainer kit
4. Power supply,
5. Connectors, etc.

THEORY:

- i) This training system is designed to explain working principle of step down DC chopper. A chopper is a circuit which converts fixed dc voltage into Variable dc voltage i.e. dc - dc converter. It consists of a gate drive circuit & a MOSFET as a switch. By making switch ON / OFF o/p voltage is made variable from $0 - V_s$.
- ii) Here the time ratio Control (TRC) technique is used using a IC555 based gate drive circuit.
- iii) The ON time can be varied by R_A , OFF time can be varied by R_B , hence duty cycle / frequency can be change.

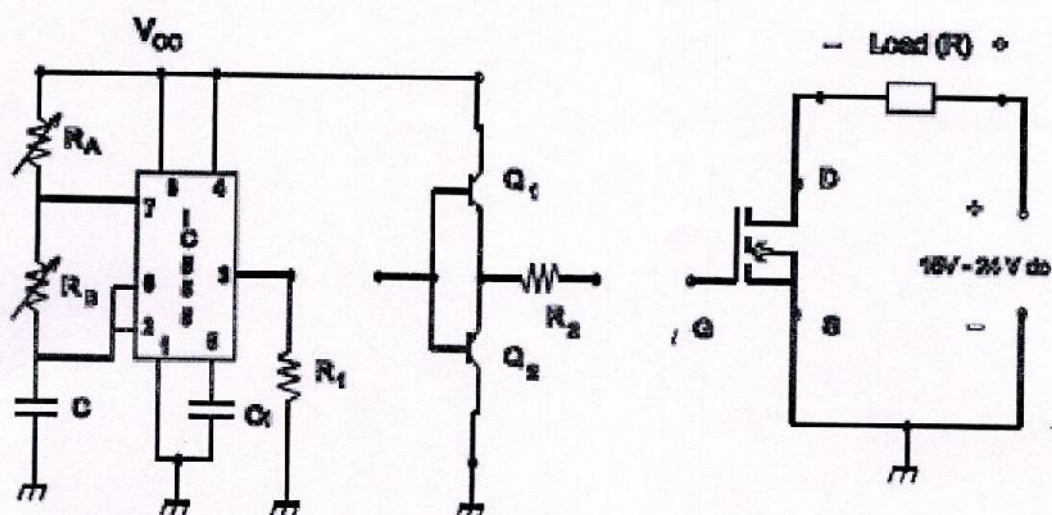
PROCEDURE:

1. Observe waveform at o/p of astable multivibrator using IC555.
2. Connect above o/p to i/p of totem pole circuit (base of Q1 & Q2) and observe its output.
3. Apply 12V - 24V dc as an input to chopper.
4. Now connect o/p of totem pole to gate of MOSFET.
5. Connect a CRO across load which is internally connected.
6. Observe load voltage waveform on CRO, measure T_{ON} , T_{OFF} on CRO and measure corresponding o/p voltage.
7. Now vary the T_{ON} or T_{OFF} by R_A or R_B respectively and measure corresponding output voltages.
8. Tabulate the readings, compare with theoretical o/p.



EXPERIMENT NO: 06

Circuit Diagram

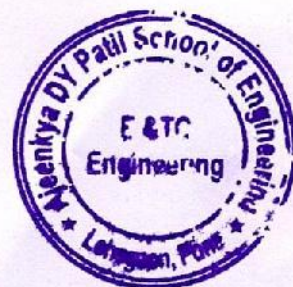


R_A
(T_{ON} Control)

R_B
(T_{OFF} Control)



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EXPERIMENT NO: 06

OBSERVATION TABLE:

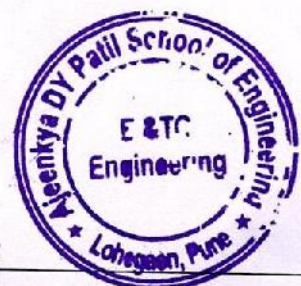
| Sr. No. | T _{ON} | T _{OFF} | T | Duty cycle | V _O (Practical) | V _O (Theoretical) |
|---------|-----------------|------------------|---|------------|---------------------------------|----------------------------------|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |

CONCLUSIONS:

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Experiment No.: 07

Date:

LOAD & LINE REGULATIONS OF SMPS**AIM:** To find load & line regulations of Switch Mode Power Supply (SMPS)**EQUIPMENTS & COMPONENTS:**

1. Trainer kit
2. Multimeters
3. VARIAC
4. Different loads / Rheostat, Connectors etc.

THEORY:

- This training system is designed to explain working principle of Switch Mode Power Supply (SMPS)
- TOP-Switch is a single CMOS chip which integrates a power MOSFET, PWM control & protection circuitry on a single chip.
- This design delivers 10W at 12V. It is operated from 120V – 265V ac supply.

Pin Functional Description of TOP-Switch:**DRAIN (D) Pin:**

High voltage power MOSFET drain output. The internal startup bias current is drawn from this pin through a switched high voltage current source. Internal current limit sense point for drain current.

CONTROL (C) Pin:

Error amplifier and feedback current input pin for duty cycle control. Internal shunt regulator connection to provide internal bias current during normal operation. It is also used as the connection point for the supply bypass and auto-restart/ compensation capacitor.

LINE-SENSE (L) Pin: (Y or R package only)

Input pin for OV, UV, line feed forward with DCMAX reduction, remote ON/OFF and synchronization. A connection to SOURCE pin disables all functions on this pin.

EXTERNAL CURRENT LIMIT (X) Pin: (Y or R package only)

Input pin for external current limit adjustment, remote ON/OFF, and synchronization. A connection to SOURCE pin disables all functions on this pin.

MULTI-FUNCTION (M) Pin: (P or G package only)

This pin combines the functions of the LINE-SENSE (L) and EXTERNAL CURRENT LIMIT (X) pins of the Y package into one pin. Input pin for OV, UV, line feed forward with DCMAX reduction, external current limit adjustment, remote ON/OFF and synchronization. A connection to SOURCE pin disables all functions on this pin and makes TOPSwitch-XX operate in simple three terminal mode (like TOPSwitch-II).

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FREQUENCY (F) Pin: (Y or R package only)

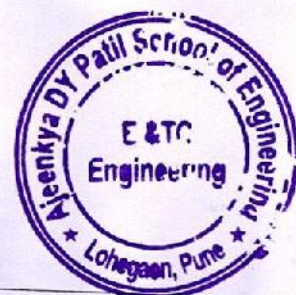
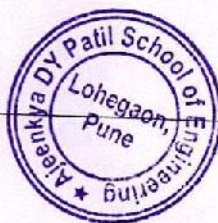
Input pin for selecting switching frequency: 132 kHz if connected to SOURCE pin and 66 kHz if connected to CONTROL pin. The switching frequency is internally set for fixed 132 kHz operation in P and G packages.

SOURCE (S) Pin:

Output MOSFET source connection for high voltage power return. Primary side control circuit common and reference point.

Circuit Diagram

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PROCEDURE:**(A) For Load Regulation:**

1. Connect VARIAC to ac input terminals, ensuring at zero position switch ON it.
2. Now apply 230V ac from VARIAC, measure o/p at given terminals, it will be of 12V dc which is no load voltage i.e. $V_{NL} = 12V$.
3. Connect a load or (rheostat) having $100K\Omega$ to $220K\Omega$ at o/p, measure o/p across load.
4. Vary the load, from 220Ω to $2K\Omega$ measure corresponding load voltages.
5. Tabulate the readings, find load regulation.

$$\% \text{Load Regulation} = \frac{V_{NL} - V_{FL}}{V_{FL}} * 100$$

(B) For Line Regulation:

1. Connect VARIAC to ac input terminals, ensuring at zero position switch ON it.
2. Now apply 250V ac from VARIAC, connect a load resistance of $1K\Omega$, measure o/p at given terminals, it will be of 12V dc.
3. Decrease the ac i/p from VARIAC in step of 10V, measure o/p.
4. Repeat step 3 for various i/p voltages up to 150V.
5. Tabulate the readings, find line regulation.

$$\% \text{Line Regulation} = \frac{\Delta V_O}{\Delta V_{in}} * 100$$

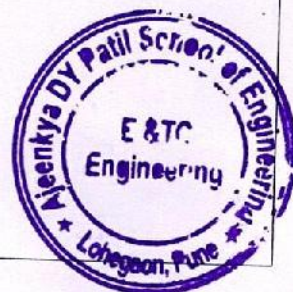
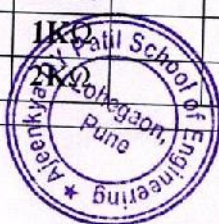
OBSERVATION TABLE:

$$V_{NL} = 12V$$

(A) For Load Regulation:

| Sr. No. | R_L | V_{FL} (V) | Load Reg. (%) |
|---------|-------------|--------------|---------------|
| 1 | 220Ω | | |
| 2 | 330Ω | | |
| 3 | 470Ω | | |
| 4 | $1K\Omega$ | | |
| 5 | | | |

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(B) Line Regulation:

| Sr. No. | Variac voltage | Vo (V) | LineReg. (%) |
|---------|----------------|--------|--------------|
| 1 | 250V | | |
| 2 | 240V | | |
| 3 | 230V | | |
| 4 | 220V | | |
| 5 | 210V | | |
| 6 | 200V | | |
| 7 | 190V | | |
| 8 | 180V | | |
| 9 | 170V | | |
| 10 | 160V | | |
| . | . | | |
| . | . | | |
| . | ? | | |

CONCLUSIONS:


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Experiment No.: 08

Date:

SINGLE PHASE AC VOLTAGE CONTROLLER

AIM: To study single phase AC voltage controller for R load.

