

# **4th International Conference on Mathematics, Science, and Education (ICMSE 2017)**

Journal of Physics: Conference Series Volume 983

Semarang, Indonesia  
18 – 19 September 2017

Part 1 of 2

ISBN: 978-1-5108-6122-0  
ISSN: 1742-6588

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2017) by the Institute of Physics  
All rights reserved. The material featured in this book is subject to  
IOP copyright protection, unless otherwise indicated.

Printed by Curran Associates, Inc. (2018)

For permission requests, please contact the Institute of Physics  
at the address below.

Institute of Physics  
Dirac House, Temple Back  
Bristol BS1 6BE UK

Phone: 44 1 17 929 7481  
Fax: 44 1 17 920 0979

[techtracking@iop.org](mailto:techtracking@iop.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

## PART 1

<b>PERFORMANCE OF ZEOLITE CERAMIC MEMBRANE SYNTHESIZED BY WET MIXING METHOD AS METHYLENE BLUE DYE WASTEWATER FILTER .....</b>	<b>1</b>
<i>Masturi, R D Widodo, S S Edie, U Amri, A L Sidiq, D Alighiri, N A Wulandari, Susilawati, S N Amanah</i>	
<b>USING HISTORY OF PHYSICS AS A MEDIA TO INTRODUCE AND INTERNALIZE CHARACTERS VALUES IN PHYSICS INSTRUCTION .....</b>	<b>6</b>
<i>N Hindarto, S E Nugroho</i>	
<b>GROUNDWATER POTENTIAL PREDICTION BY USING GEOELECTRICITY METHOD A CASE STUDY IN SIMPANG LIMA AND AROUND IT .....</b>	<b>9</b>
<i>D R Rahmawati, Supriyadi, N P Aryani, M A Naufal</i>	
<b>OPTIMIZATION OF EXPOSURE FACTORS FOR X-RAY RADIOGRAPHY NON-DESTRUCTIVE TESTING OF PEARL OYSTER .....</b>	<b>15</b>
<i>Susilo, I Yulianti, A Addawiyah, R Setiawan</i>	
<b>MULTI-REPRESENTATION ABILITY OF STUDENTS ON THE PROBLEM SOLVING PHYSICS .....</b>	<b>21</b>
<i>Y Theasy, Wiyanto, Sujarwata</i>	
<b>END-USER SATISFACTION ANALYSIS ON LIBRARY MANAGEMENT SYSTEM UNNES USING TECHNOLOGY ACCEPTANCE MODEL TOWARDS NATIONAL STANDARD OF INTEGRATED LIBRARY .....</b>	<b>25</b>
<i>W Hardyanto, A Purwinarko, M A Adhi</i>	
<b>OPTICAL ABSORPTION IN RECYCLED WASTE PLASTIC POLYETHYLENE .....</b>	<b>30</b>
<i>M P Aji, I Rahmawati, A Priyanto, J Karunawan, A L Wati, N P Aryani, Susanto, E Wibowo, Sulhadi</i>	
<b>THE PHYSICAL GROWTH OF OREOCHROMIS NILOTICUS AND THREE PLANT SPECIES ON THE AQUAPONIC TECHNOLOGY .....</b>	<b>35</b>
<i>A Mustikasari, P Marwoto, R S Iswari</i>	
<b>MARKISA FRUIT (PASSIFLORA EDULIS VAR. FLAVICARPA) AS A FIXATION MATERIAL OF NATURAL COLOUR OF MANGROVE WASTE ON BATIK .....</b>	<b>41</b>
<i>S N Izzah, P Marwoto, R S Iswari</i>	
<b>FOCUS GROUP DISCUSSION IN MATHEMATICAL PHYSICS LEARNING .....</b>	<b>47</b>
<i>Ellianawati, D Rudiana, J Sabandar, B Subali</i>	
<b>DESIGN AND DEVELOPMENT OF MULTIPURPOSE KUNDT'S TUBE AS PHYSICS LEARNING MEDIA .....</b>	<b>53</b>
<i>E Nursulistiyo</i>	
<b>STRUCTURAL AND MORPHOLOGICAL STUDY ON ZNO:AL THIN FILMS GROWN USING DC MAGNETRON SPUTTERING .....</b>	<b>59</b>
<i>B Astuti, Sugianto, S N Mahmudah, R Zannah, N M D Putra, P Marwoto, D Aryanto, E Wibowo</i>	
<b>CHARACTERIZATION OF SENSITIVITY AND RESPONSE TIME OF PLASTIC OPTICAL FIBRE SENSOR TO CADMIUM ION .....</b>	<b>65</b>
<i>I Yulianti, N M D Putra, Masturi, I V Albadiyah, D A Pratiwi, N Akmalia</i>	
<b>SYNTHESIS OF CRISTOBALITE FROM SILICA SANDS OF TUBAN AND TANAH LAUT .....</b>	<b>71</b>
<i>U Nurbaiti, S Pratapa</i>	
<b>PATTERN OF MATHEMATIC REPRESENTATION ABILITY IN MAGNETIC ELECTRICITY PROBLEM .....</b>	<b>75</b>
<i>R R H Hau, P Marwoto, N M D Putra</i>	
<b>THE INFLUENCE OF CHANNEL LENGTH TO THE CHARACTERISTICS OF CUPC BASED OFET THIN FILMS .....</b>	<b>81</b>
<i>Sujarwata, L Handayani, Mosik, Fianti</i>	
<b>DETERMINATION OF ELEMENTS IN HOSPITAL WASTE WITH NEUTRON ACTIVATION ANALYSIS METHOD .....</b>	<b>85</b>
<i>P Dwijananti, B Astuti, Alwiyah, Fianti</i>	
<b>THE DENSITY AND COMPOSITIONAL ANALYSIS OF TITANIUM DOPED SAPPHIRE SINGLE CRYSTAL GROWN BY THE CZOCHARLSKI METHOD .....</b>	<b>90</b>
<i>H H Kusuma, Z Ibrahim, Z Othaman</i>	
<b>THE EFFECT INCORPORATION OF NI=0.05 AT MN SITE ON MICROWAVE ABSORPTION PROPERTIES OF <math>\text{La}_{0.67}\text{Sr}_{0.33}\text{MnO}_3</math> MATERIAL .....</b>	<b>96</b>
<i>I Fauziyah, B Kurniawan, E P Yandra</i>	



