

**Guideline of Mission**  
**“Zero Dropout”**

## Initiatives Undertaken/ Planned

<b>First Step</b>	The committee consisting of eminent academicians from the region was constituted and the idea of Mission Zero Dropout was discussed in detail during a one day workshop conducted at RO.
<b>Second Step</b>	The committee was expanded to include..... to add new dimensions to the policy and road map of implementation was discussed and finalised.
<b>Third Step</b>	The selected teachers from lead institutes were identified to prepare the sample course structure and complete guidelines for implementation were finalised.
<b>Fourth Step</b>	Awareness workshop for concerned teachers is being planned and the predesigned policy will be implemented through the principals and head of departments of the institutes.
<b>Fifth Step</b>	Monthly monitoring along with review and corrective action during implementation process of mission is planned.

## **Guideline of Mission “Zero Dropout”**

Technical Education is a key player and a decisive factor in the comprehensive development of the nation. In view of this, in last few decades the technical education scenario has sprung up with many new institutes all over Maharashtra. In Nagpur region alone there are several diploma and degree level institutions offering engineering education in different disciplines. However in the recent past the admission scenario has not been very encouraging. The vacancy of students in diploma and degree level institutions in first year has been observed to be increasing day by day. It was also observed that the intake and passing out numbers do not match for the stipulated time duration of the course. The Zero Dropout initiative aims to reduce the rate of Engineering Diploma/ Degree dropout in coming years. Specifically, the initiative aims to:

1. Increase regional awareness of the problem of Polytechnic/Degree dropout and spearhead an action plan towards addressing it;
2. Mobilise a network of colleges (Diploma/Degree) in region that are committed to achieving the goal of zero dropout.

The ratio of students’ dropout in initial two years of the course is maximum and is varying in the region. This is a major loss to the society in general and the industrial sector in particular. The term end examination result of First year Diploma/Degree examination have not been encouraging and is being considered as one of the factors contributing to increased dropout. Hence it was decided to focus on various issues affecting the results and suggest suitable remedial actions to minimise dropout.

*The responsibility of effective implementation of various activities pertaining to “Mission Zero dropout” will be of Head of the Institution (Principal) and the concerned Head of Department.*

### **1) Induction Programme for First year Degree/Diploma students:**

When new students enter an institution, they come with diverse thoughts, backgrounds and preparedness. It is important to assist them to adjust to the new learning environment and inculcate in them the ethos of the institution with a sense of larger purpose of contributing to the society. Precious little is done by most of the institutions, except for an orientation program lasting over a couple of days. AICTE/MSBTE has proposed 1-3 week long induction program for the Diploma/UG students entering the institution, before the commencement of academic session. Formal classroom teaching shall begin only after the induction program. The purpose

is to ensure that the students are comfortable in their new environment, to open them up, set a healthy daily routine, develop soft skills, and create bonding among the batch as well as between faculty and students thus creating mental readiness and a positive approach towards formal teaching process. Focus is also on to develop awareness, sensitivity and understanding of the self, surrounding, society and nature.

Institutions imparting technical education should follow the guidelines suggested by MSBTE (for Diploma) and AICTE (for Degree) in implementation of induction programme for newly admitted students of first year. Induction program may be taken in two phases each of one week as follows:

**Phase I - Before the commencement of First semester,**

**Phase II - At the beginning of Second Semester**

Also site/industrial visits should be arranged to understand the applications of the knowledge gained, and concept clarification. Arranging expert lecture from industry and academia to bridge the gap between theory and application should be a regular practice. Every teacher must start the particular chapter/subject by correlating content with real life examples so that students develop interest in that subject. The faculty is expected to introduce any subject/ topic by establishing a correlation between the content and its application to real life scenario. **If the faculty becomes successful in developing interest in the content/subject then that content/subject is permanently embedded in the cognitive domain of the students.** The students will find less difficulty to recall and reproduce the required information in the exam.

## **2) Attendance of Students in Theory and Practical classes:**

It is mandatory for every student to have at least 75% attendance in both theory and practical classes. Course faculty should motivate the students to attend classes regularly. In order to enhance students attendance in theory and practical classes, following measures can be adopted.

- The learning can be made more effective and interesting by demonstrating through models and video clips.
- Admission to Hostels should be completed before start of the session.
- Provide due credit to attendance in terms of marks in internal progressive test/practical.
- Display of cumulative attendance every month indicating marks scored by the students against their attendance in theory & practical is desired and future scope for improvement or make up of attendance should be mentioned.

- Importance of attendance can be created and communicated to the students by displaying their performance (test/practical *etc.*) correlating with their attendance.
- Communicating about the poor/average attendance of the students to their parents at least once in a month. The parents meeting should be arranged at least once in a semester and counselling sessions with parents and students should be made more effective.
- Head of concerned Department will take regular follow up of attendance and along with subject teacher ensure the good attendance of students throughout the semester.
- Arranging the Felicitation of students having exceptional attendance amongst all the students is desired.

