

# The Exas Method an Education Initiative

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**Abstract**— This document gives formatting instructions for authors preparing papers for publication in the Proceedings of an IEEE conference. The authors must follow the instructions given in the document for the papers to be published. You can use this document as both an instruction set and as a template into which you can type your own text. The objective of the paper is to propose an initiative which could create a good impact in the education system especially engineering. The paper projects the demands of the industry from the engineering graduates and the need to meet these demands. An initiative method known as the EXAS is defined in the proposal and the steps to generate an efficient EXAS is also elaborated. EXAS is nothing but a survey in a different perspective. A sample EXAS is undertaken, which provided the information regarding the changing scenario of education and the causes for the same. This sample EXAS can be integrated to find solutions to various major problems. The sample EXAS also act as a guideline. The EXAS can be a good initiative and this is justified in the paper.

**Keywords**— EXAS method, Analysis, Initiation, Engineering Education, Survey.

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## I. INTRODUCTION

Engineering is one of the most sought-after courses for many students and their parents after schooling because of the wide range of opportunities it provides. Engineers are considered to be the problem solvers and the innovators. There are always some expectations from the society about the output of the engineering colleges. There were situations when many engineering colleges converted themselves to yield some other productive business when the students choosing engineering decreased. This variation in the quantity of colleges has decreased the quality of education. Moreover, the students who take engineering studies out of their own interest have also decreased. These problems together paved the way for production of skill-less engineering graduates out of colleges. The reason for unemployment is not the lack of opportunities but the lack of skills. Graduates who graduate from their colleges do not possess the skills required by the industry to offer them jobs. The major reasons are the vast gap between the colleges and the industry and the lack of practical based educations. Having said all the effects, it is important to analyze the causes and also to adapt a suitable solution. The paper is about initiation of an effective method which could view the problems on a different perspective and can be utilized to bring about a solution. The EXAS – ‘Extrapolative Assay’ method can be adopted as a tool for attaining the objective.

## II. LITERATURE REVIEW

The effectiveness of teaching can be brought only by the feedback from the students says, The Colorado Education Initiative [1]. The Student Perception Surveys and Teacher Assessments [2] report the importance of assessing the students’ feedback and surveys. The concept of SPS- Student Perception Survey is provided by the report for analysing the effectiveness of the teaching methods and the tutors. Engineering professors have increasingly begun to read the education literature and to attend ASEE conferences and teaching workshops, and some have attempted to adopt new approaches in their teaching [3]. The UNESCO report suggests to develop public and policy awareness and understanding of engineering, affirming the role of engineering as the driver of innovation, social and economic development; transform engineering education, curricula and teaching methods to emphasize relevance and a problem-solving approach to engineering; more effectively innovate and apply engineering and technology to global issues and challenges such as poverty reduction, sustainable development and climate change – and urgently develop greener engineering and lower carbon technology.

### III. NEED FOR INITIATION

Before getting into the proposed concept, let us know the reason for the need for initiation in education. The major crisis is the production of non-industrial engineers from the college. The industry, apart from technical skills, expects qualities like team work, plan building, problem solving, stress handling, and many more from its employees [4]. These qualities are not to be taught but have to be cultivated.

Moreover, there is also another side that an industry expects. The engineering students are aware of various derivations of formulae, they are also clear about the theoretical concepts and they have also undertaken some practical experiments in their laboratory but there is a lack of combining the knowledge of theory and practical together in order to solve any of the real life issues which is much needed in an organization to survive. 'There can be no fire without a spark'- industry training can work no wonders if there is lag of basic skills. These can be the main causes for unemployment.

