



JAIPUR ENGINEERING COLLEGE
AND RESEARCH CENTRE

JAIPUR ENGINEERING COLLEGE AND RESEARCH CENTRE

JECRC Campus ,Shri Ram ki Nangal, Via-Vatika ,Tonk Road, Jaipur

Department of Mechanical Engineering

Name of Subject: Technical Communication (TC)

Subject Code: 4ME1-03

Year: 2nd Year, 4th Semester



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Department of Mechanical Engineering

Vision and Mission of Institute:

Vision: To become a renowned center of outcome based learning, and work towards academic, professional, cultural and social enrichment of the lives of individuals and communities.

Mission:

M1: Focus on evaluation of learning outcomes and motivate students to inculcate research aptitude by project based learning.

M2: Identify, based on informed perception of Indian, regional and global needs, areas of focus and provide platform to gain knowledge and solutions.

M3: Offer opportunities for interaction between academia and industry.

M4: Develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a range of professions.

Vision and Mission of Department:

Vision: The Mechanical Engineering Department strives to be recognized globally for outcome based technical knowledge and to produce quality human resource, who can manage the advance technologies and contribute to society.

Mission:

M1: To impart quality technical knowledge to the learners to make them globally competitive mechanical engineers.

M2: To provide the learners ethical guidelines along with excellent academic environment for a long productive career.

M3: To promote industry-institute relationship.



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Department of Mechanical Engineering

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

PEO1: To equip graduates with a strong foundation in engineering sciences, with an emphasis on mechanical engineering principles, enabling them to analyze, design, and solve real-world engineering challenges.

PEO2: To prepare graduates with sound scientific and engineering fundamentals to innovate and deliver effective solutions addressing practical challenges in mechanical engineering

PEO3: To inculcate in graduates a professional and ethical attitude, effective communication and teamwork skills, a multidisciplinary approach, entrepreneurial mindset, and the ability to connect engineering solutions with societal and environmental concerns.

PEO4: To provide students with an academic environment that fosters excellence, leadership, adherence to ethical standards, and encourages self-motivated lifelong learning essential for a successful professional career in mechanical

PEO5: To prepare students to excel in industry and higher education by providing quality education grounded in strong technical knowledge and high moral values

Program Specific Outcomes (PSOs)

PSO1: Graduates will be able to design, analyze, and fabricate electric and hybrid vehicles using modern engineering tools and sustainable practices.

PSO2: Graduates will be able to apply design principles and computational techniques, including programming and data structures, to analyze and solve mechanical engineering problems.



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Program Outcomes (POs)

- PO1: Engineering Knowledge:** Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.
- PO2: Problem Analysis:** Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development. (WK1 to WK4)
- PO3: Design/Development of Solutions:** Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)
- PO4: Conduct Investigations of Complex Problems:** Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).
- PO5: Engineering Tool Usage:** Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)
- PO6: The Engineer and The World:** Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).
- PO7: Ethics:** Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)
- PO8: Individual and Collaborative Team work:** Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
- PO9: Communication:** Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences
- PO10: Project Management and Finance:** Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.
- PO11: Life-Long Learning:** Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)



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Department of Mechanical Engineering

Subject: TECHNICAL COMMUNICATION (TC)

Code: 4ME1-03

Technical Communication (TC)

Course Outcomes (COs)

By the end of the course, the student will be able to:

CO1. Demonstrate understanding of the fundamentals of technical communication—including listening, speaking, reading and writing—in engineering contexts.

CO2. Analyse, interpret and summarize technical texts/documents, using appropriate formats, styles and visual aids.

CO3. Compose professional written communication with accuracy in grammar and technical style.

CO4. Develop advanced technical documents (e.g., technical reports, articles, proposals) applying correct structure, format, visuals and layout.

CO5. Deliver effective oral and presentation communication of technical information to diverse audiences, using visual aids and team interaction.

CO6. Use editing, proofreading and revision skills to refine written and oral technical communication for clarity, correctness and audience-appropriateness.

CO-PSO MAPPING

SUBJECT	CO	PSO 1	PSO 2
Technical Communication (TC)	CO1	1	2
	CO2	2	2
	CO3	3	1
	CO4	1	1
	CO5	3	3
	CO6	3	3

Course Plan

Name of the Course: **Technical Communication (TC)**

Code of the course: **4ME01-03**

Name of Faculty: **Dr. Fauzia Siddiqui**

Course Outcome

CO1. Demonstrate understanding of the fundamentals of technical communication—including listening, speaking, reading and writing—in engineering contexts.

CO2. Analyse, interpret and summarize technical texts/documents, using appropriate formats, styles and visual aids.

CO3. Compose professional written communication with accuracy in grammar and technical style.

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audiences, using visual aids and team interaction.

CO6. Use editing, proofreading and revision skills to refine written and oral technical communication for clarity, correctness and audience-appropriateness.

Lec. No.	Unit	Topic	CO	Specific Objective	Expected Outcome	Reference
1	Unit I	Introduction to Technical Communication	CO1	Understand the role and importance of technical communication in engineering	Explain the significance of communication skills in professional environments	Raman & Sharma
2	Unit I	Process and Principles of Communication	CO1	Understand communication process, barriers and channels	Identify elements and barriers in communication	Raman & Sharma
3	Unit I	Listening Skills: Types and Techniques	CO1	Develop effective listening strategies	Demonstrate active listening skills	Raman & Sharma
4	Unit I	Speaking Skills and Professional Etiquette	CO1	Improve verbal communication and etiquette	Apply professional speaking practices	Raman & Sharma
5	Unit I	Reading Skills and Reading Strategies	CO1	Develop efficient reading techniques	Interpret technical information effectively	Raman & Sharma
6	Unit I	Technical Vocabulary and Language Usage	CO1	Enhance technical language proficiency	Use appropriate technical terminology	Raman & Sharma
7	Unit II	Technical Writing: Characteristics and Style	CO3	Understand principles of technical writing	Apply technical writing conventions	Meenakshi Raman



