

UNIVERSITIES OF COMPUTER STUDIES
THE SYLLABUS FOR 2018-2019 ACADEMIC YEAR
(Five-year-academic Plan)

English

Fourth Year (B.C.Sc. / B.C.Tech.)

Objectives: To improve students' proficiency in four skills and help them complete preparation for the IELTS test.

Students Learning Outcomes: Getting motivation in their language learning and applying what they have learnt in their real life situation

Topic covered: Four skills with grammar, vocabulary input and skills practice to help students to deal successfully with the tasks

Credit unit: 3 credits

(a) Course Description

1. Cambridge ESOL IELTS 9 Examination Papers

Test 1: Listening, Reading – William Henry Perkin, Is there anybody out there?, The history of the tortoise, Writing, Speaking

Test 2: Listening, Reading – Reading Passage 1: Venus in transit, A neuroscientist reveals how to think differently, Writing, Speaking

Test 3: Listening, Reading – Attitudes to language, Tidal Power, Information theory – the big idea, Writing, Speaking

Test 4: Listening, Reading – The life and work of Marie Curie, Young children's sense of identity, The Development of Museums, Writing, Speaking

(Teachers should emphasize on Speaking and Listening Activities in IELTS Text Book.)

2. Cambridge Grammar for IELTS

Unit 9 – Pronouns and Referencing

Unit 10 – Adjectives and Adverbs

Unit- 11 – Comparing things

Unit- 12 – The noun phrase

(b) Syllabus

1. Cambridge ESOL IELTS 9 Examination Papers

2. Test 1: Listening, Reading – William Henry Perkin, Is there anybody out there?, The history of the tortoise, Writing, Speaking

3. Test 2: Listening, Reading – Reading Passage 1: Venus in transit, A neuroscientist reveals how to think differently, Writing, Speaking

4. Test 3: Listening, Reading – Attitudes to language, Tidal Power, Information theory – the big idea, Writing, Speaking

5. Test 4: Listening, Reading – The life and work of Marie Curie, Young children’s sense of identity, The Development of Museums, Writing, Speaking (Teachers should emphasize on Speaking and Listening Activities in IELTS Text Book.)

2. Cambridge Grammar for IELTS

Unit 9 – Pronouns and Referencing

Unit 10 – Adjectives and Adverbs

Unit- 11 – Comparing things

Unit- 12 – The noun phrase

3. Communications in 21st Century (for Second Semester)

Teacher’s Guide

(c) Textbooks

4. Cambridge ESOL IELTS 8 Examination Papers
5. Cambridge Grammar for IELTS: Grammar reference and practice by Diana Hopkins and Pauline Cullen

(d) References

1. Cambridge ESOL IELTS 8 Examination Papers
2. Cambridge Grammar for IELTS: Grammar reference and practice by Diana Hopkins and Pauline Cullen
3. Communications in 21st Century

2018-19 Academic Year
English Department
Course Description
Fourth Year (Second Semester)

Department Code:	ENG
Subject Code:	E 402
Course Title	1. IELTS 9 (Examination Papers) Cambridge ESOL 2. CAMBRIDGE GRAMMAR for IELTS
Course Coordinator	Daw Aye Aye Khine
Credit Unit	3 credits (lecture 2+ Tuto 1+ Lab 1) 1 Lecture = 1 credit 1 Tutorial= 0.5 credit 1 Lab = 0.5 credit
Prerequisite/s	None
Objectives	1. to motivate students in English Language learning 2. to develop four skills in English Language learning
Student Learning Outcomes	Students are motivated in their language learning and are positioned right at the edge of their competence are pushing it forward.
Topics Covered	1. Proficiency skill based on CLT 2. Four skills with grammar and vocabulary input are informed by publications related to the Common European Framework of Reference.
Text book and Reference	1. IELTS 9 (Examination Papers) Cambridge ESOL 2. CAMBRIDGE GRAMMAR for IELTS (By DIANA HOPKINS with PAULINE CULLEN)
Lesson Plan	First Semester - IELTS- Test 1, 2 - IELTS Grammar Unit 9, 10 Second Semester - IELTS- Test 3, 4 - IELTS Grammar Unit 11, 12
Assessment Plan	Second Term - Exam (50%) Listening Test (10%) Speaking (10%) (Assignment) Writing (10%) Attendance (10%) Quiz (10%)

