**COURSE SPECIFICATION**

**Academic Program Specification Form For The Academic**

Republic of Iraq

Ministry of Higher Education & Scientific Research

Supervision and Scientific Evaluation Directorate

Quality Assurance and Academic Accreditation

University: Madill Technical University

College :AL Mansour technical medical Institute

Department : electronic technologies Department/medical devices branch

Date Of Form Completion: 1/11/2016

Dean ’s Assistant For Scientific Affairs

Date : / /

Signature

Quality Assurance And University Performance Manager

Date : / /

Signature

Dean ’s Name

Date : / /

Signature

Head of Department

Jameela lammam abed

Date : / /

Signature

**TEMPLATE FOR PROGRAMME SPECIFICATION**

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| HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW |

**PROGRAMME SPECIFICATION**

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| This Programme Specification provides a concise summary of the main features of the programme 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 is supported by a specification for each course that contributes to the programme. |

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| Madill Technical University | 1. Teaching Institution |
| AL Mansour technical medical Institute | 2. University Department/Centre |
| electronic technologies Department/medical devices branch | 3. Programme Title |
| technical diploma | 4. Title of Final Award |
| annual | 5. Modes of Attendance offered |
| ABET | 6. Accreditation |
| there's close relationship with the labor market which receives alumnus. So labor is considered curriculum (under a previous questionnaire). | 7. Other external influences |
| 1/11/2016 | 8. Date of production/revision of this specification |
| 9. Aims of the Programme | |
| he Department aims to prepare intermediate cadres specializing in maintenance of electromechanical and electronic medical devices through theoretical lessons and practical experiences of the student receives during two summer training in hospitals to work on various medical equipment such as 1-physical therapy devices of various kinds. 2-Ray devices. 3. The ECG, brain and muscles. 4. A dentist Chair. 5. DC shock. 6. Baby sitter device. 7. Test the fetus. Muscle gauge types | |

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| 10. Learning Outcomes, Teaching, Learning and Assessment Methods |
| A. Knowledge and Understanding  A1. Identify the principles and basics of electronics specialty in General.  A2. Identify the principles and basics of specialty medical devices.  A3. Learn about the types of medical devices and rated to electronic and electromechanical.  A4. Learn the basics of desktop computer. |
| B. Subject-specific skills  B1-how medical devices and potential disruptions.  B 2 – electronic maintenance skills recognition laboratory lesson.  B 3 – learn the skills of medical equipment of all kinds |
| Teaching and Learning Methods |
| Lectures/practical lectures in laboratories and workshops and Labs/summer training. |
| Assessment methods |
| Daily assessment/libertarian theory tests/practical tests in the laboratory and workshop/mid/senior research discussion/final examinations. |
| C. Thinking Skills  C1. Persuaded of the importance of the specialization studies.  C2. Estimated size and technical effort in giving scientific material.  C3. Share groups, students in collective works.  C4. Respect the dedication to work and hates cheating. |
| Teaching and Learning Methods |
| Lectures, discussion |
| Assessment methods |
| Daily assessment/libertarian theory tests/practical tests in the laboratory and workshop |

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| D. General and Transferable Skills (other skills relevant to employability and personal development)  D1. A graduate capable of electronic equipment in General. D2. A graduate capable of keeping up with the evolution in the electronic device.  D3. Be capable of completing graduate studies in a particular field of specialization and electronics in General. | | | | |
| Teaching and Learning Methods | | | | |
| Lecture-workshop – laboratory – systematic training – summer internship. | | | | |
| Assessment Methods | | | | |
| Daily assessment/libertarian theory tests/practical tests in the laboratory and workshop/mid/senior research discussion/final examinations. | | | | |
| 12. Awards and Credits | 11. Programme Structure | | | |
| Credit  rating | Course or Module Title | Course or  Module  Code | Level/Year |
| Bachelor Degree  Requires ( x ) credits | 8 | Electronic |  | First stage  2016-2017 |
| 8 | Digital circuits |  |  |
|  | 8 | Electric circuits &measurements |  |  |
| 8 | The workshops |  |  |
| 4 | Mathematics |  |  |
| 6 | Computer application |  |  |
|  | 6 | Engineering &electrical drawing |  |  |
|  | 4 | Physiology |  |  |
|  | 4 | Democracy and human rights |  |  |
| Second stage 2016-2017 | 8 | Electronic circuits |  |  |
|  | 8 | Electronic measurements device |  |  |
|  | 8 | microcomputers |  |  |
|  | 8 | electronic medical devices |  |  |
|  | 8 | electromechanical medical devices |  |  |
|  | 8 | control |  |  |
|  | 8 | maintenance medical devices |  |  |
|  | 6 | Computer application |  |  |
|  | 4 | project |  |  |

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| 13. Personal Development Planning |
| 1. use of computers in electronic designs  2-search the Internet for enrichment topics that increase student informed competence |
| 14. Admission criteria . |
| Student depends centrally on average and being a graduate branch of science or the top 10 percent of industrial schools specialty medical equipment and has it after an interview for a student at the Institute. |
| 15. Key sources of information about the programme |
| ـــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــــ |

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| **Curriculum Skills Map** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Programme Learning Outcomes** | | | | | | | | | | | | | | | | | | | | |  | | | | | | | | | |
| General and Transferable Skills (or) Other skills relevant to employability and personal development | | | | | Thinking Skills | | | | | Subject-specific skills | | | | | Knowledge and  understanding | | | | | | Core (C)  Title or Option  (O**)** | | Course Title | | Course  Code | | Year / Level | | | |
| **D4** | **D3** | **D2** | **D1** | | **C4** | **C3** | **C2** | **C1** | | **B4** | **B3** | **B2** | **B1** | | **A4** | **A3** | **A2** | **A1** | | |  |  |  |  |  |  |  |  |  |  |
|  |  |  | **\** | |  |  |  | **\** | |  |  | **\** |  | |  |  |  | **\** | | |  | | Electronic | |  | |  | | | |
|  |  |  | **\** | |  |  |  | **\** | |  |  | **\** |  | |  |  |  | **\** | | |  | | Digital circuits | |  | |
|  |  |  | **\** | |  |  |  | **\** | |  |  | **\** |  | |  |  |  | **\** | | |  | | Electric circuits &measurements | |  | |  | | | |
|  |  |  | **\** | |  |  |  | **\** | |  |  | **\** |  | |  |  |  | **\** | | |  | | The workshops | |  | |
|  |  |  | **\** | |  |  |  |  | |  |  | **\** |  | |  |  |  | **\** | | |  | | Mathematics | |  | |  | | | |
|  |  |  | **\** | |  |  |  |  | |  |  | **\** |  | |  |  |  | **\** | | |  | | Computer application | |  | |
|  |  |  |  | |  |  |  |  | |  |  | **\** |  | |  |  |  | **\** | | |  | | Engineering &electrical drawing | |  | |  | | | |
|  |  |  | **\** | |  |  |  |  | |  |  | **\** |  | | **\** |  |  | **\** | | |  | | Physiology | |  | |
|  |  |  | **\** | |  |  |  |  | |  |  | **\** |  | |  |  |  | **\** | | |  | | Democracy and human rights | |  | |  | | | |
|  |  |  | **\** | |  |  |  |  | |  |  | **\** |  | |  |  |  | **\** | | |  | | Electronic circuits | |  | |
|  |  |  | **\** | |  |  |  |  | |  |  | **\** |  | |  |  |  | **\** | | |  | | Electronic measurements device | |  | |  | | | |
|  |  |  | **\** | |  |  |  | **\** | |  |  | **\** |  | |  |  |  | **\** | | |  | | microcomputers | |  | |
|  |  |  | **\** | |  | **\** | **\** | **\** | |  | **\** | **\** | **\** | |  | **\** | **\** |  | | |  | | electronic medical devices | |  | |  | | | |
|  |  |  | **\** | |  | **\** | **\** | **\** | |  | **\** | **\** | **\** | |  | **\** | **\** |  | | |  | | electromechanical medical devices | |  | |  | | | |
|  |  |  | **\** | |  |  |  | **\** | |  |  | **\** |  | |  |  |  | **\** | | |  | | control | |  | |  | | | |
|  |  |  | **\** | |  | **\** | **\** | **\** | |  | **\** | **\** | **\** | |  | **\** | **\** |  | | |  | | maintenance medical devices | |  | |  | | | |
|  |  |  | **\** | |  |  |  |  | |  | **\** |  |  | |  |  |  | **\** | | |  | | Computer app appapplication | |  | |  | | | |
|  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | | |  | | project | |  | |  | | | |

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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 programmer specification. |

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| Institute of medical Technology – AL Mansur | 1. Teaching Institution |
| Middle Technical University – Electronic Technology - Medical devices | 2. University Department/Centre |
|  | 3. Course title/code |
| Engineering | 4. Program(s) to which it contributes |
| Practical and Theoretical | 5. Modes of Attendance offered |
| Yearly | 6. Semester/Year |
| 2x30=60 hours | 7. Number of hours tuition (total) |
| 1/11/2016 | 8. Date of production/revision of this specification |
| 9. Aims of the Course | |
| Student sergeant on: The use and maintenance of electronic medical devices through the study of the medical device as the mail and through the study of electronic parts circles. It is these devices pressure measurement device, ECG, device electrical D.C shook , pacemakers, breathing devices, clinical monitoring device, EEG device, muscles planning device, monitor the fetus and birth, the sonar device, medical amplifiers, modulated, ironing surgical device , operating room devices. | |