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8	Unit II	Grammar for Technical Communication	CO3	Improve grammatical accuracy	Produce grammatically correct technical documents	Wren & Martin
9	Unit II	Sentence Construction and Paragraph Writing	CO3	Develop coherent writing skills	Construct effective technical paragraphs	Wren & Martin
10	Unit II	Business Correspondence: Letters and Emails	CO3	Learn formats of professional correspondence	Draft professional emails and letters	Raman & Sharma
11	Unit II	Resume and Cover Letter Writing	CO3	Prepare employment documents	Develop effective resumes and cover letters	Raman & Sharma
12	Unit II	Editing and Proofreading Techniques	CO6	Understand revision and editing methods	Edit documents for clarity and correctness	Raman & Sharma
13	Unit III	Technical Reports: Structure and Components	CO4	Learn report-writing formats	Prepare structured technical reports	Sharma, Report Writing
14	Unit III	Feasibility and Progress Reports	CO4	Understand different report types	Draft feasibility and progress reports	Sharma
15	Unit III	Proposal Writing	CO4	Develop proposal writing skills	Prepare technical proposals	Sharma
16	Unit III	Technical Articles and Research Papers	CO4	Introduce article and paper writing	Organize technical information systematically	Research Writing Manual



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17	Unit III	Use of Visual Aids in Technical Documents	CO2, CO4	Understand graphical presentation methods	Integrate visuals effectively in documents	Raman & Sharma
18	Unit III	Document Design, Formatting and Layout	CO4	Learn professional document presentation	Design reader-friendly technical documents	Raman & Sharma
19	Unit IV	Reading and Comprehension of Technical Texts	CO2	Develop technical text interpretation skills	Analyze technical documents critically	Technical Communication Textbook
20	Unit IV	Summarization Techniques	CO2	Learn concise technical writing	Produce accurate summaries	Raman & Sharma
21	Unit IV	Interpretation of Graphs, Tables and Charts	CO2	Develop analytical interpretation skills	Interpret data effectively	Technical Communication Textbook
22	Unit IV	Information Extraction from Technical Documents	CO2	Extract relevant information efficiently	Identify key ideas and information	Raman & Sharma
23	Unit IV	Case Study Analysis and Documentation	CO2	Apply analytical reading and writing skills	Prepare case study reports	Technical Communication Textbook
24	Unit IV	Technical Review Writing	CO2	Develop critical evaluation skills	Write technical reviews effectively	Raman & Sharma
25	Unit V	Presentation Skills: Planning and Preparation	CO5	Learn principles of effective presentations	Design structured presentations	Raman & Sharma



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26	Unit V	Use of Presentation Software and Visual Aids	CO5	Utilize technology for presentations	Create professional presentation slides	Presentation Skills Handbook
27	Unit V	Public Speaking and Audience Analysis	CO5	Develop confidence and audience awareness	Deliver audience-focused presentations	Presentation Skills Handbook
28	Unit V	Group Discussion and Team Communication	CO5	Enhance teamwork and communication skills	Participate effectively in team discussions	Raman & Sharma
29	Unit V	Seminar Presentation Practice	CO5, CO6	Apply presentation and feedback skills	Deliver technical seminar presentations	Course Material
30	Unit V	Review, Feedback, Revision and Course Wrap-up	CO6	Strengthen editing and revision skills	Refine communication based on feedback	Raman & Sharma

Recommended References

1. Meenakshi Raman & Sangeeta Sharma, *Technical Communication: Principles and Practice*, Oxford University Press.
2. M. Ashraf Rizvi, *Effective Technical Communication*, McGraw Hill Education.
3. H. S. Sharma, *Technical Report Writing and Communication Skills*, PHI Learning.
4. Wren & Martin, *High School English Grammar and Composition*, S. Chand.
5. Krishna Mohan & Meera Banerji, *Developing Communication Skills*, Macmillan India.
6. R.C. Sharma & Krishna Mohan, *Business Correspondence and Report Writing*, Tata McGraw-Hill.



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UNIT -1

Introduction to Technical Communication- Definition of technical communication, Aspects of technical communication, Forms of technical communication, Importance of technical communication.

Introduction to Technical Communication:-

Technical Writing is a genre of non-fiction writing that encompasses not only technical materials such as manuals, instructions, specifications, and software documentation, but it also includes writing produced in day-to-day business operations such as correspondence, proposals, internal communications, media releases, and many kinds of reports. It includes the communication of specialized technical information, whether relating to computers and scientific instruments, or the intricacies of meditation. And because oral and visual presentations are such an important part of professional life, technical communication also encompasses these as well.

Technical Communication is a process of sharing and making technical documents. Technical communication can be either written or verbal communication that can help users to accomplish a defined goal or task. It is helpful to assist users who need specific information on completing tasks, using products, operating equipment, and so on.

Technical communication and technical writing basically the same things but coming to technical communication and general communication they are many differences.

Technical Communication

1. It has fixed technical message .
- 2 . It is always formal.
- 3 It has a set pattern.
- 4 it can be Verbal or Written .
- 5 The audience are fixed.
- 6 It involves reports ,graphs and pie charts and proper data.

General communication

1. Contains a informal message.
2. Informal style and approach.
3. No fixed pattern of communication.
4. It is non verbal.
5. Audience are varied.
- 6 . It has no fixed technical term

Characteristics of Technical communication.

It addresses specific audience or particular group.

It showcases the organisation aims and objectives.

It is produced collaboratively.

It is represented in form of words and images.

It is also a replica of culture of a particular organisation vocabulary.

The thing we should always have in mind is the Audience. Technical communication usually takes place among professionals in their field and they discuss on some on some specific project on some guidelines , The technical document should be such Firstly in which the reader should get the organized information that can lead to quick understanding along with decision making . Secondly it should be fruitful in inviting other ventures. Memos, graphics, letters, fliers, reports, newsletters, presentations, web pages, brochures, proposals, instructions, reviews, press releases, catalogs, advertisements, handbooks, business plans, policies and procedures, specifications, instructions, style guides, agendas and so forth.

More or frequently used:-

- It includes all types of notices, minutes of meeting, circulars quarterly and annually



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reports and manuals.

- Emails, ,web pages, and even social media.
- Clear and concise to help people get the main idea quickly.
- Technical terms and technical aids are used. (specific vocabulary, graphics , table , diagrams , maps and charts ,)

Importance of technical communication

→ It is the heart and soul of the organization as it s helpful in recruiting , functioning , decision-making and coordinating whether it is business enterprise, administrative ,academic organization, or medical firm or IT industry.

→ Good qualitative information will always help a company to grow.

→ Technical communication is a field that makes our life easier and more productive Speaking, writing, reading writing linguistic ability, style in technical communication.

Listening skills are probably one of the most important language skills that you need in order to be successful in your academic and professional pursuits.

Types of Listening

When we engage in listening we are doing so for many different reasons depending upon the goals in which we are trying to achieve. There are four different types of listening that are essential to know when deciding what your goal as the listener is.

