UNIVERSITY OF TENAGA NASIONAL
FOUNDATION IN COMPUTER SCIENCE
INTERNATIONAL STUDENT

Semester	Code	Courses	Pre-requisite	Co-requisite	Credit Hours	Course Category	Course Content
Year 1							
Semester 1	CMPF114	Introduction to computing	None	None	4	Core	✔ Introduction and History of computer. ✔ Introduction to hardware and software. ✔ Introduction to computer system: structure and process. ✔ Introduction to software development: System Analysis and Design. ✔ Introduction to Database ✔ Introduction to Multimedia ✔ Introduction to Networking ✔ Visual Basic Programming.
	ENGF103	Foundation English 1	None	None	3	Core	✔ Vocabulary ✔ Multiple choice question ✔ Report writing ✔ Presentation report
	MTCF115	Calculus for computer science I	None	None	5	Core	✔ Real and complex numbers ✔ Functions ✔ Sequences ✔ Series ✔ Limit of a function at a point

							✔ The derivative ✔ Integrals ✔ Definite integral ✔ Applications of integrals
	PHYF111	Physics Laboratory 1	None	None	1	Core	✔ Simple pendulum ✔ Slide calipers ✔ Gravity ✔ Temperature ✔ Newton's Law
	PHYF114	Physics I for computer science	None	None	4	Core	✔ Vector ✔ Dynamics ✔ Newton's Law ✔ Work,Energy,Power ✔ Wave ✔ Gas and Kinetic Theory ✔ Periodic Motion
	PPYF103	Psychology of Thinking	None	None	3	College Compulsory	✔ Introduction to psychology ✔ Introduction to Thinking, Neuron and Human Brain. ✔ Memory, remembering and forgetting. ✔ Personality ✔ Personality Plus ✔ Motivation and Emotion ✔ Stress, copying and health. ✔ Thinking and Learning
		Total Credit			20		
Semester 2	CMPF 124	Personal productivity with information technology	None	None	4	Core	✔ Introduction to Windows operating system ✔ Introduction to MS Word ✔ Introduction to MS Excel

	Code	Name	Prerequisite		Credit	Type	Topics
							✔ Introduction to MS PowerPoint ✔ Image and Image Editing ✔ Open Source Concept ✔ Linux Command ✔ HTML and Web Page Design.
	CMPF 144	Introduction to problem solving and basic computer	None	None	4	Core	✔ Introduction to Python Programming language ✔ Understanding Problems and How to Solve Them by Using Computers ✔ Data Type ✔ Designing program using pseudocode and flowchart ✔ Sequence – Strings, Lists and Tuples ✔ Conditionals – if statement ✔ Repetition (Looping) – while, Do While, For
	ENGF103	English for Academic Purpose	None	None	3	College Compulsory	✔ Business Presentation ✔ Ted Analysis ✔ Class Presentation
	MALF103	Malaysian Culture for International Students.	None	None	3	College Compulsory	✔ Introduction to Malaysian History ✔ Malaysian Culture ✔ Introduction to Malaysian Food ✔ Malaysian Tourist Area.
	MTCF125	Calculus for Computer	MTCF115	None	5	Core	✔ Exponential Model ✔ Logarithm Function

		Science II					✔ Continuous Compounding ✔ Differential of Exponential ✔ Common Graph
	WRIF103	Essential Writing for International Students.	None	None	3		✔ Essay Writing ✔ Report Writing ✔ Paragraph Writing
		Total Credit			22		
Semester 3	CMPF134	Fundamental of Data and information	None	None	4		✔ Introduction of Number System ✔ Basic Arithmetic on Number System ✔ Signed Integer Representation ✔ Boolean Logic ✔ Data Unit ✔ Data Types ✔ Computing Codes ✔ Introduction to information theory
	PHYF134	Physics II for Computer Science.	PHYF114	None	4		✔ Temperature ✔ First law of thermoDynamics ✔ Kinetic Theory Of Gases ✔ Electric Field ✔ Electric potential ✔ Capacitance and dialectics ✔ Current and Resistance ✔ Direct current circuit ✔ Magnetic field ✔ AC circuit ✔ Geometric optics
		Total Credit			8		

