



TEHRAN UNIVERSITY  
OF  
MEDICAL SCIENCES

## **School of Rehabilitation**

**Master's Degree, Speech Therapy Program**

**Course Description:**

**Table of Optional Courses**

Code	Course Title	Number of Credits			Hours			Prerequisite	Term
		Theoretical	Practical	Total	Theoretical	Practical	Total		
01	English for Specific Purposes	1	1	2	17	34	51	None	-
02	Case study	---	2	2	---	68	68	None	3
03	Writing scientific and research paper	1	1	2	17	34	51	None	2
04	Kinematic and biomechanics of speech organs	2	---	2	34	---	34	None	-
05	Voice and speech training methods	1	1	2	17	34	51	None	-
	<b>Total</b>	<b>5</b>	<b>5</b>	<b>10</b>	<b>85</b>	<b>170</b>	<b>255</b>		

Table of Compulsory Courses

Code	Course Title	Number of Credits			Hours			Prerequisite	Term
		Theoretical	Practical	Total	Theoretical	Practical	Total		
01	Medical Information System	0.5	0.5	1	9	17	26	None	1
02	Speech and Language Laboratory	---	2	2	---	68	68	None	2
03	Statistics and Advanced Research Methods	2	1	3	34	34	68	None	1
04	Measurement, Assessment and Test Construction	1	2	3	17	68	85	None	3
05	Neuropsycholinguistic	2	---	2	34	---	34	None	2
06	Clinical Linguistics and Phonetics	1	1	2	17	34	51	02	1
07	Phonetics and Phonological Disorders	1	1	2	17	34	51	None	2
08	Fluency Disorders	1	1	2	17	34	51	None	2
09	Voice Disorders	1	1	2	17	34	51	02	3
10	Acquired Language Disorders	1	1	2	17	34	51	None	3
11	Developmental Language Disorders	1	1	2	17	34	51	None	1
12	Natural Processing of Speech and Language	2	---	2	34	---	34	None	1
	<b>Total</b>	<b>12.5</b>	<b>12.5</b>	<b>25</b>	<b>230</b>	<b>391</b>	<b>621</b>		

**Table of Thesis**

Code	Course Title	Number of Credits			Hours			Prerequisite	Term
		Theoretical	Practical	Total	Theoretical	Practical	Total		
13	Thesis	--	4	4	- - -	- - -	- - -	None	4

## Section I:

**Title:** Speech Therapy

**Degree:** M.Sc.

**Introduction:** The course of Speech Therapy in master of science has been launched since 2000 for Iranian applicants at the school of Rehabilitation of Tehran University of Medical Sciences; however, it started to admit international applicants from 2020. This course aimed to increase knowledge in the assessment, diagnosis, and treatment of different types of speech and language disorders. Achieving sufficient knowledge requires research on all aspects of speech and language which itself requires the integration of both knowledge and research skills.

**Definition:** This course is a non-continues master's degree in speech therapy, which is a post-undergraduate degree. During this course, the students will be dealing with: 1) learning to accurately measure different components of speech and language, 2) investigating the complex and difficult aspects of speech and language disorders, 3) recognizing and improving speech and language disorders in both children and adults. The graduate students of this course, in addition to acquiring various scientific and practical skills, achieve other skills as follows: 1) learning the common research methods, 2) discovering both normal and pathological aspects of speech and language to expand the scientific spirit as well as increasing the level of community health.

**The Aim of the Course:** The students acquire the necessary knowledge and skills by studying the scientific texts, educational and research activities in theoretical, practical, and clinical aspects about features, challenges, and disorders of speech and language. That is, they can conduct researches in both normality and abnormality aspects by relying on their obtained knowledge to discover normal criteria and speech and language disorders. Furthermore, in toward the relevant scientific and clinical principles, they can utilize the information gathered from researches to identify and improve speech and language disorders within the framework of educational and non-invasive speech therapy methods.

### **General Competencies:**

- Identifying physical and environmental factors affecting different aspects of speech, language and its disorders;
- Research, discovery and measurement of speech and language norms of society;
- Developing indicators and methods of measuring and evaluating speech and language skills;
- Developing a research plan focusing on the theoretical foundations of speech and language processing and its disorders;
- Implementation of a local research project in the field of speech or language and its disorders.

### **Specific Competencies and Skills (Special Qualifications)**

This is a two-year degree-based post graduated course.

Special qualifications for admission: Holding a bachelor degree in any of the following fields is needed to enter this course:

- Communication Disorders;
- Speech Pathology and Audiology;
- Speech and Language Pathology;
- Speech Therapy;
- Bachelor of Medicine.

Note: Educational and clinical background of applicants who are holding bachelor of Medicine should be confirmed by the Speech Therapy Department of School of Rehabilitation of TUMS in order for the applicant to enter this program.

### **The Terms and Conditions of Admission to the Course**

The Terms and Conditions of Admission to the Course are based on application forms, assessment of documents, research background of applicants and letters of recommendation.

## **Educational Strategies, Methods and Techniques**

The educational strategies, Methods and Techniques are composed of below main issues:

- A combination of teacher-centered and student-centered learning;
- Problem solving;
- Self study;
- Case study;
- Task-based learning;
- Systematic learning.