The four types of listening are appreciative, empathic, comprehensive, and critical. Familiarize yourself with these different types of listening so you can strengthen and improve your ability to critically think and evaluate what you have heard.

Appreciative Listening:-

When you listen for appreciation you are listening for enjoyment. Think about the music you listen to. You usually listen to music because you enjoy it. The same can be said for appreciative listening when someone is speaking. Some common types of appreciative listening can be found in sermons from places of worship, from a motivational speech by people we respect or hold in high regard, or even from a standup comedian who makes us laugh.

Empathic Listening: -

When you listen empathically you are doing so to show mutual concern. During this type of listening you are trying to identify with the speaker by understanding the situation in which he/she is discussing. You are stepping into the other's shoes to get a better understanding of what it is he/she is talking about. Usually during this type of listening you want to be fully present in the moment or mindfully listening to what the speaker is saying. Your goal during this time is to focus on the speaker, not on yourself. You are trying to understand from the speaker's perspective.

Comprehensive Listening:-

If you are watching the news, listening to a lecture, or getting directions from someone, you are listening to understand or listening to comprehend the message that is being sent. This process is active. In class, you should be focused, possibly taking notes of the speaker's main ideas.

Identifying the structure of the speech and evaluating the supports he/she offers as evidence. This is one of the more difficult types of listening because it requires you to not only concentrate but

to actively participate in the process. The more you practice listening to comprehend, the stronger listener you become.

Critical Listening: -Have you ever had to buy an expensive item, such as a new appliance, a car, a cell phone, or an iPad? You probably did some research beforehand and listened closely to the salesperson when you went to compare brands. Or perhaps your best friend is telling you about some medical tests he/she recently had done. You listen closely so you can help your friend understand her results and the possible ramifications of the findings. Both of these scenarios are examples of critical listening. Critical



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listening is listening to evaluate the content of the message. As a critical listener you are listening to all parts of the message, analyzing it, and evaluating what you heard. When engaging in critical listening, you are also critically thinking. You are making mental judgments based on what you see, hear, and read. Your goal as a critical listener is to evaluate the message that is being sent and decide for yourself if the information is valid. Technical writing is an audience-centered means of communication that provides a reader with clear and easy access to information. In the business world, time equates to profit, and profit is the force behind all business interaction. The technical writer and reader have a vis-à-vis relationship. The writer recognizes, respects, and addresses the importance of time in effective and efficient communication by providing documents written in specific formats, using unambiguous language to send clearly assessable information. The reader in turn thoroughly understands the information in order to give a thoughtful response.

Unit 2

Comprehension of technical materials/texts and information design and development.

1) Ways of Reading of technical texts:

a) schedule the time to read and recall session:

schedule the reading to make your certification done in time. 30 mins-1 hr for reading when you have much free time and the highest focus.

b) set up a special reading area with no distractions:

find a place where you can get away from your phone, your family, and any other distractions and just read. The idea is to create a place where you can focus and enjoy what you're doing so you can absorb what you're reading because you need to keep focused, stay productive.

c) no speed-reading, neither quick reading:

In the century of efficiency, we are trying to absorb the information as soon as possible. But reading demands time. All its benefits are not seen immediately. Usually, after you've read the big part of the book. Speed reading does not work.

d) read in stages

start by reading the title of the manual, the preface and then study the table of contents. Then start reading parts of the sections that you discovered are most relevant to you.

e) come back to difficult points:

understand the content of the book. Don't clarify everything. Make a note and move forward.

2) Comprehending technical manuals:

a) survey:

- State your purpose for reading the material.
- Notice each bold face heading and sub headings.
- Skim over graphs, tables, charts etc to see how they support and explain the text.

b) questions: frame questions

c) read:

- Divide chapter into small sections.
- Ask questions before each paragraph or section and then locate the answers in the text.
- Note down essential points and vocabulary.
- Think, interpret and analyse the first time you read, to avoid unnecessary re-reading.

d) recite:

- make separate notes or outlines and answer questions from memory.



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- Discuss.

e) review

3) Interpreting any technical text

a) read a lot ad everyday:

increasing your daily reading load will greatly help you in interpreting ay text. As it broadens your textual analysis drills. And when we talk about “reading” we are referring not only to books but also to other productions, such as news reports, blog posts etc.

b) explain to yourself what you are reading:

try to slow down the text by breaking it down into smaller parts so you do not have to interpret everything at once in the end. Also, adopt some practices that help you understand all the phrases and do not lose parts of speech.

c) study grammar:

while reading, always try to have a dictionary around. Each time you notice a word that you do not know the meaning, note or search. This will help you not miss any important term within the text.

d) write a lot:

reading and writing are very related processes. Therefore writing well will help you develop a better understanding of texts, as you will be more familiar with the structures and how they organize to create meaning.

e) focus on each important key terms and vocabs.

While reading any reading any technical text focus on the key terms and words so that it can help you a lot with the learning of the subjects.

4) Summarising any technical text:

a) the very first step for making a summary is to have a reading skill.

b) underline or mark the main sentence of the passage.

c) after collecting the main points, check for the appropriateness of the ideas for making the summary.

d) prepare the first draft of the summary. You can add or edit any piece of information.

Techniques for summarization:

a)selection:

for making a summary it is very important to select the main idea, keywords and the special terms in the source. They help in getting the idea and making the summary.

b)rejection:

it is a process of removing unwanted and not so important sentences while making summaries as note making examples.

c)substitution:

it is a process in which new sentences get to add up instead of the previous one. Also, several sentences are combined to form one sentence. It reduces the length of the summary.

5) Note making:

Advantages of note making:

i)It is an organized form of important points which can be used in future.

ii) it helps in recollecting and recalling the past events said or heard.

iii) it helps a reader to go through bulky documents quicker.

iv) it helps in concentrating, understanding and providing a permanent record.

v) it distinguishes between main points and details.

Format of note-making:

i)heading

ii)subheading

iii)point

iv)keywords



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Procedure of note making:

- i)read the passage provided
- ii)underline the important sentences. It helps to make headings and subheadings
- iii)make a rough note first so as to get an idea.
- iv)organize them in logical order or sequence for the final note.
- v)use the appropriate note making format.

Methods of note making:

- i)split method/page method
- ii)diagram/ pattern method
- iii)mind map(a visual note making method)
- iv)outline method
- v)question and prompt format.

6) Information collection:

Ways to collect information:

- i)survey
- ii)observation and audits
- iii)interviews
- iv)existing data sources
- v)focus group
- vi)case studies

Important factors in effective document design:

- i)white space
- ii)written cues
- iii)graphic aid
- iv)proportion
- v)consistency.

