

## **A NEED-GAP STUDY IN SKILLS SET FOR EMPLOYMENT IN ENGINEERING GRADUATE STUDENTS OF CHHATTISGARH**

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### **ABSTRACT**

Fresh engineering graduates need to possess and exhibit various employability skills to be employed, maintain the job and grow there. Various researchers through employers have identified the required employability skills any engineer need to acquire during his/her study and which makes the chance of getting a suitable employment. The various employability skills are Communication (Written and Spoken), Interpersonal Skills, Personal Presentation, Technical, Numeracy Application, Computer Proficiency and Information Technology, Learning, Logical and Creative Thinking, Problem-Solving, Research and Analysis, Decision Making, Managerial, Leadership, Teamwork etc. Employers opine that most fresh engineering graduates lack in these employability skills and thus are unemployable. This study tries to find out the status of employability skills in fresh engineering graduates passing out from various engineering institutions of Chhattisgarh. To know the gap the HR personnel of various organizations of Chhattisgarh through close-ended questionnaire were asked about the skills possessed by the fresh engineering graduates and further the employers' satisfaction level. The results validate the prevalent dissatisfaction of employers with the fresh engineering graduates. The findings highlight the various employability skills which are in demand in industry and also the fresh engineering graduates are mostly lacking on. The findings suggest that fresh engineering graduates must obtain and display the relevant employability skills to find suitable employment.

**KEYWORDS:** Fresh Engineering Graduates, Employability Skills, Employment, Unemployable

### **INTRODUCTION**

India is a fast growing country and is striving to transit from developing country to developed country. To do so country needs pool of skillful human resources having employment skills inculcated in them. Currently there is enough employment in country and in future also there will be huge demand but there exist employability problem. Fresh engineering graduates need to possess and exhibit various employability skills to be employed, maintain the job and grow there. Various researchers through employers have identified the required employability skills which an engineer need to acquire during his/her study and which makes the chance of getting a suitable employment. The study is about finding the employability status among the fresh engineering graduates passing out from engineering institutions of Chhattisgarh. The study refers the magic bullet model presented by Harvey in 2002.



**Figure 1**

The above model shows the relationship among the various variables i.e. Higher Education Institutions (HEI), Employment Development Opportunities, Graduates, Employability and Employment. It is clear visible from diagram that employability qualities in graduates fetch employment for the graduates. And before that HEI through its various employment development opportunities for graduating students generates employability in graduates. Before going to main purpose of the study, knowledge of these variables is important.

### **Higher Education Institutions**

In India, education starts with Elementary Education followed by Secondary Education, Higher Education and even there is provision of Adult Education. It's the Higher Education which makes the graduates employable. As per UNESCO Report (1984) Higher Education is defined as “degree, diploma, certificate education through universities and university level institutions after pre-requisite completion of twelve years of schooling [1].” The education of the subject of present study i.e. fresh engineering graduates comes under Higher Education. As far as engineering education is concerned following regulatory bodies come into picture.

**All India Council of Technical Education (AICTE):** It is the central government approval body for higher education institutions which provides approval to start and run engineering programmes like B.E., B. Tech., B.Arch., etc.

**Chhattisgarh Swami Vivekanand Technical University (CSVTU):** It is the state university which provides affiliation to various government and private engineering colleges in Chhattisgarh.

**National Institute of Technology, other private universities and various government and private engineering institutions in Chhattisgarh:** These institutes provide engineering education and degree to the students.

**University Grants Commission (UGC):** It is a central government agency which grants approval to the universities and monitors them.

### **Employment Development Opportunities**

The second variable in model is Employment Development Opportunities which is provided by HEIs. In engineering there are various techniques, tools and methods of dealing with fresh engineering graduates to generate employability in them. Apart from general lecture, chalk and talk, assignment, workshop, industrial visit, collaborative learning, brainstorming etc. there are other methods like case analysis, role play, group discussion, research projects, market surveys, simulation games (Saroja 2014) [2]. Moreover, grounded theory, ethnography, action research, phenomenography, discourse analysis, narrative analysis are some promising methodologies but not in practice (Jennifer and Light 2011) [3].