## **Student Assessment**

Assessment methods:

- Written Exam;
- Oral Exam;
- Practical Exam (if necessary).

## **Number and Type of Credits and Tables of the Courses (including compulsory and optional [elective] courses)**

- The minimum number of credits required for obtaining a master's degree in Speech Therapy is 32.

- This course includes Compulsory Core Courses, Compulsory Specialized Courses, Elective Specialized Courses, and Thesis, which are defined as follows:

Compulsory Core Courses :12 credits

Compulsory Specialized Courses: 12 credits

Elective Specialized Courses: 4 credits

Thesis: 4 credits

Total: 32 credits

- Based on the Speech Therapy Department's decision, students may have to pass English for Specific Purposes (2 credits), and Medical Information System (1 credit).

### **Ethical issues**

Graduates should:

- Strictly observe Biosafety and Patient Safety Rules\* concerning patients, personnel, experimental labs and workplace.
- Strictly observe the Regulations of Working in the Laboratories
- Carefully preserve resources and equipment.
- Truly respect faculty members, the staff, classmates and other students and work for creating an intimate and respectful atmosphere.
- Observe social and professional ethical considerations in criticism.

\* Biosafety and Patient Safety Rules will be set out by the Educational Departments and will be available to the students.



## Section II

**Title of the Course:** Medical Information System

**Code of the course:** 01

**Number of Credits:** 1

**Type of the course:** Compulsory

**Prerequisite:** None

**Course description:** In this course, the student gets acquainted with different components of PC, Windows operating system, internet, important websites-mail and databases to be able to use the computer practically in researches in his/her field.

### **Principal objective(s) of the course:**

A. Getting acquainted with the personal computer:

- 1) Understanding different components of PC hardware and accessories;
- 2) Learning about function and importance of each hardware and accessories components.

B. Getting acquainted and setting up windows operating system:

- 1) Learning about the history of advanced operating systems such as Windows;
- 2) Learning about capability and features of windows operating system;
- 3) Using windows help;
- 4) Getting acquainted with important applications of windows.

C. Getting acquainted with important databases and useful applications in his/her field:

- 1) Learning about introduction and terminology of information system;
- 2) Being familiar with reference books applications on CD;
- 3) Getting acquainted with databases such as biological abstract, Embase, Medline, and learning how to search in these databases
- 4) Getting acquainted with full-text electronic journals on CD and learning how to search in these journals;

D. Getting acquainted with the internet:

- 1) Learning about information networks;
- 2) Learning about internet browsers and their features;

- 3) Learning about setting up an internet browser to connect to the network;
- 4) Searching with Search engines;
- 5) Getting acquainted with popular and important websites in his/her field

**Main topics:** 26 hours

**Theoretical:** 9 hours

**Practical:** 17 hours

**Student assessment practices:**

- Written Exam
- Oral Exam
- Practical skills are examined in using the PC, Windows operating system and searching with the use of the checklist.

**Reference:**

Alfred Winter, Reinhold Haux, Elske Ammenwerth, Birgit Brigl, Nils Hellrung, Franziska Jahn. Health Information Systems: Architectures and Strategies. Springer-Verlag London.2011  
Zorana Ercegovac. Information Literacy: Search Strategies, Tools & Resources for High School Students and College Freshmen. Linworth Pub Co.2008.

**Course name:** Speech and Language Laboratory

**Code of course:** 02

**Prerequisites:** None

**Number of credits:** 2

**Type of the course:** Compulsory

**Course description:**

The overall purpose of the course: Enhancing student's skills in using instrumental tools for recognition and analyzing speech and language and getting acquainted with using them in speech therapy and research. In this course, the student gets acquainted with tools and laboratory equipment for diagnosis and assessment of different aspects of speech and language and learn about using these tools and methods in clinical settings and researches as follow:

- A. Evaluation of larynx function using Videolaryngoscopy examination;
- B. Acoustic voice measurement using *Praat* software;
- C. Introduction to tests in acquired language disorders and cognitive disorders;
- D. Introduction to E-prime;
- E. Introduction to tests in developmental language disorders;
- F. The ability of diagnosis and discrimination of brain damages in EEG, C. Tscan, and MRI.

**Main topics:** 68 hours

**Theoretical:** -- hours

**Practical:** 68 hours

**Student assessment practices:**

- Written Exam
- Oral Exam
- Practical skills

**References:**

Colton RH, Casper JK, Leonard R .understanding voice problems. philadelphia: Techbooks; 2011.

"Praat: doing phonetics by computer". Retrieved 20 September 2017.

ShIPLEY KG., McAfee JG. Assessment in speech-language pathology: A resource Manual. 5th Edition. Boston: CENGAGE Learning. 2016.

Chapey R.Language intervention strategies in aphasia and related neurogenic disorders. Fourth Edition. Philadelphia: Lippincott Williams & Wilkins. 2008.

John N. Demos. Getting Started with Neurofeedback. W. W. Norton & Company.2005.