EQUIPMENTS & COMPONENTS:

1. Trainer kit
2. Power scope / Unearthed dual trace CRO
3. Load lamp (40W, 230V)
4. Multimeters
5. Connectors, etc.

THEORY:

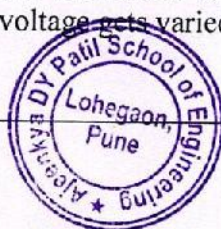
- This training system is designed to explain working principle and method of obtaining the variable AC from fixed frequency AC supply.
- Here the Phase Angle Control technique is used using UJT triggering circuit..
- In order to control AC power we may use a Triac or SCRs connected in anti-parallel fashion. In our Trainer System we have used two SCRs in anti-parallel connection (full wave).
- The position of firing angle may be from 10° to 170° on half cycle to obtain maximum to minimum voltage across the load.

Control circuit consists of a line synchronized UJT relaxation oscillator. Bridge rectifier converts 15V ac input to pulsating dc voltage o/p. During +ve half cycle of input diodes D1-D2 conduct, while during -ve half cycle of i/p diodes D3-D4 conduct. The output of this bridge is regulated by a zener diode. Resistor R_z controls current through zener.

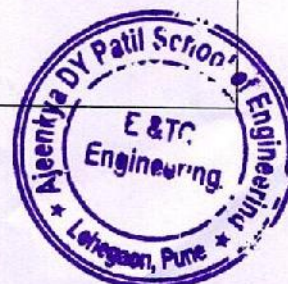
When circuit is switched ON, capacitor C starts charging through R & R_1 towards source voltage. When capacitor voltage reaches to peak voltage of UJT i.e. V_p , emitter-base junction (E-B1) of UJT breaks and UJT conducts. During UJT conduction capacitor C discharges through UJT and a pulse is obtained across primary of pulse transformer which is used as a gate pulse. Here R is a potentiometer which controls charging rate of capacitor. Pulse transformer has 1:1:1 turn ratio, therefore pulses of same rating will appear across both secondary windings. Pulse transformer also provides isolation between triggering circuit & power converter circuit.

As per power converter circuit, during + ve half cycle T1 becomes forward biased, after gating gate pulse T1 conducts in one direction and load voltage is positive. During -ve half cycle T2 becomes forward biased, after gating gate pulse T2 conducts in opposite direction and hence load voltage becomes negative. In this way by controlling firing angle AC voltage gets varied from fixed AC voltage.

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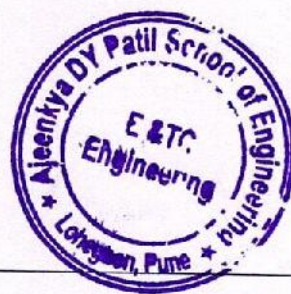
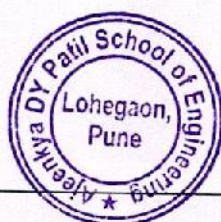


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PROCEDURE:

1. Observe & sketch different waveforms in control circuit i.e. o/p of bridge, voltage across zener, voltage across capacitor C and voltage across primary of pulse transformer.
2. Now connect G1 of control circuit to G1 of power converter, similarly connect K1 to K1, G2 to G2 & K2 to K2.
3. Connect a lamp load of >15W to load terminals.
4. AC input can be connected either from VARIAC or from 0-36V (rms), 50Hz transformer.
5. Connect a power scope / CRO & a multimeter across the load.
6. Observe load voltage waveform on power scope / CRO, measure corresponding o/p voltage & firing angle.
7. Now vary the firing angle, observe different waveforms across load, measure corresponding o/p voltages & firing angles.
8. Tabulate the readings, compare with theoretical o/p, plot the graph α vs V_{orms}

Circuit Diagram

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OBSERVATION TABLE:

| Sr. No. | Firing Angle | Vorms (Practical) | Vorms (Theoretical) |
|---------|--------------|---------------------|-----------------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |

$$V_{in} = \text{-----} V \text{ (rms)}$$

$$V_m = 1.414 * V_{in} = \text{-----} V$$

Formulae:

$$V_{ORMS} = \frac{1}{\sqrt{2\pi}} \sqrt{\left[\pi - \alpha + \frac{\sin 2\alpha}{2} \right]}$$

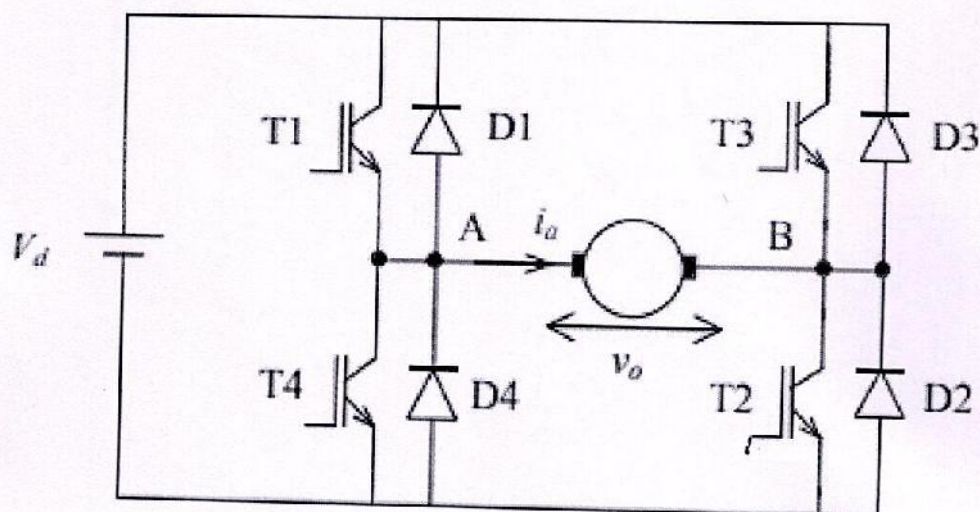
CONCLUSIONS:

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EXPERIMENT NO. 9**Date:****Title: Speed control of DC motor using Semi/full Converter**

Measure RPM and plot graph of speed versus armature voltage and field current



A single phase semiconverter/full converter is used to control the speed of DC Motor. The firing Angle control method is used to vary the load voltage across the motor.

Firing Circuit:

UJT Relaxation Oscillator is used to generate firing pulses for semiconverter/full converter. By varying the firing angle, Load voltage is varied. Higher is the firing angle, lesser will be the load voltage.

Power Circuit:

A full converter circuit is made up of four thyristors whose DC output voltage is controlled by a firing angle.

Speed Control:

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The Speed of the DC Motor is controlled by varying the load voltage of a full converter. In firing angle control method, as the firing angle increases, the load voltage decreases and therefore the speed of the DC motor reduces.

Procedure:

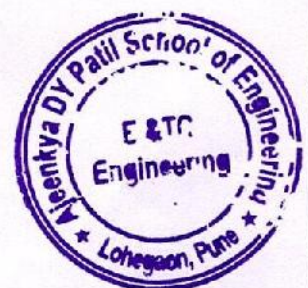
- 1] Make the connections as per the circuit Diagram.
- 2] Observe the converter output on Power Scope for different firing angle
- 3] Connect the DC Motor across the load for a certain firing angle.
- 4] Measure the speed of motor using tachometer.
- 5] Take minimum six reading of firing angle and corresponding output voltage and speed of the motor.
- 6] Plot a graph of firing angle Versus Speed.

Observation Table:

| Sr. No. | Firing Angle | Output Voltage | Speed in RPM |
|---------|--------------|----------------|--------------|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |
| 10 | | | |

Graph: Firing Angle Vs Speed**Conclusion:**

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EXPERIMENT NO. 10**Date:**

Title: Demonstration/Study of Automatic Voltage Regulator and Uninterruptable Power Supply(UPS)

1] Automatic Voltage Regulator (AVR)

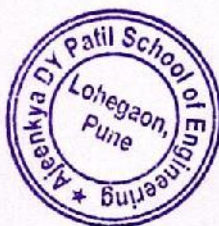
To study the working of automatic voltage Regulator and calculate the line and load regulation.

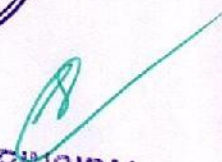
- A) Device Identification
- B) Design Steps
- C) Implementation
- D) Demonstration
- E) Applications

2] Uninterruptable Power Supply (UPS)

To study the working UPS and calculate the back up time.

- A) Device Identification
- B) Design Steps
- C) Implementation
- D) Demonstration
- E) Applications
- F) Specifications




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Experiment No. 11

AIM: To study battery testing, safety and maintenance of batteries

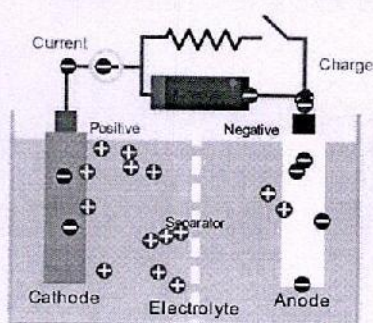
EQUIPMENTS & COMPONENTS:

1. Battery 12V / ----AH
2. Digital Multimeter
3. Charger /Rectifier/UPS
4. Load lamp, Connectors, etc.

THEORY:

Rechargeable Batteries

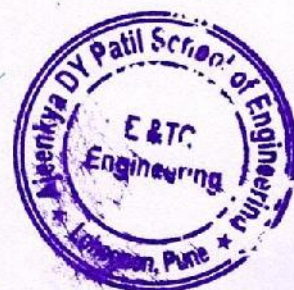
A rechargeable battery is a type of electrical battery that is comprised of one or more electrochemical cells. It is known as a secondary cell because its electrochemical reactions are electrically reversible. In other words, after the stored charge has been drained, the battery's chemical reactions can occur again, in reverse, to store a new charge.