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| 10· Learning Outcomes, Teaching ,Learning and Assessment Method |
| 1. Knowledge and Understanding   A1- understands the principles and fundamentals and theories of electronic medical devices. A2- recognizes the types and specifications of electronic medical devices. A3- compares the electronic medical devices to the same idea (for example, pressure devices). A4- determines the conditions of work and the advantages of electronic medical apparatuses. A5- describes the kinds of electronic medical devices. A6- infer from the working principle for devices basic idea of the operation of the device. |
| B. Subject-specific skills  B 1 - checking the validity of electronic parts in the medical device-mail to work. B 2 - Make your own electronic circuits work medical device-mail. B 3 - learn how to read the map of the device. B4- electronic charts and follow-up of the device reads the holidays. |
| Teaching and Learning Methods |
| Lecture, discussion. project method |
| Assessment methods |
| Written examination, oral, observation, homework, laboratory report. |
| C. Thinking Skills  C1.Convinced his study.  C2.Estimated the staff in an effort to give the scientific article.  C3.Participate in team work.  C4.Respects dedication to work and hates cheating. |
| Teaching and Learning Methods |
| Lecture , Discussion |
| Assessment methods |
| Observations |

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| D. General and Transferable Skills (other skills relevant to employability and personal development)  D1.use of PC in field.  D2.An ability to search Information from internet.  D3.Development Skills communication.  D4.Writing technical reports in the specialty field. |

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| 11. Course Structure | | | | | |
| Week | **Hours** | **ILOs** | **Unit/Module or Topic Title** | **Teaching**  **Method** | **Assessment Method** |
| **1** | **2** | Understand introduction to the electronic medical devices | Introduction of electronic medical devices | lecture | written exam |
| **2** | **2** | English and Latin medical terminology recognize. | Medical terminology in English and Latin | lecture | written exam |
| **3** | **2** | Major parts of the heart-blood pressure cycle Sgry- device -smash doctor | Parts of the heart and pressure devices | lecture | Debate |
| **4** | **2** | Studying cardiac ECG planning system - the basic stages of the device | Heart ECG planning device | lecture | written exam |
| **5** | **2** | Studying and distinguishes types of polarization - Keble patient | Polar | lecture | Homework |
| **6** | **2** | Measuring blood pressure - pressure types of devices - mercurial pressure device | Types of pressure devices | lecture | written exam |
| **7** | **2** | Understand the work of air pressure device - the electronic pressure device | Air pressure device - the electronic pressure device | lecture | Debate |
| **8** | **2** | D.C shock studying cardiac device - kinds | D.C shock cardiac device | lecture | Debate |
| **9** | **2** | Electrodes D.C shock cardiac devices - devices circles shock heartfelt | D.C shock cardiac device | lecture | written exam |
| **10** | **2** | Pacemaker - Classification - Heart device - lungs | Pacemaker | The lecture and research | Duties home and reports |
| **11** | **2** | Measuring device the voices of the heart - the heart vector VCG | Device measuring heart sounds | students Problem Solving | Duties home and discuss |
| **12** | **2** | Breathing devices - mechanical breathing | Breathing devices | lecture | The discussion exam |
| **13** | **2** | Sensors measuring the breathing devices - breathing control devices | Measuring breath - breath control devices | lecture | written exam |
| **14** | **2** | Identify the different setups for clinical monitoring | Different devices for clinical monitoring | lecture | Homework and discuss |
| **15** | **2** | Viewing brain planning and operation of the device | Brain EEG planning device | lecture | written exam |
| **16** | **2** | Brain EEG planning system - the basic stages of the device and its parts | Brain EEG planning device | lecture | written exam |
| **17** | **2** | Planning your muscle EMG | Planning your muscle EMG | lecture | Theoretical and practical exam |
| **18** | **2** | Basic stages of planning a muscle and its parts | Planning your muscle EMG | lecture | Homework and discuss |
| **19** | **2** | Ultrasound devices - kinds - Vixiaoah ultrasound devices | Ultrasound devices | lecture | Homework |
| **20** | **2** | Monitor the fetus - components and phases of device | Fetal monitoring device | lecture | written exam |
| **21** | **2** | Birth control device - components and phases of device | Birth control device | The lecture and research | Practical exam and discuss |
| **22** | **2** | Sonar device - components and phases of device | Sonar device |  | written exam |
| **23** | **2** | Showing sonar devices A- mode device, D- mode, M- | Sonar device |  | written exam |
| **24** | **2** | Tracer device | Tracer device | The lecture and research | Theoretical and practical exam |
| **25** | **2** | Display devices | Display devices |  | Homework and discuss |
| **26** | **2** | Both types of display devices: analogue and digital | Display devices |  | Homework |
| **27** | **2** | Ironing surgical devices | Ironing surgical devices | The lecture and research | written exam |
| **28** | **2** | Ironing surgical kinds of devices | Ironing surgical kinds of devices | The lecture and research | Practical exam and discuss |
| **29** | **2** | Operating room devices - devices used | Operating room devices - devices used | The lecture and research | written exam |
| **30** | **2** | The operating room and how to isolate it electrically and thermally | The operating room and how to isolate it electrically and thermally | The lecture and research | Practical exam and discuss |

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| 12. Infrastructure | |
| **دوائر طبية الكترونية** | **تأليف: حكمت العبوس** |
| MEDICAL ELECTRICAL DEVICE |  |

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| 13. Admissions | |
| Graduate from secondary school – scientific branch. | Pre-requisites |
| 100 student | Minimum number of students |
| 150 student | Maximum number of students |