МИНИСТЕРСТВО СЕЛЬСКОГО ХОЗЯЙСТВА РОССИЙСКОЙ ФЕДЕРАЦИИ
Федеральное государственное бюджетное образовательное учреждение
высшего образования
«КУБАНСКИЙ ГОСУДАРСТВЕННЫЙ АГРАРНЫЙ УНИВЕРСИТЕТ
имени И.Т. ТРУБИЛИНА»

Факультет пищевых производств и биотехнологий
Иностранных языков

УТВЕРЖДЕНО:
Декан, Руководитель подразделения
Степовой А.В.
(протокол от 19.03.2024 № 7)

РАБОЧАЯ ПРОГРАММА ДИСЦИПЛИНЫ (МОДУЛЯ) « ИНОСТРАННЫЙ ЯЗЫК. АНГЛИЙСКИЙ ЯЗЫК»

Уровень высшего образования: бакалавриат

Направление подготовки: 19.03.02 Продукты питания из растительного сырья

Направленность (профиль): Производство продуктов питания из растительного сырья
Квалификация (степень) выпускника: Бакалавр

Форма обучения: очная

Год набора: 2024

Срок получения образования: 4 года

Объем: в зачетных единицах: 5 з.е.
в академических часах: 180 ак.ч.

2024

Разработчики:
Доцент, кафедра иностранных языков Алещанова И.В.

Рабочая программа дисциплины (модуля) составлена в соответствии с требованиями ФГОС ВО по направлению подготовки Направление подготовки: 19.03.02 Продукты питания из растительного сырья, утвержденного приказом Минобрнауки России от 17.08.2020 №1041, с учетом трудовых функций профессиональных стандартов: "Специалист по технологии продуктов питания из растительного сырья", утвержден приказом Минтруда России от 28.10.2019 № 694н.

Согласование и утверждение

№	Подразделение или коллегиальный орган	Ответственное лицо	ФИО	Виза	Дата, протокол (при наличии)
1	Факультет пищевых производств и биотехнологий	Председатель методической комиссии/совета	Щербакова Е.В.	Согласовано	18.03.2024, № 7
2	Технологии хранения и переработки растениеводческой продукции	Руководитель образовательной программы	Храпко О.П.	Согласовано	19.03.2024, № 7
3	Иностранных языков	Заведующий кафедрой, руководитель подразделения, реализующего ОП	Непшекуева Т.С.	Согласовано	22.04.2024, № 8

1. Цель и задачи освоения дисциплины (модуля)

Цель освоения дисциплины - Целью освоения дисциплины «Иностранный язык (английский)» является формирование комплекса знаний об организационных, научных, методических и практических основах овладения английским языком как средством межкультурной коммуникации в сфере аграрного производства для создания коммуникативной компетенции (формирование и развитие умений и навыков работы со специальной литературой, необходимой в профессиональной деятельности), а также лингвистической, социокультурной и социолингвистической компетенций.

Задачи изучения дисциплины:

- - сформировать навыки, необходимые для овладения основными ресурсами для восполнения имеющихся пробелов в языковом образовании (типами словарей, справочников, компьютерных программ, информационных сайтов сети Интернет, текстовых редакторов и т.д.);;
- - сформировать навыки понимания основного содержания несложных аутентичных текстов;;
- - сформировать умение вести беседу, обмениваться мнениями и проходить собеседование;;
- - ознакомить с зарубежным опытом в области сельского хозяйства путем получения информации профессионального содержания из зарубежных источников..

2. Планируемые результаты обучения по дисциплине (модулю), соотнесенные с планируемыми результатами освоения образовательной программы

Компетенции, индикаторы и результаты обучения

УК-4 Способен осуществлять деловую коммуникацию в устной и письменной формах на государственном языке Российской Федерации и иностранном(ых) языке(ах)

УК-4.1 Выбирает на государственном и иностранном (-ых) языках коммуникативно приемлемые стиль делового общения, вербальные и невербальные средства взаимодействия с партнерами.

Знать:

УК-4.1/Зн1 Знает методику выбора на государственном и иностранном (-ых) языках коммуникативно приемлемых стилей делового общения, вербальных и невербальных средств взаимодействия с партнерами

Уметь:

УК-4.1/Ум1 Умеет выбирать на государственном и иностранном (-ых) языках коммуникативно приемлемые стили делового общения, вербальные и невербальные средства взаимодействия с партнерами.

Владеть:

УК-4.1/Нв1 Владеет методикой выбора на государственном и иностранном (-ых) языках коммуникативно приемлемых стилей делового общения, вербальных и невербальных средств взаимодействия с партнерами

УК-4.2 Использует информационно- коммуникационные технологии при поиске необходимой информации в процессе решения стандартных коммуникативных задач на государственном и иностранном (- ых) языках.

Знать:

УК-4.2/Зн1 Знает основы информационно-коммуникационных технологий при поиске необходимой информации в процессе решения стандартных коммуникативных задач на государственном и иностранном (-ых) языках

Уметь:

УК-4.2/Ум1 Умеет использовать информационно-коммуникационные технологии при поиске необходимой информации в процессе решения стандартных коммуникативных задач на государственном и иностранном (-ых) языках

Владеть:

УК-4.2/Нв1 Владеет информационно-коммуникационными технологиями при поиске необходимой информации в процессе решения стандартных коммуникативных задач на государственном и иностранном (-ых) языках

УК-4.3 Ведет деловую переписку, учитывая особенности стилистики официальных и неофициальных писем, социокультурные различия в формате корреспонденции на государственном и иностранном (-ых) языках

Знать:

УК-4.3/Зн1 Знает формы деловой переписки, учитывая особенности стилистики официальных и неофициальных писем, социокультурные различия в формате корреспонденции на государственном и иностранном (-ых) языках

Уметь:

УК-4.3/Ум1 Умеет вести деловую переписку, учитывая особенности стилистики официальных и неофициальных писем, социокультурные различия в формате корреспонденции на государственном и иностранном (-ых) языках

Владеть:

УК-4.3/Нв1 Владеет способностью вести деловую переписку, учитывая особенности стилистики официальных и неофициальных писем, социокультурные различия в формате корреспонденции на государственном и иностранном (-ых) языках

УК-4.4 Демонстрирует интегративные умения использовать диалогическое общение для сотрудничества в академической коммуникации общения:
– внимательно слушая и пытаясь понять суть идей других, даже если они противоречат собственным воззрениям;
– уважая высказывания других как в плане содержания, так и в плане формы;
– критикуя аргументированно и конструктивно, не задевая чувств других;
– адаптируя речь и язык жестов к ситуациям взаимодействия.

Знать:

УК-4.4/Зн1 Знает интегративные умения для использования диалогическое общение для сотрудничества в академической коммуникации общения

Уметь:

УК-4.4/Ум1 Умеет демонстрировать интегративные умения использовать диалогическое общение для сотрудничества в академической коммуникации общения

Владеть:

УК-4.4/Нв1 Владеет способностью интегративного умения использовать диалогическое общение для сотрудничества в академической коммуникации общения

УК-4.5 Демонстрирует умение выполнять перевод профессиональных текстов с иностранного (-ых) на государственный язык и обратно

Знать:

УК-4.5/Зн1 Знает основы перевода профессиональных текстов с иностранного (-ых) на государственный язык и обратно

Уметь:

УК-4.5/Ум1 Умеет выполнять перевод профессиональных текстов с иностранного (-ых) на государственный язык и обратно

Владеть:

УК-4.5/Нв1 Владеет умениями по выполнению перевод профессиональных текстов с иностранного (-ых) на государственный язык и обратно

3. Место дисциплины в структуре ОП

Дисциплина (модуль) «Иностранный язык» относится к обязательной части образовательной программы и изучается в семестре(ах): 1, 2.

В процессе изучения дисциплины студент готовится к видам профессиональной деятельности и решению профессиональных задач, предусмотренных ФГОС ВО и образовательной программой.

4. Объем дисциплины и виды учебной работы

Период обучения	Общая трудоемкость (часы)	Общая трудоемкость (ЗЕТ)	Контактная работа (часы, всего)	Внеаудиторная контактная работа (часы)	Зачет (часы)	Лабораторные занятия (часы)	Лекционные занятия (часы)	Самостоятельная работа (часы)	Промежуточная аттестация (часы)
Первый семестр	72	2	49	1		46	2	23	Зачет
Второй семестр	108	3	51	3		46	2	30	Экзамен (27)
Всего	180	5	100	4		92	4	53	27

5. Содержание дисциплины

5.1. Разделы, темы дисциплины и виды занятий

(часы промежуточной аттестации не указываются)

Наименование раздела, темы	Всего	Внеаудиторная контактная работа	Лабораторные занятия	Лекционные занятия	Самостоятельная работа	Планируемые результаты обучения, соотнесенные с результатами освоения программы
Раздел 1.	**508**		**326**	**16**	**166**	УК-4.1
Тема 1.1.	28			16	12	УК-4.2
Тема 1.2.	68		48		20	УК-4.3
Тема 1.3.	72		48		24	УК-4.4
Тема 1.4.	72		48		24	УК-4.5
Тема 1.5.	80		56		24	
Тема 1.6.	80		56		24	
Тема 1.7.	88		56		32	
Тема 1.8.	9		6		3	

Тема 1.9.	11		8		3	
Раздел 2.	**8**	**8**				УК-4.1 УК-4.2 УК-4.3 УК-4.4 УК-4.5
Тема 2.1.	8	8				
Раздел 3.	**594**		**350**	**16**	**228**	УК-4.1 УК-4.2 УК-4.3 УК-4.4 УК-4.5
Тема 3.1.	24			16	8	
Тема 3.2.	52		32		20	
Тема 3.3.	64		40		24	
Тема 3.4.	64		40		24	
Тема 3.5.	64		40		24	
Тема 3.6.	80		48		32	
Тема 3.7.	80		48		32	
Тема 3.8.	80		48		32	
Тема 3.9.	76		48		28	
Тема 3.10.	10		6		4	
Раздел 4.	**24**	**24**				УК-4.1 УК-4.2 УК-4.3 УК-4.4 УК-4.5
Тема 4.1.	24	24				
Итого	**1 164**	**32**	**696**	**32**	**404**	

5. Содержание разделов, тем дисциплин

Раздел 1. Foods and their constituents.

