UUM COLLEGE OF ARTS AND SCIENCES
UNIVERSITI UTARA MALAYSIA

<table>
<tr><th>No.</th><th colspan="9">Information on Course</th></tr>
<tr><td>1.</td><td></td><td colspan="8">Course Name: WEB ENGINEERING</td></tr>
<tr><td>2.</td><td></td><td colspan="8">Course Code: STIW3044</td></tr>
<tr><td>3.</td><td></td><td colspan="8">Name(s) of Academic Staff:
▪ AHMAD HANIS MOHD SHABLI</td></tr>
<tr><td>4.</td><td></td><td colspan="8">The rationale for the inclusion of the course in the programme:
This is an elective course for BSc (Hons) (Information Technology) students majoring in Software Engineering.</td></tr>
<tr><td>5.</td><td></td><td colspan="8">Semester/Year Offered: 5/3</td></tr>
<tr><td rowspan="3">6.</td><td colspan="2" rowspan="2">Total Student Learning Time (SLT)</td><td colspan="6">Face to face</td><td>Online Learning</td><td>SLPA</td><td>TLT</td></tr>
<tr><td>TL</td><td>T</td><td>P</td><td>SCL/O</td><td>A</td><td>OL</td><td>OA</td><td></td><td></td></tr>
<tr><td colspan="2">TL = Traditional Lecture
T = Tutorial
P = Practical
SCL/O = Student-Centered Learning/Others
A = Assessment
OL= Online Learning
OA = Online Assessment
SLPA= Self Learning Preparation and Assessment
TLT = Total Learning Time</td><td>25.0</td><td>0.0</td><td>22.0</td><td>0.0</td><td>3.56</td><td>9.0</td><td>4.52</td><td>92.92</td><td>160.0</td></tr>
<tr><td>7.</td><td></td><td colspan="8">Credit Value: 4</td></tr>
<tr><td>8.</td><td></td><td colspan="8">Pre-requisite (if any):</td></tr>
</table>

		STIW2024 Software Engineering
9.		Upon completion of the course, students are expected to i. be able to design a web application using the standard of the industry web engineering design technique. ii. be able to develop web applications using standard industry web engineering development tools. iii. be able to test web applications using the standard of the industry web engineering testing process.
10		Course Learning Outcomes: Upon completing the course, students can i. design web-based applications using state of industry web application development methodology. (C3, P5) ii. developed a web-based application using the industry mobile application development standard. (C3, P5) iii. Be able to evaluate the web-based application using appropriate web application testing and evaluation tools. (A3, P2)
11		Transferable Skills: Knowledge, practical, problem-solving, and communication skills
12		Teaching-learning and assessment strategy: The mixed-method between teacher-centered and student-centered. The assessment strategy is a continuous assessment with real project experience through a web application project.
13		Synopsis: Web applications continue as essential tools in today's computing world. More new and exciting features, applications, and content keep pushing web technology further. The need for more exciting application solutions to improve the current state-of-the-art web technology is becoming more critical. Web application engineering is the set of processes and procedures involved in writing software with consideration for web technology stacks. Students will learn how to design, develop, and test web applications using state of industry methodology and technology. Topics covered will include web development stacks such as HTML, CSS, JavaScript, PHP, and MySQL. The student also will be exposed to industry-standard development frameworks. Upon completion of the course, students will be able to design, develop, and test applications for the web.
14		Mode of Delivery: Traditional Lectures, Practical, Student-Centered Learning, Online learning, and Project.
15		Assessment Methods and Types: Coursework – 100%: ▪ 60% (Quizzes, Labs, and Assignments) ▪ 40% (Final Exam)

Assessment Methods	Percentage	MQF	CLO1	CLO2	CLO3	CLO4	CLO5

		Coursework	**Quizzes**	10%	MQF1	√				
			Midterm Test	15%	MQF1/MQF2		√	√		
			Assignments	20%	MQF2/MQF6		√	√		
			Project (Development)	15%	MQF2/MQF6		√	√	√	
			Final Exam (Presentation)	40%	MQF2/MQF6		√	√		
			Total	100.0%						
		Final Examination								

16 Mapping of the course/module to the Programme Aims

Programme Aims	**Course Learning Outcomes**			
	1	**2**	**3**	**4**
The aim of this programme is to produce graduates with the competitive knowledge, principles and skills in term of theoretical and practical foundation for designing, implementing and managing information technology solutions and resources and also recognizing the impact of technology on individuals, organization and society.	√	√	√	√

17 Mapping of the course/module to the Programme Learning Outcomes

Programme Learning Outcomes	**Course Learning Outcomes**			
	1	**2**	**3**	**4**
Demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to information technology.	√	√		
Design, implement, utilize and manage information technology solutions and resources.			√	√
Utilize relevant techniques, and demonstrate analytical and critical thinking skills in problem solving.			√	√
Communicate and work effectively with peers, clients, superiors and society.				