7)ways of Writing for print media:

- a)inverted pyramid
- b)the five w's and H
- c)simple language
- d)narrative structure

ways of Writing for online media:

- a)introductory text
- b)points of entry
- c)key facts first
- d)link in and out
- e)say it straight

Technical Writing, Grammar and Editing- Technical writing process, forms of technical discourse, Writing, drafts and revising, Basics of grammar,common error in writing and speaking, Study of advanced grammar, Editing strategies to achieve appropriate technical style, Introduction to advanced technical communication. Planning, drafting and writing Official Notes, Letters, E-mail, Resume, Job Application, Minutes of Meetings.



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UNIT -3 Technical Writing, Grammar and Editing-

What is technical writing ? It is art of presenting technical information to the audience in such away that they can understand and use the information. Today technical writing encompasses all documentation of complex technical processes. It includes reports, executive summary statements, briefs. Any time technical information is conveyed in writing at work, it is, by definition, technical writing.

This can include high-tech manufacturing, engineering, biotech, energy, aerospace, finance, IT, and global supply chain. The format is no longer bound to lengthy user manuals. Technical information must be distilled and presented unambiguously. This can come in the form of technical reports, emails, policy, briefs, and press releases. In easy words it follows through formal channels , formal communication can be in different forms like vertical communication, horizontal, upward and others.

Technical writing process, forms of technical discourse, Writing, drafts and revising, Basics of grammar, common error in writing and speaking, Study of advanced grammar, Editing strategies to achieve appropriate technical style, Introduction to advanced technical communication. Planning, drafting and writing Official Notes, Letters,E-mail, Resume, Job Application, Minutes of Meetings.

What is Technical writing?

Writing that focuses on instrumental discourse (discourse that aims to do something) % e.g.

computer manuals (print and help screens) % Assembly instructions for toys, appliances, games

Purpose of all these documents: ,, to inform, To be “instruments” or tools for people to use to get things done. The documents you will write in this course all share this sense of purpose.

Importance of Technical Communication:-

While beginning to work as an engineer We will realize that our job requires While beginning to work as an engineer you will realize that your job requires you to write proposals, specifications, reports, conference papers, letters and electronic messages. Writing is perhaps the most important way in which information is conveyed to managers, fellow engineers...show more content...

Of course, they knew technical knowledge would be important; but they never realized technical communication in general, and writing in particular would be so crucial to their success. People who cannot communicate well often find themselves wondering why they did not get the job or why they were passed over for promotions. Today, effective technical communication is more important than ever. We live in an age in which whole industries are built around the development, retention and application of information. The ability to communicate effectively is crucial if you plan to survive and succeed. Yet, managers regularly report that college graduates do not have adequate communication skills. Fortunately, you can teach yourself to write and speak effectively in the technical workplace. The ability to communicate effectively is not something people are born with. With a little effort, anyone can learn to write and speak...show more content...

- Your performance evaluations will often be based on the documents that you wrote or helped produce.

- Your colleagues will judge your abilities by the effectiveness of your documents or presentations.

- Your company’s clients will judge the quality of your entire company by the quality of your documents and the presentations you make to them. A lot of good ideas never see the light of day because the engineers who have them are unable to communicate their ideas.

Therefore, if you want to advance beyond just being a number cruncher, then you need to be able to communicate effectively; and that includes acquiring at least a minimal proficiency in writing. If you want to work semi-independently or if you want to supervise other people, the ability to communicate is critical. In fact, if you talk about leadership skills, communication skills is always consistently at the top of the list. If you can’t communicate with the people that you’re trying to direct or lead, then they won’t know what to write proposals, specifications, reports, conference papers, letters and electronic messages. Writing is perhaps the most important way in which information is conveyed to managers, fellow engineers,...show more content...



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- your performance evaluations will often be based on the documents that you wrote or helped produce.

- Your colleagues will judge your abilities by the effectiveness of your documents or presentations.

- Your company's clients will judge the quality of your entire company by the quality of your documents and the presentations you make to them. A lot of good ideas never see the light of day because the engineers who have them are unable to communicate their ideas.

Therefore, if you want to advance beyond just being a number cruncher, then you need to be able to communicate effectively; and that includes acquiring at least a minimal proficiency in writing. If you want to work semi-independently or if you want to supervise other people, the ability to communicate is critical. In fact, if you talk about leadership skills, communication skills is always consistently at the top of the list. If you can't communicate with the people that you're trying to direct or lead, then they won't know what to.

Essential for technical communication: The writing process stages :-

Next is understanding audience, The audience are the important factor that is to be considered at the top most in technical ,writing , you are supposed to write a highly technical subject but in such a way that a beginner can understand it. Accumulating information:-

- a).Style of writing
- b). Type of document.
- c). Type of Audience
- d). Resources to be used
- e). Subject matter that is to be written.

Stages in detail :-

Designing a document:-

Sorting of information.

Preparing a draft of the outline.

Sequencing the information as per importance.

Arranging as per format.

Essential details and examples with supporting documents.

Provides information about the type of document.

Creating Document

- a). Development of the design
 - b). Writing style should be simple
 - c).Avoid jargons
 - d).User friendly language
 - e) Reviewing document
- a) Self review
 - b). Client review
 - c). Technical review



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Publishing Document

- a). Soft copy /CD /DVD
- b). Print or bind

Technical discourse :-

There are mainly two types of discourse Written and Oral, The difference between speech and writing is referred to as channel or medium as both of the discourses needs some processes .

Difference between the two is spoken has to understood at the spot whereas written can be referred several times. Spoken is fast as compared to written. Difference between Spoken and Written discourse.

- 1.Spoken gestures , body language.
- 2 Intonation
- 3 .Pitch range
- 4. Stress
- 5 Rhythm
- 6 Pausing and Phrasing: - a small gap difficult to be measured.

Diagram for discourse process:-

What is technical writing ?

It is art of presenting technical information to the audience in such away that they can understand and use the information. Today technical writing encompasses all documentation of complex technical processes. It includes reports, executive summary statements, briefs. Any time technical information is conveyed in writing at work, it is, by definition, technical writing. This can include high-tech manufacturing, engineering, biotech, energy, aerospace, finance, IT, and global supply chain. The format is no longer bound to lengthy user manuals. Technical information must be distilled and presented unambiguously. This can come in the form of technical reports, emails, policy, briefs, and press releases.

In easy words it follows through formal channels, formal communication can be in different forms like vertical communication, horizontal, upward and others.

