



Republic of the Philippines  
**BATANGAS STATE UNIVERSITY**

**The National Engineering University**

**Balayan Campus**

Caloocan, Balayan, Batangas, Philippines 4213

Tel Nos.: (+63 43) 980-0385 local 6101

E-mail Address: [cics.balayan@g.batstate-u.edu.ph](mailto:cics.balayan@g.batstate-u.edu.ph) | Website Address: <http://www.batstate-u.edu.ph>

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**College of Informatics and Computing Sciences**

**CURRICULUM**

**Bachelor of Science in Information Technology (BSIT)**

Academic Year 2021-2022

*Reference CMOs: CMO No. 25, s. 2015, CMO 4 s. 2018, CMO No 20, s. 2013,*

*CMO No. 39, s. 2021, CMO No. 40, s. 2021*

**Curriculum Description**

The curriculum for BSIT includes the required GE courses, six (6) core courses common to all ITE programs, professional courses required for the BSIT program, and electives. The students are also required to undertake practicum work and complete a capstone project. Moreover, it is composed of three (3) tracks such as network technology, business analytics and service management.

The Information Technology curriculum combines technical, professional, and general education components to prepare students for a career, further study, and lifelong professional development in the computing discipline associated with the program. Also, the program includes basic and advanced courses on planning, development, integration and management of information technology.

**Program Objectives**

The alumni of BS Information Technology program, about three to five years after graduation shall:

1. Help create innovations to ensure the competitive edge of the Philippine computing industry.
2. Adhere to ethical standards in the practice of the computing profession.

**Institutional Graduate Attributes**

1. Demonstrate a mastery of the fundamental knowledge and skills required for functioning effectively as a professional in the discipline, and an ability to integrate and apply them effectively to practice in the workplace.
2. Experiment with new approaches, challenge existing knowledge boundaries and design novel solutions to solve problems.
3. Identify, define, and deal with complex problems pertinent to the future professional practice or daily life through logical, analytical and critical thinking.
4. Communicate effectively (both orally and in writing) with a wide range of audiences, across a range of professional and personal contexts, in English and Pilipino.
5. Identify own learning needs for professional or personal development; demonstrate an eagerness to take up opportunities for learning new things as well as the ability to learn effectively on their own.
6. Function effectively both as a leader and as a member of a team; motivate and lead a team to work towards goal; work collaboratively with other team members; as well as connect and interact socially and effectively with diverse culture.
7. Demonstrate an awareness and understanding of global issues and willingness to work, interact effectively and show sensitivity to cultural diversity.
8. Demonstrate an awareness of their social and national responsibility; engage in activities that contribute to the betterment of the society; and behave ethically and responsibly in social, professional and work environments.



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**Program Outcomes**

1. Ability to analyze complex computing problems and to apply principles of computing and other relevant disciplines to identify solutions.
2. Ability to design, implement, and evaluate computing-based solutions to meet a given set of computing requirements in the context of the program's discipline.
3. Ability to communicate effectively in a variety of professional contexts.
4. Ability to recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Ability to function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
6. Ability to use systemic approaches to select, develop, apply, integrate, and administer secure computing technologies to accomplish user goals.

**Curriculum Components**

Courses	Units	Total
<b>A. General Education Courses (CMO No. 20, s 2013 &amp; CMO No. 4, s 2018)</b>		<b>36 units</b>
Mathematics in the Modern World	3	
Art Appreciation	3	
Kontekstwalisadong Komunikasyon sa Filipino	3	
The Life and Works of Rizal	3	
The Contemporary World	3	
Filipino sa Iba't Ibang Disiplina	3	
Readings in Philippine History	3	
Science, Technology and Society	3	
ASEAN Literature	3	
Purposive Communication	3	
Understanding the Self	3	
Ethics	3	
<b>B. Common Courses</b>		<b>18 units</b>
Introduction to Computing	3	
Computer Programming	3	
Advance Computer Programming	3	
Data Structures and Algorithms	3	
Information Management	3	
Application Development and Emerging Technologies	3	
<b>C. Professional Courses</b>		<b>69 units</b>
Human-computer interaction	3	
Information Assurance and Security	3	
Advanced Information Assurance and Security	3	



