**EXPANDED COURSE OUTLINE PROFORMA: Network Computing**

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|  | **Title of course****Course Level and Code** | **Course Title: Network Computing Course Code:** EBS 286**, Course Level:** 200 |
|  | **Title of Lesson**  | **Data Transmission**  |
|  | **Previous student teacher knowledge (assumed)** | Student teachers have studied the concept of computer networks and can state reasons why two or more computers should be connected to share information and resources. |
|  | **Possible barriers to learning in the lesson** | Unstable internet connectivity, unstable power supply, lack of smart phones and digital devices (for some students), limited time constraints, lack of data bundles for internet connectivity.  |
|  | **Notes on inclusivity, equity and addressing diversity** | Catering for individual needs, adopting resources to suite people with any impairment or learning disability, ensuring that gender roles are also represented proportionally in each group and assign leadership roles, illustrations and questions must be gender responsive, socio-cultural background in group work. |
|  | **Lesson Delivery Modes: tick** | **Online Lesson**  | **Practical****Activity**  | **Work-Based Learning**  | **Seminars** | **Independent****Study**  | **e-Learning****Opportunities** | **Practicum** |
|  | * Online Learning: providing the opportunity for the presentation of an extended and coherent line of argument. It includes discussion, brainstorming, question and answer, etc.
* Independent study: to enable participants to engage with relevant and appropriate materials to promote individual enquiry, more in-depth analysis and development.
* E-learning opportunities – involving the use of interactive packages and virtual learning environments.
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|  | **Lesson Description: what will student teachers learn and be able to do from this lesson or sequence of lessons.****Indicate in full the aspects of the NTS.**  | Understand the basic concept of data transmission, forms in which data is transferred, serial and parallel transmission, serial ports, parallel ports and cables.  (NTECF, NTS 1e, 2b, 2c, 3a, 3c, 3e-3j, 3k, 3l) |
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|  | **Learning Outcome for the lesson or sequence of lessons: including INDICATORS for each learning outcome: picked and developed from the course specification** | **Learning Outcomes** | **Indicators** |
| Understand the basic concept of data transmission, serial and parallel transmission1. . (NTECF, NTS 1e, 2b, 2c, 3a, 3c, 3e-3j, 3k, 3l)
 | 1. Explain the concept of data transmission
2. Distinguish between serial and parallel transmission
3. Discuss the characteristics of serial transmission and parallel transmission
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|  | **Content of lesson or sequence of lessons, picked from the course specification** **Unit/s from the course specification covered:**  | **Time or stage** | **Topics and sub-topics (if any):**  | **Teaching and learning to achieve learning outcomes, include any group or independent study:** |
| **Teacher Activity** | **Student Activity** |
|  | 1 hour | **Topic**: Physical Layer and Media**Sub-topics**: Data Transmission  | Use think - pair – share approach for students to discuss the concept of Data Transmission in electronic devices (using group chat) | * Students think and share in pairs the meaning of Data Transmission
* Some pairs share with the entire class
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|  | **Serial and Parallel Transmission** | Discuss Data Transmission Allow students to state the differences between serial and parallel transmission | Students give the difference between serial and parallel transmission. |
|  | **Advantages and Disadvantages of Serial and Parallel Transmission** | Brainstorm on the advantages of serial transmission over parallel transmission | Ask students to type state the differences between serial and parallel transmission  |
|  | Characteristics of Serial and Parallel Transmission | Discuss the characteristics of serial and parallel transmission | Students discuss the characteristics of serial and parallel transmission.  |
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|  | **Which core or transferable skills will be used and how**  | - e-Learning skills: Using Assai Virtual Classroom for learning and WhatsApp and other communication media for group collaboration. - Critical thinking and problem solving skills- Communication and collaborative skills (group work) |
|  | **Lesson assessments – evaluation of learning:****(Educative assessment of, for and as learning)** | **Assesses Learning Outcome(s):** (NTS 2b, 2f, 3k, 3l, 3m, 3n)- Oral questions- 5 marks ( assessment as and for)- Assignment (group/individual) – 5 marks ( assessment for) |
|  | **Instructional Resources**  | - Assai Virtual Classroom or Google Classroom, WhatsApp and other communication media- Smart Phones, tablets, laptops etc with internet connection.  |
|  | **Required Text (core)** | Yekini N. Asafe, Adebari F. Adebayo & Bello Olalekan. (2015). *Data Communication & Networking.* Lagos: YEKNUA ICT & Educational Research-Publication Centre No. 07.<https://www.tutorialspoint.com/analog_communication/analog_communication_multiplexing.htm><https://www.dnsstuff.com/what-is-network-topology>K. B. Lee and R. D. Schneeman, "Distributed measurement and control based on the IEEE 1451 smart transducer interface standards," in *IEEE Transactions on Instrumentation and Measurement*, vol. 49, no. 3, pp. 621-627, June 2000, doi: 10.1109/19.850405. |
|  | **Additional Reading List**  | Peterson, L. L. & Davie, B. S (2003). *Computer networks: A systems approach*. Morgan Kaufmann publishers: USA |