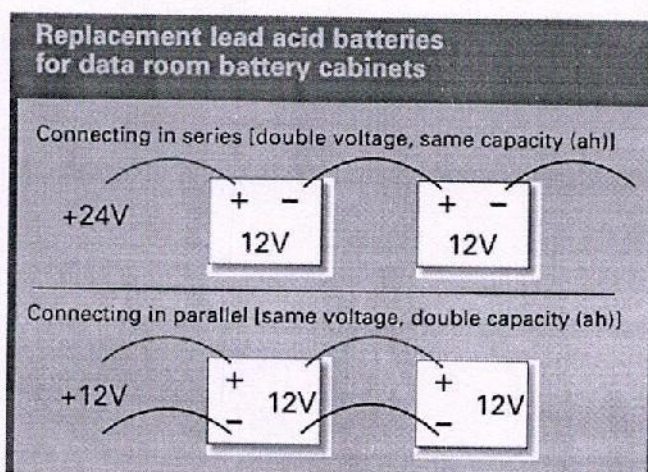


As with all batteries, rechargeable batteries consist of an anode, a cathode, and an electrolyte. During charging, the anode material is oxidized, producing electrons, and the cathode is reduced, consuming electrons. These electrons constitute the current flow in the external circuit. The electrolyte may serve as a simple buffer for internal ion flow between the electrodes, as in lithium-ion and nickel-cadmium cells, or it may be an active participant in the electrochemical reaction, as in lead-acid cells.



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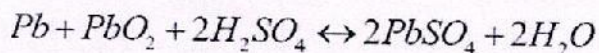




Types of Rechargeable Batteries: Several different combinations of chemicals are commonly used in rechargeable batteries. Different types include lead-acid, nickel-cadmium (NiCd), nickel-metal hydride (NiMH), lithium-ion (Li-ion), lithium-ion polymer (LiPo), and rechargeable alkaline batteries.

Lead-Acid Batteries

Lead-acid batteries, invented in 1859 by French physicist Gaston Planté, are the oldest type of rechargeable battery. Their ability to supply high-surge currents means that the cells maintain a relatively large power-to-weight ratio. These features, along with their low cost, make them attractive for use in motor vehicles, which require high currents.



In the lead acid cells the negative plates have a spongy lead as their active material, whilst the positive plates have an active material of lead dioxide. The plates are immersed in an electrolyte of dilute sulphuric acid. The sulphuric acid combines with the lead and the lead oxide to produce lead sulphate and water, electrical energy being released during the process. The overall reaction is:

Battery Sizing for UPS:

Battery manufacturers provide various types of information for sizing batteries. All battery sizing calculations in this paper have assumed a standard room temperature of 77° (25°C). Batteries which will be operated at higher or lower temperatures continuously should be calculated specifically for that temperature. Your UPS or battery supplier can assist you with these calculations. Generally, this information is supplied in one of three ways:

1. Kilowatts per cell
2. Kilowatts per bank
3. Ampere per cell

Normally information supplied for lead acid batteries designed for short discharge times (5-120 minutes) is in the form of kilowatts per cell tabulated for various back-up times. Therefore, it is important to first calculate the total kilowatts required to operate the particular UPS at a given load (usually assuming full load).



Nickel-Metal Hydride Batteries

A nickel-metal hydride battery, abbreviated NiMH or Ni-MH, is very similar to the nickel-cadmium cell (NiCd). NiMH batteries use positive electrodes of nickel oxyhydroxide (NiOOH), as does the NiCd, but the negative electrodes use a hydrogen-absorbing alloy instead of cadmium. A NiMH battery can have two to three times the capacity of a NiCd battery of equivalent size, and its energy density approaches that of a lithium-ion cell.

Lithium-Ion Batteries

Small size and light weight are the primary benefits, but additional features like built-in battery management (not just monitoring), make lithium-ion an attractive alternative to traditional batteries.

In addition, their high cycle-count (charge-discharge cycles), and faster recharge times compared with lead batteries allows their use in non-traditional UPS applications, like grid sharing, peak shaving, and industrial or process control support. The battery management system is deployed in each battery, as well as in a system level master controller. **It manages charge current, voltage, and cell voltage balance, while making adjustments as necessary to eliminate any chance of overtemperature.**

If temperatures rise above safe levels, the management system will independently disconnect the battery or string via multiple different disconnection means, and notify the user via the battery cabinet monitor, and an alarm on the UPS.

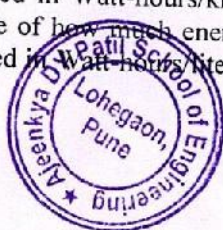
Lithium-Ion Polymer Batteries

Lithium-ion polymer (LiPo) batteries are usually composed of several identical secondary cells in parallel to increase the discharge-current capability. They are often available in series "packs" to increase the total available voltage. Their primary distinction from lithium-ion batteries is that their lithium salt electrolyte is not held in an organic solvent. Instead, it is in a solid polymer composite, such as polyethylene oxide or polyacrylonitrile. The advantages of LiPo over the lithium-ion design include potentially lower cost of manufacture, adaptability to a wide variety of packaging shapes, reliability, and ruggedness. Their major disadvantage is that they hold less charge.

Alkaline Batteries

There are also rechargeable forms of alkaline batteries, which are a type of primary battery dependent upon the reaction between zinc (Zn) and manganese dioxide (MnO₂). They are manufactured fully charged and have the ability to carry their charge for years, longer than most NiCd and NiMH batteries, which self-discharge. Rechargeable alkaline batteries can also have a high recharging efficiency and have less environmental impact than disposable cells.

The key properties and specifications for Ni-Cd, Ni-MH, and Li-Ion: The gravimetric energy density of a battery is a measure of how much energy a battery contains in comparison to its weight, and is typically expressed in Watt-hours/kilogram (W-hr/kg). The volumetric energy density of a battery is a measure of how much energy a battery contains in comparison to its volume, and is typically expressed in Watt-hours/liter (W-hr/l).



| CELL TYPE | NI-MH | NI-CD | LI-ION |
|-------------------------------|-------|-------|--------|
| GRAVIMETRIC DENSITY (W-HR/KG) | 55 | 50 | 90 |
| VOLUMETRIC DENSITY (W-HR/L) | 180 | 140 | 210 |

The maximum current that a battery can deliver is directly dependent on the internal equivalent series resistance (ESR) of the battery. The current flowing out of the battery must pass through the ESR, which will reduce the battery terminal voltage by an amount equal to the ESR multiplied times the load current ($V = I \times R$).

CHARACTERISTICS OF RECHARGEABLE BATTERIES:

- A cell is an electro-chemical device capable of supplying the energy that results from an internal chemical reaction to an external electric circuit.
- A battery is composed of one or more cells, either parallel or series connected to obtain required current/voltage capability (batteries comprised of series connected cells are by far the most common).
- ESR (Equivalent Series Resistance) is the internal resistance present in any cell that limits the amount of peak current it can deliver.
- The Amp-hour capacity of a battery (or cell) is its most important figure of merit: it is defined as the amount of current that a battery can deliver for 1 hour before the battery voltage reaches the end-of-life point.
- The "c" rate is a current that is numerically equal to the A-hr rating of the cell. Charge and discharge currents are typically expressed in fractions or multiples of the c rate.
- The MPV (mid-point voltage) is the nominal voltage of the cell, and is the voltage that is measured when the battery has discharged 50% of its total energy.
- The measured cell voltage at the end of its operating life is called the EODV, which stands for End of Discharge Voltage (some manufacturers refer to this as EOL or End of Life voltage).
- The gravimetric energy density of a battery is a measure of how much energy a battery contains in comparison to its weight.
- The volumetric energy density of a battery is a measure of how much energy a battery contains in comparison to its volume.
- A constant-voltage charger is a circuit that recharges a battery by sourcing only enough current to force the battery voltage to a fixed value.
- A constant-current charger is a circuit that charges a battery by sourcing a fixed current into the battery, regardless of battery voltage.

Maintenance of batteries:

Battery service and maintenance are critical to UPS reliability. A gradual decrease in battery life can be monitored and evaluated through voltage checks, load testing or monitoring. Periodic preventive maintenance extends battery string life by preventing loose connections, removing corrosion and identifying bad batteries before they can affect the rest of the string.



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What can go wrong with batteries?

| Condition | Cause |
|-------------------------------|--|
| Plate separation | Repeated cycling (charging and discharging), damage during handling and shipping, and overcharging |
| Grid corrosion | Normal aging, operating in an acidic environment and high temperatures |
| Internal short circuit | Heat (plates expand causing shorts), separator failure, handling and shipping, and grid corrosion |
| External short circuit | Human error (shorting terminals) and leaks |
| Sulfation of plates | Sitting discharged for an extended period, not on charge or being undercharged, such as battery shelf life being exceeded past manufacturer's guidelines |
| Excessive gassing | Often due to high temperatures or overcharging; electrolyte volume is decreased |
| Drying out | Excessive gassing, high temperatures or overcharging, resulting in too little electrolyte for battery to function and provide full backup time |

PROCEDURE:

1. Observe all connections in UPS , note battery rating mentioned on case
2. Focus on battery terminals and charger
3. Measure Battery voltage and charging current without load while charger in ON
4. Measure Battery voltage and discharge current while lamp load is connected and charger is OFF
- 5.
- 6.