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Database Management System	3	
Advanced Database Management System	3	
Integrative Programming and Technologies	3	
Computer Networking 1	3	
Computer Networking 2	3	
System Administration and Maintenance	3	
System Integration and Architecture	3	
Social Issues and Professional Practice	3	
Capstone Project 1	3	
Capstone Project 2	3	
Internship Training	6	
Technopreneurship	3	
IT Project Management	3	
System Quality Assurance	3	
System Analysis and Design	3	
Web systems and Technologies	3	
Advanced System Integration and Architecture	3	
Platform Technologies	3	
Object-Oriented Programming	3	
<b>D. Professional Electives (Choice of 1 Track)</b>		
<b><i>Network Technology Track</i></b>		
Computer Networking 3	3	
Internet of Things (IoT)	3	
Computer Networking 4	3	
Cloud Computing	3	
Cybersecurity	3	
<b><i>Business Analytics Track</i></b>		
Fundamentals of Business Analytics	3	
Fundamentals of Analytics Modeling	3	
Fundamentals of Enterprise Data Management	3	
Analytics Techniques & Tools	3	
Analytics Application	3	
<b><i>Service Management Track</i></b>		
Fundamentals of Business Process Outsourcing 101	3	
Business Communication	3	
Fundamentals of Business Process Outsourcing 102	3	
Service Culture	3	



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Principles of System Thinking	3	
<b>E. Additional Math and Science Requirements</b>		<b>15 units</b>
Linear Algebra	3	
Discrete Mathematics	3	
Calculus Based Physics	3	
Data Analysis	3	
Environmental Sciences	3	
<b>F. Mandated Courses</b>		<b>14 units</b>
PATHFit 1: Movement Competency Training	2	
PATHFit 2: Exercise-based Fitness Activities	2	
PATHFit 3: Traditional and Recreational Games	2	
PATHFit 4: Team Sports (Basketball and Volleyball)	2	
NSTP 1 and 2	6	

<b>SUMMARY</b>	
<b>Courses</b>	<b>Number of Units</b>
General Education	36
Common Courses	18
Professional Courses	69
Professional Electives	15
Additional Math and Science Requirements	15
Mandated Courses	14
<b>TOTAL</b>	<b>167</b>



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**PROGRAM OF STUDY (Network Technology Track)**

FIRST YEAR					
FIRST SEMESTER					
Code	Course Title	Units	Lec	Lab	Prerequisite
IT 111	Introduction to Computing	3	2	3	-
GEd 102	Mathematics in the Modern World	3	3	-	-
GEd 108	Art Appreciation	3	3	-	-
FILI 101	Kontekstwalisadong Komunikasyon sa Filipino	3	3	-	-
PATHFit 1	Movement Competency Training	2	2	-	-
NSTP 111	National Service Training Program 1	3	3	-	-
GEd 103	The Life and Works of Rizal	3	3	-	-
GEd 104	The Contemporary World	3	3	-	-
<b>TOTAL</b>		<b>23</b>	<b>22</b>	<b>3</b>	

FIRST YEAR					
SECOND SEMESTER					
Code	Course Title	Units	Lec	Lab	Prerequisite
CS 111	Computer Programming	3	2	3	IT 111
CS 131	Data Structures and Algorithms	3	2	3	IT 111
MATH 111	Linear Algebra	3	3	-	GEd 102
FILI 102	Filipino sa Iba't Ibang Disiplina	3	3	-	-
GEd 105	Readings in Philippine History	3	3	-	-
GEd 109	Science, Technology and Society	3	3	-	-
PATHFit 2	Exercise-Based Fitness Activities	2	2	-	PATHFit 1
NSTP 121	National Service Training Program 2	3	3	-	NSTP 111
<b>TOTAL</b>		<b>23</b>	<b>21</b>	<b>6</b>	

SECOND YEAR					
FIRST SEMESTER					
Code	Course Title	Units	Lec	Lab	Prerequisite
CS 121	Advanced Computer Programming	3	2	3	CS 111
IT 211	Database Management System	3	2	3	CS 111
CS 211	Object-Oriented Programming	3	2	3	CS 111, CS 131
LITR 102	ASEAN Literature	3	3	-	-
CpE 405	Discrete Mathematics	3	3	-	MATH 111
PHY 101	Calculus Based Physics	3	2	3	MATH 111
IT 212	Computer Networking 1	3	2	3	IT 111
PATHFit 3	Traditional and Recreational Games	2	2	-	PATHFit 1 and 2
<b>TOTAL</b>		<b>23</b>	<b>18</b>	<b>15</b>	



