Biodegradable-plastic sebagai Eco-friendly Support Sistem

Dr. Rini Umiyati, S. Hut., M. Si.
Fakultas Teknik dan Informatika
Universitas PGRI Semarang

Background

359 million tonnes of plastic was produced worldwide

Incineration of plastic waste in an open field is a major source of air pollution

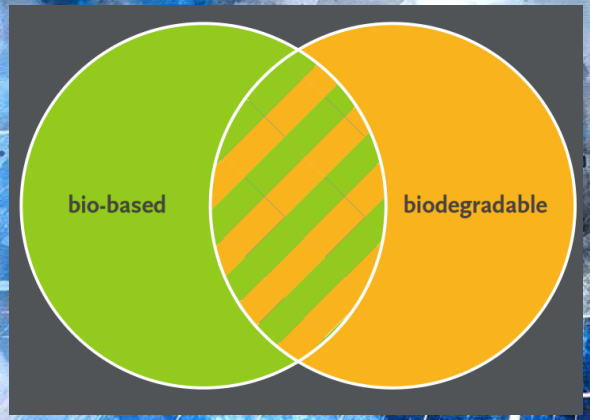
A variety of regulatory and legislative tools exists about plastic, have had a limited impact

Plastic Pollution Facts

(IPOL, 2020)

- Daily, **8 million pieces of plastic reach the oceans.**
- Yearly, this translates into between **4.8 and 12.7 million** tonnes.
- It is the equivalent of a garbage truck full of plastic dumped into the ocean every **minute**
- Of the total amount of plastics sent to landfills, 79% is transported to the oceans, **less than 10% is recycled and 12%** is incinerated.
- **25 trillion macro- and 51 trillion microplastics litter the** oceans.
- Of these, **269,000 tonnes float on the surface.**
- This equates to **1345 blue whales and 500 times the number of stars in the Milky Way.**
- Plastic has been found throughout the Globe, including in remote and isolated locations
- Plastic in expected to increase 10 fold in the next 5 years

Definition



Bio-plastic
(European Bioplastics, 2021)

Bio-based Plastic
(PE, PP, PET, PA, etc)

Bio-based and Biodegradable Plastic
(PLA, PHA, PHBS, starch blends, etc)

Biodegradable Plastic
(Polybutylene Adipate Terephthalate/PBAT)

Factors Encouraging The Adoption of Bio-plastics

Rapidly Rising Societal Awareness of The Environmental Impact of Plastic Wastes

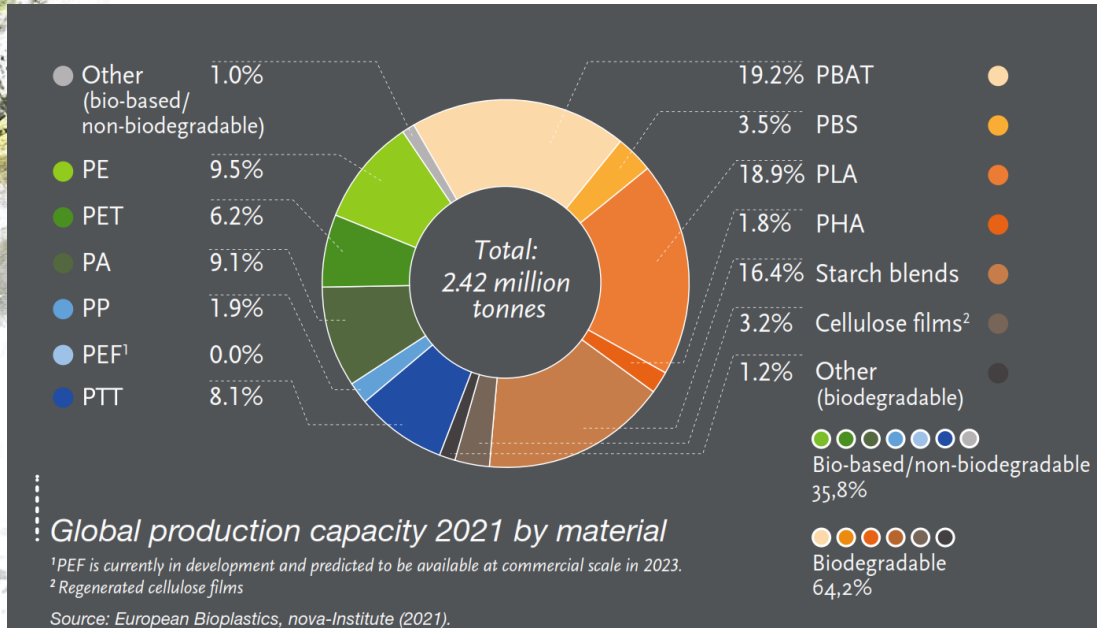
Corporate Social Responsibility (CSR) Commitment to Initiatives Actively Supporting Sustainable Development and Reducing Carbon Footprint