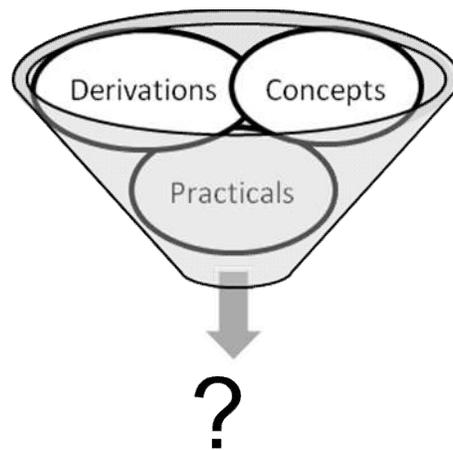


Fig.1: Demands

In order to overcome the existing problems of unemployment and to raise the quality of engineering education to the next level, we must adapt a technique that could eliminate most of the crisis. 'Little drops make an ocean'- a solution can be produced when a group of people put their minds in it. The paper presents the 'EXAS method' which gathers the minds of the engineering graduates in order to find the discreet reason behind the cause.

How many arrears you have presently? (65 responses)

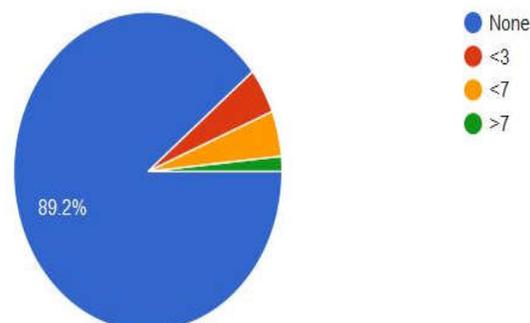


Figure. 1.3 analysis of Arrear Students

## IV. THE EXAS

The Extrapolative Assay is a method of surveying which directly means to analyse the causes of a situation by collecting facts or information. Hence, the EXAS is just another survey [5] in a totally different perspective. Here, a test EXAS was conducted to know the effectiveness. This EXAS included participants pursuing their under graduation in engineering. A questionnaire was prepared for which the participants answered. The results were analysed to produce certain charts and graphs in order to obtain the solution of the crisis.

### A. The participants of EXAS:

EXAS is used in this scenario to find the reason for the emerging problems faced by the engineering graduates, from their perspective. It is not constrained to a certain similar type of participants but, to a bunch of people involving different categories. This is evident from the results obtained from the questions in the questionnaire.

What will be your methodology for completing 10 work pieces in duration of 30 days?  
(65 responses)

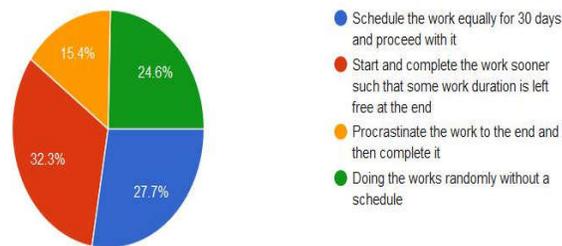


Fig.2: Analysis of participants

Thus the participants were from different colleges, belonging to different streams of engineering, varying in potential, skills and thoughts. Hence, the survey is not constrained to a particular group of people. The survey helped in analysing the various factors that contributed in changing the education scenario.

### B. Teaching and assessment techniques:

- The syllabus and the teaching methods followed dose not stand at maximum in the scale.
- The teaching effectiveness is 5 on 10 and the engineering syllabus is 6 on 10.
- The currently followed teaching methods should be revised.
- Video lecturing stands as the effective way in the perception of students.
- The true potential of a student is not brought out by examinations alone.

Do you think that the teaching aids used by the lecturers of your college are effective?  
(64 responses)

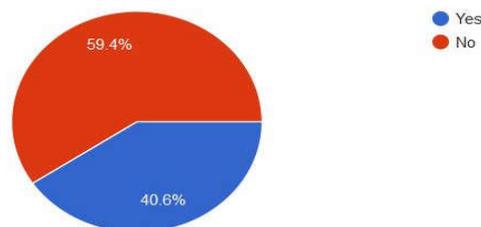


Fig.4: analysis of teaching aid

Rate the Engineering Syllabus followed by your college? (65 responses)

