COURSE INFORMATION

School/Faculty:	Computing/Engineering	**Page:**	1 of 8
Program name:	Bachelor of Computer Science (Software Engineering)		
Course code:	SCSJ3303	**Academic Session/Semester:**	2021/2022 - sem I
Course name:	Internet Programming	**Pre-requisites (course name and code, if applicable):**	Object Oriented Programming
Credit hours:	3 (three)		Web Programming

Course synopsis	This course covers the development of web component with Servlet, Java Server Pages (JSP) and Java Spring Framework. This course will enable students to obtain the knowledge and skills necessary to quickly build web applications based on Servlet and JSP technologies using the NetBeans IDE, Glassfish/Tomcat web container and Java Spring Framework.
	Students are exposed to the current methods for analyzing, designing, developing, and deploying web applications with Java technologies. At the end of this course, student should be able to develop a web-based application implementing Servlet,, JSP, MySql, JavaBeans using Spring Framework.
Course coordinator	Norizam Bin Katmon

Course lecturer(s)	**Name**	**Office**	**Contact no.**	**E-mail @utm.my**
	Dr Nor Azizah binti Sa'adon	Room 305-09, Block N28	019-7737735	azizahsaadon@utm.my
	Norizam bin Katmon	Room 207-20, Block N28	011-56580604	rizam@utm.my

Mapping of the Course Learning Outcomes (CLO) to the Programme Learning Outcomes (PLO), Teaching & Learning (T&L) methods and Assessment methods:

No.	CLO	PLO (Code)	Weight (%)	*Taxonomies And **generic skills	T&L methods	***Assessment methods
CLO1	Apply the concept of static and dynamic web applications development.	PLO1 (KW) PLO2 (AP)	25	C2	Lecture, Active Learning	Q, LT, F
CLO2	Develop dynamic web applications based on J2EE™ platform that using technology such as Servlet,	PLO2 (AP)	30	C3	Lecture, Active Learning	LT, F

Prepared by:	Certified by:
Name:	Name:
Signature:	Signature:
Date:	Date:

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	JSP and JavaBeans.						
CLO3	Construct web application using appropriate software methods and tools	PLO2 (AP)	25		C4	Lab Exercise, Assignment	L, A
CLO4	Work in a team to develop a medium to complex dynamic web application as a group mini project using J2EE platform.	PLO6 (TW)	20		TW3, TW4	Project-oriented Problem-based (Po-Pb)	Q, P
	Refer *Taxonomies of Learning and **UTM's Graduate Attributes, where applicable for measurement of outcomes achievement *** F – Final Exam; L – Lab; A – Assignment; LT – Lab Test; Q – Quiz; P – Project						

Details on Innovative T&L practices:

No.	Type	Implementation
1.	Active learning	Conducted through in-class activities based on informal cooperative learning.
2.	Independent Study	E-Learning, Other online resources
2.	Project-oriented problem-based (Po-Pb)	Conducted through a project throughout the semester. Students in a group of 4 are asked to develop a complete web application with medium-to-high complexity. Students need to present their project progress in three stages throughout the semester.

Weekly Schedule:

Week 1 17-23 Oct 2021	**1. Introduction to Web Programming** 1.1. Introduction to Web Programming 1.2. Revision: HTML /XHTML 1.3. Revision: Cascading Style Sheets (CSS) 1.4. IDE : Introduction to Netbeans	Lab Exercise: HTML revision
Week 2 24-30 Oct 2021	**2. An Overview of Servlet and JSP Technology** 2.1. Understanding the role of servlets 2.2. Building Web pages dynamically 2.3. Evaluating servlets vs. other technologies 2.4. Understanding the role of JSP	Lab Exercises **Group Project:** **Project Briefing & Group Formation**
Week 3 31 Oct – 6 Nov 2021	**3. Introduction to Servlet** 3.1. The basic structure of servlets 3.2. Servlets and packages 3.3. The servlet life cycle **4. Handling the Client Request: Form Data**	Lab Exercises Assignment 1

