

SURAT TUGAS

Nomor : 2082-R/UNTAR/PENUNJANG/VIII/2022

Rektor Universitas Tarumanagara, dengan ini menugaskan kepada saudara:

I WAYAN SUKANIA, ST., M.T.

Untuk melaksanakan kegiatan penunjang dengan data sebagai berikut:

Judul Kegiatan/Aktifitas	:	Mengikuti Webinar Sustainable Product Design and Development
Tingkat	:	Nasional
Peran	:	Peserta
Periode/Tahun/Tanggal	:	15 Januari 2022
URL/Repository	:	-

Demikian Surat Tugas ini dibuat, untuk dilaksanakan dengan sebaik-baiknya dan melaporkan hasil penugasan tersebut kepada Rektor Universitas Tarumanagara

12 Agustus 2022

Rektor



Prof. Dr. Ir. AGUSTINUS PURNA IRAWAN

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SERTIFIKAT

Diberikan Kepada:

I WAYAN SUKANIA, S.T., M.T., IPM

sebagai Partisipan pada Webinar
"Sustainable Product Design & Development"
Teknik Industri, Universitas Trisakti

bekerjasama dengan Perhimpunan Ergonomi Indonesia Korwil Banten dan DKI Jakarta
Jakarta, 15 Januari 2022



Dr. Rina Fitriana, S.T., M.M,IPM
(Ketua Jurusan Teknik Industri
Universitas Trisakti)



Prof. Ir. Wahyu Susihono, S.T., M.T., IPM., ASEAN Eng
(Ketua PEI Korwil Banten dan Jakarta)

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Supply ↔ Demand

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PRODUSEN
(4MEI: Man, Materials, Machine, Money, Energy, Information)
(P, Q_L, Q_N, \$_C, t)

MARKET (2M: Man, Money)
(P, Q_L, Q_N, \$_P, t)

Products & Services

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Complexity & Q **1** Supply: Disrupsi Teknologi

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Industry 1.0 (1784)BB
Steam & water power, labor intensive.

Industry 2.0 (1870)
Electric power, mass product, automation.

Industry 3.0 (1969)
Digital era, robotic, CAD/CAM, CIM, 3DP, 3DScan.

Industry 4.0 (Today)
Cyber-Physic system, AI, IIoT, COBOT, Cloud, AMT, Cybersecurity. Big Data, etc

10 Skills relevan dg SDM Industry 4.0:

1. Complex problem solving
2. Critical thinking
3. Creativity
4. People management
5. Coordinating with others
6. Emotional intelligent
7. Judgment & Decision making
8. Service Orientation
9. Negotiation
10. Cognitive flexibility

AI
Crypto
Metaverse (Virtual World)

6

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MASLOW: Human Needs

Prioritas kebutuhan bergeser ke kesehatan

Kualitas Hidup

Normal

New Normal

Pandemi

Normal=Normal+Pro tokol Kesehatan

Kondisi

Economic Demand

Demand

Time

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New Trend: Real World & Virtual World

3 Disruptor

New Opportunity: New Busine

METaverse

VR

MR

AR

AI

IoT

Crypto

BLOCK CHAIN

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SDG's → Global Trend

SDG: Sustainable Development Goal
Source: United Nations Information Centre

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Recording

Products ↔ Raw Materials Source

REUSE
Sustainable Product → Material : Stainless Steel → tidak menghabiskan hutan bambu

BIODEGRADABLE
Environment Friendly Product → Material: Bamboo → mengha biskan hutan bambu

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Contoh: Eco-Friendly Products

Bamboo stalk Processed into fiber Spun into yarn Woven into fabric

Comfort Skin-friendly Hygroscopic Natural Safe Anti-microbial

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Recording

Contoh: Eco-Friendly Products



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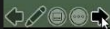
View Options

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Contoh: Eco-Friendly Products (Yanko Design)



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Yact (Yanko Design) → low energy consumption



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e-Cycle (Yanko Design)



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Singgih Susilo Kartono "Radio Magno" (Temanggung Jateng)

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Good product is a product

- which has to be a part of natural conservation and living harmoni
- Which should support for better life of human (or users)

Contoh: Eco-Friendly Products



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Share Screen

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Reactions

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Leave

Recording

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How to Design?

