# 2.2.1: The institution assesses the learning levels of the students and organizes special Programmes for advanced learners and slow learners
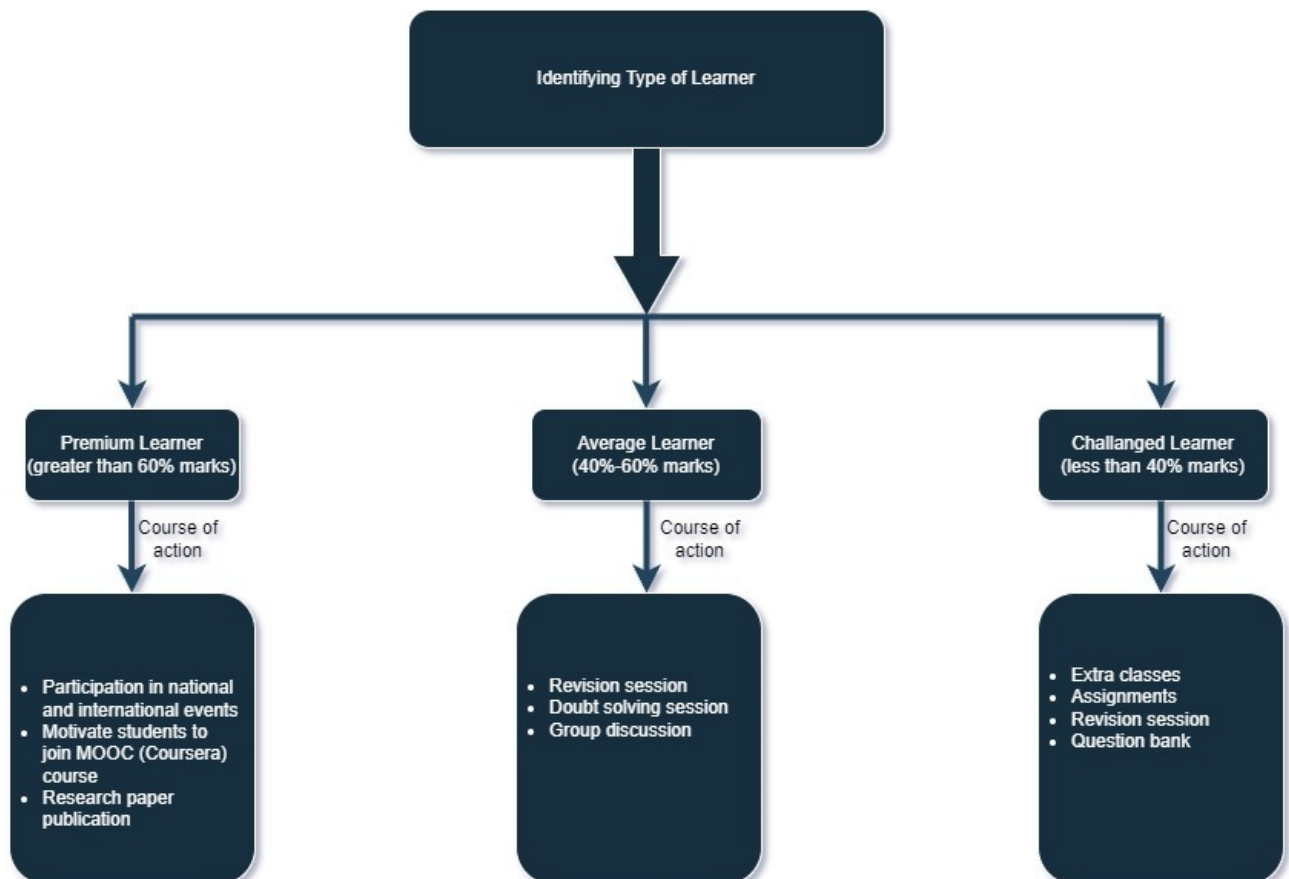
# Methodologies to support Slow Learners

## Classification of students on the basis of Premium, Average, Challenged

This program is designed to help students to improve their grades, study skills, and test-taking abilities. It may include tutoring, study groups, workshops, and other resources to help students succeed academically. Students are classified in three groups i.e. Premium, Average and Challenged.

Challenged students are the slow learner means those who could not keep pace with the classroom teaching and learning needs extra attention to bring such students at par with the rest of the students of the class. Will be identified based on their performance in mid semester Examination, Attendance and by the subject teacher /class coordinator.

**Identifying Type of Learner**

**Premium Learner**
**(greater than 60% marks)**

Course of action

- Participation in national and international events
- Motivate students to join MOOC (Coursera) course
- Research paper publication

**Average Learner**
**(40%-60% marks)**

Course of action

- Revision session
- Doubt solving session
- Group discussion

**Challanged Learner**
**(less than 40% marks)**

Course of action

- Extra classes
- Assignments
- Revision session
- Question bank

# Faculty of Technology
# Department of Mechanical Engineering
# Academic Year: 2021-22
# Categorization and steps taken to focus on the specific category of students

**Class: B. Tech. Mechanical (Semester VIII)**
**Year: 2021-22**
**Subject: Computer Integrated Manufacturing (01ME0821)**
**Faculty Name: Prof. Prashant Ujeniya**

| Serial No. | Roll No. | Student Name | Total Marks Marks | Marks Obtained | Result | PAC categorization |
|---|---|---|---|---|---|---|
| Result of MID SEMESTER EXAM-I , Jan -2022 | | | | | | |
| Subject: CIM   \|   Branch: ME-FOT1 (MU) \|    SEM 8 | | | | | | |
| 1 | 91800101001 | BHAVIN RAJESHBHAI UMARANIYA | 30 | 5 | FAIL | Challenged |
| 2 | 91800101002 | KHUSH RAKESHBHAI LADANI | 30 | 5 | FAIL | Challenged |
| 3 | 91800101004 | JENIL ARVINDBHAI PANARA | 30 | 0 | FAIL | Challenged |
| 4 | 91800101007 | SAIF SHAHIR VIJRIWADHA | 30 | 8 | FAIL | Challenged |
| 5 | 91800101008 | SMIT YOGESH BHALODIA | 30 | 30 | PASS | Premium |
| 6 | 91800101009 | TYSON T MATHEW | 30 | 4 | FAIL | Challenged |
| 7 | 91800101010 | AKSHATA RAMESH PADWAL | 30 | 15 | PASS | Average |
| 8 | 91800101011 | DHRUV HASMUKHBHAI KOTADIYA | 30 | 3 | FAIL | Challenged |
| 9 | 91800101012 | VIRAT K MISTRY | 30 | 3 | FAIL | Challenged |
| 10 | 91800101013 | MAITRI DEVANG PAREKH | 30 | 29 | PASS | Premium |
| 11 | 91800101014 | NIKUNJ DHARMESHBHAI VADGAMA | 30 | 24 | PASS | Premium |
| 12 | 91800101015 | GOURAV RAVI GOYAL | 30 | 15 | PASS | Average |
| 13 | 91800101016 | KISHAN BHOGILAL LIKHIYA | 30 | 6 | FAIL | Challenged |
| 14 | 91800101017 | HIRENDRA RATANSHANKER PANDEY | 30 | 18 | PASS | Average |
| 15 | 91800101018 | RAJAN KUMAR | 30 | 2 | FAIL | Challenged |
| 16 | 91800101019 | BHAVESH LAKHMANBHAI KHUNTI | 30 | 2 | FAIL | Challenged |
| 17 | 91800101020 | KARANBHAI PUNJABHAI ODEDARA | 30 | 28 | PASS | Premium |
| 18 | 91800101021 | KULDEEP KANTILAL BHOJANI | 30 | 0 | FAIL | Challenged |
| 19 | 91800101022 | RUSHABH PARESHBHAI JOSHI | 30 | 7 | FAIL | Challenged |
| 20 | 91800101023 | KARTIK VIJAYBHAI BOPALIYA | 30 | 0 | FAIL | Challenged |
| 21 | 91800101024 | PRAYAS DINESHBHAI RAIYANI | 30 | 19 | PASS | Premium |
| 22 | 91800101025 | UMANG DINESHBHAI NONGHANVADARA | 30 | 27 | PASS | Premium |
| 23 | 91800101026 | RUCHIT ARVINDBHAI NONGHANVADARA | 30 | 30 | PASS | Premium |
| 24 | 91800101027 | MEHLAM AMEERBHAI ZUMMARWALA | 30 | 20 | PASS | Premium |
| 25 | 91800101028 | RUSHI NILESHKUMAR VAKANI | 30 | 3 | FAIL | Challenged |
| 26 | 91800101030 | ANURAG MALL | 30 | 14 | PASS | Average |
| 27 | 91800101032 | GAUTAM KETANBHAI PATEL | 30 | 1 | FAIL | Challenged |
| 28 | 91800101034 | YASH MAHENDRABHAI DAVRA | 30 | 25 | PASS | Premium |

**Student Classification**

(A)      Challenged: Below 12 marks

(B)      Average: Between 12 to 18 marks

(C)      Premium: Above 19 marks

**Remedial actions are taken:**

1. Extra class arrangement after teaching hours for Challenged category student for 3 days (2hrs/day = total 6 hrs)
2. Students were called for extra numerical / practice after the academics.
3. Special Problems were designed for these students and understanding of few concepts by extra lectures.

