PROCEEDINGS
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PROCEEDINGS
4th International Conference on Technical and Vocational Education and Training (TVET)

Theme: Technical and Vocational Education and Training for Sustainable Societies

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FOREWORD

Welcome for all respected scholars, researchers, post graduate students and especially Keynote Speakers to the 4 ICTVET. The theme of the conference focus on Technical and Vocational Education and Training for sustainable societies and consist of six subthemes. i.e Development of learning model on TVET, Workplace Learning and entrepreneurship, Innovation on applied engineering and information technology, Management and Leadership on TVET, Vocational and Technical Teachers education, and Assessment and Evaluation on TVET.

Sustainable society should be followed by the improvement of various factors that have impacts to the quality of vocational and technical education and training, particularly to overcome the competitiveness of the world business. As we have already known the rapid change of technology as well as the change of demography, having a great effect to the life of peoples in this world. The competitiveness need a collaborativeness to survive the life of millions peoples who lost their jobs. Young peoples as a productive generation have to be creative and innovative to face the competitiveness. So this proceeding contents consist of various findings of research in the field of vocational and technical education as well as applied technology and mainly based on the subthemes of the conference.

Finally, we would like to thank a million for all participants of this conference and all parties who support the success of this conference. Hopefully the seminars and scientific work of this seminar can be a reference material for basic education and elementary school teacher education in Indonesia.

Padang, July 2, 2018

Tim Editor
1. THE PROSPECT OF OFFSHORE IRON SAND IN TIRAM BEACH PADANG PARIAMAN REGENCY WEST SUMATERA
   Adree Octova, Ansosry, Yoszi Mingsi Anaperta and Indah Elok Mukhlisah ........................... 1-7

2. OPTIMIZE OF LEAST-SQUARE INVERSE CONSTRAINT METHOD OF GEOELECTRICAL RESISTIVITY WENNER-SCHLUMBERGER FOR INVESTIGATION ROCK STRUCTURES IN MALALAK DISTRICTS OF AGAM WEST SUMATRA
   Akmam, Amir Harman, Putra Amali .......................................................................................... 8-13

3. CLUSTER ANALYSIS DISTANCE INTER DISTRICT USING SINGLE LINKAGE METHOD FOR DETERMINATION OF MPLIK CAR OPERATION ZONE IN MEDAN CITY
   Ali Ikhwan, Yasmin Mohd Yacob, Solly Aryza ........................................................................ 14-16

4. EFFECT OF MIND MAPPING LEARNING METHODS ON LEARNING OUTCOMES
   Almasri ...................................................................................................................................... 17-21

5. DESIGN OF SKILL ASSESSMENT IN COMPUTER NUMERICAL CONTROL PROGRAMMING SUBJECT
   Ambiyar, Febri Prasetya, Yufrizal ............................................................................................. 22-26

6. MODIFICATION OF INPUT PUSHER ASSEMBLY OF LASER MARKING MACHINE
   Arif Rahman Hakim ................................................................................................................. 27-34

7. COLLABORATIVE PROJECT-BASED LEARNING: AN INSTRUCTIONAL DESIGN MODEL IN THERMODYNAMICS ON TECHNICAL VOCATIONAL EDUCATION AND TRAINING (TVET)
   Arwizet K, Nizwardi Jalinus, Krismadinata ............................................................................. 35-39

8. DEVELOPMENT OF EMPLOYEE INFORMATION SYSTEM-BASED WEB IN MAN 1 PADANG
   Asrul Huda, Rendy Harisca .................................................................................................... 40-46

9. DECISION SUPPORT SYSTEM (DSS) WITH WP AND MFEP METHODS IN SELECTION OF BEST BABY CLOTHES
   Asyahri Hadi Nasyuha, Rahmat Sulaiman Naibaho, Saniman .................................................. 47-53

10. IMPROVING LEARNING MOTIVATION THROUGH IMPLEMENTATION PROBLEM SOLVING LEARNING STRATEGY
    Budi Syahri, Primawati, Syahrial ........................................................................................... 54-58

11. THE MODELING OF MASSIVE LIMESTONE USING INDICATOR KRIGING METHOD (CASE STUDIES OF MASSIVE LIMESTONE IN PT SINAR ASIA FORTUNA)
    Dedi Yulhendra, Yoszi Mingsi Anaperta .................................................................................. 59-65

12. ELECTRONIC COMPONENT TESTER AS A LEARNING MEDIA FOR CLASS X STUDENTS AUDIO VIDEO ENGINEERING SMKN 1 SUMBAR
    Delsina Fa’iza, Thamrin, Ahmaddul Hadi, Yongki Saputra ...................................................... 66-74
13. EFFECTIVENESS OF INTERACTIVE INSTRUCTIONAL MEDIA ON ELECTRICAL CIRCUITS COURSE: THE EFFECTS ON STUDENTS COGNITIVE ABILITIES
Doni Tri Putra Yanto, Sukardi, Deno Puyada ................................................................. 75-80

14. EVALUATION OF LEARNING PROCESS USING CIPP MODEL
Dwi Sudarno Putra, Misra Dandi Utama, Dedi Setiawan, Remon Lapisa, Ambiyar ............. 81-86

15. IMPLEMENTATION OF CONTEXTUAL TEACHING AND LEARNING ON ANALYZING ELECTRICAL CIRCUITS SUBJECT
Dwiprima Elvanny Myori, Citra Dewi, Erita Astrid, Ilham Juliwardi .................................. 87-91

16. DOMESTIC EMPLOYMENT PROCESSING SYSTEM ON WORKING PROTECTION AND TRANSMIGRATION USING GEOGRAPHIC INFORMATION SYSTEM (GIS)
Eddis Syahputra Pane, Kori Cahyono ................................................................. 92-98

17. CONDUCTING LABOR MARKET ASSESSMENT IN ENGINEERING CURRICULUM DEVELOPMENT
Edi Septe, Suryadimal, Wenny Marthiana, Nizwardi Jalinus, Ramli .................................. 99-105