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Products

Produk

Product (Real&Virtual)

Macam

Goods

Services for Goods

Jenis


Discrete

Continuous

.....

Real & Virtual

New World: Metaverse



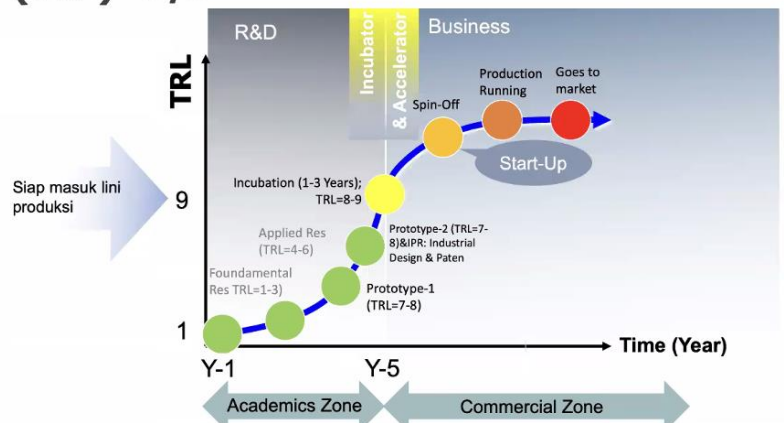
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Product Status: Technology Readiness Level (TRL)=8/9



Siap masuk lini produksi

TRL

9

1

Time (Year)

Y-1 Y-5

Academics Zone Commercial Zone

R&D Incubator & Accelerator Business

Incubation (1-3 Years); TRL=8-9

Applied Res (TRL=4-6)

Prototype-1 (TRL=7-8)

Prototype-2 (TRL=7-8)&IPR: Industrial Design & Paten

Spin-Off

Production Running

Start-Up

Goes to market

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Daftar Hadir Webinar "SUSTAINABLE PRODUCT DESIGN & DEVELOPMENT"

Kampus Merdeka

Daftar Hadir Webinar "SUSTAINABLE PRODUCT DESIGN & DEVELOPMENT"

Jawaban Anda telah direkam.

[Kirim jawaban lain](#)

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Teknologi

SHEISFASTER

Supply Chain

Distribusi

Concept Design

Detail Design (CAD/CAE)

Prototyping & Testing

Production (4MEIL)

Market (Off/On-Line)

Produk, Brand-Merk, Kemasan

$(P, Q_L, Q_N, \$C/P, t)$

Waktu (t)

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Good Sustainable Product Design: Needs/Wants → Requirements

Good Sustainable Product Design

- Good for Environment (18.5%)**
 - Biodegradable
 - Recycle & Reuse
 - No Pollutants (air, water, soil)
 - Low energy consumption
 - Living harmony with nature
 - Operation
 - Product
- Good Quality (33.3%)**
 - Durability
 - Serviceability
 - Autoprotection
 - Detail/Precision
 - Reliability
 - Functional Lifetime
 - Performance
 - Health Safety & Security
 - Comfortable
 - User Experience
 - Good Quality
- Good Design (48.1%)**
 - User satisfaction
 - Effective
 - Efficient
 - Useable
 - Aesthetic
 - Character
 - Innovative
 - Original
 - Ease of Assembly
 - Ease of Manufacturing
 - Supply Chain
 - End User
 - Operate
 - Ease of Operation
 - Maintenance
 - Operational & Maintenance
 - Fulfill Needs & Wants
 - DFM/A & SC

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Langkah2 Mendesain Konsep Produk → Prototype → [Q_N, \$_C, t]

Mission: P, Q_N, Q_L, \$_p, t, Margin, Target Market, Stakeholder.