**Question in assignment**

1. What is the objective of Computer Integrated Manufacturing System?

2. What are the types of manufacturing system?

3. Explain benefits of CIM

4. What are the elements of CIM (CIM wheel), explain them?

5. What is the role of management in CIM?

6. What are expert systems?

7. Participative management

8. Write down Role of manufacturing engineers, technologists and technicians.

**Attendance Record**

| Sr No | Enrollment No | Name of Student | 07/02/2022 | 08/02/2022 | 09/02/2022 | 10/02/2022 | 11/02/2022 | 12/02/2022 |
|---|---|---|---|---|---|---|---|---|
| 1 | 91800101001 | BHAVIN RAJESHBHAI UMARANIYA | P | A | P | P | A | P |
| 2 | 91800101002 | KHUSH RAKESHBHAI LADANI | P | P | P | P | A | P |
| 3 | 91800101004 | JENIL ARVINDBHAI PANARA | P | P | P | P | P | P |
| 4 | 91800101007 | SAIF SHAHIR VIJRIWADHA | A | P | P | P | P | P |
| 5 | 91800101009 | TYSON T MATHEW | P | P | P | P | P | P |
| 6 | 91800101011 | DHRUV HASMUKHBHAI KOTADIYA | P | P | P | P | P | P |
| 7 | 91800101012 | VIRAT K MISTRY | P | P | P | P | P | P |
| 8 | 91800101016 | KISHAN BHOGILAL LIKHIYA | P | A | P | P | A | P |
| 9 | 91800101018 | RAJAN KUMAR | P | P | P | P | A | P |
| 10 | 91800101019 | BHAVESH LAKHMANBHAI KHUNTI | A | P | P | P | P | P |
| 11 | 91800101021 | KULDEEP KANTILAL BHOJANI | A | P | P | P | P | P |
| 12 | 91800101022 | RUSHABH PARESHBHAI JOSHI | P | P | P | P | P | P |
| 13 | 91800101023 | KARTIK VIJAYBHAI BOPALIYA | P | P | P | A | P | P |
| 14 | 91800101028 | RUSHI NILESHKUMAR VAKANI | P | A | P | P | P | P |
| 15 | 91800101032 | GAUTAM KETANBHAI PATEL | P | P | P | P | P | P |

**Result Improvement in Final Exam**

| Sr. No | Enrolment No | Name of Student | Out of 100 |
|--------|--------------|-----------------|------------|
| 1 | 91800101001 | BHAVIN RAJESHBHAI UMARANIYA | 80 |
| 2 | 91800101002 | KHUSH RAKESHBHAI LADANI | 70 |
| 3 | 91800101004 | JENIL ARVINDBHAI PANARA | 69 |
| 4 | 91800101007 | SAIF SHAHIR VIJRIWADHA | 55 |
| 5 | 91800101009 | TYSON T MATHEW | 78 |
| 6 | 91800101011 | DHRUV HASMUKHBHAI KOTADIYA | 53 |
| 7 | 91800101012 | VIRAT K MISTRY | 55 |
| 8 | 91800101016 | KISHAN BHOGILAL LIKHIYA | 80 |
| 9 | 91800101018 | RAJAN KUMAR | 81 |
| 10 | 91800101019 | BHAVESH LAKHMANBHAI KHUNTI | 83 |
| 11 | 91800101021 | KULDEEP KANTILAL BHOJANI | 56 |
| 12 | 91800101022 | RUSHABH PARESHBHAI JOSHI | 57 |
| 13 | 91800101023 | KARTIK VIJAYBHAI BOPALIYA | 59 |
| 14 | 91800101028 | RUSHI NILESHKUMAR VAKANI | 60 |
| 15 | 91800101032 | GAUTAM KETANBHAI PATEL | 61 |

**Subject faculty**

**Prof. Prashant Ujeniya**

# Faculty of Technology
## Department of Mechanical Engineering
## Academic Year: 2021-22
## Categorization and steps taken to focus on the specific category of students

**Class: B. Tech. Mechanical (Semester VII)**
**Year: 2021-22**
**Subject: Rapid casting- I (01ME0821)**
**Faculty Name: Prof. Jignesh Jani**

| Serial No. | Roll No. | Student Name | Total Marks Marks | Marks Obtained | Result | Remarks |
|---|---|---|---|---|---|---|
| **Result of MID SEMESTER EXAM-I, August - 2021** |
| **Subject: RAPID CASTING - I \| Branch: ME-FOT1 (MU)\| SEM 7** |
| 1 | 91800101001 | BHAVIN RAJESHBHAI UMARANIYA | 30 | 2 | FAIL | Challenged |
| 2 | 91800101002 | KHUSH RAKESHBHAI LADANI | 30 | 23 | PASS | Premium |
| 3 | 91800101004 | JENIL ARVINDBHAI PANARA | 30 | 18 | PASS | Average |
| 4 | 91800101007 | SAIF SHAHIR VIJRIWADHA | 30 | 23 | PASS | Premium |
| 5 | 91800101008 | SMIT YOGESH BHALODIA | 30 | 25 | PASS | Premium |
| 6 | 91800101009 | TYSON T MATHEW | 30 | AB | FAIL | Challenged |
| 7 | 91800101010 | AKSHATA RAMESH PADWAL | 30 | 19 | PASS | Premium |
| 8 | 91800101011 | DHRUV HASMUKHBHAI KOTADIYA | 30 | 18 | PASS | Average |
| 9 | 91800101012 | VIRAT K MISTRY | 30 | 13 | PASS | Average |
| 10 | 91800101013 | MAITRI DEVANG PAREKH | 30 | 16 | PASS | Average |
| 11 | 91800101014 | NIKUNJ DHARMESHBHAI VADGAMA | 30 | 12 | PASS | Average |
| 12 | 91800101015 | GOURAV RAVI GOYAL | 30 | 19 | PASS | Premium |
| 13 | 91800101016 | KISHAN BHOGILAL LIKHIYA | 30 | 12 | PASS | Average |
| 14 | 91800101017 | HIRENDRA RATANSHANKER PANDEY | 30 | 14 | PASS | Average |
| 15 | 91800101018 | RAJAN KUMAR | 30 | 7 | FAIL | Challenged |
| 16 | 91800101019 | BHAVESH LAKHMANBHAI KHUNTI | 30 | 3 | FAIL | Challenged |
| 17 | 91800101020 | KARANBHAI PUNJABHAI ODEDARA | 30 | 2 | FAIL | Challenged |
| 18 | 91800101021 | KULDEEP KANTILAL BHOJANI | 30 | 12 | PASS | Average |
| 19 | 91800101022 | RUSHABH PARESHBHAI JOSHI | 30 | 4 | FAIL | Challenged |
| 20 | 91800101023 | KARTIK VIJAYBHAI BOPALIYA | 30 | 21 | PASS | Premium |
| 21 | 91800101024 | PRAYAS DINESHBHAI RAIYANI | 30 | 2 | FAIL | Challenged |
| 22 | 91800101025 | UMANG DINESHBHAI NONGHANVADARA | 30 | 2 | FAIL | Challenged |
| 23 | 91800101026 | RUCHIT ARVINDBHAI NONGHANVADARA | 30 | 2 | FAIL | Challenged |
| 24 | 91800101027 | MEHLAM AMEERBHAI ZUMMARWALA | 30 | 24 | PASS | Premium |
| 25 | 91800101028 | RUSHI NILESHKUMAR VAKANI | 30 | 19 | PASS | Premium |
| 26 | 91800101030 | ANURAG MALL | 30 | 3 | FAIL | Challenged |
| 27 | 91800101032 | GAUTAM KETANBHAI PATEL | 30 | 21 | PASS | Premium |
| 28 | 91800101034 | YASH MAHENDRABHAI DAVRA | 30 | 22 | PASS | Premium |

**Student Classification**

(A)     Challenged: Below 12 marks

(B)     Average: Between 13 to 18 marks

(C)     Premium: 19 & above marks

**Remedial actions are taken:**

1.  Extra class arrangement after teaching hours for Challenged category student for 6 days

(2hrs/day = total 12 hrs)

2.  Students were called for extra numerical / practice after the academics.

3. Special Problems were designed for these students and understanding of few concepts

by extra lectures.

**Assignment**

| Sr. No. | Question | Level of Quotations as per Bloom's Taxonomy | Course Outcome Mapping |
|---|---|---|---|
| 1 | Describe types of base sand used in metal casting with its effect on casting. | Apply | CO3 |
| 2 | Distinguish need of binder and additives for preparing moulding sand. | Analyze | CO3 |
| 3 | Explain Following sand properties and its effect on casting<br>1)Refractoriness 2) Permeability<br>3) Cohesiveness 4) Adhesiveness | Apply | CO3 |
| 4 | Write sand composition requirement for various types of metal. | Analyze | CO3 |

| Sr. No. | Question | Level of Quotations as per Bloom's Taxonomy | Course Outcome Mapping |
|---|---|---|---|
| 1 | Enlist type of allowance applicable in metal casting | Apply | CO1 |
| 2 | The casting show in fig.1 is to be made plain carbon steel using a wooden pattern. Assume only shrinkage allowance, calculate the dimension of the | Apply | CO1 |
| 3 | For the fig.1 example, if master pattern is to be made of plain carbon steel, calculate the dimension of the wooden pattern which is to be used for making the aluminium pattern. | Apply | CO1 |
| 4 | For the fig.1 example, what will be pattern dimension if all the surface of the casting need to be machined? | Apply | CO1 |
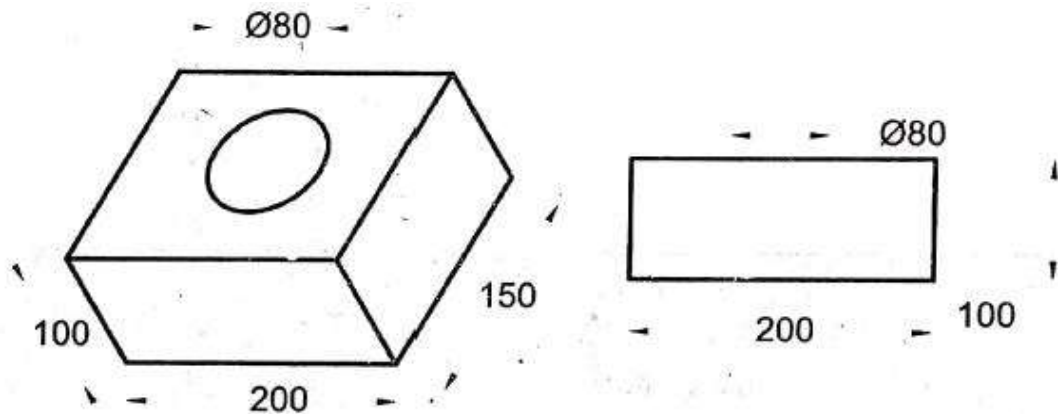
**Attendance**

| Serial No. | Roll No. | Student name | 01/11/2021 | 02/11/2021 | 03/11/2021 | 04/11/2021 | 05/11/2021 | 06/11/2021 |
|---|---|---|---|---|---|---|---|---|
| 1 | 91800101001 | Bhavin rajeshbhai umaraniya | P | P | P | P | P | P |
| 2 | 91800101009 | Tyson t mathew | P | P | P | A | P | P |
| 3 | 91800101018 | Rajan kumar | P | P | P | P | P | P |
| 4 | 91800101019 | Bhavesh lakhmanbhai khunti | P | P | P | P | P | P |
| 5 | 91800101020 | Karanbhai  Punjabhai Odedara | P | P | P | P | P | P |
| 6 | 91800101022 | Rushabh pareshbhai joshi | P | P | P | P | P | P |
| 7 | 91800101024 | Prayas dineshbhai raiyani | P | P | P | P | P | P |
| 8 | 91800101025 | Umang dineshbhai nonghanvadara | P | P | P | P | P | P |
| 9 | 91800101026 | Ruchit arvindbhai nonghanvadara | A | P | a | P | P | P |
| 10 | 91800101030 | Anurag mall | P | P | P | P | P | P |

**Result of Final Exam**

| Serial No. | Enrolment No. | Student Name | Out Of 100 |
|---|---|---|---|
| 1 | 91800101001 | BHAVIN RAJESHBHAI | 59 |
| 2 | 91800101009 | TYSON T MATHEW | 47 |
| 3 | 91800101018 | RAJAN KUMAR | 45 |
| 4 | 91800101019 | BHAVESH LAKHMANBHAI | 48 |
| 5 | 91800101020 | KARANBHAI PUNJABHAI | 45 |
| 6 | 91800101022 | RUSHABH PARESHBHAI JOSHI | 52 |
| 7 | 91800101024 | PRAYAS DINESHBHAI RAIYANI | 53 |
| 8 | 91800101025 | UMANG DINESHBHAI | 45 |
| 9 | 91800101026 | RUCHIT ARVINDBHAI | 44 |
| 10 | 91800101030 | ANURAG MALL | 52 |

Subject Faculty

Prof. Jignesh Jani

**Categorization and steps taken to focus on the specific category of students**

**Class: B Sc Microbiology (Semester 6)**

**Year: 2020-21**

**Subject: Applied Microbiology (02MB0353)**

**Faculty Name: Dr. Pooja Moteriya**

The categorization of students based on mid sem Exam I result is as follows.