18. DIFFERENCES IN LEARNING OUTCOMES IN THE PRACTICE OF MICROCONTROLLER SYSTEM USING MCS51 MICROCONTROLLER TRAINER KIT
Edidas, Dedy Irfan ............................................................................................................. 106-108

19. MICROCONTROLLER SKILL TRAINING FOR SMKN 2 PAYAKUMBUH AND SMKN 1 SUNGAI RUMBAI
Edidas, Legiman Slamet and Ilmiyati Rahmy Jasril .................................................................. 109-113

20. THE EFFECT OF ISLAMIC WORK ETHICS AND SPIRITUAL LEADERSHIP ON EMPLOYEE’S COMMITMEN IN PADANG SHARIA HOTELS
Eka Mariyanti, Rasidah Nasrah .......................................................................................... 114-120

21. THE DESIGNING OF THE PROTOTYPE OF THE AIR QUALITY MEASURING HELMET
Eko Hariyanto, Solly Ariza Lubis, Zulham Sitorus, M. Iqbal .................................................................. 121-124

22. REVIEW DEVELOPING OF PROJECT BASED AS INNOVATION INSTRUCTIONAL
Eko Indrawan ....................................................................................................................... 125-130

23. IMPROVING THE ESP STUDENTS’ VOCABULARY BY USING PICTURES IN CIVIL ENGINEERING STUDY PROGRAM AT FIRST SEMESTER OF EKASAKTI UNIVERSITY PADANG
Elda Martha Suri .................................................................................................................. 131-133

24. INTEGRATED SERVICES SYSTEM ELECTRONIC DEVELOPMENT FACULTY OF ENGINEERING PADANG STATE UNIVERSITY BASED ON JAVA DESKTOP
Elfi Tasrif, Asrul Huda ......................................................................................................... 134-137

25. THE EFFECT OF STRATEGY OF TRAINING MODELS IN LEARNING ELECTRICAL INSTALLATION
Elfizon, Syamsuarnis, Oriza Candra .................................................................................... 138-141
<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Authors</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.</td>
<td>SOFTWARE DEVELOPMENT OF CONCENTRATION SELECTION WITH INTEREST TEST BASED ON INTELLIGENT SYSTEM</td>
<td>Elin Haerani</td>
<td>142-149</td>
</tr>
<tr>
<td>27.</td>
<td>NEEDS ANALYSIS ON INCREASING COMPETENCY TEST RESULTS STUDENTS IN S1 PROGRAM OF PUBLIC HEALTH SCIENCES STIKES HANG TUAH PEKANBARU</td>
<td>Emy Leonita, Nopriadi, Ahmad Satria Efendi, and Niswardi Jalinus</td>
<td>150-155</td>
</tr>
<tr>
<td>28.</td>
<td>THE READINESS OF STUDENT TO ENTREPRENEUR THROUGH INCORPORATION OF THE PILOT PROJECT PRACTICE</td>
<td>Ernawati</td>
<td>156-161</td>
</tr>
<tr>
<td>29.</td>
<td>EFFECT OF PROJECT BASED LEARNING MODEL IN IMPROVING STUDENT LEARNING RESULT</td>
<td>Erwinsyah Simanungkalit</td>
<td>162-166</td>
</tr>
<tr>
<td>30.</td>
<td>DESIGNING LEARNING TOOLS BY USING PROBLEM BASED INSTRUCTION (PBI) MODEL ON ENERGY RESOURCE MATERIAL INTEGRATED TO ENERGY SAVING CHARACTER</td>
<td>Estuhono</td>
<td>167-170</td>
</tr>
<tr>
<td>31.</td>
<td>THE DESIGN OF LECTURER PERFORMANCE EVALUATION MODEL BASED ON ANALYTIC NETWORKPROCESS (ANP)</td>
<td>Fenny Purwani, Nizwardi Jalinus, Ambiyar</td>
<td>171-175</td>
</tr>
<tr>
<td>32.</td>
<td>DEVELOPMENT OF ONLINE EXAMINATION SYSTEM USING WONDERSHARE QUIZCREATOR BASED ON WEB</td>
<td>FitriYanti, Rijal Abdullah, Krismadinata</td>
<td>176-180</td>
</tr>
<tr>
<td>33.</td>
<td>THE VALIDITY OF TRAINERON MATERIALS SCIENCE AND DEVICES SUBJECT AT DEPARTMENT OF ELECTRICAL ENGINEERING</td>
<td>Fivia Eliza, Dwiprima Elvanny Myor, Hastuti</td>
<td>181-185</td>
</tr>
<tr>
<td>34.</td>
<td>TRAINING MODEL-BASED KNOWLEDGE MANAGEMENT SYSTEM FOR VOCATIONAL HIGH SCHOOL TEACHERS SKILLS ENGINEERING COMPUTER NETWORK</td>
<td>Gunawan Ali, Kasman Rukun, Syahril</td>
<td>186-193</td>
</tr>
<tr>
<td>35.</td>
<td>FUZZY LOGIC BASED CONTROLLER FOR BUCK CONVERTER</td>
<td>Habibullah, Irma Husnaini, Asnil</td>
<td>194-200</td>
</tr>
<tr>
<td>36.</td>
<td>A NEW DESIGN OF HANDLESS STIRRED DEVICE</td>
<td>Hanne Aulia, Riki Mukhairyar</td>
<td>201-204</td>
</tr>
<tr>
<td>37.</td>
<td>ACADEMIC INFORMATION SYSTEM OF STIKES PERINTIS PADANG</td>
<td>Harleni, Marisa</td>
<td>205-209</td>
</tr>
<tr>
<td>38.</td>
<td>DESIGN OF ELECTROMAGNETIC REGENERATIVE SHOCK ABSORBER AS A TOOL OF HARVESTING VIBRATION ENERGY ON VEHICLE</td>
<td>Hasan Maksum, Aslimeri, Putra Jaya, Wanda Afnison</td>
<td>210-213</td>
</tr>
<tr>
<td>No.</td>
<td>Title</td>
<td>Authors</td>
<td>Pages</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>39.</td>
<td>THE EFFECTIVENESS OF USING POSTER AND VIDEO MEDIA IN EDUCATION ABOUT DANGERS OF SMOKING ON KNOWLEDGE AND ATTITUDES OF SENIOR HIGH SCHOOL 12 PEKANBARU STUDENTS</td>
<td>Hastuti Marlina, Reno Renaldi</td>
<td>214-217</td>
</tr>
<tr>
<td>41.</td>
<td>INVESTIGATION OF CHEMICAL FEASIBILITY AND DISTRIBUTION OF IRON SAND RESERVE REGIONAL AREA OF AGAM DISTRICT FOR CEMENT RAW MATERIAL IN PT. SEMEN PADANG</td>
<td>Heri Prabowo, Sumarya</td>
<td>225-227</td>
</tr>
<tr>
<td>42.</td>
<td>THE DEVELOPMENT OF INTERACTIVE MULTIMEDIA-BASED LEARNING MEDIA USING ADOBE FLASH CS3 AND CAMTASIA IN PROBLEM-SOLVING LEARNING IN ELEMENTARY MATHEMATICS OF IN STUDENT PGSD STKIP ADZKIA IN PADANG</td>
<td>Ika Parma Dewi, Lativa Mursida, Rizkayeni Marta</td>
<td>228-235</td>
</tr>
<tr>
<td>43.</td>
<td>ART EDUCATION THROUGH FREE EXPRESSION APPRECIES, DISCIPLINE SCIENCE, AND MULTICULTURAL AS EFFORTS TO IMPROVE STUDENT CREATIVITY</td>
<td>Indra Irawan</td>
<td>236-242</td>
</tr>
<tr>
<td>44.</td>
<td>THE INFLUENCE OF USING ANIMATION MEDIA AND LEARNING MOTIVATION TOWARD LEARNING RESULT OF AUTOMOTIVE STUDENTS IN SMK N 2 PAYAKUMBUH</td>
<td>Indra Wahyu, Fahmi Rizal, Rijal Abdullah</td>
<td>243-248</td>
</tr>
<tr>
<td>45.</td>
<td>INFORMATION SYSTEM AND REPORT VALUE PROCESSING BASED MICROSOFT VISUAL BASIC 6.0 ON SENIOR HIGH SCHOOL (CASE STUDY AT SMAN 12 PADANG)</td>
<td>Indra Wijaya, Isra Mouludi, Fandy Neta, Yaslinda Lizar, Satria Ami Marta</td>
<td>249-256</td>
</tr>
<tr>
<td>46.</td>
<td>DESIGN OF SIMULATOR FOR REPLACEMENT OF TOOLS PRACTICE DIGITAL ENGINEERING IN THE VOCATIONAL SCHOOL</td>
<td>Irwan Yusti, Ganefri, Ridwan</td>
<td>257-259</td>
</tr>
<tr>
<td>47.</td>
<td>CELL ROTATION TO RESOLVE THE WEAKEST CELL DAMAGE IN THE BATTERY PACK IN DISCHARGING PROCESS</td>
<td>Irwanto Zarma Putra, Citra Dewi</td>
<td>260-263</td>
</tr>
<tr>
<td>48.</td>
<td>IMPROVEMENT OF CONCRETE QUALITY WITH ADDITION OF SUNUA PASIR PADANG PARIAMAN WEST SUMATRA</td>
<td>Iskandar G. Rani, Widya Salmita</td>
<td>264-268</td>
</tr>
<tr>
<td>49.</td>
<td>SIMPLE WATER PURIFIER USING MULTILEVEL SYSTEM</td>
<td>Jasman, Nelvi Erizon, Syahrul, Junil Adri, Bulkia Rahim</td>
<td>269-272</td>
</tr>
</tbody>
</table>
50. DESIGN OF LIBRARY INFORMATION SYSTEM USING BARCODE ON SMAN 1 SOLOK CITY
   Jeprimansyah ........................................................................................................... 273-280