Walter schneider,Amy eschman .E-prime getting started guide.Zoccolotto publisher.2007.

**Course name:** Statistics and Advanced Research Methods

**Code of course:** 03

**Prerequisites:** None

**Number of credits:** 2

**Type of the course:** Compulsory

The overall purpose of the course: Getting acquainted with advanced research and statistical methods in health research and using them in designing and writing research projects.

**Course description:**

In this course, students learn about Information analysis methods, statistics, and Advanced Research Methods so that they can use this knowledge in their future researches

**Theoretical (17 hours):**

A. Research methods:

- 1) Research definition;
- 2) How to choose a good title?
- 3) Discuss the chosen “title” for their Proposal;
- 4) How to write the “Research explanation”;
- 5) How to write the “Objectives”;
- 6) How to write the “Hypothesis”
- 7) How to write the “Questions”;
- 8) “Variables” definition;
- 9) Type of the study;
- 10) Research design & methods;
- 11) Methods of Sampling;
- 12) Sample Size;
- 13) Discuss the “Different section” written for their Proposal;
- 14) Validity & Reliability of Instruments;
- 15) Ethics in Research;
- 16) Ethics in publication;

B. Statistics:

- 1) Biostatistics definition & different types of variables;
- 2) What is descriptive statistics?
- 3) Different graphs & Normal distribution;
- 4) How to describe data with SPSS?
- 5) What is Confidence Interval?
- 6) How to calculate Confidence Interval with SPSS?
- 7) What is Analytical Statistics?
- 8) What is the Hypothesis Test?
- 9) Independent T\_Test;
- 10) Pair T\_Test;
- 11) How to do T\_Test by SPSS?
- 12) Analyze of Variance;
- 13) K\_S Test;
- 14) Pearson / Spearman Correlation;
- 15) Nonparametric Tests;
- 16) How to use SPSS in Advance Tests?

**Practical (34 hours):**

- A. Writing a research project;
- B. Carrying out a pilot study;
- C. Entry and grouping information;
- D. Selecting statistics methods;
- E. Running statistics methods;
- F. Analysis of survey results;

**Main topics:** 68 hours

**Theoretical:** 17 hours

**Practical:** 34 hours

**Student assessment practices:**

- Written Exam

- Project
- Practical Exam with SPSS software

**References:**

Health Research Methodology: a guide for training in research methods (second edition). World Health organization. 2001.

Bell J. Doing Research Project (7<sup>nd</sup> Edition). Open University Press. 2018.

Gerstman B Burt. Basic Biostatistics: Statistics for Public Health Practice (2<sup>nd</sup> Edition). Jones & Bartlett Learning. 2014.

Chap T le et al. Introductory Biostatistics (2<sup>nd</sup> Edition). Wiley. 2016.

**Course name:** Measurement, Assessment and Test Construction

**Code of course:** 04

**Prerequisites:** None

**Number of credits:** 3

**Type of the course:** Compulsory

**The overall purpose of the course:** Getting acquainted with the concepts of measurement, assessment and test construction and learning about steps and methods of building a test and measurement.

**Course description:**

In this course, students learn how to construct (build) a test and measure scales so that in the future they can design and build a test for the evaluation of natural and damaged aspects based on research achievements.

**Theoretical (17 hours) and practical (68 hours):**

- A. Definition of measurement, assessment, and evaluation;
- B. Measurement scales;
- C. Validity and reliability assessment;
- D. Types of validity;
- E. Types of reliability;
- F. Test construction;
- G. Scale construction;
- H. Item analysis;
- I. Bias in testing;
- J. Generalization and outgoing validity;
- K. Different theories of measurement: 1) Classic; 2) Rash; 3) Item response; and 4) Factor analysis;
- L. Title selection for test construction: 1) Test construction; 2) Carry out in a small group, and 3) Analysis of test result.



**Main topics:** 85 hours

**Theoretical:** 17 hours

**Practical:** 68 hours

**Student assessment practices:**

- Written Exam
- Oral Exam
- Project

**Reference:**

Downing SM and Haladyna TM. Handbook of Test development. Lawrence Erlbaum Associations, Inc. 2006.

**Course name:** Neuropsycholinguistic

**Code of course:** 05

**Prerequisites:** None

**Number of credits:** 2

**Type of the course:** Compulsory

**The overall purpose of the course:** Getting acquainted with basic concepts of Neuropsycholinguistic and its relationship to speech and language.

**Course description:**

In this course, students learn about language organization in the brain and different points of views in this field, aspects of diagnosis and assessments of language disorders based on functions of the brain and its damages.

**Theoretical (17 hours) and practical (68 hours):**

- A. Definition of neuropsychology and its history;
- B. New ideas and points of views about brain organization;
- C. Definition of neurology of language and its history;
- D. Language information processing in brain hemispheres;
- E. Language functions in sub cortical parts of the brain;
- F. Points of views( theories) of neurology of language: 1) Reductionist oriented and 2) Holistic;
- G. Functional organization of brain;
- H. Genesis;

- I. Neurological basics of language components: phonology, morphology, syntax, semantic, pragmatic;
- J. Language impairments caused by brain lesions.

