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| **1** | **Course title** | Introduction of cochlear implants |
| **2** | **Course number** | 1804401 |
| **3** | **Credit hours** | 3 (theory) |
| **Contact hours (theory, practical)** | 3 (theory) |
| **4** | **Prerequisites/corequisites** | 1804231 |
| **5** | **Program title** | Bachelor of Hearing and Speech Sciences |
| **6** | **Program code** | 1804 |
| **7** | **Awarding institution** | The University of Jordan |
| **8** | **School** | Rehabilitation Sciences |
| **9** | **Department** | Hearing & Speech Sciences |
| **10** | **Level of course** | Undergraduate/fourth year |
| **11** | **Year of study and semester (s)** | 2020/2021, First semester |
| **12** | **Final Qualification** | Bachelor degree in Hearing and Speech Sciences |
| **13** | **Other department (s) involved in teaching the course** | None |
| **14** | **Language of Instruction** | English |
| **15** | **Teaching methodology** | ☐Blended ☐Online |
| **16** | **Electronic platform(s)** | ☐Moodle ☐Microsoft Teams ☐Skype ☐Zoom  ☐Others………… |
| **17** | **Date of production/revision** | 1/10/2020 |

**18 Course Coordinator:**

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| Name: Soha Garadat, Associate Professor  Office number: 434  Phone number: ext: 23272  Email: [s.garadat@ju.edu.jo](mailto:s.garadat@ju.edu.jo)  Sunday and Tuesday, 12-2 |

**19 Other instructors:**

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| Name:  Office number:  Phone number:  Email:  Name:  Office number:  Phone number:  Email: |

**20 Course Description:**

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| As stated in the approved study plan.  An introduction to the cochlear implant technology, how it functions and how it is implanted. The criteria for candidacy of adult and pediatric patients, as well as the pre and post implant testing, counselling, treatment, and the post-surgical audiologic rehabilitation. |

**21 Course aims and outcomes:**

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| A- Aims:  Upon successful completion of this course, the student will be able to:   1. Describe technological aspects of cochlear implants especially of the speech processing strategies used in current devices. 2. Demonstrate knowledge of audiological and medical assessment candidacy for cochlear implants. 3. Demonstrate familiarity of software and hardware used for cochlear implants. 4. Demonstrate knowledge of post-operative management and patient performance. 5. Understand issues of deaf culture and cochlear implants. 6. Demonstrate basic knowledge of the current cochlear implant research   B- Intended Learning Outcomes (ILOs):  Upon successful completion of this course, students will be able to:   1. Demonstrate deep knowledge of the basic human communication processes, as well as the nature of speech, language, and hearing.    1. demonstrate knowledge of the impact of hearing loss on adults and children    2. Understand issues of deaf culture and cochlear implants. 2. Identify and apply the basic principles and methods of prevention, assessment and intervention for individuals with communication and hearing disorders.   2.1. Demonstrate knowledge of cochlear implant candidacy evaluation and criteria, device consideration, fitting, and outcome.  3. Apply the basic clinical skills in working with individuals with communication and hearing disorders.  3.1. Be able to identify patients who are candidate for implantation, be able to determine device selection and adapt correct approach in diagnostic evaluation and device fitting  3.2. Demonstrate familiarity and basic knowledge of the different software and hardware used for programming cochlear implant devices.  4. Conduct appropriate diagnostic monitoring procedures, therapy or other actions safely and skilfully.  4.1. Be able to clinically manage patients with cochlear implants pre- and post-operatively.  5. Apply principles of evidence-based practice in the assessment and intervention processes.  5.1 Demonstrate knowledge of current research in cochlear implantation and apply this knowledge in guiding their clinical decisions and practical skills. |