51. THE DESIGN OF THE SIGNAL MEASUREMENT DEVICE OF BODY’S BIOELECTRICAL IMPEDANCE By USING THREE ELECTRODES
   Juli Sardi, Hastuti, Ali Basrah Pulungan .............................................................. 281-286

52. PATIENT INFORMATION SYSTEM DESIGN ON MATERNITY HOSPITAL RESTU IBU PADANG
   Jusmita Weriza .......................................................................................................... 287-293

53. IDENTIFICATION THE IMPORTANCE OF LEARNING TOOLS DEVELOPMENT ON ENERGY-EFFICIENT BUILDING INNOVATIONS USING ROOT CAUSE ANALYSIS
   Kemala Jeumpa ........................................................................................................ 294-297

54. DECISION SUPPORT SYSTEM FOR RECOMENDATION CERTIFICATION TEACHER ON VOCATIONAL HIGH SCHOOL
   Khairul, Rahmad Budi Utomo .................................................................................. 298-302

55. IMPACT OF THE TWI LEARNING MODEL IN LEARNING STONE AND CONCRETE CONSTRUCTIONS ON VOCATIONAL EDUCATION
   Kinanti Wijaya, Daniel Irvansius Tampubolon ...................................................... 303-307

56. THE EFFECT OF SOFTWARE MASTERCAME TOWARD MECHANICAL ENGINEERING STUDENTS PERFORMANCE IN MAKING PRODUCT WITH CNC MILLING MACHINE IN VOCATIONAL HIGH SCHOOL 1 PADANG
   Kms. Muhammad. Avrieldi, Suparno, Nofri Helmi ................................................... 308-310

57. LEARNING BROADCAST VIDEO SYSTEM WITH H264 VIDEO ENCODING RASPBERRY PI
   Leni Marlina, Aswandi .............................................................................................. 311-315

58. OPTIMIZATION OF EXTERNAL LIGHTNING PROTECTION SYSTEM DESIGN IN BUILDING CENTER FOR INFORMATION TECHNOLOGY AND DATA BASE (PTIPD) UIN SUSKA RIAU
   Liliana, Afriani, Anwardi .......................................................................................... 316-322

59. A NEW MODEL MOBILE LEARNING MANAGEMENT SYSTEM BASED ON MOODLE IN UNIVERSITY
   Lita Sari Muchlis, Kasman Rukun, Krismadinata, Yahfizham .................................. 323-327