**Mid-semester I exam result and categorization (three category: premium, average, challenged) of students as follows.**

| Serial No. | Roll No. | Student Name | Total Marks | Marks Obtained | Result | % age of marks | Category |
|---|---|---|---|---|---|---|---|
| 1. | 91800209001 | VRAJKUMAR DIPAKBHAI HINSU | 30 | 0 | **FAIL** | 0 | Challenged |
| 2. | 91800209002 | MANSI SHAILESHBHAI MAKADIA | 30 | 14 | PASS | 47 | Average |
| 3. | 91800209003 | DIVYESH MAHESHBHAI DABHI | 30 | 10 | **FAIL** | 33 | Challenged |
| 4. | 91800209004 | KRUPA DIPAK KANANI | 30 | 10 | **FAIL** | 33 | Challenged |
| 5. | 91800209005 | HIRVA CHETANBHAI MEHTA | 30 | 7 | **FAIL** | 23 | Challenged |
| 6. | 91800209006 | PAYAL PRIYADARSHANI | 30 | 20 | PASS | 67 | Premium |
| 7. | 91800209007 | VICKY GULABBHAI BARAI | 30 | 13 | PASS | 43 | Average |
| 8. | 91800209008 | VISHAL PARSOTTAM SONGARA | 30 | 4 | **FAIL** | 13 | Challenged |
| 9. | 91800209009 | RUTIKA DINESHBHAI ROKAD | 30 | 12 | PASS | 40 | Average |
| 10. | 91800209010 | DIPALI PRAVINBHAI VAGHMASHI | 30 | 3 | **FAIL** | 10 | Challenged |
| 11. | 91800209011 | JINALI DIPAKBHAI KHAJURIYA | 30 | 19 | PASS | 63 | Premium |
| 12. | 91800209012 | ARCHANA ZALA | 30 | 18 | PASS | 60 | Premium |

| 13. | 91800209013 | VENCY PANKAJBHAI RAITHATHA | 30 | 22 | PASS | 73 | Premium |
| 14. | 91800209014 | TANVI VIJAYBHAI JANI | 30 | 20 | PASS | 67 | Premium |
| 15. | 91800209015 | JAYDEEP NARENDRABHAI RAKHASIYA | 30 | 0 | **FAIL** | 0 | Challenged |
| 16. | 91800209016 | DEEPIKA SHARMA | 30 | 18 | PASS | 60 | Premium |
| 17. | 91800209017 | HIRAL GOPALBHAI CHOMAL | 30 | 19 | PASS | 63 | Premium |
| 18. | 91800209018 | ABHISHEK BHARATBHAI VEKARIYA | 30 | 28 | PASS | 93 | Premium |
| 19. | 91800209019 | VIDHI ASHWINBHAI AMRANIYA | 30 | 20 | PASS | 67 | Premium |
| 20. | 91800209020 | YASHVI HEMENDRABHAI DHRANGADHARIYA | 30 | 14 | PASS | 47 | Average |
| 21. | 91800209021 | SHIVANGI PARESHBHAI KASUNDRA | 30 | 28 | PASS | 93 | Premium |
| 22. | 91800209022 | MARGIBAHEN SANJAYBHAI VIRPARIYA | 30 | 0 | **FAIL** | 0 | Challenged |
| 23. | 91800209023 | PRACHI VIJAYBHAI NANDOLA | 30 | 3 | **FAIL** | 10 | Challenged |
| 24. | 91800209024 | URVI RAMESHBHAI PURUSHWANI | 30 | 18 | PASS | 60 | Premium |
| 25. | 91800209025 | HARDEVSINH MAHIPATSINH LAKUM | 30 | 10 | **FAIL** | 33 | Challenged |
| 26. | 91800209030 | BRIJEESHA PRAVINBHAI JORA | 30 | 21 | PASS | 70 | Premium |
| 27. | 91800209031 | SALONI ABDULBHAI MUNSHI | 30 | 17 | PASS | 57 | Average |
| 28. | 91800209032 | RIDDHI DHIRUBHAI BHALIYA | 30 | 13 | PASS | 43 | Average |
| 29. | 91800209033 | NEHA NARESH LODHIA | 30 | 22 | PASS | 73 | Premium |
| 30. | 91800209034 | KAYENAT FATEMA ALINAKI NAQVI | 30 | 24 | PASS | 80 | Premium |
| 31. | 91800209035 | ADARSH RAMNIKBHAI RAKHOLIYA | 30 | 13 | PASS | 43 | Average |
| 32. | 91800209037 | DHRUVI NIMESH KANANI | 30 | 30 | PASS | 100 | Premium |

| 33. | 91800209039 | PRINCE SANJAYBHAI NIMAVAT | 30 | 4 | **FAIL** | 13 | Challenged |
|-----|--------------|---------------------------|----|----|----------|-----|------------|
| 34. | 91800209040 | DISHANT JADAVBHAI KIYADA | 30 | 26 | PASS | 87 | Premium |
| 35. | 91800209041 | AASTHA MUKESHBHAI SIDPARA | 30 | 22 | PASS | 73 | Premium |
| 36. | 91800209042 | KYURI KISHORBHAI KASUNDRA | 30 | 9 | **FAIL** | 30 | Challenged |
| 37. | 91800209043 | MANSI ARVINDBHAI CHOVATIYA | 30 | 8 | **FAIL** | 27 | Challenged |
| 38. | 91800209044 | KRISHNA NILESH PITRODA | 30 | 18 | PASS | 60 | Premium |
| 39. | 91800209046 | JANVI HARESHBHAI SHINGALA | 30 | 16 | PASS | 53 | Average |
| 40. | 91800209047 | VARSHA ASHOKBHAI CHAUHAN | 30 | 21 | PASS | 70 | Premium |
| 41. | 91800209048 | JINAL JIGNESHBHAI MANANI | 30 | 12 | PASS | 40 | Average |
| 42. | 91800209050 | ROSHNI BHAGVANJIBHAI VAGHELA | 30 | 28 | PASS | 93 | Premium |
| 43. | 91800209052 | FENY JASMINBHAI RUPAREL | 30 | 21 | PASS | 70 | Premium |
| 44. | 91800209053 | MILAN MANSUKHBHAI RATHOD | 30 | 3 | **FAIL** | 10 | Challenged |
| 45. | 91800209055 | RIYA JAYESHKUMAR POPAT | 30 | 23 | PASS | 77 | Premium |
| 46. | 91800209056 | CHINMAY KIRITBHAI PITRODA | 30 | 19 | PASS | 63 | Premium |
| 47. | 91800209058 | CHARMI DINESHBHAI VIRANI | 30 | 12 | PASS | 40 | Average |
| 48. | 91800209060 | MEERA VINODRAY SHEKHA | 30 | 15 | PASS | 50 | Average |
| 49. | 91800209062 | KARISHMABAHEN SANJAYKUMAR BARIA | 30 | 20 | PASS | 67 | Premium |
| 50. | 91800209063 | AESHABEN JAYESHBHAI VACHHANI | 30 | 14 | PASS | 47 | Average |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 51. | 91800209064 | RICHA KANTILAL KHUNT | 30 | 19 | PASS | 63 | Premium |
| 52. | 91800209065 | HENA  KHAMARU | 30 | 25 | PASS | 83 | Premium |
| 53. | 91800209066 | ARCHANA BIPINBHAI PANDYA | 30 | 12 | PASS | 40 | Average |
| 54. | 91800209067 | HEMANGI VIJAYBHAI PANDYA | 30 | 18 | PASS | 60 | Premium |
| 55. | 91800209069 | BHARGAVI SOLANKI | 30 | 11 | **FAIL** | 37 | Challenged |
| 56. | 91800209072 | MAULIK PRAKASHBHAI CHOVATIYA | 30 | 5 | **FAIL** | 17 | Challenged |
| 57. | 91800209073 | TEHREEM MEHBOOB BHATTI | 30 | 14 | PASS | 47 | Average |
| 58. | 91800209074 | SHAMOIL HUSAIN BHARMAL | 30 | 5 | **FAIL** | 17 | Challenged |
| 59. | 91800209075 | SURAJ VIJAYBHAI SOLANKI | 30 | 10 | **FAIL** | 33 | Challenged |
| 60. | 91800209076 | SWATI RUDABHAI PADHARIYA | 30 | 5 | **FAIL** | 17 | Challenged |
| 61. | 91800209077 | SUFIYA SALIMBHAI ABADA | 30 | 22 | PASS | 73 | Premium |
| 62. | 91800209078 | UMESH RAMESHBHAI BHAGIYA | 30 | 17 | PASS | 57 | Average |
| 63. | 91800209079 | KRISHNA SHAILESHBHAI RANGANI | 30 | 9 | **FAIL** | 30 | Challenged |
| 64. | 91800209080 | MIHIR CHUNIBHAI GADHIYA | 30 | 3 | **FAIL** | 10 | Challenged |
| 65. | 91800209081 | SHIVANIBA VANRAJSINH ZALA | 30 | 14 | PASS | 47 | Average |
| 66. | 91800209083 | JAYRAJ KALUBHAI BHALGARIYA | 30 | 21 | PASS | 70 | Premium |
| 67. | 91850209001 | PARTHIL RAMESHBHAI KAPADIYA | 30 | 15 | PASS | 50 | Average |

**Result analysis of Mid Sem I exam**

| Sl No | Category | Criteria | No of Students out of 67 | % Students of specific category |
|---|---|---|---|---|
| 1. | Challenged | Less than 40% marks | 21 | 31.34 |
| 2. | Average | 40% to 60% marks | 17 | 25.37 |
| 3. | Premium | Above 61% marks | 29 | 43.29 |

**Steps taken to improve results**

| Category | Steps taken |
|---|---|
| Challenged | Motivation towards teaching and learning, Extra classes, Assignments, Revision session of important and difficult topics, Class test and question bank solving, rapid examination test |
| Average | Motivation towards teaching and learning, Revision session of important and difficult topics, doubt solving sessions, group discussions, enhancement of better answer writing skills |
| Premium | Doubt solving sessions, group discussions, enhancement of better answer writing skills, project based learning, online courses, virtual lab sessions |

After the above mentioned steps, result has been improvised and are represented in below table.

