

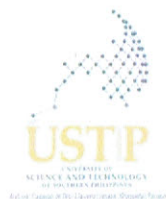


**UNIVERSITY OF SCIENCE AND TECHNOLOGY  
OF SOUTHERN PHILIPPINES**

Alubijid | Balubal | Cagayan de Oro | Claveria | Jasaan | Oroquieta | Panaon | Villanueva

Document Code No.		
<b>FM-USTP-ACAD-01</b>		
01	12.01.21	1 of 9

<div>College of Information Technology and Computing Department of Information Technology</div>										<div>SYLLABUS</div> <div>Course Title: Integrative Programming and Technologies</div> <div>Course Code: IT322</div> <div>Credits: 3 units (2 hours Lecture, 3 hours Laboratory)</div>										
<div>USTP Vision</div> <div>A nationally-recognized Science and Technology (S&amp;T) university providing the vital link between education and the economy</div> <div>USTP Mission</div> <div>Bring the world of work (industry) into the actual higher education and training of the students; Offer entrepreneurs of the opportunity to maximize their business potentials through a gamut of services from product conceptualization to commercialization; Contribute significantly to the national development goals of food security and energy sufficiency through technology solutions.</div>	<div>Semester/Year: 2<sup>nd</sup> Semester SY 2022-2023</div> <div>Class Schedule:</div> <div>Monday (Lab) – 1:30 PM – 4:30PM &amp; 6:00PM – 9:00PM</div> <div>Thursday (Lecture) – 1:00 PM – 3:00PM &amp; 3:00PM – 5:00PM</div> <div>Bldg./Rm. No.: ICT Bldg. 9-302</div>										<div>Prerequisite(s): Systems Integration and Architecture 1, Software Engineering</div>									
	<div>Instructor: Jomar C. Llevado</div> <div>Email: jomar.llevado@ustp.edu.ph</div> <div>Mobile No.: 09120023829</div>										<div>Consultation Schedule: Wednesday / 2:00 PM – 3:00 PM</div> <div>Bldg. Rm. No.: ICT Bldg. IT Faculty office</div> <div>Office Phone No./Local: (088) 856 1739 local 154</div>									
	<div>Course Description:</div> <div>This course examines the use of different methods and technologies in integrating Software applications. This course will provide the students with the knowledge and skills to design, develop and utilize backend technologies to enable Software application integration. This course will explore the use of API, webhooks, and middleware.</div>																			
	<div>II. Course Outcomes:</div>																			
	<div>Course Outcomes (CO)</div>					<div>Program Outcomes (PO)</div>														
<div>CO1: Understand and examine the underlying concepts of Software Integration</div>					<div>01</div>	<div>02</div>	<div>03</div>	<div>04</div>	<div>05</div>	<div>06</div>	<div>07</div>	<div>08</div>	<div>09</div>	<div>10</div>	<div>11</div>	<div>12</div>	<div>13</div>	<div>14</div>	<div>15</div>	
<div>CO2: Design, develop and integrate different applications or systems by implementing integrative programming solutions and data exchange between systems.</div>					<div>D</div>	<div>D</div>	<div>D</div>	<div>E</div>	<div>I</div>	<div>I</div>	<div>I</div>	<div>D</div>	<div>D</div>	<div>D</div>	<div>E</div>	<div>I</div>	<div>I</div>	<div>E</div>	<div>E</div>	
<div>CO3: Implement and test API, middleware and webhooks</div>					<div>D</div>	<div>D</div>	<div>E</div>	<div>E</div>	<div>D</div>	<div>D</div>	<div>D</div>	<div>D</div>	<div>D</div>	<div>E</div>	<div>D</div>	<div>D</div>	<div>D</div>	<div>D</div>	<div>D</div>	



**UNIVERSITY OF SCIENCE AND TECHNOLOGY  
OF SOUTHERN PHILIPPINES**

Alubijid | Balubal | Cagayan de Oro | Claveria | Jasaan | Oroquieta | Panaon | Villanueva

Document Code No.