60. DEVELOPMENT OF MECHANICAL TECHNOLOGY LEARNING MODULE PROGRAM EXPERTISE OF SMK ENGINEERING
   M. Giatman, Waskito, Maruli Sihombing .................................................................. 328-332

61. SECURITY OF MEDICAL RECORD WITH RIVEST SHAMIR ADLEMAN (RSA) METHOD
   M. Syaifuddin, Ahmad Fitri Boy, Ali Ilkwan ............................................................. 333-336

62. RAHMATAN LIL ALAMIN, THE CONCEPT OF MULTICULTURAL EDUCATION
   Muh. Barid Nizarudin Wajdi, Achmad Fathoni Rodli .............................................. 337-340
63. LESSON STUDY FOR IMPROVING A LEARNING QUALITY
Muh. Barid Nizarudin Wajdi, Andi Mursidi .............................. 341-345

64. THE ROLE OF INFORMATION TECHNOLOGY IN THE IMPROVEMENT OF
TEACHER’S COMPETENCIES AND TEACHING LEARNING PROCESS
EFFECTIVENESS IN ESA SEJAHTERA SCHOOL PEKANBARU
Muhammad Luthfi Hamzah, Hamzah, Astri Ayu Purwati .................. 346-350

65. IMPLEMENTATION OF PROJECT BASED LEARNING MODEL IN COURSE WEB
DESIGN
Muhammad Sabir Ramadhan, Neni Mulyani, Muhammad Amin ................ 351-357

66. MEASUREMENT MODEL OF CONTRIBUTED FACTOR AND INDICATOR
TOWARDS VOCATIONAL EDUCATION PRODUCTIVITY
Mulianti, Ambiyar, Generousdi and Rodesri Mulyadi ...................... 358-364

67. ORNAMENTS ON THE TRADITIONAL ACEHNESE HOUSE IN CENTRAL ACEH,
ACEH PROVINCE
N Novita, M Mukhirah, R Dewi, Fitriana, F Noer, F Fadillah, E Ermi ........... 365-368

68. DESIGNING STRATEGY MAPS FOR PRIVATE ENGINEERING COLLEGE
Nanang Alamsyah, Larisang, Muhammad Ansyar Bora ....................... 369-376

69. DESIGN OF INTERACTIVE MEDIA INTERACTIVE EYE LESSONS FOR CLASS III
SD N 04 BARINGIN PADANG CULTURAL CULTURAL FLOOR BASED ON
MULTIMEDIA
Nelda Azhar, Putra Jaya, Asrul Huda, Etika Fahmidyah ...................... 377-383

70. DEVELOPMENT OF MALAY FRUIT ORNAMENT
Netty Juliana .............................................................................. 384-387

71. THE CONTRIBUTIONS OF DISCIPLINE AND ENVIRONMENTAL KNOWLEDGE
ON CLEAN BEHAVIOR OF STUDENTS IN PUBLIC ELEMENTARY SCHOOL
KAMPUNG BARU PARIAMAN, WEST SUMATERA
Nurhasan Syah, Sanny Edinov .................................................... 388-393

72. ANALYSIS OF VOLUME AND STRONG CONCRETE IMPROVEMENT ON NON-
SAND CONCRETE MIXED WITH ADDITION BAKING POWDER
Nurmaidah .................................................................................. 394-398

73. BRACING CROSS SECTION EFFECT TO DISSIPATION ENERGY BY NUMERICAL
ANALYSIS
Prima Zola, Rahmat, Fitra Rifwan ................................................ 399-405

74. DEVELOPMENT OF MODEL OF PROPELLER-CROSS FLOW WATER TURBINE
FOR PICO HYDRO POWER GENERATOR TITLE
Purwantono, Refdinal, Hendri, Syahrul ........................................... 406-408

75. THE POTENTIAL OF RENEWABLE ENERGY (STUDY CASE IN TOMUAN
HOLBUNG VILLAGE, ASAHAN REGENCY OF SUMATERA UTARA PROVINCE)
Rahmaniar, Agus Junaidi ......................................................... 409-413
76. VIRTUAL LAB IMPLEMENTATION QOS METAROUTER ON COMPUTER NETWORK LEARNING
Raimon Efendi.......................................................... 414-418

77. BLASTING DESIGN DEVELOPMENT AREA DECLINE CIBITUNG AND CIKONENG UNDERGROUND MINE PT CIBALIUNGR SUMBERDAYA BANTEN
Raimon Kopa, Afdhal Husnuzan, Bambang Heriya.............................................. 419-423

78. ANALYSIS OF LEARNING COMPETENCY ENGINEERING STUDENTS VOCATION D 3 FT UNP
Ramli, Febri Prasetya .......................................................................................... 424-429

79. FACTORS AFFECTING THE AUTOMOTIVE ENGINEERING STUDENTS’ INTEREST ON TEACHING PROFESSION
Rasinov Chandra, Anggi Aprianto, Mawardi, Reza Rahmadani................................. 430-435

80. AN EXPERIMENTAL STUDY ON THE EFFECT OF CENTRIFUGAL CLUCTH COOLING GROOVE ON MOTORCYLCE PERFORMANCE
Remon Lapisa, Hendika Syahputra, Irma Yulia Basri, Rifidarmon, Hendra Dani Saputra 436-440

81. EXPERT MODEL SYSTEM ON ENTREPRENEURSHIP PERSONALITY
Resmi Darni, Z. Mawardi Effendi and Selamat Triono........................................... 441-446

82. THE ANALYZED OF TAR AS WASTE MATERIAL OF BITUMINOUS COAL GASIFICATION BY USING GASCHROMATOGRAPHY
Rijal Abdullah and Hengki Ade Satria .................................................................... 447-450

83. EMPLOYEE PRODUCTIVITY IN TWO CROSS CULTURES BASED ENTREPRENEURSHIP
Riki Adriadi, Ganefri and Fahmi Rizal ................................................................. 451-455