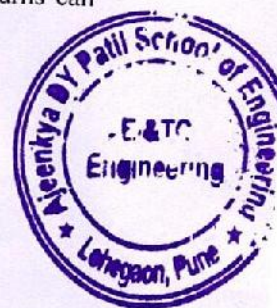
***** Precaution Note:**

- Do not charge by higher current or higher voltage than specified. Doing so may generate gas inside the battery, resulting in swelling, fire, heat generation or bursting.
- Do not heat, disassemble, nor dispose of in fire. Doing so damages the insulation materials and may cause fire, heat generation, leakage or bursting.
- Do not solder directly to the battery. If soldering is performed directly to the battery, the battery is heated up, consequently causing leakage, explosion or fire due to overheating from internal short-circuit.
- Do not short. If the (+) and (-) come into contact with metal materials, short-circuit occurs. As a result, fire, heat generation, leakage or bursting may occur.
- Keep batteries out of the reach of children. It is dangerous if children swallow the battery. Keep batteries which are considered swallowable out of the reach of children. When designing mechanical hardware around the battery, make sure that the battery cannot be removed by children. Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can

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occur within 2 hours of ingestion.
In case of ingestion of a battery, seek medical attention immediately.

- Do not reverse placement of (+) and (-). If the (+) and (-) side of the battery is reverse inserted, it may cause a short-circuit or over discharge of the battery on some equipment and it may induce overheating, explosion or fire.
- Do not discharge by force. If the battery is discharged by direct connection to an external power supply etc., voltage of the battery will decline lower than 0 volt (electrical reversal) and will cause the battery case to expand, overheat, leak, explode or burn.
- In case of leakage or a strange smell, keep away from fire to prevent ignition of any leaked electrolyte.
- Do not weld terminals to the battery. The heat by welding may cause fire, heat generation, leakage or bursting. We weld standard terminals under strictly controlled conditions. If you need to weld terminals to the battery, please consult us in advance.
- In case of disposal, insulate between (+) and (-) of battery by an insulating material. Jumbling batteries or with other metal materials cause short-circuit. As a result, fire, heat generation, leakage or bursting may occur.

OBSERVATION TABLE:

| Battery | Battery Type | Battery Voltage | | Battery Charging parameters | | Battery Discharging parameters | |
|---------|--------------|-----------------|-------|-----------------------------|-------------|--------------------------------|-------------|
| | | Actual | Rated | Current (A) | Voltage (V) | Current (A) | Voltage (V) |
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | | | | | | | |
| 4 | | | | | | | |
| 5 | | | | | | | |
| 6 | | | | | | | |

CONCLUSIONS:

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Department of E&TC Engineering

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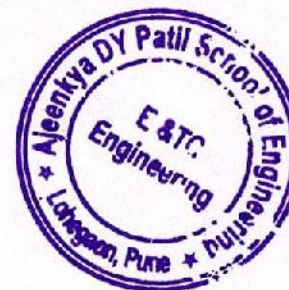
CO-PO Mapping & Attainments



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Dr. D. Y. Patil Knowledge City, Charholi (Bk), Lohegaon, Pune – 412 105 Website:
<https://dypsoe.in/>
Department of E&TC Engineering

| Bloom's Taxonomy Levels | | Form No. IQAC/36 |
|-------------------------|---|------------------|
| Level | Particulars | |
| 1-Remember | Recall facts and basic Concepts (define, duplicate, list, memorize, repeat, state) | |
| 2-Understand | Explain ideas or concepts (classify, describe, discuss, explain, identify, locate, recognize, report, select, translate) | |
| 3-Apply | Use information in new situations (execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch) | |
| 4-Analyze | Draw connection among ideas (Differentiate, organize, relate, compare, contrast, distinguish, examine, experiment, question, test) | |
| 5-Evaluate | Justify a stand or decision (Appraise, argue, defend, judge, select, support, value, critique, weigh) | |
| 6-Create | Produce new or original work (Design, assemble, construct, conjecture, develop, formulate, author, investigate) | |

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Department of E&TC Engineering

Course Outcomes (COs):

Form No. IQAC/36

Academic Year.: 2021-22

Subject: PDC

Class: TE

Semester:II

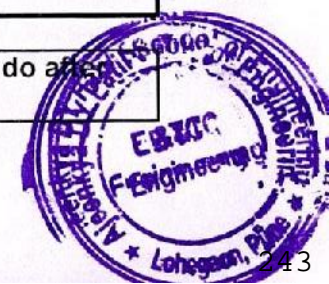
Div: A

Name of Subject Teacher: Prof. Riyaj L. Kazi

| CO No. | BT level | Students will be able to |
|--------|--------------|--|
| CO-1 | 1-Remember | To differentiate based on the characteristic parameters among SCR, GTO, MOSFET & IGBT and identify suitability of the power device for certain applications and understand the significance of device ratings. |
| CO-2 | 6-Create | To design triggering / driver circuits for various power devices. |
| CO-3 | 4-Analyze | To evaluate and analyze various performance parameters of the different converters and its topologies. |
| CO-4 | 2-Understand | To understand significance and design of various protections circuits for power devices. |
| CO-5 | 5- Evaluate | To evaluate the performance of uninterruptible power supplies, switch mode power supplies and battery. |
| CO-6 | 2-Understand | To understand case studies of power electronics in applications like electric vehicles, solar systems etc. |

In case if the syllabus doesn't contain 6 COs, the teacher can define CO. The CO must highlight "What the student will be able to do after completion of Unit"

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Dr.
Charholi (Bk),
Website: <https://dypsoe.in/>

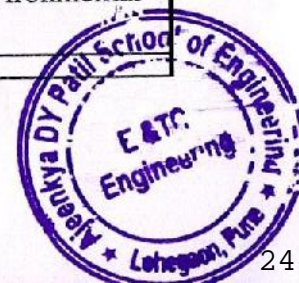
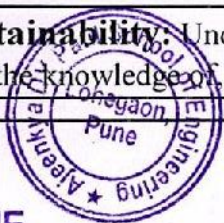
Program Outcomes (POs):

Form No. IQAC/36

Engineering Graduates will be able to:

| | |
|---|--|
| 1 | Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. |
| 2 | Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. |
| 3 | Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. |
| 4 | Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. |
| 5 | Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations. |
| 6 | The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. |
| 7 | Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge, and need for sustainable development. |

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Dr.
Charholi (Bk),
Website: <https://dypsoe.in/>

Department of E&TC Engineering

Program Specific Outcomes (PSOs):

Form No. IQAC/36

A graduate of the program will

PSO-1


Understand the fundamentals of designing electronics systems for applications like communication systems, signal processing, embedded & VLSI systems and automation

PSO-2

Strengthen the ability to use open source tools for modeling and simulation to solve technical problems

PSO-3

Inculcate the skills to manage and lead a team contributing to development of prototype, application and product of next generation technologies.


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Department of _____ Engineering

Guidelines for Unit Tests

Form No. IQAC/36

| Test No. | Syllabus | Particulars |
|----------------|------------------------|----------------------------|
| Summative Test | Unit-I (10 marks) | Question should cover CO-1 |
| UT-1 | Unit-II (10 marks) | Question should cover CO-2 |
| | Unit-III (10 marks) | Question should cover CO-3 |
| UT-2 | Unit-IV (10 marks) | Question should cover CO-4 |
| | Unit-V (10 marks) | Question should cover CO-5 |
| | Unit-VI (10 marks) | Question should cover CO-6 |

Note: There can be Sub questions for 10 marks



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Department of E&TC Engineering

Summative Test Marks [Direct Assessment-Internal]

Form No. IQAC/36

Summative Test

Date:

Academic Year:2021-22

Semester:II

Subject:PDC

Max. Marks:30

Name of Subject Teacher:Mr. Riyaj Kazi

Class: TE

Div:A

CO Addressed

CO1

Marks

20

10

Mapping level

Roll No.

Name of student

Marks Obtained

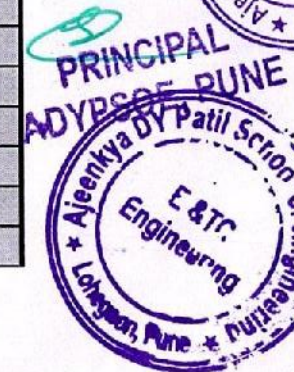
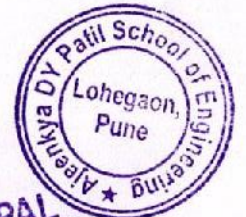
| | | | | |
|----|-------------------------------|----|----|----|
| 1 | ABHINAY KUMAR | 14 | 7 | 3 |
| 2 | AFAAN IDRISI | 13 | 7 | 3 |
| 3 | BANODIYA NEEL MANOJ | 16 | 8 | 3 |
| 4 | BATTULA NITIN VENKATESH | 16 | 8 | 3 |
| 5 | BHOODATT PRATIK RAMESH | 14 | 7 | 3 |
| 6 | BISHT VIJAYSINGH NIDHI | 16 | 8 | 3 |
| 7 | CHEERALA KONA NAVEEN | 15 | 8 | 3 |
| 8 | CHIRIVELLA LAKSHMIMANASA S | 14 | 7 | 3 |
| 9 | DABHADE TEJAS PANDHARINATH | 6 | 3 | 0 |
| 10 | DEEPAK KUMAR THAKUR | 18 | 9 | 3 |
| 11 | DISHA HEGDE | 17 | 9 | 3 |
| 12 | DUBE NIHARIKA PRAMOD | 13 | 7 | 3 |
| 13 | GANVIR SANGHASAN PRAMOD | 14 | 7 | 3 |
| 14 | GARPAL ATHARV VINOD | 13 | 7 | 3 |
| 15 | GHUNDIYAL HARSH RAVINDRAKUMAR | 3 | 2 | 0 |
| 16 | GOPANI YASH JAGDISH | 15 | 8 | 3 |
| 17 | GOPATHI SUPRIYA | 16 | 8 | 3 |
| 19 | GOVIND KADAM | AB | NA | NA |



