

## ABSTRAK

Fakultas Teknologi Informasi pada Universitas Kristen Maranatha adalah fakultas yang bergerak dalam bidang teknologi informasi. Fakultas IT memiliki 3 jenis Kelompok Bidang Keahlian (KBK) dalam pelaksanaan penelitian dan pengkajian bahan-bahan pengajaran, yaitu KBK Sistem Informasi, KBK Rekayasa Perangkat Lunak, dan KBK Multimedia dan Jaringan. Aktivitas dan proses bisnis yang berjalan pada ketiga KBK tersebut masih berjalan secara manual antara lain proses menentukan dosen pembimbing KP, STA dan TA dan khususnya penjadwalan. Sistem Informasi KBK telah dibuat untuk alokasi pembimbing dan penguji, namun masih terus disempurnakan dan ditambahkan dengan modul penjadwalan untuk sidang. Tugas akhir ini berfokus pada penambahan penjadwalan sidang dengan mempertimbangkan sumberdaya dosen yang digunakan bersama oleh ketiga KBK di Fakultas IT. Sistem informasi ini dibuat menggunakan bahasa pemrograman *PHP* dan *database MySQL*, dan untuk kalender digunakan *icalendar (Google Calendar)* yang memudahkan dosen dalam melakukan *import* ke sistem KBK. Aplikasi telah diuji dengan metode *blackbox*. Hasil penelitian menunjukkan bahwa aplikasi sudah sesuai dengan harapan saat pengujian, dengan demikian aplikasi ini layak digunakan untuk KBK dalam hal penjadwalan.

Kata Kunci: penjadwalan, penugasan, pemantauan

## **ABSTRACT**

*The Faculty of Information Technology at Maranatha Christian University is a college in information technology sector. IT Faculty has three competency groups in implementating research and teaching assessment, that is Information System competency group, Software Engineering competency group, and Multimedia and network competency group. Activity and business processes which in the three competency groups are still completed manually including determining adviser lecturer KP, STA, and TA and scheduling for defenses. Information System competency group was already made for allocating adviser and examiner, but is still being improved by adding scheduling module. This final project focused on adding scheduling by considering lecturers as limited resource for use by third competency groups in IT Faculty. This system made by using PHP programming language and MySQL database, and for calendar using icalendar (Google Calendar) which is easier to use by lecturer when importing data to competency group system. This application was already tested by using black box method. The result show the application running same as expectation when tested, therefore this application is sufficient for use by the competency groups in scheduling terms.*

*Keywords: assignment, monitoring, scheduling*

## DAFTAR ISI

|                                                                |                              |
|----------------------------------------------------------------|------------------------------|
| LEMBAR PENGESAHAN .....                                        | Error! Bookmark not defined. |
| PERNYATAAN ORISINALITAS LAPORAN PENELITIAN                     | Error! Bookmark not defined. |
| PERNYATAAN PUBLIKASI LAPORAN PENELITIAN .....                  | ii                           |
| PRAKATA .....                                                  | iii                          |
| ABSTRAK .....                                                  | v                            |
| ABSTRACT .....                                                 | vi                           |
| DAFTAR ISI .....                                               | vii                          |
| DAFTAR GAMBAR .....                                            | x                            |
| DAFTAR TABEL .....                                             | xii                          |
| DAFTAR NOTASI / LAMBANG .....                                  | xiii                         |
| BAB 1. PENDAHULUAN .....                                       | 1                            |
| 1.1 Latar Belakang Masalah .....                               | 1                            |
| 1.2 Rumusan Masalah.....                                       | 1                            |
| 1.3 Tujuan Pembahasan.....                                     | 2                            |
| 1.4 Ruang Lingkup Kajian.....                                  | 2                            |
| 1.4.1 Ruang lingkup perangkat keras aplikasi ini adalah :..... | 3                            |
| 1.4.2 Ruang lingkup software dalam aplikasi ini adalah :.....  | 3                            |
| 1.4.3 Ruang lingkup aplikasi meliputi : .....                  | 3                            |
| 1.5 Sumber Data .....                                          | 4                            |
| 1.6 Sistematika Penyajian .....                                | 4                            |
| BAB 2. KAJIAN TEORI .....                                      | 6                            |
| 2.1 Proses Bisnis.....                                         | 6                            |
| 2.2 Sistem Informasi .....                                     | 6                            |
| 2.3 Penjadwalan .....                                          | 7                            |
| 2.4 <i>Flowchart</i> .....                                     | 7                            |
| 2.5 ERD( <i>Entity Relationship Diagram</i> ) .....            | 8                            |
| 2.5.1 Entitas ( <i>Entity</i> ).....                           | 8                            |
| 2.5.2 Atribut ( <i>Attributes/Properties</i> ) .....           | 8                            |
| 2.5.3 Relasi ( <i>Relationship</i> ) .....                     | 8                            |
| 2.5.4 Kardinalitas ( <i>Cardinality</i> ) .....                | 9                            |