Technical Writing

Official Notes, Letters, E-mail, Minutes of Meetings

Forms of communication

There are various forms of technical communication the very first we will discuss is

Business letter

A business letter is a document which is written by authorized person of an organization , it is a document which is not only within the premises of the organisation but also outside the organization , this can be sent in other organizations, credit departments, suppliers ,customers and employees etc .

Importance of Business letter

Helps in maintaining business relationship.

Important media for complex information.

Valuable source of information for future.

It helps to serve a large number of people.

It is economic as compared to other means of communication.

Functions of business letter.

To create and sustain new business relations, different organisations will have different purpose of writing it.

To send greetings.

To inform about new product or offers and services.

To request dues and collect dues. (Airtel , Vodafone bill warning, insurance policies).



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Reminders for different products, services available dates.

To apply for a job and internship. (Job application)

Always use greetings before starting .

Approach should be direct and concise.

Provide all details required in concise and correct form.

Proof read your letter as its the replica of the company .(avoid mistakes vocabulary , grammar)

Avoid Jargons .Essentials of business letter

Heading

Date

Subject

Inside address

Salutation

Message

Complimentary message

Signature

Sample Business Letter About Shipment

Company, Inc., 123 Alphabet Drive, Los Angeles, California 90002, □ 13 July 2020,
Mr. John Doe, Customer Service Representative, Widgets Galore, Inc., 987 Widget Street
Miami, Florida 33111

Dear Mr. Doe:

Greetings”

I am writing you concerning a recent purchase of widgets. Approximately two weeks ago, on June , I5 ordered a total of 50 widgets for Company, Inc. via the Widgets Galore client webpage. I received an email notification two days later confirming the receipt of payment and the shipment of the widgets. According to your website, shipments should reach their destination within 3-5 business days of being sent, but I have yet to receive the widgets. Do you have any information on what may have happened to delay the shipment or where the shipment is currently?

I have worked with Widgets Galore, Inc. in the past and have the greatest confidence in your products and customer service. We need the shipment of widgets soon, however, and I hoped you might be able to provide me with an idea of when I can expect them.

Thank you in advance for any help you might be able to offer.

Sincerely,

Saksham, Vice President of Company, Inc.

555-555-5555,s.brown@companyinc.com

Email writing :-

Email is the most common form of business communication so it is important to make them clear, concise and actionable.

Important contents :-

Subject Line Subject line is the first thing a recipient reads. Subject should be short and to the point and it should highlight the main message of the email. The ideal subject gives the reader all they need to know or informs them they need to make a decision.

Greeting :- Begin with a greeting Always open your email with a greeting. The greeting should be concise and formal. You may or may not choose to address a person specifically by name, depending on the context of the message. Some examples of greetings are:

State your purpose



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If you are starting the email communication, it is not possible to include a line of thanks then begin by stating your purpose.

For example, “I am writing to enquire about ...” or “I am writing in reference to ...”
Make your purpose clear early on in the email, and then move into the main text of your email. Remember, people want to read emails quickly, so keep your sentences short and clear. You’ll also need to pay careful attention to grammar, spelling and punctuation so that you present a professional image of yourself and your company.

Attachments Include URLs or attachments if that will help the recipient .

Never force the recipient to hunt for a URL or attachment in another email.

· End with a closing

The last step is to include an appropriate closing with your name.

Some potential closings:

I look forward to your response,

I hope to hear from you soon,

Thank you for your time,

Thank you for your attention to this matter,

Sign your name

It is appropriate to write your name and title in a work at the end of an email.

Choose the most suitable phrase before typing your name.

Yours sincerely, (when you know the name of the recipient, (Formal)

Best regards, or Kind regards, (Formal, Most common) .

Minutes of meeting

What are meeting minutes for?

Meeting minutes are the notes that capture what happened at a meeting! Different than a meeting agenda, it records the decisions made and actions requested by the group.

Despite the team, they are not a minute-by-minute record but include the key details that the team will want to know. It’s important in meeting minutes to capture information such as:

decisions made next steps action items and who is responsible . Minutes are the record of who was there and what happened. They are an important source of information for people who were unable to attend or looking back to reflect on

what happened, also an incredibly effective tool to notify or remind people of tasks assigned to them or timelines to keep everyone on track.

What should go into meeting minutes?

Here are some of the details that you should include in the meeting minutes.

- a. Date and time of meeting
 - b. Names of the participants
 - c. Agenda items and topics discussed
 - d. Action plan
2. informal team meeting minutes template
- a. date: today’s date
 - b. attendees
 - c. List of attendees

Agenda

Item 1 including key discussions, decisions made, next steps

Item 2

Item 3



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Next steps

List goes here in format: action item, responsible person, date

Example: Brian to follow up to this group with a list of target companies by

SAMPLE MOM

EUREKA FORBES

VAISHALI NAGAR

AMARPALI CIRCLE

Noting Reference No. EUP /01/2019-20/131

19/12/19

Minutes of Meeting

Venue : CONFERENCE HALL 01

Date & Time : Thursday AUGUST 19, 2020 at 11:00 AM

Agenda :

1. Dress code in the Organization
2. Any other issues

Members Present :

- 1
- 2
- 3

Meeting started at 11:00 AM; following items were discussed –

1. There is a need of proper dress code for the staff to maintain the College decorum. They are coming casual dress. Therefore,
2. It has been decided that –
 - a. Every staff should wear their identity card while they are in the campus.
 - b. Male faculty member will wear formal dress with leather shoe. Every day clean shave / well groomed beard.
 - c. Female members will wear sari or collared shirts with trousers .
3. It was also made clear that jeans, sports shoes, T-shirts etc. will not allowed in the campus.
4. All concerned assured that they will follow the same with to come in proper dress from November 2, 2020.
5. It also decided that after November 2, 2020; They will be penalized for the same
6. The meeting ended with a vote of thanks.

Warm Regards

Mr.....

Designation

RESUME WRITING

Resume Writing-

-Highlight skills, knowledge, and expertise

-Concise, easy to read document

Summary of:

- Qualification
- Education
- Experience
- Skills



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A One page resume is preferred by most employers

An employer will evaluate you as a person while scanning your resume, i.e.:

Neat resume = neat person

b) Well-organized resume = well-organized person.

c) Error free resume = careful person

d) Professional appearance = careful & competent person

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Neat resume = neat person

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- How to write a Cover letter?

Rules

Give enough information to interest the reader, don't overwhelm.

Research the company. Address the letter to a specific person.

Answer an ad if you have 50% of the skills or background that the ad requires.

