Prof. Dr. Ir. Tulus Burhanuddin Sitorus, S.T., M.T., IPM.

Dosen Program Studi S2 Teknik Mesin
Fakultas Teknik
Universitas Sumatera Utara

tulus.burhanuddin@usu.ac.id

Program Pascasarjana Teknik Mesin, Fakultas Teknik, Universitas Sumatera Utara

081361719718

ft.usu.ac.id/id/dosen/tulus-burhanuddin-sitorus

Prof. Dr. Ir. Tulus Burhanuddin Sitorus, S.T., M.T., IPM adalah dosen di Departemen Teknik Mesin, Fakultas Teknik, Universitas Sumatera Utara. Ia lahir di Medan pada tanggal 23 September 1972 dan telah aktif mengajar di USU sejak tahun 2000. Beliau menyelesaikan pendidikan Doktor (S3) di bidang Ilmu Teknik Mesin dari Universitas Sumatera Utara pada tahun 2017.

Bidang keahlian beliau mencakup mesin pembakaran dalam, mesin pendingin adsorpsi tenaga surya, penukar panas tanah-udara, serta energi terbarukan. Sepanjang kariernya di USU, beliau pernah dan sedang menjabat dalam berbagai posisi penting, antara lain sebagai Sekretaris Departemen Teknik Mesin (2005–2010), Kepala Laboratorium Energi Surya (2009–2010), Kepala Laboratorium Mesin Pembakaran Dalam (2011–2020), Sekretaris Program Studi Doktor Teknik Mesin (2021–2022), serta saat ini menjabat sebagai Ketua Program Studi Magister dan Doktor Teknik Mesin (2022–sekarang).

Publications

2026
Jurnal internasional bereputasi

Performance and economic evaluation of ground surface effects on bifacial photovoltaic systems under tropical conditions

TULUS BURHANUDDIN SITORUS

2026
Jurnal internasional bereputasi

Evaluation of the performance and emissions of diesel engines powered by minimally refined palm oil produced using calcined limestone

HIMSAR AMBARITA , TULUS BURHANUDDIN SITORUS

2026
Jurnal internasional bereputasi

Photovoltaic performance degradation from dust and cleaning frequency in tropical Indonesia

TULUS BURHANUDDIN SITORUS

2026
Jurnal internasional bereputasi

Palm Oil–Based Straight Vegetable Oil as a Sustainable Fuel Alternative for Low–Medium Speed Diesel Engines: A Critical Review of Technical Viability, Emissions, and Circular Economy Integration

TULUS BURHANUDDIN SITORUS , HIMSAR AMBARITA

2026
Jurnal internasional bereputasi

Performance evaluation of bifacial and monofacial floating photovoltaic systems: A case study under tropical conditions

TULUS BURHANUDDIN SITORUS

2025

Jurnal nasional terakreditasi

Ocean Clean Energy: Optimizing the Use of Solar Panels to Increase Cooling Storage Efficiency for Fishermen in Sibolga Towards Sustainability and Climate Change Mitigation

TULUS BURHANUDDIN SITORUS

2025
Jurnal internasional bereputasi

Enhancing solar still performance using nano-coated covers and integrated solar collectors: An experimental study

ARNAS , HIMSAR AMBARITA , PANDJI PRAWISUDHA , TULUS BURHANUDDIN SITORUS , WANDO SIMANULLANG , Yogie Probo Sibagariang , OO Abdul Rosyid , Andrianshah Priyadi

2025
Jurnal nasional terakreditasi

PERFORMANSI MESIN DIESEL MENGGUNAKAN BIODIESEL DARI CAMPURAN BIJI KARET-MINYAK PIROLISIS LIMBAH PLASTIK-MINYAK SOLAR

BISRUL HAPIS TAMBUNAN , TULUS BURHANUDDIN SITORUS

2024
Prosiding seminar internasional

Experimental Study of Gravitational Water Vortex Turbine at Flow Angle 70 Deg Inclined Blade

TULUS BURHANUDDIN SITORUS

2024
Jurnal internasional bereputasi

Experimental Study of the Effect of Plastic Pyrolysis Oil on the Physical Chemical Properties of Rubber Seed Biodiesel and Diesel Engine Performance using a Mixture of Plastic Pyrolysis Oil-Rubber Seed Biodiesel-Diesel Fuel

TULUS BURHANUDDIN SITORUS , BISRUL HAPIS TAMBUNAN

2024
Jurnal internasional bereputasi

Performance of a Vortex Turbine With Modifications to Flow Angle, Blade Inclination, and Flow Velocity for a Cylindrical Basin