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| | | | | |
|----|------------------------------|----|----|----|
| 20 | HANNAMSHETTY ABHIJEET M | 14 | 7 | 3 |
| 21 | KADBHANE ASHUTOSH GANESH | 15 | 8 | 3 |
| 22 | KANKATE VAISHNAVI PRITAM | 14 | 7 | 3 |
| 23 | KAPADNE PRADNYA KISHOR | 14 | 7 | 3 |
| 24 | KAWADE AKASH RAVASAHEB | AB | NA | NA |
| 25 | KOKATE AJAY AUDUMBAR | 12 | 6 | 3 |
| 27 | KURHADE ABHISHEK SHYAM | 14 | 7 | 3 |
| 28 | LAWANDE SEJAL ROHIDAS | 20 | 10 | 3 |
| 29 | MAYANK RAJPUROOHIT | AB | NA | NA |
| 30 | MEHETRE SUMIT SATISH | 16 | 8 | 3 |
| 33 | PANDIT SAYALI MADHUKAR | AB | NA | NA |
| 34 | PRANALI MAMADAPURE | 15 | 8 | 3 |
| 35 | PRATIK JAGDISH DIYEWAR | 13 | 7 | 3 |
| 36 | RAGHAVENDRA SINGH RATHORE | 15 | 8 | 3 |
| 37 | SALUNKHE GAURI RAHUL | AB | NA | NA |
| 38 | SAURAV SUMAN | 16 | 8 | 3 |
| 39 | SHASHWAT BHOYAR | 16 | 8 | 3 |
| 40 | SHARMA SHIVANI HARISH | 15 | 8 | 3 |
| 41 | SHARMA SHUBHAM KIRAN | 15 | 8 | 3 |
| 42 | SHUBHAM PANDURANG KALAMKAR | 15 | 8 | 3 |
| 43 | SINGH DEVESH DINESH | 13 | 7 | 3 |
| 44 | SIRSAT VAISHNAVI DNYANESHWAR | AB | NA | NA |
| 45 | SWAROOP BANDU BADWE | 3 | 2 | 0 |
| 46 | VIKESH BHARTI GOSWAMI | AB | NA | NA |
| 47 | WADHAI SAKSHI CHANDRAKANT | 16 | 8 | 3 |
| 48 | WANKHADE SANKALP SANJAY | AB | NA | NA |
| 49 | WANKHEDE HIMANSHU DHANANJAY | 13 | 7 | 3 |
| 50 | YASH SOLANKE | AB | NA | NA |
| 51 | PRATIK PATIL | AB | NA | NA |
| 52 | VIVEK MAHAJAN | AB | NA | NA |
| 53 | BRIJESH POKAR | 14 | 7 | 3 |
| 54 | PRIYA GUTTE | 15 | 8 | 3 |
| 55 | YASH KASHIKAR | 13 | 7 | 3 |
| 56 | PAYAL KAMBLE | 13 | 7 | 3 |



| | | | | |
|---|----------------|-------|---|----|
| 57 | ROHAN PATRE | 13 | 7 | 3 |
| 58 | RITHIK DEHURIA | 12 | 6 | 3 |
| 59 | SAYALI PATIL | 15 | 8 | 3 |
| Total no of students attempted the question | | 44 | | |
| Total no of students securing more than 60% | | | | 41 |
| Total no of students securing more than 50% | | | | 0 |
| Total no of students securing more than 40% | | | | 0 |
| Percentage | | 93.18 | | |
| CO Addressed | | CO-1 | | |

| Criteria (marks Obtained) | Mapping Level |
|---------------------------|---------------|
| $\geq 60\%$ | 3 |
| $\geq 50\%$ | 2 |
| $\geq 40\%$ | 1 |

| CO Addressed | Avg | Mapping |
|--------------|---------------|---------|
| CO1 | 93.18 | 3 |
| CO2 | NOT Addressed | |
| CO3 | | |
| CO4 | | |
| CO5 | | |
| CO6 | | |



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Department of E&TC Engineering

Test Marks [Direct Assessment-Internal]

Form No. IQAC/36

Unit Test Number: I

Date:

Academic Year:

Semester:II

Subject:PDC

Max. Marks:30

Name of Subject Teacher: Mr. Riyaj Kazi

Class: T.E.

Div: A

| Question Number | | Q.1 Or Q.2 | | Q.3 Or Q.4 | |
|-----------------|------------------------------|----------------|---------------|----------------|---------------|
| CO Addressed | | CO2 | | CO3 | |
| Marks | | 10 | Mapping level | 10 | Mapping level |
| Roll No. | Name of the Student | Marks Obtained | | Marks Obtained | |
| 1 | ABHINAY KUMAR | 5 | 2 | 4 | 1 |
| 2 | AFAAN IDRISI | AB | NA | AB | NA |
| 3 | BANODIYA NEEL MANOJ | 6 | 3 | 6 | 3 |
| 4 | BATTULA NITIN VENKATESH | 9 | 3 | 10 | 3 |
| 5 | BHOODATT PRATIK RAMESH | 8 | 3 | 7 | 3 |
| 6 | BISHT VIJAYSINGH NIDHI | AB | NA | AB | NA |
| 7 | CHEERALA KONA NAVEEN | 6 | 3 | 6 | 3 |
| 8 | CHIRIVELLA LAKSHMIMANASA S | 8 | 3 | 6 | 3 |
| 9 | DABHADE TEJAS PANDHARINATH | AB | NA | AB | NA |
| 10 | DEEPAK KUMAR THAKUR | 6 | 3 | 5 | 2 |
| 11 | DISHA HEGDE | 10 | 3 | 9 | 3 |
| 12 | DUBE NIHARIKA PRAMOD | AB | NA | AB | NA |
| 13 | GANVIR SANGHASEN PRAMOD | 8 | 3 | 9 | 3 |
| 14 | GARPAL ATHARV VINOD | 7 | 3 | 9 | 3 |
| 15 | GHUNDIYAL HARSH RAVINDRAKUMA | AB | NA | AB | NA |
| 16 | GOPANI YASH JAGDISH | 7 | 3 | 7 | 3 |



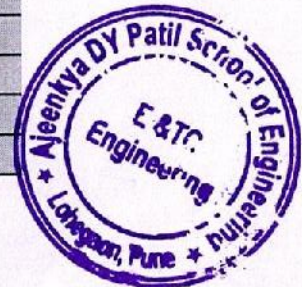
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| | | | | | |
|----|------------------------------|----|----|----|----|
| 17 | GOPATHI SUPRIYA | 8 | 3 | 8 | 3 |
| 19 | GOVIND KADAM | AB | NA | AB | NA |
| 20 | HANNAMSHETTY ABHIJEET M | 10 | 3 | 10 | 3 |
| 21 | KADBHANE ASHUTOSH GANESH | 8 | 3 | 8 | 3 |
| 22 | KANKATE VAISHNAVI PRITAM | 9 | 3 | 9 | 3 |
| 23 | KAPADNE PRADNYA KISHOR | 5 | 2 | 4 | 1 |
| 24 | KAWADE AKASH RAVASAHEB | 8 | 3 | 8 | 3 |
| 25 | KOKATE AJAY AUDUMBAR | 4 | 1 | 5 | 2 |
| 27 | KURHADE ABHISHEK SHYAM | AB | NA | AB | NA |
| 28 | LAWANDE SEJAL ROHIDAS | 10 | 3 | 10 | 3 |
| 29 | MAYANK RAJPUROOHIT | AB | NA | | NA |
| 30 | MEHETRE SUMIT SATISH | 5 | 2 | 4 | 1 |
| 33 | PANDIT SAYALI MADHUKAR | 7 | 3 | 7 | 3 |
| 34 | PRANALI MAMADAPURE | 8 | 3 | 7 | 3 |
| 35 | PRATIK JAGDISH DIYEWAR | 4 | 1 | 5 | 2 |
| 36 | RAGHAVENDRA SINGH RATHORE | AB | NA | AB | NA |
| 37 | SALUNKHE GAURI RAHUL | 9 | 3 | 9 | 3 |
| 38 | SAURAV SUMAN | 10 | 3 | 10 | 3 |
| 39 | SHASHWAT BHOYAR | 7 | 3 | 7 | 3 |
| 40 | SHARMA SHIVANI HARISH | 6 | 3 | 5 | 2 |
| 41 | SHARMA SHUBHAM KIRAN | 8 | 3 | 8 | 3 |
| 42 | SHUBHAM PANDURANG KALAMKAR | 7 | 3 | 8 | 3 |
| 43 | SINGH DEVESH DINESH | AB | NA | AB | NA |
| 44 | SIRSAT VAISHNAVI DNYANESHWAR | AB | NA | AB | NA |
| 45 | SWAROOP BANDU BADWE | 9 | 3 | 10 | 3 |
| 46 | VIKESH BHARTI GOSWAMI | 7 | 3 | 7 | 3 |
| 47 | WADHAI SAKSHI CHANDRAKANT | AB | NA | AB | NA |
| 48 | WANKHADE SANKALP SANJAY | 8 | 3 | 6 | 3 |
| 49 | WANKHEDE HIMANSHU DHANANJAY | AB | NA | AB | NA |
| 50 | YASH SOLANKE | 9 | 3 | 10 | 3 |
| 51 | PRATIK PATIL | AB | NA | AB | NA |
| 52 | VIVEK MAHAJAN | AB | NA | AB | NA |
| 53 | BRIJESH POKAR | AB | NA | AB | NA |
| 54 | PRIYA GUTTE | AB | NA | AB | NA |