**Main topics:** 34 hours

**Theoretical:** 34 hours

**Practical:** ---

**Student assessment practices:**

- Written Exam
- Oral Exam

**References:**

- 1) Ahlsén, Elisabeth, (2006). Introduction to Neurolinguistics, Amsterdam, John Benjamins Publishing Company.
- 2) Arbib, Michael, (1982). Neural Models of Language Processes, San Diego, Academic Press.
- 3) Caplan, D. (1987). Neurolinguistics and linguistic aphasiology. An introduction. Cambridge: Cambridge University Press.
- 4) Ingram, John C. L., (2007). Neurolinguistics, Cambridge, Cambridge University Press.
- 5) Stemmer, B., Whitaker, H. A., (1998). Handbook of Neurolinguistics, San Diego, Academic Press.
- 6) Warren, Paul, (2013). Introducing Psycholinguistics, Cambridge, Cambridge University Press.

**Course name:** Clinical Linguistics and Phonetics

**Code of course:** 06

**Prerequisites:** Speech and Language Laboratory

**Number of credits:** 2

**Type of the course:** Compulsory

**The overall purpose of the course:** Getting acquainted with analyzing different aspects of speech and language based on clinical linguistic approaches

**Course description:**

In this course, the student learns about evaluating and analyzing different aspects of speech and language based on clinical linguistic approaches and methods of determining scales for researches and assessments of speech and language.

**Theoretical (17 hours):**

- A. Theoretical Foundations of Modern Linguistics and New Perspectives on the Study of Speech and Language;
- B. Clinical linguistics, its definition, and perspectives;
- C. Clinical linguistics and phonetics;
- D. Methods of evaluating and analyzing speech disorders based on the principles of clinical linguistics and phonology;

E. Language evaluation scales;

Evaluation of different levels of speech and language disorders.

**Practical (34 hours):**

A. Analysis of natural speech samples;

B. Analysis of disordered speech samples;

C. Analysis of perceptual-acoustic characteristics of speech disorders with the use of laboratory equipment.

**Main topics:** 51 hours

**Theoretical:** 17 hours

**Practical:** 34 hours

**Student assessment practices:**

- Written Exam
- Oral Exam

**References:**

Shipley KG., McAfee JG. (2016). Assessment in speech-language pathology: A resource Manual. 5th Edition. Boston: CENGAGE Learning.

Chapey R. (2008). Language intervention strategies in aphasia and related neurogenic disorders. Fourth Edition. Philadelphia: Lippincott Williams & Wilkins.

**Course name:** Phonetics and Phonological Disorders

**Code of course:** 07

**Prerequisites:** None

**Number of credits:** 2

**Type of the course:** Compulsory

**The overall purpose of the course:**

Increasing knowledge, awareness, and ability to critique researches in order to gain new insights and attitudes in pathology, assessment, and treatment of phonetic and phonological disorders.

**Course description:**

In this course, the student studies about different aspects of phonetic and phonological disorders and learns about the effects of disorder on the individual and his/her family. Also, the student learns about the basics of assessment and treatment of phonetic and phonological disorders.

**Theoretical (17 hours):**

- A. The nature of speech and non-speech movements;
- B. Compensatory solutions for limb movement in structural anomalies (myofunctional therapy);
- C. The role of sensory input in articulation;
- D. Neuromuscular disorder and production improvement strategies (dysarthria- apraxia);
- E. Articulation disorder in intellectual disability;

- F. Hearing impairment and the process of production evolution before and after language learning;
- G. The role of environmental factors in articulation disorders;
- H. Impact of articulation disorder on individual and family and their interaction;
- I. Methods of investigations (assessments) in phonetics and phonological disorders (tests and scales);
- J. Analysis of findings and solutions to improve complex and severe types of articulation disorders.

**Practical (34 hours):**

- A. Assessment of patient with complex and severe types of articulation disorders.
- B. Analysis of assessment outputs
- C. Writing a treatment plan for speech therapy
- D. Experimental implementation of Speech Therapy and analysis of their outputs
- E. Preparing a report about the selective patient

**Main topics:** 51 hours

**Theoretical:** 17 hours

**Practical:** 34 hours

**Student assessment practices:**

- Written Exam
- Oral Exam

**References:**

- 1- Dodd B. Differential Diagnosis and Treatment of Children with Speech Disorder . Second Edition . London : Whurr publishers . 2005
- 2- Pena – Brooks A. Hedge M.N. Assessment & Treatment of Articulation & Phonological Disorders in Children.Texas: pro-ed publisher ; 2000
- 3- Shipley KG., McAfee JG. (2016). Assessment in speech-language pathology: A resource Manual. 5th Edition. Boston: CENGAGE Learning.