UNIVERSITIES OF COMPUTER STUDIES
LECTURE PLAN FOR 2018-2019 ACADEMIC YEAR
B.C.Sc. / B.C.Tech. Fourth Year

E English

Second semester

- Textbooks: 1. IELTS 9 (Examination Papers) Cambridge ESOL
 2. CAMBRIDGE GRAMMAR for IELTS
 (By DIANA HOPKINS with PAULINE CULLEN)

Period : 15 weeks

No.	Chapter	Page	Period
1	IELTS 9: Test 3: - Listening	56 to 62	3.5
2	IELTS 9: Test 3: - Reading Passage 1 (Attitudes to language)	63 to 66	3.5
3	IELTS 9: Test 3: - Reading Passage 2 (Tidal Power)	67 to 70	3.5
4	IELTS 9: Test 3: - Reading Passage 3 (Information theory - the big idea)	71 to 75	3.5
5	IELTS 9: Test 3: - Writing & Speaking	76 to 78	3.5
6	Grammar for IELTS: Unit 11 (Comparing things)	90 to 97	3.5
7	Grammar for IELTS: Unit 11 (Comparing things)	90 to 97	3.5
8	IELTS 9: Test 4 - Listening	79 to 86	3.5
9	IELTS 9: Test 4 - Reading Passage 1 (The life and work of Marie Curie)	87 to 90	3.5
10	IELTS 9: Test 4 - Reading Passage 2 (Young Children's sense of identity)	91 to 95	3.5
11	IELTS 9: Test 4 - Reading Passage 3 (The Development of Museums)	96 to 100	3.5
12	IELTS 9: Test 4 - Writing & Speaking	101 to 103	3.5
13	Grammar for IELTS: Unit 12 (The noun phrase)	98 to 106	3.5
14	Grammar for IELTS: Unit 12 (The noun phrase)	98 to 106	3.5
15	Revision		3.5

Note: Grammar folder is suggested for teachers to study in advance and description of graphs, bar charts, pie charts must be taught for Academic Writing task.

Communication in 21st Century may be taught as extra curriculum.

University of Computer Studies, Yangon

B.C.Sc. / B.C.Tech (Fourth Year)

**CST-402 Second Semester
COURSE DESCRIPTION**

Course code number	CST-402	Course Title	Mathematics of Computing IV
Semester hours	4 hours	No. of Credit Units	3
		Course Coordinator	Daw Ni Ni Hla

Course Description

This course covers Applications of Recurrence Relations, Solving Linear Recurrence Relations, Generating Functions, Modeling Computation: Languages and Grammars, Finite-State Machines with Output, Finite-State Machines with No Output, Language Recognition and Turing Machines.

Textbook

Discrete Mathematics and its Applications (Seventh Edition) by KENNETH H. ROSEN

Course Outcomes

After completing the course, the student will be able to:

1. Model, compare and analyse different computational models using combinatorial methods.
2. Apply rigorously formal mathematical methods to prove properties of languages, grammars and automata.
3. Construct algorithms for different problems and argue formally about correctness on different restricted machine models of computation.
4. Identify limitations of some computational models and possible methods of proving them.

Major Topics Covered in the Course

1. Modeling With Recurrence Relations, Solving Linear Homogeneous and Nonhomogeneous Recurrence Relations, Counting Problems and Generating Functions
2. Phrase Structure Grammars, Derivation Trees, Backus-Naur Form, Finite State Machines with output and no output.
3. Deterministic and Nondeterministic Finite State
4. Using Turing Machines to Recognize Sets

Assessment Plan for the Course

Attendance	-	10%
Quizzes	-	10%
Assignment	-	10 %
Test	-	10%
Final Exam	-	60%

Class Attendance and Participation Policy:

- **Attendance**

Class attendance is **mandatory**. Most of the material you will learn will be covered in the lectures, so it is important that you not miss any of them. You are expected to show up **on time** for class, and **stay for the whole lecture**. Students are expected to attend each class, to complete any required preparatory work (including assigned reading) and to participate actively in lectures, discussions and exercises.