BACHELOR OF COMPUTER SCIENCE (SOFTWARE ENGINEERING) (HONS.) INTERNATIONAL STUDENT

Semester	Code	Courses	Pre-requisite	Co-requisite	Credit Hours	Course Category	Course Content
Year 1							
Semester 1	CGNB293	Statics for Computer Science	None	None	3	Core	✔ Introduction to Statistics ✔ Graphical Data Representation ✔ Basic Statistical Measurements ✔ Practical Theorems using Measurement of center and variability ✔ Principles of Probability ✔ Probability of Events Relation ✔ Probability of Random Variables ✔ Random Distributions ✔ Testing Statistical Hypotheses ✔ Analysis of Variance (ANOVA), Regression Analysis & Correlation
	CSEB122	Problem Solving	None	CSEB134	2	Core	✔ Heuristic Problem solving ✔ Induction &

							Deduction
							✔ Algorithm
							✔ Basic general purpose math and algorithms
							✔ Sorting and Searching Algorithm
							✔ Solving problem with computation
	CSEB134	C programing	None	CSEB122	4	Core	✔ Introduction to C programming
							✔ Fundamental of basic input and output function
							✔ Problem solving
							✔ Basic C operators
							✔ Structured programing
							✔ Arrays
							✔ Character and String
							✔ Structure & Enumeration
							✔ Function
							✔ Recursive Function
							✔ User defined data
	CSNB123	Computer Organization	None	None	3	Core	✔ Introduction
							✔ Computer Evolution

							✔ Top Level View of Computer Function and Interconnection
							✔ Memory Subsystems
							✔ Internal Memories
							✔ Internal Memories
							✔ External memories
							✔ Input/Output Subsystems
							✔ Internal Data Representation
							✔ Instruction Set
							✔ CISC and RISC Architectures
							✔ Parallel Processing
	MALB103	Malay Language For International	None	None	3	College Compulsory	✔ 100 word memorising ✔ Sentence making ✔ Speaking Practice ✔ Singing Competition ✔ Paragraph writing
	RELB 113	Comparative Religion	None	None	3	College Compulsory	✔ Introduction

							✔ Hinduism
							✔ Buddhism
							✔ Confucianism
							✔ Sikhism
							✔ Judaism
							✔ Christianity
							✔ Islam
		Total Credit			18		
Semester 2	CISB214	Database 1	CSEB134	None	4	Core	✔ Introduction
							✔ Database environment & structure and web
							✔ Introduction to structured language
							✔ Relational Model
							✔ Data modeling with entity relationship model
							✔ Enhance ERD diagram
							✔ Transforming data model into database design
							✔ Big data, data warehouse, business intelligence
							✔ Normalization
	CSEB214	C++ Programing	CSEB134	None	4	Core	✔ Introduction of C++
							✔ C++ Stream input/output
							✔ Class, object and

							✔ string
							✔ Utility Function
							✔ Friend Function
							✔ Inheritance
							✔ Standard Library
							✔ Windows and user controls
	CSEB233	Fundamental of Software Engineering	CSEB134	None	3	core	✔ Software & Software Engineering
							✔ Process Models
							✔ Agile Development
							✔ Understanding Requirements Engineering
							✔ Software Design
							✔ Software Implementation
							✔ & Coding
							✔ Software Verification and Validation
							✔ Software Quality Management
	CSNB213	Data Communication and Computer Network.	CSNB123	None	3	College Compulsory	✔ What is a Computer Network
							✔ Network Topology
							✔ Networking Hardware
							✔ The TCP/IP Protocols
							✔ Switching and

