

**FEDERAL UNIVERSITY OYE-EKITI,
EKITI STATE, NIGERIA**



**FACULTY OF SCIENCE
DEPARTMENT OF COMPUTER SCIENCE
UNDERGRADUATE ACADEMIC PROSPECTUS**

2017 – 2020

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Revised Edition 2017

First Published 2015

A publication of the Department of Computer Science

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Faculty of Science, Federal University Oye-Ekiti, Nigeria.
P.M.B.373, Oye Ekiti. Ekiti State.



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FOREWORD

This prospectus showcases the Department of Computer Science concisely and almost exhaustively. In particular, the philosophy, objectives and curriculum of the degree program in the Department of Computer Science are presented in this prospectus. Furthermore, the lists of the staff in the Department are presented; other issues in it include: regulations guiding examinations, academic atmosphere, administration, admission requirements and result grading.

Arising from the above, an interested reader can find all the basic information about the degree program being run in the Department, the lists of different categories of staff, and the course synopses of the program with ease. The prospectus is handier than that of the entire faculty and of course, affords one, a quicker access to its contents than does the faculty handbook. It is therefore an indispensable companion of every student and staff, in the Department, as well as an image maker of the department. It will however be updated from time to time to reflect current developments in any of its contents.

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NAME OF PROGRAMME: Bachelor of Science (B. Sc) in Computer Science

PROGRAM CODE: CSC

PROGRAMME PHILOSOPHY, AIMS AND OBJECTIVES

The Bachelor of Science (B.Sc.) degree in Computer Science is designed to emphasize the importance of science and technology of computing. It is intended to produce graduates who are adequately equipped to meet the challenges of solving various and numerous computing problems in the world. The philosophy of the programme is thus, the development of the fundamentals of computer science for human capacity building, economic, industrial, scientific and technological advancement of the nation.

Computer Science programme is designed to produce graduates who are capable of applying the theoretical knowledge and practical skills acquired in computing to solve emerging problems and challenges in industries, business, commerce, education, medicine, government, agriculture, defence and the society in general; and to stimulate development and research in these areas to meet man's aspirations.

The programme emphasizes the importance of the underlying theory of various branches of Computer Science and provides a wide spectrum of application areas for the production of well-grounded graduates in the discipline. The objectives of the degree programme, therefore, are:

- i. To produce Computer Science graduates who are academically equipped to pursue postgraduate programmes in computer science and or in related disciplines, thus stimulating development and research in those areas.

- ii. To produce graduates who are capable of applying computer science, computer technology and information technology in solving human problems and emerging challenges in industries, business, commerce, education, medicine, government, defence and the society in general.
- iii. To provide suitable service courses for specialists in other disciplines to enable these specialists to increase their competence, skills and level of proficiency in their various works and fields.
- iv. To engender new developments in computer science with a view to promoting special interest in entrepreneurship abilities of potential graduates by exposing them to modern development in information technology.

ENTRY REQUIREMENTS:

Applicants seeking admission into the Bachelor of Science degree in Computer Science must satisfy the following requirements

UTME ENTRY REQUIREMENTS

Five 'O' Level credits in NOT more than TWO sittings including English, Mathematics, Physics, Chemistry and one other Science Subject
UTME Subjects: English, Physics, Mathematics and Chemistry

DIRECT ENTRY REQUIREMENTS

Two 'A' Level passes in Science subjects including Mathematics and Physics

OR

National Diploma in Computer Science with at least an Upper Credit from a recognized University or Polytechnic or NCE in

- (i) Computer Science/Mathematics
- (ii) Computer Science/Physics

(iii) Mathematics/ Physics

With at least Credit Pass in both subjects.

ADMISSION AND REGISTRATION

ADMISSION

Candidates seeking admission to the University for First Degree Course must and complete the Joint Admissions and Matriculation Board (JAMB) forms. Evidence of meeting the requirements as stated above shall have been considered. Candidates shall obtain their Admission letters from the Admissions Office in the University.

REGISTRATION OF COURSES

After due process of screening at the Faculty and Departmental offices, the candidate shall be provided with the list of courses for the semester for registration purposes. Registration for a course shall normally be within the first two weeks of resumption in a semester. Late registration shall be allowed after payment of the late registration fee shall come up within two weeks following the normal registration period. Any student who fails to register up to the end of the late registration period shall be deemed to have unilaterally withdrawn from the University for that session. If it is discovered at anytime that a candidate does not possess any qualification which he/she claims to have obtained, he/she will be expelled from the University.

DROPPING OF COURSES

Registration of a course at the beginning of a session automatically means registration for the course and the examination. A student who wishes to add or delete a course must do so within six weeks of commencement of lectures in the course by completing the prescribed form obtainable from the Academic Affairs Office. The maximum number of units a student

can register for is 24 units per semester. The minimum number of units a student can register for is 15 units per semester.