|        |                                                                      |    |
|--------|----------------------------------------------------------------------|----|
| 2.6    | MySQL.....                                                           | 10 |
| 2.7    | DFD ( <i>Data Flow Diagram</i> ) .....                               | 13 |
| 2.8    | Kamus Data.....                                                      | 14 |
| 2.9    | PHP .....                                                            | 15 |
| 2.9.1  | Konsep Kerja PHP .....                                               | 16 |
| 2.10   | <i>Bootstrap</i> .....                                               | 16 |
| 2.11   | <i>Black-box Testing</i> .....                                       | 17 |
| BAB 3. | ANALISIS DAN RANCANGAN SISTEM.....                                   | 18 |
| 3.1    | Proses Bisnis.....                                                   | 18 |
| 3.1.1  | Proses Bisnis Penjadwalan Menggunakan <i>Time Table</i> .....        | 18 |
| 3.2    | ERD ( <i>Entity Relationship Diagram</i> ) .....                     | 20 |
| 3.3    | ER to Table.....                                                     | 22 |
| 3.4    | DFD ( <i>Data Flow Diagram</i> ) .....                               | 22 |
| 3.4.1  | <i>Data Flow Diagram Level 0</i> .....                               | 23 |
| 3.4.2  | <i>Data Flow Diagram Level 1</i> .....                               | 24 |
| 3.4.3  | <i>Data Flow Diagram Level 2 Proses 1</i> .....                      | 24 |
| 3.4.4  | <i>Data Flow Diagram Level 2 Proses 3 (Ketua / Sekretaris)</i> ..... | 25 |
| 3.4.5  | <i>Data Flow Diagram Level 2 Proses 3 (Koordinator)</i> .....        | 25 |
| 3.4.6  | <i>Data Flow Diagram Level 2 Proses 3 (Dosen)</i> .....              | 26 |
| 3.5    | PSPEC ( <i>Process Specification</i> ).....                          | 27 |
| 3.6    | Kamus Data.....                                                      | 29 |
| 3.7    | <i>Design User Interface</i> .....                                   | 38 |
| BAB 4. | HASIL PENELITIAN .....                                               | 42 |
| 4.1.1  | <i>Form Assign Schedule</i> .....                                    | 42 |
| 4.1.2  | <i>My Calendar</i> .....                                             | 43 |
| 4.1.3  | <i>Schedule Report</i> .....                                         | 44 |
| 4.1.4  | <i>Edit Profile Settings – Email Alert</i> .....                     | 45 |
| 4.1.5  | <i>All Calendar</i> .....                                            | 46 |
| 4.1.6  | <i>Compose Message</i> .....                                         | 46 |
| 4.1.7  | <i>Inbox Message</i> .....                                           | 47 |
| 4.1.8  | <i>Sent Messages</i> .....                                           | 48 |
| 4.1.9  | <i>Read Message</i> .....                                            | 49 |

|                     |                                                |    |
|---------------------|------------------------------------------------|----|
| 4.1.10              | <i>Page Assign Schedule</i> .....              | 49 |
| 4.1.11              | <i>Datepicker Schedule</i> .....               | 50 |
| 4.1.12              | <i>Timepicker start schedule</i> .....         | 51 |
| 4.1.13              | <i>Timepicker end schedule</i> .....           | 52 |
| 4.1.14              | <i>Detail event calendar</i> .....             | 52 |
| 4.1.15              | <i>Filter date range schedule report</i> ..... | 53 |
| 4.1.16              | <i>Send Mail Reminder</i> .....                | 54 |
| BAB 5.              | PEMBAHASAN DAN UJI COBA HASIL PENELITIAN ..... | 55 |
| BAB 6.              | SIMPULAN DAN SARAN .....                       | 60 |
| 6.1                 | Simpulan.....                                  | 60 |
| 6.2                 | Saran.....                                     | 60 |
| DAFTAR PUSTAKA..... |                                                | 62 |