## Graduates

The graduates and in our case it is Fresh Engineering Graduates which means any one after completing his 12 year of schooling and studied in any AICTE approved engineering college or education institution and completed his 4 years of BE, BTech, BArch etc Programme. Engineering as per Bianca K. and Peter F. (2004) is, a profession involving application scientific knowledge based on mathematics, science, technology and management which is acquired through education [4].

## Employability

In our study the most important term is employability i.e. “work readiness” and here it is imperative to define this term. Hillage and Pollard (1998) defined employability as a person’s capability of gaining initial employment, maintaining employment and obtaining new employment if required [5]. Yorke (2003) described employability as a set of skills, understandings and personal attributes which prepares graduates to gain employment [6]. Robinson (2000) stated that employability skill is some basic skills required to obtain any employment and later to perform the duties also [7]. As per Kazilan et al. (2009) employability is aggregate of essential skills in every individual to be productive workforce [8].

Thus employability is human resource capability in terms of skills, attributes etc. which help in acquiring and retaining employment, performing duties and being productive workforce.

## Employment

After gaining employability skills, FEGs are ready for having employment. As per **About.com** under heading about money w.r.t. human resource and **wikipedia**, employment is a relationship between employer and employee in which the employee renders his services in the employer’s organization for the achievement of his organization’s objectives in return for compensation [9] [10]. With regard to FEGs coming out from colleges in Chhattisgarh, if they have employability skills then they get employment in various organizations in Chhattisgarh engaged in power generation, iron and steel, manufacturing, automobile, marketing, consultancy, service sector, software development etc.

## Engineering Education in Chhattisgarh

Chhattisgarh state comes in being in year 2000 and the state technical university commenced in year 2005. There are around 50 engineering colleges (govt. and private) which are affiliated to this university. Apart from this National Institute of Technology, MATS University, CV Raman University, ITM University, ICFAI University, Kalinga University, Amity University also offer BE programme.

## Need of the Study

In India, the condition of employment is not satisfactory. The fresh engineering graduates are lacking on various employability skills which the researchers have identified and thus are unemployable. This is more when jobs requirement has shifted from production oriented engineering service oriented engineering and need from FEGs is of both strong technical and sound behavioral ability to get and hold the job. Regarding status of Chhattisgarh’s FEGs employability skills, there is no substantial study and thus scarcity of data. For taking improvement measures w.r.t. employment and thus education, information on employability skills status is very much essential and thus a study on this is required.

## LITERATURE REVIEW

Various research papers, articles support the fact that there is huge unemployment among the FEGs and further stated that unemployment is not because of lack of jobs but due to mismatch between the job requirement and employability skills. Various study suggested numerous employability skills required in FEGs for getting hired in industry. If these skills are not demonstrated then FEGs face problems like under-employment, irrelevant job and less compensation.

### Unemployment

**Career Builder Report 2013:** The report highlighted that employers are finding it very difficult in hiring for architecture and engineering i.e. 70% and 49% respectively is due to the lack of job specific skills [11].

**Somalingam and Shanthakumari 2013:** The researchers stated that engineering graduates in India are facing under-employed and inadequate compensation problem due to shortage of skills and competencies which are considered essential for full employment [12].

**Gurucharan Singh 2014** An article in Higher Education Review highlighted the findings from report of NASSCOM and McKinsey Global Institute that only 25 percent fresh engineering graduates in India are employable. Further, the article shared the conclusion of a study jointly FICCI and the World Bank that out of total employers surveyed, 64 percent are "somewhat" or below "somewhat" satisfied [13].

**Aey Cee 2015:** A report of Success CDs related to engineering graduates highlighted that 64% employers and not satisfied with fresh engineering graduate skills in India [14].

**Arjun Jagadeesh 2014:** A Skyfi labs report put forward the condition of fresh engineering graduates that employability rates in India is sharply going down and further enumerated that around 40% search for a job for a year while 22% try till two years to have a job [15].