Trends in Plastics Packaging raw material and crude oil prices

Regulatory/Environmental Trends

Bio-plastic Global Production Capacity

(European Bioplastics, 2021)

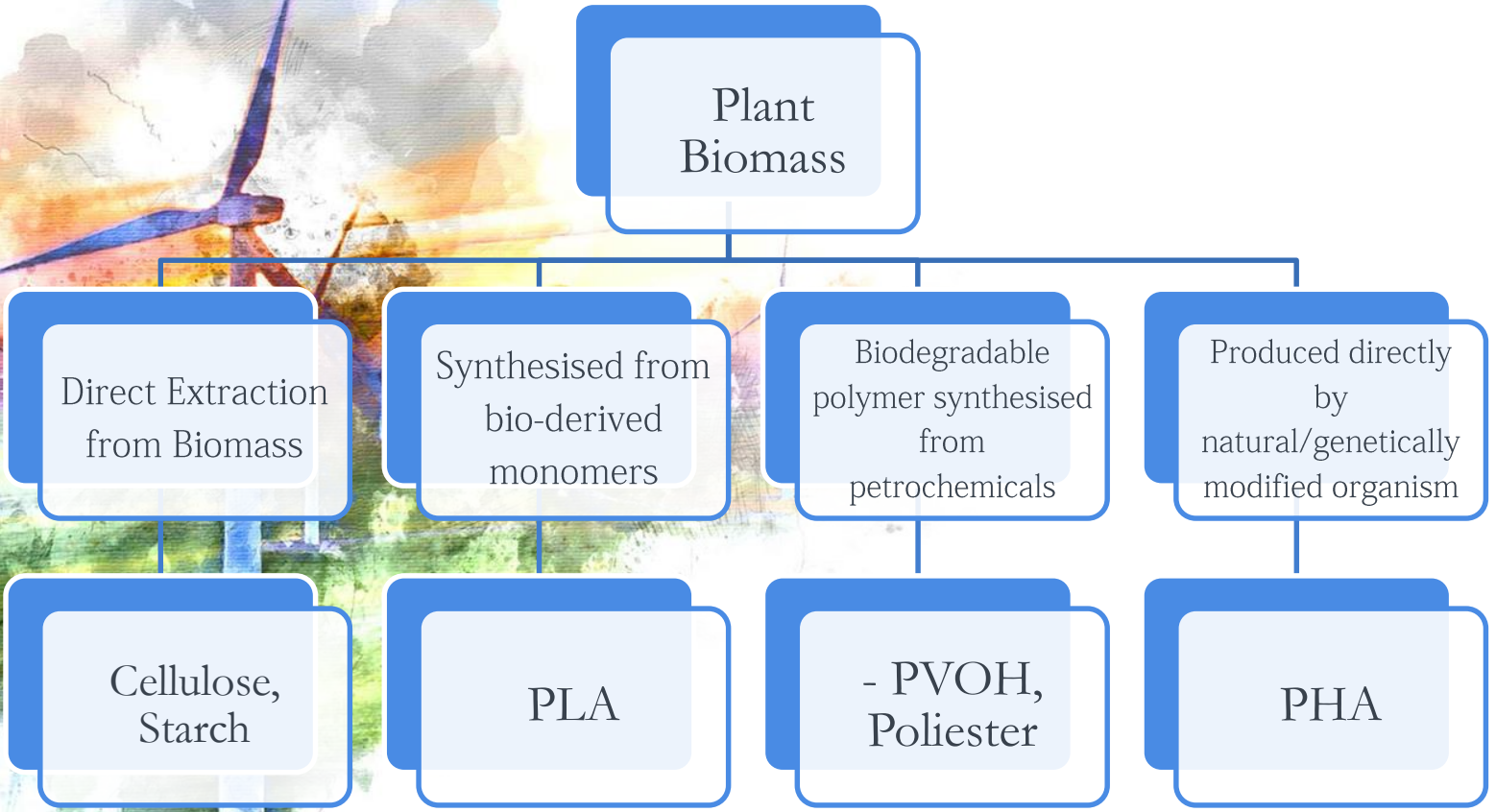


Bio-plastic Benefit and Innovative Properties

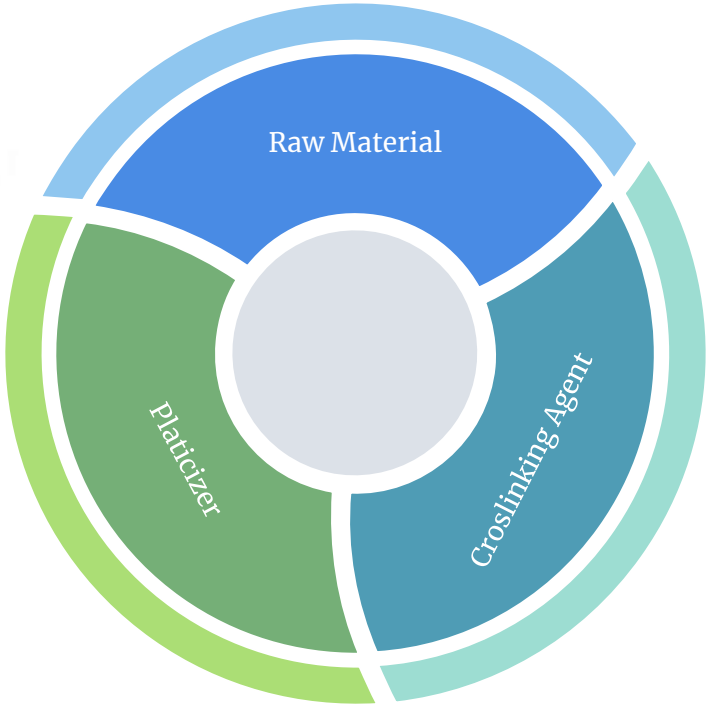
- Reduce Carbon Footprint
- Increase Resource Efficiency
- Innovative Material for Better Performance
- Eco-safety

Bio-plastics Processing Route Dependent on Plant Biomass

(Jia, 2020)