## DAFTAR GAMBAR

|                                                                               |    |
|-------------------------------------------------------------------------------|----|
| Gambar 2.1 Kardinalitas .....                                                 | 10 |
| Gambar 2.2 Konsep Kerja PHP .....                                             | 16 |
| Gambar 3.1 <i>Flowchart</i> persiapan <i>time table</i> .....                 | 19 |
| Gambar 3.2 <i>Flowchart</i> persiapan <i>time table</i> .....                 | 20 |
| Gambar 3.3 <i>Entity Relationship Diagram</i> .....                           | 21 |
| Gambar 3.4 <i>ER to Table</i> .....                                           | 22 |
| Gambar 3.5 <i>Data Flow Diagram Level 0</i> .....                             | 23 |
| Gambar 3.6 <i>Data Flow Diagram Level 1</i> .....                             | 24 |
| Gambar 3.7 <i>Data Flow Diagram Level 2 Proses 1</i> .....                    | 25 |
| Gambar 3.8 <i>Data Flow Diagram Level 2 Proses 3 (Ketua/Sekretaris)</i> ..... | 25 |
| Gambar 3.9 <i>Data Flow Diagram Level 2 Proses 3 (Koordinator)</i> .....      | 26 |
| Gambar 3.10 <i>Data Flow Diagram Level 2 Proses 3 (Dosen)</i> .....           | 27 |
| Gambar 3.11 Tampilan Form Penjadwalan Sidang .....                            | 38 |
| Gambar 3.12 Tampilan table mahasiswa yang sudah dijadwalkan.....              | 39 |
| Gambar 3.13 Tampilan <i>Inbox</i> fitur <i>messaging</i> .....                | 40 |
| Gambar 3.14 Tampilan <i>Read Message</i> fitur <i>messaging</i> .....         | 40 |
| Gambar 3.15 Tampilan <i>Compose Message</i> fitur <i>messaging</i> .....      | 41 |
| Gambar 4.1 Tampilan <i>Form Assign Schedule</i> .....                         | 42 |
| Gambar 4.2 Tampilan <i>My Calendar</i> .....                                  | 43 |
| Gambar 4.3 Tampilan <i>Schedule Report</i> .....                              | 44 |
| Gambar 4.4 Tampilan <i>Edit Profile Settings – Email Alert</i> .....          | 45 |
| Gambar 4.5 Tampilan <i>All Calendar</i> .....                                 | 46 |
| Gambar 4.6 Tampilan <i>Compose Message</i> .....                              | 47 |
| Gambar 4.7 Tampilan <i>Inbox Messages</i> .....                               | 47 |
| Gambar 4.8 Tampilan <i>Sent Messages</i> .....                                | 48 |
| Gambar 4.9 Tampilan <i>Read Message</i> .....                                 | 49 |
| Gambar 4.10 Tampilan <i>Page Assign Schedule</i> .....                        | 49 |
| Gambar 4.11 Tampilan <i>datepicker schedule</i> .....                         | 50 |
| Gambar 4.12 Tampilan <i>timepicker start schedule</i> .....                   | 51 |
| Gambar 4.13 Tampilan <i>timepicker end schedule</i> .....                     | 52 |

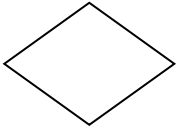
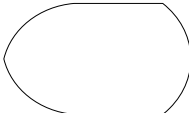
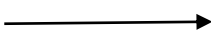
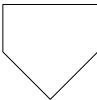
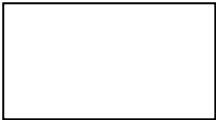
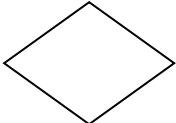
|                                                                     |    |
|---------------------------------------------------------------------|----|
| Gambar 4.14 Tampilan <i>detail event calendar</i> .....             | 52 |
| Gambar 4.15 Tampilan <i>filter date range schedule report</i> ..... | 53 |
| Gambar 4.16 Tampilan <i>Send Mail Reminder</i> .....                | 54 |

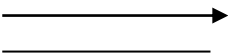
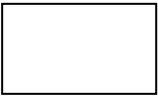
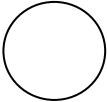
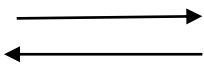
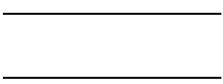
## DAFTAR TABEL