One of the **CareerBuilder** survey reports (2015) revealed that as per the employers, un-employable students lack on various personal capability and skills while the quantum is substantially very high. Students lack 50 percent on interpersonal skills, 60 percent on problem solving skills, 56 percent on creative thinking, 53 percent on team work, 49 percent on leadership, 47 percent on oral communication, 45 percent on research and analysis, 39 percent on project management, 38 percent on written communication, 23 percent on computer and technical skills, and 20 percent on mathematics skills. [16]

Devika Singh. 2016: An article by Devika Singh put forward the findings of recent National Employability Report by Aspiring Minds that around since last five years 80 percent of total fresh engineering graduates every year in India are unemployable because of lacking in basic skills [17].

### Employability Skills

Out of various employability skills suggested by the researchers, the study has chosen and listed the most shared skills.

**Anderson and Mitchell (2006)** through employer found that, the top essential skills wanted in graduates are communication skills and team working [18].

**Pauw et al. (2006)** verified that Soft skills like communication skills, presentations skills, creative thinking skills are necessary for young people to be successful in the recruitment phase and further stated that due to sub standard quality, graduates are not suitably qualified for the jobs which are available [19].

**Martin et al. (2008)** identified various employability skills including communication skills, team-working skills, problem-solving skills, numeracy skills, IT skills in students [20].

In a report by **CBI- The Voice of Business, UK (2009)**, the employability skills suggested for graduates include positive attitude, team working, problem solving, communication, application of numeracy, application of information technology [21].

**Weligamage (2009)** specified that for graduates, communication, teamwork, problem solving etc. are the employability skills [22].

**Zaharim et al. (2009)** found communication skills, problem solving and interpersonal skills to be the three most essential and approved employability skills for fresh engineering graduates [23].

**Blom and Saeki (2011)** recognized various employability skills for newly engineering graduates as teamwork, problem solving communication, technical skills, computer knowledge, application of mathematics etc [24].

**Ismail (2011)** concluded that the graduates apart from other skills should possess analytical thinking, communication and computer skills [25].

**Lowden (2011)** pointed the employers expectation from graduates competence in terms of attributes that include team-working, communication, leadership, critical thinking, problem solving and often managerial abilities [26].

**Natarajan (2012)** identified various employability skills of engineering graduates which include Domain knowledge, Quantitative aptitude, Analytical skills, Logical and critical thinking, Communication skills, Team building skills, Listening skills, Presentation skills [27].

**Chitra (2013)** from employer point of view identified ten employability skills in fresh engineering graduates including teamwork, willingness to learn, communication etc [28].

**Somalingam and Shanthakumari (2013)** identified the reason for under employed fresh engineering graduates to be the lacking in skills and competencies required for full employment [13].

An article in **Higher Education Review (2014)** highlighted various employability skills required by fresh engineering graduates including communication skills, problem solving skills, team working skills, Computer/Technical Literacy [14].

A report of **Success CDs (2015)** listed various employability skills needed by Indian fresh engineering graduates among which communication skills, team work, problem solving skills, evaluating quantitative data are few [15].

**Mishra (2016)** categorized few employability skills which effective communication, Personal presentation skills, technical skills etc [29].

### Skills Definition

The employability skills taken under the study has been explained by the various researchers which provide insight of these skills.

**Zaharim et al. (2014)** cited (from another source) these skills as:

- Communication skills - clarity and confidence in presentation of ideas.
- Team working skills – working in a group as a effective team member.
- Problem solving skills - recognizing problems and later formulating solutions.
- Fundamental & Specific engineering discipline – obtaining basic as well as detailed technical knowledge in respective discipline. [23].

As per **Mishra (2016)** elaborated various skills as under:

- Communication skills includes clearly conveying idea be it oral or written, active listening and responding and facing audience confidently while the
- Personal presentation skills means dressing properly, clear speaking with smiling face and having eye contact and further,
- Technical skills represent skills and knowledge related to job or task to be performed in industry [29].
- As per **Weligamage (2009)**, various employability skills for FEGs are elucidated as:
- Knowledge skills (Technical): having knowledge of respective field and can apply this and technology in various situations as well as share this.
- Thinking skills: own creative thinking and evaluation and doing critical judgment.
- Teamwork Skills: working effectively as a team member for successful result.
- Problem Solving: identifying, prioritizing and solving problems. [22]

**Chandrasekar (2011)** explained employability skills as:

- Communications Skills: it's the ability of listening, reading, writing and speaking effectively along with command over the language.
- Computer/Technical Literacy: understanding of hardware and software along with knowledge of word processing, spreadsheets, and email as well as keyboarding skills.
- Problem-Solving skills: identifying answer to crisis applying creativity, reasoning, and experiences.
- Teamwork: working professionally with others to fetch a common objective [30].