### **3) Student Mentorship:**

Identify top 05-06 students from each class having best overall performance (based on their current and past records). The Concerned class teacher should identify and nominate these students as “ Student Mentor” . Engagement of the student mentors with respective teacher should be done in first week only from the date of commencement of classes. For allocation of students to respective mentors, SSC marks, socio-economic background should be considered and short interview should be conducted.

- Concerned class teacher should announce the names of “ Student Mentor” in a class and communicate to all other faculty members teaching to the respective class and all the head of departments in the institution.
- Notify the names of “ Student Mentor” on Notice Boards.
- Class teacher will assign @ 10 students of the class to each “ Student Mentor” , these 10 students will have blend of good, average and lower grade students and also socio-economic background will be seen.
- Student Mentors will be entrusted with the responsibility of circulating learning materials, notes, hand-outs, help in study, encouraging for attendance *etc.* to the class fellow members and will take feedback of the students for a conducive teaching learning process in the department.
- The concerned HOD and Class teacher should conduct a meeting of student mentors fortnightly (once in two weeks). The various issues of the students pertaining to teaching-learning of the courses should be discussed and addressed.
- Felicitate “ Student Mentor” for their contribution and work; this will motivate the other students to improve their performance to compete for Student mentorship in future.

#### 4) Course (Subject) Analysis:

The course faculty should carry out curriculum analysis of the course based on course contents and previous 2-3 year performance of the students in Board/University examination and Progressive Test examination as follows-

For example:

Unit No. (as per curriculum)	Weightage in curriculum (%)	Difficulty level
<b>I</b>	<b>15</b>	<b>B</b>
II	30	D
<b>III</b>	<b>35</b>	<b>A</b>
IV	20	C

In last column of Difficulty level – : A indicates least difficult and D is most difficult.

- From above table, unit III and I are less difficult compared to other two units.
- With little extra and specific input, most of the students can score maximum marks in these two units.
- Subject Teacher should selectively focus on these units in teaching which contribute 50% of the curriculum and approximately 75% of the question paper.
- Course faculty should provide assignment for Question No. 1, Definitions, principles; Theorems etc for Diploma students and for degree students provide the assignments of commonly appearing questions.
- Lower/ Average performing students should be guided to have more focus on these less difficult units. This will help the students to score maximum from these units.
- Course faculty should prepare assignments/ notes / hand-outs/some special tips for preparation from Board/ University examination point of view and guide the lower/ average performing students accordingly.
- Course faculty can take the help of Student Mentor to guide and provide learning materials to these students.
- Repetitive assignments (02-03) can be given to these students particularly on these two units to have more practice on the topics. (Repetitive assignment means the assignment on the same topic)

- Concerned course faculty shall ensure timely submission of additional assignments and they are expected to ask few questions to discourage students from submitting copied assignments.
- Course faculty shall conduct at least one additional test of these students to assess the improvement in students performance.
- Course faculty may take more examination of his course for lower/ average performing students at the end of term based on old term examination question papers and give them feedback for improving result after assessment of their answer books.
- **Course faculty must convince the students not to rote memorize the definitions but instead try to understand the keywords and mention these keywords in answers.**

**Note:**

1. This activity may be treated as a part of 360<sup>0</sup> feedback at department level in implementation of new pay commission norms of the faculty.
2. **The sample course analysis and a model lectures which has to be delivered by concerned faculty after completion of SECOND progressive test exam is presented herewith. Every faculty should prepare course analysis and a model lecture for their course.**
3. The progress report is to be sent to coordinator or member secretary of this mission time to time by the institute level coordinator.

The aim of the mission “Zero Dropout”

**The Zero Dropout initiative aims to reduce the dropout ratio of Engineering Diploma / Degree Students**



(Dr. Ram Nibudey)

I/C Joint Director  
Tech. Ed., Regional Office,  
Nagpur

**Enclosure:**

- Course analysis & model lecture are attached here with for AUTONOMOUS, MSBTE, and B.E./B.TECH.