INSTRUCTIONAL METHODS AND ASSESSMENT

LANGUAGE OF INSTRUCTION

The language of instruction is English Language

TEACHING METHODS

Teaching is done through face-to-face classroom delivery as well as through the use of ICT facilities. Practicals are conducted on a regular basis as scheduled on the time table

MODE OF ASSESSMENT

The course evaluation is made up of:

- (i) Continuous Assessment, that is, Series of Practical, Assignments and Tests,
- (ii) End of Semester Examination.

Continuous Assessment contributes at least 40% to the final evaluation of the course, while end of semester examination contributes at most 60%.

RESEARCH PROJECT

Students are expected to carry out a research work and submit completed research to the department. The research work will be done at the final year running for two semesters.

GRADING OF COURSES

The performance of Computer Science students is evaluated with the following methods:

- i. Practical programming assignments
- ii. Theoretical assignments

- iii. Quizzes
- iv. End of Semester Examination

COLLATION OF MARKS

A maximum score of 40% is allocated to continuous assessment while the end of semester examination is allocated a maximum of 60% score making a total of 100%.

The student's score in each course is attached points as follows:

Score	Letter Grade	Point (P)
70 and above	A	5
60 to 69	B	4
50 to 59	C	3
45 to 49	D	2
40 to 44	E	1
0 to 39	F	0

Based on the above information, a student who obtained a grade of 'A' in a 3-unit course will obtain 15 (3*5) credit points and another who obtained a grade of C will score 9 (3*3) credit points.

A credit point is thus the product of the course units and the rating (Point) in each course. The Sum of all credit points for the semester is the Total Credit Point (TCP).

The Grade Point Average (GPA) is the TCP divided by the Total Credit Units (TCU). The highest GPA that can be earned is 5.0 and the lowest is 0 (zero). The Cumulative Grade Point Average (CGPA) is the summation of the TCP for all semesters divided by the summation of TCU's for the said semesters. Like the GPA, the CGPA obtained range from 0 to 5. The CGPA is calculated from all courses taken.

CLASSES OF DEGREE

CGPA	Class
4.50 – 5.00	First Class
3.50 - 4.49	Second Class Upper
2.50 - 3.49	Second Class Lower
1.50 - 2.49	Third Class
0.00 – 1.49	Fail

EXAMINATION MALPRACTICES

Examination misconduct such as copying other students' work, impersonation, bringing illegal materials into the examination hall, exchanging answers with other students, and so on are usually visited with severe punishments.

ABSENCE FROM EXAMINATION

Candidates who fail to present themselves for an examination for reasons other than illness, accident or some exceptional circumstances shall be deemed to have failed the course. Any student absent on the ground of illness must produce a medical report certified by the University Director of Health Services

GRADUATION REQUIREMENTS

A student shall qualify for the award of a B.Sc. Computer Science degree when he/she have:

- a. passed all core /compulsory courses, required courses and some of the electives recommended for the award of Bachelor of Science degree in Computer Science, and would have accumulated a minimum of 156 units for students admitted through UTME and a minimum of 119 units for those admitted by direct entry;

- b. obtained a CGPA of not less than 1.50;
- c. completed all class work; industrial attachments, seminars and projects.

QUALITY ASSURANCE

To maintain high quality,

- a. Course materials shall be of high standard and updated with current information.
- b. Continuous assessment shall be given priority of place as well as mid-semester test.
- c. Examination questions and marking schemes shall be subjected to external moderation.
- d. Vetting of answer scripts shall be carried out
- e. Academic staff will be evaluated annually
- f. There will be regular review of course and program

COURSE OUTLINE

SUMMARY OF COURSES

To be awarded a Bachelor of Science (B. Sc) Degree in Computer Science, the student must pass a minimum Credit of 162 Units, distributed as follows:

a. Compulsory Courses (including Project/Dissertation)	-	101 Credit Units
b. Required Courses	-	50 Credit Units
c. Elective Courses	-	05 Credit Units
d. General Studies Courses	-	06 Credit Units
TOTAL	-	162 Credit Units

SUMMARY OF DISTRIBUTION OF COURSE CREDITS BY LEVELS

Level	Sem ester	General courses		Compulsory Courses		Required Courses		Elective Courses		Total	
		No. of courses	No. of credit units	No. of courses	No. of credit units	No. of courses	No. of credit units	No. of courses	No. of credit units	No. of courses	No. of credit units
100	1 st	2	4	8	18	1	2	0	0	11	24
100	2 nd	1	2	9	19	0	0	1	2	11	23
200	3 rd	0	0	5	15	3	5	0	0	8	20
200	4 th	0	0	2	6	5	15	1	1	8	22
300	5 th	0	0	5	15	3	8	0	0	8	23
300	6 th	0	0	3	9	4	12	1	2	8	23
400	7 th	0	0	2	7	3	8	0	0	5	15
400	8 th	0	0	3	12	0	0	0	0	3	12
TOTAL		3	6	37	101	18	50	3	5	62	162