84. DEVELOPMENT OF INTERACTIVE MULTIMEDIA CD OF INSTRUCTIONAL MEDIA ON BUILDING CONSTRUCTION
Rizky Indra Utama, Nurhasan Syah, Rijal Abdullah................................................ 456-458

85. MULTIMEDIA INTERACTIVE IN WEB PROGRAMMING SUBJECTS
Rusli Saputra, Sophan Sophian, Delia Putri .......................................................... 459-464

86. PREDICTED VULNERABILITY ASSESSMENT OF NON ENGINEERED HOUSES BASED ON DAMAGE DATA OF THE 2009 PADANG EARTHQUAKE IN PADANG CITY, INDONESIA
Rusnardi Rahmat Putra, Junji Kiyono and Aiko Furukawa ....................................... 465-472

87. TWO SPECIES OF TERMITE DAMAGING TO BUILDING AND HOUSES AT BANDA ACEH (SUMATRA, INDONESIA)
S Syaukani, M Bahi, M Muslim, M Shabri Abd Majid, D Sutekad, Y Yasmin, N Novita 473-476

88. PERSONNAL MANAGEMENT IN INFORMATION SYSTEMS APPLICATIONS WITH TOGAF FRAMEWORK
Safrian Aswati, Saleh Malawat, Suhendra, Iskandar, Yessica Siagian, Arridha Zikra Syah 477-482
89. ANALYZING OF TECHNICAL CUTTING OF EMPTY PALM BUNCHES
Safril, Dedi Wardianto .......................................................... 483-492

90. DESIGNING AND MANUFACTURE OF RADIUS PAJI HAIRERS (PAHAT RADIUS POST) ON LATHE MACHINE FOR LABORATORY AND MODULES TEACH
Saiful Anwar, Rindi Genesa, Hatika, B. Herawan Hayadi ........................................... 493-498

91. MATERIAL SELECTION ANALYSIS AND MAGNET SKEWING TO REDUCE COGGING TORQUE IN PERMANENT MAGNET GENERATOR
Sepannur, Bandri, M. Aldi Tio .......................................................... 499-506

92. COMPARISON OF DECISION TREE ALGORITHM METHOD (C4.5) AND NAIVE BAYES TO IDENTIFY STUDENT LEARNING RESULTS WITH COOPERATIVE LEARNING MODEL
Sri Restu Ningsih .......................................................... 507-511

93. ONLINE ASSESSMENT TOOLS FOR 2013 CURRICULUM BASE ON INFORMATION TECHNOLOGY
Suartin, Hambali, Oriza Chandra .......................................................... 512-517

94. GAME BASED LEARNING TO IMPROVEMENT TEACHERS KNOWLEDGE FOR TEACHING STRATEGY IN THE CLASS
Suherman .......................................................... 518-523

95. LEARNING RESPONSE OF JOURNEY LEARNING COOPERATIVE LEARNING AND LEARNING MODULE IN EDUCATION MEDIA LEVEL
Suparno, Bulkia Rahim, Zonny Amanda Putra, Junil Adri, Jasman .......................................................... 524-528

96. NEED ANALYSIS APPLICATION ON THE FEASIBILITY STUDY OF THE HYDROELECTRIC POWER SELECTION (CASE IN SOLOK, PESISIR SELATAN AND SIJUNJUNG REGENCY)
Suryadimal, Edi Septe, Wenny Martiana, Fahmi Rizal, Nizwardi Jalinus .......................................................... 529-534

97. DEVELOPING SOFT SKILLS LEARNING MODERNIZATION FOR MECHANICAL ENGINEERING STUDENTS OF VOCATIONAL HIGH SCHOOL
Suryo Hartanto .......................................................... 535-538

98. IMPACT OF WORK-BASED LEARNING OF CONCRETE STONE WORK PRACTICE ON DIPLOMA-III CIVIL ENGINEERING STUDENTS
Syafiatun Siregar .......................................................... 539-543

99. DEVELOPMENT OF WEB-BASED DECISION SUPPORT SYSTEM FOR SCHOLARSHIP RECIPIENTS SELECTION USING ANALYTICAL HIERARCHY PROCESS (AHP) METHOD
Titi Sriwahyuni, Dedi Irfan, Ika Pharma Dewi and Hanny Maharani .......................................................... 544-552

100. EFFECT OF ENGINE TEMPERATURE CHANGES ON INJECTION TIME OF FUEL AND GAS EMISSION OF GASOLINE ENGINE
Toto Sugianto, Dwi Sudarno Putra, Wawan Purwanto .......................................................... 553-557
101. EARTHQUAKE AND TSUNAMI DISASTER MITIGATION TRAINING FOR ELEMENTARY SCHOOL STUDENTS IN THE COASTAL AREA OF PADANG PARIAMAN DISTRICT WITH KYOTO INTERNATIONAL DISASTER PREVENTATION SCHOOL METHOD
Totoh Andoyono, Fitra Rifwan, Revian Bodi, Prima Zola, Annisa Prita ............................. 558-560

102. FUNCTIONAL MEMBERSHIP ANALYSIS OF FUZZY INFERENCE SYSTEM SUGENO IN ANEMIA CLASSIFICATION
Tri Monarita Johan ................................................................................................................. 561-563

103. DEVELOPMENTAL OF MEDIA LEARNING BASED ON TUTORIAL VIDEO AT CHARACTER MAKE UP SUBJECT IN SMKN 6
TyasAsih Surya Mentari, MurniAstuti, and Linda Rosalina ................................................... 564-570

104. PSYCHOLOGICAL FACTORS INFLUENCING THE DECISION MAKING OF PURCHASING PRODUCTS VIA ONLINE
Ulfa Annida Damanik, Sri Wening .......................................................................................... 571-577

105. IMPROVING TEACHERS’ PROFESSIONALISM APPROPRIATE TO NEW CURRIRULUM 2017 FOR VOCATIONAL SCHOOLS BY CAPACITY BUILDING AND WORKSHOP ABOUT PREPARING LOCAL GOVERNMENT FINANCIAL STATEMENT; AN EXPERIMENTAL STUDY ON ACCOUNTING TEACHERS’ FROM VOCATIONAL SCHOOLS IN WEST SUMATERA PROVINCE
Vita Fitria Sari, Mayar Afriyenti, Mia Angelina Setiawan ..................................................... 578-585