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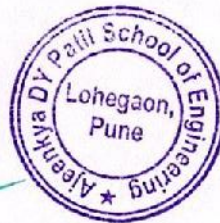


| | | | | | |
|---|----------------|-------|----|-------|----|
| 55 | YASH KASHIKAR | 5 | 2 | 3 | 0 |
| 56 | PAYAL KAMBLE | AB | NA | AB | NA |
| 57 | ROHAN PATRE | 10 | 3 | 5 | 2 |
| 58 | RITHIK DEHURIA | 7 | 3 | 10 | 3 |
| 59 | SAYALI PATIL | 10 | 3 | 7 | 3 |
| Total no of students attempted the question | | 37 | | 37 | |
| Total no of students securing more than 60% | | | 15 | | 14 |
| Total no of students securing more than 50% | | | 2 | | 2 |
| Total no of students securing more than 40% | | | 1 | | 2 |
| Percentage | | 40.54 | | 37.84 | |
| CO Addressed | | CO-2 | | CO-3 | |

| Criteria (marks Obtained) | Mapping Level |
|---------------------------------|---------------|
| $\geq 60\%$ | 3 |
| $\geq 50\%$ | 2 |
| $\geq 40\%$ | 1 |

| CO Addressed | Avg | Mapping |
|-----------------|---------------|---------|
| CO1 | NOT Addressed | |
| CO2 | 40.54 | 1 |
| CO3 | 37.84 | 1 |
| CO4 | NOT Addressed | |
| CO5 | | |
| CO6 | | |


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Website: <https://dypsoe.in/>

Department

of E&TC Engineering

Test Marks [Direct Assessment- Internal]

Form No. IQAC/36

Unit Test Number: II

Date:

Academic Year:2021-22

Semester:II

Subject:PDC

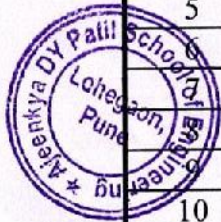
Max. Marks:30

Name of Subject Teacher: Mr. Riyaj Kazi

Class:TE

Div:A

| Question Number | | Q.1 Or Q.2 | | Q.3 Or Q.4 | | Q.5 Or Q.6 | |
|-----------------|------------------------------|----------------|---------------|----------------|---------------|----------------|---------------|
| CO Addressed | | CO4 | | CO5 | | CO6 | |
| Marks | | 10 | Mapping level | 10 | Mapping level | 10 | Mapping level |
| Roll No. | Name of the Student | Marks Obtained | | Marks Obtained | | Marks Obtained | |
| 1 | ABHINAY KUMAR | 7 | 3 | 8 | 3 | 8 | 3 |
| 2 | AFAAN IDRISI | 7 | | 7 | | 7 | |
| 3 | BANODIYA NEEL MANOJ | AB | | AB | | AB | |
| 4 | BATTULA NITIN VENKATESH | 7 | | 5 | | 8 | |
| 5 | BHOODATT PRATIK RAMESH | 8 | | 8 | | 5 | |
| | BISHT VIJAYSINGH NIDHI | AB | | AB | | AB | |
| | CHEERALA KONA NAVEEN | 8 | | 8 | | 7 | |
| | CHIRIVELLA LAKSHMIMANASA S | 7 | | 8 | | 8 | |
| | DABHADE TEJAS PANDIHARINATH | AB | | AB | | AB | |
| 10 | DEEPAK KUMAR THAKUR | 7 | | 8 | | 7 | |
| 11 | DISHA HEGDE | 8 | | 8 | | 8 | |
| 12 | DUBE NIHARIKA PRAMOD | 7 | | 7 | | 7 | |
| 13 | GANVIR SANGHASEN PRAMOD | 8 | | 8 | | 5 | |
| 14 | GARPAL ATHARV VINOD | AB | | AB | | AB | |
| 15 | GHUNDIYAL HARSH RAVINDRAKUMA | AB | | AB | | AB | |
| 16 | GOPANI YASH JAGDISH | AB | | AB | | AB | |



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| | | | | |
|----|------------------------------|----|----|----|
| 17 | GOPATHI SUPRIYA | 9 | 8 | 6 |
| 19 | GOVIND KADAM | AB | AB | AB |
| 20 | HANNAMSHETTY ABHIJEET M | 8 | 9 | 6 |
| 21 | KADBHANE ASHUTOSH GANESH | 6 | 8 | 5 |
| 22 | KANKATE VAISHNAVI PRITAM | 5 | 7 | 7 |
| 23 | KAPADNE PRADNYA KISHOR | 8 | 8 | 6 |
| 24 | KAWADE AKASH RAVASAHEB | AB | AB | AB |
| 25 | KOKATE AJAY AUDUMBAR | AB | AB | AB |
| 27 | KURHADE ABHISHEK SHYAM | 7 | 7 | 5 |
| 28 | LAWANDE SEJAL ROHIDAS | AB | AB | AB |
| 29 | MAYANK RAJPUROOHIT | AB | AB | AB |
| 30 | MEHETRE SUMIT SATISH | AB | AB | AB |
| 33 | PANDIT SAYALI MADHUKAR | 7 | 7 | 7 |
| 34 | PRANALI MAMADAPURE | 7 | 8 | 8 |
| 35 | PRATIK JAGDISH DIYEWAR | 7 | 8 | 7 |
| 36 | RAGHAVENDRA SINGH RATHORE | 8 | 8 | 6 |
| 37 | SALUNKHE GAURI RAHUL | 8 | 8 | 8 |
| 38 | SAURAV SUMAN | 6 | 7 | 7 |
| 39 | SHASHWAT BHOYAR | 9 | 9 | 8 |
| 40 | SHARMA SHIVANI HARISH | 7 | 7 | 9 |
| 41 | SHARMA SHUBHAM KIRAN | 8 | 6 | 5 |
| 42 | SHUBHAM PANDURANG KALAMKAR | 7 | 7 | 7 |
| 43 | SINGH DEVESH-DINESH | 8 | 7 | 7 |
| 44 | SIRSAT VAISHNAVI DNYANESHWAR | AB | AB | AB |
| 45 | SWAROOP BANDU BADWE | AB | AB | AB |
| 46 | VIKESH BHARTI GOSWAMI | 7 | 6 | 6 |
| 47 | WADHAI SAKSHI CHANDRAKANT | AB | AB | AB |
| 48 | WANKHADE SANKALP SANJAY | 8 | 8 | 9 |
| 49 | WANKHEDE HIMANSHU DHANANJAY | AB | AB | AB |
| 50 | YASH SOLANKE | AB | AB | AB |
| 51 | PRATIK PATIL | AB | AB | AB |
| 52 | VIVEK MAHAJAN | 7 | 7 | 7 |
| 53 | BRIJESH POKAR | 8 | 8 | 8 |
| 54 | PRIYA GUTTE | AB | AB | AB |



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| | | | | | | | |
|---|----------------|------|---|------|---|------|---|
| 55 | YASH KASHIKAR | AB | | AB | | AB | |
| 56 | PAYAL KAMBLE | 7 | | 8 | | 8 | |
| 57 | ROHAN PATRE | 5 | | 10 | | 5 | |
| 58 | RITHIK DEHURIA | 7 | | 7 | | 7 | |
| 59 | SAYALI PATIL | 7 | | 8 | | 7 | |
| Total no of students attempted the question | | 35 | | 35 | | 35 | |
| Total no of students securing more than 60% | | | 1 | | 1 | | 1 |
| Total no of students securing more than 50% | | | 0 | | 0 | | 0 |
| Total no of students securing more than 40% | | | 0 | | 0 | | 0 |
| Percentage | | 2.86 | | 2.86 | | 2.86 | |
| CO Addressed | | CO-4 | | CO-5 | | CO-6 | |

| Criteria | Mapping Level |
|-------------|---------------|
| $\geq 60\%$ | 3 |
| $\geq 50\%$ | 2 |
| $\geq 40\%$ | 1 |

| CO Addressed | Avg | Mapping |
|--------------|---------------|---------|
| CO1 | NOT Addressed | |
| CO2 | | |
| CO3 | | |
| CO4 | 2.86 | 1 |
| CO5 | 2.86 | 1 |
| CO6 | 2.86 | 1 |



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Department of E&TC Engineering

Continuous Assessment (CA) [Direct Assessment -Internal] Form No. IQAC/36

Academic Year: 2021-22

Semester: II

Subject: PDC

Class: TE

Div: A

Name of Subject Teacher: Mr. Riyaj Kazi

Roll No. Name of the Student CA (out of 25)

| | | |
|----|-------------------------------|----|
| 1 | ABHINAY KUMAR | 22 |
| 2 | AFAAN IDRISI | 21 |
| 3 | BANODIYA NEEL MANOJ | 19 |
| 4 | BATTULA NITIN VENKATESH | 18 |
| 5 | BHOODATT PRATIK RAMESH | 22 |
| 6 | BISHT VIJAYSINGH NIDHI | 20 |
| 7 | CHEERALA KONA NAVEEN | 19 |
| 8 | CHIRIVELLA LAKSHMIMANASA S | 19 |
| 9 | DABHADE TEJAS PANDHARINATH | 17 |
| 10 | DEEPAK KUMAR THAKUR | 18 |
| 11 | DISHA HEGDE | 19 |
| 12 | DUBE NIHARIKA PRAMOD | 21 |
| 13 | GANVIR SANGHASEN PRAMOD | 22 |
| 14 | GARPAL ATHARV VINOD | 23 |
| 15 | GHUNDIYAL HARSH RAVINDRAKUMAR | 20 |
| 16 | GOPANI YASH JAGDISH | 19 |
| 17 | GOPATHI SUPRIYA | 21 |
| 19 | GOVIND KADAM | 21 |
| 20 | HANNAMSHETTY ABHIJEET M | 18 |
| 21 | KADBHANE ASHUTOSH GANESH | 19 |
| 22 | KANKATE VAISHNAVI PRITAM | 20 |
| 23 | KAPADNE PRADNYA KISHOR | 20 |
| 24 | KAWADE AKASH RAVASAHEB | 21 |
| 25 | KOKATE AJAY AUDUMBAR | 23 |
| 27 | KURHADE ABHISHEK SHYAM | 22 |
| 28 | LAWANDE SEJAL ROHIDAS | 21 |