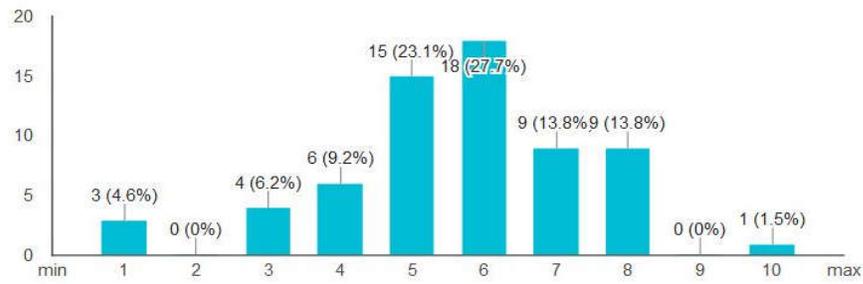


Fig.5: analysis of syllabus

What do you think is the best teaching method? (64 responses)

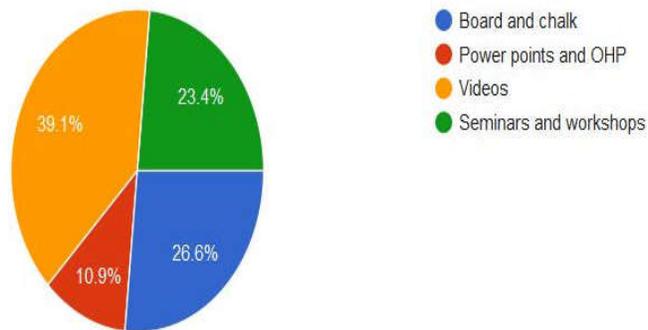


Fig.6: teaching method analysis

Do you think internals and semesters examinations bring out the real potential of a student?

(64 responses)

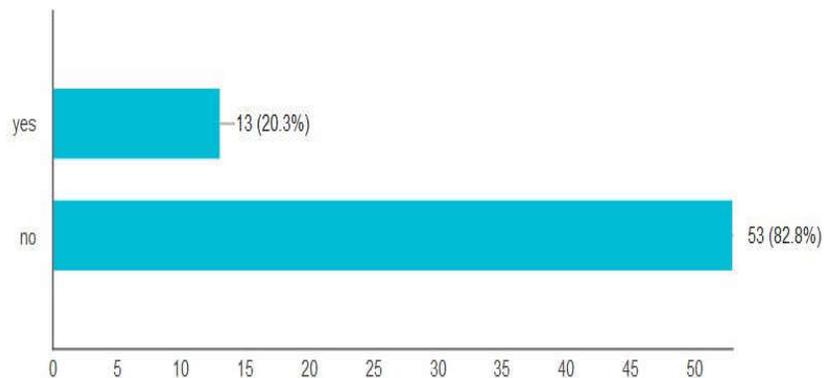


Fig.7: assessment analysis

### C. Role of lecturers and staffs

- The strength of students having their teacher as a role model is less.
- The staff members must take into account of this scenario.
- Afternoon sessions are the most boring hours for listening to a lecture and this is the high time for diversions.
- Videos are preferred by students and use of video lecturing will cause less diversion than usual.

Who is your role model? (65 responses)

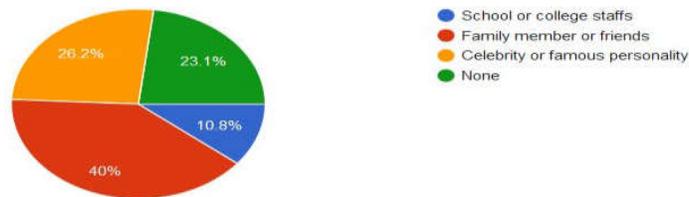


Fig.8: Role Model

Which session of a day becomes tough for listening lectures? (65 responses)