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	4.1. Reading individual request parameters 4.2. Reading the entire set of request parameters 4.3. Handling missing and malformed data 4.4. Dealing with incomplete form submissions **5. Form validation using Javascript**	
Week 4 7 – 13 Nov 2021	**6. Handling the Client Request: HTTP Request Headers** 6.1. Reading HTTP request headers 6.2. Understanding the various request headers 6.3. Differentiating among types of browsers **7. Generating the Server Response: HTTP Status Codes** 7.1. Format of the HTTP response 7.2. How to set status codes 7.3. What the status codes are good for 7.4. Shortcut methods for redirection and error pages **8. Generating the Server Response: HTTP Response Headers** 8.1. Format of the HTTP response 8.2. Setting response headers 8.3. Understanding what response headers are good for6. 7.	Lab Exercises #1 **Group Project:** **Phase 1 Deliverable (Proposal)**
Week 5 14 - 20 Nov 2021	**9. Overview of JSP Technology** 9.1. Understanding the need for JSP 9.2. Evaluating the benefits of JSP 9.3. Comparing JSP to other technologies **10. Invoking Java Code with JSP Scripting Elements** 10.1. JSP expressions 10.2. JSP scriptlets 10.3. JSP declarations	Lab Exercises #2 Quiz #1 (5%)
Week 6 21 – 27 Nov 2021	**11. Controlling the Structure of Generated Servlets: the JSP page Directive** 11.1. Understanding the purpose of the page directive 11.2. Participating in sessions 11.3. Using jsp:include to include pages at request time 11.4. Using <%@ include … %> (the include directive) to include files at page translation time	Lab Exercises #3: − Code examples − Building an online store – Shopping cart example
Week 7 28 Nov – 4 Dec 2021	**12. Handling Cookies** 12.1. Understanding the benefits and drawbacks of cookies 12.2. Sending outgoing / Receiving incoming cookies 12.3. Differentiating between session cookies and persistent cookies	Lab Exercises #4: -Building an online store **Lab Test 1** **Tueaday 30 Nov 2021, 2 - 4.30pm**

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	12.4. Remembering user preferences **13. Session Tracking** 13.1. Understanding the session-tracking API 13.2. Differentiating between server and browser sessions o Tracking user access counts 13.3.	
Week 8 5 – 11 Dec 2021	**Mid-Semester Break**	
Week 9 12 – 18 Dec 2021	**14. JDBC – Database Connectivity** 14.1. Connecting to databases: the seven basic steps **15. Using precompiled (parameterized) queries** 10.3 Creating and executing stored procedures 10.4 Updating data through transactions 10.5 Using JDO and other object-to-relational mappings	Lab Exercises #5: - Code examples -Building an online store – Shopping cart example (enhanced using database)
Week 10 19 – 25 Dec 2021 (Sat, 25 Dec – Christmas)	**16. Using JavaBeans Components in JSP Documents** 16.1. Understanding the benefits of beans 16.2. Creating beans 16.3. Installing bean classes on your server 16.4. Accessing bean properties 16.5. Explicitly setting bean properties 16.6. Automatically setting bean properties from request parameters Sharing beans among multiple servlets and JSP pages	**Group Project:** **Phase 2 Deliverable (Progress)**
Week 11 26 Dec 2021 – 1 Jan 2021	**17. Integrating Servlets and JSP: The Model View Controller (MVC) Architecture** 17.1. Understanding the benefits of MVC 17.2. Using RequestDispatcher to implement MVC 17.3. Forwarding requests from servlets to JSP pages 17.4. Handling relative URLs 17.5. Choosing among different display options 17.6. Comparing data-sharing strategies 17.7. Forwarding requests from JSP pages 17.8. Including pages instead of forwarding to them	Lab Exercise #6 Assignment 2 (Web using Database)
Week 12		Lab Exercises #7

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2 – 8 Jan 2022	**18. Spring web MVC Framework** 18.1. Introduction to Spring Web MVC framework 18.2. The DispatcherServlet 18.3. Implementing Controllers 18.4. Mapping Requests With @RequestMapping	
Week 13 9 – 15 Jan 2022	**19. Spring Web MVC Framework (cont…)** 19.1. Resolving views 19.2. Redirecting to views 19.3. The Model ModelMap (ModelAndView) 19.4. Handling exceptions 19.5. Handling Standard Spring MVC Exceptions	Lab Exercises #8 Quiz #2 (5%)
Week 14 16 – 22 Jan 2022	**20. Simplifying Access to Java Code: The JSP 2.0 EL & JSTL** 20.1. Motivating use of the expression language 20.2. Invoking the expression language 20.3. Disabling the expression language 20.4. Preventing the use of classic scripting elements 20.5. Understanding the relationship of the expression language to the MVC architecture 20.6. Referencing scoped variables 20.7. Accessing bean properties, array elements, List elements, and Map entries 20.8. Using expression language operators 20.9. Evaluating expressions conditionally	Lab Exercises #9
Week 15 23 – 29 Jan 2022	**Project Presentation**	**Group Project – Phase 3- Presentation /Demo**
Week 16 30 Jan – 5 Feb 2022	**REVISION WEEK**	

Transferable skills (generic skills learned in course of study which can be useful and utilised in other settings):

Skills on the use of the Integrated Development Environment (IDE) and Database client tools Team working and Project Presentation

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Student learning time (SLT) details:

Distribution of student Learning Time (SLT) Course content outline	Teaching and Learning Activities				TOTAL SLT
CLO	Guided Learning (Face to Face)			Guided Learning Non-Face to Face	Independent Learning Non-Face to face	
	L	T	P	O			
CLO 1	13h					6h	**19h**
CLO 2	6h	14h				9.5h	**29.5h**
CLO 3	6h	14h				9h	**29h**
CLO 4	3h				7h	20h	**30h**
Total SLT	**28h**	**28h**			**7h**	**56.5h**	**109.5h**

	Continuous Assessment	PLO	Percentage	Total SLT
1	Assignment	PLO2	10	As in CLO3 (4h)
2	Lab Exercise	PLO2	10	As in CLO3 (3h)
3	Quiz	PLO1	5	As in CLO1(0.5h)
		PLO6	5	As in CLO4(0.5h)
4	Group Project	PLO6	20	As in CLO4 (30h)
5	Lab Test	PLO2	20	As in CLO1(0.5h)
				As in CLO2(1.5h)
	Final Assessment		Percentage	Total SLT
1	Final Examination	PLO2	30	As in CLO1(0.5h)
				As in CLO2(2h)
	Grand Total		**100**	**120h**

L: Lecture, T: Tutorial, P: Practical, O: Others

	Assessment	PLO 1	PLO 2		PLO 6	TOTAL	TOTAL SLT
		CLO1	CLO1	CLO2	CLO3	CLO4		
1	**ASSIGNMENT (2)**				10		**10**	**4 hrs**
2	**LAB EXERCISE (4)**				10		**10**	**3 hrs**
3	**QUIZ (2)**	5			5		**10**	**1 hour**
4	**PROJECT (1)**					20	**20**	**30 hrs (As in CLO 3)**
5	**LAB TEST (1)**		10	10			**20**	**2 hrs**
6	**FINAL EXAM (1)**		10	20			**30**	**2.5 hrs**
	TOTAL PLO	**5**	**20**	**30**	**20**	**25**	**100**	**41.5 hrs**

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Special requirement to deliver the course (e.g: software, nursery, computer lab, simulation room):

Computer Lab with computers and Internet access

Software: NetBeans 8.2 IDE; JDK; MySQL Sequential Database

Learning resources:

Text book (if applicable)
1. Marty Hall and Larry Brown. Core Servlets and Javaserver Pages Volume 1:Core Technologies, Second Edition, Prentice Hall. Softcopy version can be accessed from http://pdf.coreservlets.com/Bryan Basham, Kathy Sierra and Bert Bates. Head First Servlets and JSP. Second Edition, O'Reilly.

Main reference
1. Joel Murach, Andrea Steelman. Murach's Java Servlets and JSP, Mike Murach & Associates Inc, K. Wiegers and J. Beatty, Software Requirements, 3rd Edition. Washington: Microsoft Press, 2014.

Online Course Materials
> http://elearning.utm.my

Academic honesty and plagiarism: *(Below is just a sample)*

Assignments are individual tasks and NOT group activities (UNLESS EXPLICITLY INDICATED AS GROUP ACTIVITIES) Copying of work (texts, simulation results etc.) from other students/groups or from other sources is not allowed. Brief quotations are allowed and then only if indicated as such. Existing texts should be reformulated with your own words used to explain what you have read. It is not acceptable to retype existing texts and just acknowledge the source as a reference. Be warned: students who submit copied work will obtain a mark of **zero** for the assignment and disciplinary steps may be taken by the Faculty. It is also unacceptable to do somebody else's work, to lend your work to them or to make your work available to them to copy.

Other additional information (Course policy, any specific instruction etc.):

1. Attendance is compulsory and will be taken in every lecture session. Student with <u>less than 80%</u> of total attendance is not allowed to sit for final exam.
2. Students are required to behave and follow the University's dressing regulation and etiquette all the time.
3. Exercises and tutorial will be given in class and some may be taken for assessment. Students who do not do the exercise will lose the coursework marks for the exercise.
4. Assignments must be submitted on the due dates. Some points will be deducted for late submissions. Assignments submitted <u>three days after</u> the due date will not be accepted.
5. Make up exam will not be given, except to students who are sick and submit medical certificate which is confirmed by UTM panel doctors. Make up exam can only be given <u>within one week</u> of the initial date of

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exam.

	Assessment	PLO 1	PLO 2			PLO 6	TOTAL
		CLO1	CLO1	CLO2	CLO3	CLO4	
1	ASSIGNMENT (2)				10		10
2	LAB EXERCISE (4)				10		10
3	QUIZ (2)	5			5		10
4	PROJECT (1)					20	20
5	LAB TEST (1)		10	10			20
6	FINAL EXAM (1)		10	20			30
	TOTAL PLO	5	20	30	25	20	100

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