- Mobile phones **must** be silenced and put away for the entire lecture unless use is specified by the instructor. You may not make or receive calls on your cell phone, or send or receive text messages during lectures.
- You are responsible for all material sent as email. Ignorance of such material is no excuse. You are responsible for all materials presented in the lectures.
- Your conduct in class should be conducive towards a positive learning environment for your class mates as well as yourself.

- **Quizzes, assignments, tests and Exam**

Your performance in this class will be evaluated using your scores for attendance, quizzes, homework assignments, two tests and one final examination. There are no planned extra credit projects or assignments to improve your grade.

We will take a short quiz for every lecture.

There will be 11 homework assignments, roughly one per week. Please show all your work and write or type your assignments neatly. Credit cannot be given for answers without work (except on true-false, always-sometimes-never, or other multiple choice questions).

Test will start after two or three chapters finished and the coordinator will announce the date for the test.

Any assignment or quiz or test is simply missed, regardless of the reason why (e.g. illness, work, traffic, car trouble, computer problems, death, etc.), and **earns a**

grade of zero. You are strongly encouraged to complete all assignments and attend all quizzes so that you can check that you understand the material and can throw out bad grades, or grades for which you had to miss an assignment or quiz for a valid reason.

Late submissions will not be accepted for any graded activity for any reason.

- **There are no extra credit opportunities.**

Students may not do additional work nor resubmit any graded activity to raise a final grade.

- **Exam**

The exam will be conducted on-campus, in a classroom. The dates/times/locations will be posted on Board as soon as possible.

For this course, the following additional requirements are specified:

All work submitted for a grade must have been prepared by the individual student. Students are expressly prohibited from sharing any work that has been or will be submitted for a grade, in progress or completed, for this course in any manner with a person other than the instructor and teaching assistant(s) assigned to this course). Specifically, students may not do the following, including but not limited to:

- Discuss questions, example problems, or example work with another person that leads to a similar solution to work submitted for a grade.
- Give to, show, or receive from another person (intentionally, or accidentally because the work was not protected) a partial, completed, or graded solution.
- Ask another person about the completion or correctness of an assignment.
- Post questions or a partial, completed, or graded solution electronically (e.g. a Web site).
- All work must be newly created by the individual student for this course. Any usage of work developed for another course, or for this course in a prior semester, is strictly prohibited without prior approval from the instructor.
- Posting or sharing course content (e.g. instructor provided lecture notes, assignment directions, assignment questions, or anything not created solely by the student), using any non-electronic or electronic medium (e.g. web site, FTP site, any location where it is accessible to someone other than the individual student, instructor and/or teaching assistant(s)) constitutes copyright infringement and is strictly prohibited without prior approval from the instructor.

Tentative Lesson

No	Topics	Week	Remark
I	Chapter 8 Advanced Counting Techniques		
1	8.1 Applications of Recurrence Relations	Week 1+2	Assignment 1
2	Introduction; Modeling With Recurrence Relations		
3	8.2 Solving Linear Recurrence Relations	Week 3+4	Assignment 2 Assignment 3
4	Introduction; Solving Linear Homogeneous Recurrence Relations with Constant Coefficients		
5	Linear Nonhomogeneous Recurrence Relations with Constant Coefficients	Week 5	Assignment 4
6	8.4 Generating Functions	Week 6+7	Assignment 5 Assignment 6 Test I
7	Introduction; Useful Facts About Power Series		
8	Counting Problems and Generating Functions		
9	Using Generating Functions to Solve Recurrence Relations		
10	Proving Identities via Generating Functions		
11	Test I		
12	Chapter 13 Modeling Computation		
II	13.1 Languages and Grammars	Week 8	Assignment 7
13	Introduction; Phrase-Structure Grammars		
14	Types of Phrase-Structure Grammars		
15	Derivation Trees	Week 9	Assignment 8
16	Backus–Naur Form		
17	13.2 Finite-State Machines with Output	Week 10+11	Assignment 9
18	Introduction; Finite-State Machines with Outputs		
19	13.3 Finite-State Machines with No Output Introduction; Set of Strings	Week 12+13	Assignment 10
20	Finite-State Automata		
21	Language Recognition by Finite-State Machines		
22	Nondeterministic Finite-State Automata		