The **CBI (2009)** defines employability skills as

- Team working – interdependence with others so cooperating and contributing to discussions.
- Problem solving – examining facts and circumstances and finding suitable way out creatively.

- Communication skills – clear and planned in speaking and writing also in listening and asking.
- Application of numeracy – awareness in arithmetic and its manipulation and practical.
- Application of information technology – basic IT skills and comfortable with word processing, spreadsheets, file management and use of internet search engines [21].

## OBJECTIVE OF THE STUDY

Setting of objectives is essential to provide a proper direction to the study. These are the objectives which guide from where and what data needs to be collected.

The main objective of the study is to identify the perception of HR-Manager/ Team Leader of organizations in Chhattisgarh towards FEGs employability skills.

Further, categorically the objective is divided into nine sub-objectives related to nine employability skills identified for the study is mentioned below:

**Objective 1:** To identify the perception of HR-Manager/ Team Leader of organizations in Chhattisgarh towards FEGs Communication Skills.

**Objective 2:** To identify the perception of HR-Manager/ Team Leader of organizations in Chhattisgarh towards FEGs Personal Presentation Skills.

**Objective 3:** To identify the perception of HR-Manager/ Team Leader of organizations in Chhattisgarh towards FEGs Teamwork.

**Objective 4:** To identify the perception of HR-Manager/ Team Leader of organizations in Chhattisgarh towards FEGs Technical Knowledge and Skills.

**Objective 5:** To identify the perception of HR-Manager/ Team Leader of organizations in Chhattisgarh towards FEGs Numeracy Application Skills.

**Objective 6:** To identify the perception of HR-Manager/ Team Leader of organizations in Chhattisgarh towards FEGs Computer Proficiency.

**Objective 7:** To identify the perception of HR-Manager/ Team Leader of organizations in Chhattisgarh towards FEGs Information Technology Skills.

**Objective 8:** To identify the perception of HR-Manager/ Team Leader of organizations in Chhattisgarh towards FEGs Logical Thinking Skills.

**Objective 9:** To identify the perception of HR-Manager/ Team Leader of organizations in Chhattisgarh towards FEGs Problem-solving Skills.

## HYPOTHESES

To find the answer of the above mentioned nine objectives, four hypotheses are constructed for each objective. The hypotheses are categorically given below:

**Objective 1: Communication Skills**

Hypothesis 1a: FEGs put substantial content in their communication

Hypothesis 1b: The contents are relevant with topic/ theme/ subject

Hypothesis 1c: The contents are in flow

Hypothesis 1d: Communication contains correct usage of words & grammar

**Objective 2: Personal Presentation Skills**

Hypothesis 2a: FEGs shows correct body language

Hypothesis 2b: FEGs maintains eye contact

Hypothesis 2c: FEGs do voice modulation

Hypothesis 2d: FEGs involves in interaction

**Objective 3: Teamwork**

Hypothesis 3a: FEGs know their team members

Hypothesis 3b: FEGs know their team member's strength and weakness

Hypothesis 3c: FEGs assess and solve problem in team

Hypothesis 3d: FEGs share information and accept others views

**Objective 4: Technical Knowledge and Skills**

Hypothesis 4a: FEGs know the fundamental concepts, principles, codes and standards etc

Hypothesis 4b: FEGs understand general graphs and figures

Hypothesis 4c: FEGs know and understand general instruments and gadgets

Hypothesis 4d: FEGs know practical application of fundamental concepts, principles etc

**Objective 5: Numeracy Application Skills**

Hypothesis 5a: FEGs heard/studied the formulas, theorems, standards and methods

Hypothesis 5b: FEGs understand the formulas, theorems, standards and methods

Hypothesis 5c: FEGs understand what need to be measured and calculated

Hypothesis 5d: FEGs know the practical application of formulas and standards

**Objective 6: Computer Proficiency**

Hypothesis 6a: FEGs are aware with computer system and its working with devices like printer, scanner, projectors etc.

