Course Syllabus

SJQU-QR-JW-033（A0）

【Engineering Drawing】

1. **Basic Information**

Course Number：【】

Credit**：**【4】

Applicable Subject：【Mechanical Engineering】

Course Nature:【Department Core Course】

College: Mechanical and Electronic Engineering

**Textbook References:**

1. Lin HU, *Engineering Drawing (Chinese-English Bilingual Edition)*, China Machine Press, 2005.9.
2. Junyou Zhao, Engineering Graphics, China University of Petroleum Press, 2014.9.
3. Colin H. Simmons/Dennis E. Maguire. Manuai of Engineering Drawing. (Second edition). Elsevier Newnes. Linacre House, Jordan Hill，Oxfrod OX2 8DP 200 Wheeler Road，Burlington MA 08103. 2004

**Pre-requisite：**None

1. **Course Description**

【Engineering drawing】is an important professional compulsory course for the students of Mechanical Design, Manufacturing and Automation. It is of strong theoretical and practical significance. It has a wide range of applications in engineering technology. Engineering drawing is an application oriented course that introduces the preparation, representation and reading of engineering drawings. Engineering drawing, similar to characters and numbers, is one of the indispensable tools used by human for technical communication and is an important technical document in industry for design, manufacture, operation, and maintenance, so it is called as “a common technical language for engineers”. This course teaches students the related national standards in *Mechanical Drawing* and *Technical Drawing* as well as the basic engineering knowledge, basic theories of drawing preparation, regulations, up-to-date drawing technologies, etc.

This course is with emphases on precise understanding and apprehension of the basic theories, procedures and skills of drawing, for students to communicate effectively with their working partners in the future. It also emphasizes on comprehension and application of various representation modes and drawing technologies, for students to have an all-round and integrated grasp of the relationship between technology and standard in design. The difficulty of the course lies in the cultivation of spatial imagination and spatial logical thinking. A student lack of practical experience and education in manufacturing has to make great effort to learn, understand and use the introduced theories and methods.

1. **Course selection advice**

Engineering drawing is an examination course for undergraduate students in all Mechanical Design, Manufacturing and Automation. Students are required to ensure that they practice time on the machine and carefully complete the assignments assigned by the teacher.

1. **Course Content**

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| --- | --- |
| **Unit** | **Contents of Knowledge** |
| 1.Introduction / Foundations of Engineering Drawing | * status, properties and tasks of the course
* study methods
* the rules of technical drawings and mechanical
* Common geometric drawing methods;
* Dimension analysis and drawing steps of plane graphs;
 |
| 2. Basic orthographic projection | * Principles of orthographic projection
* Projection of points、lines and planes
 |
| 3.Solids and their intersections | * Projection of solids
* Cutting of solids
* Intersection of solids
 |
| 4.Composite solid | * Analysis of Composite Solids
* Drawing views of composite solids
* Reading views of composite solids
* Dimensioning composite solids
 |
| 5.General principles of representation  | * General representation
* Sections and cuts
* Simplified and conventional representation
 |
| 6.Detail drawings  | * Standard parts and commonly used parts
* Limits and fits, surface roughness
* Technical requirements and reading simple detail drawings
 |
| 7.Assembly Drawings  | * Contents of Assembly Drawings
* Representation Methods of Assembly Drawings
* Rationality of Fitting Structures
* Interpreting Assembly Drawings
 |
| 8.AutoCAD Drawing  | * Brief Introduction to AutoCAD
* Basic operation of AutoCAD
* Graphic unit and boundary settings
* Common drawing commands
* Common editing commands
* Accurate drawing commands
* Graphic display control
* Drawing graphic drawing examples
* Word processing
* Color, line type and layer
* Draw three views
* Draw other views
* Draw cross-sectional views
* Dimensions
* Tile
* Attributes
* Dimensional tolerance and shape tolerance
* Drawing part drawing
* Drawing
 |

5. **Course teaching progress**

|  |  |  |  |
| --- | --- | --- | --- |
| Week | Teaching content | Teaching methods | Homework |
| 1 | * status, properties and tasks of the course
* study methods
* the rules of technical drawings and mechanical
* Common geometric drawing methods;
* Dimension analysis and drawing steps of plane graphs;
 | Teaching method | None  |
| 2 | * Principles of orthographic projection
* Three views of the object
* Projection of points、lines and planes
 | Case teaching method | exercise book |
| 3 | * Projection of solids
* Cutting of solids
 | Case teaching method | exercise book Supplementary exercises |
| 4 | * Intersection of solids
* Analysis of Composite Solids
 | Case teaching method | exercise book Supplementary exercises |
| 5 | * Drawing views of composite solids
* Reading views of composite solids
* Dimensioning composite solids
 | Case teaching method Demonstration method | exercise book Supplementary exercises |
| 6 | * General representation
* Sections and cuts
* Simplified and conventional representation
 | Case teaching method Demonstration method | exercise book Supplementary exercises |
| 7 | * Standard parts and commonly used parts
* Limits and fits, surface roughness
 | Case teaching method Demonstration method | exercise book Supplementary exercises |
| 8 | * Technical requirements and reading simple detail drawings
 | Case teaching method Demonstration method | exercise book Supplementary exercises |
| 9 | * Contents of Assembly Drawings
* Representation Methods of Assembly Drawings
 | Case teaching method Demonstration method | exercise book Supplementary exercises |
| 10 | * Rationality of Fitting Structures
* Interpreting Assembly Drawings
 | Case teaching method Demonstration method | exercise book Supplementary exercises |
| 11 | * Brief Introduction to AutoCAD
* Basic operation of AutoCAD
* Graphic unit and boundary settings
 | Case teaching method Demonstration method | None  |
| 12 | * Common drawing commands
* Common editing commands
 | Case teaching method Demonstration method | None  |
| 13 | * Accurate drawing commands
* Graphic display control
 | Case teaching method Demonstration method | None  |
| 14 | * Drawing graphic drawing examples
* Word processing
* Color, line type and layer
 | Case teaching method Demonstration method | Supplementary exercises  |
| 15 | * Draw three views
* Draw other views
* Draw cross-sectional views
* Dimensions
 | Case teaching method Demonstration method | exercise book Supplementary exercises |
| 16 | * Tile
* Attributes
* Dimensional tolerance and shape tolerance
* Drawing part drawing
* Drawing
 | Case teaching method Demonstration method | exercise bookSupplementary exercises |

**6 . Assessment**

|  |  |  |
| --- | --- | --- |
| Marks（1+X） | Assessment | Weightage |
| 1 | Exam (closed-book,120 minutes) | 50% |
| X1 | 6 Usual homework | 30% |
| X2 | 2 Classroom tests | 20% |

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