

T ED140 : Fundamentals of Technical Documentation and Communication

General Information

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| Author: | <ul style="list-style-type: none">Christopher Herwerth |
| Course Code (CB01) : | T ED140 |
| Course Title (CB02) : | Fundamentals of Technical Documentation and Communication |
| Department: | Technical Education |
| Proposal Start: | Fall 2022 |
| TOP Code (CB03) : | (0956.00) Manufacturing and Industrial Technology |
| CIP Code: | (15.0613) Manufacturing Engineering Technology/Technician. |
| SAM Code (CB09) : | Clearly Occupational |
| Distance Education Approved: | No |
| Will this course be taught asynchronously?: | No |
| Course Control Number (CB00) : | CCC000604052 |
| Curriculum Committee Approval Date: | Pending |
| Board of Trustees Approval Date: | Pending |
| Last Cyclical Review Date: | 09/01/2020 |
| Course Description and Course Note: | T ED 140 introduces the principles and practices of writing a range of technical documents for use in the engineering and industrial technology industries. Examples include emails, technical evaluations and reports, and academic and scientific papers used in engineering, and industrial technology fields. Students engage the use of graphical information such as tables and charts as well as technical resumes, letters, and instruction and operation manuals. Student writing includes online technical documentation such as web-page, computer aided design information management, and professional technical social media and project management tools. |
| Justification: | New Course |
| Academic Career: | <ul style="list-style-type: none">Credit |
| Mode of Delivery: | No value |
| Author: | No value |
| Course Family: | No value |

Academic Senate Discipline

| | |
|-----------------------|---|
| Primary Discipline: | <ul style="list-style-type: none">Industrial Technology (Foundry occupations) |
| Alternate Discipline: | No value |
| Alternate Discipline: | No value |

Course Development

Basic Skill Status (CB08)

Course is not a basic skills course.

Allow Students to Gain Credit by Exam/Challenge

Course Special Class Status (CB13)

Course is not a special class.

Pre-Collegiate Level (CB21)

Not applicable.

Grading Basis

- Grade Only

Course Support Course Status (CB26)

Course is not a support course

General Education and C-ID

General Education Status (CB25)

Not Applicable

Transferability

Transferable to CSU only

Transferability Status

Approved

Units and Hours

Summary

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|--|-----|
| Minimum Credit Units (CB07) | 3 |
| Maximum Credit Units (CB06) | 3 |
| Total Course In-Class (Contact) Hours | 54 |
| Total Course Out-of-Class Hours | 108 |
| Total Student Learning Hours | 162 |

Credit / Non-Credit Options

Course Type (CB04)

Credit - Degree Applicable

Noncredit Course Category (CB22)

Credit Course.

Noncredit Special Characteristics

No Value

Course Classification Code (CB11)

Credit Course.

Variable Credit Course

Funding Agency Category (CB23)

Not Applicable.

Cooperative Work Experience Education

Status (CB10)

Weekly Student Hours

| | In Class | Out of Class |
|------------------|----------|--------------|
| Lecture Hours | 3 | 6 |
| Laboratory Hours | 0 | 0 |
| Studio Hours | 0 | 0 |

Course Student Hours

| | |
|--|----|
| Course Duration (Weeks) | 18 |
| Hours per unit divisor | 54 |
| Course In-Class (Contact) Hours | |
| Lecture | 54 |

| | |
|--------------|----|
| Laboratory | 0 |
| Studio | 0 |
| Total | 54 |

Course Out-of-Class Hours

| | |
|--------------|-----|
| Lecture | 108 |
| Laboratory | 0 |
| Studio | 0 |
| Total | 108 |

Time Commitment Notes for Students

No value

Units and Hours - Weekly Specialty Hours

| Activity Name | Type | In Class | Out of Class |
|---------------|----------|----------|--------------|
| No Value | No Value | No Value | No Value |

Pre-requisites, Co-requisites, Anti-requisites and Advisories

Advisory

ESL141 - Grammar And Writing IV

Objectives

- Compose a 400 to 450-word thesis-based essay which: (a) summarizes and cites appropriately a reading passage provided as a prompt, (b) includes a clear thesis statement, (c) uses evidence to support the thesis, (d) shows clear organization into an introduction, body, and conclusion, and (e) uses appropriate rhetorical modes such as comparison/contrast, cause/effect, and persuasion in order to support a thesis.

OR

Advisory

ENGL100 - *Writing Workshop

Entry Standards

| Entry Standards | Description |
|---|-------------|
| read, analyze, and evaluate contemporary articles and stories for main ideas, (topic- | ENGL 100 |

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|---|----------|
| based) evidence, and comprehension of difficult content | |
| read, analyze, and evaluate contemporary articles and stories to identify topic, thesis, support, transitions, conclusion, audience, and tone; | ENGL 100 |
| write compositions (e.g., summaries and argumentative essays) that are easy to read and follow, though some errors in grammar, mechanics, spelling, or diction may exist; | ENGL 100 |
| proofread and edit essays for content, language, citation, and formatting problems. | ENGL 100 |
| comprehend multi-paragraph reading passages in textbooks. | ESL 141 |

| Course Limitations | |
|-----------------------------------|-------------|
| Cross Listed or Equivalent Course | Description |
| No value | No value |

| Specifications | |
|-------------------------------|------------------------|
| Methods of Instruction | |
| Methods of Instruction | Lecture |
| Methods of Instruction | Discussion |
| Methods of Instruction | Multimedia |
| Methods of Instruction | Collaborative Learning |