Bachelor of Science (B.Sc.) degree in Computer Science

100 LEVEL FIRST SEMESTER

Course Code	Course Title	Status	L	T	P	Credit Units
CSC 101	Introduction to Computer Science I	C	2		1	3
GST 111	Communication in English I	G	2	-	-	2
GST 121	Use of Library, Study Skills and ICT	G	2	-	-	2
GST 113	Nigerian Peoples and Culture	R	2	-	-	2
CHM 101	General Chemistry I	C	2	1	-	3
CHM 107	Practical Chemistry I	C	-	-	3	1
PHY 101	General Physics I	C	2	1	-	3
PHY 107	General Physics Practical I	C	-	-	3	1
BIO 101	Introductory Biology I	C	2	1	-	3
BIO 107	Practical Biology I	C	-	-	3	1
MTH 101	General Mathematics I	C	2	1	-	3
Total Credit Units						24

100 LEVEL SECOND SEMESTER

Course Code	Course Title	Status	L	T	P	Credit Units
CSC 102	Introduction to Computer Science II	C	2	-	1	3
GST 102	Communication in English II	G	2	-	-	2
GST 106	Evaluating Opportunities & Business Concept	C	1	-	3	1
GST 112	Logic, Philosophy & Human Existence	E	2			2
CHM 102	General Chemistry II	C	2	1	-	3
CHM 108	Practical Chemistry II	C	-	-	3	1
PHY 102	General Physics II	C	2	1	-	3
PHY 108	Practical Physics II	C	-	-	3	1
BIO 102	Introductory Biology II	C	2	1	-	3
BIO 108	Practical Biology II	C	-	-	3	1
MTH 102	General Mathematics II	C	2	1	-	3
	Total Credit Units					23

200 LEVEL (FIRST SEMESTER)

Course Code	Course Title	Status	L	T	P	Credits
CSC 201	Computer Programming I	C	2	-	1	3
CSC 203	Operating Systems I	C	2	-	1	3
CSC 299	Industrial Training (12 Weeks)	C	2	1	-	3
MTH 209	Numerical Analysis	C	2	-	-	3
MTH 201	Mathematical Methods	C	2	-	-	3
GST 125	Contemporary Health Issues	R	2	-	-	2
GST 211	Environment&Sustainable Development	R	2	-	-	2
GST 223	Introduction to Entrepreneurship	R	1	-	-	1
	Total Credit Units					20

200 LEVEL (SECOND SEMESTER)

Course Code	Course Title	Status	L	T	P	Credits
CSC 202	Computer Programming II	C	2	-	1	3
CSC 204	Fundamentals of Data Structures and Algorithms	R	2	-	1	3
CSC 206	Theory of Computation	C	2	-	1	3
CSC 208	Discrete Structure	R	2	-	1	3
CSC 210	Foundations of Sequential Program	R	2	-	1	3
CSC 212	Computer Hardware	R	2	1	-	3
CSC 214	Data Analysis	E	1	-	-	1
PHY 202	Electric circuits and Electronics	R	2	1	-	3
Total						22

NOTE: Students are to pick one elective.

300 LEVEL (FIRST SEMESTER)

Course Code	Course Title	Status	L	T	P	Credits
CSC 301	Structured Programming	C	2	-	1	3
CSC 303	Computational Science & Numerical Methods	R	2	1	-	3
CSC 305	Operating Systems II	C	2	1	1	3
CSC 307	Computer Architecture and Organization I	R	2	-	1	3
CSC 309	Research Methodology	C	2	-	1	3
CSC 311	Systems Analysis and Design	C	2	1	-	3
CSC 399	Industrial Training II (12 Weeks)	C	2	-	1	3
GST 311	Entrepreneurship	R	2	-	-	2
Total						23

300 LEVEL (SECOND SEMESTER)

Course Code	Course Title	Status	L	T	P	Credits
CSC 302	Object- Oriented Programming	C	2	-	1	3
CSC 304	Database System Management I	C	2	-	1	3
CSC 306	Compiler Construction I	C	2	1	-	3
CSC 308	Computer Architecture and Organization II	R	2	1	-	3
CSC 310	Algorithms and Complexity Analysis	R	2	1	-	3
CSC 312	Survey of Programming Language	R	2	1	1	4
GST 222	Peace Studies and Conflict Resolution	E	2	-	-	2
GST 224	Leadership Skills	R	2	-	-	2
Total						23

400 LEVEL (FIRST SEMESTER)

Course Code	Course Title	Status	L	T	P	Credits
CSC 401	Organisation of Programming Languages and Software Laboratory	R	2	1	-	3
CSC 403	Software Engineering	C	2	1	1	4
CSC 411	Artificial Intelligence	C	2	1		3
CSC 421	Net-Centric Computing	R	2	1	-	3
CSC 441	Human Computer Interface	R	2	-	-	2
Total						15

400 LEVEL (SECOND SEMESTER)

Course Code	Course Title	Status	L	T	P	Credits
CSC 402	Computer Networks/Communications	C	2	-	1	3
CSC 404	Data Management II	C	2	1	-	3
CSC 499	Research Project	C	-	1	2	6
Total						12