<b>THE SIMULATION OF A TWO-DIMENSIONAL (2D) TRANSPORT PROBLEM IN A RECTANGULAR REGION WITH LATTICE BOLTZMANN METHOD WITH TWO-RELAXATION-TIME .....</b>	<b>101</b>
<i>S Sugiyanto, W Hardyanto, P Marwoto</i>	
<b>SCIENTIFIC METHOD BY ARGUMENTATION DESIGN: LEARNING PROCESS FOR MAINTAINING STUDENT'S RETENTION .....</b>	<b>107</b>
<i>Siswanto, Yusiran, Asriyadin, S Gumilar, B Subali</i>	
<b>IDENTIFICATION OF HEAVY METALS ON VEGETABLES AT THE BANKS OF KALIGARANG RIVER USING NEUTRON ANALYSIS ACTIVATION METHOD .....</b>	<b>113</b>
<i>D Yulianti, P Marwoto, Fianti</i>	
<b>PLANNING COMPARISON BETWEEN INTENSITY MODULATED RADIATION THERAPY AND INTENSITY MODULATED PROTON THERAPY IN A CASE OF HEAD AND NECK CANCER .....</b>	<b>119</b>
<i>T T C Nguyen, B T Nguyen, N V Mai</i>	
<b>ANALYSIS OF GRAPHIC REPRESENTATION ABILITY IN OSCILLATION PHENOMENA .....</b>	<b>125</b>
<i>A R C Dewi, N M D Putra, Susilo</i>	
<b>DEVELOPMENT OF DIAGNOSTIC TEST INSTRUMENTS TO REVEAL LEVEL STUDENT CONCEPTION IN KINEMATIC AND DYNAMICS .....</b>	<b>131</b>
<i>J Handhika, C Cari, A Suparmi, W Sunarno, P Purwandari</i>	
<b>ACHIEVEMENT OF LEARNING OUTCOME AFTER IMPLEMENTED PHYSICAL MODULES BASED ON PROBLEM BASED LEARNING .....</b>	<b>137</b>
<i>R Isna, M Masykuri, Sukarmin</i>	
<b>MAGNETIC PROPERTIES OF FISHES FROM RIVERS NEAR SEMARANG, CENTRAL JAVA .....</b>	<b>143</b>
<i>Khumaedi, U Nurbaiti, N E Setyaningsi</i>	
<b>THE ANALYSIS OF PHYSICS LEARNING IN SENIOR HIGH SCHOOL OF SEMARANG BASED ON THE SCIENTIFIC APPROACH AND ASSESSMENT .....</b>	<b>149</b>
<i>R C Hardyanti, Hartono, Fianti</i>	
<b>STUDENTS CONCEPT UNDERSTANDING OF FLUID STATIC BASED ON THE TYPES OF TEACHING .....</b>	<b>156</b>
<i>I D Rahmawati, Suparmi, W Sunarno</i>	
<b>IDENTIFICATION GROUNDWATER AQUIFER BY USING GEOELECTRICAL METHOD: CASE STUDY PONDOK PESANTREN DARUSSALLAM, KRADENAN, GROBOGAN .....</b>	<b>162</b>
<i>B Legowo, Darsono, A G Putra, M F R Kurniawan</i>	
<b>THE ANALYSIS OF SCIENTIFIC COMMUNICATIONS AND STUDENTS' CHARACTER DEVELOPMENT THROUGH GUIDED INQUIRY LEARNING .....</b>	<b>168</b>
<i>S Sarwi, N Fauziah, B Astuti</i>	
<b>DISTRIBUTION OF BASIC SEDIMENTS (BEDLOAD TRANSPORT) ON CHANGES IN COASTAL COASTLINE DONGGALA, CENTRAL SULAWESI PROVINCE, INDONESIA .....</b>	<b>174</b>
<i>Amiruddin</i>	
<b>THE TECHNICAL IMPLEMENTATION OF AN IMPT SYSTEM FOR RESEARCH PURPOSE .....</b>	<b>184</b>
<i>T T C Nguyen, B T Nguyen, N V Mai</i>	
<b>MULTI-REPRESENTATION BASED ON SCIENTIFIC INVESTIGATION FOR ENHANCING STUDENTS' REPRESENTATION SKILLS .....</b>	<b>190</b>
<i>J Siswanto, E Susantini, B Jatmiko</i>	
<b>DEVELOPMENT OF CONTEXTUAL TEACHING AND LEARNING BASED SCIENCE MODULE FOR JUNIOR HIGH SCHOOL FOR INCREASING CREATIVITY OF STUDENTS .....</b>	<b>196</b>
<i>H Kurniasari, Sukarmin, Sarwanto</i>	
<b>DRY DOCK GATE STABILITY MODELLING .....</b>	<b>202</b>
<i>Oktoberly, Widiyanto, E J Sasono, S Pramono, A T Wandono</i>	
<b>THE VALIDITY OF THE EARTH AND SPACE SCIENCE LEARNING MATERIALS WITH ORIENTATION ON MULTIPLE INTELLIGENCES AND CHARACTER EDUCATION .....</b>	<b>208</b>
<i>W Liliawati, J A Utama, T R Ramalis, A A Rochman</i>	
<b>DETERMINATION OF BEDROCK DEPTH AT FACULTY OF MEDICINE UNIVERSITAS SEBELAS MARET SURAKARTA BY USING SEISMIC REFRACTION METHOD .....</b>	<b>214</b>
<i>A T Pridasiwi, B Legowo, S Koesuma</i>	
<b>IMPLEMENTATION OF SMALL GROUP DISCUSSION AS A TEACHING METHOD IN EARTH AND SPACE SCIENCE SUBJECT .....</b>	<b>221</b>
<i>N P Aryani, Supriyadi</i>	
<b>CATALYTIC ACTIVITY OF RU-SN/AL<sub>2</sub>O<sub>3</sub> IN REDUCTION REACTION OF POLLUTANT 4-NITROPHENOL .....</b>	<b>225</b>
<i>A S Rini, S Radiman, M A Yarmo</i>	