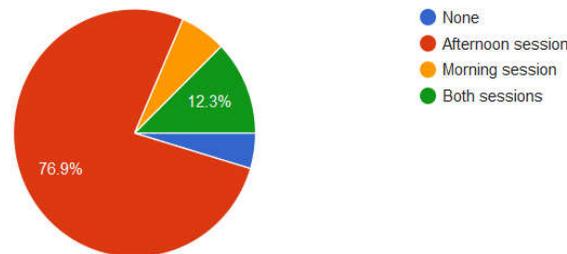


Fig.9: Teaching Techniques Analysis

What happens to be a major disturbance when listening to lectures? (65 responses)

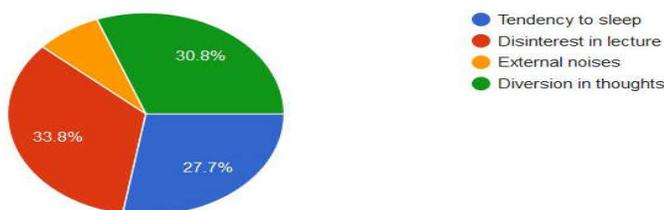


Fig.10: Analysis Of Disturbances

How do you think we can alter boring classes? (64 responses)

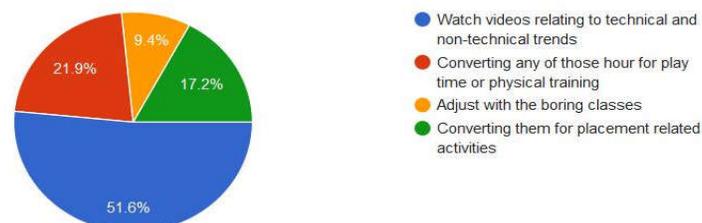


Fig.11: Alter Analysis

#### D. Persuasions

- The students persuade various alter for boring classes. The major persuasions are watching videos and having physical training

### STEPS OF EXAS METHOD

#### A. Getting the clear view

The first and foremost step is to get a clear understanding of the purpose and reason. It also includes deciding the number of participants it involves, their age, the field they work or their field of expertise. The surveyor must also be aware of the outcomes that should be retrieved from the survey. Here, the purpose of the method is to analyse the thoughts of engineering students about the field in which they are involved. This EXAS is meant for engineering students.

#### B. Preparing the questions

Questions are the major part of the survey. The survey must not include more of paragraph writing but of options and choices. There can be suggestions at the end of the survey. It is to be noted that the questions should not push the participant to boredom. The EXAS method consists of questions which could indirectly stir out the reason behind the changed education scenario. The sample question is as follows:

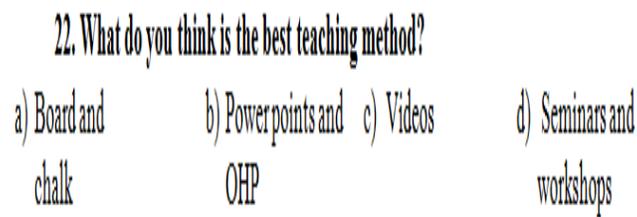


Fig.12: Sample Question

#### C. Scamming the survey

The next important factor that has to be taken into consideration is the platform in which the survey occurs. The survey could be hand-written or a printed format, it can take place over telephone, mail, etc.

EXAS uses Google forms as the platform of survey. They are easy to use, to scam and also to analyse.