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| | | |
|---|------------------------------|-------|
| 29 | MAYANK RAJPUROOHIT | 18 |
| 30 | MEHETRE SUMIT SATISH | 19 |
| 33 | PANDIT SAYALI MADHUKAR | 20 |
| 34 | PRANALI MAMADAPURE | 17 |
| 35 | PRATIK JAGDISH DIYEWAR | 21 |
| 36 | RAGHAVENDRA SINGH RATHORE | 22 |
| 37 | SALUNKHE GAURI RAHUL | 19 |
| 38 | SAURAV SUMAN | 18 |
| 39 | SHASHWAT BHOYAR | 20 |
| 40 | SHARMA SHIVANI HARISH | 22 |
| 41 | SHARMA SHUBHAM KIRAN | 21 |
| 42 | SHUBHAM PANDURANG KALAMKAR | 20 |
| 43 | SINGH DEVESH DINESH | 19 |
| 44 | SIRSAT VAISHNAVI DNYANESHWAR | 20 |
| 45 | SWAROOP BANDU BADWE | 18 |
| 46 | VIKESH BHARTI GOSWAMI | 17 |
| 47 | WADHAI SAKSHI CHANDRAKANT | 21 |
| 48 | WANKHADE SANKALP SANJAY | 22 |
| 49 | WANKHEDE HIMANSHU DHANANJAY | 20 |
| 50 | YASH SOLANKE | 21 |
| 51 | PRATIK PATIL | 22 |
| 52 | VIVEK MAHAJAN | 23 |
| 53 | BRIJESH POKAR | 21 |
| 54 | PRIYA GUTTE | 22 |
| 55 | YASH KASHIKAR | 20 |
| 56 | PAYAL KAMBLE | 21 |
| 57 | ROHAN PATRE | 19 |
| 58 | RITHIK DEHURIA | 18 |
| 59 | SAYALI PATIL | 22 |
| TOTAL COUNT OF STUDENTS | | 55 |
| TOTAL MARKS OF STUDENTS | | 1108 |
| AVERAGE MARKS | | 20.15 |
| % ASSESSMENT OF AVERAGE MARKS (out of 25) | | 80.58 |

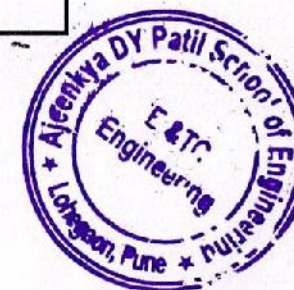
Note: Department/Subject teacher has flexibility to decide criterias of CA i.e. quizzes, assignments, open book tests, presentations etc...


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| | | |
|--|--|--|
|  | <p align="center">Empowerment Through Quality Technical Education Dr. D. Y. Patil School of Engineering Dr. D. Y. Patil Knowledge City, Charholi (Bk), Lohegaon, Pune – 412 105</p> <p>Website: https://dypsoe.in/</p> | |
| <p align="center">Department</p> | | |
| <p align="center">Guidelines for Course Exit Survey [Indirect Assessment]</p> | | |
| <p align="center">1</p> | <p>Frame one question based on each CO i.e. if CO-1 is "students will be able to understand the mathematical description of continuous and discrete time signals and systems", mathematical description of continuous and discrete time signals and systems?" Frame question as: "Have you understood the</p> | |
| <p align="center">2</p> | <p>Responses shall be on the scale of 1 to 3 as 1: Slightly Understood 2: Moderately Understood 3: Clearly Understood</p> | |


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Dr. D. Y. Patil School of Engineering

Dr. D. Y. Patil Knowledge City,
Charholi (Bk), Lohegaon, Pune - 412 105
Website: <https://dypsoe.in/>

Department of Engineering

Course Exit Survey [Indirect Assessment]

Form No. IQAC/36

Academic Year:

Semester:

Subject:

Class:

Div:

Name of Subject Teacher:

| Roll No. | Name of student | CO-1 | CO-2 | CO-3 | CO-4 | CO-5 | CO-6 |
|----------|-------------------------------|------|------|------|------|------|------|
| 1 | ABHINAY KUMAR | 1 | 3 | 3 | 3 | 3 | 3 |
| 2 | AFAAN IDRISI | 3 | 3 | 3 | 3 | 3 | 3 |
| 3 | BANODIYA NEEL MANOJ | 2 | 1 | 3 | 2 | 2 | 2 |
| 4 | BATTULA NITIN VENKATESH | 3 | 3 | 2 | 3 | 3 | 3 |
| 5 | BHOODATT PRATIK RAMESH | 3 | 3 | 3 | 3 | 2 | 3 |
| 6 | BISHT VIJAYSINGH NIDHI | 3 | 3 | 3 | 3 | 3 | 3 |
| 7 | CHEERALA KONA NAVEEN | 3 | 3 | 3 | 3 | 3 | 3 |
| 8 | CHIRIVELLA LAKSHMIMANASA S | 3 | 3 | 1 | 3 | 3 | 3 |
| 9 | DABHADE TEJAS PANDHARINATH | 2 | 3 | 3 | 2 | 2 | 3 |
| 10 | DEEPAK KUMAR THAKUR | 3 | 3 | 3 | 3 | 3 | 2 |
| 11 | DISHA HEGDE | 3 | 3 | 2 | 3 | 3 | 3 |
| 12 | DUBE NIHARIKA PRAMOD | 3 | 3 | 3 | 3 | 3 | 3 |
| 13 | GANVIR SANGHASEN PRAMOD | 1 | 1 | 1 | 3 | 3 | 2 |
| 14 | GARPAL ATHARV VINOD | 2 | 3 | 3 | 2 | 1 | 1 |
| 15 | GHUNDIYAL HARSH RAVINDRAKUMAR | 1 | 3 | 3 | 3 | 3 | 3 |
| 16 | GOPANI YASH JAGDISH | 3 | 3 | 3 | 3 | 3 | 3 |
| 17 | GOPATHI SUPRIYA | 2 | 1 | 3 | 2 | 2 | 2 |
| 19 | GOVIND KADAM | 3 | 3 | 2 | 3 | 3 | 3 |
| 20 | HANNAMSHETTY ABHIJEET M | 3 | 3 | 3 | 3 | 2 | 3 |
| 21 | KADBHANE ASHUTOSH GANESH | 3 | 3 | 3 | 3 | 3 | 3 |
| 22 | KANKATE VAISHNAVI PRITAM | 3 | 3 | 3 | 3 | 3 | 3 |
| 23 | KAPADNE PRADNYA KISHOR | 3 | 3 | 1 | 3 | 3 | 3 |
| 24 | KAWADE AKASH RAMKISHOR | 2 | 3 | 3 | 2 | 2 | 3 |
| 25 | KOKATE AJAY ALDANVI | 3 | 3 | 3 | 3 | 3 | 2 |

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| | | | | | | | |
|-------------------------|------------------------------|-------|-------|-------|-------|-------|-------|
| 27 | KURHADE ABHISHEK SHYAM | 3 | 3 | 2 | 3 | 3 | 3 |
| 28 | LAWANDE SEJAL ROHIDAS | 3 | 3 | 3 | 3 | 3 | 3 |
| 29 | MAYANK RAJPUROOHIT | 1 | 1 | 1 | 3 | 3 | 2 |
| 30 | MEHETRE SUMIT SATISH | 2 | 3 | 3 | 2 | 1 | 1 |
| 33 | PANDIT SAYALI MADHUKAR | 1 | 3 | 3 | 3 | 3 | 3 |
| 34 | PRANALI MAMADAPURE | 3 | 3 | 3 | 3 | 3 | 3 |
| 35 | PRATIK JAGDISH DIYEWAR | 2 | 1 | 3 | 2 | 2 | 2 |
| 36 | RAGHAVENDRA SINGH RATHORE | 3 | 3 | 2 | 3 | 3 | 3 |
| 37 | SALUNKHE GAURI RAHUL | 3 | 3 | 3 | 3 | 2 | 3 |
| 38 | SAURAV SUMAN | 3 | 3 | 3 | 3 | 3 | 3 |
| 39 | SHASHWAT BHOYAR | 3 | 3 | 3 | 3 | 3 | 3 |
| 40 | SHARMA SHIVANI HARISH | 3 | 3 | 1 | 3 | 3 | 3 |
| 41 | SHARMA SHUBHAM KIRAN | 2 | 3 | 3 | 2 | 2 | 3 |
| 42 | SHUBHAM PANDURANG KALAMKAR | 3 | 3 | 3 | 3 | 3 | 2 |
| 43 | SINGH DEVESH DINESH | 3 | 3 | 2 | 3 | 3 | 3 |
| 44 | SIRSAT VAISHNAVI DNYANESHWAR | 3 | 3 | 3 | 3 | 3 | 3 |
| 45 | SWAROOP BANDU BADWE | 1 | 1 | 1 | 3 | 3 | 2 |
| 46 | VIKESH BHARTI GOSWAMI | 2 | 3 | 3 | 2 | 1 | 1 |
| 47 | WADHAI SAKSHI CHANDRAKANT | 1 | 3 | 3 | 3 | 3 | 3 |
| 48 | WANKHADE SANKALP SANJAY | 3 | 3 | 3 | 3 | 3 | 3 |
| 49 | WANKHEDE HIMANSHU DHANANJAY | 2 | 1 | 3 | 2 | 2 | 2 |
| 50 | YASH SOLANKE | 3 | 3 | 2 | 3 | 3 | 3 |
| 51 | PRATIK PATIL | 3 | 3 | 3 | 3 | 2 | 3 |
| 52 | VIVEK MAHAJAN | 3 | 3 | 3 | 3 | 3 | 3 |
| 53 | BRIJESH POKAR | 3 | 3 | 3 | 3 | 3 | 3 |
| 54 | PRIYA GUTTE | 3 | 3 | 1 | 3 | 3 | 3 |
| 55 | YASH KASHIKAR | 2 | 3 | 3 | 2 | 2 | 3 |
| 56 | PAYAL KAMBLE | 3 | 3 | 3 | 3 | 3 | 2 |
| 57 | ROHAN PATRE | 3 | 3 | 2 | 3 | 3 | 3 |
| 58 | RITHIK DEHURIA | 3 | 3 | 3 | 3 | 3 | 3 |
| 59 | SAYALI PATIL | 1 | 1 | 1 | 3 | 3 | 2 |
| Total count of students | | 55 | 3 | 3 | 3 | 3 | 3 |
| % | | 83.64 | 90.30 | 85.45 | 93.33 | 89.09 | 89.09 |
| Course Outcome | | CO1 | CO2 | CO3 | CO4 | CO5 | CO6 |