**22. Topic Outline and Schedule:**

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| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Week** | **Lecture** | **Topic** | **Teaching Methods\*/platform** | **Evaluation Methods\*\*** | **References** | | 1 | 1.1 | Class orientation | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 1.2 | History of cochlear implants and research contribution | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 1.3 | History of cochlear implants and research contribution | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 2 | 2.1 | Deafness impact on society | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 2.2 | CI Candidacy criteria | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 2.3 | CI Candidacy criteria | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 3 | 3.1 | CI Pre-assessment | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 3.2 | CI Pre-assessment | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 3.3 | Counseling new patients | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 4 | 4.1 | Overview of technology: Basic components and operation | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 4.2 | Overview of technology: Basic components and operation | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 4.3 | Overview of technology: Basic components and operation | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 5 | 5.1 | Overview of technology: Signal processing | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 5.2 | Overview of technology: Signal processing | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 5.3 | Overview of technology: Signal processing | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 6 | 6.1 | Overview of technology: Signal coding strategies | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 6.2 | Overview of technology: Signal coding strategies | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 6.3 | Overview of technology: Signal coding strategies | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 7 | 7.1 | Neurobiology and anatomic basis of CIs | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 7.2 | Neurobiology and anatomic basis of CIs | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 7.3 | CI surgery | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 8 | 8.1 | CI surgery | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 8.2 | Postoperative complications | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 8.3 | Postoperative complications | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 9 | 9.1 | Midterm exam | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 9.2 | Implant programming terminology | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 9.3 | Implant programming terminology | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 10 | 10.1 | Device mapping and general fitting procedures | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 10.2 | Device mapping and general fitting procedures | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 10.3 | Device mapping and general fitting procedures | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 11 | 11.1 | Students' presentation | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 11.2 | Students' presentation | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 11.3 | Students' presentation | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 12 | 12.1 | Device mapping across manufactures (MED-EL, Cochlear, Advanced Bionics) | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 12.2 | Electrode design and impedance | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 12.3 | Electrode design and impedance | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 13 | 13.1 | Clinical considerations, fitting schedule, and post fitting assessment | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 13.2 | Clinical considerations, fitting schedule, and post fitting assessment | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 13.3 | Clinical considerations, fitting schedule, and post fitting assessment | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 14 | 14.1 | Combined acoustic and electric hearing  Case Study discussion | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 14.2 | Combined acoustic and electric hearing  Case Study discussion | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 14.3 | Combined acoustic and electric hearing  Case Study discussion | Moodle/Microsoft team | Discussion | Lectures  Assigned readings | | 15 | 15.1 |  |  |  |  | | 15.2 |  |  |  |  | | 15.3 |  |  |  |  | |  |  |  |  |  |  | |

* Teaching methods include: Synchronous lecturing/meeting; Asynchronous lecturing/meeting
* Evaluation methods include: Homework, Quiz, Exam, pre-lab quiz…etc

**23 Evaluation Methods:**

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| Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Evaluation Activity** | **Mark** | **Topic(s)** | **Period (Week)** | **Platform** | | Exam | 30% | Midterm | 8 | On campus | | Assignment | 5% each | Quiz/ assignments (3x) | Throughout the semester | Moodle/ Microsoft teams | | Final | 50% | Final exam | TBA | On campus | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |

**24 Course Requirements (e.g: students should have a computer, internet connection, webcam, account on a specific software/platform…etc):**

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| Students should have an access to a computer, internet connection, webcam, and an active account on Moodle and Microsoft teams |

