

UNIVERSITI MALAYA
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PEPERIKSAAN IJAZAH SARJANA MUDA SAINS KOMPUTER
EXAMINATION FOR THE DEGREE OF BACHELOR OF COMPUTER SCIENCE

SESI AKADEMIK 2025/2026 : SEMESTER I
ACADEMIC SESSION 2025/2026 : SEMESTER I

WIF3006 : Kejuruteraan Perisian Berasaskan Komponen
Component-Based Software Engineering

Disember 2025 - Januari 2026
December 2025 - January 2026

6 minggu
6 weeks

PENILAIAN ALTERNATIVE
ALTERNATIVE ASSESSMENT

(Kertas soalan ini mengandungi 5 halaman yang dicetak)
(This question paper consists of 5 printed pages)

Penilaian Alternative: <i>Alternative Assessment:</i>	Projek Kajian Kes <i>Case Study Project</i>
Pemberatan: <i>Weightage:</i>	50%
Kaedah Penilaian: <i>Assessment Method:</i>	Projek Berkumpulan <i>Group Project</i>
Topik: <i>Topic:</i>	Pembangunan aplikasi berasaskan model komponen. <i>Application development based on the component model.</i>
Durasi projek/pembentangan <i>Project/presentation Duration:</i>	6 minggu (Minggu 9 -14) / 30 minit <i>6 weeks (Week 9 – 14) / 30 minutes</i>
Tarikh akhir penghantaran: <i>Submission deadline:</i>	Minggu 13/14 <i>Week 13/14</i>
Course Learning Outcome (CLO)	CLO2 – Melaksanakan aplikasi berasaskan komponen dengan menggunakan pelbagai model komponen dan pengaturcaraan API. <i>Develop component-based application using various component models and programming APIs.</i>

PENERANGAN PROJEK:

Setiap kumpulan mesti terdiri daripada 5/6 ahli.

Bahagian 1: Pembentangan (40%)

1. Cadangkan sistem atau aplikasi yang dipilih dengan sekurang-kurangnya 5 atau 6 modul, setiap minimum 4 fungsi. Nota: Operasi CRUD (Buat, Baca, Kemas Kini dan Padam) adalah satu set fungsi.
2. Reka bentuk sistem atau aplikasi yang dipilih menggunakan UML untuk rajah use case, dan rajah kelas dengan bantuan teknologi CASE, iaitu Draw IO, Visual Paradigm atau Lucid Chart.
3. Laksanakan sistem atau aplikasi yang dipilih menggunakan Teknologi Model Komponen/Rangka Kerja seperti yang berikut:
 - I. Spring/Spring Boot; dan
 - II. OSGi
4. Uji sistem atau aplikasi yang dibangunkan menggunakan kes ujian.
5. Sediakan laporan maksimum 30 muka surat, jarak dua kali, menggunakan *Font Tema Times New Roman*.
6. Hantar laporan projek melalui Spectrum pada minggu 13/14.

Bahagian 2: Pembentangan (10%)

7. Sediakan slaid dan rakamkan video pembentangan projek anda selama 30 minit termasuk demo modul yang telah dilaksanakan.
8. Hantar slaid dan rakaman video melalui Spektrum pada minggu 13/14.

PROJECT DESCRIPTION:

Each group must consist of 5/6 members.

Part 1: Presentation (40%)

1. *Propose a suitable system or application with at least 5 or 6 modules, each with a minimum of 4 functionalities. Note: CRUD (Create, Read, Update, and Delete) operations are considered single-set functions.*
2. *Design the selected system or application using UML for use case and class diagrams with CASE technology, namely Draw IO, Visual Paradigm, or Lucid Chart.*
3. *Implement the selected system or application using the following Component Model Technologies/Frameworks:*
 - I. Spring; or Spring Boot; and*
 - II. OSGi*
4. *Test the developed system or application using test cases.*
5. *Prepare a report of a maximum of 30 pages, double-spaced, using a Times New Roman Theme Font.*
6. *Submit the project report via Spectrum by week 13/14.*

Part 2: Presentation (10%)

7. *Prepare slides and a recorded video presentation of your project for 30 minutes, including a demo of the modules that have been implemented.*
8. *Submit the slides and the recorded video through Spectrum in week 13/14.*

**TAMAT
END**

RUBRIC FOR PART 1 (40%)

ASSESSMENT CRITERIA (Weightage)	0	1-2	3-4	5	Marks
1. Design and implement the selected system/ application using the selected component model technologies (Spring & OSGi) (10%)	Missing/ Not presented	The development does not reflect the proposed system/ app and incomplete modules using the selected component model.	The development adequately reflects the proposed system/ app, and the modules are complete with complex functionalities using the selected component model.	The development excellently reflects the proposed system/ app, and the modules are complete with very complex functionalities using the selected component model.	<i>Example:</i> Score/5 * 10 =
2. Spring & OSGi: Dependency management/ configuration/ modules/services/ features (10%)	Missing/ Not presented	Fails to define and demonstrate the development details of Spring & OSGi models.	Adequately define and demonstrate the development details of Spring & OSGi models.	Excellently define and demonstrate the development details of Spring & OSGi models.	<i>Example:</i> Score/5 * 10 =
3. Testing of the developed system or application (10%)	Missing/ Not presented	Poor testing techniques, as such: • Conduct testing phase with inadequate test case/test data/incorrect techniques.	Moderate testing techniques, as such: Conduct testing phase with adequate test case/test data/correct techniques.	Excellent testing techniques, as such: • Conduct testing phase with adequate test case/test data/correct techniques. • Conduct User Acceptance successfully (if applicable)	<i>Example:</i> Score/5 * 10 =
4. Technical Writing	Missing/ Not presented	Poorly written report/ poor content/ content does not reflect the	Adequately written report / adequate content / the content	Excellently written report / excellent content / the content	<i>Example:</i> Score/5 * 10 =

-Implementation details (tools/version/language/I DE/API/database) (10%)		given assignment	reflects the given assignment	very much reflects the given assignment	
Total	(40)				

RUBRIC FOR PART 2 (10%)

ASSESSMENT CRITERIA (Weightage)	0	1-2	3-4	5	Marks
1. Slides (3%)	Missing/ Not presented	Poorly prepared slides, does not include most of the content.	Moderately prepared slides, somehow clear and have included some findings.	Excellent prepared slides, have covered the major details and findings as well as the learning outcomes.	<i>Example:</i> Score/5 * 3 =
2. Oral Presentation (4%)	Missing/ Not presented / No demonstration	Demonstrate poor ability to present clearly with confidence and appropriate to the level of the listener.	Demonstrate moderate ability to present clearly with confidence and appropriate to the level of the listener.	Demonstrate excellent ability to present clearly with confidence and appropriate to the level of the listener.	<i>Example:</i> Score/5 * 4 =
3. System or application demo (3%)	Missing/ Not presented / No demonstration	Demonstrate poor ability in app/system demo.	Demonstrate moderate ability in app/system demo.	Demonstrate excellent ability in app/system demo.	<i>Example:</i> Score/5 * 3 =
Total	(10)				