**Minoufiya University,**

**Faculty of Engineering,**

**Post Graduate Studies and Research.**

Menoufiya University

Faculty of Engineering

***COURSE SPECIFICATION***

***Course Title:*** ***Forming technology***

***Course Code:*** ***PRE 507***

***Department Offering the Course:*** **Production Engineering & Mechanical Design**

***Last Date of Approval:*** **2012**

***B- PROFESSIONAL INFORMATION:***

***A- COURSE IDENTIFICATION AND INFORMATION:***

**B.1.*Description as in Post Graduate Studies Bulletin:***

Classification of forming processes- Basics of plastic forming- Temperature effects-Metallurgical variations-

formability-Rolling- Rod and wire drawing - Sheet forming - Forging

**B.2.*Course Objectives:***

The objective of this course is to build the capacities of the students to conduct quantitative research

through application of statistics to test the validity of a hypothesis. Targets includes, but not limited

to:

1. Demonstration of the knowledge and understanding the basic conceptes of forming technology.

2. Definition of the requirements of metal forming technology.

3. Realizing the difference between different forming processes.

4. Analysis of different techniques for manufacuring different products based on material and

process selection criteria.

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| Field | Programme ILOs that the coursecontribute in achieving | Course ILOs |
| Knowledge&Understanding | a1. Integrate theories, fundamentals andknowledge of mathematics, science andinformation technology in productionengineering practice. | a1.1. Define the basic concepts offorming technology and theirapplications in production |
| a4. Understand the moral and legalprinciples of professional practice inproduction engineering | a4.1. Identify and analyze thedifferent trouble causes to take therequired corrective action. |
| Intellectualskills | b1. Identify and analyze problems in thearea of production engineeringspecialization and rank the resultsaccording to their priorities. | b.1.1. Design and Create the mostsuitable manufacturing flow chart toselect the suitable design of a productbased on different criteria of thematerial and the forming process forsolving engineering problems .. |
| b5. Make career decisions in the light ofavailable production engineeringinformation. | b.5.1. Create criteria suitable forselecting the best material, processand product design and redesignthroughout chart of the finalproduct. |
| Professionalskills | c1. Apply the professional productionengineering technologies in the field ofspecialization. | c.1.1. use the professional productionengineering technologies related toengineering material and formingprocesses using design and feedbackof the design to improve products. |
| c2. Write professional productionengineering reports. | c.2.1. Write       and       evaluateprofessional reports aboutproduction engineering. |
| General skills | d4. Use of different sources forinformation knowledge | d.4.1. Share the students to usedifferent sources for informationknowledge |

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| Field | National Academic Reference Standard(NARS) |
| Knowledge &Understanding | IntellectualSkills | ProfessionalSkills | General Skills |
| Programme AcademicStandards that the coursecontribute in achieving | a1, a4 | b1, b5 | c1,c2 | d4,d7 |



5. Analysis of different techniques for modeling the forming processes.

6. Work with mechanical design and manufacturing systems

***B.3. Relationship between the course and the programe***

**B.4.*Intended Learning Outcomes (ILOs)***

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| **Week****No.** | **Contents** | **ILOs covered by this topic** |
| 1 | Classification of forming processes. | b1.1, b5.1, c1.1,c2.1, d4.1 |
| 2 | Plastic forming and temperature effects | a1.1, b1.1, b5.1, c1.1,c2.1 |
| 3 | Plastic forming and temperature effects | a1.1, b5.1, c1.1,c2.1,d4.1,d7.1 |
| 4 | Plastic forming and temperature effects | a1.1, a4.1, b1.1, b5.1,c1.1,c2.1, d7.1 |
| 5 | Metallurgical variations and formability | a1.1, a4.1, b1.1, b5.1, c1.1,d4.1,d7.1 |
| 6 | Metallurgical variations and formability | a1.1, a4.1, b1.1, b5.1, c1.1,d4.1,d7.1 |
| 7 | Metallurgical variations and formability | a1.1, , b5.1, c1.1,c2.1,d4.1,d7.1 |
| 8 | Bulk forming of metals |  |
| 9 | Metallurgical variations and formability | a1.1, a4.1, b1.1, b5.1, c2.1,d4.1,d7.1 |
| 10 | Rolling and drawing of rod and wire | a4.1, b1.1, b5.1, c1.1,d7.1 |
| 11 | Rolling and drawing of rod and wire. | a1.1, a4.1, b1.1, b5.1, c1.1 |
| 12 | Rolling and drawing of rod and wire | a1.1, a4.1, b1.1, b5.1, d7.1 |
| 13 | Sheet forming-forging | a1.1, b1.1, b5.1, c1.1,c2.1,d4.1,d7.1 |
| 14 | Sheet forming-forging | a1.1, a4.1, c1.1,c2.1,d4.1,d7.1 |
| 15 | Sheet forming-forging. | a4.1, b1.1, b5.1, d4.1,d7.1 |

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| Field | Programme ILOs that the coursecontribute in achieving | Course ILOs |
|  | d7. Self- learning continuously. | d.7.1. Improve the ability of thestudents to Self- learningcontinuously |



**B.5.*Syllabus to be Covered:***

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| **No.** | **Assessment methods** | **To Assess Course****ILOs Item No.** | **To Assess (ARSEP) Outcomes****No.** |
| 1 | Written exam | a1, a4, b1, b5, c1,c2**,**d4,d7 | a1, a4, b1, b5, c1,c2**,** d4,d7 |

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| **No.** | **Teaching and Learning****Methods** | **To Assess Course****ILOs Item No.** | **To Assess (ARSEP) Outcomes****No.** |
| 1 | Assignments andExercises | a1, a4, b1, b5, c1,c2**,**d4,d7 | a1, a4, b1, b5, c1,c2**,** d4,d7 |

**B. 7.*Assessments:***

**B. 6.*Teaching and Learning Methods:***

***Weighting of assessments:***

***Student assessment methods:***

**B.8.*List of References:***

***Essential books (text books):***

-W.F.Hasford,R.M.Caddeell,Metal Forming,Mechanics,Metallurgy.2nd ed.prenhi Hall.

-S. Kalpakjian and S.R. Schmid, "Manufacturing Engineering and technology" 4th Edition

Pearson Education Inc., 2010.

***Periodicals, Web sites, Course notes, etc:***

**B. 9.*Facilities Required for Teaching and Learning:***

Indicate requirements for the course including size of classrooms and laboratories (i.e.; classrooms

and laboratories, extent of computer access, etc.).

1. Computers with MS Office (Excel) and SPSS or any other statistical package for social

statistics.

2. A lecture room with LCD or show

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**Course coordinator**

Prof. Dr. Ahmed El- Sissy

**Head of Dept.**

Prof. Taha El-Taweel

**Date--** 5 Feb. 2012