**25 Course Policies:**

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| A- Attendance policies:   * Attendance will be taken periodically throughout the semester. * Students are expected to attend and actively participate in all classes. * Students are expected to be on time. * When the student is unable to attend class, it is a courtesy to notify the instructor in advance using either e-mail or phone. * Repeated tardiness or leaving early will not be accepted. * Students who miss class (or any portion of class) are responsible for the content. Any student who misses a class has the responsibility for obtaining copies of notes, handouts, assignments, etc. from class members who were present. If additional assistance is still necessary, an appointment should be scheduled with the instructor. Class time is not to be used to go over material with students who missed class(es). * An absence of more than 15% of all the number of classes, which is equivalent of ( 8 ) classes, requires that the student provides an official excuse to the instructor and the dean. * If the excuse was accepted the student is required to withdraw from the module. * If the excuse was rejected the student will fail the module and mark of zero will be assigned as suggested by the laws and regulations of the University of Jordan. Please refer to pages 133, 134 of the student handbook.   B- Absences from exams and submitting assignments on time:   * The instructor will not do any make-up exams. * Exceptions for make-up exams and late submission of class assignments will be made on a case-by-case basis for true personal emergencies that are described as accepted by the regulations of UJ (e.g., documented medical, personal, or family emergency). * Make-up exams will be arranged if justifications for missing the exam satisfy the above. It is the student's responsibility to contact the instructor within 24 hours of the original exam to schedule a make-up session. A make-up exam should be taken within a week from the original exam date, unless the student can provide documentation that makes meeting that deadline impossible; otherwise, the recorded score for that exam for the student will be a zero. * Late assignments will not be accepted and submission of assignments (due to unjustified absence from class) by other students will not be accepted regardless of how much work the student put into its preparation.   C- Health and safety procedures:   * Students will not be in direct contact with patients during this course. * Students are not expected to use any heavy tools or equipment that might impose health and safety issues during this course. * Students should work safely, including being able to select appropriate hazard control and risk management, reduction or elimination techniques in a safe manner in accordance with health and safety legislation. * Students should understand the importance of and be able to maintain confidentiality. * Students should understand the importance of and be able to obtain informed consent. * Students should know the limits of their practice and when to seek advice or refer to another professional   D- Honesty policy regarding cheating, plagiarism, misbehavior:   * Students are expected to observe all University guidelines pertaining to academic misconduct. * Any work submitted by a student for academic credit must be the student's own work. Submission of work taken directly from another source (e.g., book, journal, internet, clinic forms, or another student work) will be considered plagiarism and the student/group will get a zero grade for that work if part of an assignment. In addition, if copying occurred, both the student who copied the work and the student who gave material to be copied (if applicable) will receive a zero for the assignment. * Students are expected to do work required for assignments on their own. Asking other instructors at the JU clinic or the staff, or other students to assist in or do any part of the assignment for them will negatively affect their grade on that assignment. The course instructor is the person the student needs to talk to if s/he has any difficulties pertaining to an assignment or project and is strongly encouraged to schedule an appointment with the instructor if such difficulties arise during the semester. * Course materials prepared by the instructor, together with the content of all lectures and review sessions presented by the instructor are the property of the instructor. Video and audio recording of lectures and review sessions without the consent of the instructor is prohibited. * Any forms of academic misconduct will be handled according to the University of Jordan guidelines.   E- Grading policy:  Grading for this course will be determined based upon the accumulation of points for variety of assignments and exams. All work will be evaluated on completeness, organization, clarity of information, and the integration and application of the material.  F-Available university services that support achievement in the course:  The University of Jordan provides many services to support social, health, and mental well-being of students in general and students with disabilities in specific. Students are advised to visit the Faculty of Students Affairs to learn more about those services. If you are a student with a disability for which you may request accommodations, please notify the staff of Services for Student with Disabilities (Faculty of Students Affairs) as soon as possible. Please also contact the instructor as soon as possible (email is acceptable) so the appropriate accommodations for this course can be made.  F- Available university services that support achievement in the course: |

**26 References:**

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| A- Required book(s), assigned reading and audio-visuals:  There is no assigned textbook for this class. However, students will be provided with assigned research papers, as well as book chapters. It is the student's responsibility to obtain copies of all the assigned reading materials.  B- Recommended books, materials and media: |

**27 Additional information:**

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Name of Course Coordinator: Soha Garadat, Ph.D Signature: - Soha Garadat - Date: 10\11\2020

Head of Curriculum Committee/Department: Soha Garadat, Ph.D Signature: Soha Garadat

Head of Department: Soha Garadat, Ph.D Signature: Soha Garadat

Head of curriculum committee/Faculty: Professor Ziad Hawamdeh Signature: Z.H

Dean: Professor Ziad Hawamdeh Signature: Z.H

Copy to:

Head of Department

Assistant Dean for Quality Assurance

Course File