Тема 1.1. Порядок слов в повествовательном предложении. Типы вопросов. Артикль: употребление определенного и неопределенного артикля

Местоимение, неопределенные местоимения. Степени сравнения прилагательных и наречий. Глагол. Модальные глаголы: значение, употребление, особенности. Времена действительного залога.

Тема 1.2. About myself.
My University.

Обучающийся должен знать основные особенности стилистики и различных текстовых жанров на государственном и иностранном языке.

Тема 1.3. Die Tomate

Die Tomate

Тема 1.4. Students of agriculture and forestry in Britain.

Обучающийся должен демонстрировать умение выполнять перевод профессиональных текстов с иностранного языка на государственный язык, обладая интегративными умениями использовать диалогоческое общения для сотрудничества в академической коммуникации общения.

Тема 1.5. Die Gurke

Die Gurke

Тема 1.6. Human diet. Meals.

Обучающийся должен демонстрировать умение выполнять перевод профессиональных текстов с иностранного языка на государственный язык.

Тема 1.7. Der Apfel

Der Apfel

Тема 1.8. Minerals. Vitamins.

Обучающийся должен знать базовые правила грамматики (на уровне морфологии и синтаксиса), базовые нормы употребления лексики и фонетики.

Тема 1.9. Bread making. The technology of bread making.

Обучающийся должен знать требования к речевому и языковому оформлению устных и письменных высказываний с учетом специфики иноязычной культуры.

Раздел 2. Промежуточная аттестация

Тема 2.1. Зачет

Проверка знаний.

Раздел 3. Manufacture of food products

Тема 3.1. Видовременные формы глагола.

Видовременные формы глагола.
Действительный и
страдательный залоги.

Тема 3.2. Die Birne

Die Birne

Тема 3.3. Meat and meat products. Products of meat processing.

Обучающийся должен владеть навыками самостоятельной работы с языковым материалом (лексикой, грамматикой, фонетикой) с использованием основной и дополнительной литературы.

Тема 3.4. Weinbau

Weinbau

Тема 3.5. Sugar processing.
Sugar crops.

Обучающийся должен демонстрировать умение выполнять перевод профессиональных текстов с иностранного на государственный язык и обратно.

Тема 3.6. Bedingungen für den Weinbau

Bedingungen für den Weinbau

Тема 3.7. Processing of fruit and vegetables. Methods of fruit and vegetables preservation. Canning. Dried fruits.

Обучающийся должен владеть навыками самостоятельной работы с языковым материалом (лексикой, фонетикой, грамматикой) с использованием основной и дополнительной учебной литературы.

Тема 3.8. Anbau von Zierpflanzen
Stauden im Garten

Anbau von Zierpflanzen
Stauden im Garten

Тема 3.9. Vending machines. Soft ice-cream machines. Soft drink venders.

Vending machines. Soft ice-cream machines. Soft drink venders.

Тема 3.10. Ziergehölze im Garten

Ziergehölze im Garten

Раздел 4. Промежуточная аттестация

Тема 4.1. Экзамен

Проверка знаний, умений, навыков.

6. Оценочные материалы текущего контроля

Раздел 1. Foods and their constituents.

Форма контроля/оценочное средство: Задача

Вопросы/Задания:

1. I … a decision yet.

haven’t made
made
am making
will make

2. I expressed exactly … same point of view.

a
an
the

3. People need … oxygen for breathing.

no
nothing
some
Something

4. I understand … now. Thank you for your explanations

nothing
everything
something
anything

5. What is the other name for Spreadsheet?

Excel
Word
Powerpoint
Photoshop

6. Work out what "LOL" means?

LIVE ON LARGE
LAUGH OUT LOUD
LILLY OUT LIKE
LIME ON LIPS

7. What does "WUU2" mean?

Why Up Up 2
What You Up 2
Were Upload Unlike 2
Was Up Untick 2

8. Match the words with their definitions

keyboard= a small device that is used to move the cursor and select items on a computer
mouse= a device that is used to transfer printed documents and pictures into a computer system
scanner= a device that is used to record sound
microphone= a screen that displays text, video, or images
monitor= a device that can be connected to a computer
peripheral= a device that broadcasts sound and video on the Net
webcam= a set of buttons that is used to enter information into a computer

9. Choose the appropriate grammar form to complete the conditional sentence:

«If the policy is not changed, the degradation of most rural areas will continue»

will change, continues
didn’t change, will continue
is not changed, will continue
is not changed, would continue

10. What is the Internet?

An electronic device for printing documents.
A power backup source.
A worldwide collection of computer networks.
A software program installed on a computer.

11. I would rather not … them about it.

to tell
tell
told
telling

12. It was difficult … his request.

to refuse
to refused
to refusing
to be refused

Раздел 2. Промежуточная аттестация

Форма контроля/оценочное средство: Задача

Вопросы/Задания:

.

Раздел 3. Manufacture of food products

Форма контроля/оценочное средство: Задача

Вопросы/Задания:

1. You've been working all day. You … be tired.

ought to
should
can
must

2. We … our reports yet.

had written
haven't written
wrote
write

3. Mr. Johnson … in the same place for thirty years and he is not planning to retire yet.

worked
has worked
works
is working

4. What job … ?

you applied for
did you apply for
were you applied
did you applied for

5. Match the words with the definitions:

operator= a computer program that organizes information and performs calculations
spreadsheet= a category in a database that holds a particular type of information
field= any mathematical calculation that you perform in a spreadsheet
formula= one unit of a spreadsheet that holds a piece of information
cell= a symbol in a formula that performs a specific calculation

6. Match the words with the definitions:

query= a large group of data organized in a computer system
database= a single page of a spreadsheet
worksheet= a grid that organizes data into columns and rows
table= a mathematical instruction that performs a specific calculation in a spreadsheet
function= a search that locates all information of a specific type

7. Put the words in the right order

simplify
their
Students
can
use
studying
with
the
of
computers

8. Match the English word with its Russian equivalent:

education= цель
objective= выполнение
performance= оценка
evaluation= ответственность
responsibility= образование

9. Networking is a connection of two or more …

businesses
places
computer systems
none

10. I don't mind… him.

to phone
phoning
having phoned
phone

11. I want … about the meeting.

to be informed
to be informing
do inform
to be inform

12. My computer … by my colleague at the moment.

is being used
is used
was used
will be used

13. Our topic … at the moment.

is discussing
is being discussed
discuss
are discussed

Раздел 4. Промежуточная аттестация

Форма контроля/оценочное средство:

Вопросы/Задания:

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7. Оценочные материалы промежуточной аттестации

Первый семестр, Зачет
Контролируемые ИДК: УК-4.1 УК-4.2 УК-4.3 УК-4.4 УК-4.5
Вопросы/Задания:

1. The Article – общая характеристика, виды, случаи употребления.

2. The Noun – общая характеристика, образование множественного числа, притяжательный падеж.

3. Countable and Uncountable Nouns – общая характеристика, случаи употребления

4. The Adjective – общая характеристика, степени сравнения, сравнительные конструкции.

5. The Adverb – общая характеристика, степени сравнения.

6. The Numeral – общая характеристика, функция в предложении.

7. The Ways of Expressing Fractions and Proportions – общая характеристика, примеры употребления

8. The Pronoun – общая характеристика, функция в предложении.

9. Much/many – общая характеристика, случаи употребления.

10. (a) few/(a) little – общая характеристика, случаи употребления.

11. some/any/no – общая характеристика, случаи употребления.

12. Производные от неопределенных местоимений – общая характеристика, образование, случаи употребления.

13. The Verb – общая характеристика, формы, залог.

14. Active Voice – общая характеристика.

15. Present Simple Tense – общая характеристика, случаи употребления, образование.

16. Past Simple Tense – общая характеристика, случаи употребления, образование.

17. Future Simple Tense – общая характеристика, случаи употребления, образование.

18. Present Continuous Tense – общая характеристика, случаи употребления, образование.

19. Past Continuous Tense – общая характеристика, случаи употребления, образование.

20. Future Continuous Tense – общая характеристика, случаи употребления, образование.

21. Present Perfect Tense – общая характеристика, случаи употребления, образование.

22. Past Perfect Tense – общая характеристика, случаи употребления, образование.

23. Future Perfect Tense – общая характеристика, случаи употребления, образование.

24. Present Perfect Continuous Tense – общая характеристика, случаи употребления, образование.

25. Past Perfect Continuous Tense – общая характеристика, случаи употребления, образование.

26. Future Perfect Continuous Tense – общая характеристика, случаи употребления, образование.

27. The Ways of Expressing the Future – общая характеристика, способы выражения.

28. Passive Voice – общая характеристика.

29. Present Simple Tense – общая характеристика, случаи употребления, образование

30. Past Simple Tense – общая характеристика, случаи употребления, образование.

31. Future Simple Tense – общая характеристика, случаи употребления, образование.

32. Present Continuous Tense – общая характеристика, случаи употребления, образование.

33. Past Continuous Tense – общая характеристика, случаи употребления, образование.

34. Present Perfect Tense – общая характеристика, случаи употребления, образование.

35. Past Perfect Tense – общая характеристика, случаи употребления, образование.

36. Future Perfect Tense – общая характеристика, случаи употребления, образование.

37. Modal Verbs – общая характеристика, случаи употребления, формы.

38. Неличные формы глагола – общая характеристика, случаи употребления, виды.

39. Participle I – общая характеристика, образование, формы, синтаксические функции.

40. Participle II – общая характеристика, образование, формы, синтаксические функции.

41. Perfect Participle – общая характеристика, формы, синтаксические функции.

42. The Infinitive – общая характеристика, формы, синтаксические функции.

43. Инфинитив в функции подлежащего – общая характеристика, примеры употребления.

44. Инфинитив в функции определения – общая характеристика, примеры употребления.

45. Инфинитив в функции обстоятельства цели и следствия – общая характеристика, примеры употребления.