Mention the person who referred you if appropriate.

Contents

Your address, city, state, zip, and telephone number.

Date

Name, title, company, address, city, state, and zip of person you're writing to.

Greeting, followed by a colon.

- Paragraph-1:

What do you want?

How do you know about the organization?

Mention enclosure of your resume?

- Paragraph 2:

Concise overview of work history and skills that will help you perform the job.

- Paragraph 3:

State confidence in your ability.

Give information on how you can be contacted (Ph.no., e-mail id)

- Paragraph 4:

Express appreciation and gratefulness.

Sample

ABC

B-75 Civil Lines Road ,45

T: (07) 8222 1111, M: 0400 333 888

[date] , Rajeev Batra, HR Manager, HCL Ltd. PO Box 300

Green Plains NSW 2008

Dear Ms Forrester

Re: Mechanical Engineer Position

I am writing to apply for the position of Mechanical Engineer as recently advertised on seek.com.

I am a highly motivated Mechanical Engineer with a Bachelor of Engineering (Mechanical Major) I have one year of practical on-site mining experience. I am very much interested in joining the engineering team at HCL Ltd. given your reputation for world-leading innovation in open cut and underground mining.

I am very confident in planning and designing projects using AutoCAD and EXTB, and



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contributing to the budgeting process. I enjoy the hands-on work that this type of mining role entails, including checking the technical aspects of drawings and equipment designs and the maintenance of existing infrastructure.

I have a thorough knowledge of the processes of open cut and underground mining and experienced in directing and managing the on-site team, including contractors. I possess excellent interpersonal and communication skills and my multitasking abilities are advanced.

Given my on-site experience I am accustomed to operate in a FIFO environment and working hard to keep projects running on time and within budget.

I am keen to employ my skills and enthusiasm as an integral part of your team and I look forward to being able to discuss this position with you further.

Yours sincerely

[sign here]

ABC

Unit 4.

Advanced Technical Writing

Technical Reports

A technical report (also scientific report) is a document that describes the process, progress, or results of technical or scientific report or the state of a technical or scientific research problem. It basically compiles the description about some process, it may be progress of some activity or an organization or a scheme. The technical report should ensure all the components necessary in it and in proper sequence. If the target group needs some background to study the report, it should be covered. The information should be factual and purpose specific.

Characteristics of Technical reports

- may contain data, design criteria, procedures, literature reviews, research history, detailed tables, illustrations/images, explanation of approaches that were unsuccessful.
- may be published before the corresponding journal literature; may have more or different details than its subsequent journal article.
- may contain less background information since the sponsor already knows it
- may have restricted access
 - classified and export controlled reports
- may contain obscure acronyms and codes as part of identifying information

Characteristics of Technical reports in detail....

- **Shape and Size:** The report may have 8-10 pages, typed or printed in proper format, with proper margin and spacing. The upper size of the report is related with time, efforts and resources. If necessary, trim it as per requirement.
- **Content:** The reports should be easy to follow, for a non technical person or a non specialist. The necessary technical details may be covered but, over doze of technicality should be avoided.



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- **Facts:** As per the objective of the report and requirement of the target group of the agency assigning the job, the facts and figures should be covered. The necessary detailing of facts should not be sacrificed.
- **Sources:** The technical report is the compilation of information from various sources, like publication in journals and books, technical brochures, personal and written communication with experts, site visits, surveys, etc. The sources of information should be reliable.
- **Documentation:** As mentioned, the information compiled in the report is collected from different sources. There is a tradition of acknowledging the sources as references or other modes. This transparency will be liked by the original writers. All the information, data, opinions should be well documented
- **Target Readers:** Some times, the report is prepared by a committee, appointed for the purpose. So, it is ought to be specific. In other cases, it is desirable that the report aims at some specific group, so that it can meet with the expectations of that group. Too general report may not be useful to any body.
- **Titles and subtitles:** The report may cover different aspects of the work. They may be given some titles or headings. In case of a detailed report, under each title, there may be a lot of content. It may be further sub divided in to subtitles. The titles and subtitles, help the readers in discriminating one topic or an aspect from the other and one subtopic from the other. On the writer side, it helps in proper organization of the report, with proper focusing and on user side it helps in proper understanding of the report. If somebody is interested in a specific aspect of the report, he can refer accordingly.
- **Physical Arrangement:** The physical presentation of the report is concerned with typing and printing. The graphical or pictorial information may not be reproduced properly in computer or machine printing. Photo copying or scanning is advisable. A loose report or a strip binding or a spiral binding is not impressive and durable. Hard paper binding is advisable.
- **Graphics:** In addition to description in alphanumeric form, the reports may have graphs, line diagrams, photographs, histograms, tables, pie charts, bar charts, line graphs, flow charts, block diagrams, etc. Graphics makes the report to be followed easily, more illustrative and authentic. It is an art to make the report impressive, by using graphics.

Types of Technical Reports

- Only some forms of technical reports are highlighted here. **Depending on the nature of activity**, there can be many more types.
- **1) Technical background report**

This type of report is a technical description, to give some background of topics like wind power, environment protection, etc. The other technical writings may be for the general understanding of students, teachers or a common public. Here, the target audience is not specific. Technical background report is usually meant for a specific group. While inviting proposals for hospitals,



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engineering institutes, technical survey, etc. the government, semi government and private organisations may give some background about the requirement

- **2) Instructions Report:**

When the students perform the laboratory experiments, to record the procedure, they describe it in the instruction form. For uniformity, teachers also, prepare standard instruction manual for the students. It may be typed and given in advance, so that the students can perform the practical systematically. It covers objective or aim of the experiment, instruments required to carry out the experiment, some theoretical concept necessary, procedure of actual experiment including some precautions necessary for the safety of the instruments and users.

- **3) Feasibility Study Report:**

When a new product is to be developed or a new technology is to be adopted for the existing product, or a model is to be changed or a new manufacturing process is proposed, feasibility study is necessary. Some experimentation may be done on the prototype, alternative technologies may be studied, various procedures may be analysed and different revisions of models are tried After experimentation, analysis, study or survey the final outcome is expected. The report may justify or otherwise, the new product, technology, procedure, model or technique. The justification may be based on the state of art technology and its awareness, available or trainable manpower, availability of equipment and material, infrastructure, resources, etc.