- 4- Malcom R.M. Clinical Management of Sensorimotor Speech Disorders. London: Thieme Medical publishers Inc.1997
- 5- Cox, V, O. Rare Disorders that Cause Dysphagia: A Guide for Speech-language Pathologists. Plural Publishing, Inc. 2020.
- 6- Damico, S. J, Müller, N, and Ball, M. J. The Handbook of Language and Speech Disorders. London: Wiley and Blackwell, 2010.
- 7- Freed, D. B. Motor Speech Disorders: Diagnosis and Treatment (3rd Ed); Plural Publishing Inc. 2020.
- 8- Duffy, J, R. Motor Speech Disorders: Substrates, Differential Diagnosis, and Management (3rd Ed), Mosby Publication, 2013.
- 9- Jacqueline Bauman-Waengler, Articulation and Phonology in Speech Sound Disorders: A Clinical Focus (5th Ed), Pearson publication, 2016.
- 10- Articulation and Phonological Disorders: Speech Sound Disorders in Children (8th Ed) Edited by John E. Bernthal, Nicholas W. Bankson, Peter Flipsen Jr. Pearson Publication, 2017.
- 11- Neurobehavior of Language and Cognition: Studies of Normal Aging and Brain Damage; Honoring Martin L. Albert, Edited by Loraine K. Obler & Lisa Tabor Connor, Springer publication, 2002.



**Course name:** Fluency Disorders

**Code of course:** 08

**Prerequisites:** None

**Number of credits:** 2

**Type of the course:** Compulsory

**The overall purpose of the course:**

Increasing knowledge, awareness, and ability to critique researches in order to gain new insights and attitudes in pathology, assessment, and treatment of speech fluency disorders.

**Course description:**

This course presents the theory, diagnosis and treatment of fluency disorders in children, adolescents, and adults. The goal is to develop understanding and practice knowledge about individuals with stuttering and related fluency disorders so that the students can provide quality services to these clients.

**Theoretical (17 hours)**

- A. Nature of different types of fluency disorder;
- B. Impact of fluency disorder on individual, family, and relatives;
- C. The role of different factors on speech fluency (environmental, biochemical, Neurological, psychological and language factors);

- D. Evaluation methods and assessments of fluency disorder (tests and scales);
- E. Treatment basics of speech fluency disorder (Changing attitudes, changing behavior and Changing speech);
- F. Treatment approaches of speech disfluency (speech therapy, Medication, Psychotherapy, and Hypnosis);
- G. Analyzing outputs(findings) and finding solutions for the treatment of speech fluency disorder.

**Practical (34 hours):**

- A. Speech sample analysis of a patient with a fluency disorder;
- B. Analysis of assessment results;
- C. Planning for speech therapy approaches;
- D. Experimental implementation of speech therapy and analysis of its results;
- E. Preparing and reporting the results of the sample studied.

**Main topics:** 51 hours

**Theoretical:** 17 hours

**Practical:** 34 hours

**Student assessment practices:**

- Written Exam
- Oral Exam

**References:**

Manning, Walter (2010). Clinical decision making in fluency disorders (3rd ed.) New York: Delmar Cengage Learning.

Conture, E. & Curlee, R. (2007) Stuttering and Related Disorders of Fluency, 3rd Edition. New York, NY: Thieme Medical Publishers, Inc.

Guitar, B. (2010) Treatment of Stuttering: Established and Emerging Interventions Baltimore, MD: Lippincott Williams & Wilkins.

**Course name:** Voice Disorders

**Code of course:** 09

**Prerequisites:** Speech and Language Laboratory

**Number of credits:** 2

**Type of the course:** Compulsory

**The overall purpose of the course:**

Increasing knowledge, awareness, and ability to critique clinicians and researches in order to gain new insights and attitudes in pathology, assessment, and treatment of voice disorders.

**Course description:**

In this course, the student learns about different aspects of voice disorders with emphasis on functional voice disorders. The student also learns about the assessment and treatment of voice disorders with emphasis on functional voice disorders.

**Theoretical (17 hours):**

- A. Phonatory physiology;
- B. Clinical and laboratory methods of voice evaluation;
- C. Criteria and norms in voice assessment;

- D. Pathophysiology of voice disorders;
- E. Professional voice users (evaluation and voice therapy);
- F. Voice and sex changes (sex reassignment);
- G. Voice disorders and different types of treatment-resistant disorders;
- H. Voice therapy approaches;
- I. Analyzing outputs (findings) and finding solutions for the treatment of different voice disorders.

**Practical (34 hours):**

- A. Auditory-perceptual voice evaluation and voice analysis;
- B. Laryngeal palpation;
- C. Planning for voice therapy approaches;
- D. Experimental implementation of voice therapy and analysis of its results (Laryngeal Manual Therapy, Vocal Function Exercises, Resonant Voice Therapy);
- E. Preparation and reporting the results of the studies in the field of voice disorders.

**Main topics:** 51 hours

**Theoretical:** 17 hours

**Practical:** 34 hours

**Student assessment practices:**

- Written Exam
- Oral Exam

**References:**

1. Stemple JC, Roy N, Klaben BK. Clinical voice pathology: Teory and management (Fifth edition). Plural publishing: USA; 2014.
2. Aronson, AE and Bless DM. Clinical voice disorders (Fourth edition). New York: Thieme Pub; 2009.