|                                                                                 |    |
|---------------------------------------------------------------------------------|----|
| Tabel 2.1 Tipe Data Bilangan.....                                               | 11 |
| Tabel 2.2 Tipe Data Date .....                                                  | 12 |
| Tabel 2.3 Tipe Data Karakter .....                                              | 13 |
| Tabel 2.4 Simbol Kamus Data .....                                               | 15 |
| Tabel 3.1 <i>PSPEC read sent message</i> .....                                  | 27 |
| Tabel 3.2 <i>PSPEC input data evenement</i> .....                               | 28 |
| Tabel 3.3 <i>PSPEC input data message</i> .....                                 | 28 |
| Tabel 3.4 <i>PSPEC send mail reminder</i> .....                                 | 29 |
| Tabel 3.5 Kamus Data (data dosen) .....                                         | 30 |
| Tabel 3.6 Kamus Data (data <i>skill</i> ) .....                                 | 31 |
| Tabel 3.7 Kamus data (data status dosen) .....                                  | 31 |
| Tabel 3.8 Kamus data (data role user).....                                      | 31 |
| Tabel 3.9 Kamus Data (Data akun).....                                           | 32 |
| Tabel 3.10 Kamus data (data jurusan).....                                       | 32 |
| Tabel 3.11 Kamus Data (data global) .....                                       | 33 |
| Tabel 3.12 Kamus Data (data <i>backup</i> ) .....                               | 33 |
| Tabel 3.13 Kamus Data (data mahasiswa) .....                                    | 34 |
| Tabel 3.14 Kamus Data (data topik) .....                                        | 34 |
| Tabel 3.15 Kamus Data (data tabel <i>temp</i> ) .....                           | 35 |
| Tabel 3.16 Kamus Data (data kbk) .....                                          | 36 |
| Tabel 3.17 Kamus Data (data <i>evenement</i> ) .....                            | 36 |
| Tabel 3.18 Kamus data (data ruangan) .....                                      | 37 |
| Tabel 3.19 Kamus data (data messages) .....                                     | 37 |
| Tabel 5.1 Tabel hasil uji coba <i>form assign schedule</i> .....                | 55 |
| Tabel 5.2 Tabel hasil uji coba <i>my calendar</i> .....                         | 56 |
| Tabel 5.3 Tabel hasil uji coba <i>schedule report</i> .....                     | 57 |
| Tabel 5.4 Tabel hasil uji coba <i>edit profile settings – email alert</i> ..... | 57 |
| Tabel 5.5 Tabel hasil uji coba <i>Compose Message</i> .....                     | 58 |
| Tabel 5.6 Tabel hasil uji coba <i>Inbox Messages</i> .....                      | 59 |



## DAFTAR NOTASI / LAMBANG

| Jenis     | Notasi/Lambang                                                                      | Nama                   | Arti                                                                                                                           |
|-----------|-------------------------------------------------------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Flowchart |    | Terminator             | Untuk memulai dan mengakhiri proses                                                                                            |
| Flowchart |    | Decision/<br>Keputusan | Keputusan untuk proses jika salah akan kembali mengulang proses sebelumnya, dan jika benar akan melanjutkan proses selanjutnya |
| Flowchart |    | Input /<br>output Data | Proses input/output data, parameter, informasi                                                                                 |
| Flowchart |   | Display                | Menampilkan data                                                                                                               |
| Flowchart |  | Arah Proses            | Arah/alur untuk proses                                                                                                         |
| Flowchart |  | Manual<br>Operation    | Proses yang dilakukan secara manual                                                                                            |
| Flowchart |  | Connector<br>off page  | Digunakan sebagai penghubung flowchart yang harus digambarkan di halaman berbeda                                               |
| ERD       |  | Entitas                | Mewakili suatu individu yang nyata dan dapat dibedakan dari yang lain                                                          |
| ERD       |  | Atribut                | Menggambarkan karakteristik dari Entitas                                                                                       |
| ERD       |  | Relasi                 | Menunjukkan relasi antara Entitas                                                                                              |

| Jenis | Notasi/Lambang                                                                    | Nama                | Arti                                                                |
|-------|-----------------------------------------------------------------------------------|---------------------|---------------------------------------------------------------------|
| ERD   |  | Kardinalitas Relasi | Menunjukkan jumlah maksimum Entitas yang dapat berelasi             |
| DFD   |  | Entitas             | Aktor yang ada di dalam diagram                                     |
| DFD   |  | Proses              | Proses secara otomatis yang di lakukan oleh komputer                |
| DFD   |  | Arus Data           | Menggambarkan suatu aliran atau arus data yang ada di dalam diagram |
| DFD   |  | Simpanan Data       | Tempat simpanan data seperti file di dalam database                 |

Sumber :

1. Flowchart diambil dari Burlton, Roger T [1]
2. ERD diambil dari Fatansyah [2]
3. DFD diambil dari Hariyanto, Ir., MT, Bambang [3]