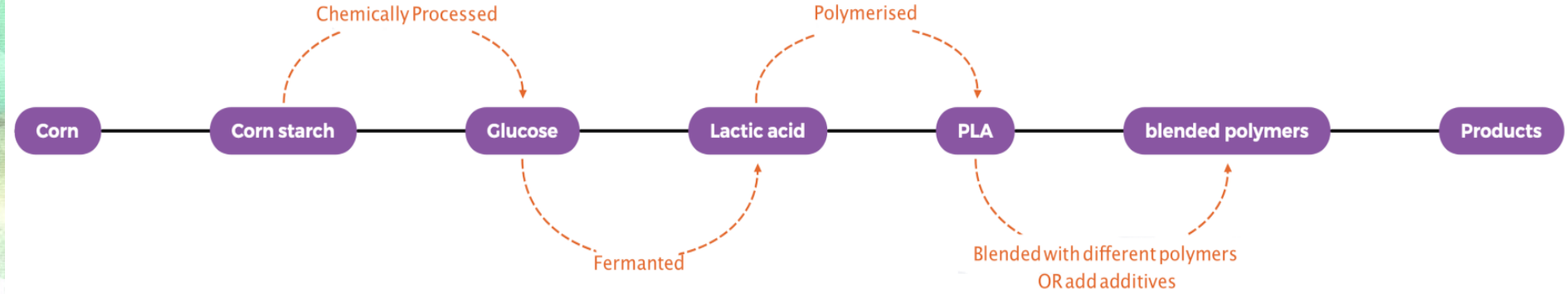
Biodegradable Plastik Material



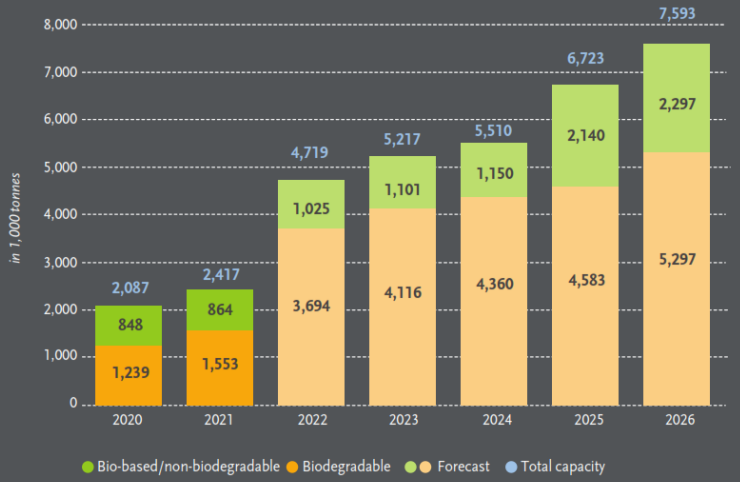
Bio-plastic Process Method

- Dry Method
- Wet Method

Biodegradable-plastic Supply Chain

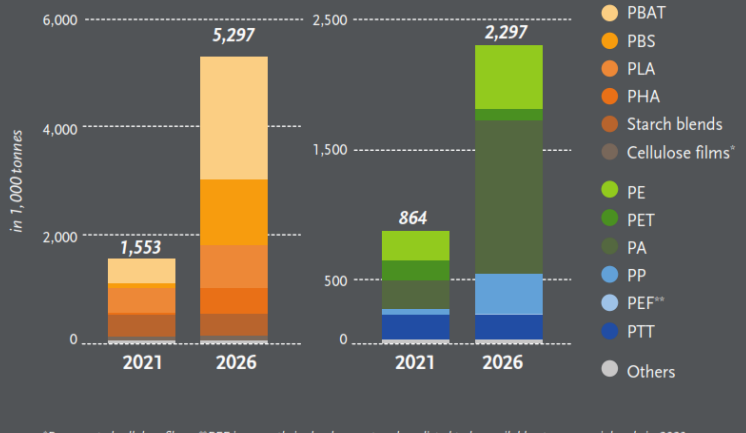


Market-Dynamic Growth and Development



Global production capacity of bioplastics (2021)

Source: European Bioplastics, nova-Institute (2021).