3. Colton RH, Casper JK, Leonard R .understanding voice problems. philadelphia: Techbooks; 2011.

**Course name:** Acquired Language Disorders

**Code of course:** 10

**Prerequisites:** None

**Number of credits:** 2

**Type of the course:** Compulsory

**The overall purpose of the course:**

Increasing knowledge, awareness, and ability to critique researches in order to gain new insights and attitudes in pathology, assessment, and treatment of acquired language disorders.

**Course description:**

In this course, the student learns about different aspects of acquired language disorder, the impacts of disorder on the individual and his/her family, and the role of different factors in acquired language disorders. The student also learns about the basics of assessment and treatment of acquired language disorder.

**Theoretical (17 hours):**

- A. Brain function in relation to language;

- B. Types of acquired language disorders (aphasia, dementia and right hemisphere damage);
- C. Neuro pathological basis of aphasia;
- D. Clinical and laboratory methods of assessment in aphasia;
- E. Tests and criteria in acquired language disorders;
- F. Mechanisms of brain recoveries;
- G. Treatment recovery in aphasia and its treatment-resistant types;
- H. Aphasia in bilingual and multilingual;
- I. Treatment approaches in aphasia (psycho-social, functional, traditional, cognitive neuropsychology, cognitive neurolinguistics);
- J. Analyzing outputs (findings) and finding solutions for the treatment of acquired language disorders.

**Practical (34 hours):**

- A. Speech sample analysis of a patient with acquired language disorders;
- B. Analysis of assessment results;
- C. Treatment planning based on speech therapy approaches;
- D. Doing experimental speech therapy and analysis of its results;
- E. Preparing and reporting the results of the sample studied;

**Main topics:** 51 hours

**Theoretical:** 17 hours

**Practical:** 34 hours

**Student assessment practices:**

- Written Exam
- Oral Exam

**References:**

1-Shipley KG., McAfee JG. (2016). Assessment in speech-language pathology: A resource Manual. 5th Edition. Boston: CENGAGE Learning.

2-Lapointe LL. (2011). Aphasia and related neurogenic disorders. Fourth Edition. New York: Thieme.

3-Chapey R. (2008). Language intervention strategies in aphasia and related neurogenic disorders. Fourth Edition. Philadelphia: Lippincott Williams & Wilkins.

4-Articles

**Course name:** Developmental Language Disorders

**Code of course:** 11

**Prerequisites:** None

**Number of credits:** 2

**Type of the course:** Compulsory

**The overall purpose of the course:**

Increasing knowledge, awareness, and ability to critique researches in order to gain new insights and attitudes in pathology, assessment, and treatment of developmental language disorders.

**Course description:**

In this course, the student learns about different aspects of developmental language disorder, the impacts of disorder on the individual and his/her family, and the role of different factors on developmental language disorders. The student also learns about the basics of assessment and treatment of developmental language disorders with knowledge of various disorders and different syndromes.

**Theoretical (17 hours):**

- A. Language disorders in developmental syndromes (intellectual disability, autism, Asperger, learning disability, hearing impairment, acquired childhood apasia);
- B. Characteristics of children with language disorders (psychological, behavioral, emotional, social, learning, cognitive, physical and motor characteristics);
- C. The role of other specialists in the treatment of children with language disorders;
- D. Factors affecting on exacerbation of language disorders and its resistant varieties ;
- E. Clinical and laboratory methods in the assessment of children with language disorders;
- F. Criterion and norm referenced tests in language assessments;
- G. Analyzing assessments results and finding solutions for the treatment of developmental language disorders.

**Practical (34 hours):**

- A. Sample language analysis of children with developmental language disorders;
- B. Analysis of assessment results;
- C. Planning for speech therapy approaches;
- D. Experimental implementation of speech therapy and analysis of its results.

**Main topics:** 51 hours

**Theoretical:** 17 hours

**Practical:** 34 hours

**Student assessment practices:**

- Written Exam
- Oral Exam

**References:**

Stackhouse J, Wells B. Children's speech and literacy difficulties. A Psycholinguistic Framework. Whurr publishers, 1997.

Stackhouse J, Wells B. Children's speech and literacy difficulties. Book2. Identification and intervention. Whurr publishers, 2001.



Pascoe P, Stackhouse J, Wells B. Persisting speech difficulties in children. Children's speech and literacy difficulties. Book3.Whurr publishers, 2006.

Volkmar FR, Paul R, Rogers SJ, Pelphrey KA. Handbook of autism and pervasive developmental disorder; volume 1&2. John Wiley, 2014.

Volkmar FR, Wiener LA. Essential clinical guide to understanding and treating autism, John Wiley, 2017.

**Course name:** Natural Processing of Speech and Language

**Code of course:** 12

**Prerequisites:** None

**Number of credits:** 2

**Type of the course:** Compulsory

**The overall purpose of the course:**

Increasing knowledge and awareness about theories and researches related to natural developmental speech and language and increasing student ability to critique researches in order to gain new insights and attitudes in the natural processing of language.

**Course description:**

In this course, the student learns about different aspects and theories of language production and comprehension processing, neurological basis of language, patterns of language comprehension and production and different aspects of the relationship between language and cognition.