46. Complex Subject – общая характеристика, образование.

47. Complex Object – общая характеристика, образование.

48. The Gerund – общая характеристика, формы, синтаксические функции.

49. Modal Verbs – общая характеристика, случаи употребления, формы.

50. The Conjunction – общая характеристика, примеры употребления.

51. The Interjection – общая характеристика, примеры употребления.

52. Sequence of Tenses – основные принципы.

53. Reported Speech – основные принципы.

54. Conditionals – общая характеристика.

55. Zero Conditional – случаи употребления

56. Conditional I – случаи употребления.

57. Conditional II – случаи употребления.

58. Conditional III – случаи употребления.

59. Mixed Conditional – случаи употребления.

60. The Ways of Expressing Contrast – общая характеристика, примеры употребления.

Второй семестр, Экзамен
Контролируемые ИДК: УК-4.1 УК-4.2 УК-4.3 УК-4.4 УК-4.5
Вопросы/Задания:

1. What branches of the food industry were well developed in ancient times?

2. What influenced the development of the food industry in full?

3. What can happen to people if their diet is not balanced?

4. What do we mean by a healthy diet?

5. What are proteins?

6. What are the richest sources of proteins?

7. What are carbohydrates?

8. What are the most important minerals?

9. Why are vitamins essential for people?

10. What are the best sources of vitamins?

11. What are fats?

12. Where can fats be found?

13. What are bread ingredients?

14. Enumerate basic steps of bread-making technology

15. What is the difference between the straight-dough method and sponge-dough process?

16. Does refrigeration really ruin bread?

17. How many periods are in the history of bread?

18. What is the last period characterized by?

19. What kind of product is baked from the fermented dough?

20. What is beef and veal?

21. What is stored and cured better, pork or beef?

22. What do cured and pickled meats contain?

23. How can manufactured meat products be grouped?

24. What meats can be canned?

25. What processes are used for the manufacture of meat products?

26. What kind of product is ice-cream?

27. Give the characteristics of cheese.

28. What are the purposes of “pasteurization”?

29. What is the HTST method?

30. What is the batch method of pasteurization of milk?

31. What is the role of the bacteria which are used in the production of cultured milk products?

32. What is one of the oldest fermented milks?

33. Enumerate sugar crops.

34. What kinds of sugar do you know?

35. What are the main steps in sugar production?

36. What was the first confectionary item in the world?

37. What are common sweeteners used in confections?

38. What processes are used for the manufacture of chocolate?

39. Enumerate the methods of preservation of foods.

40. What is one of the oldest methods in food preserving?

41. What agents cause the spoiling of food?

42. What is drying?

43. What is the difference between fats and oils?

44. What edible oils do you know?

45. What is the function of fats and oils in the diet?

46. How are oils produced?

47. How are fats produced?

48. What do you know about animal fats and vegetable oils?

49. When was margarine developed?

50. What was the purpose of margarine development?

51. Why do some people prefer margarine?

52. What raw materials are used for butter making?

53. What is the fat content of cream for butter making?

54. What are the two processes of butter making?

55. What can you tell about vending machines?

56. What makes ice-cream soft?

57. Is it easy to make soft ice-cream?

58. What are the ingredients of the mix?

59. What are the main parts of the soft ice-cream machine?

60. How does the machine work?

61. Card 1

Food Science and Technology

Food science can be defined as the application of basic sciences and engineering to study the physical, chemical, and biochemical nature of foods and the principles of food processing.

Food technology is a branch of food science that deals with production, preservation, processing, quality control, research and development of food products as it affects consumption of safe, nutritious and wholesome food. The food scientist can bring about desirable changes in food and control or eliminate the undesirable changes with the right knowledge, understanding and application of the science.

Food science brings together multiple scientific disciplines. It incorporates concepts from fields such as chemistry, physiology, microbiology, biochemistry, chemical engineering. Some technical terms are very important to understand food science and technology.

Food chemistry is the study of the basic composition, structure, properties and changes occurring during processing and utilization of food. Food analysis deals with the principles, methods and techniques necessary for qualitative and quantitative physical and chemical analysis of food products and ingredients. Food microbiology involves study of the microorganisms that inhibit, create, or contaminate food, the effect of environment on food spoilage, the physical, chemical and biological destruction of microorganisms in food, the microbiological examination of food stuffs, public health safety and sanitation microbiology.

62. Card 2

Food is any substance consumed to provide nutritional support for an organism. Food is usually of plant, animal or fungal1 origin, and contains essential nutrients, such as carbohydrates, fats, proteins, vitamins, or minerals. The substance is ingested by an organism and assimilated by the organism's cells to provide energy, maintain life, or stimulate growth.

History of Food

Historically, humans secured food through two main methods: hunting and gathering and agriculture. As agricultural technologies increased, humans settled into agriculture lifestyles with diets shaped by the agriculture opportunities in their geography. Geographic and cultural differences have led to creation of numerous cuisines and culinary arts, including a wide array of ingredients, herbs, spices, techniques, and dishes. As cultures have mixed through forces like international trade and globalization, ingredients have become more widely available beyond their geographic and cultural origins, creating a cosmopolitan exchange of different food traditions and practices.

Today, the majority of the food energy required by the ever-increasing population of the world is supplied by the industrial food industry, which produces food with intensive agriculture and distributes it through complex food processing and food distribution systems.

Food sources

Most food has its origin in plants. Some food is obtained directly from plants; but even animals that are used as food sources are raised by feeding them food derived from plants. Cereal grain is a staple food that provides more food energy worldwide than any other type of crop. Corn (maize)2, wheat, and rice – in all of their varieties – account for 87% of all grain production worldwide. Most of the grain that is produced worldwide is fed to livestock.

Some foods not from animal or plant sources include various edible fungi3, especially mushrooms. Fungi and ambient bacteria are used in the preparation of fermented and pickled foods4 like leavened bread5, alcoholic drinks, cheese, pickles, and yogurt. Another example is blue-green algae6 such as Spirulina7. Inorganic substances such as salt, baking soda are used to preserve or chemically alter an ingredient.

63. Card 3

Cuisine

Many scholars claim that the rhetorical function of food is to represent the culture of a country, and that it can be used as a form of communication. Many cultures have a recognizable cuisine, a specific set of cooking traditions using various spices or a combination of flavours unique to that culture. Other differences include preferences (hot or cold, spicy, etc.) and practices, the study of which is known as gastronomy. Many cultures have diversified their foods by means of preparation, cooking methods, and manufacturing. This also includes a complex food trade which helps the cultures to economically survive by way of food, not just by consumption.

Some popular types of ethnic foods include Italian, French, Japanese, Chinese, Indian and some others. Various cultures throughout the world study the dietary analysis of food habits. While many foods can be eaten raw, many also undergo some form of preparation for reasons of safety, palatability, texture, or flavor.

Palatability, individual socio-cultural background, personal likes and dislikes and method of serving, feelings, and environment decide acceptability of food. Palatability is the “pleasure” provided by foods or fluids that are agreeable to the “palate”, which often varies relative to the homeostatic satisfaction of nutritional, water, or energy needs. Food is eaten and typically enjoyed through the sense of taste. Different types of tastes can be developed by addition of ingredients like sugar (sweet), vinegar, lemon juice (sour), common salt (salty), caramel, coffee (bitter) in correct proportion. Acceptability of food is highly influenced by temperature and use of natural and synthetic colours or spices.

Contrasts in textures, such as something crunchy in an otherwise smooth dish, may increase the appeal of eating it. Common examples include adding granola to yogurt, adding croutons to a salad or soup, and toasting bread to enhance its crunchiness for a smooth topping, such as jam or butter.

64. Card 4

Foods and their Constituents

Food is vital for any human being and all living systems. Foods are composed of various nutrients known as chemical components that supply energy, build, repair and maintain body tissues, sustain growth and serve other multiple functions in the body. The main nutrients include carbohydrates, proteins, fats, vitamins, minerals and water.

Nutrients can be classified into two main groups according to the amount required. Macronutrients (carbohydrates, proteins, and fats) are required in relatively large amounts. Cereals, legumes, meat, fish, roots and tubers, nuts, oilseeds are rich in macronutrients. Micronutrients include vitamins and minerals, which are required in small amounts, because of the regulatory role they play in metabolism. Mainly, fruits, vegetables, germinated food, fermented foods are rich in micronutrients.

Quantitatively, the most important of nutrients are the carbohydrates synthesized by plants in the form of sugar, starch and fibre. Carbohydrates are probably the most abundant and widespread organic substances in nature. They are chemical compounds made up of carbon, hydrogen and

oxygen. Carbohydrates are primary energy sources. In addition, they are essential for proper utilization of fat from the diet, supplying glucose to central nervous system, providing protein sparing action. Foods rich in carbohydrates are fruit, honey, bread, cakes, potatoes, rice, macaroni.
Water is the largest constituent of the body. About 50 to 60 percent of the body is water. Water is a universal solvent and performs many functions. It takes part in many chemical reactions, regulates body temperature and assists in dissolving a variety of substances including all the products of digestion. Water is taken into the body not only in foods and drinks, but it is formed also within the body by chemical reactions.

65. Card 5

Vitamins and Minerals

Vitamins are defined as organic substances that are needed in small quantities to complete their functions in human body. In general, these functions are of a catalytic or regulatory nature, facilitating1 or controlling vital chemical reactions in the body's cells. Most of the vitamins cannot be synthesized in amounts sufficient2 to meet bodily needs and therefore must be obtained from the diet or from some synthetic source. Biochemists traditionally separate vitamins into two groups on the basis of their solubility into fat soluble3 vitamins (A, D, E, K) and water soluble (B complex and C) vitamins.
All vitamins can be either synthesized or produced commercially from food sources and are available for human consumption in pharmaceutical4 preparations. Commercial processing of food (e.g., milling of grains) frequently removes considerable amounts of vitamins. In most such instances, however, the vitamins are replaced by chemical methods. Some foods are fortified with vitamins not normally present in them (e.g., vitamin D is added to milk).
Nutritionists think there are 13 vitamins that humans need. Water soluble vitamins consists of a large number of substances. These include B - complex vitamins (thiamine, riboflavin, niacin, etc.) and vitamin C. When people have enough B vitamins, their appetite is good and their nerves are calm. B vitamins are found in meat and vegetables, milk, cheese and whole grain. The B vitamins are a group of 20 or more vitamins which are usually found together. Each B vitamin has special characteristics. Vitamin C is also known as ascorbic acid. It is the most unstable vitamin as it is easily destroyed by heat, oxygen, and high temperature. Vitamin C helps skin tissues to recover from cuts and burns. It is supplied by tomatoes, citrus fruits, blackcurrants5, cabbage and green peppers.