106. THE DEVELOPMENT OF VIT (VOCATIONAL INTEREST TEST) MODEL USING DECISION SUPPORT SYSTEM (DSS) TECHNIQUE
Vitriani ...................................................................................................................................... 586-590

107. ANALYSING INFORMATION SYSTEM OF ACADEMIC SERVICES IN THE UNIVERSITY
Wahyu Prima, Ganefri, Krismadinata ....................................................................................... 591-595

108. RESOURCE SHARING–BLENDED PROJECT BASED LEARNING (RS-BPBL©) MODEL DEVELOPMENT IN VOCATIONAL HIGH SCHOOL
Wahyuudi ................................................................................................................................. 596-602

109. DEVELOPMENT ASSESSMENT MODEL TO HIGH ORDER THINKING SKILL ORIENTATE FOR EVALUATION STUDENT COMPETENCY
Wakhinuddin S, Bahrul Amin, Waskito .................................................................................... 603-605

110. USE OF GEARBOX VIAR ON FISHING SHIPS
Wakhinuddin S, Donny Fernandez, Andrizal, M Nasir, Rfidarmon ........................................ 606-609

111. THE APPLICATION OF SIMPLE STRAIN GAUGE DYNAMOMETER IN LEARNING STYLE CUTTING LATHE
Wenny Marthiana, Suryadimal, Edi Septe, Duskiardi, Andika ................................................ 610-613

112. DESIGN OF ANDROID BASED INTERACTIVE BOOK IN INTEGRATED ISLAMIC ELEMENTATY SCHOOL OF LAN TABUR PAGARALAM CITY
Yadi, Efan, Sigit Candra Setya ............................................................................................... 614-617
113. SMART CLASSROOM DESIGNS IN THE SMART EDUCATIONAL ENVIRONMENT
Yasdinul Huda, B Herawan Hayadi ................................................................. 618-626

114. BUILD AND DESIGN OF BUSINESS INTELLIGENCE UNIVERSITY SYSTEM AS
DECISION SUPPORT ACADEMIC
Yaslinda Lizar, Asriwan Guci ........................................................................... 627-636

115. SOIL STABILITY USING CEMENT PCC IN LUBUK MINTURUN PADANG,
INDONESIA
Yocky Syaida Adha Putra, Tengku Ahmad Fauzan Syah ................................. 637-642

116. INFLUENCE THE LEARNING STRATEGY AND ENTRY BEHAVIOR TO YIELD
LEARNING BUILDING CONSTRUCTION AND DRAWING 1 OF STUDENT
Yuwalitas Gusmareta, Fahmi Rizal, Nurhasan Syah ...................................... 643-646

117. IMPLEMENTATION OF DISASTER PREPARED SCHOOL (SSB) IN WEST
PASAMAN DISTRICT WEST SUMATERA PROVINCE
Yuwalitas Gusmareta, NurhasanSyah, Laras Andreas Oktavia, RizkyIndraUtama,
MuviYandra ........................................................................................................ 647-649

118. USING MOBILE TELECOMMUNICATIONS -2000 INTERNATIONAL FOR
ANALYZING TECHNOLOGY NETWORK ERA 4G-LTE
ZulhamSitorus, Ganefri, NizwardiJalinus ..................................................... 650-653

119. FACTORS AFFECTING STUDENTS IN CHOOSING COMPUTER ENGINEERING
DEPARTMENT IN STT PAYAKUMBUH
Zulkifli, Dilson, Rahmad Al Rian ...................................................................... 654-659

120. FACTORS EFFECTING ELEMENTARY SCHOOL TEACHER READINESS ON
IMPLEMENTING CURRICULUM IN WEST SUMATERA
Zuryanty, Hamimah, Mulyani Zein ................................................................. 660-665
DEVELOPMENT OF EMPLOYEE INFORMATION SYSTEM
-BASED WEB IN MAN 1 PADANG

Asrul Huda¹, Rendy Harisca²

¹,²Faculty of Engineering, Universitas Negeri Padang, Indonesia

ABSTRACT: Information Systems have a role as a tool to manage service in organization to be more accurate, effective and efficient. In MAN 1 Padang chief of TU still difficult to manage employee data because there is no database management that can store, process, and maintain integrity of employee data. To improve service in MAN 1 Padang needed employee Information System-based web that is able to manage employee services, start from employee data input process, employee leave process, employee mutation process, and employee retirement process are mutually integrated as a whole. This design implemented by PHP programming language with MySQL database and CodeIgniter framework. In system design involved Use Case diagrams, Activity diagrams, Context Diagrams, flow map, Normalization and Entity Relationship Diagram. This system involves 3 users namely: Employee, Admin (administrator), and Principal. The three levels that registered have a private account to enter into a system that is username and password for the admin and principal while the employee enters used NIP and Password with MD5 encryption. Employee information system produced applications-based web that can help Administrative Officers in improving the effectiveness and efficiency in the implementation of employee management activities as well as displaying actual information in the form of employee data reports, employee retirement information, history of employee mutation and employee leave history.

Keywords: Employee Information System, PHP, MySQL database, CodeIgniter framework.

1. INTRODUCTION

Information technology and computer technology now, growing very rapidly. The needed increasingly demand by all of society, both ordinary people and intellectuals people. This is related to activities that are often done by a human who usually done manually and traditionally, now will be more quickly and precisely if do with help with machines that is computer technology.

Development of information technology has generated many systems and applications that are very useful. One of them is the internet. The popular Internet is often referred as web or often also called software based-web that has grown rapidly in terms of use, size, language used and complexity. Web applications were originally just static sites but now many dynamic and interactive that used in information systems and telecommunications.

Advances in information technology and computer technology have resulted in the growing understanding of the importance of technology aspects in a company, agency, or organization. So in today's information technology has also been widely used by companies, educational institutions and organizations for media publications.

Development of communication technology is a base for the development of an information system. The information system implies an organized data collection and with usage arrangements that include more than just a presentation. The information system is an integrated system capable of providing useful information for the users.