Sumber Internal: Tim Desainer

Bench-marking

Final Concept: Product Architecture DfM/Assembly

Prototype Cost & Production cost planning

M → **I** → **S** → **K** → **K*** → **D** → **P**

Sumber Eksternal: (Technology, Market/Users, SHEISFASTER/Sustainable Products)

Hasil Uji Lab: New Specification

Final Concept: Ergonomi, Estetika (Desain Industri)

Detail Design: CAD-CAE-CAM (SolidWorks, Abaqus, dll)

Prototyping & Testing → Registrasi HKI (Desain Industri, Paten Merek)

I → S: Matrix Needs (kualitatif) vs Metrics (Kuantitatif)

S → K: Concept Gen (creativity); K → K*: Screenign/Scoring

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Departemen Teknik Mesin & Industri Universitas Gadjah Mada

Product Mission: $Q_N, Q_L, \$P, t_{mo}$

Usia Produk di Market (Off/On-Line)

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Recording

Prototype: 4

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Physics

Prototype (TRL 8/9) $\alpha \rightarrow \beta$

Comprehensive

Number of Function Features

Analytic

Focus (1)

30

Unmute Start Video Participants 231 Chat Share Screen Record Reactions Apps Leave

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Global Design Team

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Sustainable Product Design & Development Alva E. Tontowi

This slide illustrates a global design team structure. A world map is shown with five circular callouts representing team members from Japan, China, USA, Indonesia, and Australia. These callouts are connected to a central callout labeled 'Product', which features an image of a car chassis. The slide is part of a presentation titled 'Sustainable Product Design & Development' by Alva E. Tontowi, dated 15 Jan 2022. The interface includes a recording status, a toolbar with options like 'Unmute', 'Start Video', 'Participants', 'Chat', 'Share Screen', 'Record', 'Reactions', and 'Apps', and a 'Leave' button.

Recording

Lokasi (Centralistic vs Distributed: Designer, Factory, Market)

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Unmute Start Video Participants 235 Chat Share Screen Record Reactions Apps Leave

Sustainable Product Design & Development Alva E. Tontowi

This slide discusses the location of design, manufacturing, and market activities. A world map is shown with three callouts: 'Designer' (green circle), 'Factory' (blue circle), and 'Market' (orange circle). Arrows indicate the flow: a green arrow points from 'Designer' to 'Factory', and a blue arrow points from 'Factory' to 'Market'. The slide is part of a presentation titled 'Sustainable Product Design & Development' by Alva E. Tontowi, dated 15 Jan 2022. The interface includes a recording status, a toolbar with options like 'Unmute', 'Start Video', 'Participants', 'Chat', 'Share Screen', 'Record', 'Reactions', and 'Apps', and a 'Leave' button.

Recording

Contoh Hilirisasi

Membawa Konsep Produk Hasil Riset Medik ke Market

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Sustainable Product Design & Development

Alva E. Tontowi

Recording

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View Options

View

Problem (Pain Point: market besar tetapi semua produk stent impor, sementara SDM DN mampu & masih ada ceruk market) → Solusi (Gain: produk stent DN)

Timeline (t_{mo})

Dana (KemenDiktiKebudRis)

Fasilitas Produksi (UGM STP, PT Swayasa Prakarsa)

SDM: Crossed Functional Team (Engineer, Dokter, Mitra Industri)

Problem: Indo Market-Stent impor

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Unmute

Start Video

Participants 235

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Share Screen

Record

Reactions

Apps

Leave

Sustainable Product Design & Development

Alva E. Tontowi

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Sustainable Product (Medical): Cardio Stent & Delivery System

Delivery System

New Generation: Bioresorbable Polymer: PLLA; 150 μm thick (Abbot Corp)

Metal: CoCr L605, 80 μm thick (UGM STP)

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UGM Science Techno Park: from Research to Market

Alamat: Purwomartani, Sleman, DIY. (Produk: Health care, Healthy Food)

Multi-Faculties: FT, FKG, FK, FKH

Hospitals: RSUP Sardjito & RSH Soeparwi

GNose

INASHUNT

SWAYASA PRAKARSA

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Terimakasih Selamat Mencoba

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Participants 235

Chat

Share Screen

Record

Reactions

Apps

Leave

Recording

View

Sustainable Product Design & Development

Nora Azmi

Emella Sari

I WAYAN SUKANIA

Muhammad Adib

Muhammad Adib

UEU_Pandu Ari...