66. Card 6

Human Diet

Nutrition is the process by which the body nourishes itself by transforming food into energy and body tissues. The science of nutrition concerns everything the body does with food to carry on its functions. The term nutrition can also refer to the quality of someone's food choices, or diet. A balanced diet is one in which foods eaten on a regular basis provide all the nutrients needed in the right amounts. A balanced diet has many benefits. It can help people feel and look their best. It can also help them stay energetic and healthy, both in the short term and later in life.
The energy in food is measured in units called kilocalories (commonly shortened to "calories"). One kilocalorie (Kcal) is the amount of heat energy needed to raise the temperature of 1 kilogram (2.2 pounds) of water 1° C (1.8° F). The International Union of Nutritional Science (IUNS) have adapted "Joule" as the unit of energy in place of Kcal. The international conversion factor is 1 Kcal = 4.184 Kilojoules (KJ). Three major types of nutrients supply the body with energy, or calories: carbohydrates, proteins, and fats. One gram (0.035 ounce) of either carbohydrate or protein provides four calories. Fat is a more-concentrated source of energy, with each gram providing nine calories. Water, vitamins, and minerals supply no energy in and of themselves, though the body uses many of them in energy-releasing processes.
The body needs the energy in food to perform such essential functions as breathing, maintaining body temperature, growing new cells, and even digesting food. The total number of calories needed each day depends on many factors, including a person's age, sex, weight, and especially level of activity. For example, a woman who weighs about 120 pounds (55 kilograms) might expend 1,850

calories on a day when she is fairly sedentary but may use more than 3,000 calories on a very active day.

67. Card 7

Flour

Flour, finely ground cereal grains or other starchy portions of plants is used in various food products and as a basic ingredient of baked goods. Flours are also made from other starchy plant materials including barley, buckwheat, oats, peanuts, potatoes, soybeans, rice, and rye. In modern usage, the word ‘flour’ alone usually refers to wheat flour, the major type in Western countries.

Wheat flour is unique among cereal flours in that, when mixed with water in the correct proportions, its protein component forms an elastic network capable of holding gas and developing a firm spongy structure when baked. The proteinaceous substances contributing these properties are known collectively as gluten. The suitability of a flour for a given purpose is determined by the type and amount of its gluten content. Those characteristics are controlled by the genetic constitution and growing conditions of the wheat from which the flour was milled, as well as the milling treatment applied.

Low-protein, soft-wheat flour is appropriate for cakes, pie crusts, cookies (sweet biscuits), and other products not requiring great expansion and elastic structure. High-protein, hard-wheat flour is adapted to bread, hard rolls, soda crackers, all requiring elastic dough and often expanded to low densities by the leavening action.

Pie doughs and similar products are usually unleavened, but most bakery products are leavened, or aerated, by gas bubbles developed naturally or folded in. Leavening may result from yeast or bacterial fermentation, from chemical reactions, or from the distribution in the batter of atmospheric or injected gases.

All commercial breads, except salt-rising types, are leavened with bakers’ yeast. A typical yeast addition level might be 2 percent of the dough weight. Bakeries receive yeast in the form of compressed cakes or dry granules. Layer cakes, cookies, biscuits, and many other bakery products are leavened by carbon dioxide from added sodium bicarbonate (baking soda). Most commercial bakeries and domestic bakers use baking powder, a mixture of soda and acids in appropriate amounts and with such added diluents as starch, simplifying measuring and improving stability.

68. Card 8

Bread Making Technology

Bread is a major food since prehistoric times, it has been made in various forms using a variety of ingredients and methods throughout the world. The first bread was made in Neolithic times, nearly 12,000 years ago, probably of coarsely crushed grain mixed with water, with the resulting dough probably laid on heated stones and baked by covering with hot ashes. The Egyptians apparently discovered that allowing wheat doughs to ferment, thus forming gases, produced a light, expanded loaf, and they also developed baking ovens.

Most of the bakery foods consumed throughout the world now are breads and rolls made from yeast-leavened doughs. The yeast-fermentation process leads to the development of desirable flavour and texture, and such products are nutritionally superior to products of the equivalent chemically leavened doughs, since yeast cells themselves add a wide assortment of vitamins and good quality protein.

Satisfactory bread can be made from flour, water, salt, and yeast. The fist basic step in the production of bread is the mixing of the ingredients to form a dough. This process takes place in mixers. The mixed dough undergoes the next main stage of bread production called fermentation. At this time bakers’ yeast performs its leavening function by fermenting sugar. The principal products of fermentation are carbon dioxide, the leavening agent, and ethanol, an important component of the aroma of freshly baked bread.

After the mass of dough has completed fermentation, it is processed by a series of devices loosely classified as makeup equipment. In the manufacture of pan bread, makeup equipment includes the divider, the rounder, the intermediate proofer, the molder, and the panner. The fermented dough is moved to the divider area or to the floor above the divider. The dough is dropped into the divider

hopper, which cuts it into loaf-size pieces. Since the dough is of consistent density, the cut pieces are of uniform weight.

69. Card 9

Methods of Dough Preparation

Bread has changed little since ancient times in its basic ingredients, processes and characteristics. Improvements in the commercial production of bread include better temperature control, handling methods, and refrigeration. Modern commercial bread making is highly mechanized. Mixing is performed by the straight-dough1 or sponge-dough2 methods.

The process most commonly employed in preparing dough for white bread and many specialty breads is known as the sponge-and-dough method, in which the ingredients are mixed in two distinct stages. In the first stage, the mixture, called the sponge, usually contains one-half to three-fourths of the flour, all of the yeast, yeast foods, and malt, and enough water to make a stiff dough. Shortening may be added at this stage, although it is usually added later, and one-half to three-fourths of the salt may be added to control fermentation. The sponge is customarily mixed in a large, horizontal dough mixer, usually constructed with heat-exchange jackets, allowing temperature control. A typical mixing cycle would be about 12 minutes.

The mixed sponge is dumped into a trough3, a shallow rectangular metal tank on wheels, and placed in an area of controlled temperature and humidity, where it is fermented until it begins to decline in volume. The time required for this process, called the drop or break4, depends on such variables as temperature, type of flour, amount of yeast, absorption, and amount of malt, which are frequently adjusted to produce a drop in about three to five hours.

70. Card 10

Sugar is a broad term applied to any of numerous sweet, colourless, water-soluble compounds present in the sap of seed plants and the milk of mammals and making up the simplest group of carbohydrates. Based on solubility the sugars can be arranged in descending order as fructose, sucrose, glucose, maltose and lactose.

As a chemical term, “sugar” usually refers to all carbohydrates of the general formula Cn (H2O) n. Sucrose is a disaccharide, or double sugar, being composed of one molecule of glucose linked to one molecule of fructose. Because one molecule of water (H2O) is lost in the condensation reaction linking glucose to fructose, sucrose is represented by the formula C12H22O11 (following the general formula Cn [H2O] n − 1). Fructose and glucose are simple sugars, or monosaccharides found in fruits, honey, syrups. Glucose is the source of energy in cell function. Molecules of starch, the major energy-reserve carbohydrate of plants, consist of thousands of linear glucose units. Another major compound composed of glucose is cellulose.

Sugar cane and sugar beet

The most common sugar is sucrose, a crystalline tabletop and industrial sweetener used in foods and beverages. Sucrose is found in almost all plants, but it occurs at concentrations high enough for economic recovery only in sugar cane and sugar beets. The former is a giant grass growing in tropical and subtropical areas; the latter is a root crop growing in temperate zones. Sugar cane ranges from 7 to 18 percent sugar by weight, while sugar beets are from 8 to 22 percent sugar by weight.

71. Card 11

Sugar Manufacture

Sugar cane cannot be stored because of sucrose decomposition. Minimizing the time between cutting and processing reduces the amount of cane deterioration and encourages a higher sugar yield.

Sugar cane is chipped and shredded, then the cane cells are crushed and juice extracted by milling or diffusion. The extracted juice is purified by addition of heat and lime1 aids to kill enzymes in the juice and increase pH from a natural acid level to a neutral pH. Heated to 99–104 °C (210–220 °F), the neutralized juice is pumped to a large, enclosed, heated tank or a clarification vessel, in which clear juice flows off the upper part while muds settle below. The clarified juice is boiled and concentrated in multiple-effect evaporators2 to syrup, consisting of 55–59 percent sucrose.

Syrup is further evaporated in vacuum pans to supersaturation3. Fine seed crystals are added, and the sugar “mother liquor” known as molasses4 yields a solid precipitate5 of about 50 percent by weight crystalline sugar. Crystals and mother liquor are separated in basket-type centrifuges. Mother liquor is spun off the crystals, and a fine jet of water is sprayed on the sugar reducing the syrup coating on each crystal. The washed sugar dries and cools on the belts as it moves to bulk storage. At this point raw sugar is pale brown to golden yellow, with a sucrose content of 97–99 percent and a moisture content of 0.5 percent.

Refined sugar is produced from remelted raw cane sugar. To produce familiar high-quality sugar the raw sugar is washed, melted, dissolved, sent through processes of clarification and decolorization, and crystallized.

72. Card 12

Types of Confections

In general, confectionery is divided into two broad and somewhat overlapping categories, sugar confections and bakers' confections. On the basis of ingredients, methods of production, and final product, confectioneries fall into two main groups: sugar confectionery and flour confectionery. Sugar confections include caramels, candies (also called sweets in many English-speaking countries), candied nuts and fruits, chocolates, and cocoa, fruit-marmalade sweets, halvah and other Oriental sweets, toffee, chewing gum, pastillage, and other confections that are made primarily of sugar. In some cases, chocolate confections are treated as a separate category. The words ‘candy’ (Canada, US), ‘sweets’ (UK, Ireland and others), and ‘lollies’ (Australia and New Zealand) are common words for the most varieties of sugar confectionery.

Nonchocolate candy is roughly divided into two classes, hard and soft; the distinction is based on the fact that sugar when boiled passes through definite stages during the process of crystallization. Fondant, or sugar cooked to the soft stage, is the basis of most fancy candies, such as chocolate creams. Candies can be divided into noncrystalline, and crystalline types. Noncrystalline candies, such as hard candies, caramels, toffees, and some aerated confection as nougats, taffy, marshmallow are chewy or hard, with homogeneous structure. Crystalline candies, such as fondant and fudge, are smooth, creamy, and easily chewed, with a definite structure of small crystals.