**Mid semester II exam result**

| Serial No. | Roll No. | Student Name | Total Marks | Marks Obtained | Result | % age of marks | Category |
|---|---|---|---|---|---|---|---|
| 1. | 91800209001 | VRAJKUMAR DIPAKBHAI HINSU | 30 | 16 | PASS | 53.33 | Average |
| 2. | 91800209002 | MANSI SHAILESHBHAI MAKADIA | 30 | 16 | PASS | 53.33 | Average |
| 3. | 91800209003 | DIVYESH MAHESHBHAI DABHI | 30 | 18 | PASS | 60.00 | Average |
| 4. | 91800209004 | KRUPA DIPAK KANANI | 30 | 23 | PASS | 76.67 | Premium |
| 5. | 91800209005 | HIRVA CHETANBHAI MEHTA | 30 | 21 | PASS | 70.00 | Premium |
| 6. | 91800209006 | PAYAL PRIYADARSHANI | 30 | 23 | PASS | 76.67 | Premium |
| 7. | 91800209007 | VICKY GULABBHAI BARAI | 30 | 19 | PASS | 63.33 | Premium |
| 8. | 91800209008 | VISHAL PARSOTTAM SONGARA | 30 | 15 | PASS | 50.00 | Average |
| 9. | 91800209009 | RUTIKA DINESHBHAI ROKAD | 30 | 22 | PASS | 73.33 | Premium |
| 10. | 91800209010 | DIPALI PRAVINBHAI VAGHMASHI | 30 | 8 | **FAIL** | 26.67 | Challenged |
| 11. | 91800209011 | JINALI DIPAKBHAI | 30 | 24 | PASS | 80.00 | Premium |

| | | KHAJURIYA | | | | | |
|---|---|---|---|---|---|---|---|
| 12. | 91800209012 | ARCHANA ZALA | 30 | 23 | PASS | 76.67 | Premium |
| 13. | 91800209013 | VENCY PANKAJBHAI RAITHATHA | 30 | 26 | PASS | 86.67 | Premium |
| 14. | 91800209014 | TANVI VIJAYBHAI JANI | 30 | 14 | PASS | 46.67 | Average |
| 15. | 91800209015 | JAYDEEP NARENDRABHAI RAKHASIYA | 30 | 17 | PASS | 56.67 | Average |
| 16. | 91800209016 | DEEPIKA SHARMA | 30 | 17 | PASS | 56.67 | Average |
| 17. | 91800209017 | HIRAL GOPALBHAI CHOMAL | 30 | 26 | PASS | 86.67 | Premium |
| 18. | 91800209018 | ABHISHEK BHARATBHAI VEKARIYA | 30 | 19 | PASS | 63.33 | Premium |
| 19. | 91800209019 | VIDHI ASHWINBHAI AMRANIYA | 30 | 21 | PASS | 70.00 | Premium |
| 20. | 91800209020 | YASHVI HEMENDRABHAI DHRANGADHARIYA | 30 | 21 | PASS | 70.00 | Premium |
| 21. | 91800209021 | SHIVANGI PARESHBHAI KASUNDRA | 30 | 14 | PASS | 46.67 | Average |
| 22. | 91800209022 | MARGIBAHEN SANJAYBHAI VIRPARIYA | 30 | 16 | PASS | 53.33 | Average |
| 23. | 91800209023 | PRACHI VIJAYBHAI NANDOLA | 30 | 16 | PASS | 53.33 | Average |
| 24. | 91800209024 | URVI RAMESHBHAI PURUSHWANI | 30 | 15 | PASS | 50.00 | Average |
| 25. | 91800209025 | HARDEVSINH MAHIPATSINH LAKUM | 30 | 17 | PASS | 56.67 | Average |
| 26. | 91800209030 | BRIJEESHA PRAVINBHAI JORA | 30 | 25 | PASS | 83.33 | Premium |
| 27. | 91800209031 | SALONI ABDULBHAI MUNSHI | 30 | 26 | PASS | 86.67 | Premium |
| 28. | 91800209032 | RIDDHI DHIRUBHAI BHALIYA | 30 | 18 | PASS | 60.00 | Average |
| 29. | 91800209033 | NEHA NARESH LODHIA | 30 | 21 | PASS | 70.00 | Premium |
| 30. | 91800209034 | KAYENAT FATEMA ALINAKI NAQVI | 30 | 17 | PASS | 56.67 | Average |
| 31. | 91800209035 | ADARSH RAMNIKBHAI | 30 | 16 | PASS | 53.33 | Average |

| | | RAKHOLIYA | | | | | |
|---|---|---|---|---|---|---|---|
| 32. | 91800209037 | DHRUVI NIMESH KANANI | 30 | 15 | PASS | 50.00 | Average |
| 33. | 91800209039 | PRINCE SANJAYBHAI NIMAVAT | 30 | 16 | PASS | 53.33 | Average |
| 34. | 91800209040 | DISHANT JADAVBHAI KIYADA | 30 | 16 | PASS | 53.33 | Average |
| 35. | 91800209041 | AASTHA MUKESHBHAI SIDPARA | 30 | 21 | PASS | 70.00 | Premium |
| 36. | 91800209042 | KYURI KISHORBHAI KASUNDRA | 30 | 16 | PASS | 53.33 | Average |
| 37. | 91800209043 | MANSI ARVINDBHAI CHOVATIYA | 30 | 22 | PASS | 73.33 | Premium |
| 38. | 91800209044 | KRISHNA NILESH PITRODA | 30 | 22 | PASS | 73.33 | Premium |
| 39. | 91800209046 | JANVI HARESHBHAI SHINGALA | 30 | 20 | PASS | 66.67 | Premium |
| 40. | 91800209047 | VARSHA ASHOKBHAI CHAUHAN | 30 | 24 | PASS | 80.00 | Premium |
| 41. | 91800209048 | JINAL JIGNESHBHAI MANANI | 30 | 17 | PASS | 56.67 | Average |
| 42. | 91800209050 | ROSHNI BHAGVANJIBHAI VAGHELA | 30 | 10 | **FAIL** | 33.33 | Challenged |
| 43. | 91800209052 | FENY JASMINBHAI RUPAREL | 30 | 28 | PASS | 93.33 | Premium |
| 44. | 91800209053 | MILAN MANSUKHBHAI RATHOD | 30 | 15 | PASS | 50.00 | Average |
| 45. | 91800209055 | RIYA JAYESHKUMAR POPAT | 30 | 20 | PASS | 66.67 | Premium |
| 46. | 91800209056 | CHINMAY KIRITBHAI PITRODA | 30 | 19 | PASS | 63.33 | Premium |
| 47. | 91800209058 | CHARMI DINESHBHAI VIRANI | 30 | 20 | PASS | 66.67 | Premium |
| 48. | 91800209060 | MEERA VINODRAY SHEKHA | 30 | 14 | PASS | 46.67 | Average |
| 49. | 91800209062 | KARISHMABAHEN SANJAYKUMAR BARIA | 30 | 19 | PASS | 63.33 | Premium |

| 50. | 91800209063 | AESHABEN JAYESHBHAI VACHHANI | 30 | 21 | PASS | 70.00 | Premium |
|-----|-------------|------------------------------|----|----|------|-------|---------|
| 51. | 91800209064 | RICHA KANTILAL KHUNT | 30 | 22 | PASS | 73.33 | Premium |
| 52. | 91800209065 | HENA  KHAMARU | 30 | 26 | PASS | 86.67 | Premium |
| 53. | 91800209066 | ARCHANA BIPINBHAI PANDYA | 30 | 27 | PASS | 90.00 | Premium |
| 54. | 91800209067 | HEMANGI VIJAYBHAI PANDYA | 30 | 27 | PASS | 90.00 | Premium |
| 55. | 91800209069 | BHARGAVI SOLANKI | 30 | 22 | PASS | 73.33 | Premium |
| 56. | 91800209072 | MAULIK PRAKASHBHAI CHOVATIYA | 30 | 18 | PASS | 60.00 | Average |
| 57. | 91800209073 | TEHREEM MEHBOOB BHATTI | 30 | 23 | PASS | 76.67 | Premium |
| 58. | 91800209074 | SHAMOIL HUSAIN BHARMAL | 30 | 17 | PASS | 56.67 | Average |
| 59. | 91800209075 | SURAJ VIJAYBHAI SOLANKI | 30 | 13 | PASS | 43.33 | Average |
| 60. | 91800209076 | SWATI RUDABHAI PADHARIYA | 30 | 16 | PASS | 53.33 | Average |
| 61. | 91800209077 | SUFIYA SALIMBHAI ABADA | 30 | 19 | PASS | 63.33 | Premium |
| 62. | 91800209078 | UMESH RAMESHBHAI BHAGIYA | 30 | 14 | PASS | 46.67 | Average |
| 63. | 91800209079 | KRISHNA SHAILESHBHAI RANGANI | 30 | 18 | PASS | 60.00 | Average |
| 64. | 91800209080 | MIHIR CHUNIBHAI GADHIYA | 30 | 20 | PASS | 66.67 | Premium |
| 65. | 91800209081 | SHIVANIBA VANRAJSINH ZALA | 30 | 23 | PASS | 76.67 | Premium |
| 66. | 91800209083 | JAYRAJ KALUBHAI BHALGARIYA | 30 | 16 | PASS | 53.33 | Average |
| 67. | 91850209001 | PARTHIL RAMESHBHAI KAPADIYA | 30 | 20 | PASS | 66.67 | Premium |

**Result analysis of Mid Sem II exam**

| Sl No | Category | Criteria | No of Students out of 67 | % Students of specific category |
|---|---|---|---|---|
| 1. | Challenged | Less than 40% of marks | 2 | 2.99 |
| 2. | Average | 40% to 60% marks | 29 | 43.28 |
| 3. | Premium | Above 61% marks | 36 | 53.73 |

**Comparative result analysis before (mid sem 1) and after (mid sem II) needful steps taken for the students**

| Sl No | Category | Criteria | No of Students out of 67 | | % age improvement after needful steps |
|---|---|---|---|---|---|
| | | | Mid sem 1 | Mid sem 1I | |
| 1. | Challenged | Less than 40% marks | 21 | 2 | 90 % |
| 2. | Average | 40% to 60% marks | 17 | 29 | 70 % |
| 3. | Premium | Above 61% marks | 29 | 36 | 24 % |

**Result analysis:**

It has been observed that, resuts were improved due to necessary steps taken. The results of all three categories (challenged, average, and premium) students have been improved. **Challenged category improved by 90%,** the average category improved by 70%, and the premium category improved by 24%.