UEU_Pandu Ari Nugroho

Annisa Purbasari

Annisa Purbasari

Unmute Stop Video

Participants 237

Chat

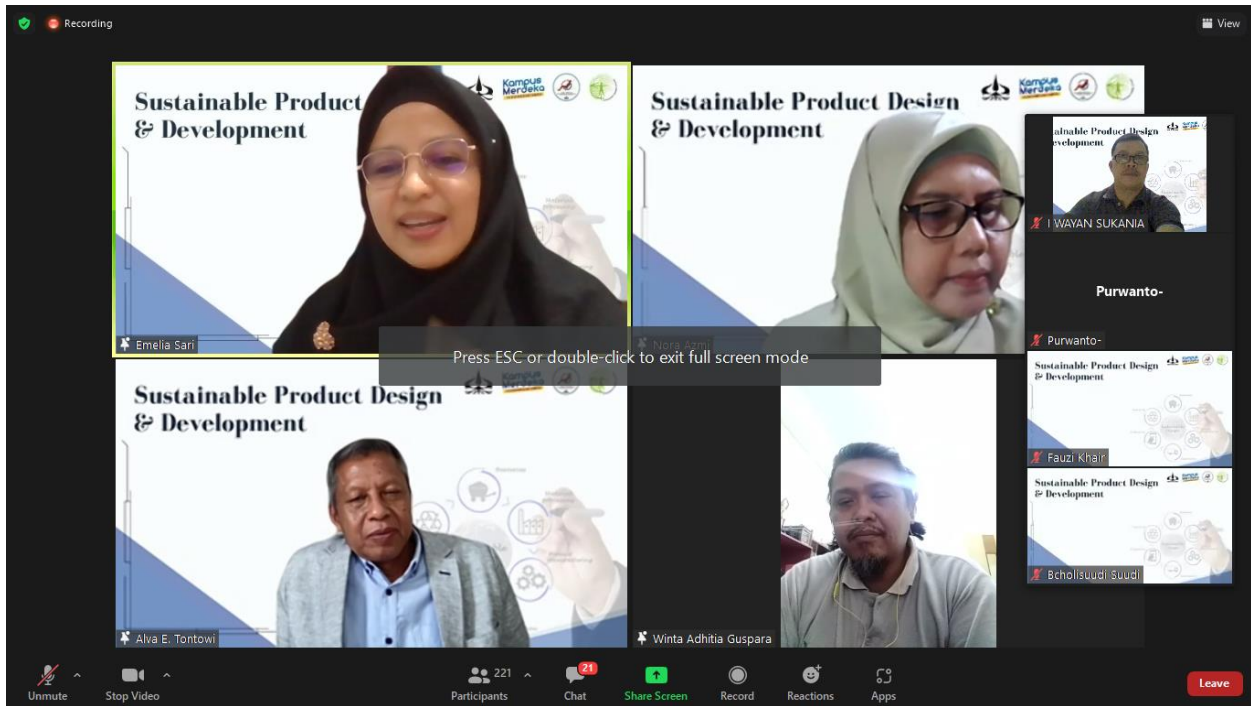
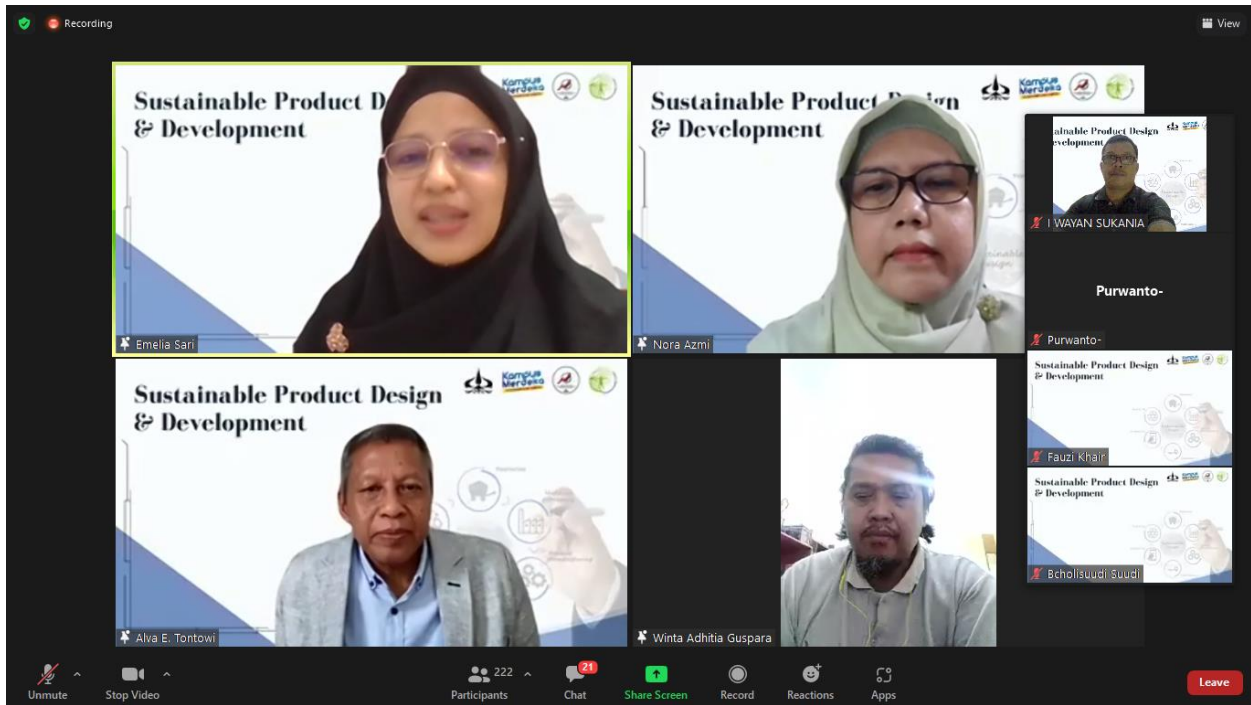
Share Screen