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<b>SECOND YEAR</b>					
<b>SECOND SEMESTER</b>					
<b>Code</b>	<b>Course Title</b>	<b>Units</b>	<b>Lec</b>	<b>Lab</b>	<b>Prerequisite</b>
IT 221	Information Management	3	2	3	IT 111
IT 223	Computer Networking 2	3	2	3	IT 212
IT 222	Advanced Database Management System	3	2	3	IT 211
MATH 408	Data Analysis	3	3	-	MATH 111
ES 101	Environmental Sciences	3	2	3	PHY 101
GEd 106	Purposive Communication	3	3	-	-
GEd 101	Understanding the Self	3	3	-	-
PATHFit 4	Team Sports (Basketball and Volleyball)	2	2	-	PATHFit 1 and 2
<b>TOTAL</b>		<b>23</b>	<b>19</b>	<b>12</b>	

<b>THIRD YEAR</b>					
<b>FIRST SEMESTER</b>					
<b>Code</b>	<b>Course Title</b>	<b>Units</b>	<b>Lec</b>	<b>Lab</b>	<b>Prerequisite</b>
IT 311	Systems Administration and Maintenance	3	2	3	IT 221, IT 222
IT 312	System Integration and Architecture	3	2	3	CS 131
NTT 401	Computer Networking 3	3	2	3	IT 223
NTT 402	Internet of Things (IoT)	3	2	3	IT 223
IT 313	System Analysis and Design	3	2	3	IT 222
IT 314	Web Systems and Technologies	3	2	3	CS 211
GEd 107	Ethics	3	3	-	-
<b>TOTAL</b>		<b>21</b>	<b>15</b>	<b>18</b>	

<b>THIRD YEAR</b>					
<b>SECOND SEMESTER</b>					
<b>Code</b>	<b>Course Title</b>	<b>Units</b>	<b>Lec</b>	<b>Lab</b>	<b>Prerequisite</b>
IT 321	Human-computer interaction	3	3	-	IT 314
NTT 403	Computer Networking 4	3	2	3	NTT 401
NTT 404	Cloud Computing	3	2	3	NTT 402
IT 322	Advanced System Integration and Architecture	3	2	3	IT 312
IT 323	Information Assurance and Security	3	2	3	IT 223
IT 324	Capstone Project 1	3	3	-	3 <sup>rd</sup> Year Standing
IT 325	IT Project Management	3	3	-	IT 313
<b>TOTAL</b>		<b>21</b>	<b>17</b>	<b>12</b>	



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<b>THIRD YEAR</b>					
<b>MIDTERM</b>					
<b>Code</b>	<b>Course Title</b>	<b>Units</b>	<b>Lec</b>	<b>Lab</b>	<b>Prerequisite</b>
IT 331	Application Development and Emerging Technologies	3	2	3	IT 321
IT 332	Integrative Programming and Technologies	3	2	3	IT 314
	<b>TOTAL</b>	<b>6</b>	<b>4</b>	<b>6</b>	

<b>FOURTH YEAR</b>					
<b>FIRST SEMESTER</b>					
<b>Code</b>	<b>Course Title</b>	<b>Units</b>	<b>Lec</b>	<b>Lab</b>	<b>Prerequisite</b>
CS 423	Social Issues and Professional Practice	3	3	-	-
IT 411	Capstone Project 2	3	3	-	IT 324
NTT 405	Cybersecurity	3	2	3	NTT 403
ENGG 405	Technopreneurship	3	3	-	-
IT 413	Advanced Information Assurance and Security	3	2	3	IT 323
IT 414	System Quality Assurance	3	2	3	IT 325
IT 412	Platform Technologies	3	3	-	IT 332
	<b>TOTAL</b>	<b>21</b>	<b>18</b>	<b>9</b>	

<b>FOURTH YEAR</b>					
<b>SECOND SEMESTER</b>					
<b>Code</b>	<b>Course Title</b>	<b>Units</b>	<b>Lec</b>	<b>Lab</b>	<b>Prerequisite</b>
IT 421	Internship Training	6	-	500	4 <sup>th</sup> Year Standing
	<b>TOTAL</b>	<b>6</b>	<b>-</b>	<b>500</b>	