*Pooja M.*

**(Dr. Pooja Moteriya)**

## Faculty of Science
## Department of ChemistryAcademic
## Year: 2020-21

**Categorization and steps taken to focus on the specific category of students**

Class: B. Sc. Chemistry (Semester VI)
Subject: Advanced Physical Chemistry (02CY0353)
Faculty Name: **Dr. Suranjana V. Mayani**

The categorization of students based on mid sem Exam I result is as follows.

**Mid-semester I exam result and categorization of students into 3 category (premium, challenged and average) as follows.**

| Serial No. | Roll No. | Student Name | Total Marks | Marks Obtained | Result | % age of marks | Category |
|---|---|---|---|---|---|---|---|
| 1. | 91800211002 | KIRAN HARDASBHAI BAPODARA | 30 | 14 | PASS | 46.67 | Average |
| 2. | 91800211003 | VEDANT SANJAYBHAI JOSHI | 30 | 12 | PASS | 40.00 | Average |
| 3. | 91800211005 | VAIBHAVI NILESHBHAI BHANDERI | 30 | 17 | PASS | 56.67 | Average |
| 4. | 91800211007 | PIPALIYA YASHKUMAR VINODBHAI | 30 | 20 | PASS | 66.67 | Premium |
| 5. | 91800211008 | NAVDEEP UMASHANKAR SHARMA | 30 | 26 | PASS | 86.67 | Premium |
| 6. | 91800211011 | RAJAT VIMAL MISHRA | 30 | 13 | PASS | 43.33 | Average |
| 7. | 91800211012 | YASHDEEP VINODBHAI GONDALIYA | 30 | 14 | PASS | 46.67 | Average |
| 8. | 91800211013 | HARSH RAJESHBHAI DADHANIYA | 30 | 22 | PASS | 73.33 | Premium |
| 9. | 91800211014 | RAJAN MUKESHBHAI GADARA | 30 | 17 | PASS | 56.67 | Average |
| 10. | 91800211019 | PARTH VIJAYKUMAR AARMBHADIYA | 30 | 12 | PASS | 40.00 | Average |
| 11. | 91800211020 | SMIT VASHARAMBHAI KUNDARIYA | 30 | 1 | **FAIL** | 3.33 | Challenged |
| 12. | 91800211021 | KAUSHIK MANSUKHBHAI KOTADIYA | 30 | 20 | PASS | 66.67 | Premium |

| 13. | 91800211022 | BHAVIN DHARMESHBHAI ASHARA | 30 | 10 | **FAIL** | 33.33 | Challenged |
|---|---|---|---|---|---|---|---|
| 14. | 91800211025 | PARTH ATULKUMAR VAGHASANA | 30 | 18 | PASS | 60.00 | Average |
| 15. | 91800211028 | RIBHU SUBHASIS GUHA | 30 | 26 | PASS | 86.67 | Premium |
| 16. | 91800211029 | FULTARIYA MEETKUMAR KISHORBHAI | 30 | 24 | PASS | 80.00 | Premium |
| 17. | 91800211030 | BHALANI RIDHAMKUMAR RAMESHBHAI | 30 | 19 | PASS | 63.33 | Premium |
| 18. | 91800211031 | NIMAVAT AKASHKUMAR VINODBHAI | 30 | 26 | PASS | 86.67 | Premium |
| 19. | 91800211032 | ARVIND KHETSHI GADHAVI | 30 | 13 | PASS | 43.33 | Average |
| 20. | 91800211034 | RAJ DAYALJIBHAI RANIPA | 30 | 13 | PASS | 43.33 | Average |
| 21. | 91800211035 | SHAILESH RANCHHODBHAI FANGALIYA | 30 | 8 | **FAIL** | 26.67 | Challenged |
| 22. | 91800211036 | RUTVIK RAMESHBHAI DHEDHI | 30 | 22 | PASS | 73.33 | Premium |
| 23. | 91800211039 | PRIYANSHI DHARMENDRA RANIPA | 30 | 19 | PASS | 63.33 | Premium |
| 24. | 91800211040 | BHAVATI CHANDRESH TARPARA | 30 | 27 | PASS | 90.00 | Premium |
| 25. | 91800211041 | SAGAR SAMATBHAI KHUNTI | 30 | 20 | PASS | 66.67 | Premium |
| 26. | 91800211042 | KHUSHALI NANDLALBHAI RAMOLIYA | 30 | 21 | PASS | 70.00 | Premium |
| 27. | 91800211043 | KRISHNA THAKARSHIBHAI CHAVDA | 30 | 26 | PASS | 86.67 | Premium |
| 28. | 91800211044 | MANSI PARESHBHAI RAJPURA | 30 | 24 | PASS | 80.00 | Premium |
| 29. | 91800211045 | DUDANI SAHIL SURESHBHAI | 30 | 8 | **FAIL** | 26.67 | Challenged |
| 30. | 91800211046 | AYAAN  ADMANI | 30 | 22 | PASS | 73.33 | Premium |
| 31. | 91800211048 | RUTVIK MANOJKUMAR | 30 | 19 | PASS | 63.33 | Premium |

| | | RAJPARA | | | | | |
|---|---|---|---|---|---|---|---|
| 32. | 91800211049 | JANHAVI KARANBHAI PADECHA | 30 | 20 | PASS | 66.67 | Premium |
| 33. | 91800211050 | JAY BHUPATBHAI VEKARIYA | 30 | 12 | PASS | 40.00 | Average |
| 34. | 91800211054 | ROHIT VEJABHAI KHUNTI | 30 | 26 | PASS | 86.67 | Premium |
| 35. | 91800211056 | VANDIT VINODBHAI SHEKHDA | 30 | 23 | PASS | 76.67 | Premium |
| 36. | 91800211058 | RASHI DIGESHBHAI SHAH | 30 | 28 | PASS | 93.33 | Premium |
| 37. | 91800211059 | JAY NANJIBHAI MAKVANA | 30 | 10 | **FAIL** | 33.33 | Challenged |
| 38. | 91800211061 | NAND RUPAL SHAH | 30 | 17 | PASS | 56.67 | Average |
| 39. | 91800211062 | RONAK DILIPBHAI KAPADIYA | 30 | 21 | PASS | 70.00 | Premium |
| 40. | 91800211063 | VIJAYKUMAR MUKESHBHAI RATHOD | 30 | 16 | PASS | 53.33 | Average |
| 41. | 91800211064 | HAPPY SHAILESHBHAI RUPARELIYA | 30 | 13 | PASS | 43.33 | Average |
| 42. | 91800211065 | RAHUL SHAMJIBHAI MATA | 30 | 9 | **FAIL** | 30.00 | Challenged |
| 43. | 91800211066 | HIREN KALPESHBHAI AJANI | 30 | 28 | PASS | 93.33 | Premium |
| 44. | 91800211068 | SAGAR KALUBHAI BAVALIYA | 30 | 3 | **FAIL** | 10.00 | Challenged |
| 45. | 91800211069 | MOHAMMAD RAZA | 30 | 10 | **FAIL** | 33.33 | Challenged |
| 46. | 91800211071 | HAPPYBEN RAMESHBHAI DEDAKIYA | 30 | 18 | PASS | 60.00 | Average |
| 47. | 91850211003 | RONAK DALSUKHBHAI THUMMAR | 30 | 5 | **FAIL** | 16.67 | Challenged |
| 48. | 91850211005 | MANASKUMAR VALLABHBHAI PABANI | 30 | 23 | PASS | 76.67 | Premium |
| 49. | 91850211006 | RAJ VIPULBHAI VYAS | 30 | 12 | PASS | 40.00 | Average |
| 50. | 91850211008 | KARTIK VASANTBHAI JALU | 30 | 20 | PASS | 66.67 | Premium |
| 51. | 91850211009 | VIVEK CHANDUBHAI BALASARA | 30 | 15 | PASS | 50.00 | Average |
| 52. | 91850211010 | ANIL JANAKBHAI | 30 | 13 | PASS | 43.33 | Average |

| | | JEJARIYA | | | | | |
|---|---|---|---|---|---|---|---|
| 53. | 91850211011 | JESAL BUTABHAI HADGARDA | 30 | 17 | PASS | 56.67 | Average |
| 54. | 91850211012 | KARATHIYA YOGESHKUMAR CHANDULAL | 30 | 12 | PASS | 40.00 | Average |
| 55. | 91850211014 | ACHAL GANESHBHAI PIPALIYA | 30 | 28 | PASS | 93.33 | Premium |
| 56. | 91850211015 | SAVANKUMAR MUKESHBHAI CHAPLA | 30 | 26 | PASS | 86.67 | Premium |

**Result analysis of Mid Sem I exam**

| Sl No | Category | Criteria | No of Students out of 56 | % Students of specific category |
|---|---|---|---|---|
| 1. | Challenged | Less than 40% marks | 9 | 16.07 |
| 2. | Average | 40% to 60% marks | 20 | 35.71 |
| 3. | Premium | Above 61% marks | 27 | 48.22 |

**Steps taken to improve results**

| Category | Steps taken |
|---|---|
| Challenged | Revision session of important topics, Extra classes, Assignments, question bank solving, MCQ rapid examination test |
| Average | Motivation towards teaching and learning, Revision session of important and difficult topics, doubt solving sessions, group discussions |
| Premium | Project based learning, online courses, doubt solving sessions, group discussions, prepare for better answer writing skills |

After the above mentioned steps, result has been improvised and are represented in the table below.

