

## Mobile Application & Technology

### Introduction

Mobile technology is a growing trend technology that provide the infrastructure and technology for all businesses to ride on. With mobile technology, the future is borderless. Mobile Application & Technology (MAT) program is designed to provide students with the knowledge and skills in mobile computing, communications and entrepreneurships. The aims of Mobile Application & Technology program to provide students with an understanding of mobile/wireless technologies, how these technologies are utilized and integrated to meet specific business needs. The course builds a solid foundation of software development skills and introduces the specific skills needed for developing mobile/wireless applications. Students will also gain the necessary understanding of current technologies and architectures that provide the network and communications infrastructure for mobile enabled enterprise computer systems, planning, management and how to build a mobile enterprise. Students will also develop skills in the design of modern distributed software systems, using appropriate technologies, architectures and techniques, and in the advanced network technologies supporting the upper layers, together with their planning, management and security. The structure of the course allows students to gain valuable practical experience in building software systems, and also apply knowledge in mobile game creative design.

The MAT program was found in September 2011, under BINUS UNIVERSITY, it became one of the programs under the coordination of School of Computer Science.

### Vision

A program of choice in Mobile Application and Technology, which specializes in developing creative mobile software solutions for businesses, is recognized internationally, champions innovation and delivers graduates with international qualifications.

### Mission

The mission of Mobile Application & Technology Program is to contribute to the global community through the provision of world-class education by:

1. Educating student in the fundamental skills, knowledge, and practice of recent mobile technologies and architectures, wireless technologies, mobile software development, and game design.
2. Conducting research and providing mobile application and technology professional services with an emphasis on the application of knowledge for society's development.
3. Sharing the application of knowledge related to mobile application & technology with a view to Indonesians' and the international community quality of life.
4. Influencing students & lecturers to be creative, value-adding and competitive at an international level in mobile application & technology, by creating a suitable environment.
5. Preparing students as smart and skilled mobile application & technology professionals, leaders, and entrepreneurs in the global market and/ or to continue in related disciplines.

## **Program objective**

The objectives of the program are:

1. To provide students with a solid foundation in computer science knowledge, and especially mathematical, algorithm principles, that are needed for mobile software solutions.
2. To provide students with skills to apply design and development principles in the construction of recent mobile technologies, such as architectures, wireless technologies, mobile software development, and game design.
3. To prepare students with abilities to keep up-to-date with the latest Mobile Application and Technology trends.
4. To prepare students with abilities in problem solving, good communication skills and ethics to be able to work as an individual or in a team in an IT environment.

## **Graduate Competency**

At the end of the program, graduates will be able to:

1. Apply knowledge and understanding of mathematical concepts, principles and theories relating to computer science knowledge.
2. Demonstrate knowledge and understanding of algorithm concepts, principles and theories relating to mobile solution knowledge.
3. Classify problems and to apply design and development principles for specific problems.
4. Plan strategies and design mobile solution development.
5. Depict trend mobile technologies in the future.
6. Construct a solution by applying latest mobileapplication and technologies.

## **Prospective Career of the Graduates**

After finishing the program, the graduate of Mobile Application & Technology Program could follow a career as:

1. Mobile Software Engineer/Developer
2. Mobile Games Designer & Mobile Games Developer
3. Mobile Business Application Developer
4. Mobile User Experience Designers
5. Mobile User Interface Architect
6. Information Analyst in Decentralized Businesses
7. IT Support/Consultant
8. Lecturer/Trainer

## **Curriculum**

The present curriculum used in the Mobile Application & Technology program has been developed in line with the National Curriculum. Also, the local content has been developed in line with the Computer Science Curriculum standard of ACM (Association for Computing Machineries), several local and foreign universities, mobile technologies and market trends, so that the graduates of the Mobile Application & Technology program are expected to be able to face competition at both a national and international level.

Generally, the subjects of the curriculum 2014 are divided into these following groups of subjects:

**Mathematics Group (Science)**

The objective of this group is to provide an understanding of mathematics as one of the principal foundations in computer science. Another objective is to give an understanding of scientific methodology (data collection, hypothesis, research, analysis) in problem solving.

**Character Building Group (Professional Practices)**

The objective of this group is to develop the personal strengths of the student and to provide him or her with a professional character, professionalism in their field, management skills, oral and written communication skills, understanding of business ethic, ability to work as a team, and to develop a “Binusian” Character.

**Core Group**

The objective of this group is to provide grounding in Mobile Application Technology program through practice as well as applied theory which are required by business both now and in the future. The subjects that are included in this group are programming, algorithm design and analysis, software engineering, databases, computer graphs, multimedia, computer and human interaction, operation system, mobile device architecture, and mobile network.