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**PROGRAM OF STUDY (Business Analytics Track)**

FIRST YEAR					
FIRST SEMESTER					
Code	Course Title	Units	Lec	Lab	Prerequisite
IT 111	Introduction to Computing	3	2	3	-
GEd 102	Mathematics in the Modern World	3	3	-	-
GEd 108	Art Appreciation	3	3	-	-
FILI 101	Kontekstwalisadong Komunikasyon sa Filipino	3	3	-	-
PATHFit 1	Movement Competency Training	2	2	-	-
NSTP 111	National Service Training Program 1	3	3	-	-
GEd 103	The Life and Works of Rizal	3	3	-	-
GEd 104	The Contemporary World	3	3	-	-
<b>TOTAL</b>		<b>23</b>	<b>22</b>	<b>3</b>	

FIRST YEAR					
SECOND SEMESTER					
Code	Course Title	Units	Lec	Lab	Prerequisite
CS 111	Computer Programming	3	2	3	IT 111
CS 131	Data Structures and Algorithms	3	2	3	IT 111
MATH 111	Linear Algebra	3	3	-	GEd 102
FILI 102	Filipino sa Iba't Ibang Disiplina	3	3	-	-
GEd 105	Readings in Philippine History	3	3	-	-
GEd 109	Science, Technology and Society	3	3	-	-
PATHFit 2	Exercise-Based Fitness Activities	2	2	-	PATHFit 1
NSTP 121	National Service Training Program 2	3	3	-	NSTP 111
<b>TOTAL</b>		<b>23</b>	<b>21</b>	<b>6</b>	

SECOND YEAR					
FIRST SEMESTER					
Code	Course Title	Units	Lec	Lab	Prerequisite
CS 121	Advanced Computer Programming	3	2	3	CS 111
IT 211	Database Management System	3	2	3	CS 111
CS 211	Object-Oriented Programming	3	2	3	CS 111, CS 131
LITR 102	ASEAN Literature	3	3	-	-
CpE 405	Discrete Mathematics	3	3	-	MATH 111
PHY 101	Calculus Based Physics	3	2	3	MATH 111
IT 212	Computer Networking 1	3	2	3	IT 111
PATHFit 3	Traditional and Recreational Games	2	2	-	PATHFit 1 and 2
<b>TOTAL</b>		<b>23</b>	<b>18</b>	<b>15</b>	





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<b>SECOND YEAR</b>					
<b>SECOND SEMESTER</b>					
<b>Code</b>	<b>Course Title</b>	<b>Units</b>	<b>Lec</b>	<b>Lab</b>	<b>Prerequisite</b>
IT 221	Information Management	3	2	3	IT 111
IT 223	Computer Networking 2	3	2	3	IT 212
IT 222	Advanced Database Management System	3	2	3	IT 211
MATH 408	Data Analysis	3	3	-	MATH 111
ES 101	Environmental Sciences	3	2	3	PHY 101
GEd 106	Purposive Communication	3	3	-	-
GEd 101	Understanding the Self	3	3	-	-
PATHFit 4	Team Sports (Basketball and Volleyball)	2	2	-	PATHFit 1 and 2
<b>TOTAL</b>		<b>23</b>	<b>19</b>	<b>12</b>	

<b>THIRD YEAR</b>					
<b>FIRST SEMESTER</b>					
<b>Code</b>	<b>Course Title</b>	<b>Units</b>	<b>Lec</b>	<b>Lab</b>	<b>Prerequisite</b>
IT 311	Systems Administration and Maintenance	3	2	3	IT 221,IT 222
IT 312	System Integration and Architecture	3	2	3	CS 131
BAT 401	Fundamentals of Business Analytics	3	2	3	IT 221,IT 222
BAT 402	Fundamentals of Analytics Modeling	3	2	3	IT 221,IT 222
IT 313	System Analysis and Design	3	2	3	IT 222
IT 314	Web Systems and Technologies	3	2	3	CS 211
GEd 107	Ethics	3	3	-	-
<b>TOTAL</b>		<b>21</b>	<b>15</b>	<b>18</b>	

