Program Name : **Diploma in Medical Electronics**

Program Code : **MU**

Semester : **Fourth**

Course Title : **Technical Writing and Soft Skill**

Course Code : **22039**

1. RATIONALE

Technical writing and soft skills are essential for the engineering professionals to attain organizational goals and personal success. Industries prefer candidates with sound technical knowledge along with soft skills. This course aims to train students to prepare technical documents following language and technical parameters to maintain accuracy and clarity in the intended message. It focuses on inculcating the soft skills that facilitate lateral abilities to perform as a better professional. Thus, it aims to enhance the employability opportunities for the diploma engineering students. This course will develop the competency to *use soft skills and principles of technical writing to work in industry effectively.*

2. COMPETENCY

The aim of this course is to help students to attain the following industry identified competency through various teaching learning experiences.

- ***Use soft skills and principles of technical writing to work in industry effectively.***

3. COURSE OUTCOMES (COs)

The theory, practical experiences and relevant soft skills associated with this course are to be taught and implemented, so that the student demonstrates the following industry oriented COs associated with the above-mentioned competency:

a. Use soft skills in different situations effectively.
b. Draft project proposals following language and technical specifications.
c. Prepare technical documents using digital platforms.

4. TEACHING AND EXAMINATION SCHEME

Teaching Scheme			Credit (L+T+P)	Examination Scheme													
				Theory							Practical						
L	T	P		Paper Hrs.	ESE		PA		Total		ESE		PA		Total		
					Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	
--	--	2	2	--	--	--	--	--	--	--	25@	10	25~	10	50	20	

For the only practical courses, the PA has two components under practical marks i.e. the assessment of practical (seen in section 6) has a Weightage of 25marks and end semester examination has a weightage of 25 marks. This is designed to facilitate attainment of COs holistically; as there is no theory, ESE marks should be awarded on the basis of external end semester oral examination (@) based on the specification table given in S. No. 9.

Legends: *L-Lecture; T – Tutorial/Teacher Guided Theory Practice; P - Practical; C – Credit, ESE - End Semester Examination; PA - Progressive Assessment.*

5. COURSE MAP (with sample COs, PrAs, UOs, ADOs and topics)

This course map illustrates an overview of the flow and linkages of the topics at various levels of outcomes (details in subsequent sections) to be attained by the student by the end of the

course, in all domains of learning in terms of the industry/employer identified competency depicted at the centre of this map.