							✔ Routing
							✔ Network Applications
							✔ The Internet
	SPRB113	Sports and Recreation management at workplace	None	None	3	College Compulsory	✔ Introduction to sports
							✔ Basic tips of sports
							✔ Manage stress with sports
							✔ Sports and recreation at job place
							✔ Group tour to learn practical knowledge
		Total Credit			17		
Semester 3	CSNB143	Discrete Structure	None	None	3		✔ Sets
							✔ Sequence and String
							✔ Matrix
							✔ Logic
							✔ Induction
							✔ Counting Techniques
							✔ Relations
							✔ Functions
							✔ Graph Theory
							✔ Tree
	ENGB213	Business English	None	None	3		✔ Business communication basics

							✔ Use of English
							✔ Introduction to business letter
							✔ Rules of good writing
							✔ Recruitment correspondence
							✔ Electronic mail
							✔ Reports
							✔ Notice advertisements and leaflets
							✔ Visual Presentation
	MASB113	Malaysian Studies	None	None	3		✔ Introduction to Malaysia
							✔ State Concept
							✔ Traditional Malay kingdom
							✔ Colonial Era
							✔ The independence of malay and the formation of Malaysia
							✔ Political system and Structure of Administration.
							✔ National unity and integration.
							✔ Malaysian Culture
		Total Credit			9		
Year 2							

Semester 1	CSEB274	Requirement Engineering	CSEB233	None	4	Core	✔ Introduction of Requirement Engineering ✔ Requirements elicitation. ✔ Requirements specification. ✔ Requirements verification and validation. ✔ Requirements management. ✔ Different Process Model and their implementation
	CSEB283	System Design	CSEB233	None	3	Core	✔ Overview to System Design ✔ Architectural Design ✔ Modelling the processes and logic ✔ Modelling Data ✔ Modeling Behavioral Perspective ✔ User Interface Design ✔ System Implementation
	CSEB324	Data Structure and Algorithms	CSEB214	None	4	Core	✔ Introduction ✔ Pointers

							✔ STL in C++
							✔ Complexity Analysis
							✔ List:
							✔ Stack
							✔ Queues
							✔ Tree
							✔ Graphs
							✔ Sorting
							✔ Searching
	CSEB334	Object Oriented Programming JAVA	CSEB214	None	4	Core	✔ Introduction
							✔ OOP Basic Components
							✔ Numerical data
							✔ Programmer defined class
							✔ Selection and Repetition Statements
							✔ Programmer defined class
							✔ Exception handling and assertions
							✔ Exception handling and assertions
							✔ Characters and strings
							✔ Arrays
							✔ Inheritance and

							polymorphism
	CSNB224	Operating System Concept	CSNB123	None	4	Core	✔ Operating system overview ✔ Introduce WIndows,Linux and Mac operating system ✔ Demand of operating system ✔ Deadlock and starvation ✔ Processes ✔ Threads ✔ Process Synchronization ✔ CPU Scheduling ✔ File-System Interface ✔ Distributed Systems ✔ The Linux System
		Total Credit			19		
Semester 2	CGNB313	Technology Entrepreneurship	None	None	3	College Compulsory	✔ Introduction to Technology Entrepreneurship ✔ Value proposition ✔ Business Model ✔ present a new

							business idea
	CISB213	Human Computer Interaction	CSEB283	None	3	Core	✔ Introduction to Human Computer Interaction
							✔ Input-output channels
							✔ Models of interaction
							✔ Frameworks and HCI
							✔ Ergonomics
							✔ Interaction styles
	CSEB294	Web Programming	CSEB214 & CISB214	None	4	core	✔ Introduction to HTML
							✔ Basic of CSS
							✔ Basic of Javascript
							✔ Introduction of PHP
							✔ Introduction of MySQL
							✔ Basic Crud operation using PHP
							✔ Form handling with PHP and MYSQL
							✔ PHP LOOP
							✔ PHP arrays
							✔ Function in PHP
	CSEB343	Object oriented Design	None	None	3	core	✔ Introduction to Object oriented design