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Ajeenkya DY Patil School of Engineering
Lohagaon, Pune





Academic Year:2021-22

Subject:PDC

Name of Subject Teacher:Mr. Riya Kazi

| CO No. | Statement of COs | Blooms Taxonomy | Direct Assessment (Internal) (30%) | | | | | | Direct Assessment (External) (70%) University Exams | | | | Direct Assessment (DA) | Indirect Assessment (IDA) | | CO Attainment |
|------------------|--|-----------------|---|-------|------|----------|-------|---------|--|---------|--------------------------|---------|------------------------|---------------------------|---------|---------------|
| | | | Unit Test (20%) | | | CA (10%) | | | Subject Result (60%) | | PR/OR/TW (10%) | | | Course Exit Survey | Mapping | |
| | | | Summative Test | UT1 | UT 2 | Mapping | CA | Mapping | % result of Sub. | Mapping | % Result of PR / OR / TW | Mapping | | | | |
| CO-1 | To differentiate based on the characteristic parameters among SCR, GTO, MOSFET & IGBT and identify suitability of the power device for certain applications. | 1-Remember | 93.18 | | | 3.0 | 80.58 | 3 | 94.16 | 3.0 | 100.00 | 3.0 | 3.00 | 83.64 | 3.0 | 3.00 |
| CO-2 | To design triggering / driver circuits for various power devices. | 6-Create | | 40.54 | | 1.0 | 80.58 | 3 | 94.16 | 3.0 | 100.00 | 3.0 | 2.6 | 90.30 | 3.0 | 2.68 |
| CO-3 | To evaluate and analyze various performance parameters of the different converters and its topologies. | 4-Analyze | | 37.84 | | 0.0 | 80.58 | 3 | 94.16 | 3.0 | 100.00 | 3.0 | 2.4 | 85.45 | 3.0 | 2.52 |
| CO-4 | To understand significance and design of various protection circuits for power devices. | 2-Understand | | | 2.86 | 0.0 | 80.58 | 3 | 94.16 | 3.0 | 100.00 | 3.0 | 2.4 | 93.33 | 3.0 | 2.52 |
| CO-5 | To evaluate the performance of uninterruptible power supplies, switch mode power supplies and battery. | 5- Evaluate | | | 2.86 | 0.0 | 80.58 | 3 | 94.16 | 3.0 | 100.00 | 3.0 | 2.4 | 89.09 | 3.0 | 2.52 |
| CO-6 | To understand case studies of power electronics in applications like electric vehicles, solar systems etc. | 2-Understand | | | 2.86 | 0.0 | 80.58 | 3 | 94.16 | 3.0 | 100.00 | 3.0 | 2.4 | 89.09 | 3.0 | 2.52 |
| Mapping Criteria | | | Marks >=60: Level 3 Marks >=50: Level 2 Marks >=40: Level 1 | | | | | | | | | | | | | |

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Charholi (Bk), Lohegaon, Pune - 412 105

Website: <https://dypsoe.in/>

Department of E&TC Engineering

CO-PO-PSO Attainment

Form No. IQAC/36

Semester-II

| Class: TE | | | | | | | | | | | | | | | | | | | | | | | | Div: A | | | | | |
|------------------------|------------|------------------------|------------|------------------------|------------|------------------------|------------|------------------------|------------|------------------------|------------|------------------------|------------|------------------------|------------|------------------------|------------|-------------------------|------------|-------------------------|------------|-------------------------|------------|-------------------------|------------|-------------------------|------------|-------------------------|------------|
| PO1 | Attainment | PO2 | Attainment | PO3 | Attainment | PO4 | Attainment | PO5 | Attainment | PO6 | Attainment | PO7 | Attainment | PO8 | Attainment | PO9 | Attainment | PO10 | Attainment | PO11 | Attainment | PO12 | Attainment | PSO1 | Attainment | PSO2 | Attainment | PSO3 | Attainment |
| 3 | 3 | | | | | | | | | | | | | | | | | | | | | 2 | 2 | 1 | 1 | | | | |
| 3 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | | | | | | | | | | | | | | | 2 | 2 | 1 | 1 | | | 1 | 1 |
| 3 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | | | | | | | | | | | | | | | 2 | 2 | 2 | 2 | | | | |
| 1 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | | | | | | | | | | | | | | | 2 | 2 | 1 | 1 | | | | |
| 1 | 1 | | | | | | | | | | | | | | | | | | | | | 2 | 2 | 1 | 1 | 1 | 1 | | |
| 3 | 3 | | | | | | | 2 | 2 | | | | | | | | | | | | | 2 | 2 | 3 | 3 | | | | |
| Avg Attainment of PO-1 | | Avg Attainment of PO-2 | | Avg Attainment of PO-3 | | Avg Attainment of PO-4 | | Avg Attainment of PO-5 | | Avg Attainment of PO-6 | | Avg Attainment of PO-7 | | Avg Attainment of PO-8 | | Avg Attainment of PO-9 | | Avg Attainment of PO-10 | | Avg Attainment of PO-11 | | Avg Attainment of PO-12 | | Avg Attainment of PSO-1 | | Avg Attainment of PSO-2 | | Avg Attainment of PSO-3 | |
| 2.33 | | 2.00 | | 1.33 | | 1.67 | | | | | | | | | | | | | | | | 2.00 | | 1.50 | | 1.00 | | 1.00 | |

Principal
ADYPSOE, PUNE



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DY Patil School of Engineering

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Dr. D. Y. Patil Knowledge City, Charholi (Bk), Lohgaon, Pune – 412 105

Department of E&TC Engineering

20

Faculty Feedback

Faculty Feedback Form-(I)

23/03/2023

Academic Year:2022-23

Semester - II

Feedback- I

Class & Department : TE E&TC

Div:B

To,

Prof. Riyaj Kazi

Designation: Professor

Subject: Regarding your teaching feedback given by students: **Excellent**

Dear Sir/Madam,

We would like to inform you that your students feedback score is **91.12 %**

Your performance is measured on the basis of students feedback taken for the Subject **Power Devices and Circuits(TH)**

The average score of various attributes of teaching learning process are considered in the performance assessment.

The benchmark set for feedback is as follows:

1. Below 75%- Unsatisfactory and need to give a written Explanation to us
2. 75 to 85% - Satisfactory
3. 86 to 95%- Excellent
4. Above 95%- Outstanding

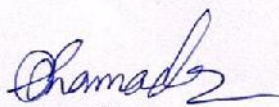
Based on above feedback:

☐ We appreciate your efforts towards improving the teaching-learning process.

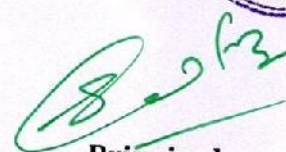
Thanking You,

Corrective actions (If applicable)

1. Nil


HoD




Principal

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Copy to:

- iv) Concerned Staff
- v) HoD
- vi) Personal File

Faculty Feedback Form-(I)

23/03/2023

Academic Year:2022-23

Semester - II

Feedback- I

Class & Department : TE E&TC

Div:A

To,

Prof. Riyaj Kazi

Designation: Professor

Subject: Regarding your teaching feedback given by students: **Excellent**

Dear Sir/Madam,

We would like to inform you that your students feedback score is **88.24 %**

Your performance is measured on the basis of students feedback taken for the Subject **Power Devices and Circuits**

The average score of various attributes of teaching learning process are considered in the performance assessment.

The benchmark set for feedback is as follows:

1. Below 75%- Unsatisfactory and need to give a written Explanation to us
2. 75 to 85% - Satisfactory
3. 86 to 95%- Excellent
4. Above 95%- Outstanding

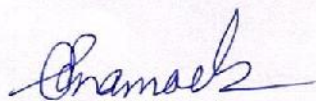
Based on above feedback:

☐ We appreciate your efforts towards improving the teaching-learning process.

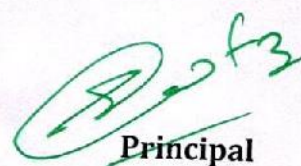
Thanking You,

Corrective actions (If applicable)

1. Nil



HoD



Principal

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Copy to:

- i) Concerned Staff
- ii) HoD
- iii) Personal File