**The Field of MAT Subject**

The objective of builds the field of subject in Mobile Application Technology is to give the students a solid foundation of software development skills and to introduce the specific skills needed for developing mobile/wireless applications. Students will also gain the necessary understanding of current technologies and architectures that provide the network and communications infrastructure for mobile enabled enterprise computer systems, also to give students the opportunity to obtain a deep understanding of a range of disciplines in Mobile Application Technology.

The students are expected to develop their skills and master the techniques which will allow them to conduct research for both their thesis and/or to continue their studies.

The field of MAT subjects:

1. Mobile Programming: to explore the various methodologies and mobile software engineering equipment.
2. Mobile Entrepreneurships: to explore the various techniques of planning, management skills and how to build a mobile application & technology company.
3. Current Mobile Technology: to explore the various of the trend technology in mobile application & device.

All students of MAT program must follow these three fields to become Mobile Application Technology graduates.

The objective of these three fields is to provide the students with the knowledge and skills required by business & industry and who wants to develop the own mobile application company.

**Course Structure**

| Sem      | Code                                       | Course Name                                       | SCU | Total |  |
|----------|--|---|-----|-------|--|
| 1        | CHAR6013                                   | Character Building: Pancasila                     | 2   | 20    |  |
|          | MATH6025                                   | Discrete Mathematics                              | 4   |       |  |
|          | MATH6030                                   | Linear Algebra                                    | 2   |       |  |
|          | COMP6047                                   | Algorithm and Programming                         | 4/2 |       |  |
|          | MOBI6003                                   | Introduction to Mobile Application and Technology | 4   |       |  |
|          | <b>English University Courses I</b>        |   |     |       |  |
|          | ENGL6128                                   | English in Focus                                  | 2   |       |  |
| ENGL6130 | English for Business Presentation          | 2   |     |       |  |
| 2        | CHAR6014                                   | Character Building: Kewarganegaraan               | 2   | 21    |  |
|          | MATH6031                                   | Calculus  | 4   |       |  |
|          | COMP6048                                   | Data Structures                                   | 4/2 |       |  |
|          | MOBI6002                                   | Mobile Object Oriented Programming                | 2/2 |       |  |
|          | MOBI6008                                   | Mobile Game Creative Design                       | 2   |       |  |
|          | LANG6061                                   | Indonesian  | 1   |       |  |
|          | <b>English University Courses II</b>       |   |     |       |  |
| ENGL6129 | English Savvy                              | 2   |     |       |  |
| ENGL6131 | English for Written Business Communication | 2   |     |       |  |
| 3        | CHAR6015                                   | Character Building: Agama                         | 2   | 24    |  |
|          | COMP6049                                   | Algorithm Design and Analysis                     | 4   |       |  |
|          | ENTR6003                                   | Entrepreneurship I                                | 2   |       |  |
|          | COMP6056                                   | Program Design Methods                            | 4   |       |  |
|          | MOBI6006                                   | Mobile Community Solution                         | 2/2 |       |  |
|          | COMP6062                                   | Compilation Techniques                            | 4   |       |  |
|          | MOBI6026                                   | Mobile Cloud Computing                            | 2/2 |       |  |
| 4        | CPEN6108                                   | Computer Networks                                 | 2/2 | 22    |  |
|          | ISYS6279                                   | Database Systems                                  | 4/2 |       |  |
|          | COMP6229                                   | Software Engineering*                             | 4   |       |  |
|          | MOBI6023                                   | Mobile User Experience                            | 2   |       |  |
|          | MOBI6009                                   | Mobile Multimedia Solution                        | 2/2 |       |  |
|          | MOBI6025                                   | Mobile Application Security                       | 2   |       |  |

| Sem                         | Code                         | Course Name                        | SCU | Total |
|-----------------------------|------------------------------|------------------------------------|-----|-------|
| 5                           | MOBI6043                     | Mobile Testing and Implementation* | 2   | 22    |
|                             | MKTG6063                     | Market Research Methodologies      | 2   |       |
|                             | COMP6153                     | Operating System                   | 2/2 |       |
|                             | COMP6231                     | Human and Computer Interaction     | 2/2 |       |
|                             | ENTR6004                     | Entrepreneurship II                | 2   |       |
|                             | COMP6227                     | Artificial Intelligence            | 4   |       |
|                             | MOBI6012                     | Web Design                         | 2/2 |       |
| 6                           | <b>Enrichment Program I</b>  |                                    | 15  | 15    |
| 7                           | <b>Enrichment Program II</b> |                                    | 16  | 16    |
| 8                           | MOBI6024                     | Thesis                             | 6   | 6     |
| <b>TOTAL CREDIT 146 SCU</b> |                              |                                    |     |       |

\*) *Entrepreneurship Embedded*

**English University Courses:**

- ) For 1<sup>st</sup> Semester: English University Courses I, student with score Binus University English Proficiency Test less than 500 will take English in Focus, and student with score test greater than or equal to 500 will take English for Business Presentation
- ) For 2<sup>nd</sup> Semester: English University Courses II, student with score Binus University English Proficiency Test less than 500 will take English Savvy, and student with score test greater than or equal to 500 will take English for Written Business Communication

**Enrichment Program I (6<sup>th</sup> Semester) & Enrichment Program II (7<sup>th</sup> Semester):**

- ) Student will take one of enrichment program tracks (off campus).