<b>DETERMINATION OF CORROSION RATE OF ARTIFICIAL BONE MADE OF METAL AT DIFFERENT PH CONDITIONS USING X-RAY RADIOGRAPHY</b> .....	232
<i>Sutikno, L Handayani, S S Edi, Sustilo, Elvira</i>	
<b>GRAVITY OBSERVATION DATA ANALYSIS 1988 -1998 - 2011 TO DETERMINE GRAVITY CHANGES OF MERAPI VOLCANO</b> .....	236
<i>R D Indriana, S B Kirbani, A Setiawan, T A Sunantyo</i>	
<b>IDENTIFICATION OF AQUIFER POTENTIAL IN KARANGANYAR CITY BY USING VERTICAL ELECTRICAL SOUNDING METHOD</b> .....	243
<i>L Marfuatik, S Koesuma, B Legowo, Darsono</i>	
<b>AN OVERVIEW OF CONCEPTUAL UNDERSTANDING IN SCIENCE EDUCATION CURRICULUM IN INDONESIA</b> .....	249
<i>A Widiyatmoko, K Shimizu</i>	
<b>ANALYSIS OF PRE-SERVICE PHYSICS TEACHER SKILLS DESIGNING SIMPLE PHYSICS EXPERIMENTS BASED TECHNOLOGY</b> .....	255
<i>Susilawati, C Huda, W Kurniawan, Masturi, N Khoiri</i>	
<b>THE DEVELOPMENT OF SCIENTIFIC LITERACY ASSESSMENT TO MEASURE STUDENT'S SCIENTIFIC LITERACY SKILLS IN ENERGY THEME</b> .....	261
<i>A Rusilowati, S E Nugroho, E S M Susilowati, T Mustika, N Harfiyani, H T Prabowo</i>	
<b>HIGHER ORDER THINKING SKILLS: USING E-PORTFOLIO IN PROJECT-BASED LEARNING</b> .....	267
<i>M Lukitasari, J Handhika, W Murtafiah</i>	
<b>ENHANCING STUDENTS' COGNITIVE SKILL IN NGUYEN TAT THANH HIGH SCHOOL HANOI VIETNAM THROUGH SCIENTIFIC LEARNING MATERIAL OF STATIC ELECTRICITY</b> .....	273
<i>A Priyanto, S Linuwih, M P Aji, D D Bich</i>	
<b>PROJECTS FOR THE IMPLEMENTATION OF SCIENCE TECHNOLOGY SOCIETY APPROACH IN BASIC CONCEPT OF NATURAL SCIENCE COURSE AS APPLICATION OF OPTICAL AND ELECTRICAL INSTRUMENTS' MATERIAL</b> .....	277
<i>E Satria</i>	
<b>THE USE OF BANYUMAS TRADITIONAL ART AS ANALOG SOURCES OF ELEMENTARY SCHOOL SCIENCE MATERIALS</b> .....	283
<i>L Handayani, S E Nugroho, T R Rohidi, Wiyanto</i>	
<b>RECYCLED MATERIAL-BASED SCIENCE INSTRUMENTS TO SUPPORT SCIENCE EDUCATION IN RURAL AREA AT CENTRAL SULAWESI DISTRICT OF INDONESIA</b> .....	287
<i>M Ali, Supriyatman, S Saehana</i>	
<b>DEVELOPMENT OF WEBSITE FOR STUDYING MODERN PHYSICS</b> .....	292
<i>S Saehana, U Wahyono, I W Darmadi, Y Kendek, W Widyawati</i>	
<b>PREPARING PROSPECTIVE PHYSICS TEACHERS TO TEACH INTEGRATED SCIENCE IN JUNIOR HIGH SCHOOL</b> .....	298
<i>Wiyanto, Hartono, S E Nugroho</i>	
<b>APPLYING AUTOMATIC ITEM GENERATION TO CREATE COHESIVE PHYSICS TESTLETS</b> .....	303
<i>B N Mindyarto, S E Nugroho, S Linuwih</i>	
<b>FORECASTING JAKARTA COMPOSITE INDEX (IHSG) BASED ON CHEN FUZZY TIME SERIES AND FIREFLY CLUSTERING ALGORITHM</b> .....	310
<i>R W Ningrum, B Surarso, Farikhin, Y M Safarudin</i>	
<b>AN INTELLIGENT SWITCH WITH BACK-PROPAGATION NEURAL NETWORK BASED HYBRID POWER SYSTEM</b> .....	316
<i>R H Y Perdana, F Fibriana</i>	
<b>DEVELOPMENT OF COMPUTER-ASSISTED INSTRUCTION APPLICATION FOR STATISTICAL DATA ANALYSIS ANDROID PLATFORM AS LEARNING RESOURCE</b> .....	322
<i>P Hendikawati, R Arifudin, M Z Zahid</i>	
<b>ONLINE INFORMATION SYSTEM FOR DATA COLLECTION OF CATTLE QUALITY</b> .....	329
<i>E Sugiharti, R Arifudin, A T Putra</i>	
<b>RAINFALL PREDICTION WITH BACKPROPAGATION METHOD</b> .....	335
<i>E G Wahyuni, L M F Fauzan, F Abriyani, N F Muchlis, M Ulfa</i>	
<b>ANONYMITY COMMUNICATION VPN AND TOR: A COMPARATIVE STUDY</b> .....	341
<i>E Ramadhani</i>	
<b>EXPERIMENTAL STUDY OF MINI SCADA RENEWABLE ENERGY MANAGEMENT SYSTEM ON MICROGRID USING RASPBERRY PI</b> .....	347
<i>E Tridianto, P D Permatasari, I R Ali</i>	



<b>APPLICATION OF THE PESSIMISTIC PRUNING TO INCREASE THE ACCURACY OF C4.5 ALGORITHM IN DIAGNOSING CHRONIC KIDNEY DISEASE .....</b>	<b>353</b>
<i>M A Muslim, A J Herowati, E Sugiharti, B Prasetyo</i>	
<b>OPTIMIZATION OF C4.5 ALGORITHM-BASED PARTICLE SWARM OPTIMIZATION FOR BREAST CANCER DIAGNOSIS .....</b>	<b>362</b>
<i>M A Muslim, S H Rukmana, E Sugiharti, B Prasetyo, S Alimah</i>	
<b>LAMP CONTROL USING THE PRINCIPLES OF MATHEMATICAL LOGIC .....</b>	<b>369</b>
<i>E Yudianto, F F Firmansyah, P S B S Akbar, R Nisyak, F A Maudi, A N Saputri</i>	
<b>ECONOMIC ORDER QUANTITY (EOQ) BY GAME THEORY APPROACH IN PROBABILISTIC SUPPLY CHAIN SYSTEM UNDER SERVICE LEVEL CONSTRAINT FOR ITEMS WITH IMPERFECT QUALITY .....</b>	<b>373</b>
<i>R Setiawan</i>	
<b>MEASURING ECONOMIC VALUE FOR TOURISM DESTINATION USING CONTINGENT VALUATION METHOD: THE SANGIRAN SITES, CENTRAL JAVA PROVINCE, INDONESIA .....</b>	<b>379</b>
<i>S Subanti, E Zukhronah, S S Handajani, Brm B Irawan, A R Hakim</i>	
<b>CRITICAL THINKING ANALYSIS BASED ON FACIONE (2015) – ANGELO (1995) LOGICAL MATHEMATICS MATERIAL OF VOCATIONAL HIGH SCHOOL (VHS) .....</b>	<b>384</b>
<i>S Y Seventika, Y L Sukestiyarno, Scolastika Mariani</i>	
<b>ON COMPUTING: THE INVERSE OF CENTROSYMMETRIC MATRIX .....</b>	<b>390</b>
<i>N Khasanah, Farikhin, B Surarso</i>	
<b>EXISTENCE AND CHARACTERIZATION OF OPTIMAL CONTROL IN MATHEMATICS MODEL OF DIABETICS POPULATION .....</b>	<b>396</b>
<i>A H Permatasari, R H Tjahjana, T Udjiani</i>	
<b>COMMUNICATION AND TRANSPORTATION AS QUALITY OF LIFE DETERMINANTS BASED ON CITIES IN CENTRAL JAVA PROVINCE AND SPECIAL REGION OF YOGYAKARTA .....</b>	<b>402</b>
<i>S Subanti, Hartatik, A R Hakim, A Daerobi, R R Setiawan</i>	
<b>PRIORITY ECONOMIC SECTOR AND HOUSEHOLD INCOME IN INDONESIA (AN ANALYSIS OF INPUT OUTPUT) .....</b>	<b>407</b>
<i>S Subanti, Mulyanto, A R Hakim, I Mafruhah, I M Hakim</i>	
<b>STABILITY ANALYSIS OF THIN FILM MODEL .....</b>	<b>412</b>
<i>L H Wiryanto</i>	
<b>THE DETERMINANT OF HOUSEHOLD TOURISM EXPENDITURE IN CENTRAL JAVA PROVINCE, INDONESIA .....</b>	<b>416</b>
<i>S Subanti, Respatiwan, A R Hakim, S S Handajani, I M Hakim</i>	
<b>IMPROVING THE STUDENTS' SKILLS IN DEVELOPING GEOMETRY LEARNING BY BUILDING THE CHARACTER OF ACADEMIC ATMOSPHERE IN STUDY PROGRAM OF ELEMENTARY SCHOOL TEACHER UNIVERSITAS NEGERI SEMARANG .....</b>	<b>422</b>
<i>N Nugraheni, Wahyuningsih</i>	
<b>OPTIMAL SOLUTION OF FULL FUZZY TRANSPORTATION PROBLEMS USING TOTAL INTEGRAL RANKING .....</b>	<b>428</b>
<i>M Sam'An, Farikhin, S Hariyanto, B Surarso</i>	
<b>CHARACTERISTIC OF CRITICAL AND CREATIVE THINKING OF STUDENTS OF MATHEMATICS EDUCATION STUDY PROGRAM .....</b>	<b>434</b>
<i>Rochmad, A Agoestanto, M Kharis</i>	
<b>LESSON STUDY ON 2<sup>ND</sup> GRADER OF ELEMENTARY SCHOOL TO IMPROVE THE STUDENT'S NUMERACY SKILL .....</b>	<b>438</b>
<i>A Prabowo, Asih, Jumardi</i>	
<b>THE IDENTIFICATION OF VAN HIELE LEVEL STUDENTS ON THE TOPIC OF SPACE ANALYTIC GEOMETRY .....</b>	<b>445</b>
<i>E Yudianto, Sunardi, T Sugianti, Susanto, Suharto, D Trapsilasiwi</i>	
<b>GROWING OF THE MATHEMATICAL THINKING IMAGINATIVE TO STUDENTS IN DESIGNING OF THE TEACHING AIDS FOR CWD TOWARDS TO JOYFUL LEARNING .....</b>	<b>450</b>
<i>Sugiman, E Sugiharti, N F Kurniawati</i>	
<b>STRATEGY FOR INTEGRATION OF COASTAL CULTURE IN LEARNING PROCESS OF MATHEMATICS IN JUNIOR HIGH SCHOOL .....</b>	<b>455</b>
<i>H Suyitno, Zaenuri, T S Florentinus, E Zakaria</i>	
<b>TRACING FOR THE PROBLEM-SOLVING ABILITY IN ADVANCED CALCULUS CLASS BASED ON MODIFICATION OF SAVI MODEL AT UNIVERSITAS NEGERI SEMARANG .....</b>	<b>460</b>
<i>E Pujiastuti, B Waluya, Mulyono</i>	



