



UNIVERSITY OF MISKOLC

**FACULTY OF
EARTH AND ENVIRONMENTAL
SCIENCE AND ENGINEERING**

Subject name: Recycling of Plastic and Paper Wastes

**FACULTY OF EARTH AND ENVIRONMENTAL SCIENCES & ENGINEERING
MSc education**

Course communication dossier

**UNIVERSITY OF MISKOLC
FACULTY OF EARTH AND ENVIRONMENTAL SCIENCES & ENGINEERING
Institute of Raw Materials Preparation and Environmental Technology**

Recommended semester: 3.

Contents

1. Course description (Content, Lecturer, Number of classes, Credits)
2. Course schedule (Weekly content)
3. Other requirements

1. COURSE DESCRIPTION

Course Title: Recycling of Plastic and Paper Wates		Credits: 3
Type of course: compulsory	Neptun code: MFEET730019	
Type (lec. / sem. / lab. / consult.) and Number of Contact Hours per Week: 1 lec + 1 sem		
<p>Type of Assessment (exam. / pr. mark. / other): pr. mark</p> <p>Participation on the project courses and preparation of an advancement documentation based on the topic discussed.</p> <p>Assessment: based on the advancement doc..</p> <p>Assesment according to a five grade scale:</p> <ol style="list-style-type: none"> 1. Structure and clearness of the work. (max. 10 points) 2. Aims and goals are clear: (max. 10 points) 3. Literature study: (max. 15 points) 4. Methodology: (max. 15 points) 5. Results and discussion: (max. 25 points) 6. Rate of independent work: (max 25 points) <p>Assessment: 88 – 100: excellent (5), 75 – 87: good (4), 63 – 74: intermediate (3), 51 – 62: acceptable (2), ≤50: unacceptable (1).</p>		
Position in Curriculum (which semester): 3rd		
Pre-requisites (<i>if any</i>): -		
Course Description:		
<p>Aim of the course:</p> <p>The aim of the subject for students is to learn knowledge about paper and plastics as material, their properties and their production methods and technologies, and their utilisation as secondary raw material. Also, to learn paper and plastic appearance in different waste streams, and their recycling goth technologies and unit operation level.</p> <p>Paper and plastic production. Properties of plastics, their production and utilisation. Waste streams and major apparence of paper and plastic in these waste streams, quality and quantity. Properties of paper and plastics focusing the properties relevant to their recycling and separation. Technical solution of paper recycling. technical solution of plastic recycling, equipment and unit operation in paper and plastic recycling, energetic and as secondary raw material utilisation of plastics and paper.</p>		
The 3-5 most important compulsory, or recommended literature (textbook, book) resources:		
<ul style="list-style-type: none"> • EU BREF - Production of Pulp, Paper and Board • EU BREF - Production of Polymers • Ernst Worrell And Markus A. Reuter Handbook Of Recycling State-Of-The-Art For Practitioners, Analysts, And Scientists ISBN: 978-0-12-396459-5 • Brent Strong Plastics materials and processing, 2006 ISBN 0-13-114558-4 • Donald E. Hudgin (Manas Chanda, Salil K. Roy ed) PLastic Technology Handbook 2006, ISBN 978-0-8493-7039-7 		
<ul style="list-style-type: none"> • Competencies to evolve: • T4 - The environmental engineer knows the operation, and the equipments of environmental protection facilities (water, and waste water treatment plants, hazardous, and non-hazardous landfill, waste incineration plant), and the ability of their innovation. • K1 – The environmental engineer is able to apply the acquired general, specific rules, contexts, processes, and principles of mathematical-, natural-, and social sciences. 		

- Active professional English language skills.

Responsible Instructor (*name, position, scientific degree*):

Imre Gombkötő, PhD

Other Faculty Member(s) Involved in Teaching, if any (*name, position, scientific degree*):

2. COURSE TOPICS

Recycling of Plastic and Paper Wates Course topics (WEEKLY SCHEDULE)

Actual semester: Autumn semester

Environmental Engineering MSc, 3rd semester, Specialization

Week	Topics of Lectures
1	Paper and plastic production
2	Properties of plastics, their production and utilisation
3	Waste streams and major appearance of paper and plastic in these waste streams, quality and quantity
4	Properties of paper and plastics focusing the properties relevant to their recycling and separation
5	Laboratory excersize on relevant mills and separators for paper processing
6	Laboratory excersize on relevant mills and separators for plastic processing
7	Technical solution of paper recycling
8	technical solution of plastic recycling
9	equipment and unit operation in paper recycling
10	equipment and unit operation in plastic recycling
11	energetic and as secondary raw material utilisation of plastics and paper
12	Project work
13	Project work
14	Presentation of project work

3. OTHER REQUIREMENTS

Independent study of the topic, submitted as a paper (advancement.doc) in the penultimate class of the semester. The paper is graded on a five-point scale.

Miskolc, 11 April 2023

Dr. Sándor Nagy Head of Institute, Associate Professor	Imre Gombkötő. PhD Senior research fellow
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