Electives: 9 Units to be selected from:

Course Code	Course Title	Units	Status	LH	PH
CSC 405	Special Topics in Software Engineering	3	E	30	45
CSC 406	Queuing Systems Performance Evaluation	3	E	45	-
CSC 408	Computer System Performance Evaluation	3	E	45	-
CSC 416	Compiler Construction II	3	E	45	-
CSC 422	Project Management	3	E	30	45
CSC 432	Distributed Computing System	3	E	30	45
CSC 433	Computer Graphics and Visualisation	2	E	30	45
CSC 435	Optimization Techniques	3	E	30	45
CSC 452	Formal Models of Computation	3	E	30	45
CSC 461	Information Technology Law	2	E	30	-
CSC 482	Modelling and Simulation	3	E	30	45
CSC 492	Special Topics in Computer Science	3	E	30	45

Minimum Credits Required per Semester = 15

Maximum Credits Required per Semester = 24

C = Compulsory R = Required L = Lectures T = Tutorial P = Practical G= General Studies

Duration

This programme is essentially a 4 or 3 years programme. Candidates admitted with WASC, SSCE certificates spend four years and those admitted with diplomas spend three (3) years, starting at the second year of the programme.

Course Unit System

The lectures are divided into courses, each having a credit/unit of 1 or more credits. A credit is normally a course of one-lecture hour a week for a semester of 12-15 weeks. There are core courses and mandatory/required courses.

Core

Courses are courses that must be taken and must be passed and be used in the computation of a student's final graduating grade point average.

Mandatory/Required

Courses are courses that the student must take and passed, but may not necessarily be used in the computation of his final graduating grade point average.

A student is allowed to register for not more than 24 credits in a semester and not less than 15 credits in a semester. In special cases under load or extra units may be allowed subject to Senate's approval.

Industrial Training Experience

Industrial training is one of the requirements for the award of B.Sc. Degree in Computer Science. Our students will therefore be sent on a three(3) months industrial training at the end of the second semester of 200 and 300 levels.

Students on their ITF experience must submit a report. The report will be graded along with the seminar talk and report.

COURSE CONTENT SPECIFICATIONS/SYLLABUS OF ALL COURSES IN THE PROGRAMME/SUB-PROGRAMME/SUB-DISCIPLINE/DISCIPLINE:

8. COURSE SYNOPSIS

100 LEVEL

Course Synopses:

CSC 101: Introduction to Computer Science I (3 Credit Units:)

Survey of computers and information processing and their roles in society. This course introduces a historical perspective of computing, hardware, software, information systems, and human resources and explores their integration and application in business and other segments of society. Students will be required to complete lab assignments using the PC's operating system, and several commonly used applications, such as word processors, spreadsheets, presentations, graphics and other applications. Internet and on-line resources, browsers and search engines.

CSC102: INTRODUCTION TO COMPUTER SCIENCE II (3 Credit Units)

Role of Algorithms in problem solving process, concepts and properties of Algorithms. Implementation strategies, Development of Flow Charts, Pseudo Codes. Program objects. Implementation of Algorithms in a programming Language - Visual BASIC/JAVA/C/C++.

200 LEVEL

CSC 201 COMPUTER PROGRAMMING I (3 Credit Units)

Introduction to problem solving methods and algorithm development, designing, coding, debugging and documenting programmes using techniques of a good programming language style, programming

language and programming algorithm development. A widely used programming language should be used in teaching the above.

CSC 202 Computer Programming II (3 Credit Units)

Principles of good programming, structured programming concepts, Debugging and testing, string processing, internal searching and sorting, recursion. Use a programming language different from that in CSC 201. E.g. C-Language.

CSC 203 Operating System I (3 Credit Units)

Overview of O/S: Role & Purpose, Functionality Mechanisms to Support Client- server models, hand-held devices, Design Issues influences of Security, networking, multimedia, Windows. O/S Principles: Structuring methods, Abstraction, processes of resources, Concept of APIS Device organization interrupts.

CSC 204 Fundamentals of Data Structures and Algorithms (3 Credit Units:)

Primitive types, Arrays, Records Strings and String processing, Data representation in memory, Stack and Heap allocation, Queues, TREES. Implementation Strategies for stack, queues, trees. Run time Storage management; Pointers and References, linked structures.

CSC 206 THEORY OF COMPUTATION (3Credit Units)

Topics in formal languages; roles of models in computation, their relation to automata theory and their computational complexity. Areas covered are regular expressions, finite automata, pushdown and linear bounded automata; formal grammars, parsing and their corresponding classes of languages, Turing machines, undecidability, recursive functions and program schemas. Church's thesis, solvability and Decidability.