<b>INSTRUCTIONAL DESIGN IN MATHEMATICS FOR UNDERGRADUATE STUDENTS BASED ON LEARNING BY MISTAKES APPROACH UTILIZING SCILAB ASSISTANCE .....</b>	<b>465</b>
<i>H Kartika</i>	
<b>A COMPARISON OF HEURISTIC METHOD AND LLEWELLYN'S RULES FOR IDENTIFICATION OF REDUNDANT CONSTRAINTS .....</b>	<b>471</b>
<i>Y Estiningsih, Farikhin, R H Tjahjana</i>	
<b>THE EFFECT OF THINK PAIR SHARE (TPS) USING SCIENTIFIC APPROACH ON STUDENTS' SELF-CONFIDENCE AND MATHEMATICAL PROBLEM-SOLVING .....</b>	<b>476</b>
<i>A Rifa'i, H P Lestari</i>	
<b>THE GEOMETRY ABILITY OF JUNIOR HIGH SCHOOL STUDENTS IN KARANGANYAR BASED ON THE HOFFER'S THEORY .....</b>	<b>483</b>
<i>A Nurwijayanti, Budiyo, L Fitriana</i>	
<b>INTERNAL PROCESS: WHAT IS ABSTRACTION AND DISTORTION PROCESS? .....</b>	<b>490</b>
<i>F R Fiantika, I K Budayasa, A Lukito</i>	
<b>THE CONVERGENCE OF THE ORDER SEQUENCE AND THE SOLUTION FUNCTION SEQUENCE ON FRACTIONAL PARTIAL DIFFERENTIAL EQUATION .....</b>	<b>495</b>
<i>F Rusyaman, K Parmikanti, D Chaerani, Asefan, I Irianingsih</i>	
<b>STABILITY ANALYSIS MODEL OF BACILLUS ANTRACIS USING SEIQR POPULATION COMPARTMENT WITH QUARANTINE IN INDONESIA .....</b>	<b>501</b>
<i>F Y Saptaningtyas, Prihantini</i>	
<b>THE PROFILE OF CONCEPTUAL COMPREHENSION OF PRE-SERVICE TEACHER IN THE MATHEMATICAL PROBLEM SOLVING WITH LOW EMOTIONAL INTELLIGENCE .....</b>	<b>508</b>
<i>S H Prayitno, St Suwarsono, T Y E Siswono</i>	
<b>PREDICTIVE FACTORS OF USER ACCEPTANCE ON THE PRIMARY EDUCATIONAL MATHEMATICS AIDS PRODUCT .....</b>	<b>513</b>
<i>I Hidayah, Margunani, Dwijanto</i>	
<b>CONVERGENCE PROPERTIES OF THE EM ALGORITHM IN THE MIXTURE MODEL WITH MISSING DATA .....</b>	<b>518</b>
<i>N Dwidayati, Zaenuri</i>	
<b>DYNAMICAL ANALYSIS OF LORENZ SYSTEM ON TRAFFIC PROBLEM IN YOGYAKARTA, INDONESIA .....</b>	<b>524</b>
<i>Hartono, F Y Saptaningtyas, K P Krisnawan</i>	
<b>DEVELOPING MATHEMATICS EDUTAINMENT MEDIA FOR ANDROID BASED ON STUDENTS' UNDERSTANDING AND INTEREST: A TEACHERS' REVIEW .....</b>	<b>531</b>
<i>W Setyaningrum, N H Waryanto</i>	
<b>THE IMPLEMENTATION OF SKILL ASSESSMENT BY THE EDUCATORS ON THE MATHEMATICS LEARNING PROCESS IN SENIOR HIGH SCHOOL .....</b>	<b>537</b>
<i>I Lestariani, I Sujadi, I Pramudya</i>	
<b>SPATIAL ABILITY OF SLOW LEARNERS BASED ON HUBERT MAIER THEORY .....</b>	<b>543</b>
<i>I Permatasari, I Pramudya, T A Kusmayadi</i>	
<b>ANT COLONY ALGORITHM FOR CLUSTERING IN PORTFOLIO OPTIMIZATION .....</b>	<b>549</b>
<i>R Subekti, E R Sari, R Kusumawati</i>	
<b>ELEMENTARY SCHOOL STUDENTS VISUAL SPATIAL COMPREHENSION BASED ON VAN HIELE THEORY: THE CASE IN MADIUN, EAST JAVA, INDONESIA .....</b>	<b>555</b>
<i>S Andini, L Fitriana, Budiyo</i>	
<b>STUDENTS' DIFFICULTIES IN PROBABILISTIC PROBLEM-SOLVING .....</b>	<b>561</b>
<i>D P Arum, T A Kusmayadi, I Pramudya</i>	
<b>DEVELOPMENT OF INNOVATIVE PROBLEM BASED LEARNING MODEL WITH PMRI-SCIENTIFIC APPROACH USING ICT TO INCREASE MATHEMATICS LITERACY AND INDEPENDENCE-CHARACTER OF JUNIOR HIGH SCHOOL STUDENTS .....</b>	<b>567</b>
<i>Wardono, B Waluya, Kartono, Mulyono, S Mariani</i>	
<b>THE ENHANCEMENT OF STUDENTS' MATHEMATICAL REPRESENTATION IN JUNIOR HIGH SCHOOL USING COGNITIVE APPRENTICESHIP INSTRUCTION (CAI) .....</b>	<b>576</b>
<i>B G P Yusepa, Y S Kusumah, B G Kartasasmita</i>	
<b>ITEM VALIDITY VS. ITEM DISCRIMINATION INDEX: A REDUNDANCY? .....</b>	<b>584</b>
<i>R L Panjaitan, R Irawati, A Sujana, N Hanifah, D Djuanda</i>	
<b>CREATIVE THINKING LEVEL OF STUDENTS WITH HIGH CAPABILITY IN RELATIONS AND FUNCTIONS BY PROBLEM-BASED LEARNING .....</b>	<b>589</b>
<i>F Nurdyani, I Slamet, I Sujadi</i>	