TULUS BURHANUDDIN SITORUS

2024
Prosiding seminar internasional

Feasibility Study of Rubber Seeds from North Sumatra, Indonesia as Biodiesel Feedstock; Production and Characterization

TULUS BURHANUDDIN SITORUS , BISRUL HAPIS TAMBUNAN

2024
Jurnal internasional bereputasi

Study of Comparison Heat Energy Disposal in Hollow Roof Cooling Water Tank using Natural Material

FAREL HASIHOLAN NAPITUPU , TULUS BURHANUDDIN SITORUS

2024
Jurnal internasional bereputasi

Experimental study of the use of plastic pyrolysis oil as an additive to improve physicochemical properties and performance rubber seed biodiesel

HIMSAR AMBARITA , BISRUL HAPIS TAMBUNAN , ABDI HANRA SEBAYANG , TULUS BURHANUDDIN SITORUS

2024
Prosiding seminar internasional

Optimization of Renewable Energy in North Sumatra Using Firefly Algorithm Method Towards Net Zero Emissions

TULUS BURHANUDDIN SITORUS , HIMSAR AMBARITA , ILMI

2024
Prosiding seminar internasional

Waste to Energy; Conversion of Plastic Waste into Liquid Fuel Equivalent to

Diesel and Gasoline Using the Pyrolysis Method

TULUS BURHANUDDIN SITORUS

2024
Prosiding seminar internasional

Flow simulation on a vortex turbine using cfd with various outlet diameter sizes

HIMSAR AMBARITA , FAREL HASIHOLAN NAPITUPU , TULUS BURHANUDDIN SITORUS , IDHAM KAMIL

2024
Jurnal internasional bereputasi

Kinetic analysis and mathematical modeling of low-rank coal drying by using swirl fluidized bed dryer on varied angles of guide vane and temperatures

MELVIN SITORUS , IDHAM KAMIL , TULUS BURHANUDDIN SITORUS , MELVIN EMIL SIMANJUNTAK , BERTA BR GINTING

2023
Jurnal internasional bereputasi

An Overview of Physicochemical Properties and Engine Performance Using Rubber Seed Biodiesel–Plastic Pyrolysis Oil Blends in Diesel Engines

HIMSAR AMBARITA , BISRUL HAPIS TAMBUNAN , ABDI HANRA SEBAYANG , TULUS BURHANUDDIN SITORUS

2023
Prosiding seminar internasional

Experimental study of pumps as turbines with height variation

FAREL HASIHOLAN NAPITUPU , TULUS BURHANUDDIN SITORUS , HIMSAR AMBARITA

2023
Prosiding seminar internasional

Experimental study of the otto engine with fuel mixture of pertamax and bioethanol 96% from cassava

TULUS BURHANUDDIN SITORUS

2023
Prosiding seminar internasional

The effect of composition’s variations of a mixture of bovine bone powder and acrylic resin matrix on mechanical and microstructure properties in the manufacture of denture

TULUS BURHANUDDIN SITORUS , ALFIAN HAMSI

2023
Prosiding seminar internasional

The performance of the otto engine with a capacity of 150 cc that uses several variations of pertalite mixture with bioethanol from cassava

TULUS BURHANUDDIN SITORUS

2023
Jurnal nasional terakreditasi

Kajian Karakteristik Atap Berbahan Komposit Sekam Padi Dan Serat Daun Nanas

FAREL HASIHOLAN NAPITUPU , TULUS BURHANUDDIN SITORUS

2023
Prosiding seminar internasional

Experimental Study of An EAHE Combined with A Solar Collector and A Solar Panel

TULUS BURHANUDDIN SITORUS

2023
Prosiding seminar internasional

Study On EAHE System Combined with Several Components in the Medan City

TULUS BURHANUDDIN SITORUS

2023
Prosiding seminar internasional

The Performance Of An Earth-Air Heat Exchanger By Using A Solar Chimney

TULUS BURHANUDDIN SITORUS

2023
Prosiding seminar internasional

Study of heat Energy Disposal in Hollow Roof Cooling Water Tank

FAREL HASIHOLAN NAPITUPU , TULUS BURHANUDDIN SITORUS

2022
Jurnal nasional terakreditasi

Rancang Bangun Instrumen Pengujian dan Penentuan Spesifikasi Mesin Diesel

TULUS BURHANUDDIN SITORUS

2022
Jurnal internasional bereputasi

The Earth-Air Heat Exchanger System Performance Combined with a Solar Collector for Cooling an Indoor Space Room in Medan City