CSC 208: Discrete Structure (3 Credit Units)

Basic Set Theory: Basic definitions, Relations, Equivalence Relations Partition, Ordered Sets. Boolean Algebra & Lattices, Logic, Graph theory: Directed and Undirected graphs, Graph Isomorphism, Basic Graph Theorems, Matrices; Integer and Real matrices, Boolean Matrices, Matrices med m, Path matrices. Adjacency Vectors/Matrices: Path adjacency matrix, Numerical & Boolean Adjacency matrices. Applications to counting, Discrete Probability Generating Functions.

CSC 210 Foundations of Sequential Program: (3 Credit Units)

The relationships between H/L languages and the Computer Architecture that underlies their implementation: basic machine architecture, specification and translation of P/L Block Structured Languages, parameter passing mechanisms.

CSC 212: Computer Hardware: (3 Credit Units)

Computer circuits; diode arrays, PIAs etc, Integrated circuits fabrication process. Use of MSI, LSI and VLSI IC' hardware Design. Primary and Secondary memories; core memory, etc. Magnetic devices; disks, tapes, video disks etc. Peripheral devices; printers, CRT's, keyboards, character recognition. Operational amplifiers; Analog-to- digital and Digital-to-analog converter.

CSC 214 – DATA ANALYSIS (2Credit Units)

Review of basic concept of probability theory, common distribution functions, Binomial & Poisson distribution, distribution functions, the foundation of statistical analysis, sampling distribution of moments, statistical tests and procedures, linear regression and correlation analysis, experimental design, least squares, Laws of large numbers and the central limit theorem.

CSC 299: Industrial Training I (3 Units)

Require 3 months of Industrial Training. Students' experience will be documented and presented in a Seminar.

300 LEVEL

CSC 301 Structured Programming (3 Credit Units)

Structured Programming elements, structured design principles, abstraction modularity, stepwise refinement, structured design techniques. Teaching of a structured programming language etc.

Object-oriented databases; client/server systems; data warehouse; databases in electronic commerce; web database development and database administration.

CSC 302: Object-Oriented Programming (3 Credit Units)

Basic OOP Concepts: Classes, Objects, inheritance, polymorphism, Data Abstraction, Tools for developing, Compiling, interpreting and debugging, Java Programs, Java Syntax and data objects, operators. Central flow constructs, objects and classes programming, Arrays, methods. Exceptions, Applets and the Abstract, OLE, Persistence, Window Toolkit, Laboratory exercises in an OOP Language.

CSC 303: Computational Science and Numerical Methods (3 Credit Units)

Operations research, Numerical Computation, Graphical computation, Modelling and simulation, High performance computation.

CSC 304: Database System Management I (3 Credit Units)

Information storage & retrieval, Information management applications, Information capture and representation, analysis & indexing, search, retrieval, information privacy; integrity, security; scalability, efficiency and effectiveness.

Introduction to database systems: Components of database systems DBMS functions, Database architecture and data independence use of database query language.

CSC 305: Operating System II (3 Credit Units)

Concurrency: States & State diagrams Structures, Dispatching and Context Switching; interrupts; Concurrent execution; Mutual exclusion problem and some solutions Deadlock; Models and mechanisms (Semaphores, monitors etc.)

Producer – Consumer Problems & Synchronization.

Multiprocessor issues.

Scheduling & Despatching

Memory Management: Overlays, Swapping and Partitions, Paging & Segmentations Placement & replacement policies, working sets and Trashing, Caching.

CSC 306: Compiler Construction I (3 Credit Units)

Review of compilers assemblers and interpreters, structure and functional aspects of a typical compiler, syntax semantics and, functional relationship between lexical analysis, expression analysis and code generation. Internal form of course programme. Use of a standard compiler (FORTRAN<COBOL/PL) as a working vehicles. Error detection and recovery. Grammars and Languages: the parsing problem. The scanner.

CSC 307: Computer Architecture I and Organization I (3 Credit Units)

Fundamental building blocks, logic expressive immunization, sum of product forms. Register transfer notation, Physical considerations. Data representation, and number bases, Fixed and Floating point systems, representation memory systems organization and architecture.

**CSC 308: Computer Architecture and Organization II
(3 Credit Units)**

Memory system, general; characteristics of memory operation. (Technology-magnetic recording semi-conductor memory, coupled devices, magnetic bubble). Memory addressing, memory hierarchy, virtual memory control systems. Hardware control, micro programmed control, Asynchronous control, i/c control. Introduction to the methodology of faulty tolerant computing.

CSC 309 Research Methodology (3 Credit Units)

Formulating a detailed statement of the problem and objectives. Bibliographic searches to obtain information about prior work. Analysing research literature to obtain relevant information, identify trends, and produce annotated bibliographies. Appreciation of appropriate citation and attribution in research. Selection of an appropriate method of solution. System design and implementation. Use of appropriate tools for data capture and analysis. Design and conduct of practicals. Evaluation of work done. Technical writing and presentation of results for publication.

CSC 310: Algorithms and Complexity Analysis (3 Credit Units)

Basic algorithmic analysis: Asymptotic analysis of Upper and average complexity bounds; standard Complexity Classes Time and space tradeoffs in algorithms analysis recursive algorithms. Algorithmic Strategies: Fundamental computing algorithms: Numerical algorithms, sequential and binary search algorithms; sorting algorithms, Binary Search trees, Hash tables, graphs & its representation.