The use of information systems in helping organizational performance is increasingly needed. Supported by the sophistication of information technology, has enabled the development of an increasingly reliable information system. Information Systems is one of the most important resources in modern management. Many strategic decisions depend on information.

Structuring information that is done by regularly, clearly, precisely and quickly and can be presented in a report definitely supports the smooth operation of the organization and make a decision appropriate.

Administrative Section (TU) in the school has a task to carry out of employee administration including processing mutation process, leave, and employee retirement. MAN 1 Padang applied a manual system in providing information services for user needs, so it is less able to answer the challenges of the times and seem left behind by modernity. Based on the observations results and based on interviews conducted with the leader of TU MAN 1 Padang that the school is unavailable an information system that can be accessed anywhere and anytime such as employee information system. The manual system is no longer relevant to MAN 1 Padang is more growing and with the number of employees who continue to increase. This manual system has many disadvantages: used of time longer, the manpower that much, the cost required is very large as well more risk of error. The school administration management personnel such as employee data, leave, mutation, and retirement in MAN 1 Padang
not yet use the database as a storage medium employee data, it can be seen in presenting the report used computerization is limited to typing all data that has been prepared before by using the application Ms. Word and Ms. Excel, so that in producing all the right reports relatively longer and less complete in the report resulting then slow information received by employees from the administration MAN 1 Padang. It needs an employee data processing concept with employee data processing features, retirement data, mutations, leaves, and reports provided according to the administrative requirements of MAN 1 Padang in form website.

System design in this application used UML modeling (Unified Modeling Language) which consists are Use Case Diagram, Context Diagram, and Activity Diagram.

According Leman (1998: 3) information system is "A system made by humans consisting components within the organization to achieve a goal that is presenting information". Based on Kadir (2013: 71) an information system there are components such as: "Hardware includes physical devices such as computers and printers then Software or program that set of instructions that allow by hardware to be able process of data, the third is a procedure is set of rules that used to realize data processing and generation of desired output, then the fourth is the person is all the parties responsible for the development of information systems, processing, and use the information of system output and the fifth is the database is set of tables, relationships, and others related to data irregularities, and the last computer network and data communications is a system that allows connections to resources that used together or accessed by a number of users".

According to Kadir (2013: 4) the main capabilities of information systems are as follows: "Implement numerical computation, large volume and with high speed, and provide communication within organizations or inter-organizations are cheap, accurate and fast, storing information in a very large amount small, accessible space allows quick access to information around the world, improves the effectiveness and efficiency of people working in groups in a place, presents clear information that inspires the human mind, automates semi-automated business processes and tasks that are done manually and speed up typing and editing and then financing is cheaper than manual".

The last Rosa opinion (2011: 118) about UML: "UML is a visual language for modeling and communication of a system by using diagrams and supporting texts". UML only works for modeling. So UML usage is not limited to certain methodologies, although in reality, UML mostly used in oriented object methodology".

2. METHOD DESIGN

System design in this application used UML modeling (Unified Modeling Language) which consists of Use Case Diagram, Context Diagram, and Activity Diagram.

2.1. Analysis of Current System

The following document flow diagrams define the relationships between parts (process actors), processes (manual) and data flow (in the form of output and input documents). The flow of documents in running system can be described with the system flow map as shown in the picture below:

![Figure 1. Current System](image)

2.1. Analysis to be developed

a. User Analysis

Users are actors who will play a role in the system. In this system, the users involved are employees, admin/administration, and principal. Here are the details of the task or thing that users can do in the system:

1) Employee

In this system, employees have the right to apply for leave, mutation, and retirement, including the number of teaching hours and duties of education and see the history of the leave, retirement reports and mutation reports.

2) Admin / Administration
In this system, the admin/administration is positioned as a system manager and granted full system access rights to:

a) Checking employee data.
b) Keep employee data.
c) Acc Format employee data.
d) Check employee data and check completeness, leave application, retirement, and mutation.
e) Save, SK Request for leave, SK retirement, and SK Mutation.

3) Principal
The Principal is a leader in a school, who is in charge of:

a) Acc Format employee data after Acc by the administrator.
b) Sign the data completion of the application for leave, retirement, and mutations that have been examined by the administration, have access rights to add admin on the system.

b. Process Analysis

Employee information system at MAN 1 Padang makes the process of storing employee data which will then be stored in employees’ database. In employee information systems at MAN 1 Padang in addition to the process of data collection of new employees, there is also the process of application for leave, employee mutations, and retirement.

c. System Design
Here's the proposed flow map:

![System flow map that proposed](image)

The new system to be built is not much different with old system, the difference only from a manual system and does not have a database in the end in this new system to be computerized and has a database for data that can be stored neatly and to facilitate in input data process employees and other processes associated with employee data.

d. Hardware Requirements Analysis

1) *Processor* : Intel Atom or above version
2) *RAM* : 1GB or more
3) *Hard disk* : 40 GB or more

e. Software Requirements Analysis

<table>
<thead>
<tr>
<th>Software</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 7, 8, and 10</td>
<td>Computer operation</td>
</tr>
<tr>
<td>Atom</td>
<td>Text Editor</td>
</tr>
<tr>
<td>Mozilla Firefox/Google</td>
<td>Web browser</td>
</tr>
<tr>
<td>Chrome</td>
<td></td>
</tr>
<tr>
<td>XAMPP</td>
<td>Web server</td>
</tr>
<tr>
<td>MariaDB</td>
<td>Database server</td>
</tr>
<tr>
<td>CodeIgniter</td>
<td>Framework PHP</td>
</tr>
<tr>
<td>Materialize</td>
<td>Framework CSS</td>
</tr>
</tbody>
</table>

f. System planning
System design for illustrating, plan, and make sketches or arrangement of some separate elements into one unified whole and functioning. System
design is the result of the transformation from analysis into a design that will be implemented.

1) Context Diagram

A context diagram is the highest level in the data flow diagram and only load the process, showing the system as a whole. Context diagram shows the relationship and boundary between a system with an external entity.