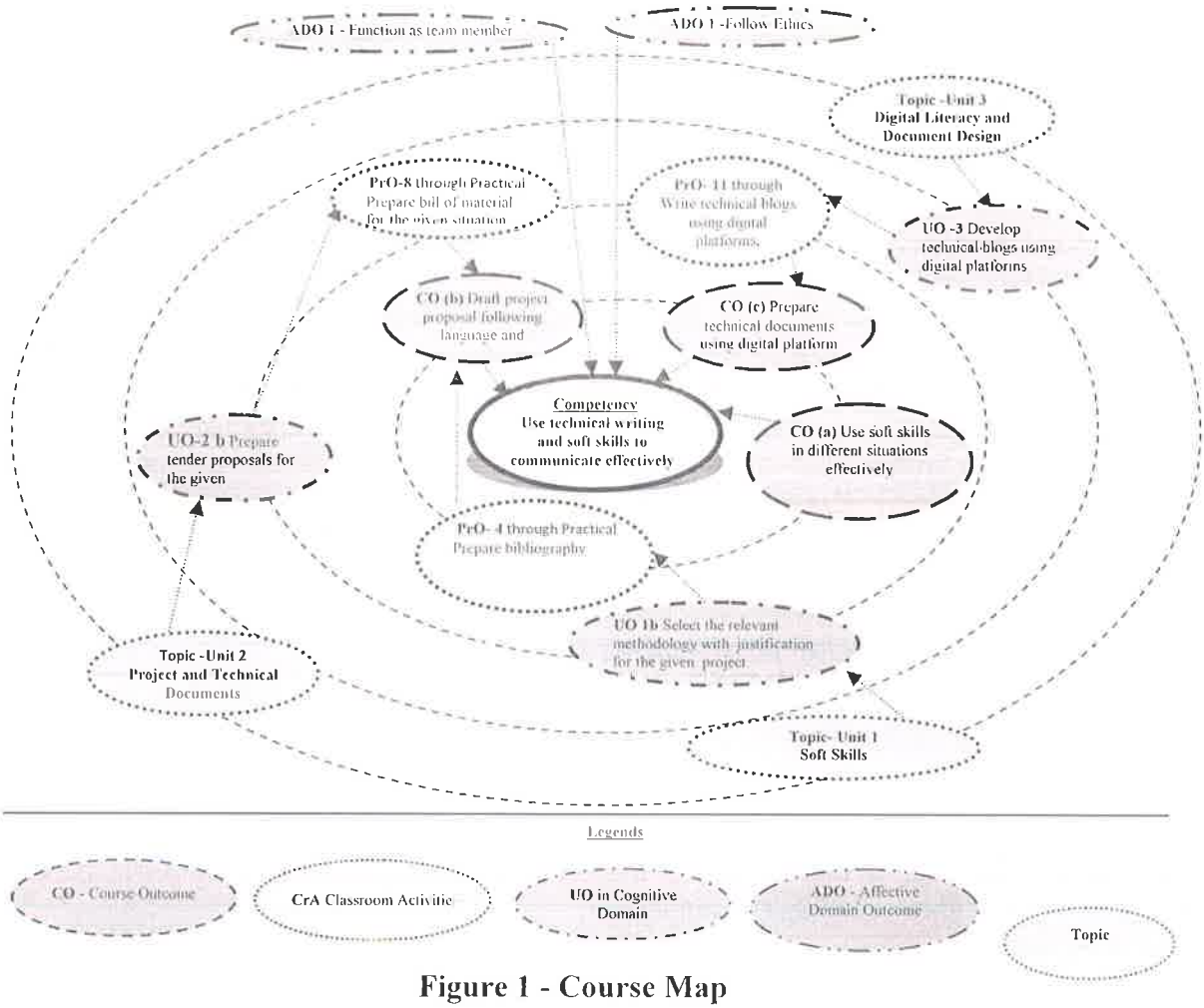

Figure 1 - Course Map

6. SUGGESTED PRACTICALS ACTIVITIES / EXERCISES (Integrate the theory in the laboratory when conducting practical)

The practical in this section are PrOs (i.e. sub-components of the COs) to be developed and assessed in the student for the attainment of the competency.

S. No.	Practical Outcomes (PrAs)	Unit No.	Approx. Hrs. required
1	Prepare the Time Matrix chart for a week.	I	2*
2	Discuss on any given topic in a group.	I	4
3	Present on a given topic using power point presentation.	I	4
4	Perform a role play to differentiate assertion and aggression	I	4*
5	Prepare synopsis of the given project.	II	2
6	Prepare bibliography and references for the given project.	II	2*
7	Compose abstract of the given project.	II	2*
8	List any 25 jargons with meaning related to your field.	II	2
9	Illustrate essential elements of Punctuation with suitable examples	II	2
10	Take notes based on the video lecture /guest lecture	III	2
11	Prepare one page questionnaire using the internet form to collect information/ data.	III	4*

S. No.	Practical Outcomes (PrAs)	Unit No.	Approx. Hrs. required
12	Prepare a 3-paragraph technical blog of your interest using open source digital platforms.	III	2*

Note: *A suggestive list of practical LOs is given in the above table, more such practical LOs can be added to attain the COs and competency. A judicial mix of minimum 06 or more practical LOs/tutorials need to be performed, out of which, the practicals marked as '*' are compulsory, so that the student reaches the 'Precision Level' of Dave's 'Psychomotor Domain Taxonomy' as generally required by the industry. The size of batch for the practical should not exceed more than 21 students strictly for the maximum attainment of COs and PrOs.*

1. *Hence, the 'Process' and 'Product' related skills associated with each LO of the laboratory/workshop/field work are to be assessed according to a suggested sample given below:*

7. MAJOR EQUIPMENT/ INSTRUMENTS REQUIRED

The major equipment with broad specification mentioned here will usher in uniformity in conduct of experiments, as well as aid to procure equipment by authorities concerned.

S. No.	Equipment Name with Broad Specifications	PrO.No.
1	LCD Projector	All
2	Smart Board with networking	All
3	Computer lab with internet	All
4	Printer	All

8. UNDERPINNING THEORY COMPONENTS

The following topics are to be taught and assessed in order to develop the sample UOs given below for achieving the COs to attain the identified competency. More UOs could be added.

Unit	Unit Outcomes (UOs) (in cognitive domain)	Topics and Sub-topics
Unit – I Soft Skills	1a. Interpret the soft skill (s) for the given case study 1b. State the importance of soft skills at workplace for the given situation 1c. Mention the examples of work etiquettes for the given situation 1d. Explain the importance of time management with the help of time matrix for the given task 1e. Interpret the principles of interpersonal skills for the given situation 1f. Explain any four leadership styles for the given situation 1g. Differentiate between aggression and assertion for the given situation	1.1 Importance of soft skills for an engineer. 1.2 Developing soft skills required at workplace: • Work Etiquettes • Time Management • Interpersonal Skills • Problem Solving and Critical Thinking • Leadership and Team Building • Assertive Skills • Group discussion and Personal Interview
Unit – II Project	2a. Apply the principles of technical writing for preparing official	2.1 Principles of technical writing: project, project proposal,