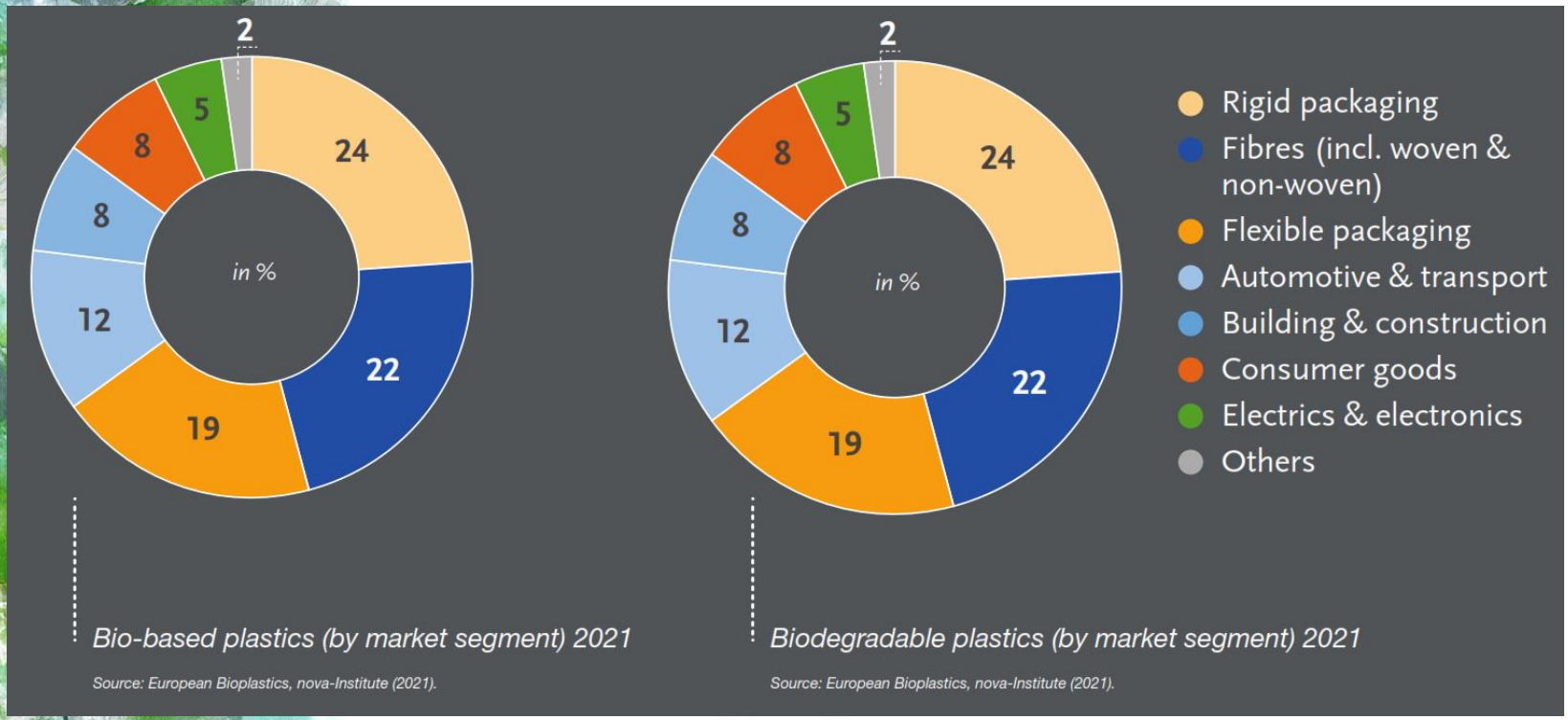


*Regenerated cellulose films **PEF is currently in development and predicted to be available at commercial scale in 2023.