**Theoretical (34 hours):**

- A. Theories of language comprehension and production processing (linguistics, psychological, neurological);

- B. The neurological basis of language (The superiority of language functions, organization of language functions, functions of cortical and subcortical parts of the brain in language);
- C. Patterns of language comprehension (top-down and bottom-up processing, active and passive processing, parallel and serial processing);
- D. The relationship between language comprehension and cognition;
- E. Patterns of language production (thinking and deciding to start production, neural stage of language, motor planning stage, neuromuscular stage and stating the motion, revising and the role of feedback).

**Main topics:** 51 hours

**Theoretical:** 17 hours

**Practical:** 34 hours

**Student assessment practices:**

- Written Exam
- Oral Exam

**References:**

The cognitive neuroscience of human communication. 4th ed. VesnaMildner: Taylor & Francis Group; 2008.

Introduction to Neurolinguistics. Elisabeth Ahlsén..John Benjamins Publishing Company; 2006.

The development of language. Martyn, Barret. Psychology press; 1999

Language and the Brain. Yosef, Grodzinsky. Lew, Shapiro. David, Swinney. Academic Press. 2000.

**Course name:** English for Specific Purposes

**Code of course:** 13

**Prerequisites:** None

**Number of credits:** 2

**Type of the course:** Optional

**The overall purpose of the course:**

Increasing student's skills in understanding and expressing specialized content in English.

**Course description:**

In this course, students become skilled in understanding and expressing about pathology, assessment, and treatment of speech and language to use this ability in their future researches and their presentations in English. Students also learn to propagate the research article and its abstract in English.

**Theoretical (17 hours) and practical (34 hours):**

- A. Preparing specialized contents in 5 following subjects in English: developmental language disorder, acquired language disorder, voice disorders, speech fluency disorders, and phonetic and phonological disorders;

- B. Presenting conferences in English in the classroom and discussing about them with other students and professors;
- C. Delivering their English contents to the professor.

**Main topics:** 51 hours

**Theoretical:** 17 hours

**Practical:** 34 hours

**Student assessment practices:**

- Written Exam
- Oral Exam

**Course name:** Case Study (Report)

**Code of course:** 14

**Prerequisites:** None

**Number of credits:** 2

**Type of the course:** Optional

**The overall purpose of the course:**

Increasing student's skills in conducting clinical trials.

**Course description:**

In this course, the student should evaluate one of the speech and language disorders under the revision of a supervisor and discuss about the collected results as a case study and he/she should choose and implement best appropriate approaches in speech therapy based on results analysis and clinical perspectives.

**Theoretical (17 hours) and practical (34 hours):**

- A. Selecting patients from people with speech and language disorders such as phonetic and phonological disorders, developmental language disorder, acquired language disorder, voice disorder, and speech fluency disorder;
- B. Laboratory and clinical evaluation considering background information of the patient and current clinical symptoms based on his/her complaint;
- C. Study of research and clinical resources and collecting data about the disorder;
- D. Identification of inhibitory and contributing factors in the disorder;
- E. Determination of indicator and measurable parameters of the disorder;
- F. Determination of the validity and reliability of the measurement of indicators;
- G. Implementation of speech therapy practices and recording their results;
- H. Summing up the results and preparing a case report;
- I. Presenting the report orally and in written form.

**Main topics:** 51 hours

**Theoretical:** 17 hours

**Practical:** 34 hours

**Student assessment practices:**

The student's competency in preparing a case report (study) must be approved by the supervisor. Then Student's case reports are reviewed and evaluated by reviewers with the use of a checklist.

**Reference:**

Roddam, H. Skeat, J. Embedding evidence-based practice in speech and language therapy: international examples. Hoboken: Wiley-Blackwell. 2010.

**Course name:** Writing Scientific and Research Paper

**Code of course:** 15

**Prerequisites:** None

**Number of credits:** 2

**Type of the course:** Optional

**The overall purpose of the course:** Familiarity with the principles, framework, and patterns of writing scientific and research papers.

**Course description:**

In this course, the student learns about writing a scientific paper, templates of the thesis and different parts or components of the articles. With practical exercises, the student gains the ability to write a thesis with his/her research results and should be able to prepare and arrange his/ her research achievements for publication in scientific and research journals in the country and abroad.

**Theoretical (17 hours):**

1. Become familiar with the general principles of writing scientific papers:
  - A) How to use the verbs in the scientific context?
  - B) Direct and indirect quotation;

- C) Using signs and punctuations;
- D) How to use tables and images of other sources in the text?
- E) Referencing templates in the text;
- F) Templates formats for a table of contents.
- 2) Become familiar with patterns and templates of writing a thesis:
  - A) Each subject and plan;
  - B) The theoretical basis of the researches;
  - C) Research method;
  - D) Research results;
  - E) Discussion and conclusion;
  - F) Lists and appendixes;
- 3) become familiar with patterns or templates of writing articles:
  - A) Types of articles;
  - B) Examples of journal guide in article writing;
  - C) Title and running title page;
  - D) Abstract and introduction;
  - E) Methods and materials;
  - F) Results;
  - G) Discussion and conclusion;
  - H) Article abstract and keywords;
  - I) Writing paper and its references;
  - J) Publication ethics;
  - K) Authorizations and revisions of articles in journals.