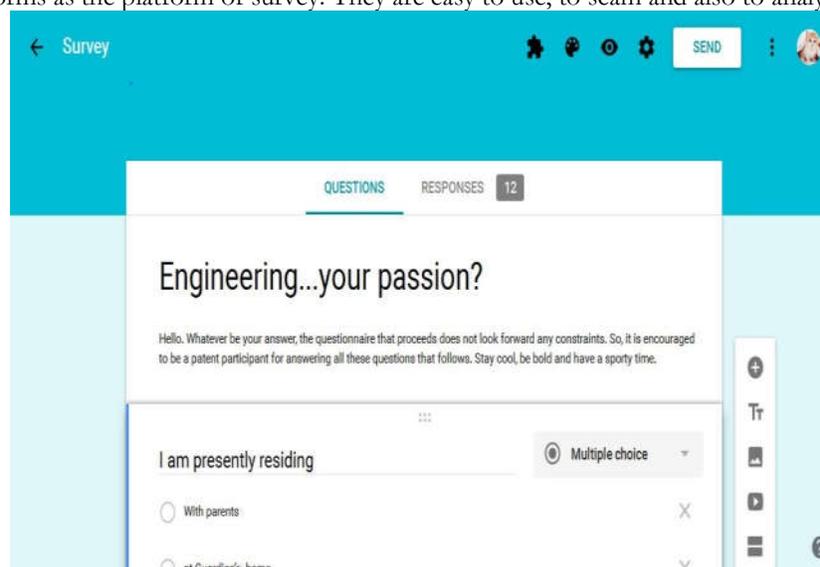


Fig.13: Google form

## D. Analysis of the responses

It is important to follow an analysis strategy at the end of the survey in order to obtain the results from the responses. Preparing a list of contents under which the questions are prepared will be effective in analysing the various parameters involved within the survey. EXAS includes eleven categories under which the questions are split up in the survey. This will be helpful in obtaining results under common objectives easily.

S.no	Area	Questions split-up				A	B	C	D	
		No.of questions	Qn nos in questionnaire							
1	Health	4	7,20,32,44		good	average	moderate	poor		
2	Diversion through movies and sm	5	3,16,28*,42*,19*		good	average	moderate	poor		
3	Teaching aids and lectures	7	9,22*,29,34*,35,40*,43		good	average	moderate	poor		
4	Home sick and travel	2	1*,14*		good	average	moderate	poor	*	
5	Bonding with people	3	4*,30*,17		good	average	moderate	poor	*	
6	Soft skills	4	5,49,31*,18		good	average	moderate	poor		
7	Interest in engineering	5	8,41*,21,11,33		good	average	moderate	poor		
8	Attitude	7	6,46,39*,45,38,26,13		good	average	moderate	poor		
9	Future plans	3	36*,24*,10*		good	average	moderate	poor	*	
10	Psychological analysis	6	2*,50*,48,47*,27*,15		good	average	moderate	poor		
11	Personal	4	12,25*,37,23*		good	average	moderate	poor		
	Total		50							
* The questions are not subjected to the order of preferences but are used for analysis of the individual behaviour of the student.										
It includes psychological analysis and personal questions. These questions can be used to derive some effective solutions.										

Fig.14: Split-up

## E. Conclusive actions

After the analysis, the results must be obtained. The results are the reports that are produced out of the survey. The sample EXAS has faced a fair number of results after the analysis which included change in teaching methods, alteration of classes, roles performed by staff members as the reasons to be considered for the change. These results should be utilised to alleviate and to eliminate the problems.

### I. PROS OF EXAS METHOD

1. The EXAS method is completely reliable since it is the direct outcome of the participants.
2. This method is flexible. The questionnaires can be altered according to the objective.
3. The EXAS method can be adopted as an education initiative as well as awareness.
4. The method can be used for counselling students to take up their field of interest by varying the questions.
5. The method is economic.

### II. DESIRED OUTCOMES

Once the EXAS – Extrapolative Assay is adopted and utilized by the education system, we could experience effective changes in engineering education. The desirable outcomes may be:

- A student friendly education system
- Increased efficiency of the education system
- Knowing the students choices
- Self examining and self- assessing of students and the staff members

## V. CONCLUSIONS

Engineering was once a passion for many, but now it has become an option for so many. This shouldn't grow further and the awareness about choosing the right field must emerge. This method being an education proposal will make the society look into the effects even before the causes happen. The initiative method must be taken at every level of education. The EXAS can also be used at regular intervals to analyze the causes effectively and precisely. Nevertheless, a great impact is possible only when hands join together and EXAS is the shadowgraph.

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