## PART 2

<b>THE ROLES OF LESSON STUDY IN THE DEVELOPMENT OF MATHEMATICS LEARNING INSTRUMENT BASED ON LEARNING TRAJECTORY.....</b>	<b>594</b>
<i>Misnasanti, C A Dien, F Azizah</i>	
<b>THE EXPERIMENTATION OF LC7E LEARNING MODEL ON THE LINEAR PROGRAM MATERIAL IN TERMS OF INTERPERSONAL INTELLIGENCE ON WONOGIRI VOCATIONAL SCHOOL STUDENTS .....</b>	<b>599</b>
<i>Antinah, T A Kusmayadi, B Husodo</i>	
<b>LOCAL INSTRUCTION THEORY (LIT) ON SPHERICAL GEOMETRY FOR ENHANCEMENT STUDENTS' STRATEGIC COMPETENCE .....</b>	<b>604</b>
<i>I Nuraida, Y S Kusumah, B G Kartasasmita</i>	
<b>MOBILE PHONE APPLICATION FOR MATHEMATICS LEARNING.....</b>	<b>609</b>
<i>Supandi, L Ariyanto, W Kusumaningsih, A N Aini</i>	
<b>THE ANALYSIS OF MATHEMATICS LITERACY ON PMRI LEARNING WITH MEDIA SCHOODOLOGY OF JUNIOR HIGH SCHOOL STUDENTS.....</b>	<b>614</b>
<i>Wardono, S Mariani</i>	
<b>EXPLORING ETHNOMATHEMATICS IN CENTRAL JAVA.....</b>	<b>623</b>
<i>Zaenuri, N Dwidayati</i>	
<b>THE BIVARIATE REGRESSION MODEL AND ITS APPLICATION .....</b>	<b>629</b>
<i>B Pratikno, L Sulistia, Saniyah</i>	
<b>USE OF OPEN-ENDED PROBLEMS AS THE BASIS FOR THE MATHEMATICAL CREATIVITY GROWTH DISCLOSURE OF STUDENT .....</b>	<b>633</b>
<i>A Suyitno, H Suyitno, Rochmad, Dwijanto</i>	
<b>REGIONAL INCOME INEQUALITY MODEL BASED ON THEIL INDEX DECOMPOSITION AND WEIGHTED VARIANCE COEFICIENT.....</b>	<b>638</b>
<i>H R Sitepu, O Darnius, W N Tambunan</i>	
<b>PROBABILISTIC SOFT SETS AND DUAL PROBABILISTIC SOFT SETS IN DECISION MAKING WITH POSITIVE AND NEGATIVE PARAMETERS .....</b>	<b>644</b>
<i>F Fatimah, D Rosadi, R B F Hakim</i>	
<b>PLANT CALENDAR PATTERN BASED ON RAINFALL FORECAST AND THE PROBABILITY OF ITS SUCCESS IN DELI SERDANG REGENCY OF INDONESIA .....</b>	<b>650</b>
<i>O Darnius, S Sitorus</i>	
<b>HOW DO OPEN-ENDED PROBLEMS PROMOTE MATHEMATICAL CREATIVITY? A REFLECTION OF BARE MATHEMATICS PROBLEM AND CONTEXTUAL PROBLEM .....</b>	<b>657</b>
<i>A Wijaya</i>	
<b>DEVELOPING NON-ROUTINE PROBLEMS FOR ASSESSING STUDENTS' MATHEMATICAL LITERACY .....</b>	<b>663</b>
<i>N M Murdiyani</i>	
<b>MATHEMATICAL MODELING OF AVIAN INFLUENZA EPIDEMIC WITH BIRD VACCINATION IN CONSTANT POPULATION.....</b>	<b>669</b>
<i>M Kharis, Amidi</i>	
<b>ANALYSIS OF CRITICAL THINKING ABILITY OF VII GRADE STUDENTS BASED ON THE MATHEMATICAL ANXIETY LEVEL THROUGH LEARNING CYCLE 7E MODEL .....</b>	<b>678</b>
<i>E Widyaningsih, S B Waluya, A W Kurniasih</i>	
<b>METACOGNITIVE ABILITY OF MALE STUDENTS: DIFFERENCE IMPULSIVE-REFLECTIVE COGNITIVE STYLE .....</b>	<b>686</b>
<i>Muhtarom, Sugiyanti, R E Utami, K Indriana</i>	
<b>SUPPORTING SECOND GRADE LOWER SECONDARY SCHOOL STUDENTS' UNDERSTANDING OF LINEAR EQUATION SYSTEM IN TWO VARIABLES USING ETHNOMATHEMATICS.....</b>	<b>693</b>
<i>F Nursyahidah, B A Saputro, M R Rubowo</i>	
<b>DEVELOPING GROUP INVESTIGATION-BASED BOOK ON NUMERICAL ANALYSIS TO INCREASE CRITICAL THINKING STUDENT'S ABILITY.....</b>	<b>700</b>
<i>S Maharani, E Suprpto</i>	
<b>UPGRADING GEOMETRY CONCEPTUAL UNDERSTANDING AND STRATEGIC COMPETENCE THROUGH IMPLEMENTING RIGOROUS MATHEMATICAL THINKING (RMT) .....</b>	<b>705</b>
<i>Z Nugraheni, B Budiyo, I Slamet</i>	
<b>MODELING OF NITROGEN TRANSFORMATION IN AN INTEGRATED MULTI-TROPHIC AQUACULTURE (IMTA).....</b>	<b>710</b>
<i>Silfiana, Widowati, S P Putro, T Udjiani</i>	