**FM-USTP-ACAD-01**

01

12.01.21

2 of 9

<b>Program Educational Objectives:</b>  <b>PEO1:</b> Graduates are proficient in the IT field and able to engage constantly in technological and professional advancement by pursuing a higher academic level and practicing quality improvement in their career and personal lives.  <b>PEO2:</b> Graduates are competent in generating new ideas and innovations in Information Technology with more emphasis on technopreneurship, management, IT solutions and the likes through research collaborations.  <b>PEO3:</b> Graduates are practicing professionals in the field of Information Technology who can contribute significantly to human development, socio-economic transformation, and patriotic initiatives.  <b>Program Outcomes:</b>  <b>PO1:</b> Identify, select and apply appropriate knowledge of computing science and	<b>III. Course Outline:</b>								
	<b>Allotted Time</b>	<b>Course Outcomes (CO)</b>	<b>Intended Learning Outcomes (ILO)</b>	<b>Topic/s</b>	<b>Suggested Readings</b>	<b>Teaching-Learning Activities</b>	<b>Assessment Tasks/Tools</b>	<b>Grading Criteria</b>	<b>Remarks</b>
	2 hrs. Week 1 (Feb 6 – 11)	Preliminary		<b>Course Orientation</b> - University's Vision and Mission - CITC Goals and Objectives - Class Policies and Agreement - Grading System - Course Requirements - Course Syllabus, Course Outline Presentation	Student Handbook Course Syllabus				
3 hrs. Week 1 (Feb. 6 – 11)	CO1	<ul style="list-style-type: none"><li>Understand and define key concepts of integrative programming and technologies</li><li>Identify the different types or styles of Software Integration</li></ul>	<b>Introduction to Integrative Programming and Technologies</b> <ul style="list-style-type: none"><li>The need for Integration</li><li>Types of Integration</li><li>Challenges of Integration</li></ul>	i	<ul style="list-style-type: none"><li>Reading assignments on the topics with questions to be answered and submitted</li><li>Lecture/discussion</li><li>Laboratory Exercises</li><li>Multimedia Presentation</li></ul>	<ul style="list-style-type: none"><li>Assignments / Practice Exercises</li><li>Written / Practical Quizzes</li></ul>	<ul style="list-style-type: none"><li>Rubric for Exercises</li><li>Rubric for Quizzes</li><li>Rubric for Research Assignments</li></ul>		