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|--|---|--------------------|-------------|------------------|
| Methods of Instruction | Demonstrations | | | |
| Methods of Instruction | Presentations | | | |
| Out of Class Assignments | | | | |
| writing assignments (e.g. write a technical memo, technical description or instruction manual) projects (e.g. using library resources, research a technical topic and write a project report) | | | | |
| Methods of Evaluation | Rationale | | | |
| Exam/Quiz/Test | Quizzes | | | |
| Presentation (group or individual) | Presentation (e.g. presentation of the environmental impact of a large wind turbine) | | | |
| Exam/Quiz/Test | Final Writing Project (e.g. technical academic paper on autonomous underwater vehicles) | | | |
| Textbook Rationale | | | | |
| No Value | | | | |
| Textbooks | | | | |
| Author | Title | Publisher | Date | ISBN |
| Mike Markel | Technical Communication | Macmillan Learning | 2018 | 10:1-319-05861-2 |
| Other Instructional Materials (i.e. OER, handouts) | | | | |
| No Value | | | | |
| Materials Fee | | | | |
| No value | | | | |

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| Learning Outcomes and Objectives |
| Course Objectives |
| Summarize the main ideas of a peer reviewed engineering, technical or scientific paper; |
| write a short technical memo the communicates engineering or scientific information in an unambiguous manner; |

demonstrate technical communication skills by presenting on an engineering topic;

create graphical material that clearly shows relationships of physical phenomena;

write an executive summary or abstract on a complicated technical issue;

describe an environmental impact of an engineering design or process.

SLOs

Practice technical report writing standards for a variety of modes of communication such as preliminary design review presentation, technical memos and engineering data sheets Expected Outcome Performance: 70.0

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|-------------|--|
| <i>ILOs</i> | Communicate clearly, ethically, and creatively; listen actively and engage respectfully with others; consider situational, cultural, and personal contexts |
| Core | within or across multiple modes of communication. |
| <i>ILOs</i> | |

Create clear and concise technical reports and presentations Expected Outcome Performance: 70.0

| | |
|-------------|--|
| <i>ILOs</i> | Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas. |
| Core | |
| <i>ILOs</i> | Communicate clearly, ethically, and creatively; listen actively and engage respectfully with others; consider situational, cultural, and personal contexts within or across multiple modes of communication. |

Synthesize technical information from engineering or scientific reports Expected Outcome Performance: 70.0

| | |
|-------------|--|
| <i>ILOs</i> | Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas. |
| Core | |
| <i>ILOs</i> | |

Course Content

Lecture Content

Introduction to Technical Writing (3 hours)

- Styles and types of technical writing
- Readers of technical reports Importance of technical writer in the engineering workplace
- Characteristics of a good writing and reporting

Gathering Information (3 hours)

- Reference works
- Periodicals
- Professional journals
- Government publications
- Military and civilian standards
- Industrial standards

Technical Instruction (3 hours)

- Technical description
- Technical definition

- Robust design
- Clarity and ambiguity issues
- Specifications

Organizing Information (3 hours)

- Topical arrangement
- Formal outlines Informal outlines
- Editing and drafts

Industry Standards and Writing Styles (3 hours)

- Discipline specific words and jargon
- Society for Technical Communication (STC)
- Institute of Electrical and Electronics Engineers (IEEE)
- American Society of Mechanical Engineers (ASME)
- American Society of Civil Engineers (ASCE)
- APA, MLA and journal specific styles

Graphical Communication (6 hours)

- Informal tables
- Formal tables
- Graphs
- Bar forms
- Drawings and diagrams
- Photographs
- Military and civilian standards
- Flow charts

Correspondence (3 hours)

- Email
- Letters of inquiry
- Request for information
- Request for proposal
- Technical memos
- Purchasing specifications
- Engineering change orders
- Documentation

Scheduling (3 hours)

- Gantt Charts
- Critical pathways
- Bottlenecks
- Progress reports
- Project planning documents

Research Reports (3 hours)

- Laboratory journals
- Literature
- Materials
- Methods
- Results
- Summaries and conclusions
- Abstracts
- Patents

Feasibility Reports (3 hours)

- Factual summary
- Reporting outcome
- Military standard report methods
- Conclusions

Security (3 hours)

- Information security
- Proprietary information
- Non disclosure agreements
- Data breaches and hacking
- Security clearances and secrecy

Online Writing Environment (3 hours)

- Websites and technical blogs
- Professional social media
- Intranet report sharing software
- Video for technical communication

Manuals and Technical Instructions (6 hours)

- Operation manuals
- Repair manuals
- Service and maintenance
- Training handbooks
- Field manuals
- Policy and procedure manuals
- Data sheets

Writing for Employment in Engineering and Technology (6 hours)

- Traditional print resumes
- Electronic technical resumes
- Professional technical networking media

Academic Writing for Technical Reports and Publications (3 hours)

- Technical abstract
- Cover page
- Title pages
- Tables of content
- Lists of illustration, tables, figures
- Notes, footnotes
- Reference lists
- Copyright
- Pagination

Total Lecture Hours 54