Biodegradable vs. Bio-based & durable bioplastics (2021 vs. 2026)

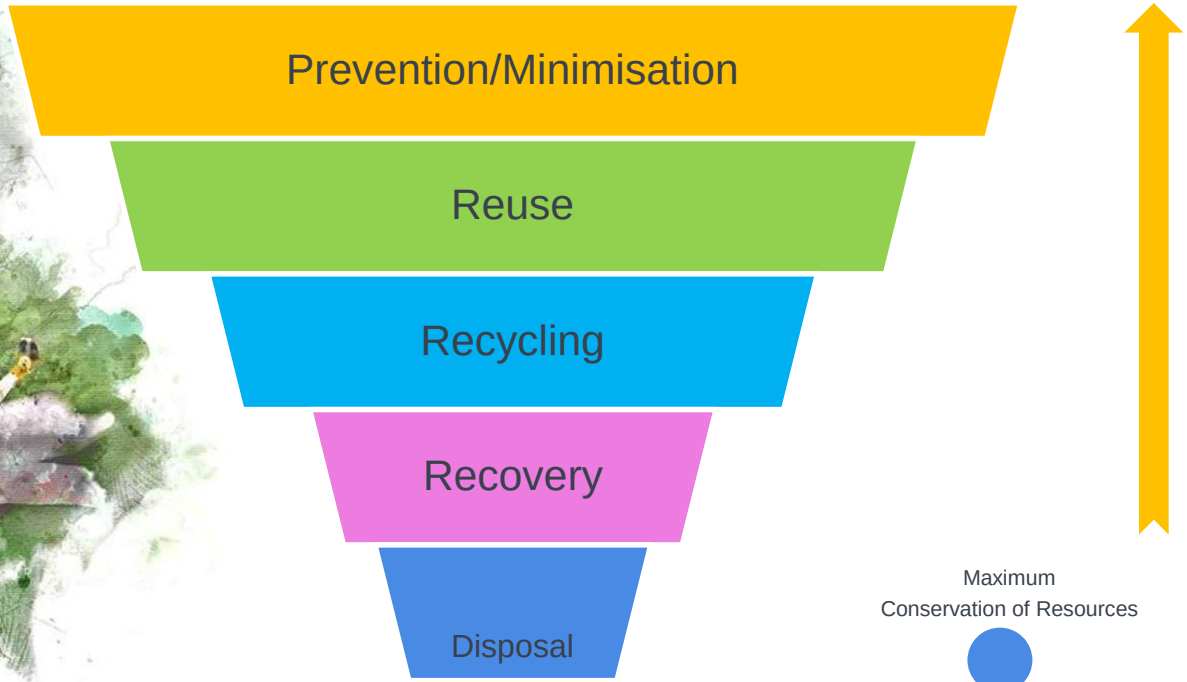
Source: European Bioplastics, nova-Institute (2021).