<p>mathematics in solving computing problems.</p> <p><b>PO2:</b> Understand, apply and integrate best practices and standards in solving computing problems by evaluating their applications</p> <p><b>PO3:</b> Work collaboratively among members of the team to analyze complex problems by applying analytical and quantitative reasoning; and define the computing requirements appropriate to its solution.</p> <p><b>PO4:</b> Communicate effectively with users to identify their needs and apply critical and creative thinking skills to do analysis and take them into account in the selection, creation, evaluation and administration of computer-based systems.</p> <p><b>PO5:</b> Creatively design, implement and evaluate using different computer-based systems, processes, components, or programs to meet desired needs and requirements under various constraints</p> <p><b>PO6:</b> Properly integrate IT-based solutions using various methods, policies and processes into the user environment effectively.</p>	<p>5 hrs. Week 2 (Feb. 13 - 18)</p>	<p><b>CO1, CO2</b></p>	<ul style="list-style-type: none"> <li>• Understand and define key concepts of PHP</li> <li>• Write PHP scripts</li> <li>• Launch a basic PHP app</li> <li>• Connect to local database and run basic CRUD queries</li> </ul>	<p><b>Scripting with PHP</b></p> <ul style="list-style-type: none"> <li>• Introduction to PHP</li> <li>• Working with Request &amp; Response</li> <li>• Working with Request Methods</li> <li>• PHP &amp; MySQL</li> <li>• MVC Pattern</li> </ul>	<p>ii, xviii</p>	<ul style="list-style-type: none"> <li>• Reading assignments on the topics with questions to be answered and submitted</li> <li>• Lecture/discussion</li> <li>• Laboratory Exercises</li> <li>• Multimedia Presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Assignments / Practice Exercises</li> <li>• Written / Practical Quizzes</li> </ul>	<ul style="list-style-type: none"> <li>• Rubric for Exercises</li> <li>• Rubric for Quizzes</li> <li>• Rubric for Research Assignments</li> </ul>	
	<p>20 hrs. Week 3, 4, 5, &amp; 6 (Feb. 20 – Mar. 18)</p>	<p><b>CO1, CO2, CO3</b></p>	<ul style="list-style-type: none"> <li>• Understand and define key concepts of API</li> <li>• Write REST API with Laravel</li> <li>• Test Laravel Rest API with testing tool like insomnia</li> <li>• Create CRUD transactions with REST API</li> </ul>	<p><b>API</b></p> <ul style="list-style-type: none"> <li>• REST API <ul style="list-style-type: none"> <li>◦ Introduction</li> <li>◦ HTTP</li> <li>◦ Implement REST API with Laravel</li> <li>◦ API Testing</li> <li>◦ Consuming REST API</li> </ul> </li> </ul>	<p>iv, v, xiii</p>	<ul style="list-style-type: none"> <li>• Reading assignments on the topics with questions to be answered and submitted</li> <li>• Lecture/discussion</li> <li>• Laboratory Exercises</li> <li>• Multimedia Presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Assignments / Practice Exercises</li> <li>• Written / Practical Quizzes</li> </ul>	<ul style="list-style-type: none"> <li>• Rubric for Exercises</li> <li>• Rubric for Quizzes</li> <li>• Rubric for Research Assignments</li> </ul>	





<p>presentations, and clear instructions</p> <p><b>PO11:</b> Able to work collaboratively and respectfully as members and leaders of diverse teams and communities in analyzing, understanding, and assessing societal issues and act responsibly in making design and implement decisions considering the result of the research relevant to the local and global impact on computing information technology on the Filipino culture, individuals, organizations, and society.</p> <p><b>PO12:</b> Understand professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology.</p> <p><b>PO13:</b> Apply professional, ethical, legal, security and social issues and responsibilities in the utilization of information technology. Understand, assess societal, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practice</p> <p><b>PO14:</b> Participate in generation of new knowledge or in research and</p>	<p>15 hrs. Week 10, 11, &amp; 12 (Apr. 14 – May 6)</p>	<p>CO1, CO2, CO3</p>	<ul style="list-style-type: none"> <li>• Understand and define key concepts of GraphQL API</li> <li>• Write GraphQL API with NodeJS</li> <li>• Test GraphQL API with testing tool like insomnia</li> <li>• Create CRUD transactions with GraphQL API</li> </ul>	<p><b>GraphQL API</b></p> <ul style="list-style-type: none"> <li>○ Introduction</li> <li>○ Implementing GraphQL API with NodeJS</li> <li>○ API Testing</li> <li>○ Consuming GraphQL API</li> </ul>	<p>v, x, xii, xv</p>	<ul style="list-style-type: none"> <li>• Reading assignments on the topics with questions to be answered and submitted</li> <li>• Lecture/discussion</li> <li>• Laboratory Exercises</li> <li>• Multimedia Presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Assignments / Practice Exercises</li> <li>• Written / Practical Quizzes</li> </ul>	<ul style="list-style-type: none"> <li>• Rubric for Exercises</li> <li>• Rubric for Quizzes</li> <li>• Rubric for Research Assignments</li> </ul>	
	<p>15 hrs. Week 13, 14, &amp; 15 (May 8 - 27)</p>	<p>CO1, CO2, CO3</p>	<ul style="list-style-type: none"> <li>• Understand and define key concepts of SOAP API</li> <li>• Write GraphQL API with ASP.net</li> <li>• Test SOAP API with testing tool like insomnia</li> <li>• Create CRUD transactions with SOAP API</li> </ul>	<p><b>SOAP API</b></p> <ul style="list-style-type: none"> <li>○ Introduction</li> <li>○ Implementing SOAP API with ASP.net</li> <li>○ API Testing</li> <li>○ Consuming SOAP API</li> </ul>	<p>v, ix, xvi</p>	<ul style="list-style-type: none"> <li>• Reading assignments on the topics with questions to be answered and submitted</li> <li>• Lecture/discussion</li> <li>• Laboratory Exercises</li> <li>• Multimedia Presentation</li> </ul>	<ul style="list-style-type: none"> <li>• Assignments / Practice Exercises</li> <li>• Written / Practical Quizzes</li> </ul>	<ul style="list-style-type: none"> <li>• Rubric for Exercises</li> <li>• Rubric for Quizzes</li> <li>• Rubric for Research Assignments</li> </ul>	