Bakers' confectionery includes sweet baked goods, especially those that are served for the dessert course. Bakers' confectionery, also called flour confections, includes principally sweet pastries, cakes, doughnuts, scones, and similar baked goods as cookies, crackers, galettes, shortbread, wafers. In the Middle East and Asia, flour-based confections predominate.

73. Card 13

Fruits and Vegetables

Fruits and vegetables have many similarities with respect to their compositions, methods of cultivation and harvesting, storage properties and processing. Most fresh fruits and vegetables are low in calories and have a water content in excess of 70 percent, with only about 3.5 percent protein and less than 1 percent fat. The quality factors of fruits and vegetables are colour, texture, flavour, aroma, and nutritive values.

The major nutrients contributed by fruits and vegetables to the human diet are dietary fibre, minerals (calcium, phosphorus, iron, sodium, potassium), and vitamins, principally A and C. Certain vegetables contribute lipids to the diet, mostly in the form of unsaturated oils. Roots and legumes can be important sources of dietary proteins.

Fruits are a high-moisture, generally acidic food that is relatively easy to process. From the consumer’s or food processor’s point of view, fruit is generally characterized as the edible product of a plant or tree that includes the seed and its envelope and can typically be described as juicy, sweet, and pulpy. Fruits can be classified on the basis of shape, cell structure, type of seed, or chemical composition and climatic requirements. They may be grouped into soft fruits (strawberries, grapes and all berries), segmented fruits (citrus fruits), stone fruits (peaches, plums, apricots), hard fruits (apple and pears), tropical and subtropical (banana, papaya).

74. Card 14

Methods of Fruit and Vegetable Preservation

The first stage in the fruit and vegetable processing consists of preparing the raw material for the various food-processing methods. Cleaning usually involves passing the raw food through tanks of water or under high-pressure water sprays. Fruit is prepared by removing unwanted parts. Vegetables are cut, peeled, sliced, graded, pureed, and so on.

Almost all vegetables and some fruits require blanching by immersion in hot water or steam. This process serves to reduce the number of microorganisms and inactivate enzymes that can cause undesirable changes in the food. Blanching also serves as an additional or final cleansing operation. After blanching the fruits and vegetables must go through rapid cooling in either cold water or cold air for better quality retention.

Dehydration (drying) is among the oldest and most common forms of food preservation. Moisture in the fruit and vegetables is driven off. Low moisture content in food prevents microorganisms from growing. There are three basic systems for dehydration: sun drying, such as that used for raisins; hot-air dehydration, and freeze-drying. A major advantage of removing water is a reduction in volume and weight (by 75 to 90 percent), which aids in storage and transportation of the dried products. Modern drying techniques are very sophisticated1. Many machines are available to perform tunnel drying, vacuum drying, drum drying, spray drying. A small amount of sulfite may be used in producing certain dried fruit and vegetables. The sulfite serves as an antimicrobial agent, aids in heat transfer. Dehydrated food products have a virtually unlimited shelf life when held under proper storage conditions. Drying does not significantly reduce the calories or minerals, and vitamin losses are similar to other preservation methods.

75. Card 15

Vegetable Oils

Vegetable oils form an important part of the diet. Vegetable oils are derived from vegetables, nuts, seeds, fruits, and cereal grains. Examples include (but are not limited to) coconut oil, cocoa butter, corn oil, cottonseed oil, olive oil, palm oil, soybean oil, sunflower oil. Some vegetable oils are edible; many have a wide range of uses, including as cattle feed, engine fuel, drying agents in paint. They are also used in medicine and in beauty products.

Vegetable oils are typically liquid at room temperature. They contain a greater variety of fatty acids. Some vegetable oils are high in saturated fat, including coconut oil, cottonseed oil, palm oil, and palm kernel oil. These are often more viscous or even semisolid at room temperature. Vegetable oils are widely used in food and food preparation. They are commonly used to sauté1 or fry vegetables and meats and are a key ingredient in a wide variety of sauces and baked goods. Unprocessed oils are more suitable for non-heat uses, such as in salad dressings.

Depending on their intended use, vegetable oils can be processed by cracking or breaking the source material, pressing it, and sometimes applying heat. In some cases, refining, bleaching2, and additional processing are used to remove odours3 and flavours associated with the source material.

Oil is extracted by three general methods: rendering4, used with oleaginous5 fruits; mechanical pressing, for oil-bearing seeds and nuts; and extracting with volatile6 solvents, employed in large-scale operations for a more complete extraction than is possible with pressing.

Rendering originally implied the application of heat; in its most primitive form, it is practiced by heaping fruits such as olives in piles exposed to the sun and collecting the oil that exudes. A similar, somewhat more advanced process is used to extract oil from palm fruits by boiling in water, then skimming7 the oil from the surface.

76. Card 1

Food Processing

Food processing covers general characteristics of raw food material, principles and methods of food preservation, factors which influence quality, packaging, good manufacturing practices, sanitation procedures, etc. Food engineering is a scientific and professional field that interprets and applies

principles of engineering, science, and mathematics to food manufacturing and operations, including processing, production, handling, storage, conservation, control, packaging and distribution of food products.
Food additive is defined as a substance added intentionally to food, generally in small quantities to improve its functional, physical and sensory properties such as appearance, colour, flavour, texture, acceptability, taste and storage behaviour. Food fortification is defined as the process whereby nutrients are added to enrich foods in relatively small quantities to maintain or improve the nutritional quality of the diet. Food fermentation is a biological process that breakdown organic materials, which is carried out by microorganisms such as bacteria, yeast and mold to desirable end products.
Consequently, food technologists must have a broad knowledge of scientific and engineering principles. They must be acquainted with the composition of food, its chemical nature, physical, chemical and biological changes, occurring in food, and also with basic equipment, operations and processes involved in the manufacture of any particular processed food.

77. Card 2

Classification of food

Different types of foods are classified into four food groups on the basis of the nutrients present in them.
The four basic food groups are as follows:
1) cereals, millets8, pulses9 and legumes. Cereals and millets are rich in carbohydrates. Pulses and legumes are rich source of proteins. Cereals, millets, and pulses also provide B-complex vitamin, minerals and fibre.
2) vegetables and fruits include leafy vegetables, roots and tubers, beta carotene rich fruits, vitamin C rich fruits. This group is rich in various vitamins and minerals like calcium, iron and fibre.
3) milk and milk products, egg, meat, fish, poultry and their products. Milk products are good source of proteins, vitamins like B-complex, vitamin A and minerals like calcium. Meat is good source of iron, zinc and B12 vitamin. Fish and sea-foods are good source of vitamins, minerals, proteins and omega 3 fatty acids.
4) fats and oils, nuts and oilseeds10, sugar. These are rich source of proteins and minerals.
These food groups help in wise selection of food products to plan a balanced diet.

78. Card 3

Food is any substance consumed to provide nutritional support for an organism. Food is usually of plant, animal or fungal1 origin, and contains essential nutrients, such as carbohydrates, fats, proteins, vitamins, or minerals. The substance is ingested by an organism and assimilated by the organism's cells to provide energy, maintain life, or stimulate growth.
Food is very important socially as well as scientifically. It includes solids, semisolids and liquids, which can be consumed to keep body healthy. Important functions like maintaining the heartbeat, water balance, temperature are performed by food rich in proteins, vitamins, minerals and water. Food is much more than a substance supplying for health. It is sum of man’s culture and tradition, a means of communication, pleasure and relief from stress.
Food is used as a symbol of hospitality and friendship throughout the world. It becomes an integral part of the celebrations to mark events such as births, weddings and holidays. Food is also an outlet for feelings and emotion. Preparing favourite dishes at home creates atmosphere of love and affection. Anxiety in some situations leads people to overeating or very less intake of food.

79. Card 4

Food Constituents

Protein is the main structural component of all living cells. Proteins consist of carbon, hydrogen, oxygen, nitrogen and other elements such as sulphur, iron, phosphorus, iodine and copper. Proteins are made up of smaller building blocks known as amino acids. When foods are consumed protein is broken down and absorbed in blood stream as amino acids. The amino acids are used in the synthesis of new proteins needed for energy, growth, maintenance and replacement of body cells. Besides, proteins are important for the formation of enzymes and some hormones, making antibodies for defense against infections, providing energy to body if carbohydrates are less. The richest sources of

proteins are such animal food as meat, fish, cheese, eggs, milk and vegetable foods as soya beans, bread, peas.
Lipids (fats and oils) also contain carbon, hydrogen and oxygen. The simplest form of fat is fatty acids. Fatty foods are considered to be more concentrated form of energy. Fat is a complex molecule consisting a mixture of three fatty acids and an alcohol generally glycerol. Fats are rich sources of energy and 1gm of fats provide 9.3 Kilocalories. Fat serves numerous functions. It is a solvent for the fat-soluble vitamins A, D, E, K in the body and helps in their absorption. Fats provide insulating barrier against cold and thus help to conserve body heat. Fats and oils also supply omega fatty acids. Fats are found in butter, cream, milk, oily fish, meat, olive oil, sunflower seed oil.

80. Card 5

Minerals
Minerals are another group of essential nutrients, needed to regulate body processes and fluid balance. There are more than 20 different minerals present in all body fluids and tissues. Minerals can be divided into two categories - major and trace - depending on how much the body needs. Major minerals, which are needed in larger amounts, include calcium, phosphorus, sulfur, sodium, magnesium, chloride, and potassium. Trace minerals9 include chromium, copper, fluoride, iodine, iron, manganese, molybdenum, selenium, zinc, and cobalt. Almost all foods contribute to a varied intake of essential minerals. Two distinct characteristics of minerals include their high importance for metabolic and physiological activities and resistance to food preparation.
Three of the most important minerals are calcium, phosphorus and iron. The bones and teeth have 99 per cent of calcium in the form of calcium phosphate. Milk and hard cheeses are the best sources of calcium. Calcium compounds are present in fruits, vegetables and fish, phosphates in eggs, meat and fish.
Iron is a very important nutrient. In the body most of the iron is found in blood and rest of it is stored in organs like liver and kidney. The red colour of the blood is the colour of the hemoglobin, which contains one atom of iron among its ten thousand atoms. Hemoglobin carries oxygen to various parts of the body. Iron is found in kidney, liver, other meat products, some vegetables, dried fruits.