<b>MATHEMATICS AUTHENTIC ASSESSMENT ON STATISTICS LEARNING: THE CASE FOR STUDENT MINI PROJECTS .....</b>	<b>716</b>
<i>D Fauziah, Mardiyana, D R S Saputro</i>	
<b>DESIGNING WORKED EXAMPLES FOR LEARNING TANGENT LINES TO CIRCLES .....</b>	<b>721</b>
<i>E Retnowati, Marissa</i>	
<b>DESIGNS OF GOAL-FREE PROBLEMS FOR TRIGONOMETRY LEARNING .....</b>	<b>727</b>
<i>E Retnowati, S R Maulidya</i>	
<b>IMPROVING PEDAGOGIC COMPETENCE USING AN E-LEARNING APPROACH FOR PRE-SERVICE MATHEMATICS TEACHERS .....</b>	<b>733</b>
<i>E Retnowati, N M Murdiyani, Marsigit, Sugiman, A Mahmudi</i>	
<b>A STUDY ON GENERALIZED HESITANT INTUITIONISTIC FUZZY SOFT SETS .....</b>	<b>740</b>
<i>A Nazra, Syafruddin, G C Wicaksono, M Syafwan</i>	
<b>IMPLEMENTATION OF SOBEL METHOD TO DETECT THE SEED RUBBER PLANT LEAVES .....</b>	<b>746</b>
<i>Suyanto, J Munte</i>	
<b>HOW DOES THE HIGH SCHOOL MATHEMATICS TEACHER PREPARES THE LEARNING PROCESS BASED ON THE 2013 CURRICULUM 2017 REVISION .....</b>	<b>751</b>
<i>I A Latif, D R S Saputro, Riyadi</i>	
<b>STUDENT'S SOCIAL INTERACTION IN MATHEMATICS LEARNING .....</b>	<b>757</b>
<i>B Apriliyanti, D R S Saputro, Riyadi</i>	
<b>STUDENT PROFILE WITH HIGH ADVERSITY QUOTIENT IN MATH LEARNING .....</b>	<b>763</b>
<i>T D Hastuti, D R Sari S, Riyadi</i>	
<b>STUDENT MATHEMATICAL IMAGINATION INSTRUMENTS: CONSTRUCTION, CULTURAL ADAPTATION AND VALIDITY .....</b>	<b>769</b>
<i>I Dwijayanti, I K Budayasa, T Y E Siswono</i>	
<b>CHOOSING APPROPRIATE INDEPENDENT VARIABLE IN EDUCATIONAL EXPERIMENTAL RESEARCH: SOME ERRORS DEBUNKED .....</b>	<b>776</b>
<i>R L Panjaitan</i>	
<b>THE ANALYSIS OF STUDENT'S CRITICAL THINKING ABILITY ON DISCOVERY LEARNING BY USING HAND ON ACTIVITY BASED ON THE CURIOSITY .....</b>	<b>780</b>
<i>E Sulistiani, S B Wahyu, Masrukan</i>	
<b>YAGER'S RANKING METHOD FOR SOLVING THE TRAPEZOIDAL FUZZY NUMBER LINEAR PROGRAMMING .....</b>	<b>787</b>
<i>Karyati, D U Wutsqa, N Insani</i>	
<b>THE EXPERIMENT OF COOPERATIVE LEARNING MODEL TYPE TEAM ASSISTED INDIVIDUALIZATION (TAI) ON THREE-DIMENSIONAL SPACE SUBJECT VIEWED FROM SPATIAL INTELLIGENCE .....</b>	<b>794</b>
<i>I Y H Manapa, Budiyo, S Subanti</i>	
<b>STUDENTS' DIFFICULTIES IN SOLVING LINEAR EQUATION PROBLEMS .....</b>	<b>801</b>
<i>S Wati, L Fitriana, Mardiyana</i>	
<b>AN ANALYSIS OF MATHEMATICAL CONNECTION ABILITY BASED ON STUDENT LEARNING STYLE ON VISUALIZATION AUDITORY KINESTHETIC (VAK) LEARNING MODEL WITH SELF-ASSESSMENT .....</b>	<b>807</b>
<i>S Apipah, Kartono, Isnarto</i>	
<b>ANALYSIS OF MATHEMATICAL LITERACY ABILITY BASED ON SELF-EFFICACY IN MODEL ELICITING ACTIVITIES USING METAPHORICAL THINKING APPROACH .....</b>	<b>813</b>
<i>C Setiani, S B Wahyu, Wardono</i>	
<b>THE DIFFICULTIES OF TEACHER IN TEACHING GEOMETRY FOR MENTAL RETARDATION STUDENTS .....</b>	<b>820</b>
<i>Z A Shomad, T A Kusmayadi, Riyadi</i>	
<b>ANALYSIS OF MATHEMATICAL LITERACY ABILITY BASED ON GOAL ORIENTATION IN MODEL ELICITING ACTIVITIES LEARNING WITH MURDER STRATEGY .....</b>	<b>824</b>
<i>R Wijayanti, S B Wahyu, Masrukan</i>	
<b>AN INSTRUMENT MEASURING PROSPECTIVE MATHEMATICS TEACHER SELF-REGULATED LEARNING: VALIDITY AND RELIABILITY .....</b>	<b>831</b>
<i>A A Nugroho, D Juniati, T Y E Siswono</i>	
<b>CRITICAL THINKING LEVEL IN GEOMETRY BASED ON SELF-REGULATED LEARNING .....</b>	<b>837</b>
<i>A S Bayuningsih, B Usodo, S Subanti</i>	
<b>PERFORMANCE OF SOME NUMERICAL LAPLACE INVERSION METHODS ON AMERICAN PUT OPTION FORMULA .....</b>	<b>843</b>
<i>I Octaviano, A R Yuniar, L Anisa, S D Surjanto, E R M Putri</i>	



<b>VARIATIONAL APPROXIMATIONS FOR TWISTED SOLITONS IN A PARAMETRICALLY DRIVEN DISCRETE NONLINEAR SCHRÖDINGER EQUATION</b> .....	849
<i>M Syafwan, Efendi, N Arifin</i>	
<b>ANALYSIS OF PROBLEM SOLVING IN TERMS OF COGNITIVE STYLE</b> .....	855
<i>Rr C C Anthycamurty, Mardiyana, D R S Saputro</i>	
<b>GROUP INVESTIGATION WITH SCIENTIFIC APPROACH IN MATHEMATICS LEARNING</b> .....	859
<i>D Indarti, Mardiyana, I Pramudya</i>	
<b>EXPLORING STUDENTS' ADAPTIVE REASONING SKILLS AND VAN HIELE LEVELS OF GEOMETRIC THINKING: A CASE STUDY IN GEOMETRY</b> .....	864
<i>H T N Rizki, D Frentika, A Wijaya</i>	
<b>INTEGRATING SPATIAL AND NUMERICAL STRUCTURE IN MATHEMATICAL PATTERNING</b> .....	870
<i>K Ni'Mah, Purwanto, E B Irawan, E Hidayanto</i>	
<b>ANALYSIS OF PROBLEM SOLVING ON PROJECT BASED LEARNING WITH RESOURCE BASED LEARNING APPROACH COMPUTER-AIDED PROGRAM</b> .....	876
<i>K S Kuncoro, I Junaedi, Dwijanto</i>	
<b>ANALYSIS MATHEMATICAL LITERACY SKILLS IN TERMS OF THE STUDENTS' METACOGNITION ON PISA-CPS MODEL</b> .....	883
<i>Ovan, S B Waluya, S E Nugroho</i>	
<b>EXPLORING MATHEMATICS OUTSIDE THE CLASSROOM WITH THE HELP OF GPS-ENABLED MOBILE PHONE APPLICATION</b> .....	888
<i>A N Cahyono, M Ludwig</i>	
<b>ANALYSIS OF ALGEBRAIC REASONING ABILITY OF COGNITIVE STYLE PERSPECTIVES ON FIELD DEPENDENT FIELD INDEPENDENT AND GENDER</b> .....	895
<i>N T Rosita</i>	
<b>DEVELOPING CALCULUS TEXTBOOK MODEL THAT SUPPORTED WITH GEOGEBRA TO ENHANCING STUDENTS' MATHEMATICAL PROBLEM SOLVING AND MATHEMATICAL REPRESENTATION</b> .....	901
<i>N R Dewi, F Y Arini</i>	
<b>SCHEMA BUILDING PROFILES AMONG ELEMENTARY SCHOOL STUDENTS IN SOLVING PROBLEMS RELATED TO OPERATIONS OF ADDITION TO FRACTIONS ON THE BASIS OF MATHEMATIC ABILITIES</b> .....	906
<i>S Gembong, S T Suwarsono, Prabowo</i>	
<b>SELF REGULATED LEARNING TROUGH PROJECT BASE LEARNING ON THE PROSPECTIVE MATH TEACHER</b> .....	912
<i>Laelasari</i>	
<b>ANALYSIS OF MATHEMATICAL PROBLEM-SOLVING ABILITY BASED ON METACOGNITION ON PROBLEM-BASED LEARNING</b> .....	917
<i>Mulyono, R Hadiyanti</i>	
<b>THE EFFECTIVENESS OF FORMATIVE ASSESSMENT WITH UNDERSTANDING BY DESIGN (UBD) STAGES IN FORMING HABITS OF MIND IN PROSPECTIVE TEACHERS</b> .....	923
<i>R Y Gloria, S. Sudarmin, Wiyanto, D R Indriyanti</i>	
<b>GROWING GEOMETRIC REASONING IN SOLVING PROBLEMS OF ANALYTICAL GEOMETRY THROUGH THE MATHEMATICAL COMMUNICATION PROBLEMS TO STATE ISLAMIC UNIVERSITY STUDENTS</b> .....	928
<i>Mujiasih, S B Waluya, Kartono, Mariani</i>	
<b>GUIDED DISCOVERY LEARNING IN GEOMETRY LEARNING</b> .....	932
<i>V N Khasanah, B Usodo, S Subanti</i>	
<b>ANALYSIS OF CREATIVE MATHEMATIC THINKING ABILITY IN PROBLEM BASED LEARNING MODEL BASED ON SELF-REGULATION LEARNING</b> .....	937
<i>D N Munahefi, S B Waluya, Rochmad</i>	
<b>PREPARATION OF HIGH SURFACE AREA AND HIGH CONDUCTIVITY POLYANILINE NANOPARTICLES USING CHEMICAL OXIDATION POLYMERIZATION TECHNIQUE</b> .....	942
<i>S Budi, Yusmaniar, A Juliana, U Cahyana, A Purwanto, A Imaduddin, E Handoko</i>	
<b>QUALITY IMPROVEMENT BY BATCH VACUUM DISTILLATION AND PHYSICOCHEMICAL CHARACTERIZATION OF CLOVE LEAF OIL IN CENTRAL JAVA, INDONESIA</b> .....	949
<i>D Alighiri, W T Eden, E Cahyono, K I Supardi</i>	
<b>MINERAL CONTENTS AND THEIR SOLUBILITY ON CALCIUM CARBONAT CALCITE NANOCRYSTALS FROM COCKLE SHELL POWDER (ANADARA GRANOSA LINN)</b> .....	955
<i>S Widyastuti, I A Pramushinta</i>	