	Demonstrate skills in meeting people, talking with and accepting guidance and responsibilities.				
	Apply information management skills and principles of lifelong learning in academic and career development.				
	Apply broad business and real world perspectives in planning effectively, making judgments and demonstrating entrepreneurial skills.				
	Demonstrate professionalism, values, attitudes and ethical considerations in accordance with ethical and legal principles.				
	Demonstrate the ability to influence others in completing a common task.				
18	Content outline of the course/module and the SLT per topic				

Topics/Weeks	Learning Outcomes	Face to Face				OL	SL	TLT
		TL	T	P	SCL/O			
1. Introduction to web engineering. 1.1. Web development lifecycle. 1.2. Web application basic development stacks. 1.3. Web application development environment. 1.4. Web application frameworks.	1	4					4	8
2. Web Design Modelling Overview 2.1. User interface design 2.2. User interface experience 2.3. Basic web design layout management 2.4. HTML and CSS 2.5. Landing Page Development	2	2		2			4	8
3. Markup Language Frameworks 3.1. CSS Frameworks 3.2. Basic Page with CSS framework 3.3. Form design and development 3.4. Sessions and Cookies	2,3	2		2			4	8
4. Scripting Language 4.1. Introduction to JavaScript 4.2. JavaScript with DOM 4.3. JavaScript Framework		2		2			4	8
5. The Design Process and Development 5.1. Web application databases 5.2. Database web design 5.3. Database development	2,3	1		2		1	4	8
6. CRUD database operations 6.1. Create a table 6.2. Read from a table 6.3. Update a table 6.4. Delete from a table	2,3	3		3		2	8	16
7. Backend Requirement Services 7.1. Web application backend 7.2. Web Sessions 7.3. Backend service development 7.4. User interface and service integration.	2,3	2		2			4	8
8. Backend database operations. 8.1. Create data 8.2. Read data 8.3. Update data 8.4. Delete data	2,3	2		2			8	8

8.5. Asynchronous operations								
9. Analysis, debugging and publishing 9.1. Console debug and error log 9.2. Elements and layout 9.3. Data recorder 9.4. Performance analysis 9.5. Publishing a web application	2,3	2		2			4	8
10. Web Application Framework Design 10.1. Frontend frameworks 10.2. Backend frameworks 10.3. Full stacks frameworks	2,3	2		2			4	8
11. Framework Design 11.1. Framework installation 11.2. Application structure 11.3. Database 11.4. Environment Configuration 11.5. Routing	2,3	2		2			4	8
12. Framework Management 12.1. Middleware 12.2. Controllers 12.3. CRUD operations	2,3	2		2			4	8
13. Web Engineering Issue 13.1. Current Issue	2,3	2		2			4	8
		25		22		9	56	112

Student Learning & Assessment	**Face to Face**	**Online Learning**	**Online Assessment**	**SLPA**	**TLT**
Course Delivery and Preparation	47.0	9.0		56.0	112.0
Coursework 60%	0.2		4.5	25.2	29.9
Final Examination 40%	3.4		0.0	14.7	18.1
Total Notional Hours	50.6	9.0	4.5	95.9	160.0
Credit Hours	4.00				

Main References:
Introduction to Web Programming, https://shopee.com.my/product/66171375/11356370108/

Additional References:

1. W3CSS web application development, https://www.w3schools.com/w3css/default.asp
2. Laravel Framework, https://laravel-news.com/your-first-laravel-application
3. Angular Framework, https://www.tektutorialshub.com/angular-tutorial/

Prepared By Course Coordinator

(Ahmad Hanis Mohd Shabli)
Date: 3/4/2022
Signature and Official Stamp

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