4) Recommendation report:

- When a government, semi government or a private organization, gets number of offers from different persons or agencies or organizations for a specific work, the offers are critically reviewed by the expert committee. The parties may be given the opportunity of presentation and demonstration. After this exercise the committee prepares and submits a report, to accept a particular product, procedure, technology, option or offer by a particular party. The decision may be based on the capability of the proposer and financial considerations. In a purchase committee recommendation, negotiations and discounts are also helpful.

5) Evaluation Report:

Report of the evaluation committee helps the management in taking the decision. Similarly, for a syllabus revision, assessment scheme, result analysis, ragging, student discipline, proposal for new courses, etc. issues committee may be formed and may give report.

6) Primary Research Report:

It may not be related to some original work. Some experimentation may be done in house or some external facility may be used for the experimentation, some supporting survey may be carried out. The experimentation and survey work generates some data, which is analyzed to draw conclusion. The report may cover the experimentation, equipment's, hardware, software, infrastructure, background of the problem and final outcome of the research

7) Technical specifications:

While marketing the product, two types of manuals are used. **Commercial manual** describes the general details and cost aspect. **The technical manual** covers the detailed specifications of the product. It covers construction, materials, dimensions, size, weight, functions, operational features and special features. It may also, cover the market potential. A lot of alphanumeric data, tables, graphs, pictures are involved here. The stress is not laid on the quality of language but, facts and figures, highlighting the quality and performance characteristics of the product. It is aimed at convincing the consumer. For smaller consumer goods, the presentation style may be simple. For



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major items, with high costing, the target readers may be purchase officers or marketing managers. Some better style of presentation is preferable.

8) Report Length Proposal:

Some proposal report may be the result of years of work. Large number of people may be involved in the study and analysis. The population of samples may also, be very large. Such reports are published in a book form, by many government and semi government agencies. Many private industries and organizations can use such reports for their activities. In addition to some common features, it may include feasibility study, literature survey, qualifications of investigators, and other persons involved in the process. Sometimes, this type of report may be the compilation of many other reports. The scope of the report is very wide. Large many details are covered here.

9) Business Prospectus:

To start a new business or to expand or diversify the existing business, the businessman or an entrepreneur requires support of other people. The businessman or an entrepreneur has to prepare the blue print of his business plan. The business activity should be described at length, the market potential should be identified, the capacity of other manufacturers or businessmen should be reviewed, the import and export problems should be covered, and total plan of full fledged activity should be developed. The requirement of manpower, infrastructure, etc. should be studied and reported. In some cases, phase wise plan for five or ten years may be proposed. Initially profitability may not be there. By future projection, the breakeven point and state of profitability should be forecasted.

The technical reports can also be classified as following types, based on the objective.

- Progress reports
- Trip reports
- Equipment evaluation reports
- Laboratory report
- Summary report
- Data Archival report
- A technical activity report
- Inspection report
- Investigation report

Structure and format of Reports:

- **Shape:** The reports may be typed or printed. The report may be in a bound form, if it is to be submitted outside.
- **Cover page:** Depending on the number of pages spiral binding, strip binding or hard paper binding is used. Standard A4 size, unlined, white plain papers are used. Hand written report is discouraged. The report usually starts with a cover page or the title page. The cover page covers title of the report, the name of agency or individual or group submitting the report, with complete address and contact details. It should also indicate the agency to which it is submitted.



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- **Summary:** After the cover page, the successive page(s) may cover the summary of the report. It gives some idea about the purpose and scope of the report.
- **Index:** The index or table of contents, with page wise references is desirable. It gives clear cut idea, about the details covered in the report. If the report is very lengthy, just like a book, the index helps in referring particular part of the report. If somebody is interested in the particular process or procedure, it can be referred on specified pages.
- **Introduction:**

The main part of the report follows the introduction. If the report is about some research or experimentation, it is necessary to explain the actual problem. What is the actual problem for the research or investigation that should be specified in the introduction, it defines the scope of the research or the investigation. How the research was carried out or what was the nature of investigation or experimentation that is specified here. Thus, it defines the background, which specifies technological, economic, social, political, legal condition under which the research or investigation was necessary.

- **Main body or Core:** The main body or core of the report is covered here. It first tries to identify the problem. How the problem was originated and what are the actual symptoms of the problem? This part basically deals with tools and techniques. In case of a software-based problem, algorithms and flow charts may be covered. In electronics, waveforms are recorded.
- **Results:** In technical and scientific research, based on investigations, results are derived. The results are usually presented as observation tables giving a lot of alphanumeric data. The results are tabulated. Using the observations, some graphs and histograms are developed. The errors, means and standard deviations are found.

Conclusion:

After getting the results, a lot of statistical analysis is done. To derive fruitful conclusion, large number of proper samples are taken under proper condition. If the condition is not proper, if the sample size is less and if the samples are not proper, the process may give wrong conclusion.

- **Recommendation:**
- After completion of the research or the investigation, the results are analyzed. There is some conclusion of the work. Using the conclusion, recommendations are made for the future course of action. If the research is for a new process, procedure or material, with encouraging results the new process, procedure or material is recommended for routine practice.
- **References & Bibliography:**

For any research work, a lot of papers published in journals and presented in conferences are available. It is an art to scan large number of references and select the relevant references.

- **Appendices:**

While writing the report, the researcher or the investigator has a lot of material. He tries to arrange the material in a logical sequence. The flow and content should be such that one can easily read and follow the report. In this process some information, particularly factual data, is necessary to make the report authentic. If all the information is covered in the main body, the flow is not smooth. Such



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data is usually covered at the end, as appendices.

2) Technical Proposal

- Document that lists and defines the technical requirements of a contract or project, and explains the approach and plan formulated to address them.
- or
- A technical proposal is a written official document to carry out some activity, with specified conditions on either side, with some financial consideration. It is a written/printed document, indicating their interest in providing the service, with specified conditions; procure material or equipment of given specifications; develop software for required application with given constrain; construct a building, road, bridge, railway line/station, dam, power house of given specifications; carry out research on a given problem or to solve some problem. The proposal also indicates financial expectations and other conditions like payment terms and time frame or schedule of completing the assignment.

CHARACTERISTICS OF A PROPOSAL

- Technical proposals are a persuasive blend of information, organization and reason (rationale).
- A proposal should
- Demonstrate to appropriate decision makers that their needs would be met with.
- More creative than other forms of writing
- Include summary, background, objective, description of the problem, methodology and cost effectiveness.
- Anticipate the possible reasons for rejection and provide suggestions for overcoming them
- Use plain, direct and unambiguous language.