University of Computer Studies, Yangon

B.C.Sc. / B.C.Tech (Fourth Year)

No	Topics	Week	Remark
23	13.4 Language Recognition	Week 14	Assignment 11
24	Introduction; Kleene's Theorem		
25	Regular Sets and Regular Grammars		
26	A Set Not Recognized by a Finite-State Automaton		
27	More Powerful Types of Machines		
28	13.5 Turing Machines	Week 15	Test II
29	Introduction; Definition of Turing Machines		
30	Using Turing Machines to Recognize Sets		
31	Computing Functions with Turing Machines		
32	Different Types of Turing Machines		
33	The Church-Turing Thesis		
34	Computational Complexity, Computability, and Decidability		
35	Test II		
36	Revision		

University of Computer Studies, Yangon
Faculty of Information Science
2018-2019 Academic Year

Department Name	FIS	Course Title	CT- 401
Semester hours	3 periods per week	Course Name	DBMS
Semester	Second Semester	Course Coordinator	

Course Description

This course is intended to introduce the students with theoretical knowledge and practical skills in the use of databases and database management systems. It also provides database applications which appropriately address security issues, apply data integrity techniques for protecting the data to be accurate, utilize the transactions, concurrency control, DBMS backup and recovery technique, also introduce the students with the skill of building the view and the optimize query usage for retrieving the required data from the database efficiently.

Course Objectives

This course is intended to make students to

- Know the essential DBMS concepts such as: database security, integrity, concurrency, backup and recovery procedures.
- Understand how to protect the data against unauthorized users with the concepts of data control language and data encryption techniques.
- Describe how triggers and stored procedures assist with the enforcement of data integrity.
- Explain the concepts related to transactions, scheduling, locking mechanisms, committing and aborting transactions.
- Understand query processing in Database Management System

Learning Outcomes

- Know the issues related to concurrent execution of transactions on a database.
- Utilize the management of user and data permissions for database access controls including user roles, privileges, and rules related to security of the database system.
- Implement triggers and stored procedure to enforce complex constraints.
- Apply the concept of database transactions including concurrency control, backup and recovery, data object locking and protocols.
- Explain about how queries are processed, optimized and evaluated in a DBMS.
- Explain about the query execution plan and how query execution plans are transformed/re-written.
- Develop the data intensive applications using the theoretical and practical aspects of database management system.

Prerequisite for the Course

- Introduction to Database Management System
- Basic concept of Database Programming

Major Topic covered in the course

- Security
- Integrity
- Optimization
- Recovery
- Concurrency

Overview of Learning Activities

- **Lectures:** Key concepts will be explained in lectures in which course material will be presented and the subject matter will be illustrated with examples.
- **Tutorial sessions:** Focus on analyzing and problem solving of given application.
- **Practical sessions:** Provide practice for developing the database design with MySQL DBMS software

TextBook

- C.J.Date, “An Introduction to Database Management System”, 7th Edition, Addison-Wesley Publishing House, May 2000.

Reference Book

- Ramez Elmasri and Shamkant B. Navathe, “Fundamentals of Database Systems”, Fifth Edition, Pearson Education, 2008.
- [Jeffery A. Hoffer,V.Ramesh,Heikki Topi, “Modern Database Management System,12th edition, 2016

Tools

1. MySQL Server 5.1 or 5.5

Learning Assessment

Paper Exam	:	60%
Practical Exam	:	10%
Project	:	10%
Quiz	:	10%
Assignment	:	5%
Class Participation	:	5%

Course Policy

- Make-up exams, tutorial and assignments are not available.
- Individual deliverables are to be submitted individually and group work is collaborative.
- All exams and assignments are to be completed by the student alone with no help from any other person.
- Students are allowed to discuss about homework and project problems with others.