81. Card 6

Dieticians in many countries often emphasize the problems of eating too many “empty calories.” These are foods that are high in calories (often from unhealthful fats and added sugars) but that provide few nutrients in return. Soft drinks, salty snacks, sweets often provide one-fourth or more of the calorie requirements. In developed countries fast foods are major parts of many people’s diets. It is possible to make healthy choices from among such foods, but it requires thought about nutrients and calories.
Malnutrition is an imbalance between the body’s demand for nutrients and its available supply of nutrients. Malnutrition can result from an unsatisfactory diet or from a disorder that interferes with the body’s use of food. If a person takes in more food than is required to meet the body’s needs, the excess calories are eventually converted to fat. That causes weight gain. Obesity, the state of being excessively fat, is a form of malnutrition that can contribute to many health problems. Eating too little causes weight loss over time, because the body must use stored fat for energy.
Maintaining a healthy weight is a balancing act. If weight loss is advisable, experts recommend both reducing one’s daily calorie intake and getting more exercise. Requirements for water intake can be met in many ways, such as drinking plain water, fruit juices, milk, and soups. Many fruits are about 90 percent water.

82. Card 7

Essential Ingredients in Bakery Products

Fats and oils are essential ingredients in nearly all bakery products. Shortenings have a tenderizing effect in the finished product and often aid in the manipulation of doughs. In addition to modifying the texture, they often add flavour of their own and tend to round off harsh notes in some of the spice flavours. The common fats used in bakery products are lard, beef fats, and hydrogenated vegetable oils (cottonseed oil and soybean oil). Butter is used in some premium and specialty products as a texturizer and to add flavour, but its high cost precludes extensive use. Fats occurring in other ingredients, such as egg yolks, chocolate, and nut butters, can have a shortening effect if the

ingredients are present in sufficient quantity.
Water is the liquid most commonly added to doughs. Milk is usually added to commercial preparations in dried form, and any moisture added in the form of eggs and butter is usually minimal. Water affects every aspect of the finished product, and careful adjustment of the amount of liquid is essential to make the dough adaptable to the processing method. It hydrates gluten, permitting it to aggregate in the form of a spongy cellular network, the structural basis of most bakery products. If dough is too wet, it will stick to equipment and have poor response to shaping and transfer operations; if too dry, it will not shape or leaven properly.
Normal wheat flour contains about 1 percent sugars. Glucose and sucrose are the sugars most frequently added to doughs. Sugars constitute the bulk of dissolved materials in most doughs. For this reason, sweet yeast-leavened goods develop gas and expand more slowly than bread doughs.

83. Card 8

Bread Making Technology

After the mass of dough has completed fermentation, it is processed by a series of devices loosely classified as makeup equipment. In the manufacture of pan bread, makeup equipment includes the divider, the rounder, the intermediate proofer, the molder, and the panner. The fermented dough is moved to the divider area or to the floor above the divider. The dough is dropped into the divider hopper, which cuts it into loaf-size pieces. Since the dough is of consistent density, the cut pieces are of uniform weight.
Dough pieces leaving the divider are irregular in shape. The machine called a dough rounder shapes the dough into a ball for easier handling in subsequent steps. It performs these functions by rolling the well-floured dough piece around the surface of a drum or cone, moving it upward or downward along this surface by means of a spiral track. As a result of this action, the dough piece assumes an approximately spherical shape.
Dough leaving the rounder tears easily, has rubbery consistency and poor molding properties. To restore a flexible structure, the dough piece must be allowed to rest while fermentation proceeds. This is accomplished by letting the dough ball travel through the intermediate proofer for several minutes. Upon leaving the intermediate proofer, the dough is more elastic, its volume is increased by gas accumulation, and its skin is firmer and drier.

84. Card 9

Methods of Dough Preparation

Advantages of the sponge-and-dough method include: a saving in the amount of yeast (about 20 percent less is required than for a straight dough); greater volume and more-desirable texture and grain; and greater flexibility allowed in operations because, in contrast to straight doughs (which must be taken up when ready), sponges can be held for later processing without marked deterioration6 of the final product.
Another conventional dough-preparation procedure, used commonly in preparing sweet doughs but rarely regular bread doughs, is the straight-dough method, in which all the ingredients are mixed in one step before fermentation. The fermentation period for a straight dough is approximately 2-3 hr.
In a less conventional method, known as the “no-time” method, the fermentation step is eliminated entirely. This process generally requires an extremely energy-intensive mixing step, sometimes performed in a partially vacuumized chamber7. Rather high additions of chemical oxidants, reducing agents, and other dough modifiers are almost always required in order to produce the desired physical properties. Even then, the flavour of the bread cannot be expected to match that of a traditionally processed loaf.

85. Card 10

Sugar Crops

Other sugar crops are sugar maple tree, the sugar palm, sweet sorghum, honey, and corn sugar.
Sugar maple
Sweet maple syrup is made by concentrating the sap of certain species of North American maple trees. European settlers learned the method of making maple sugar from indigenous peoples of the Great Lakes and St. Lawrence River regions. The traditional method of syrup production has been

used for more than 300 years and involves tapping a maple tree in early spring, draining the sap, and boiling it to transform the sap into a thick sugary syrup with high sugar content.

Corn sugar and syrup

Some varieties of corn (maize) have a sweet juice in the stalks. Corn syrup is produced by breaking down (hydrolyzing) cornstarch. Corn syrup is used in baked goods, jams and jellies, and many other food products. Because it does not crystallize when heated, it is particularly valued as an ingredient in candies.

Sugar palm

Palm sugar is obtained from the sap of sugar, coconut and date palms in tropical regions of the world. In eastern Asia and Malaysia these species are the major source of sap. The sap containing 50 percent sucrose is collected by tapping the trunk of the palm. Then the sap is condensed by heating until it becomes a thick syrup of crystallized sucrose.

86. Card 11

Manufacture of Sugar

Sugar beet, being a root, has a much higher nitrogen content than sugar cane, and these nitrogen compounds can affect certain processing steps. Sugar beets can be stored and therefore are generally processed in one stage into white sugar. Brown sugars are made with the use of cane molasses or as a crystal coating.

At the factory sugar beets are washed to remove dirt and then fed by gravity through a hopper to the slicing machine. There the roots are cut into strips in order to offer maximum surface area for extraction. Sugar extraction takes place in a multicell countercurrent diffuser6. Some 98 percent of the sugar is extracted to form raw juice. Remaining beet pulp, discharged at over 90 percent moisture content, is pressed and dried.

Raw juice is purified in a series of liming and carbonatation steps. After purification, the clear or thin juice is pumped to multiple-effect evaporators. In the evaporators it is concentrated to thick juice (60–65 percent dissolved solids), which is mixed with remelted lower grades of sugar to form standard liquor. From this liquor, sugar is crystallized, usually in three stages. In all boiling systems, sugar obtained from the first stage is processed as a final product, while sugar from the second and third stages is remelted and recycled into another batch of thick juice.

Sugar is separated from mother liquor in basket centrifuges, and dried in dryer-coolers. In order to increase production at the beet sugar factory, molasses desugarization7 is practiced.

87. Card 12

Confections

Confectionery is the art of making confections, which are food items generally containing a large amount of sugar and carbohydrates. There are a lot of varieties of confections but the fundamental processes in confectionary industry have much in common because the chief ingredient is sugar, mainly sucrose from sugar beets or sugarcane. Besides sugar, ingredients include corn syrup, corn sugar, honey, molasses, maple sugar, and noncaloric sweeteners, fruits and berries, wheat flour (sometimes oat, soy, corn, or rye flour), milk and butter, fats, starch, cocoa, nuts, eggs, acids, and gelatinizing agents and flavorings which are processed by heat and various mechanical means. The high nutritive value of confectioneries is due to the considerable carbohydrate, fat, and protein content. Many confections are enriched with vitamins.

Traditional confectionery goes back to ancient times and continued to be eaten through the Middle Ages into the modern era. Early confectioners, not having sugar, used honey as a sweetener and mixed it with various fruits, nuts, herbs, and spices. During the Middle Ages the Persians spread sugarcane cultivation, and began to make a sugar-based candy. A small amount of sugar was available in Europe during that period. The Venetians brought about a major change in candy manufacture during the 14th century, when they began to import sugar from Arabia. The development of candy-manufacturing machinery began in the late 18th century.

88. Card 13

Fruits and Vegetables

Fruits are composed of nutrients such as water, carbohydrates, fibre, pigments, certain vitamins, and minerals. Fruits contain good amount of carbohydrates including sugar, starch, cellulose and pectic substances. Sugar namely fructose, glucose and sucrose give sweetness to the fruit. Cellulose contributes to the textural qualities of the fruits.

Vegetables consist of a large group of plants consumed as food. These plants are either eaten fresh or prepared in a number of ways, usually as a savory, rather than sweet, dish. Vegetables are usually classified on the basis of the part of the plant that is used for food into root vegetables, tubers and bulbs (potatoes, carrots, onions), stem vegetables (asparagus and celery), the leaf and leafstalk vegetables (lettuce, cabbage, and spinach), immature flower bud (broccoli and brussels sprouts), fruit (tomatoes and cucumbers), and seed vegetables (legumes, such as peas and beans).

Fresh fruits and vegetables are subject to spoilage, quality and vitamin losses during transportation and storage. Processing can transform fruits and vegetables from perishable produce into stable foods with long shelf lives. The goal of processing is to deter microbial spoilage and natural physiological deterioration of the plant cells. Generally, the techniques used to preserve fruits and vegetables include cold storage, blanching, dehydrating, canning, freezing, salting, fermenting and pickling.

89. Card 14

Methods of Fruit and Vegetable Preservation

Putting foods into metal cans or glass jars is the major food-processing method of the world. Canning preserves most of the nutrients in foods. Some vitamins and minerals may dissolve into the brine or syrup in a can during processing, but they retain their nutritive value if those liquids are consumed. Canneries are usually located close to the growing areas of the product to be packed, since it is desirable to can foods as quickly as possible after harvesting. The canning process consists of several stages: cleaning and further preparing the raw food material; blanching it; filling the containers, usually under a vacuum; closing and sealing the containers; sterilizing the canned products; and labeling and warehousing the finished goods.

Freezing of fruits and vegetables is a common consumer practice. Frozen foods have outstanding quality and nutritive value. The high quality of frozen foods is mainly due to the development of a technology known as the individually quick-frozen (IQF) method that does not allow large ice crystals to form in plant cells. Various freezing techniques are commonly used in the preservation of fruits and vegetables. The choice of method depends on the quality of end product desired, and the kind of food to be frozen.