**Enrichment Track Scheme**

| Track | Semester 6 |    |      |    |    |      | Semester 7 |    |      |    |    |      |
|-------|------------|----|------|----|----|------|------------|----|------|----|----|------|
|       | I          | RS | ENTR | CD | SA | *etc | I          | RS | ENTR | CD | SA | *etc |
| 1     | v          |    |      |    |    |      | v          |    |      |    |    |      |
| 2     |            | v  |      |    |    |      |            | v  |      |    |    |      |
| 3     |            |    | v    |    |    |      |            |    | v    |    |    |      |
| 4     |            |    |      | v  |    |      | v          |    |      |    |    |      |
| 5     |            |    |      | v  |    |      |            |    |      | v  |    |      |
| 6     |            |    |      | v  |    |      |            |    |      |    | v  |      |
| 7     |            |    |      |    | v  |      | v          |    |      |    |    |      |
| 8     |            |    |      |    | v  |      |            |    |      | v  |    |      |
| 9     |            |    |      |    | v  |      |            |    |      |    | v  |      |
| 10    |            |    |      |    |    | v    | v          |    |      |    |    |      |
| 11    |            |    |      |    |    | v    |            |    |      | v  |    |      |
| 12    |            |    |      |    |    | v    |            |    |      |    | v  |      |

Notes:

- I : Internship
- RS : Research

ENTR : Entrepreneurship  
 CD : Community Development  
 SA : Study Abroad  
 \*etc : Department specific needs

Notes:  
 Student can choose one of the available tracks

### Enrichment Internship Track

| Code   | Course Name   | SCU | Total |  |
|--|---|-----|-------|--|
| <b>For Student who take internship track in semester 6, should also take internship track in semester 7:</b>   |   |     |       |  |
| <b>Enrichment Program I</b>  |   |     |       |  |
| MOBI6028   | Internship I  | 8   | 15    |  |
| MOBI6029   | Mobile Application & Technology Practice in Industry I  | 4   |       |  |
| MOBI6042   | EES in Mobile Industry I                                | 3   |       |  |
| <b>Enrichment Program II</b>   |   |     |       |  |
| MOBI6032   | Internship II   | 8   | 16    |  |
| MOBI6030   | Mobile Application & Technology Practice in Industry II | 4   |       |  |
| MOBI6033   | EES in Mobile Industry II                               | 4   |       |  |
| <b>Enrichment Program II: (For Student who take study abroad and community development track in semester 6, should take these courses below if they want to take internship track in semester 7)</b> |   |     |       |  |
| MOBI6037   | Internship  | 8   |       |  |
| MOBI6038   | EES in Mobile Industry                                  | 4   |       |  |
| MOBI6039   | Mobile Application & Technology Practice in Industry    | 4   |       |  |

### Enrichment Entrepreneurship Track

| Code                         | Course Name  | SCU | Total |
|------------------------------|--|-----|-------|
| <b>Enrichment Program I</b>  |  |     |       |
| ENTR6330                     | Business Start Up  | 8   | 15    |
| ENTR6069                     | Business Model & Validation in Mobile Application Project    | 2   |       |
| ENTR6086                     | Launching New Venture in Mobile Application Project          | 2   |       |
| ENTR6381                     | EES in New Mobile Application and Technology Business        | 3   |       |
| <b>Enrichment Program II</b> |  |     |       |
| ENTR6358                     | Growing a Business   | 8   | 16    |
| ENTR6087                     | Lean Start Up & Business Plan in Mobile Application Project  | 2   |       |
| ENTR6142                     | Venture Capital in Mobile Application Project                | 2   |       |
| ENTR6369                     | EES in Mobile Application and Technology Business Experience | 4   |       |