Hypothesis 6b: FEGs are well versed with application software like MS- Word, Excel, PowerPoint etc.

Hypothesis 6c: FEGs are able on file management

Hypothesis 6d: FEGs know general computer settings and its adjustments

#### **Objective 7: Information Technology Skills**

Hypothesis 7a: FEGs know about various search engines

Hypothesis 7b: FEGs can locate, retrieve and organization relevant data and information

Hypothesis 7c: FEGs can use internet with other utility software

Hypothesis 7d: FEGs know about email and its uses

#### **Objective 8: Logical Thinking Skills**

Hypothesis 8a: FEGs assess situations and identify problems

Hypothesis 8b: FEGs identify root cause of problem

Hypothesis 8c: FEGs interpret results of any situation

Hypothesis 8d: FEGs apply systematic approach to solve problems (based on facts)

#### **Objective 9: Problem-Solving Skills**

Hypothesis 9a: FEGs draw solutions through concepts and principles

Hypothesis 9b: FEGs put forward a range of solution as per situation

Hypothesis 9c: FEGs choose solutions from various alternatives

Hypothesis 9d: FEGs evaluate solutions to make recommendation or decision

### **RESEARCH METHODOLOGY**

The research design appropriate for the study is descriptive research design in which the various variables relating to the study are described.

Population of the study consists of HR-Manager/ Team Leader of all the organizations of Chhattisgarh which provide employment opportunities to the FEGs.

In our study total thirty six hypotheses for nine objectives have been framed with reference to the main objective of the study. These hypotheses are related with the employability skills identified and to be verified.

Data is collected from 100 respondents from manufacturing and service Industries located in Chhattisgarh. To fetch data, the questionnaire got filled from the persons performing the roles and responsibilities of HR-Manager/Team Leader in the organization. Few questionnaires were found to be incomplete were resend for completing and thus we have 100 completely filled questionnaires. Keeping in view the ease of accessing the data, convenient sampling method was used.

Information related to the study was collected through both the primary and secondary sources. The secondary data about the numerous employability skills set required in FEGs were obtained from various research papers and articles. Primary data i.e. opinion of respondents was collected through the well thought-out close-ended questionnaire. There are nine questions related to employability skills i.e. Communication Skills, Personal Presentation Skills, Teamwork, Technical

Knowledge and Skills, Numeracy Application Skills, Computer Proficiency, Information Technology Skills, Logical Thinking Skills and Problem-solving Skills with each question having few sub questions. With respect to the status of employability skills in FEGs there cannot be neutral response.

In such case 5 point scale is appropriate which is also known as a forced choice scale because the user is forced to form an opinion and thus a specific response is extracted (Ankit 2012) [31].

## RESULTS AND DISCUSSIONS

Following are the values relevant for this study.

Sample Size is 100.

Test applied chi-square ( $\chi^2$ ) test for the goodness of fit as the data is in the form of frequencies.

Significance level is 5%.

Degree of freedom is total no. of cells – 1 i.e.  $5 - 1 = 4$

Critical Value (Table) with 4df and 5% significance level i.e.  $\chi^2_4$  (5 percent) = 9.488

Expected frequency i.e.  $E = \text{Total frequency} \times \frac{1}{5}$  i.e.  $100 \times \frac{1}{5} = 20$

The sample value of the chi-square is calculated as:  $\chi^2 = \sum \frac{(O-E)^2}{E}$

For Hypothesis 1a, the data and calculation is as follows:

**Table 1**

	O	E	O-E	(O-E) <sup>2</sup>	(O-E) <sup>2</sup> /E
<b>Never</b>	<b>7</b>	<b>20</b>	<b>-13</b>	<b>169</b>	<b>8.45</b>
<b>Rarely</b>	37	20	17	289	14.45
<b>Somewhat</b>	29	20	9	81	4.05
<b>Frequently</b>	19	20	-1	1	0.05
<b>Always</b>	8	20	-12	144	7.2
					<b>34.2</b>

If the sample chi-square value is less than or equal to table chi-square ( $\chi^2$ ) value (9.488) then the hypothesis will be accepted else rejected. For hypothesis 1a, since the sample chi-square value (34.2) is more than the table chi-square ( $\chi^2$ ) value, the hypothesis can be rejected which means Fresh Engineering Graduates **don't** put substantial content in their communication

Likewise, the sample value of the chi-square for the entire hypothesis and the acceptance and rejection status is summarized as follows:

Table 2

Hypothesis	Response					(O-E) <sup>2</sup> /E	Acceptance/ Rejection
	Never	Rarely	Somewhat	Frequently	Always		
1a	7	37	29	19	8	34.2	Rejection
1b	7	36	30	19	8	33.5	Rejection
1c	7	36	32	18	7	37.1	Rejection
1d	9	38	30	17	6	37.5	Rejection
2a	9	39	27	13	12	32.2	Rejection
2b	9	37	28	14	12	28.7	Rejection
2c	9	38	30	12	11	34.5	Rejection
2d	11	40	28	11	10	36.3	Rejection
3a	4	28	35	21	12	30.5	Rejection
3b	4	29	34	21	12	29.9	Rejection
3c	4	27	38	20	11	35.5	Rejection
3d	6	29	36	19	10	31.7	Rejection
4a	8	36	31	16	9	32.9	Rejection
4b	8	35	32	16	9	32.5	Rejection
4c	10	37	32	14	7	36.9	Rejection
4d	11	37	31	14	7	34.8	Rejection
5a	11	41	33	9	6	50.4	Rejection
5b	12	38	35	9	6	46.5	Rejection
5c	14	40	35	7	4	54.3	Rejection
5d	16	38	35	7	4	49.5	Rejection
6a	4	20	31	29	16	23.7	Rejection
6b	4	19	32	29	16	24.9	Rejection
6c	6	21	32	27	14	21.3	Rejection
6d	6	22	33	27	12	24.1	Rejection
7a	1	18	33	31	17	33.2	Rejection
7b	1	17	34	31	17	34.8	Rejection
7c	2	16	36	30	16	35.6	Rejection
7d	2	20	34	30	14	32.8	Rejection
8a	17	38	34	8	3	48.1	Rejection
8b	17	37	35	8	3	47.8	Rejection
8c	16	38	36	8	2	53.2	Rejection
8d	20	38	36	5	1	58.3	Rejection
9a	16	37	32	10	5	38.7	Rejection
9b	16	36	33	10	5	38.3	Rejection
9c	18	38	33	8	3	46.5	Rejection
9d	19	38	32	8	3	45.1	Rejection

All the hypotheses are rejected as the values are more than the table chi-square ( $\chi^2$ ) value. The lowest value sample chi-square value is 21.3 while the highest value is 58.3. These differences are considered to be significant.

For every hypothesis, the frequencies are lying mostly in the somewhat and rarely response which shows that the employability skills demonstrated are very less and the figure is very significant as compared to other responses.

The hypotheses related to communication skills, personal presentation skills, and technical knowledge and skills are showing the same pattern. Most responses is for rarely then for somewhat and later for frequently. Responses for always and never is more or less similar.

The hypotheses associated to teamwork and computer proficiency are demonstrating alike pattern. Most of the responses are lying in somewhat response. The never response is substantially less.

The hypothesis linked to information technology is different from other and not matching to any. Here the responses are more for frequently and somewhat while substantially for rarely and always. The response is very less or negligible for never.

The hypotheses connected to numerical application skills, logical thinking skills, and problem-solving skills are showing the similar pattern. The responses are densely concentrated to somewhat and rarely.