SYAHRUL , TULUS BURHANUDDIN SITORUS

2022
Jurnal nasional terakreditasi

EFEKTIVITAS SISTEM GABUNGAN PENUKAR KALOR-UDARA TANAH DENGAN KOLEKTOR SURYA UNTUK PENDINGINAN RUANGAN DI KOTA MEDAN

TULUS BURHANUDDIN SITORUS , SYAHRUL

2022
Jurnal nasional terakreditasi

Pengaruh Bahan Bakar Biodiesel dari Dimetil Ester Terhadap Kinerja Mesin Diesel Empat Langkah

TULUS BURHANUDDIN SITORUS

2020
Prosiding seminar internasional

Utilization of peltier cooling systems driven by solar power for storing vegetables and fruits

TULUS BURHANUDDIN SITORUS

2020
Prosiding seminar internasional

The box-type condenser design used in solar adsorption refrigerator

TULUS BURHANUDDIN SITORUS

2020
Prosiding seminar internasional

Study on the performance of the Otto engine by using mixtures of gasolinebioethanol of nira

TULUS BURHANUDDIN SITORUS

2020
Prosiding seminar internasional

The experimental study of thermoelectric cooler performance in Medan city

TULUS BURHANUDDIN SITORUS

2020
Prosiding seminar internasional

Experimental study of solar adsorption refrigerator using a parabolic collector

TULUS BURHANUDDIN SITORUS

2020
Jurnal nasional terakreditasi

Performansi Alat Penukar Kalor Udara-Tanah Menggunakan Siklus Tertutup di Kota Medan

TULUS BURHANUDDIN SITORUS

2020
Jurnal nasional terakreditasi

Performansi Kolektor Surya Pada Mesin Pendingin Yang Menggunakan

Pasangan Adsorpsi Karbon Aktif Serbuk-Metanol

TULUS BURHANUDDIN SITORUS

2019
Prosiding seminar internasional

Utilization of magnetic devices to improve the performance and reduce gas emissions of Otto engine

TULUS BURHANUDDIN SITORUS

2019
Prosiding seminar internasional

The Performance of Microcontroller Equipment to Save Fuel Consumption for Motorcycle

TULUS BURHANUDDIN SITORUS

2019
Jurnal nasional terakreditasi

Performansi Alat Penukar Kalor Udara-Tanah (Earth-Air Heat Exchanger) dengan Siklus Terbuka di Kota Medan

TULUS BURHANUDDIN SITORUS

2019
Jurnal nasional terakreditasi

Kinerja Peralatan Magnetik Untuk Meningkatkan Performansi Dan Mengurangi Emisi Gas Buang Pada Mesin OTTO Empat Langkah

TULUS BURHANUDDIN SITORUS

2019
Jurnal nasional terakreditasi

Kajian Eksperimental Mesin Pendingin Adsorpsi Tenaga Surya dengan Menggunakan Adsorben Campuran

TULUS BURHANUDDIN SITORUS

2018
Prosiding seminar internasional

Effect of biodiesel fuel from soybean oil on exhaust gas and combustion chamber temperature of diesel engine

TULUS BURHANUDDIN SITORUS

2018
Jurnal nasional terakreditasi

EFEK BAHAN BAKAR BIODIESEL DARI MINYAK KEDELAI TERHADAP EMISI GAS BUANG DAN TEMPERATUR RUANG BAKAR MESIN DIESEL

TULUS BURHANUDDIN SITORUS

2018
Prosiding seminar internasional

Performance of an adsorption refrigerator driven by solar energy using amixture adsorbent in Medan c

TULUS BURHANUDDIN SITORUS

2018
Jurnal nasional terakreditasi

Study on Thermoelectric Cooler Driven by Solar Energy in Medan City

TULUS BURHANUDDIN SITORUS

2018
Prosiding seminar internasional

The performance of a solar collector on adsorption refrigerator

TULUS BURHANUDDIN SITORUS

2018
Jurnal nasional terakreditasi

MECHANISM OF WATER DISTRIBUTION ON LEMON FARM LAND

TULUS BURHANUDDIN SITORUS

2018
Prosiding seminar internasional

Performance of the natural cooler to keep the freshness of vegetables and fruits in Medan City

TULUS BURHANUDDIN SITORUS

2018
Jurnal nasional terakreditasi

Kinerja Sistem Kotak Pendingin Peltier Tenaga Surya Untuk Penyimpanan Sayur dan Buah