CSC 311 Systems Analysis and Design (2Credit Units)

System Concepts: System Development Life Cycle, Requirement Analysis; Fact Gathering Techniques, data flow diagrams, process

description and Data Modeling, System Design: Structure Charts; Form Design, Security, Automated Tools for System Design.

CSC 312: Survey of Programming Languages (4 Credit Units)

Overview of programming languages: History of programming languages, Brief survey of programming paradigms (Procedural languages, Object-oriented languages, Functional languages, Declarative – non-algorithmic languages, Scripting languages), the effects of scale on programming methodology; Language Description: Syntactic Structure (Expression notations, abstract Syntax Tree, Lexical Syntax, Grammars for Expressions, Variants of Grammars), Language Semantics (Informal semantics, Overview of formal semantics, Denotation semantics, Axiomatic semantics, Operational semantics); Declarations and types: The concept of types, Declaration models (binding, visibility, scope, and lifetime), Overview of type-checking, Garbage collection; Abstraction mechanisms: Procedures, function, and iterations as abstraction mechanisms, Parameterization mechanisms (reference vs. value), Activation records and storage management, Type parameters and parameterized types, Modules in programming languages; Object oriented language paradigm; Functional and logic language paradigms.

CSC 399: Industrial Training II (3 Credit Units)

Student's Industrial work experience of 3 months' duration. Students' reports will be presented in a seminar.

400 LEVEL

CSC 401: Organization of Programming Languages and Software Laboratory (3 Credit Units)

Language definition structure. Data types and structures, Review of basic data types, including lists and trees, control structure and data flow, Run-

time consideration, interpretative languages, lexical analysis and parsing.
Pre-requisite – CSC 201, 202, 304, 302.

CSC 402: Computer Networks/Communication (3 Credit Units)

Introduction, waves, Fourier analysis, measure of communication, channel characteristics, transmission media, noise and distortion, modulation and demodulation, multiplexing, TDM FDM and FCM Parallel and serial transmission (synchronous vs asynchronous). Bus structures and loop systems, computer network Examples and design consideration, data switching principles broadcast techniques, network structure for packet switching, protocols, description of network e.g. ARPANET, etc.

CSC 403: Software Engineering (4 Credit Units)

Software Design: Software architecture, Design Patterns, O. O. analysis & Design, Design for re-use. Using APIs: API programming Class browsers and related tools, Component based computing. Software tools and Environment: Requirements analysis and design modelling Tools, Testing tools, Tool integration mech.

CSC 404: Data Management II (3 Credit Units)

Rational Databases: Mapping conceptual schema to relational Schema; Database Query Languages (SQL) Concept of Functional dependencies & Multi-Valued dependencies.
Transaction processing; Distributed databases.

CSC 405 : Special Topics in Software Engineering (3 Credit Units)

Topics from process improvement ; software re-engineering configuration management; Formal specification, software cost –

estimation, Software architecture, Software patterns, Software Reuse and Open source development.

CSC 406: Queuing Systems: (3 Credit Units)

Introduction; Birth-death queuing systems; Markovian queues, the queue M/GI bounds, inequalities and approximations.

**CSC 408: Computer System Performance Evaluation
(3 Units: LH 45)**

Measurement techniques, simulation techniques; techniques, workload characterization, performance evaluation in selection problems, performance evaluation in design problems, evaluation of programme performance.

CSC 411: Artificial Intelligence (3 Credit Units)

Introduction to artificial intelligence, understanding natural languages, knowledge representation, expert systems, pattern recognition, the language LISP.

CSC 416: Compiler Construction II (3 Credit units)

Grammars and languages, recognizers, Top-down and bottom-up language Run-time storage Organization, The use of display in run-time storage Organization. The use of display in run time storage allocation. LR grammars and analysers. Construction of LR table. Organisation of symbol tablets. Allocation of storage to run-time variables. Code generation. Optimisation/Translator with systems.

CSC 421: Net-Centric Computing (3 Credit Units)

Distributed Computing, Mobile & Wireless computing, Network Security; Client/Server Computing (using the web), Building Web Applications.

CSC 422: Project Management (3 Credit Units)

Team Management, Project Scheduling, Software measurement and estimation techniques, Risk analysis, Software quality assurance, Software Configuration Management, Project Management tools.

CSC 432: Distributed Computing Systems (3 Credit Units)

Introduction: Definitions, Motivation; Communication Mechanisms: Communication Protocols, RPC, RMI, Stream Oriented Communication; Synchronization: Global State, Election, Distributed Mutual Exclusion, Distributed Transactions; Naming: Generic Schemes, DNS, Naming and Localization; Replication and Coherence: Consistency Models And Protocols; Fault Tolerance: Group Communication, Two-And Three-Phase Commit, Check pointing; Security: Access Control, Key Management, Cryptography; Distributed File Systems: NFS, Coda etc.