**Mid semester II exam result**

| Serial No. | Roll No. | Student Name | Total Marks | Marks Obtained | Result | % age of marks | Category |
|---|---|---|---|---|---|---|---|
| 1. | 91800211002 | KIRAN HARDASBHAI BAPODARA | 30 | 22 | PASS | 73.33 | Premium |
| 2. | 91800211003 | VEDANT SANJAYBHAI JOSHI | 30 | 18 | PASS | 60.00 | Average |
| 3. | 91800211005 | VAIBHAVI NILESHBHAI BHANDERI | 30 | 25 | PASS | 83.33 | Premium |
| 4. | 91800211007 | PIPALIYA YASHKUMAR | 30 | 27 | PASS | 90.00 | Premium |

| | | VINODBHAI | | | | | |
|---|---|---|---|---|---|---|---|
| 5. | 91800211008 | NAVDEEP UMASHANKAR SHARMA | 30 | 27 | PASS | 90.00 | Premium |
| 6. | 91800211011 | RAJAT VIMAL MISHRA | 30 | 26 | PASS | 86.67 | Premium |
| 7. | 91800211012 | YASHDEEP VINODBHAI GONDALIYA | 30 | 26 | PASS | 86.67 | Premium |
| 8. | 91800211013 | HARSH RAJESHBHAI DADHANIYA | 30 | 16 | PASS | 53.33 | Average |
| 9. | 91800211014 | RAJAN MUKESHBHAI GADARA | 30 | 27 | PASS | 90.00 | Premium |
| 10. | 91800211019 | PARTH VIJAYKUMAR AARMBHADIYA | 30 | 23 | PASS | 76.67 | Premium |
| 11. | 91800211020 | SMIT VASHARAMBHAI KUNDARIYA | 30 | 28 | PASS | 93.33 | Premium |
| 12. | 91800211021 | KAUSHIK MANSUKHBHAI KOTADIYA | 30 | 22 | PASS | 73.33 | Premium |
| 13. | 91800211022 | BHAVIN DHARMESHBHAI ASHARA | 30 | 26 | PASS | 86.67 | Premium |
| 14. | 91800211025 | PARTH ATULKUMAR VAGHASANA | 30 | 22 | PASS | 73.33 | Premium |
| 15. | 91800211028 | RIBHU SUBHASIS GUHA | 30 | 28 | PASS | 93.33 | Premium |
| 16. | 91800211029 | FULTARIYA MEETKUMAR KISHORBHAI | 30 | 27 | PASS | 90.00 | Premium |
| 17. | 91800211030 | BHALANI RIDHAMKUMAR RAMESHBHAI | 30 | 22 | PASS | 73.33 | Premium |
| 18. | 91800211031 | NIMAVAT AKASHKUMAR VINODBHAI | 30 | 26 | PASS | 86.67 | Premium |
| 19. | 91800211032 | ARVIND KHETSHI GADHAVI | 30 | 23 | PASS | 76.67 | Premium |
| 20. | 91800211034 | RAJ DAYALJIBHAI RANIPA | 30 | 22 | PASS | 73.33 | Premium |
| 21. | 91800211035 | SHAILESH RANCHHODBHAI FANGALIYA | 30 | 23 | PASS | 76.67 | Premium |
| 22. | 91800211036 | RUTVIK RAMESHBHAI DHEDHI | 30 | 8 | FAIL | 26.67 | Challenged |
| 23. | 91800211039 | PRIYANSHI DHARMENDRA RANIPA | 30 | 28 | PASS | 93.33 | Premium |

| 24. | 91800211040 | BHAVATI CHANDRESH TARPARA | 30 | 28 | PASS | 93.33 | Premium |
|---|---|---|---|---|---|---|---|
| 25. | 91800211041 | SAGAR SAMATBHAI KHUNTI | 30 | 27 | PASS | 90.00 | Premium |
| 26. | 91800211042 | KHUSHALI NANDLALBHAI RAMOLIYA | 30 | 27 | PASS | 90.00 | Premium |
| 27. | 91800211043 | KRISHNA THAKARSHIBHAI CHAVDA | 30 | 26 | PASS | 86.67 | Premium |
| 28. | 91800211044 | MANSI PARESHBHAI RAJPURA | 30 | 27 | PASS | 90.00 | Premium |
| 29. | 91800211045 | DUDANI SAHIL SURESHBHAI | 30 | 24 | PASS | 80.00 | Premium |
| 30. | 91800211046 | AYAAN ADMANI | 30 | 17 | PASS | 56.67 | Average |
| 31. | 91800211048 | RUTVIK MANOJKUMAR RAJPARA | 30 | 27 | PASS | 90.00 | Premium |
| 32. | 91800211049 | JANHAVI KARANBHAI PADECHA | 30 | 21 | PASS | 70.00 | Premium |
| 33. | 91800211050 | JAY BHUPATBHAI VEKARIYA | 30 | 16 | PASS | 53.33 | Average |
| 34. | 91800211054 | ROHIT VEJABHAI KHUNTI | 30 | 16 | PASS | 53.33 | Average |
| 35. | 91800211056 | VANDIT VINODBHAI SHEKHDA | 30 | 27 | PASS | 90.00 | Premium |
| 36. | 91800211058 | RASHI DIGESHBHAI SHAH | 30 | 28 | PASS | 93.33 | Premium |
| 37. | 91800211059 | JAY NANJIBHAI MAKVANA | 30 | 23 | PASS | 76.67 | Premium |
| 38. | 91800211061 | NAND RUPAL SHAH | 30 | 25 | PASS | 83.33 | Premium |
| 39. | 91800211062 | RONAK DILIPBHAI KAPADIYA | 30 | 27 | PASS | 90.00 | Premium |
| 40. | 91800211063 | VIJAYKUMAR MUKESHBHAI RATHOD | 30 | 23 | PASS | 76.67 | Premium |
| 41. | 91800211064 | HAPPY SHAILESHBHAI RUPARELIYA | 30 | 15 | PASS | 50.00 | Average |
| 42. | 91800211065 | RAHUL SHAMJIBHAI MATA | 30 | 22 | PASS | 73.33 | Premium |
| 43. | 91800211066 | HIREN KALPESHBHAI AJANI | 30 | 29 | PASS | 96.67 | Premium |
| 44. | 91800211068 | SAGAR KALUBHAI BAVALIYA | 30 | 16 | PASS | 53.33 | Average |
| 45. | 91800211069 | MOHAMMAD RAZA | 30 | 26 | PASS | 86.67 | Premium |
| 46. | 91800211071 | HAPPYBEN | 30 | 26 | PASS | 86.67 | Premium |

| | | RAMESHBHAI DEDAKIYA | | | | | |
|---|---|---|---|---|---|---|---|
| 47. | 91850211003 | RONAK DALSUKHBHAI THUMMAR | 30 | 26 | PASS | 86.67 | Premium |
| 48. | 91850211005 | MANASKUMAR VALLABHBHAI PABANI | 30 | 20 | PASS | 66.67 | Premium |
| 49. | 91850211006 | RAJ VIPULBHAI VYAS | 30 | 26 | PASS | 86.67 | Premium |
| 50. | 91850211008 | KARTIK VASANTBHAI JALU | 30 | 25 | PASS | 83.33 | Premium |
| 51. | 91850211009 | VIVEK CHANDUBHAI BALASARA | 30 | 25 | PASS | 83.33 | Premium |
| 52. | 91850211010 | ANIL JANAKBHAI JEJARIYA | 30 | 15 | PASS | 50.00 | Average |
| 53. | 91850211011 | JESAL BUTABHAI HADGARDA | 30 | 26 | PASS | 86.67 | Premium |
| 54. | 91850211012 | KARATHIYA YOGESHKUMAR CHANDULAL | 30 | 22 | PASS | 73.33 | Premium |
| 55. | 91850211014 | ACHAL GANESHBHAI PIPALIYA | 30 | 26 | PASS | 86.67 | Premium |
| 56. | 91850211015 | SAVANKUMAR MUKESHBHAI CHAPLA | 30 | 26 | PASS | 86.67 | Premium |

**Result analysis of Mid Sem II exam**

| Sl No | Category | Criteria | No of Students out of 56 | % Students of specific category |
|---|---|---|---|---|
| 1. | Challenged | Less than 40% of marks | 1 | 1.79 |
| 2. | Average | 40% to 60% marks | 8 | 14.29 |
| 3. | Premium | Above 61% marks | 47 | 83.92 |

**Comparative result analysis before (mid sem 1) and after (mid sem II) needful steps taken for the students**

| Sl No | Category | Criteria | No of Students out of 56 | | % age improvement after needful steps |
|---|---|---|---|---|---|
| | | | Mid sem 1 | Mid sem 1I | |
| 1. | Challenged | Less than 40% marks | 9 | 1 | 89 % |
| 2. | Average | 40% to 60% marks | 20 | 8 | 60 % |
| 3. | Premium | Above 61% marks | 27 | 47 | 74 % |

**Result analysis:**

Due to useful steps mentioned above table; the results of all three categories students have been improved. Challenged category improved by 89%, the average category improved by 60%, and the premium category improved by 74%.

*Suranjana V. Mayani*

Dr. Suranjana V. Mayani

**Define the following terms:**

# Unit-1

Microbial flora, Pathogenic microorganisms, Food poisoning, Ropy fermentation, Psychrophilic, Mesophilic, Thermoduric, Thermophilic, Food spoilage, Intrinsic factor, Extrinsic factor, Putrefaction, Fermentation, Rancidity, Autolysis, canned food, Food poisoning, Ropy milk, Food intoxication, Food infection, Food preservation, Pasteurization, Starter Culture, Starting materials, Controlled fermentation, Probiotics, Prebiotics, Natural Fermentation, Back slopping fermentation, Controlled fermentation

## Unit -2

Raw material, Heterogeneous mixture, Primary metabolites, Secondary metabolites, Pectinase, Proteases, Amylases, Extracellular enzyme, Intracellular enzyme, Endonuclease enzyme, Antibiotic, Submerged fermentation, Solid state fermentation

## Unit -3

Biofertilizers, Rhizobium, Rhizosphere, Symbiosis, Azotobacter, Azospirillum, Heterocysts, Mycorrhiza, Ectomycorrhiza, Endomycorrhiza, VAM fungi, Biopesticides, Entomopathogenic fungi, Plant tissue culture, Totipotency, Plant promoting hormones, Protoplast culture

## Unit -4

Bioremediation, Biodegradation, Bioventing, Biosparging, Landfarming, In situ bioremediation, Ex situ bioremediation

**Answer the following: (Four and eight marks)**

**Unit- 1**

1) Explain in detail microbial flora of fresh foods

2) Write in detail microbial flora of milk

3) Describe spoilage in food

4) Explain different methods of food preservations

5) Give the basic method of microbiological analysis of food products

6) Describe general fermentation method of fermented foods

7) Explain in detail probiotics

8) Explain in detail prebiotics

9) Write in detail application of microbial enzymes in Dairy industry

10) Microbiology of Cultured Buttermilk Fermentation

11) Microbiology of Cultured yogurt Fermentation

**Unit- 2**

1) Write the general procedure of microbial product synthesis

2) Explain major class of microbial products of market available

3) Write the name of industrial uses bacteria

4) Write the name of industrial uses fungi

5) Write the name of industrial uses yeast

6) Explain production of primary metabolites

7) Explain production of secondary metabolites

8) Write the general enzyme production method

9) Explain in detail production of α-amylase

10) Explain in detail production of protease

11) Explain in detail production of lipase

12) Write in detail about making and spoilage of wine

13) Explain in detail production of methanol by biofuel method

## Unit-3

1) Write the advantages of biofertilizers

2) Explain in detail types of biofertilizers

3) Discuss the general production methods of biofertilizers

4) Explain in detail mycorrhiza

5) Explain in detail biopesticides

6) What is plant tissue culture and explain its types in detail

7) Discuss in detail plant growth regulators, types, its effects and applications