Chemicals also can be used as a preservative, either through artificial addition or through the action of microorganisms. An example of the latter method is yeast fermentation. Pickling is another example of chemical preservation. In the case of pickling, the product may be preserved by the addition of salt, sugar, and vinegar. High sugar content also acts as a fruit preservative. Pickled vegetables include cucumbers, green tomatoes, onions, radishes, and cabbages. Owing to the acid environment, fermented or pickled vegetables need less heat treatment before being placed in containers.

90. Card 15

Vegetable Oils

Many oil-bearing seeds and nuts are broken up by grinding, flaking8, or rolling, then subjected to mechanical pressing to liberate the oil. In modern press extraction, oilseeds or nuts are cleaned, and the shells or hulls removed; the kernels or meats are ground to a coarse meal that is pressed with or without preliminary heating. Cold-pressed oil, also called virgin oil9, is purer and has a better flavour than oil expressed with the aid of heat.

Olive oil has an excellent natural flavour and is used largely for culinary purposes and in the preservation of foods.

Sunflower seeds oil is used in cooking, salad dressing, margarine10 and soap. The sweet yellow oil obtained by compression of the seeds is considered equal to olive or almond oil for table use. It is high in vitamin E and contains a lot of omega-6 fatty acids.

Soybean oil is processed into margarine, shortening, and vegetarian and vegan cheeses. The soybean is one of the richest and cheapest sources of protein and is a staple in the diets of people and animals

in numerous parts of the world. The bean is extensively consumed in the forms of soy milk, a whitish liquid suspension, and tofu, a curd somewhat resembling cottage cheese.
Coconut oil is used as a cooking oil. It is extracted from the kernel or meat of the fruit of the coconut palm. Its many industrial uses include the manufacture of soaps and detergents, shampoos, and glycerin.
Corn oil is an edible oil obtainable from the seeds of corn (maize), valued for its bland flavour and light colour. Corn oil is used primarily for food. It is favoured as a salad oil and frying oil because it contains little cholesterol; large quantities of it are converted into margarine.

8. Материально-техническое и учебно-методическое обеспечение дисциплины

8.1. Перечень основной и дополнительной учебной литературы

Основная литература

1. Волкова С. А. Английский язык для аграрных вузов / Волкова С. А.. - Санкт-Петербург: Лань, 2022. - 256 с. - 978-5-8114-2059-9. - Текст: электронный. // RuSpLAN: [сайт]. - URL: https://e.lanbook.com/img/cover/book/212336.jpg (дата обращения: 21.02.2024). - Режим доступа: по подписке

2. Белоусова А. Р. Английский язык для студентов сельскохозяйственных вузов: учебник для вузов / Белоусова А. Р., Мельчина О. П.. - 8-е изд., стер. - Санкт-Петербург: Лань, 2022. - 352 с. - 978-5-507-45345-0. - Текст: электронный. // RuSpLAN: [сайт]. - URL: https://e.lanbook.com/img/cover/book/265169.jpg (дата обращения: 21.02.2024). - Режим доступа: по подписке

3. Чижова О. П. Переработка сельскохозяйственного сырья (в курсе английского языка): учебное пособие / Чижова О. П., Карпенко И. В.. - Краснодар: КубГАУ, 2019. - 92 с. - 978-5-0097-830-6. - Текст: электронный. // RuSpLAN: [сайт]. - URL: https://e.lanbook.com/img/cover/book/302882.jpg (дата обращения: 21.02.2024). - Режим доступа: по подписке

Дополнительная литература

1. Федорова М. А. Профессиональный английский язык для специалистов в сфере технологии продуктов питания из растительного сырья: учебное пособие / Федорова М. А.. - Краснодар: КубГТУ, 2019. - 187 с. - 978-5-8333-0874-5. - Текст: электронный. // RuSpLAN: [сайт]. - URL: https://e.lanbook.com/img/cover/book/151183.jpg (дата обращения: 21.02.2024). - Режим доступа: по подписке

2. Новоселова,, И. З. Учебник английского языка для сельскохозяйственных и лесотехнических вузов / И. З. Новоселова,, Е. С. Александрова,. - Учебник английского языка для сельскохозяйственных и лесотехнических вузов - Санкт-Петербург: Квадро, 2021. - 344 с. - 978-5-07312-158-6. - Текст: электронный. // IPR SMART: [сайт]. - URL: https://www.iprbookshop.ru/103146.html (дата обращения: 20.02.2024). - Режим доступа: по подписке

8.2. Профессиональные базы данных и ресурсы «Интернет», к которым обеспечивается доступ обучающихся

Профессиональные базы данных

Не используются.

Ресурсы «Интернет»

1. http://e.lanbook.com/ - Электронный библиотечный ркcурс
2. http://elibrary.rsl.ru/ - Электронная библиотека Российской государственной библиотеки
3. http://www.iprbookshop.ru/ - Электронный библлиотечный ресурс
4. https://edu.kubsau.ru/ - Образовательный портал КубГАУ
5. https://www.multitran.ru/ - Словарь «Мультитран»

8.3. Программное обеспечение и информационно-справочные системы, используемые при осуществлении образовательного процесса по дисциплине

Информационные технологии, используемые при осуществлении образовательного процесса по дисциплине позволяют:
– обеспечить взаимодействие между участниками образовательного процесса, в том числе синхронное и (или) асинхронное взаимодействие посредством сети «Интернет»;
– фиксировать ход образовательного процесса, результатов промежуточной аттестации по дисциплине и результатов освоения образовательной программы;
– организовать процесс образования путем визуализации изучаемой информации посредством использования презентаций, учебных фильмов;
– контролировать результаты обучения на основе компьютерного тестирования.
Перечень лицензионного программного обеспечения:
1 Microsoft Windows - операционная система.
2 Microsoft Office (включает Word, Excel, Power Point) - пакет офисных приложений.
Перечень профессиональных баз данных и информационных справочных систем:
1 Гарант - правовая, https://www.garant.ru/
2 Консультант - правовая, https://www.consultant.ru/
3 Научная электронная библиотека eLibrary - универсальная, https://elibrary.ru/
Доступ к сети Интернет, доступ в электронную информационно-образовательную среду университета.

Перечень программного обеспечения
(обновление производится по мере появления новых версий программы)
1. Антиплагиат;
2. Вебинар;
3. ПО "1С:Предприятие 8 ПРОФ. 1С:Университет ПРОФ";
4. Microsoft Windows 7 Professional 64 bit;

Перечень информационно-справочных систем
(обновление выполняется еженедельно)
Не используется.

8.4. Специальные помещения, лаборатории и лабораторное оборудование

Университет располагает на праве собственности или ином законном основании материально-техническим обеспечением образовательной деятельности (помещениями и оборудованием) для реализации программы бакалавриата, специлитета, магистратуры по Блоку 1 "Дисциплины (модули)" и Блоку 3 "Государственная итоговая аттестация" в соответствии с учебным планом.
Каждый обучающийся в течение всего периода обучения обеспечен индивидуальным неограниченным доступом к электронной информационно-образовательной среде университета из любой точки, в которой имеется доступ к информационно-телекоммуникационной сети "Интернет", как на территории университета, так и вне его. Условия для функционирования электронной информационно-образовательной среды могут быть созданы с использованием ресурсов иных организаций.

Учебная аудитория

350зоо
Доска классная - 1 шт.
доска марк. PREMIUM LEGAMASTER 100×150 - 1 шт.

Облучатель-рециркулятор воздуха 600 - 1 шт.
Парты - 15 шт.
стул твердый - 2 шт.
Шкаф книжный - 1 шт.
шкаф комбинированный - 1 шт.
шкаф плотяной - 1 шт.

405зоо
Вешалка для одежды - 1 шт.
Доска классная - 1 шт.
доска марк. PREMIUM LEGAMASTER 100×150 - 1 шт.
Интерактивная панель Samsung - 0 шт.
Парты - 16 шт.
стол однотумбовый - 1 шт.
стул полумягкий - 2 шт.
шкаф книжный - 1 шт.

424зоо
Вешалка для одежды - 1 шт.
доска марк. PREMIUM LEGAMASTER 100×150 - 1 шт.
Магнитола CD/MP3,дека, FM тюнер - 1 шт.
парты - 9 шт.
стол однотумбовый - 1 шт.
Стул мягкий черный - 1 шт.
стул твердый - 1 шт.
шкаф книжный - 1 шт.
шкаф комбинированный - 1 шт.

431зоо
Вешалка для одежды - 1 шт.
кресло руководителя - 1 шт.
парты - 6 шт.
стол однотумбовый - 1 шт.
Стул мягкий черный - 12 шт.
тумбоска на калесиках - 1 шт.
Шкаф книжный - 1 шт.
шкаф комбинированный - 1 шт.

9. Методические указания по освоению дисциплины (модуля)

Учебная работа по направлению подготовки осуществляется в форме контактной работы с преподавателем, самостоятельной работы обучающегося, текущей и промежуточной аттестаций, иных формах, предлагаемых университетом. Учебный материал дисциплины структурирован и его изучение производится в тематической последовательности. Содержание методических указаний должно соответствовать требованиям Федерального государственного образовательного стандарта и учебных программ по дисциплине. Самостоятельная работа студентов может быть выполнена с помощью материалов, размещенных на портале поддержки Moodl.

Методические указания по формам работы

Лабораторные занятия

Практическое освоение студентами научно-теоретических положений изучаемого предмета,

овладение ими техникой экспериментирования в соответствующей отрасли науки. Лабораторные занятия проводятся с использованием методических указаний, размещенных на образовательном портале университета.

Описание возможностей изучения дисциплины лицами с ОВЗ и инвалидами

Для инвалидов и лиц с ОВЗ может изменяться объём дисциплины (модуля) в часах, выделенных на контактную работу обучающегося с преподавателем (по видам учебных занятий) и на самостоятельную работу обучающегося (при этом не увеличивается количество зачётных единиц, выделенных на освоение дисциплины).

Фонды оценочных средств адаптируются к ограничениям здоровья и восприятия информации обучающимися.

Основные формы представления оценочных средств – в печатной форме или в форме электронного документа.