CSC 433: Computer Graphics and Visualization (2 Credit Units)

Hardware aspect, plotters microfilm, plotters display, graphic tablets, light pens, other graphical input aids Facsimile and its problems Refresh display refresh huggers, changing images, light pen interaction. Two and three dimensional transformation, perspective Clipping algorithms. Hidden line removal bolded surface removal. Warnock method/algorithm, shading, data reduction for graphical input. Introduction to had writing and character recognition. Curve synthesis and fitting. Contouring. Ring structures versus doubly linked lists. Elerarchical structures. Data structure: Organization for intersotive graphics.

CSC 441: Human-Computer Interface (HCI) (2 Credit Units)

Foundations of HCI, Principles of GUI, GUI toolkits;
Human-centred software evaluation and development;
GUI design and programming.

CSC 452: Formal Models of Computation (3 Credit Units)

Automata theory: Roles of models in computation. Finite state Automata, Push-down Automata, Formal Grammars, Parsing, Relative powers of formal models. Basic computability: Turing machines, Universal Turing Machines, Church's thesis, solvability and Decidability.

CSC 482: Modelling and Simulations (3 Credit Units)

Basic Definitions and Uses, Simulation Process, Some basic statistic Distributions Theory, Model and Simulation. Queues; Basic components, Kendal notation, Queuing rules, Little's Law, Queuing networks, Special/types of queues. Stochastic Processes; Discrete state and continuous state processes, Markov processes, Birth-Death Processes, Poisson Processes. Random Numbers; types of Random Number Exercises.

CSC 492: Special Topics in Computer Science (3 Credit Units)

Special topics from any area of computer science considered relevant at given time. Topics are expected to change from year to year. Apart from seminars to be given by lecturers and guests, students are expected to do substantial readings on their own.

CSC 499: Project (6 Credit Units)

Students should embark on work that will lead to substantial software development under the supervision of a member of staff.

9.0 CAREER OUTLETS AND JOB OPPORTUNITIES FOR GRADUATES OF THE PROGRAMME

Computer Science graduates have a wide range of job opportunities they can fit into which ranges from industry to academics. It is an established fact that virtually all sectors: health, education, banking, oil and gas, etc., are now relying on Information and Communication Technologies in order to improve their operations, hence Computer Science graduates can fit into the IT section of any of these sectors.

In addition, Computer Science graduate can also develop and manage information system that support a business or organization.

Based on the current trend of research on building intelligent systems, Computer Science graduates can venture into the development of computers that simulate human learning and reasoning ability to solve various problems across different domains.

10.0 STAFFING STAFF PROFILE



Dr. O. Obe
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Dr. O.O. Obe is a Senior Lecturer in Computer Science; He obtained his degrees in Computer Science from the Federal University of Technology, Akure (B. Tech.), University of Lagos (M.Sc.) and Politehnica University of Bucharest (Ph.D.). He is a Member of IEEE, NCS, and IEANG. He is a recipient of Nigeria/ Romania International Scholar and Massachusetts Institutes of Technology, Cambridge, USA ETT fellowship programme (2013). His research interests are Artificial Intelligence, Robotics, Machine Learning, Soft Computing, Mobile Systems Technologies. He has to his credit, several articles published in International and National journals.



Prof. A. O. Adetumbi

Professor

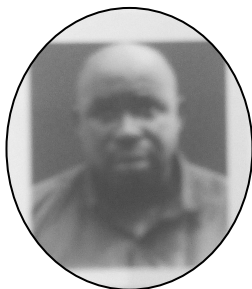
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Dr. Adetunmbi, A.O is a Reader in Computer Science; He obtained his degrees in Computer Science from the Federal University of Technology, Akure. He is a Member of Computer Professional of Nigeria (CPN) and MIEEE. He is a recipient of CAS – TWAS fellowship in 2005 at Institute of Computing Technology, Beijing and MIT empowering the teacher’s fellowship programme in 2010. His research interests are Information Security Data mining and Computational Linguistic.

He has to his credit, several articles published in International and National journals.



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Dr. Olagunju M. is a Senior Lecturer in the department of Computer Science. His research interest includes Visualization, and Data Mining. He has to his credit, several articles published in International and National journals.



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Dr. Ogunleye G.O. is a lecturer in the department of Computer Science. He obtained his first degree in Computer Science from Ladoke Akintola University of Technology, Ogbomosho. He bagged his M.Tech and Ph.D from Federal University of Technology, Akure. He has attended various national and international conference and has published several articles in reputable journals. His research interest include Computer and Information Security, Information Systems, Mobile Agent Systems and Knowledge management.