Record

Reactions

Apps

Leave



Recording View

Sustainable Product Design & Development

Emelia Sari

Nora Azmi

WAYAN SUKANIA

Winta Adhitia Guspara

Purwanto-

Fauzi Khair

Unmute Stop Video Participants 222 Chat 24 Share Screen Record Reactions Apps Leave

Recording

Sustainable Product Design & Development

Emelia Sari

Nora Azmi

WAYAN SUKANIA

Arnes Faradilla

Fauzi Khair

Bcholisuudi Suudi

Alva E. Tontowi

Recording View

Ika Wahyu Utami	I WAYAN SUKANIA	Emella Sari	Dimas Saputra, UNISI	Herlina K. Nurtjahyo, UIA
Nora Azmi	Pudji Astuti	Arnes Faradilla	rani aulia Imran	Chevy Herli Sumerli A.
Sucipto Adisuwiryo	Rina Fitriana	UEU-Latief Mahfud	Alva E. Tontowi	Bcholsaudi Suudi
PEI DKI Jkt& Banten Wahyu Su...	Hillary	Raden Ilham Akbar	Djauhar Arifin	Purwanto-
tiena amran	Ayu Dian Widhawati	ZAHEDI	Ariyan Maulana	Benedikta Siboro, IT Del

Unmute Stop Video Participants 162 Chat Share Screen Record Reactions Apps Leave

Recording

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PEI DKI Jkt& Banten Wahyu Su...	Hillary	Raden Ilham Akbar	Djauhar Arifin	tiena amran
Ayu Dian Widhawati	ZAHEDI	Ariyan Maulana	Benedikta Siboro, IT Del	Fauzi Khair