<b>THE USE OF MULTI REPRESENTATIVE LEARNING MATERIALS: DEFINITIVE, MACROSCOPIC, MICROSCOPIC, SYMBOLIC, AND PRACTICE IN ANALYZING STUDENTS' CONCEPT UNDERSTANDING</b> .....	962
<i>E Susilaningsih, C Wulandari, Supartono, Kasmui, D Alighiri</i>	
<b>QUALITY MONITORING OF SALT PRODUCED IN INDONESIA THROUGH SEAWATER EVAPORATION ON HDPE GEOMEMBRANE LINED PONDS</b> .....	968
<i>Jumaeri, T Sulistyaningsih, D Alighiri</i>	
<b>CONTENT ANALYSIS OF SCIENCE MATERIAL IN JUNIOR SCHOOL-BASED INQUIRY AND SCIENCE PROCESS SKILLS</b> .....	974
<i>S Patonah, D Nivitalia, E Saptaningrum</i>	
<b>FACTOR ANALYSIS FOR INSTRUMENTS OF SCIENCE LEARNING MOTIVATION AND ITS IMPLEMENTATION FOR THE CHEMISTRY AND BIOLOGY TEACHER CANDIDATES</b> .....	980
<i>A T Prasetya, S Ridlo</i>	
<b>DEVELOPMENT OF GUIDED INQUIRY-BASED LABORATORY WORKSHEET ON TOPIC OF HEAT OF COMBUSTION</b> .....	986
<i>D Sofiani, Nurhayati, Y Sunarya, A Suryatna</i>	
<b>THE INFLUENCE OF INQUIRY LEARNING MODEL ON ADDITIVES THEME WITH ETHNOSCIENCE CONTENT TO CULTURAL AWARENESS OF STUDENTS</b> .....	992
<i>S Sudarmin, E Selia, M Taufiq</i>	
<b>THE EFFECTIVENESS OF MODULE WITH CRITICAL THINKING APPROACH ON HYDROLYSIS AND BUFFER MATERIALS IN CHEMISTRY LEARNING</b> .....	998
<i>M Nuswawati, E Purwanti</i>	
<b>IDENTIFICATION OF INDIGENOUS SCIENCE IN THE BRICK-MAKING PROCESS THROUGH ETHNOSCIENCE STUDY</b> .....	1004
<i>H Nuroso, Supriyadi, S. Sudarmin, Sarwi</i>	
<b>CHARACTERISTIC OF STUDENT'S FALSE CONCESSIVE FAILURE ON FRACTIONS CONCEPT</b> .....	1009
<i>H Kurniawan, A Sutawidjaja, A R As'Ari, M Muksar</i>	
<b>IMPROVEMENT OF METACOGNITIVE SKILLS AND STUDENTS' REASONING ABILITY THROUGH PROBLEM-BASED LEARNING</b> .....	1016
<i>S Haryani, Masfufah, N Wijayati, C Kurniawan</i>	
<b>ANALYSIS OF EXTENT AND SPATIAL PATTERN CHANGE OF MANGROVE ECOSYSTEM IN MANGUNHARJO SUB-DISTRICT FROM 2007 TO 2017</b> .....	1021
<i>S B Nugraha, W A B N Sidiq, D L Setyowati, N K T Martuti</i>	
<b>CONTENT OF CR, CU, PB, AND ZN ON PACIFIC WHITE SHRIMP CULTURED IN MODERN FARM AT BLUPPB, KARAWANG, WEST JAVA</b> .....	1027
<i>N D Takarina, A Rahman, T Siswanting, T J Pin</i>	
<b>AGGREGATION PHEROMONES FOR MONITORING THE COCONUT RHINOCEROS BEETLE (ORYCTES RHINOCEROS) IN JERUKWANGI VILLAGE, JEPARA, INDONESIA</b> .....	1033
<i>D R Indriyanti, J E Lutfiana, P Widiyaningrum, E Susilowati, M Slamet</i>	
<b>METHODS OF INTEGRATING ISLAMIC VALUES IN TEACHING BIOLOGY FOR SHAPING ATTITUDE AND CHARACTER</b> .....	1037
<i>Listiyono, K I Supardi, N Hindarto, S Ridlo</i>	
<b>THE ANALYZE OF LUNG'S GSH NUMBER IN RATS EXPOSED BY CIGARETTE SMOKE AND INDUCED BY RAMBUTAN PEEL EXTRACT</b> .....	1043
<i>Lisdiana</i>	
<b>LEAF LITTER PRODUCTION OF MAHOGANY ALONG STREET AND CAMPUS FOREST OF UNIVERSITAS NEGERI SEMARANG, INDONESIA</b> .....	1048
<i>F P Martin, M Abdullah, Solichin, L N Hadiyanti, K Widianingrum</i>	
<b>HISTOLOGIC STRUCTURE OF RED NILE TILAPIA FISH (OREOCHROMIS NILLOTICUS VAR.) GILL WHICH IS EXPOSED TO LEAD ACETATE</b> .....	1053
<i>N R Utami, P Widiyaningrum, R S Iswari</i>	
<b>MITOCHONDRIAL D-LOOP SEQUENCE OF DOMESTICATED WATERFOWL IN CENTRAL JAVA: GOOSE AND MUSCOVY DUCK</b> .....	1058
<i>R Susanti, R S Iswari</i>	
<b>VARIOUS TOMATO EXTRACT DOSE EFFECT ON LIPID PROFILE OF HYPERCHOLESTEROLEMIA RATS</b> .....	1064
<i>E Purwantoyo, P Marwoto, R S Iswari</i>	
<b>STUDY OF MITOCHONDRIA D-LOOP GENE TO DETECT THE HETEROGENEITY OF GEMAK IN TURNICIDAE FAMILY</b> .....	1068
<i>N Setiati, Partaya</i>	