<b>THIRD YEAR</b>					
<b>SECOND SEMESTER</b>					
<b>Code</b>	<b>Course Title</b>	<b>Units</b>	<b>Lec</b>	<b>Lab</b>	<b>Prerequisite</b>
IT 321	Human-computer interaction	3	3	-	IT 314
BAT 403	Fundamentals of Enterprise Data Management	3	2	3	BAT 401
BAT 404	Analytics Techniques & Tools	3	2	3	BAT 402
IT 322	Advanced System Integration and Architecture	3	2	3	IT 312
IT 323	Information Assurance and Security	3	2	3	IT 223
IT 324	Capstone Project 1	3	3	-	3 <sup>rd</sup> Year Standing
IT 325	IT Project Management	3	3	-	IT 313
<b>TOTAL</b>		<b>21</b>	<b>17</b>	<b>12</b>	



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THIRD YEAR					
MIDTERM					
Code	Course Title	Units	Lec	Lab	Prerequisite
IT 331	Application Development and Emerging Technologies	3	2	3	IT 321
IT 332	Integrative Programming and Technologies	3	2	3	IT 314
<b>TOTAL</b>		<b>6</b>	<b>4</b>	<b>6</b>	

FOURTH YEAR					
FIRST SEMESTER					
Code	Course Title	Units	Lec	Lab	Prerequisite
CS 423	Social Issues and Professional Practice	3	3	-	-
IT 411	Capstone Project 2	3	3	-	IT 324
BAT 405	Analytics Application	3	2	3	BAT 404
ENGG 405	Technopreneurship	3	3	-	-
IT 413	Advanced Information Assurance and Security	3	2	3	IT 323
IT 414	System Quality Assurance	3	2	3	IT 325
IT 412	Platform Technologies	3	3	-	IT 332
<b>TOTAL</b>		<b>21</b>	<b>18</b>	<b>9</b>	

FOURTH YEAR					
SECOND SEMESTER					
Code	Course Title	Units	Lec	Lab	Prerequisite
IT 421	Internship Training	6	-	500	4 <sup>th</sup> Year Standing
<b>TOTAL</b>		<b>6</b>	<b>-</b>	<b>500</b>	



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**PROGRAM OF STUDY (Service Management Track)**

FIRST YEAR					
FIRST SEMESTER					
Code	Course Title	Units	Lec	Lab	Prerequisite
IT 111	Introduction to Computing	3	2	3	-
GEEd 102	Mathematics in the Modern World	3	3	-	-
GEEd 108	Art Appreciation	3	3	-	-
FILI 101	Kontekstwalisadong Komunikasyon sa Filipino	3	3	-	-
PATHFit 1	Movement Competency Training	2	2	-	-
NSTP 111	National Service Training Program 1	3	3	-	-
GEEd 103	The Life and Works of Rizal	3	3	-	-
GEEd 104	The Contemporary World	3	3	-	-
<b>TOTAL</b>		<b>23</b>	<b>22</b>	<b>3</b>	

FIRST YEAR					
SECOND SEMESTER					
Code	Course Title	Units	Lec	Lab	Prerequisite
CS 111	Computer Programming	3	2	3	IT 111
CS 131	Data Structures and Algorithms	3	2	3	IT 111
MATH 111	Linear Algebra	3	3	-	GEEd 102
FILI 102	Filipino sa Iba't Ibang Disiplina	3	3	-	-
GEEd 105	Readings in Philippine History	3	3	-	-
GEEd 109	Science, Technology and Society	3	3	-	-
PATHFit 2	Exercise-Based Fitness Activities	2	2	-	PATHFit 1
NSTP 112	National Service Training Program 2	3	3	-	NSTP 111
<b>TOTAL</b>		<b>23</b>	<b>21</b>	<b>6</b>	

SECOND YEAR					
FIRST SEMESTER					
Code	Course Title	Units	Lec	Lab	Prerequisite
CS 121	Advanced Computer Programming	3	2	3	CS 111
IT 211	Database Management System	3	2	3	CS 111
CS 211	Object-Oriented Programming	3	2	3	CS 111, CS 131
LITR 102	ASEAN Literature	3	3	-	-
CpE 405	Discrete Mathematics	3	3	-	MATH 111
PHY 101	Calculus Based Physics	3	2	3	MATH 111
IT 212	Computer Networking 1	3	2	3	IT 111
PATHFit 3	Traditional and Recreational Games	2	2	-	PATHFit 1 and 2
<b>TOTAL</b>		<b>23</b>	<b>18</b>	<b>15</b>	