8) Write the application of plant tissue culture

9) Explain different types of micropropagation techniques with diagram

## Unit-4

1) Write the advantages of bioremediation

2) Write the constraints of Bioremediation

3) Write the benefits and limitations of In situ and Ex situ bioremediation

4) Discuss in detail bioventing

5) Explain Composting

6) Explain in detail biodegradation

7) Explain in detail biosparging

8) Explain in detail solid water phase bioremediation method

9) Explain in detail Solid-phase bioremediation method

10) Write in detail pesticide biodegradation

## Question Bank

## Subject: Advanced Physical Chemistry (02CY0353)
## Class: B. Sc. (Sem VI)

## Faculty Name: Dr. Suranjana V. Mayani

**Unit 1: Nuclear Chemistry**

1.  What is Nuclear Chemistry?

2.  What are nuclear particles? Give examples.

3.  What are two categories of nuclear particles?

4.  Define nuclear reactions and nuclear forces.

5.  What is the difference between nuclear reaction and chemical reaction?

6.  What are two types of nuclear reactions?

7.  Define radioactivity.

8.  Who discovered radioactivity phenomena?

9.  Describe radioactive decays.

10. What is electron capture (EC)?

11. Describe units of radioactivity.

12. Describe different types and properties of radiations from radioactive elements.

13. Describe the Geiger-Muller Counter for detection and measurement of radioactivity.

14. Explain Wilson Cloud Chamber method.

15. Define half life and mean life of radioactive decay.

16. Define Group displacement law

17. What are general characteristics of radioactive decay ?

18. Describe carbon dating.

19. Describe nuclear fission and nuclear fusion reactions with example.

20. Describe α, β and γ decay with examples.

## Unit 2: Activity and activity coefficient

1.  Write down/define the following:

    (a) Activity coefficient

    (b) Mean activity

    (c) Ionic strength

    (d) Assumptions of Debye Huckel theory.

2. What is asymmetric and relaxation effect?

3. Explain electrophoretic effect.

4. Describe Debye-Huckel-Onsagar conductance equation

5. What is degree of dissociation ?

6. What is common ion effect?

7. What do you mean by activity and activity coefficient.

8. Write down importance of activity coefficient.

## Unit 3: Crystallography

1.  Define crystalline solid and amorphous solid

2. Define isotropy and anisotropy with examples.

3. Write down differences between isotropy and anisotropy.

4. Explain unit cell, cubic unit cells, body centered cubic unit cells, face centered cubic unit cell.

5. Define Bragg's equation.

6. Describe the theory of Bragg's method of crystal analysis.

7. Derive the relation $n\lambda = 2d\sin\theta$ in crystallography.

8. Draw diagrams to represent (i) F.C.C. lattice and (ii) B.C.C. lattice

9. What are two types of solids?

10. Describe symmetry elements.

11. Explain plane of symmetry and axis of symmetry.

12. How many symmetry elements are there in a cube ? Explain.

13. What is Miller Indices? How to find Miller Indices?

14. Describe three types of cubic unit cells.

15. What are the characterized parameters of unit cell?

16. Write down the parameters of seven Bravais unit cells.

17. Calculate the number of atoms contained within (i) a primitive cubic unit cell (ii) a body centered cubic (b.c.c.)  (iii) a face centered cubic (f.c.c) unit cell

18. Calculate the Miller Indices of crystal planes which cut through the crystal axes at (i) (2a, 3b, c) (ii) (a, b, c) (iii) (6a, 3b, 3c) (iv) (2a, -3b, -3c)

19. What is coordination number of crystal lattice?

20. Describe X –Ray crystallography.

21. Describe measurement of diffraction angle.

22. Discuss powder method of crystal analysis.

23. What do you understand by

(i) Axis of four fold symmetry

(ii)    Axis of three fold symmetry

How many such axes are present in cubic crystals ?

24.  A crystal plane has intercepts of 3, 4 and 2 units with x, y and z axes respectively. Calculate

its Miller Indices.

25. Calculate co-ordination number of an atom in

(a) A body centered cubic

(b) A face centered cubic unit cell

26. Describe ionic crystals, sodium chloride crystal and cesium chloride crystal.

# Methodologies to support Fast Learners

1. **Participation in National and International Events**

2. **COURSERA Certification**

3. **Research Paper Publication by Students**

# 1. Participation in National and International Events

## 1.1 ASME E-Fest 2020:

ASME (stands for American Society of Mechanical Engineers) E-Fests are a movement driven by engineering students that has gained force globally. These year-round programs empower engineering students to ignite innovation, build your resume, expand your knowledge, participate in stimulating competitions, jumpstart your career and most importantly, celebrate engineering. Every year there are 4 E-Fests organized all around the world. One is E-Fest Asia Pacific, then E-Fest North, then E-Fest South and last but not the least E-Fest South America. It includes engineering competitions, lightning talks, Career advice, Interactive sessions & Entertainment. Engineering Competitions like Human Powered Vehicle Challenge (HPVC), Student Design Challenge (SDC), Innovative additive manufacturing 3D (IAM3D), Old guard oral competition, Aeromania, REboat, Elevator Pitch & Biomimicry challenge.



REboat Challenge: Qualification



IAM3D: Qualification

HPVC Sprint Event



Biomimicry challenge: Ideation & Prototyping



REboat: Semifinals & Finals



Elevator Pitch: Final Presentations

Marwadi University secured 1st rank in IAM3D Competition

MU HPVC Volunteering team won Team Spirit Award





Marwadi University secured 2nd & 3rd rank in REboat

## 1.2 Participation in SAE Effi-cycle

SAE NIS EFFI-CYCLE 2018 Drive Excellence Resilience is an intercollegiate design competition for engineering students where a team of 6-10 students must design and fabricate an energy efficient Hybrid human powered three-wheeled electric vehicle. This event provides an opportunity for engineering students by setting up the trend of using the eco - friendly vehicle in India and come up with some innovative designs. The vehicle should be capable to be driven simultaneously as well as alternatively by two drivers and run simultaneously or alternatively on an electric drive.

## 1.3    RMC Hackathon 2017

The Rajkot Municipal Corporation (RMC) had organized Smart City Rajkot Hackathon event for getting solutions to various problems in different sectors of Rajkot. The main aim to organize such event to gather dynamic brains across the country at one place and compete to provide better solutions in terms of Software, Application or Website. Marwadi University was a Nodal Center to organize such a wonderful event in the city of Rajkot. The department of computer engineering and information technology were ready to provide all types of resources to make this event a great success. The students of the departments not only registered to participate in the event, but they were ready to help all the faculties to manage different activities of the event. The event was a non-stop event where each team were supposed to design and implement the solution for a given problem. The event was scheduled from 29th July 2017 to 30th July 2017. The event started at 11:30 am on 29 July and ended at 06:00 pm on 30 July.
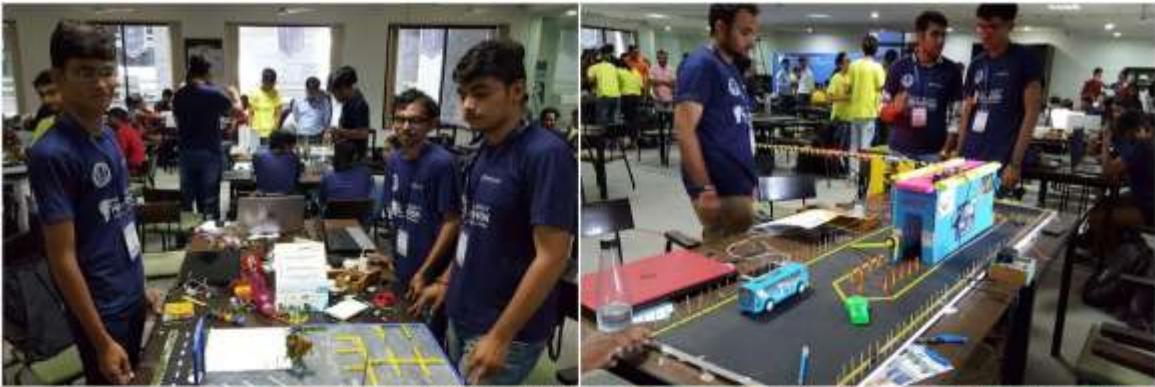
## 1.4 Smart India Hackathon 2018

To promote PM's vision of Digital India, developing digital literacy and making development a comprehensive mass movement, MHRD, AICTE, i4c and Persistent system successfully organized the second edition of Smart India Hackathon 2018. Smart India Hackathon 2018 will have 2 sub-editions – Software as well as Hardware: Software Edition was 36-hour software product development competition, similar in concept to Smart India Hackathon 2017.The new Hardware Edition was a hackathon where teams will be work for 5 straight days and build their hardware solutions. This competition would be limited to only 5 nodal centers with 20-25 teams each.

## 1.5    Smart Gujarat for New India Hackathon – 2018

To create and promote the Innovation culture and develop the Innovation ecosystem, state Education Department has taken various initiatives "Smart Gujarat for New India Hackathon" is one of many such initiatives. It will engage young students across Universities, Institutes of the state to harness their creative potential. Under "Smart Gujarat

Hackathon for New India" 16 GoG departments have submitted the Problem Statements related to their areas. The student teams from various Universities and Institutes can register online to be the part of Hackathon and work towards finding Digital Solution of the selected Problem Statement.





## 1.5    Smart Gujarat for New India Hackathon – 2018

## 1.6 Smart India Hackathon for New India 2021

While taking the legacy further, Higher & Technical Education Department, Government of the Final Round of Smart Gujarat for New India Hackathon was conducted on 10th and 11th August, 2021. Through these programs, students will be working on real life challenges of SMEs, Industries and large corporations. Through this, SSIP wish to make serious efforts to create a strong open innovation program involving industry, academia keeping students, innovators & startups at the center. Under this program, education ministry will try to involve all universities and the students will participate at different levels. Potential digital and other challenges from various ministries/departments will be sourced, codified and made available in a digital platform so that young students can participate in it.





## 2. COURSERA certification

Marwadi University tie-ups with COURSERA for advance learning of students and students were assessed by different International University of repute. Few of the certificates provided below



MathWorks®

COURSE CERTIFICATE

Mar 27, 2022

Jay Ginoya

has successfully completed

Exploratory Data Analysis with MATLAB

an online non-credit course authorized by MathWorks and offered through Coursera

*MathWorks Training*

MathWorks Training

Verify at:
coursera.org/verify/RSCD88QFFJFH
Coursera has confirmed the identity of this individual and their participation in the course.