Unit	Unit Outcomes (UOs) (in cognitive domain)	Topics and Sub-topics
report Writing	documents for the given situation 2b. Elaborate the relevant methodology with justification for the given project 2c. Explain the essential elements of punctuation for the given content 2d. State the implication of plagiarism norms for the given situation 2e. Explain the scope of IPR for the given situation	project report, technical reports 2.2 Importance of vocabulary (jargons), standard syntax, punctuation, proofreading and revising the documents 2.3 Plagiarism and its implications, intellectual property rights (IPR)
Unit – III Document Design and Digital Platforms	3a. State the guidelines of note-taking for the given seminar/ expert session 3b. Differentiate between checklist-rating scales; open ended questions-structured questions for the given situation 3c. Explain the Elements of writing technical blogs for the given topic 3d. Illustrate the quality, accuracy and completeness of information for the given topic	3.1 Principles of Note taking 3.2 Types of questionnaire: checklist, rating scales, open ended and close ended questions; structured and unstructured questions 3.3 Elements of writing technical blogs using digital platforms. 3.4 Guidelines for representation of visual components : text maps, tables, graphs and diagrams 3.5 Procedures for data collection: from the print and non print sources

***Note**: To attain the COs and competency, above listed Learning Outcomes (UOs) need to be undertaken to achieve the 'Application Level' of Bloom's 'Cognitive Domain Taxonomy' Theory related topic should be covered during practical hours using multimedia.*

9. SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN

Unit No.	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
I	Soft Skills	10	03	04	08	15
II	Project report Writing	12	04	06	10	20
III	Document Design and Digital Platforms	10	03	04	08	15
Total		**32**	10	14	26	**50**

***Legends**: R=Remember, U=Understand, A=Apply and above (Bloom's Revised taxonomy)*

***Note**: This specification table provides general guidelines to assist student for their learning and to teachers to teach and assess students with respect to attainment of PrAs and UOs. The actual distribution of marks at different taxonomy levels (of R, U and A) in the question paper may vary from above table. For effective implementation of the course of English for Technical Writing and Soft Skills it is mandatory that only faculty of English should teach this course.*

10. SUGGESTED STUDENT ACTIVITIES

Other than the classroom and laboratory learning, following are the suggested student-related ***co-curricular*** activities which can be undertaken to accelerate the attainment of the various outcomes in this course:

a. Compile information in your own technical blog by referring to your target industry.
b. Create your YouTube channel for your area of technical interest.
c. Collect good technical articles from newspapers and magazines and summarize them.
d. Listen to technical reviews on YouTube channel, TV and radio.
e. Watch NPTEL, TedX videos for effective project presentations.
f. Refer to the previous years' standard project reports and formulate your notes.

11. SUGGESTED SPECIAL INSTRUCTIONAL STRATEGIES (if any)

These are sample strategies, which the teacher can use to accelerate the attainment of the various outcomes in this course:

a. Massive open online courses (***MOOCs***) may be used to teach various topics/sub topics.
b. ***'L' in item No. 4*** does not mean only the traditional lecture method, but different types of teaching methods and media that are to be employed to develop the outcomes.
c. About ***15-20% of the topics/sub-topics*** which is relatively simpler or descriptive in nature is to be given to the students for ***self-directed learning*** and assess the development of the COs through classroom presentations (see implementation guideline for details).
d. With respect to item No.10, teachers need to ensure to create opportunities and provisions for ***co-curricular activities***.

12. SUGGESTED LEARNING RESOURCES

S. No.	Title of Book	Author	Publication
1	Effective Technical Communication	M Ashraf Rizvi	Tata McGraw-Hill
2	Technical Communication: Principles and Practice	Meenakshi Raman , Sangeeta Sharma	Tata McGraw-Hill
3	Technical Communication in the Age of Internet	Maris Roze Simon Maxwell	Pearson
4	Speaking and Writing for Effective Business Communication	Francis Soundaraja	Macmillan
5	Soft skills for Everyone	Jeff Butterfield	Cengage Learning
6	Soft Skills and Employability Skills	Sabina Pillai Agna Fernandez	Cambridge
7	English for Technical Communication	N.P. Sudarshana C. Savitha	Cambridge
8	Managing Soft Skills	K.R.Lakshminarayan, T.Murugavel	Scitech

13. SOFTWARE/LEARNING WEBSITES

https://www.plagscan.com/en/
https://www.cs.york.ac.uk/projects/howtowrt.html
http://delnet.nic.in/

https://www.latex-project.org/
https://www.engineeringcivil.com/how-to-write-a-project-report.html
https://www.lucidchart.com/pages/process-documentation
https://nptel.ac.in/courses/112102107/
https://www.mindtools.com › Problem Solving ›
www.businessdictionary.com/definition/leadership.html
https://www.edwddebono.com/lateral-thinking