## CONCLUSIONS

The research is an endeavor to know the skill gap between the required and existing employability skills in FEGs. The questionnaire has been forwarded to HR-Manager/Team Leader of various organizations in Chhattisgarh, the data collected from the questionnaire has been analyzed and the hypotheses created earlier have been tested. The perception of HR-Manager/ Team Leader of organizations in Chhattisgarh towards FEGs various employability skills are significantly far from expected. The highest gap between perceived and expected is for numeracy application skills, logical thinking skills and problem-solving skills. Regarding communication skills, personal presentation skills and technical knowledge & skills the gap is less than the three mentioned above. Further, the gap is lesser for teamwork and computer proficiency and least for information technology skills.

The result help in identifying the gap between the employability skills, FEGs possess and required for employment

The study shows that there is lacuna in the employability skills in FEGs. Various researches have stated earlier that due to lack of these employability skills, FEGs remain unemployed anywhere and similar result is found in Chhattisgarh with respect to employability skills and un-employability among the FEGs passing out from Chhattisgarh Engineering Institutions.

## FUTURE

With reference to this paper there can be future study where industry-wise data can be segregated and findings can be brought forward. Again, stream-wise like computer science, mechanical study can also be done as these employability skills are not of same importance for every branch. Further, study can be carried out to find out the reason of this gap in employability skills.

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## QUESTOINNAIRE

**To,**

**The HR- Manager/ The Team Leader.**

**Dear Respondent,**

I am Chandra Mohan Singh (Research Scholar), pursuing my PhD from Chhattisgarh Swami Vivekananda Technical University, Bhilai. I am writing an empirical paper with title "A Need-Gap Study in Skills Set for Employment in Engineering Graduate Students of Chhattisgarh". Kindly fill this questionnaire for which I would be grateful to you. The data will be used exclusively for academic purpose, without disclosing your identity. I thank you for filling this questionnaire.

Q.No.	Questions	Never	Rarely	Somewhat	Frequently	Always
<b>Communication Skills</b>						
1a	FEGs put substantial content in their communication					
1b	The contents are relevant with topic/ theme/ subject					
1c	The contents are in flow					
1d	Communication contains correct usage of words & grammar					
<b>Personal Presentation Skills</b>						
2a	FEGs shows correct body language					
2b	FEGs maintains eye contact					
2c	FEGs do voice modulation					
2d	FEGs involves in interaction					
<b>Teamwork Skills</b>						
3a	FEGs know their team members					
3b	FEGs know their team member's strength and weakness					
3c	FEGs assess and solve problem in team					
3d	FEGs share information and accept others views					
<b>Technical Knowledge and Skills</b>						
4a	FEGs know the fundamental concepts, principles, codes and standards etc					
4b	FEGs understand general graphs and figures					
4c	FEGs know and understand general instruments and gadgets					
4d	FEGs know practical application of fundamental concepts, principles etc					
<b>Numeracy Application Skills</b>						
5a	FEGs heard/studied the formulas, theorms, standards and methods					
5b	FEGs understand the formulas, theorms, standards and methods					
5c	FEGs understand what need to be measured and calculated					
5d	FEGs know the practical application of formulas and standards					
<b>Computer Proficiency</b>						
6a	FEGs are aware with computer system and its working with devices like printer, scanner, projectors etc.					
6b	FEGs are well versed with application softwares like MS- Word, Excel, PowerPoint etc.					
6c	FEGs are capable on file management					
6d	FEGs know general computer settings and its adjustments					
<b>Information Technology Skills</b>						
7a	FEGs know about various search engines					
7b	FEGs can locate, retrieve and organization relevant data and information					
7c	FEGs can use internet with other utility softwares					
7d	FEGs know about email and its uses					

Table : Contd.,						
<b>Logical Thinking Skills</b>						
8a	FEGs assess situations and identify problems					
8b	FEGs identify root cause of problem					
8c	FEGs interpret results of any situation					
8d	FEGs apply systematic approach to solve problems (based on facts)					
<b>Problem-solving Skills</b>						
9a	FEGs draw solutions through concepts and principles					
9b	FEGs put forward a range of solution as per situation					
9c	FEGs chose solutions from various alternatives					
9d	FEGs evaluate solutions to make recommendation or decision					