University of Colorado
Boulder | Colorado Springs | Denver | Anschutz Medical Campus

COURSE CERTIFICATE

Feb 3, 2022

Rajkumar Jagdishbhai Varasada

has successfully completed

Renewable Energy Technology Fundamentals

an online non-credit course authorized by University of Colorado Boulder and offered through Coursera

Stephen R. Lawrence, PhD
Associate Professor Emeritus
Leeds School of Business

Verify at:
coursera.org/verify/E4Q7E5AB4RXA
Coursera has confirmed the identity of this individual and their participation in the course.

# 3. Research Paper Publication by Students

Marwadi University extends their support to Students who highly motivated in research and provided continuous guidance for their progress. As an outcome several research papers published by students.

## Review on Indian Municipal Solid Waste Management practices for reduction of environmental impacts to achieve sustainable development goals

Yash Pujara

| | |
|---|---|
| Authors | Yash Pujara, Pankaj Pathak, Archana Sharma, Janki Govani |
| Publication date | 2019/10/15 |
| Source | Journal of environmental management |
| Volume | 248 |
| Pages | 109238 |
| Publisher | Academic Press |
| Description | Open dumping is a common practice for MSW disposal in most of the Indian cities, apart from the metro-cities. This practice poses significant environmental and health risks due to toxic and greenhouse gases (GHGs) emission through direct combustion and/or decay of wastes. Therefore, integrated solid waste management (ISWM) using different methods viz., incineration, composting, anaerobic digestions, refuse derived fuel, material recovery facility and sanitary landfilling, is much needed. Accordingly, three waste management case scenarios were studied for year 2001–2051 by keeping weightage of sustainable development goals 2030 of India. Case I depicts Indian present scenario of waste management where 164–735 tonnes/year of wastes would be generated for year 2001–2051. Further, 60% of waste can be treated in case II that help in reducing the land requirement up to 40% from estimated conditions ... |
| Total citations | Cited by 117 |
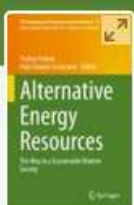
**Alternative Energy Resources** pp 173–191 | Cite as

# Waste-to-Energy: Suitable Approaches for Developing Countries

Yash Pujara, Janki Govani, Karan Chabhadiya, Harshit Patel, Khevna Vaishnav & Pankaj Pathak ✉

Chapter | First Online: 23 September 2020

**370** Accesses

Part of the The Handbook of Environmental Chemistry book series (HEC,volume 99)

Yash Pujara

## Comparative Analysis of Waste to Energy Technologies in Indian Context

Authors   Yash Pujara, Archana Sharma

Publication date   2019/1/31

Conference   National Environmental Conference, IIT-Bombay, 2019

Chapter

## Different Treatment Technologies Used for Municipal Solid Waste Management in India

### Material and Energy Recovery

*By Chabhadiya Karan, Pujara Yash, Patel Harshit, Govani Janki, Pathak Pankaj, Mashru Deepak*

Book   Waste Management Policies and Practices in BRICS Nations

## Two-step leaching process and kinetics for an eco-friendly recycling of critical metals from spent Li-ion batteries

Karan Chabhadiya [a], Rajiv Ranjan Srivastava [b, c] ✉, Pankaj Pathak [d] ✉

Show more ⌄

# Personal Exposure to Air Pollutants from Winter Season Bonfires in Rural Areas of Gujarat, India

Sneha Gautam ✉, Adityaraj Talatiya, Mirang Patel, Karan Chabhadiya & Pankaj Pathak ✉

# Recycling of Rechargeable Batteries: A Sustainable Tool for Urban Mining

Authors    Authors and affiliations

Pankaj Pathak, Karan Chabhadiya

# Sequential Leaching of Strategic Metals from Exhausted LNCM-Cathode Batteries Using Oxalic and Sulfuric Acid Lixiviants

Pankaj Pathak ✉, Vinay K. Singh & Karan Chabhadiya

# Application of Taguchi method in activated carbon adsorption process of phenol removal from ceramic gasifier wastewater

Jagniyant Lunagariya [a], Karan Chabhadiya [b], Pankaj Pathak [c] ⚲ ✉, Deepak Mashru [d]

## SpringerLink

Research Article | Published: 14 January 2019

# Association between changes in air quality and hospital admissions during the holi festival

Abhishek Gupta, Sneha Gautam ✉, Nisarg Mehta, Mirang Kumar Patel & Adityaraj Talatiya

Chapter

# Recent Development of Novel Composite Materials for Carbon Capture

## A Green Technology

By Koushik Singha Roy, Alkesha Kantilal Naik

Share

# Evaluating the colonization and distribution of fungal and bacterial bio-aerosol in Rajkot, western India using multi-proxy approach

Charmi Humbal, Suneel Kumar Joshi, Ujwal Kumar Trivedi & Sneha Gautam ✉

# A review on recent progress in observations, and health effects of bioaerosols

Charmi Humbal [a], Sneha Gautam [a] ✉, Ujwalkumar Trivedi [b]

# Spatial Variation of Airborne Allergenic Fungal Spores in the Ambient PM$_{2.5}$—A Study in Rajkot City, Western Part of India

Charmi Humbal, Sneha Gautam ✉, Suneel Kumar Joshi & Mahendrapal Singh Rajput

Chapter | First Online: 09 October 2019

## Proceedings of the 2nd Southeast Asian Academic Forum on Sustainable Development (SEA-AFSID 2018)

< PREVIOUS ARTICLE IN VOLUME          NEXT ARTICLE IN VOLUME >

### Assessment of Dispersion, Retention Time and Fraction of PM10-20, and PM0.23-1 in Iron Ore Mines

**Authors**
Charmi Humbal, Sneha Gautam, Aditya Kumar Patra, Abhishek Gupta

**Corresponding Author**
Charmi Humbal

## Parametric and kinetic investigations on segregated and mixed textile effluent streams using Moringa oleifera seed powders of different sizes

| | |
|---|---|
| Authors | Hirendrasinh Padhiyar, Arti Thanki, Nitin Kumar Singh, Siddhartha Pandey, Manish Yadav, Tara Chand Yadav |
| Publication date | 2020/4/1 |
| Journal | Journal of Water Process Engineering |
| Volume | 34 |
| Pages | 101159 |
| Publisher | Elsevier |
| Description | This study aimed at evaluating the Moringa oleifera (M. oleifera) seed powder for treatment of segregated (dye rich, DR; and starch rich, SR) and mixed wastewater (AM) streams of a textile industry. Two different sizes (<600 µm and <300 µm) of seed powders (coarse powder, CP; fine powder, FP) were prepared and characterized in terms of point of zero charge, swelling ratio, Fourier Transform Infrared Spectroscopy, X-ray diffraction analysis, and zeta potential measurements. The swelling ratio for CP and FP were observed as 38 and 42.6%, respectively. The $pH_{zpc}$ values were found to be varying between 5.5–6 for both powders. The effect of different operational parameters such as dose of coagulant, 1–8 g/L; sedimentation time, 30–360 min; coagulation-flocculation pH, 6–9 was investigated in this study, with respect to turbidity as performance indicator. The chemical oxygen demand (COD) and color ... |
| Total citations | Cited by 16 |

## A state-of-the-art review on WWTP associated bioaerosols: Microbial diversity, potential emission stages, dispersion factors, and control strategies

| | |
|---|---|
| Authors | Nitin Kumar Singh, Gaurav Sanghvi, Manish Yadav, Hirendrasinh Padhiyar, Arti Thanki |
| Publication date | 2021/5/15 |
| Source | Journal of Hazardous Materials |
| Volume | 410 |
| Pages | 124686 |
| Publisher | Elsevier |
| Description | Wastewater treatment plants (WWTPs) associated bioaerosols have emerged as one of the critical sustainability indicators, ensuring health and well-being of societies and cities. In this context, this review summarizes the various wastewater treatment technologies which have been studied with a focus of bioaerosols emissions, potential emission stages, available sampling strategies, survival and dispersion factors, dominant microbial species in bioaerosols, and possible control approaches. Literature review revealed that most of the studies were devoted to sampling, enumerating and identifying cultivable microbial species of bioaerosols, as well as measuring their concentrations. However, the role of treatment technologies and their operational factors are investigated in limited studies only. Moreover, few studies have been reported to investigate the presence and concentrations of air borne virus and fungi in ... |
| Total citations | Cited by 13 |

## Investigations on air quality of a critically polluted industrial city using multivariate statistical methods: Way forward for future sustainability

| | |
|---|---|
| Authors | Manish Yadav, Nitin Kumar Singh, Satya Prakash Sahu, Hirendrasinh Padhiyar |
| Publication date | 2022/3/1 |
| Journal | Chemosphere |
| Volume | 291 |
| Pages | 133024 |
| Publisher | Pergamon |
| Description | Industrially developed cities affect public health, and can directly cause inconvenience to the nearby societies especially due to their associated air pollution. In this context, the present study was conducted in Jharsuguda district of Odisha state (India), which is a well-known worldwide hub of industrial clusters. The study area is having mainly medium to large scale industries which makes it prone to poor air quality. A total of twelve air pollutants, namely, $PM_{10}$, $PM_{2.5}$, $SO_2$, $NO_2$, CO, $O_3$, $NH_3$, and heavy metals (Cu, Mn, Ni, Pb, Zn) were monitored during winter season, at the 16 locations of study area. The air quality data was further assessed using multivariate analysis, and the obtained information was presented using histogram plots, box plots, cluster analysis, principal component analysis (PCA), analysis of variance (ANOVA) analysis, and air quality index (AQI). The statistical analysis results revealed that $PM_{10}$ … |

## Using Black Soldier Fly Larvae for Sustainable Waste Management: A New Perspective on Circular Economy

| | |
|---|---|
| Authors | Hirendrasinh Padhiyar Vinoth Rayar, Raghavendra Singh, Nitin Kumar Singh |
| Publication date | 2020/10/15 |
| Book | Green Innovation, Sustainable Development, and Circular Economy |
| Pages | 97-112 |
| Publisher | CRC Press |
| Description | Cities in low- and middle-income countries face tremendous challenges providing adequate solid waste management (SWM) services to ensure public health and avoid pollution of the environment. The Black Soldier Fly (BSF) is a member of the Stratiomyidae family of the insect order Diptera (true flies). BSFs are native to the American continents, with a native range extending from the central United States down into South America. Temperature plays a major role in achieving successful mating and oviposition rates. Literature shows that fly larvae and pupae grown on organic waste may become valuable feedstuff for fish, chicken and pigs, either in the dried form or as live larvae. BSF larvae growing on animal manure extract nutrients and they form tunnels in the substrate and improve its structure. BSF larvae are not only an important biological tool for waste management but also a potential source of protein and fat. |