**Practical (34 hours)**

- A. Reviewing articles;
- B. Writing a paper;

**Main topics:** 51 hours

**Theoretical:** 17 hours

**Practical:** 34 hours

**Student assessment practices:**

Student evaluation in the cognitive domain is done with descriptive and multiple-choice questions and in the domain of proficiency it is done with reviewing an article with the use of a checklist.

**References:**

Deputy of Research, Ministry of Health. guid book of Workshop on writing and presenting medical articles, 1376.

Pulanskey, M. Guide to writing with APA method. Translated by Ahmadzade. Tehran. Daneshfaryar publication, 1380.

**Course name:** Kinematic and biomechanics of speech organs

**Code of course:** 16

**Prerequisites:** None

**Number of credits:** 2

**Type of the course:** Optional

**The overall purpose of the course:**

Become familiar with the biomechanics of speech organs and the role of posture in facilitating motor activity (function) of the speech system and learning about motor function analysis

**Course description:**

In this course, students become familiar with kinematic and biomechanical aspects and structures of the various components of the speech organs in static and dynamic form? (posture?). Students learn about postures and their roles in regulating and facilitating the motor aspects of speech and learn about speech disorders and surgical and non-surgical treatments.

**Theoretical (34 hours):**

- A. Normal posture and positions: 1) trunk, head, and neck and 2) jaw and speech organs
- B. Joint structure, types, and function



- C. Biomechanical of muscles and their functions
- D. Types of movements, levels, and axes of motion
- E. The role of the body's natural posture in maintaining balance and movement (head and trunk)
- F. Body postural disorders
- G. Evaluation of body postures in children and adults
- H. Impacts of postural disorders on the functions of speech organs
- I. Treatment and correction of body postural disorders
- J. Anatomy and biomechanics of vocal tract (lip, tongue, palate, pharynx, and larynx) and chest wall: 1) Muscles, membranes, and ligaments and 2) Movement and function
- K. Anatomy and biomechanics of temporomandibular joint (TMJ): 1) Bones structure; 2) Cartilages and membranes; 3) Ligaments ; 4) Muscles and muscular functions
- L. Nerve and muscle control of jaw rest and motion (TTBS): 1) Tongue position; 2) Teeth; 3) Breathing , and 4) Swallowing
- M. Analyzing vocal tract functions, chest wall, and TMJ in static posture, motion, chewing, swallowing and speech
- N. Indicators of adequacy and efficiency in structures and functions of the vocal tract, chest wall, and TMJ.
- O. Dysfunctions and disorders of the vocal tract, chest wall, and TMJ.
- P. Evaluation of structure and movements of the vocal tract, chest wall, and TMJ:
  - a. Objective evaluation and Perceptual evaluation
  - b. Methods and instrumentals for evaluation (radiography, radiography of chest, ultrasound, palatography, electromyography, electroglottography, stroboscopy)
- Q. Non-surgical and surgical treatments for disorders in the vocal tract, chest wall, and TMJ.

**Main topics:** 34 hours

**Theoretical:** 34 hours

**Practical:** ---

**Student assessment practices:**

- Written Exam
- Oral Exam

**Course name:** Voice and Speech Training Methods

**Code of course:** 17

**Number of credits:** 2

**Type of the course:** Optional

**The overall purpose of the course:**

Learning about improvements (training) of voice and speech skills

**Course description:**

In this course, students learn about the improvement of speech and voice skills in different aspects such as: using proper word, length of sentence, rate, and prosody of speech, speech intelligibility, appropriate intensity and quality of voice, body language and its impacts on audiences.

**Theoretical (17 hours):**

- A. Standing and sitting properly during the lecture, singing, and speech;
- B. Proper use of breathing in speech;
- C. Become familiar with different patterns of speech, rising and falling prosody;
- D. Become familiar with methods of changing loudness, pitch, and prosody in speech and singing;

- E. Methods of dealing with unwanted changes in environment and voice (hygiene and prevention);
- F. Key points for vocal hygiene in professional users: singers, teachers, preachers, and lecturers;
- G. Speech in different manners and situations;
- H. Speech with various rates;
- I. Use of prosody of speech: silences, duration, tune;
- J. Presentation of lecture poetry and humor in public;
- K. Become familiar with the different categorization of concepts;
- L. Become familiar with body language technics;

**Practical (34 hours):**

- A. Being in the right body position and keeping it through the speech;
- B. Production of prosodic samples of voice with proper breathing;
- C. Changing of the loudness of voice in speech;
- D. Speech with different patterns (manners);
- E. Word finding, producing of different sentences and completing uncompleted sentences;
- F. Auditory discrimination of loudness and different musical notes;
- G. Auditory discrimination of consonants and producing them;
- H. Using body language in speech;

**Main topics:** 51 hours

**Theoretical:** 17 hours

**Practical:** 34 hours

**Student assessment practices:**

- Written Exam
- Oral Exam

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