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<b>SECOND YEAR</b>					
<b>SECOND SEMESTER</b>					
<b>Code</b>	<b>Course Title</b>	<b>Units</b>	<b>Lec</b>	<b>Lab</b>	<b>Prerequisite</b>
IT 221	Information Management	3	2	3	IT 111
IT 223	Computer Networking 2	3	2	3	IT 212
IT 222	Advanced Database Management System	3	2	3	IT 211
MATH 408	Data Analysis	3	3	-	MATH 111
ES 101	Environmental Sciences	3	2	3	PHY 101
GEd 106	Purposive Communication	3	3	-	-
GEd 101	Understanding the Self	3	3	-	-
PATHFit 4	Team Sports (Basketball and Volleyball)	2	2	-	PATHFit 1 and 2
<b>TOTAL</b>		<b>23</b>	<b>19</b>	<b>12</b>	

<b>THIRD YEAR</b>					
<b>FIRST SEMESTER</b>					
<b>Code</b>	<b>Course Title</b>	<b>Units</b>	<b>Lec</b>	<b>Lab</b>	<b>Prerequisite</b>
IT 311	Systems Administration and Maintenance	3	2	3	IT 221, IT 222
IT 312	System Integration and Architecture	3	2	3	CS 131
SMT 401	Fundamentals of Business Process Outsourcing 101	3	2	3	IT 221
SMT 402	Business Communication	3	2	3	IT 221
IT 313	System Analysis and Design	3	2	3	IT 222
IT 314	Web Systems and Technologies	3	2	3	CS 211
GEd 107	Ethics	3	3	-	-
<b>TOTAL</b>		<b>21</b>	<b>15</b>	<b>18</b>	

<b>THIRD YEAR</b>					
<b>SECOND SEMESTER</b>					
<b>Code</b>	<b>Course Title</b>	<b>Units</b>	<b>Lec</b>	<b>Lab</b>	<b>Prerequisite</b>
IT 321	Human-computer interaction	3	3	-	IT 314
SMT 403	Fundamentals of Business Process Outsourcing 102	3	2	3	SMT 401
SMT 404	Service Culture	3	2	3	SMT 401
IT 322	Advanced System Integration and Architecture	3	2	3	IT 312
IT 323	Information Assurance and Security	3	2	3	IT 223
IT 324	Capstone Project 1	3	3	-	3 <sup>rd</sup> Year Standing
IT 325	IT Project Management	3	3	-	IT 313
<b>TOTAL</b>		<b>21</b>	<b>17</b>	<b>12</b>	



Republic of the Philippines  
**BATANGAS STATE UNIVERSITY**

**The National Engineering University**

**Balayan Campus**

Caloocan, Balayan, Batangas, Philippines 4213

Tel Nos.: (+63 43) 980-0385 local 6101

E-mail Address: [cics.balayan@g.batstate-u.edu.ph](mailto:cics.balayan@g.batstate-u.edu.ph) | Website Address: <http://www.batstate-u.edu.ph>

**College of Informatics and Computing Sciences**

THIRD YEAR					
MIDTERM					
Code	Course Title	Units	Lec	Lab	Prerequisite
IT 331	Application Development and Emerging Technologies	3	2	3	IT 321
IT 332	Integrative Programming and Technologies	3	2	3	IT 314
<b>TOTAL</b>		<b>6</b>	<b>4</b>	<b>6</b>	

FOURTH YEAR					
FIRST SEMESTER					
Code	Course Title	Units	Lec	Lab	Prerequisite
CS 423	Social Issues and Professional Practice	3	3	-	-
IT 411	Capstone Project 2	3	3	-	IT 324
SMT 405	Principles of System Thinking	3	2	3	SMT 403
ENGG 405	Technopreneurship	3	3	-	-
IT 413	Advanced Information Assurance and Security	3	2	3	IT 323
IT 414	System Quality Assurance	3	2	3	IT 325
IT 412	Platform Technologies	3	3	-	IT 332
<b>TOTAL</b>		<b>21</b>	<b>18</b>	<b>9</b>	

FOURTH YEAR					
SECOND SEMESTER					
Code	Course Title	Units	Lec	Lab	Prerequisite
IT 421	Internship Training	6	-	500	4 <sup>th</sup> Year Standing
<b>TOTAL</b>		<b>6</b>	<b>-</b>	<b>500</b>	