Types of Proposals:

Business Proposals:

- Supply of material, construction of roads, buildings, railway, a garden, a bridge, a dam, a party plot, a parking lot, etc; providing services for transportation, washing, catering, safety, security, insurance, firefighting, training, consultation, recruitment, maintenance, etc; procurement of equipment, hardware, software, stationary, etc: all these can be considered as business proposals.

Research Proposals:

- Research proposals may be invited internally or externally. Government and public undertakings, private organizations, and educational institutes encourage the research activities. For the technological growth of the nation and survival of the industries in global competition, research is inevitable. There are certain funding agencies at national and international level for the research. From time to time, they invite research proposals on thrust areas and other areas decided by them. There are some government organizations, exclusively set up to carry out full time research, in specific area already identified or areas which may be identified in future.



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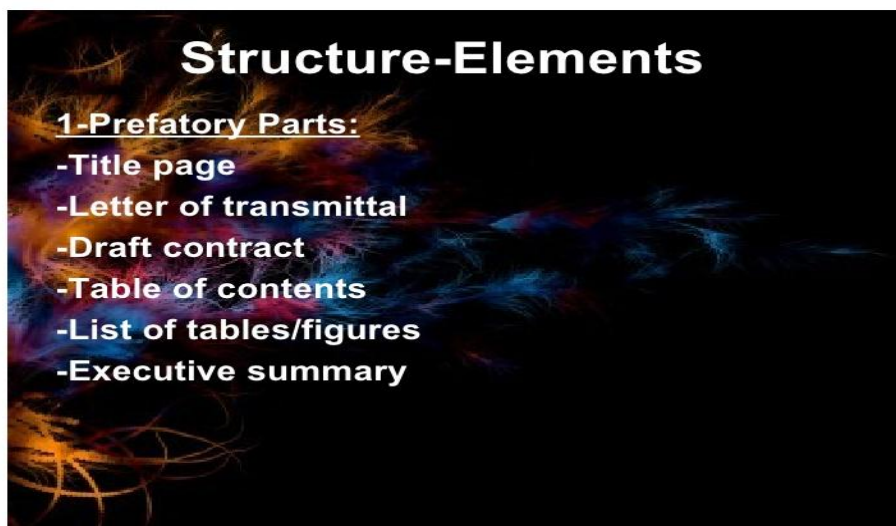
Educational Proposals:

- Education spans from playgroup, kindergarten, primary school, secondary school, higher secondary school; under graduate colleges of various faculties like arts, commerce, science, law, pharmacy, engineering; post graduate institute and institutes offering Ph.D. programmes in various faculties and various branches in case of engineering. At lower, school level, local authority may be involved. In all the cases, proposals are to be submitted to the competent authority, to initially start the institute with specified intake and later on to continue to run the institute. For schools and colleges, not offering professional courses, usually proposals are not invited. A particular trust or a body plan to start a school or a college. It prepares the proposal in a specified format and approaches the concerned authority. Here, as the proposals are not invited by advertisement or common circular or general announcement, the number of proposers may be less. There is not much competition of other proposers. The assessment is on individual basis, depending on the fulfillment of requirements and bonafide intentions of the trust. There may be indirect competition of other institutes in the area. So, the proposer should be aware about the availability and demand of seats, absorption to further studies or employment, available quality of education in the area, target group of students, transport and other infrastructure facility.

- **Accreditation Proposals:**

There is a national board accreditation for the accreditation of programmes offered by engineering institutes. Accreditation is programme wise, for the strengths and weaknesses, as per specified format. The detailed criterion cover teaching learning aspects, management aspects, administrative aspects and financial aspects. The information covers student intake, admission process, result, recruitment, student feedback, teacher feedback, employer feedback, etc. The visiting team interacts with the students, the faculty, the supporting staff, the management, the administration, the guardians and the employers, too. Similarly, for Institutes and Universities, there is NAAC accreditation. These accreditations are not mandatory but, are useful for the institute or university to find its strengths and weaknesses and get third party assessment.

Structure and format of technical proposal





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Structure-Elements

<u>2-Body of proposal:</u> *Introduction: -Problem -Need -Background -Objectives -Scope and limitation *Technical procedures: -Methods and sources -Plan	*Managerial procedures: -Sequence of activities -Equipment, facilities, product -Personal qualifications *Cost estimate *Conclusion <u>3-Supplementary Parts:</u> -Appendices -References
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Technical Article

WHAT is a technical article

- It is a written composition treating scientific or a technical subject distinctly.
- It is a systematic account of the result of some investigation, research, fieldwork and other activities.
- It explores one area of interest and presents an objective analysis and interpretation of facts, findings, inferences, suggestions, recommendations and suggestions and conclusions

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Characteristics of Technical Articles

Features of technical articles:

Scientific Attitude

- It is the attitude of objectivity, impartiality and directness.
- Technical comm. is impartial, unemotional and objective.
- The attention of the writer is concentrated on the facts only.

Use of scientific and technical vocabulary

Types of Articles

TYPES OF ARTICLES

- Scientific Article
- Technical Article
- Research Paper

Scientific Article

- A scientific article is a publication that is based on empirical evidence. It can support a hypothesis with original research, describe existing research or comment on current trends in a specific field.

Research Paper



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- A **research paper** is an essay in which you explain what you have learned after exploring your topic in depth. In a **research paper**, you include information from sources such as books, articles, interviews, and Internet sites. You also use your own ideas, knowledge, and opinions.
- **Structure of Technical Article**

Structuring a Technical Article

- Problem
- Approach/Architecture
- Methodology/Implementation/Realization
- Finding/Result/Evaluation
- Recommendation and conclusion/Future scope

- The body should contain sufficient motivation, with example scenarios, illustrating figures, followed by a crisp generic problem statement model, i.e., functionality, particularly, etc.

- The paper may or may not include formalisms. General evaluations of your algorithm or architecture, e.g., material proving the algorithm go here, not in the evaluation section.

- **Architecture** of proposed system(s) to achieve this, model should be more generic than your own peculiar implementation. Always include at least one figure.
- **Realization**: contains actual implementation details when implementing architecture isn't totally straightforward. Mention briefly implementation language, platform, location, dependencies on other packages and minimum resource usage if pertinent.
- **Evaluation**: How does it really work in practice? Provide real or simulated performance metrics, end-user studies, mention external technology adopters, if any, etc.



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Summary and Future Work

- Focuses on the main result.
- Gives the scope and areas for implementation.
- Directs towards new direction or strengthens the present hypothesis.

Acknowledgements

Bibliography

Appendix

- detailed protocol descriptions
- proofs with more than two lines
- other low-level but important details

XXXX.....XXXX