**Enrichment Research Track**

| Code                         | Course Name   | SCU | Total |
|------------------------------|---|-----|-------|
| <b>Enrichment Program I</b>  |   |     | 15    |
| RSCH6245                     | Research Experience I   | 8   |       |
| RSCH6029                     | Scientific Writing in Mobile Apps and Technology Research Area I                | 4   |       |
| RSCH6292                     | Global EES I (Team Work, Communication, Problem Solving & Decision Making)      | 3   |       |
| <b>Enrichment Program II</b> |   |     | 16    |
| RSCH6260                     | Research Experience II  | 8   |       |
| RSCH6107                     | Scientific Writing in Mobile Apps and Technology Research Area II               | 4   |       |
| RSCH6268                     | Global EES II (Self-Management, Planning & Organizing, Initiative & Enterprise) | 4   |       |

**Enrichment Community Development Track**

| Code                         | Course Name   | SCU | Total |
|------------------------------|---|-----|-------|
| <b>Enrichment Program I</b>  |   |     | 15    |
| CMDV6161                     | Community Outreach Project Implementation   | 8   |       |
| CMDV6036                     | Community Outreach Project Design in Mobile Applications Project                                    | 4   |       |
| CMDV6205                     | Employability and Entrepreneurial Skills in Mobile Application and Technology Community             | 3   |       |
| <b>Enrichment Program II</b> |   |     | 16    |
| CMDV6186                     | Community Development Project Implementation  | 8   |       |
| CMDV6037                     | Community Development Project Design in Mobile Application Project                                  | 4   |       |
| CMDV6195                     | Employability and Entrepreneurial Skills in Mobile Application and Technology Community Development | 4   |       |

**Enrichment Study Abroad Track\***

| Course Name                  |                                     | SCU | Total |
|------------------------------|-------------------------------------|-----|-------|
| <b>Enrichment Program I</b>  |                                     |     | 15    |
| GLOB6005                     | Elective Course for Study Abroad 1  | 4   |       |
| GLOB6006                     | Elective Course for Study Abroad 2  | 4   |       |
| GLOB6007                     | Elective Course for Study Abroad 3  | 4   |       |
| GLOB6008                     | Elective Course for Study Abroad 4  | 4   |       |
| GLOB6009                     | Elective Course for Study Abroad 5  | 2   |       |
| GLOB6010                     | Elective Course for Study Abroad 6  | 2   |       |
| GLOB6011                     | Elective Course for Study Abroad 7  | 2   |       |
| GLOB6012                     | Elective Course for Study Abroad 8  | 2   |       |
| GLOB6013                     | Elective Course for Study Abroad 9  | 2   |       |
| GLOB6014                     | Elective Course for Study Abroad 10 | 2   |       |
| GLOB6015                     | Elective Course for Study Abroad 11 | 2   |       |
| GLOB6016                     | Elective Course for Study Abroad 12 | 2   |       |
| GLOB6041                     | Elective Course for Study Abroad 25 | 3   |       |
| GLOB6042                     | Elective Course for Study Abroad 26 | 1   |       |
| <b>Enrichment Program II</b> |                                     |     | 16    |
| GLOB6017                     | Elective Course for Study Abroad 13 | 4   |       |
| GLOB6018                     | Elective Course for Study Abroad 14 | 4   |       |
| GLOB6019                     | Elective Course for Study Abroad 15 | 4   |       |
| GLOB6020                     | Elective Course for Study Abroad 16 | 4   |       |
| GLOB6021                     | Elective Course for Study Abroad 17 | 2   |       |
| GLOB6022                     | Elective Course for Study Abroad 18 | 2   |       |
| GLOB6023                     | Elective Course for Study Abroad 19 | 2   |       |
| GLOB6024                     | Elective Course for Study Abroad 20 | 2   |       |
| GLOB6025                     | Elective Course for Study Abroad 21 | 2   |       |
| GLOB6026                     | Elective Course for Study Abroad 22 | 2   |       |
| GLOB6027                     | Elective Course for Study Abroad 23 | 2   |       |
| GLOB6028                     | Elective Course for Study Abroad 24 | 2   |       |

\*)Transferred courses will be transferred based on credit transfer policies on study program with total of 15 credits for Enrichment Program I and 16 credits for Enrichment Program II.

**Student should pass all of these quality controlled courses as listed below:**

| No. | Code     | Course Name                         | Minimum Grade |
|-----|----------|-------------------------------------|---------------|
| 1   | CHAR6013 | Character Building: Pancasila       | B             |
| 2   | ENTR6004 | Entrepreneurship II                 | C             |
| 3   | COMP6047 | Algorithm and Programming*          | C             |
| 4   | COMP6048 | Data Structures                     | C             |
| 5   | COMP6056 | Program Design Methods              | C             |
| 6   | COMP6229 | Software Engineering                | C             |
| 7   | MOBI6002 | Mobile Object Oriented Programming* | C             |
| 8   | MOBI6008 | Mobile Game Creative Design*        | C             |

\*) Tutorial & Multipaper