Формы контроля и оценки результатов обучения инвалидов и лиц с ОВЗ с нарушением зрения:

– устная проверка: дискуссии, тренинги, круглые столы, собеседования, устные коллоквиумы и др.;

– с использованием компьютера и специального ПО: работа с электронными образовательными ресурсами, тестирование, рефераты, курсовые проекты, дистанционные формы, если позволяет острота зрения - графические работы и др.;

– при возможности письменная проверка с использованием рельефно-точечной системы Брайля, увеличенного шрифта, использование специальных технических средств (тифлотехнических средств): контрольные, графические работы, тестирование, домашние задания, эссе, отчеты и др.

Формы контроля и оценки результатов обучения инвалидов и лиц с ОВЗ с нарушением слуха:

– письменная проверка: контрольные, графические работы, тестирование, домашние задания, эссе, письменные коллоквиумы, отчеты и др.;

– с использованием компьютера: работа с электронными образовательными ресурсами, тестирование, рефераты, курсовые проекты, графические работы, дистанционные формы и др.;

– при возможности устная проверка с использованием специальных технических средств (аудиосредств, средств коммуникации, звукоусиливающей аппаратуры и др.): дискуссии, тренинги, круглые столы, собеседования, устные коллоквиумы и др.

Формы контроля и оценки результатов обучения инвалидов и лиц с ОВЗ с нарушением опорно-двигательного аппарата:

– письменная проверка с использованием специальных технических средств (альтернативных средств ввода, управления компьютером и др.): контрольные, графические работы, тестирование, домашние задания, эссе, письменные коллоквиумы, отчеты и др.;

– устная проверка, с использованием специальных технических средств (средств коммуникаций): дискуссии, тренинги, круглые столы, собеседования, устные коллоквиумы и др.;

– с использованием компьютера и специального ПО (альтернативных средств ввода и управления компьютером и др.): работа с электронными образовательными ресурсами, тестирование, рефераты, курсовые проекты, графические работы, дистанционные формы предпочтительнее обучающимся, ограниченным в передвижении и др.

Адаптация процедуры проведения промежуточной аттестации для инвалидов и лиц с ОВЗ.

В ходе проведения промежуточной аттестации предусмотрено:

– предъявление обучающимся печатных и (или) электронных материалов в формах, адаптированных к ограничениям их здоровья;

– возможность пользоваться индивидуальными устройствами и средствами, позволяющими адаптировать материалы, осуществлять приём и передачу информации с учетом их индивидуальных особенностей;

– увеличение продолжительности проведения аттестации;

– возможность присутствия ассистента и оказания им необходимой помощи (занять рабочее

место, передвигаться, прочитать и оформить задание, общаться с преподавателем).
Формы промежуточной аттестации для инвалидов и лиц с ОВЗ должны учитывать индивидуальные и психофизические особенности обучающегося/обучающихся по АОПОП ВО (устно, письменно на бумаге, письменно на компьютере, в форме тестирования и т.п.).
Специальные условия, обеспечиваемые в процессе преподавания дисциплины студентам с нарушениями зрения:
– предоставление образовательного контента в текстовом электронном формате, позволяющем переводить плоскопечатную информацию в аудиальную или тактильную форму;
– возможность использовать индивидуальные устройства и средства, позволяющие адаптировать материалы, осуществлять приём и передачу информации с учетом индивидуальных особенностей и состояния здоровья студента;
– предоставление возможности предкурсового ознакомления с содержанием учебной дисциплины и материалом по курсу за счёт размещения информации на корпоративном образовательном портале;
– использование чёткого и увеличенного по размеру шрифта и графических объектов в мультимедийных презентациях;
– использование инструментов «лупа», «прожектор» при работе с интерактивной доской;
– озвучивание визуальной информации, представленной обучающимся в ходе занятий;
– обеспечение раздаточным материалом, дублирующим информацию, выводимую на экран;
– наличие подписей и описания у всех используемых в процессе обучения рисунков и иных графических объектов, что даёт возможность перевести письменный текст в аудиальный;
– обеспечение особого речевого режима преподавания: лекции читаются громко, разборчиво, отчётливо, с паузами между смысловыми блоками информации, обеспечивается интонирование, повторение, акцентирование, профилактика рассеивания внимания;
– минимизация внешнего шума и обеспечение спокойной аудиальной обстановки;
– возможность вести запись учебной информации студентами в удобной для них форме (аудиально, аудиовизуально, на ноутбуке, в виде пометок в заранее подготовленном тексте);
– увеличение доли методов социальной стимуляции (обращение внимания, апелляция к ограничениям по времени, контактные виды работ, групповые задания и др.) на практических и лабораторных занятиях;
– минимизирование заданий, требующих активного использования зрительной памяти и зрительного внимания;
– применение поэтапной системы контроля, более частый контроль выполнения заданий для самостоятельной работы.
Специальные условия, обеспечиваемые в процессе преподавания дисциплины студентам с нарушениями опорно-двигательного аппарата (маломобильные студенты, студенты, имеющие трудности передвижения и патологию верхних конечностей):
– возможность использовать специальное программное обеспечение и специальное оборудование и позволяющее компенсировать двигательное нарушение (коляски, ходунки, трости и др.);
– предоставление возможности предкурсового ознакомления с содержанием учебной дисциплины и материалом по курсу за счёт размещения информации на корпоративном образовательном портале;
– применение дополнительных средств активизации процессов запоминания и повторения;
– опора на определенные и точные понятия;
– использование для иллюстрации конкретных примеров;
– применение вопросов для мониторинга понимания;
– разделение изучаемого материала на небольшие логические блоки;
– увеличение доли конкретного материала и соблюдение принципа от простого к сложному при объяснении материала;
– наличие чёткой системы и алгоритма организации самостоятельных работ и проверки заданий с обязательной корректировкой и комментариями;
– увеличение доли методов социальной стимуляции (обращение внимания, аппеляция к ограничениям по времени, контактные виды работ, групповые задания др.);
– обеспечение беспрепятственного доступа в помещения, а также пребывания них;

– наличие возможности использовать индивидуальные устройства и средства, позволяющие обеспечить реализацию эргономических принципов и комфортное пребывание на месте в течение всего периода учёбы (подставки, специальные подушки и др.).
Специальные условия, обеспечиваемые в процессе преподавания дисциплины студентам с нарушениями слуха (глухие, слабослышащие, позднооглохшие):
– предоставление образовательного контента в текстовом электронном формате, позволяющем переводить аудиальную форму лекции в плоскопечатную информацию;
– наличие возможности использовать индивидуальные звукоусиливающие устройства и сурдотехнические средства, позволяющие осуществлять приём и передачу информации; осуществлять взаимообратный перевод текстовых и аудиофайлов (блокнот для речевого ввода), а также запись и воспроизведение зрительной информации;
– наличие системы заданий, обеспечивающих систематизацию вербального материала, его схематизацию, перевод в таблицы, схемы, опорные тексты, глоссарий;
– наличие наглядного сопровождения изучаемого материала (структурно-логические схемы, таблицы, графики, концентрирующие и обобщающие информацию, опорные конспекты, раздаточный материал);
– наличие чёткой системы и алгоритма организации самостоятельных работ и проверки заданий с обязательной корректировкой и комментариями;
– обеспечение практики опережающего чтения, когда студенты заранее знакомятся с материалом и выделяют незнакомые и непонятные слова и фрагменты;
– особый речевой режим работы (отказ от длинных фраз и сложных предложений, хорошая артикуляция; четкость изложения, отсутствие лишних слов; повторение фраз без изменения слов и порядка их следования; обеспечение зрительного контакта во время говорения и чуть более медленного темпа речи, использование естественных жестов и мимики);
– чёткое соблюдение алгоритма занятия и заданий для самостоятельной работы (называние темы, постановка цели, сообщение и запись плана, выделение основных понятий и методов их изучения, указание видов деятельности студентов и способов проверки усвоения материала, словарная работа);
– соблюдение требований к предъявляемым учебным текстам (разбивка текста на час¬ти; выделение опорных смысловых пунктов; использование наглядных средств);
– минимизация внешних шумов;
– предоставление возможности соотносить вербальный и графический материал; комплексное использование письменных и устных средств коммуникации при работе в группе;
– сочетание на занятиях всех видов речевой деятельности (говорения, слушания, чтения, письма, зрительного восприятия с лица говорящего).
Специальные условия, обеспечиваемые в процессе преподавания дисциплины студентам с прочими видами нарушений (ДЦП с нарушениями речи, заболевания эндокринной, центральной нервной и сердечно-сосудистой систем, онкологические заболевания):
– наличие возможности использовать индивидуальные устройства и средства, позволяющие осуществлять приём и передачу информации;
– наличие системы заданий, обеспечивающих систематизацию вербального материала, его схематизацию, перевод в таблицы, схемы, опорные тексты, глоссарий;
– наличие наглядного сопровождения изучаемого материала;
– наличие чёткой системы и алгоритма организации самостоятельных работ и проверки заданий с обязательной корректировкой и комментариями;
– обеспечение практики опережающего чтения, когда студенты заранее знакомятся с материалом и выделяют незнакомые и непонятные слова и фрагменты;
– предоставление возможности соотносить вербальный и графический материал; комплексное использование письменных и устных средств коммуникации при работе в группе;
– сочетание на занятиях всех видов речевой деятельности (говорения, слушания, чтения, письма, зрительного восприятия с лица говорящего);
– предоставление образовательного контента в текстовом электронном формате;
– предоставление возможности предкурсового ознакомления с содержанием учебной дисциплины и материалом по курсу за счёт размещения информации на корпоративном образовательном портале;

– возможность вести запись учебной информации студентами в удобной для них форме (аудиально, аудиовизуально, в виде пометок в заранее подготовленном тексте);
– применение поэтапной системы контроля, более частый контроль выполнения заданий для самостоятельной работы;
– стимулирование выработки у студентов навыков самоорганизации и самоконтроля;
– наличие пауз для отдыха и смены видов деятельности по ходу занятия.

10. Методические рекомендации по освоению дисциплины (модуля)

Учебная работа по направлению подготовки осуществляется в форме контактной работы с преподавателем, самостоятельной работы обучающегося, текущей и промежуточной аттестаций, иных формах, предлагаемых университетом. Учебный материал дисциплины структурирован и его изучение производится в тематической последовательности. Содержание методических указаний должно соответствовать требованиям Федерального государственного образовательного стандарта и учебных программ по дисциплине. Самостоятельная работа студентов может быть выполнена с помощью материалов, размещенных на портале поддержки Moodl.