MARKET: Vast Application for Bio-plastic



BIO-PLASTICS – Contribution to Improve Waste Management

(European Bio-plastic, 2021)



Disadvantage of Bio-plastic

(Arikan and Ozsoy, 2015)

- High Cost
- Recycling Problem
- Reducing Raw Material
- Misunderstanding of Term
- Lack Legislation


Thank You
our office

UNIVERSITAS PGRI SEMARANG
FAKULTAS TEKNIK DAN INFORMATIKA
Kampus : Jalan Sidodadi Timur Nomor 24 Dr. Cipto, Semarang - Indonesia 50125
Telp. (024) 8452230, **Faks.** (024) 8448217, **E-mail :** fti@upgris.ac.id. **Website :** http:\\fti.upgris.ac.id

SURAT TUGAS

Nomor : 083 /U/FTI/VI/2022

Dekan Fakultas Teknik dan Informatika, Universitas PGRI Semarang dengan ini memberikan tugas kepada:

N a m a	:	**Dr. RINI UMIYATI, S.Hut., M.Si.**
NIP / NPP	:	148001436
Pangkat / Gol.	:	Penata Muda Tk. I / III b
Jabatan Fungsional	:	Asissten Ahli
Pekerjaan	:	Dosen Teknologi Pangan

Ditugaskan pada :

Hari, tanggal	:	Selasa, 21 Juni 2022
W a k t u	:	08.30 WIB - selesai
Tempat	:	Zoom Meeting
A c a r a	:	Sebagai Pembicara Webinar dalam rangka Dies Natalis Ke-41 dengan Tema Bangunan dan Kota Ramah Lingkungan yang Berkelanjutan

Demikian surat tugas ini untuk dilaksanakan dengan sebaik-baiknya dan setelah selesai harap melaporkan hasilnya.

Semarang, 8 Juni 2022

Telah melaksanakan tugas
dengan sebaik-baiknya,

Fafa Nurdyansyah, M.Sc.
NIP 158901487

D e k a n,

Dr. SLAMET SUPRIYADI, M.Env.St.
NIP 195912281986031003

SERTIFIKAT

No:101/U/FTI/VI/2022

Diberikan kepada :

Dr. Rini Umiyati, S.Hut., M.Si.

Atas Partisipasinya Sebagai :

PEMATERI

WEBINAR SERIES FTI

Bangunan dan Kota yang Ramah Lingkungan dan Berkelanjutan
Seri 2 "Rekayasa Ramah Lingkungan"
Yang diselenggrakan oleh Fakultas Teknik dan Informatika
Universitas PGRI Semarang
Pada Tanggal 21 Juni 2022

Dekan Fakultas Teknik dan Informatika
Universitas PGRI Semarang

Dr. Slamet Supriyadi, S.T.,M.Env