<b>ANTI-HYPERGLYCEMIC EFFECT OF ALOE VERA PEEL EXTRACT ON BLOOD SUGAR LEVEL OF ALLOXAN-INDUCED WISTAR RATS .....</b>	<b>1074</b>
<i>E Peniati, E Setiadi, R Susanti, R S Iswari</i>	
<b>CALLUS INDUCTION AND FLAVONOID PRODUCTION ON THE IMMATURE SEED OF STELECHOCARPUS BURAHOL .....</b>	<b>1079</b>
<i>N A Habibah, S Moeljopawiro, K Dewi, A Indrianto</i>	
<b>FEASIBILITY STUDY AND SENSORY TEST OF TURMERIC TAMARIND TRADITIONAL DRINK WITH VARIOUS PROCESSING.....</b>	<b>1086</b>
<i>E Rudyatmi, S H Bintari, R S Iswari</i>	
<b>BIOELECTRIC PRODUCTION FROM SEDIMENT OF POND FISHING AND MOLASSES USING MICROBIAL FUEL CELL (MFC) TECHNOLOGY-BASE WITH THE INFLUENCE OF SUBSTRATE CONCENTRATION VARIETY.....</b>	<b>1092</b>
<i>L M Syafitri, Y A Saputro, P N Hana, D Hardiani, B Raharjo</i>	
<b>REVITALIZATION MODEL OF TAPIOCA INDUSTRY THROUGH ENVIRONMENTAL AWARENESS REINFORCEMENT FOR MINIMIZING WATER BODY CONTAMINATION .....</b>	<b>1098</b>
<i>E Banowati, D R Indriyanti, Juhadi</i>	
<b>ESTROGEN HORMONE LEVEL OF PREPUBERTAL FEMALE RAT TREATED WITH CALLIANDRA CALOTHYRSUS ETHANOLIC LEAF EXTRACT .....</b>	<b>1105</b>
<i>I Setyawati, N I Wiratmini, I Narayani</i>	
<b>CHARACTERISTICS OF WATER SOLUBILITY AND COLOR ON EDIBLE FILM FROM BIOSELULOSA NATA NIRA SIWALAN WITH THE ADDITIONAL OF GLYCEROL .....</b>	<b>1110</b>
<i>M Ulfah, A Salsabila, I Rohmawati</i>	
<b>SIMPLE WEBS OF NATURAL ENVIRONMENT THEME AS A RESULT OF SHARING IN SCIENCE TEACHER TRAINING.....</b>	<b>1115</b>
<i>M C Tapilouw, H Firman, S Redjeki, D T Chandra</i>	
<b>ANALYSIS OF NEEDED FOREST IN UNIVERSITAS NEGERI SEMARANG (UNNES) BASED ON CALCULATION OF CARBON DIOXIDE EMISSIONS.....</b>	<b>1121</b>
<i>M Rahayuningsih, N E Kartijono, M S Arifin</i>	
<b>PHENOTYPIC ANALYSIS OF ANTIBIOTIC RESISTANT E. COLI RECOVERED FROM URBAN AQUATIC ENVIRONMENT IN BANDA ACEH, INDONESIA.....</b>	<b>1128</b>
<i>S Suhartono, Y S Ismail, C Yulvizar, R Nursanty, M Mahyuddin, M Jamah</i>	
<b>PROFILE OF ELAEOCARPUS GRANDIFLORUS AND ZIZIPHUS MAURITIANA AS IDENTITY PLANTS OF SALATIGA AND TEGAL TOWNS, CENTRAL JAVA PROVINCE, INDONESIA .....</b>	<b>1133</b>
<i>E S Rahayu, N K Dewi, F P M H Bodijantoro</i>	
<b>THE POTENTIAL OF SHARK BONE POWDER IN BREAST CANCER INHIBITION (PRE-CLINICAL STUDY IN DMBA-INDUCED SPRAGUE DAWLY RATS).....</b>	<b>1140</b>
<i>S H Bintari, S Parman, M Dafip</i>	
<b>TESTICULAR HISTOLOGY AND BLOOD TESTOSTERONE LEVELS OF MALE RABBIT AFTER GIVEN CONCENTRATED DIETS CONTAINING CALLIANDRA LEAF MEAL AND PINEAPPLE PEELS .....</b>	<b>1144</b>
<i>I Setyawati, N G A M Ermayanti, N M R Suarni, I Narayani, I B M Suaskara</i>	
<b>DESIGN AND VALIDATION OF GENERAL BIOLOGY LEARNING PROGRAM BASED ON SCIENTIFIC INQUIRY SKILLS .....</b>	<b>1150</b>
<i>R Cahyani, D Mardiana, N Noviantoro</i>	
<b>APPLYING INNOVATIVE APPROACH "NATURE OF SCIENCE (NOS) WITHIN INQUIRY" FOR DEVELOPING SCIENTIFIC LITERACY IN THE STUDENT WORKSHEET.....</b>	<b>1157</b>
<i>A Widowati, P Anjarsari, K P Zuhdan, A Dita</i>	
<b>ARGOREJO 'RED-LIGHT DISTRICT' STUDENT PERCEPTIONS ON SEXUAL BEHAVIOR.....</b>	<b>1163</b>
<i>M T Hidayat, A P B Prasetyo, M Anas, Lisdiana</i>	
<b>THE INFLUENCE OF PHYSICAL AND CHEMICAL PARAMETERS ON THE EXTINCTION OF THE GOD FISH (TOR DUORONENSIS) SPECIES: CASE STUDY IN BALONG DALEM KUNINGAN DISTRICT .....</b>	<b>1168</b>
<i>Z Abidin, P Marwoto, R S Iswari</i>	
<b>THE EFFECT OF MULTIPLE EXTERNAL REPRESENTATIONS (MERS) WORKSHEETS TOWARD COMPLEX SYSTEM REASONING ACHIEVEMENT .....</b>	<b>1174</b>
<i>Sumarno, M Ibrahim, Z A I Supardi</i>	
<b>META-ANALYSIS OF LEARNING DESIGN ON SCIENCES TO DEVELOP A TEACHER'S PROFESSIONALISM TRAINING MODEL.....</b>	<b>1180</b>
<i>S Alimah, Y U Anggraito, A P B Prasetyo, S Saptono</i>	



<b>A COMPARISON STUDY OF INSTRUCTION BETWEEN INTERNATIONAL SCHOOL AND STATE SCHOOL OF MIDDLE SCHOOL LEVEL IN INDONESIA .....</b>	<b>1186</b>
<i>S D Pamelasari, S Nurkhalisa, S I Laksana</i>	
<b>THE EFFECT OF USING BOMB CALORIMETER IN IMPROVING SCIENCE PROCESS SKILLS OF PHYSICS STUDENTS .....</b>	<b>1191</b>
<i>S S Edie, Masturi, H N Safitri, D Alighiri, Susilawati, L M E K Sari, P Marwoto, R S Iswari</i>	
<b>Author Index</b>	