## COURSE ANALYSIS & MODEL LECTURE

### SECOND SEMESTER (AUTONOMOUS)

Program: Mechanical Engineering

Course & Course Code: Applied Mathematics (MH202E)

Unit No. (as per curriculum)	Weightage in curriculum %	Difficulty level
1. Functions and Limits	17	A
2. Derivatives and Applications	26	B
3. Integration, Definite Integration and Applications	23	C
4. Differential Equations	11	D
5. Numerical Methods	23	A

- In last column of Difficulty level: A indicates least difficult and D is most difficult.
- From above table, it is evident that unit 1, 2 and 5 are less difficult compared to other units.
- With little extra and specific input, most of the students can score maximum marks in these three units.
- Course Faculty should have more focus on these units in teaching which contributes 66% of the curriculum and approximately 99% of the question paper.
- Lower/Average performing students should be guided to have more focus on these less difficult units. This will help these students to score maximum from these units.
- Course faculty should prepare assignments/notes/hand-outs/some special tips for preparation from exam point of view for lower performing students accordingly.
- More assignments can be given to these performing students particularly on these three units.
- Course faculty should conduct at least one additional test for lower/average performing students to assess the improvement in students performance.
- These students should be trained not to mug up the answers/ derivations/ steps but they should be encouraged to write the answers stepwise in their own style.

## COURSE ANALYSIS & MODEL LECTURE

### SECOND SEMESTER (MSBTE)

Program: Mechanical Engineering

Course & Course Code: Applied Science (22202)

Unit No. (as per curriculum)	Weightage in curriculum %	Difficulty level
Properties of Matter and Non-Destructive Testing	20	A
Types of Motion	14	C
Photo electricity	16	D
X-Rays and LASERs		B
Metals, Alloys	17	B
Cement and Refractory Materials		D
Water Treatment	16	C
Fuels and Combustion	17	A

- In last column of Difficulty level: A indicates least difficult and D is most difficult.
- From above table, it is evident that unit 1, 3, 4 and 6 are less difficult compared to other units.
- With little extra and specific input, most of the students can score maximum marks in these three units.
- Subject Teacher should have more focus on these units in teaching which contribute 66% of the curriculum and approximately 99% of the question paper.
- Lower/ average performing students should be guided to have more focus on these less difficult units. This will help these students to score maximum marks from these units.
- Course faculty should prepare assignments/notes/hand-outs/some special tips for preparation from the exam point of view for these students accordingly.
- More assignments can be given to lower performing students particularly on these three units.
- Course faculty should conduct at least one additional test for lower performing students to assess the improvement in students' performance.
- These students should be trained not to mug up the answers but they should be encouraged to write the answers in their own words /language by making use of keywords.

## COURSE ANALYSIS & MODEL LECTURE

### FOURTH SEMESTER (MSBTE)

Program: Electrical Engineering

Course & Course Code: Electric motors and Transformer (22418)

Unit No. (as per curriculum)	Weightage in curriculum %	Difficulty level
Introduction to Electric Motors	09	A
D.C. Machines	20	B
Single phase Transformers	30	C
Three phase Transformers	27	D
Special purpose Transformers	14	B

- In last column of Difficulty level : A indicates least difficult and D is most difficult.
- From above table it is seen that unit 1, 2 and 5 are less difficult compared to other units.
- With little extra and specific input, most of the students can score maximum marks in these three units.
- Teacher should have more focus on these units in teaching which contribute 43% of the curriculum and approximately **65%** of the question paper.
- Lower/ average performing students should be guided to have more focus on these less difficult units. This will help lower performing students to score maximum from these units.
- Course faculty should prepare assignments/notes/hand-outs/some special tips for preparation from exam point of view for lower performing students accordingly.
- More assignments can be given to these students particularly on these three units.
- Course faculty should conduct at least one additional test for these students to assess the improvement in students performance.

## COURSE ANALYSIS

FIRST/SECOND SEMESTER (B.E./B.TECH.)

Program: All Disciplines

Course and Code: Engg. Graphics & Design (ESC102)

Unit No. (as per curriculum)	Weightage in curriculum %	Difficulty level
Principles of Engineering Graphics and their significance (Engg. Curves & Projection of lines)	20	B
Projections of Planes and Projections of Solids	20	C
Section of Solids and Development of surfaces	20	D
Isometric Projection & orthographic projection	20	D
Overview of Computer Graphics	20	A

- In last column of Difficulty level: A indicates least difficult and D is most difficult.
- From above table, unit 1 and 5 are less difficult compare to other three units.
- With little extra and specific input, most of the students can score maximum marks in the unit 1 & 5.
- Teacher should have more focus on these units in teaching which contribute 40% of the curriculum and approximately **60%** of the question paper.
- Lower performing students should be guided to have more focus on these less difficult units. This will help the lower performing students to score maximum marks from these units.
- Course faculty should prepare assignments/ notes / hand-outs/some special tips for preparation from exam point of view and guide the lower performing students accordingly.
- Course faculty can take the help of Student Mentor to guide and provide learning materials to low performing students.
- Repetitive assignments (02-03) can be given to low performing students particularly on these two units to have more practice on the topics. (Repetitive assignment means the assignment on the same topic)
- Concern course faculty shall ensure timely submission of additional assignments.
- Course faculty shall conduct at least one additional test of lower performing students to assess the improvement in students performance.