![Figure 3. Context Diagram](image)

In the context diagram above seen, admin/administration have full access rights in the system. Where admin/administration has task management system, then Principal look out that report based on information input by admin/administration and also duty add admin and have a duty for input the data needed for process required.

2) Use Case Diagram

Use Case diagram is a scenario of the interaction between users with the system. A use case diagram illustrates the relationship between actors and activities that can be performed in the application. The following is the use case design diagram Employee Information System MAN 1 Padang:

![Figure 4. Use Case Diagram](image)

Figure 4 shown that each actor has different levels, admin/administration has a task to manage the system, then the principal reviewed reports based on the information infected by the admin/administration and also in charge of adding admin and have duties to input the data needed for the required process.

3. DESIGN RESULTS

Implementation is a process that interpreted the design results into a software form as a whole. The implementation of the interface is to interpret the layout that has been made on the interface design into the form of the system interface display intact. Implementation this system interface applied to determine the system has been designed run properly in accordance with a design that has been designed previously.

3.1. Home Page

The home page is the first page when the user opens the website employee information system http://localhost/employee/. Display the home page shown in the picture below:

![Figure 6. Home Page](image)

3.2 Employee page

a. Employee Login page

Login page is the page where the employee login. The appearance of the employee login page is as follows:

![Figure 7. Login page](image)

b. Employee Home Page

The main home page is the main page after employee login account. The main employee page is shown in the picture below:

![Employee Home Page](image)
c. Input Form Page

Input Form Page is a page where employees input the data required in manage of leave, mutations and retirement. Here is an example one of the input leave form, input form like shown in the picture below:

Figure 9. Leave Input Form

d. Status page

Status page is page to see the process submission of leave, mutation and retirement submitted by the employee after filling in the necessary data contained in the input form. In this page employee can see the submission is being processed acc by administration after it that ace by principal and then the employee gets notice on the status page, that the submission has been ace by the administration and principal. Here is an example one of status page views the leave status page as shown in the image below:

Figure 10. Leave Status

e. Teaching History Page

Teaching history page is a page where employees can see the history of the teaching hours that input by employees at MAN 1 Padang. In this page employees also add teaching history data as specified in each semester and academic year, the added data includes the school year, semester, level, subject and number of teaching hours. The history of teaching page views is as follows:

Figure 11. Teaching History


Task educational force page is history page the educational employee where employees can see history of tasks employee that inputted by structural employee in MAN 1 Padang. In this page employees can add task data accordance that decided in each semester and academic year, the added data include year of teaching, semester, and task of educational force. The history of teaching page views is as follows:

Figure 12. Task of Educational Force Page.

g. Report page

Report page is a page where employees can see history of leave, mutations and retirement filed by all employees at MAN 1 Padang. In this page employees can search other employee names about leave, retirement and mutations and then employees also can print report as needed. Here is an example one of page views report, this report about leave page as shown in the picture below:

Figure 13. Leave Report

3.3. Admin page

Admin page is a page where admin has rights access to look out and print all employee data, process submission of leave, mutation and retirement, printed SK of leave, mutation and retirement required by employee, and can look out and print report history of leave, mutation and retirement. On the administrator page there
are 2 admin levels: administrative as main admin and principal.

a. Admin Login Page

Login page is main page when admin opens website. In order to enter the next menu page admin must enter a username and password. Implementation of admin login page is as follows:

![Admin Login](image1)

Figure 14. Admin Login

b. Admin Home

Administrator's home page is the first page that appears when login in admin page. The main administrator page views are as follows:

![Admin Home Page](image2)

Figure 15. Admin Home Page

c. Master Data Menu

Employee master data page displays Employee MAN 1 Padang data and there is sub-menu click to add data if admin wants to add Employee data, and there is a useful action button to view details, edit and delete data, and there is a menu to print entire employees data. Employee data are separated based on employee type that is Structural and Functional employees. Here is an example one of the master data display, which is master data of structural employees such as shown in the picture below:

![Structural Employee Data Display](image3)

Figure 16. Structural Employee Data Display

d. Process Menu

In display below is that display from page of leave process, process of leave is a process to find out data entered by employee has been approved by administration and principal.

![Process Menu](image4)

Figure 17. Display Page of Employee Leave Data

e. Report Menu

Menu page of Employee report contains a page listing the structural and functional employee list report of MAN 1 Padang applying for leave. Here is an example one of the report menus leaves report as shown in the picture below:

![Report Menu](image5)

Figure 18. Display of Employee Leave Report Page

f. Account Menu

Account menu page is page that appears when the admin wants to change the password and exit from system. Page display to change the password as follows:

![Account Menu](image6)

Figure 19. Display In Change Admin Password

4. DISCUSSION

The process flow of the system has been designed in accordance with analysis that has been applying primarily in employee administration process in MAN 1 Padang in integrated and systematic through employee information system.

Functionality system has been running smoothly without any technical errors that caused tendency system or process failure to handled user requests and needs. Interaction between users, admin, principal and employees with system running
properly. The main features for data processing employees, number of teaching hour’s data, data of educational tasks, retirement data, mutations, leave and reports provided according needs of employee administration MAN 1 Padang in websites form.

User design interface in employee information system developed to friendly for users and responsive web in order to adapt to various platform sizes. The display is also designed to be informative for users and offers a complete information requirement.

According to Leman (1998: 3) information system is "A system made by humans consisting of components within organization to achieve a goal that is presenting information".

5. CONCLUSION

Based on the results of design and discussion, concluded as follows:

a. With implement of computerized systems in manage employee data with databases that created by used MySQL can apply quickly so that errors in entering and calculating data relatively can be avoided. Then efficiency of time in progress and completion of a report will be better.

b. The results from made this employee information system can support the smooth implementation and function in field employee administration that effectively and efficient, such as administration in processing employees data, submission of leave, mutation and retirement.

c. Improving services and need in employee information more accurate and relevant.

d. Employee Information Systems has been successfully designed used PHP programming language, Codeigniter Framework, software development code generator or editor used Atom, MySQL / MariaDB as DBMS for database, materialize.css to design and Xampp as servernya

6. REFERENCES