**UNIVERSITY OF SCIENCE AND TECHNOLOGY  
OF SOUTHERN PHILIPPINES**

Alubijid | Balubal | Cagayan de Oro | Claveria | Jasaan | Oroquieta | Panaon | Villanueva

Document Code No	
<b>FM-USTP-ACAD</b>	
01	12.01.21

development projects aligned to local and national development agenda or goals

PO15: Graduates are able to apply and demonstrate sufficient expertise in the field of Information Technology with the end view of contributing to the local and national economy.

Code	Descriptor
I	Introductory Course
E	Enabling Course
D	Demonstrative Course
Code	Definition
I	An introductory course to an outcome
E	A course that strengthens the outcome
D	A course demonstrating an outcome

10 hrs. Week 16 & 17  (May 29 – Jun. 10)	CO1, CO2, CO3	<ul style="list-style-type: none"><li>• Understand and define key concepts of WebHooks</li><li>• Write WebHooks with ASP.net</li><li>• Test WebHooks with testing tool like insomnia</li><li>• Create CRUD transactions with WebHooks</li></ul>	<b>Web Hooks</b> <ul style="list-style-type: none"><li>○ Introduction</li><li>○ Implementing Webhooks with Django</li><li>○ API Testing</li><li>○ Consuming Webhooks</li></ul>	xi, xiv, xvii	<ul style="list-style-type: none"><li>• Reading assignments on the topics with questions to be answered and submitted</li><li>• Lecture/discussion</li><li>• Laboratory Exercises</li><li>• Multimedia Presentation</li></ul>	<ul style="list-style-type: none"><li>• Assignments / Practice Exercises</li><li>• Written / Practical Quizzes</li></ul>	<ul style="list-style-type: none"><li>• Rubric for Exercises</li><li>• Rubric for Quizzes</li><li>• Rubric for Research Assignments</li></ul>
		FINAL EXAMINATION					

5 hrs. Week 18  June 13 – 21	FINAL EXAMINATION						
---------------------------------------	-------------------	--	--	--	--	--	--

#### IV. Course Requirements:

##### 1. References

Titles, authors, and editions of textbooks and other materials recommended:

- i. Enterprise Integration Patterns By Gregor Hohpe & Bobby Woolf
- ii. PHP & MySQL: Novice to Ninja, 7th Edition By Tom Butler
- iii. XML and JSON Recipes for SQL Server: A Problem-Solution Approach By Alex Grinberg
- iv. REST API Design Rulebook By Mark Masse
- v. <https://www.youtube.com/watch?v=NFw0HznpLIM>
- vi. <https://www.youtube.com/watch?v=x6jUDfpESmA>
- vii. <https://www.youtube.com/watch?v=7Q17ubqLfAM>
- viii. Django for APIs 4.0: Build Web APIs with Python and Django By William S. Vincent
- ix. ASP.NET Core APIs Succinctly By Dirk Strauss
- x. Full Stack Development with MongoDB. Covers Backend, Frontend, APIs, and Mobile App Development Using PHP, NodeJS, ExpressJS, Python and React Native By Manu Sharma
- xi. Node.js: Build Web APIs and Applications With Node.js by Rufu Stewart
- xii. GraphQL in Action by Samer Buna
- xiii. <https://laravel.com/docs/10.x>
- xiv. <https://docs.djangoproject.com/en/4.1/>
- xv. <https://nodejs.org/en/docs>
- xvi. <https://learn.microsoft.com/en-us/aspnet/core/web-api>
- xvii. <https://zapier.com/blog/what-are-webhooks/>
- xviii. <https://www.w3schools.com/php/>

##### 2. Course materials:

- i. IDE's/Text Editors: Visual Studio Code / Notepad++ / Notepad
- ii. Browser: Google Chrome or Mozilla Firefox
- iii. Local Server: XAMPP or Laragon



### 3. Grading System

#### Lecture Grade (67%)

Performance Item/Criteria	%
Class Standing	10%
Quizzes (All quizzes, prelim and pre-final exams)	40%
Major Exams (i.e, Midterm and Final Exams)	30%
Performance Innovative Task / Project	20%
<b>TOTAL</b>	<b>100%</b>

#### Laboratory Grade (33%)

Performance Item/Criteria	%
Laboratory Exercises/Reports	30%
Laboratory Major Exam	40%
Hands on Exercises	30%
<b>TOTAL</b>	<b>100%</b>

**Term/Periodic Grade = 67% Lecture Grade + 33% Laboratory Grade**

**Options:**

**FINAL GRADE (FG) = 1/3 Midterm Grade (MTG)+ 2/3 Final Term Grade (FTG)**

**FINAL GRADE (FG) = 1/2 Midterm Grade (MTG)+ 1/2 Final Term Grade (FTG)**

(Passing Percentage is 70%)

Ex. In a 10-item quiz, obtaining 7 points would be equivalent to a passing score.



**UNIVERSITY OF SCIENCE AND TECHNOLOGY  
OF SOUTHERN PHILIPPINES**

Alubijid | Balubal | Cagayan de Oro | Claveria | Jasaan | Oroquieta | Panaon | Villanueva

Document Code No.		
<b>FM-USTP-ACAD-01</b>		
01	12.01.21	9 of 9

**4. Assignments, Assessment, and Evaluation:**

(a) Policy concerning homework

1. At least 5 homework/assignments will be given in a Term

(b) Policy concerning make-up exams

2. Refer to USTP Revised Student Handbook

(c) Policy concerning late assignments/requirements

3. Late assignments submission due to absence will not be accepted unless if absence is excused (Refer to USTP Revised Student Handbook for excused absences)

(d) Preliminary information on term papers or projects, with due dates

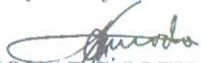
4. Late projects will be given equivalent deduction per day

(e) Description in detail of grading processes and criteria (how many quizzes, tests, papers; weighting of each; amount of homework, etc.) or the GRADING POLICY stated above

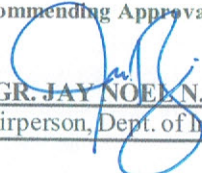
*Disclaimer:*

*Every attempt is made to provide a complete syllabus that provides an accurate overview of the subject. However, circumstances and events make it necessary for the instructor to modify the syllabus during the semester. This may depend, in part, on the progress, needs, and experiences of the student*


**Prepared by:**

  
**JOMAR C. LLEVADO**  
Instructor

**Recommending Approval:**

  
**ENGR. JAY NOEL N. ROJO, MSIT**  
Chairperson, Dept. of Information Technology

**Approved by:**

  
**LOVE JHOYME M. RABOY, MIT**  
Dean, CITC