



Module of Industrial Engineering on Action 2018



*“Designing A Smart Supply Chain
Management For Sustainable Businesses
In Industrial Revolution 4.0”*

IDEA (INDUSTRIAL ENGINEERING ON ACTION) 2018

**“Designing A Smart Supply Chain Management For Sustainable
Businesses In Industrial Revolution 4.0”**

Industrial Engineering On Action (IDEA)

Industrial Engineering On Action (IDEA) is an industrial engineering science competitions international level which held for 5th times by the Student Association of Industrial Engineering (Himpunan Mahasiswa Teknik Industri), Andalas University. The increasing complexity of industrial problems that occurred in this era of globalization, takes the role of industrial engineering students to be able to solve these problems with several approaches. IDEA becomes a media of communication to industrial engineering students in Southeast Asia to discuss industry issues and find the right solution to face these problems.



THEME

Given that Indonesia is a developing country that still relies on natural resources that are available, it would require the development of the industry to accelerate the industrialisation of Indonesia in the face of global challenges participants with the use of the industrial revolution 4.0. In an effort to the achievement of the acceleration of industrialization with the improvement of technology that is modern is inadequate which discusses issues of national logistics with theme :

**“Designing A Smart Supply Chain Management
For Sustainable Businesses In Industrial Revolution 4.0”**



TERMS AND CONDITIONS

The following are the terms and conditions that must be understood and obeyed by participants IDEA 2018. The terms and conditions should be read carefully so that no misunderstanding. Participants IDEA 2018 must agree to terms and conditions and all rules that have been made by the committee of IDEA 2018. The committee of IDEA 2018 has the right to modify or add information on the Official Website <http://indfest.ft.unand.ac.id/>. Therefore, participants are expected to check the terms and conditions and to keep update about information well.

Total Prize

- 1st Champion : USD 1267 + Trophy + Certificate
- 2nd Champion : USD 969 + Trophy + Certificate
- 3rd Champion : USD 746 + Trophy + Certificate



REGISTRATION STAGE

1. Here are explained requirements to register IDEA 2018:
Contestant IDEA 2018 is a team consists of 3 active students in a college.
2. Members of team are industrial engineering students in the same university.
3. Students can sign up for IDEA 2018 on Official Website IDEA 2018 [http//.indfest.ft.unand.ac.id/idea2018/](http://.indfest.ft.unand.ac.id/idea2018/)
4. Registration can be done started from January 8th, 2018 until February 18th, 2018. Registration divided into two stages:
 - a. Early Bird Registration, started from January 8th, 2018 until January 21st, 2018
 - b. Normal Registration, started from January 22nd, 2018 until February 18th, 2018
5. Each teams pay registration fee amount IDR 200000 or USD 15 on Early Bird Registration and IDR 250000 or USD 19 on Normal Registration by transferring to this bank account:
Bank BRI
a.n Dwi Suryani
No. Rek 5534-01-018089-53-1
6. Registration is done by completing the following files:
 - a. Each teams fill identity of leader and the members of team.
 - b. Each teams upload Student ID Card, ID Card, and formal picture of students with maximal size 1 Mb for leader and members of the team.
 - c. Upload proof of registration payments
7. ID of contestant will be given by committee of IDEA after contestant finish paying registration.

ONLINE SELECTION

Online collection stage is an initial stage where the team will be filtered to follow the next stage at Andalas University, Padang. Online Selection stage is done by answering questions related to Industrial Engineering science with the terms and conditions that have been determined.

Terms and conditions of online selection:

1. Participants of a team of 3 students stated are still active in a college.
2. Members of team are industrial engineering students in the same university.
3. Online selection consists of 45 multiple choice questions with duration 30 minutes.
4. Scores assessment of online selection
Corect answer : +4
Wrong answer : -1
5. Online selection stage is done started from february 26th, 2018 until March 11th, 2018
6. Announcement of schedule and passwords of online selection on March 18th, 2018

RE-REGISTRATION STAGE

Re-registration stage is done started from March 19th, 2018 until April 15th, 2018. This stage is registration stage to the best 15 teams who will participate in the next stage at Andalas University, Padang. This stage is required for participants to follow the following requirements:

1. Participant of IDEA 2018 must pay registration fee amount USD 224.
2. Registration is done by transferring to this bank account:
Bank BRI
a.n Dwi Suryani
No. Rek 5534-01-018089-53-1

After registration fee is transferring, participants of IDEA 2018 must inform to committee or Liaison Officer (LO) with format:

(Tim Name) _ (University or Institution) _ (No. Transferring Receipt) _ (Is done register for IDEA 2017)

Example:

ABC_ Andalas University_12345678_ Is done register for IDEA 2017

TIMELINE IDEA 2018

- 8 January – 21 January 2018
Early Bird Registration
- 22 January – 18 February 2018
Normal registration
- 26 February – 11 March 2018
Online Selection
- 18 March 2018
Announcement of Top 15 Contestants
- 19 March – 15 April 2018
Registration of Top 15 Contestants
- 17 - 20 April 2018
TM Online
- 23 April 2018
Opening IDEA 2018
- 23 April 2018 – 26 April 2018
Final IDEA 2018
 - Day 1 (Stage 1) : **Test of industrial engineering science**
(followed by Top 15 of IDEA)
 - Day 2 (Stage 2) : **Simulation Games**
(followed by Top 15 of IDEA)
 - Day 3 (Stage 3) : **Real Case Study**
(followed by Top 5 of IDEA)
National Seminar
(followed by Top 15 of IDEA that do not
pass to Top 5 IDEA)
 - Day 4 (Presentation) : **Presentation of real case study**
(Selecting Winners)

CONTACT US

If you have any question about IDEA 2018, please contact us on this number :

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SYLABUS OF ONLINE SELECTION

Operational Research	Linear Programming
	Duality theory and Sensitivity Analysis
	Simplex Method
	Transportation
	Transshipment
	Assignment
	Goal Programming
	Integer Programming
	Network Analysis
	Dynamic Programming
	Markov Chain
	Game Theory
	Queuing Theory
Industrial Simulation	Discrete Event Simulation
	Modelling Methodology
	Conceptual Modelling
	Model Development
	Verification and Validation
Industrial Statistics	Descriptive Statistics
	Probability
	Discrete and Continuous Distribution
	Sampling Distribution
	Estimation
	Hypothesis Testing
	Regression
	Non Parametric Statistics
Quality Assurance and Control	Concept of Quality
	Quality Management and Assurance
	Product Quality Dimension
	Statistical Process Control
	Design of Quality Control Chart
Ergonomics	Introductions to ergonomics
	Anthropometric ergonomics
	Biomechanics
	Display and Control Equipment Design
	Work safety
Work System Design and Engineering	Work charts and operation analysis tools
	Work system design
	Time study
	Predetermined time system
	Work sampling

SYLABUS OF ONLINE SELECTION

Safety, Health, and Work Environment	Type of Hazards
	Occupational, Health, and Safety Regulations
	Risk assessment
	Safety management system
Industrial Psychology	Introduction to Psychology
	Human behavior
	Organization behavior
	Work related
Product Design and Development	Introduction of Product Design and Development
	Phase of Product Design and Development
Production Planning and Control	Forecasting
	Aggregate Planning
	MPS & MRP
	Inventory and Capacity Planning
	Production Activity Control
Supply Chain and Logistics Management	Supply Chain Strategies
	Network Configuration
	Demand Management
	Measuring Supply Chain Performance
	Introduction to logistic management
	Logistics strategy
	Customer service in logistics
	Inventory and Service Level
	Distribution network planning
	Logistics transportation planning
Warehousing system and replenishment	
Production Management System	Lean manufacturing concept
	Just in time
	Theory of constraints
	Load oriented manufacturing system
	Project based production planning and control
Maintenance and Reliability Engineering	Type of Maintenance
	Maintenance Scheduling
	System reliability and reliability testing
Systems Modelling	Modelling and simulation Development Methodology
	Conceptual Model
	Discrete Event Modelling
	Continuous Event Modelling

SYLABUS OF ONLINE SELECTION

Engineering Drawing	Dimensions and Projection
	International Standard of Engineering Drawing
Production Systems Automation	Concept and basic model of automation system
	Electric diagram
	Logic gate and electronic circuit
	Theory and basic of control system
	Programmable logic controller
	Data communication
	Numerical programming and control
Information System	Management Information System
	Database Management
	Decision Support System
Project Management	Projecting Time and Cost
	Scheduling Resource and Cost
	Project Performance Analysis
Cost Estimation and Analysis	Concept of cost
	Direct material cost
	Direct labor cost
	Indirect factory cost
	Activity based costing
	Variance analysis
Break even analysis	
Organization and Human Resource Management	Strategy Management
	Human Resource Management
	Organizational Design and Organizational Structure
Engineering Economic	Definition and scope of engineering economics
	Cash flow
	Concept of time value of money
	Present equivalent value
	Annual value
	Internal rate of return
	Payback period
	Profitability index
	Depreciation
	Inflation and deflation
	Replacement analysis
	Tax analysis
	Cost-benefit analysis
Facility Layout	Material Handling Analysis
	Warehouse Facility Design
	Layout Design
	Mathematical Modeling and Optimization for Layout Design

IDEA