- Students are not allowed to copy the contents of a white-board after a group meeting with other students.
- Students are not allowed to copy the solutions from another colleague.
- If so, the all students (with same solution) must be deducted 0.5% of their marks (assignment).
- If you hand in a late assignment, you must identify (1) how late this assignment is and (2) how many total slip days you have left.
- After you have used up your slip time, any assignment handed in late will be marked off 0.5% per day. That is, after 3 days, the mark will be zero.
- In extreme circumstances (e.g., medical emergencies), we will grant no-penalty extensions. Please be prepared to provide written documentation (e.g., doctor's note).

Project Guidelines

Number of Students for each group : 7-10 students

Duration : 3 weeks

- CT-401 DBMS project will be to build an extensive database application for a real-world domain of your choosing.
- It is the first step to identify the domain you would like to manage with your database, and to construct the Entity-Relationship (E/R) diagram for the database.
- It is especially nice if you pick an application where you can populate your database using real, as opposed to fabricated, data.
- Your E/R design should have in the range of **5~10** entity sets, and a similar number of relationship sets.
- You should certainly include different kinds of relationships (e.g., many-one, many-many) and different kinds of data (strings, integers, etc.).
- To get started on your project, your assignment consists of the following tasks:
 - (a) Write a short (approximately one paragraph) description of the database application you propose to work with throughout the project. Your description should be brief and relatively informal. If there are any unique or particularly description will be graded on suitability and conciseness.
 - (b) Specify an E/R diagram for your proposed database.
 - (c) You will create a relational schema for your database in the MySQL database system.
 - (d) You will populate the tables in your database with initial data sets.
 - (e) Define the different types of users for the different level.
 - (f) Define the view upon your database based on different objectives.
 - (g) Write different SQL queries and updates against your database. (at least 10 queries)
- Practicing with actual data sets must be included in your project presentation.

CT-401 : Database Management System

Second Semester

Text Book : An Introduction to Database Systems by C.J.Date(7th Edition)

Period : 45 periods for 15 Weeks (3 periods * 15 weeks)
including 15 periods for practical time

No	Chapter	Page	Period	Remarks
	Chapter 17 Optimization			
1	17.1 Introduction	537-538	1	
2	17.2,17.3	539-544	1	
3	Exercises and Old Questions	561-563	1	
4	17.4 Expression Transformation	544-550	1	
5	17.5,17.6	551-554	1	
6	17.7	554-560	1	
7	Exercises		2	
8	Tutorial/ Discussion/ Project/ Assignment		1	
	Chapter 14 Recovery			
9	14.1, 14.2 Transaction	454-457	1	
10	14.3 Transaction Recovery, ACID	457-459	1	
11	14.4 System Recovery	460-462	1	
12	14.5 Media Recovery	462-464	1	
13	Exercises & Reviews		1	
14	Tutorial/ Discussion/ Project/ Assignment		1	
	Chapter 15 Concurrency			
15	15.1 Introduction	473-474	1	
16	15.2 Three Concurrency Problems	474-477	1	
17	15.3 Locking	477-478	1	
18	15.4 Concurrency Problems Revisited	478-481	2	
19	15.5 Deadlock	482-484	1	
20	15.7 Isolation Level	484-486	1	
21	15.8 Intent Locking	486-488	1	
22	15.9 SQL Facilities & Exercises	488-493	1	
23	Tutorial/ Discussion/ Project/ Assignment		1	
	Chapter 16 Security			
24	16.1 Introduction	504-506	1	

25	16.2 Discretionary Access Control	506-512	1	
26	16.3 Mandatory Access Control	512-515	1	
27	16.4 Statistical Database	515-520	1	
28	16.5 Data Encryption	520-524	1	
29	16.6 SQL Facilities	525-528	1	
30	Exercises	529-530	1	
31	Tutorial/ Discussion/ Project/ Assignment		1	
	Chapter 8 Integrity			
32	8.1, 8.2	249-252	2	
33	8.3, 8.4	252-253	1	
34	8.5	254	1	
35	8.6,8.7	254-257	1	
36	8.8 Keys	258-266	1	
37	8.9 SQL Facilities	267-271	2	
38	Exercises	272-274	2	
39	Revisions & Old Questions		2	