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Mr. Olaiya FOLORUNSHO received his Master of Science (M.Sc) in Computer Science of the University of Ibadan, Ibadan, Nigeria, and Postgraduate Degree in Education (PGDE) of National Teachers' Institute, Kaduna, Nigeria and a Bachelor of Technology Mathematics/Computer Science degree of the Federal University of Technology, Minna, Nigeria. He is currently an Assistant Lecturer at the Department of Computer Science, Federal University Oye-Ekiti, Ekiti State, Nigeria. He is a member of the Computer Professionals

(Registration Council of Nigeria), the Nigerian Computer Society (NCS), Teachers' Registration Council of Nigeria (TRCN) and the International Association of Engineers (IAENG). His research interests include Data Mining and Information Security, and Software Engineering. He can be reached through E-mail olaiya.folorunsho@fuoye.edu.ng.



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Comfort Y. Daramola (Mrs.) is a Lecturer in the Department of Computer Science. She obtained the Bachelor of Science (Education) degree from the University of Benin, Benin City and a Master of Science from the University of Ibadan. She is currently a Postgraduate student in the department of Computer Science, Federal University of Technology, Akure. Her research interest foci are Security, Bioinformatics and Information System.



Dr. T. M. Fagbola

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Fagbola Temitayo Matthew is a lecturer and researcher in the Department of Computer Science, Federal University, Oye-Ekiti, Ekiti State, Nigeria. He bagged B.Tech and M.Sc degrees in Computer Science from

LadokeAkintola University of Technology, Ogbomoso, Nigeria and University of Ibadan, Nigeria respectively and earned his Ph.D programme in the Department of Computer Science & Engineering, LadokeAkintola University of Technology, Ogbomoso, Nigeria. He has presented papers in conferences and published both locally and internationally in the areas of health informatics, data mining, cybersecurity, soft computing as well as on web and mobile apps design and development. In 2011, he published a book on the fundamentals of computing and information technology. His joint-authored book on “Information Communication Technology (ICT) Integration to Educational Curricula: A New Direction for Africa” published in 2015 by University Press of America is still selling fast on major e-commerce sites. His current research interests are in the area of multimedia cloud computing re-architecturing, social media computing, ICT in health and education, video-based face recognition and resolution reconstruction. He can be reached through temitayo.fagbola@fuoye.edu.ng. The mobile is +234-703-0513-010.



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Dr. Fagbuagun Ojo Abayomi is a Lecturer in the Department of Computer Science, Federal university Oye Ekiti. He obtained his degrees from Federal University of Technology, Akure in the Year 2002, 2011 and 2017. He had also worked in Novena University Ogume Delta State between 2006 to 2011 as graduate Assistant and Assistant Lecturer respectively. He had some academic publications in International Journals. He joined the Federal University Oye Ekiti in 2013 as Assistant Lecturer in the department of Computer Science.

ASSOCIATE/ ADJUNCT STAFF

SN	NAME	QUALIFICATION	CADRE
1.	Prof. Olabode O.	<i>B.Tech., Ind. Maths(1991) MTech. Comp. Sci(1999) Ph.D Comp. Sci(2005)</i>	Professor
2.	Dr. Olaitan Akinsanmi	<i>B. Eng, UNAD (Elect- Elect) (1997), M.Tech, ABU(Elect- Elect) (2005), Ph.D, ABU(Elect- Elect) (2012)</i>	Reader
3.	Prof. Adejuyigbe S.B. (Mechatronics Dept.)	<i>H.ND M.Eng (1983); PGD. M.Eng (1992); M.Tech M.Eng (1997) Ph.D, M.Eng (2002);</i>	Professor
4.	Dr. Enoch O.O	<i>B.Sc Maths(2000) M.Sc Maths (2007) Ph.D Maths(2012)</i>	Senior Lecturer
5.	Dr. Adeyanju I.A.	<i>B.Tech(Comp. Engineering)(2004), M.Sc. Computing Information Engineering(with Distinction) P.hD Computing(2011)</i>	Senior Lecturer

TECHNOLOGIST

NAME	RANK/DESIGNATION	QUALIFICATION OBTAINED	DATES MEMBERSHIP OF PROFESSIONAL ASSOCIATION
Adeoti E.A.	Technologist I	BSc (2013), HND (2008)	Associate Member, Nigeria Computer Society
Akinpelu S.A.	Technologist I	PGDCS (Comp. Sc.), HND (Comp. Sc.). MNCS, MIACSIT, MIAENG, CSTA	
Lawal F.B.	Technologist II	B. Sc. (Ed.)(2007)	Member, Nigeria Computer Society
Olarewaju O.E.	Technologist II	B.Sc, 2008, MNCS, MNIM	
Kayode R.F.	Technologist II	BSc., 2006, MNCS	

ADMINISTRATIVE STAFF

Name of staff	Rank/Designation	Qualification/Date obtained and specialization
Mrs. Mike-Ayodele P. S.	Administrative Officer. I.	BSc. 2005 (History and International Studies), NIIT
Ms. Iloenyosi M.I	Higher Executive Officer	B.Sc. (Maths), PGD (Comp. Sc.)
Mrs. Oke O. F.	Executive Office	NCE, 2007
Mrs. Ekundayo R. B.	Clerical Officer	SSCE, 2014