							✔ Use Case Diagram
							✔ Class diagram
							✔ Sequence diagram
							✔ Data flow diagram
							✔ Timing diagram
							✔ Activity diagram
							✔ State diagram
	CSNB234	Artificial Intelligence	CSEB214	None	4	core	✔ Introduction to AI
							✔ INTELLIGENT SYSTEMS
							✔ AGENTS AND ENVIRONMENTS
							✔ POPULAR SEARCH ALGORITHMS
							✔ FUZZY LOGIC SYSTEMS
							✔ NATURAL LANGUAGE PROCESSING
							✔ EXPERT SYSTEMS
							✔ Prolog
		Total Credit			17		
Semester 3	CISB412	Ethics and IT Professional Practices	None	None	2		✔ Introduction to Ethics in IT
							✔ Law of copyright in malaysia
							✔ Code of Behaviour
							✔ Professional ethics
	CSEB453	Software Quality	CSE8324	None	3		✔ Introduction to SQ
							✔ Method of

							✔ mantaining SQ
							✔ Version Control
							✔ Use of version software
							✔ Software Quality Assurance
	ITCB213	IT Communication	None	None	3		✔ Business etikette
							✔ Code of Conduct
							✔ Mock Interview
							✔ CV writing
							✔ Email writing
							✔ Cover letter writing
		Total Credit			8		
Year 3							
Semester 1	CGNB413	Final Year Project 1	CSEB274, CSEB283 CSEB294	None	3	Core	✔ Introduction
							✔ Literature Review
							✔ Analysis
							✔ System Design
	CSEB313	Programming Languages	None	None	3	Core	✔ The Elements of Programming
							✔ Theoretical Introduction of Programming Languages: Syntax, Semantics, Types
							✔ Abstraction on Data
							✔ Delayed Evaluation

							✔ on Data and on Control (Behavior)
							✔ Type Correctness
							✔ Evaluators for Functional Programming
							✔ Logic Programming - in a Nutshell
	CSEB344	Software Project management	CSEB233	None	4	Core	✔ Introduction to Project Management
							✔ Business Case Development, Project Initiation and Process Management
							✔ MS Project Tutorial
							✔ Software Project Management Methodology
							✔ Work Activities and the Project Schedule
							✔ Estimation
							✔ Planning Human Resources and the Systems Requirements Specification
							✔ Earned Value Management
	CSNB414	Data and Computer Security	CSNB213	None	4	Core	✔ Introduction to data and computer security
							✔ Understand the

							different Data Security technologies. ✔ Overview of security threats ✔ Introduction to cryptography ✔ Introduction to Network Security and Intrusion detection systems ✔ Security Models: Bell-LaPadula, Biba, Chinese wall etc. ✔ Security management, organization and ethics
		Total Credit			14		
Semester 2	CGNB424	Final Year Project 2	CGNB413	None	4	College Compulsory	✔ Implementation ✔ Testing ✔ Deployment ✔ Conclusion ✔ Reference ✔ Appendix
	CSEB424	Software Testing	CSEB324 & CSEB233	None	4	Core	✔ Brief introduction to software systems and SDLC ✔ Testing Techniques ✔ Test Administration

							✔ Create the Test Plan
							✔ Test Metrics – Guidelines and usage
							✔ Test Tools used to Build Test Reports
							✔ Managing Change
							✔ Different Kinds of testing
	CSEB574	Advance Web Development - Laravel	CSEB214 & CISB214	None	4	core	✔ Introduction of Laravel in web development
							✔ MVC for Laravel
							✔ Form handling
							✔ Validation
							✔ Database operation with Laravel
							✔ File handling with Larave
							✔ Laravel and AjazI
		Total Credit			12		
Semester 3	CGNB316	Industrial Training	CSNB143 CSEB233 CSEB294	None	6		✔ 3 month training in a software or an IT company
		Total Credit			6		
		Overall Credit			170		