TULUS BURHANUDDIN SITORUS

2018
Jurnal nasional terakreditasi

Analisa dan Uji Eksperimental Performansi Alat Penukar Kalor Kompak Jenis Radiator Kendaraan Berkapasitas Mesin 1300 cc

TULUS BURHANUDDIN SITORUS

2018
Jurnal nasional terakreditasi

KINERJA KOLEKTOR TIPE PLAT DATAR PADA MESIN PENDINGIN ADSORPSI TENAGA SURYA DI KOTA MEDAN

TULUS BURHANUDDIN SITORUS

2018
Poster seminar internasional

Performance and emissions of an engine fuelled by biogas of palm oil mill effluent

TULUS BURHANUDDIN SITORUS

2017
Prosiding seminar internasional

The performance and emissions of diesel engines with biodiesel of sunan pecan seed and diesel oil bl

TULUS BURHANUDDIN SITORUS

2017
Jurnal nasional

KINERJA LEMARI PENDINGIN ALAMI YANG DIGUNAKAN SESUAI KONDISI CUACA DI KOTA MEDAN

TULUS BURHANUDDIN SITORUS

2017
Jurnal internasional bereputasi

A Study on Adsorption Refrigerator Driven by Solar Collector Using Indonesian Activated Carbon

TULUS BURHANUDDIN SITORUS

2017
Jurnal nasional

Karakteristik Kinerja Mesin Diesel Stasioner dengan Bahan Bakar Campuran Biodiesel dari Biji Kemiri Sunan

TULUS BURHANUDDIN SITORUS

2017
Jurnal nasional terakreditasi

Performansi mesin otto yang menggunakan bahan bakar biogas dari limbah cair sawit

TULUS BURHANUDDIN SITORUS

2016
Jurnal nasional

Analisa Kinerja Lemari Pendingin Alami Sebagai Penyimpan Sayur dan Buah-buahan dengan Media Pendingin Air

TULUS BURHANUDDIN SITORUS

2016
Jurnal nasional terakreditasi

Analisa kinerja sistempendingin peltier yang menggunakan sel PVdengan sumber energi radiasi matahari

TULUS BURHANUDDIN SITORUS

2016
Jurnal internasional bereputasi

EXPERIMENTAL STUDY OF SOLAR REFRIGERATOR SYSTEM USING ACTIVATED ALUMINA AND METHANOL ADSORPTION PAIR

FAREL HASIHOLAN NAPITUPU , TULUS BURHANUDDIN SITORUS , HIMSAR AMBARITA

2016
Prosiding seminar internasional

Performance analyses of solar adsorption refrigeration system using Indonesian activated carbon and

TULUS BURHANUDDIN SITORUS

2014
Jurnal nasional

Karakteristik Pengaruh Biodiesel Dari Limbah Sawit Cair Terhadap Unjuk Kerja Mesin Diesel Empat Langkah

TULUS BURHANUDDIN SITORUS

Researches

2020
Penelitian Unggulan Perguruan Tinggi

Kajian efek penambahan kolektor surya pada sistem earth-air heat exchanger terhadap temperatur udara ruangan di kota Medan

SYAHRUL , TULUS BURHANUDDIN SITORUS

2019
Penelitian Unggulan Perguruan Tinggi

Performansi kolektor surya yang digunakan pada mesin pendingin adsorpsi di kota Medan

SYAHRUL , TULUS BURHANUDDIN SITORUS

2018
Penelitian Unggulan Perguruan Tinggi

THE PERFORMANCE OF SOLAR THERMOELECTRIC COOLER IN MEDAN CITY

TULUS BURHANUDDIN SITORUS , FARIDA ARIANI , A. ZULKIFLI LUBIS , TERANG U H SOLIHIN G M

2014
Penelitian Disertasi Doktor

Performansi Mesin Pendingin Siklus Adsorpsi Tenaga Matahari dengan Pasangan Adso

HIMSAR AMBARITA , TULUS BURHANUDDIN SITORUS , FAREL HASIHOLAN NAPITUPU

2014
Penelitian Disertasi Doktor

PERFORMANSI MESIN PENDINGIN SIKLUS ADSORPSI TENAGA MATAHARI DENGAN PASANGAN ADSORBEN KARBON AKTIF DAN REFRIGERAN HIDROKARBON

TULUS BURHANUDDIN SITORUS

2013
Penelitian Hibah Bersaing

Perbaikan Mutu Kakao Indonesia Melalui Metode Pengeringan

HIMSAR AMBARITA , TULUS BURHANUDDIN SITORUS , FAREL HASIHOLAN NAPITUPU