**TEMPLATE FOR COURSE SPECIFICATION**

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| HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW |

**COURSE SPECIFICATION**

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| This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification. | |
| Al-Maarif University College | **1. Teaching Institution** |
| Computer Engineering Techniques | **2. University Department/Centre** |
| Elective (Digital Communication) | **3. Course title/code** |
| Bachelor in Computer Engineering Techniques | **4. Programme(s) to which it Contributes** |
| Face-to-face and online presence | **5. Modes of Attendance offered** |
| Year | **6. Semester/Year** |
| 120 | **7. Number of hours tuition (total)** |
| 22.06.2021 | **8. Date of production/revision of this specification** |
| **9. Aims of the Course** | |
| * Preparing the student to learn about digital communication technologies and types of digital inclusion of all types of inter and high frequencies | |

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| **10· Learning Outcomes, Teaching ,Learning and Assessment Method** |
| **A. Knowledge and Understanding**  A1. Ability to deal with digital communication circuits  A2. Has full knowledge of the basics of digital communications  A3. The ability to design and analyze communication circuits |
| **B. Subject-specific skills**  B1. The ability to apply new skills in the use of digital communication  B2. Participation and practical training  B3. The practical orientation of the student to the practical side and taking advice from the professor of the subject or through social media |
| **Teaching and Learning Methods** |
| * The direct method is through lectures * Practical application in the laboratory * The subjective method by preparing research papers and discussing them collectively |
| **Assessment methods** |
| * Feedback from students * Daily and quarterly exams * Preparing scientific reports and assignments |
| **C. Thinking Skills**  C1. Improving and developing the student's focus on his scientific subject  C2. Refining the student's personality and training him to be an active member of society  C3. Presenting topics and situations outside university life, including information about work in the supervisors, to create attraction and enthusiasm for creativity in the aforementioned specialization. |
| **Teaching and Learning Methods** |
| * Knowledge of questions and inquiries distinctive depth and accuracy. * Simulate the student towards understanding the cause and cause. * Increase digital sense of expression. * Brainstorming. |
| **Assessment methods** |
| * Individualizing part of the exam questions that require depth of thinking, explanation and accuracy of observation. * Student participation in the classroom. * extra-curricular duties |

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| **11. Course Structure** | | | | | |
| **Assessment Method** | **Teaching Method** | **Unit/Module or Topic Title** | **ILOs** | **Hours** | **Week** |
|  |  | Introduction to digital communication |  | 4 | 1 |
|  |  | Signal types, General block diagram of digital communication |  | 4 | 2 |
|  |  | Advantage and disadvantage of digital modulation, digital coding |  | 4 | 3 |
|  |  | Unit impulse signal and Fourier Transform |  | 4 | 4 |
|  |  | Sampling theorem, Pulse Amplitude Modulation (PAM), Time Division Multiplexing (TDM), Pulse width and Pulse Position Modulation (PWM & PPM), SIN in analog pulse modulation |  | 4 | 5 |
|  |  |  | 4 | 6 |
|  |  |  | 4 | 7 |
|  |  |  | 4 | 8 |
|  |  |  | 4 | 9 |
|  |  | Intersymbol Interference (ISI), Pulse Shaping to reduce ISI, Equalizer, Adaptive Equalizer, Matched Filter. |  | 4 | 10 |
|  |  |  | 4 | 11 |
|  |  |  | 4 | 12 |
|  |  |  | 4 | 13 |
|  |  | Amplitude Shift Keying (ASK), Frequency Shift Keying (FSK), Phase Shift Keying (PSK), Coherent and Non-coherent Detection, Differential PSK, Error performance of Binary System. |  | 4 | 14 |
|  |  |  | 4 | 15 |
|  |  | Amplitude Shift Keying (ASK), Frequency Shift Keying (FSK), Phase Shift Keying (PSK), Coherent and Non-coherent Detection, Differential PSK, Error performance of Binary System. |  | 4 | 16 |
|  |  |  | 4 | 17 |
|  |  | Quadrature Phase Shift Keying (QPSK), Offset QPSK, Minimum Shift Keying, Multilevel Modulation Techniques M-ary PSK, M-ary QAM, Bandwidth Efficiency and power Spectra of modulated Signal, Carrier Recovery and Clock Recovery. |  | 4 | 18 |
|  |  |  | 4 | 19 |
|  |  |  | 4 | 20 |
|  |  |  | 4 | 21 |
|  |  |  | 4 | 22 |
|  |  |  | 4 | 23 |
|  |  |  | 4 | 24 |
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| **D. General and Transferable Skills (other skills relevant to employability and personal development)**  D1. Improve debating skills  D2. Raising research perceptions and transferring students from the stage of education to learning |

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| **12. Infrastructure** | |
| * Digital communication, fundamentals and applications [Bernard Sklar] * Wireless communication and networking [William Stallings] | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER |
| * E-Learning / The official page of the College of Knowledge | Special requirements (include for example workshops, periodicals, IT software, websites) |
| * Guest Lectures * Internship | Community-based facilities  (include for example, guest  Lectures , internship , field studies) |

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| 13. Admissions | |
| None | Pre-requisites |
| 8 | Minimum number of students |
| 100 | Maximum number of students |