Operational Research and Optimisation

AQ052-3-M-ORO and VD1

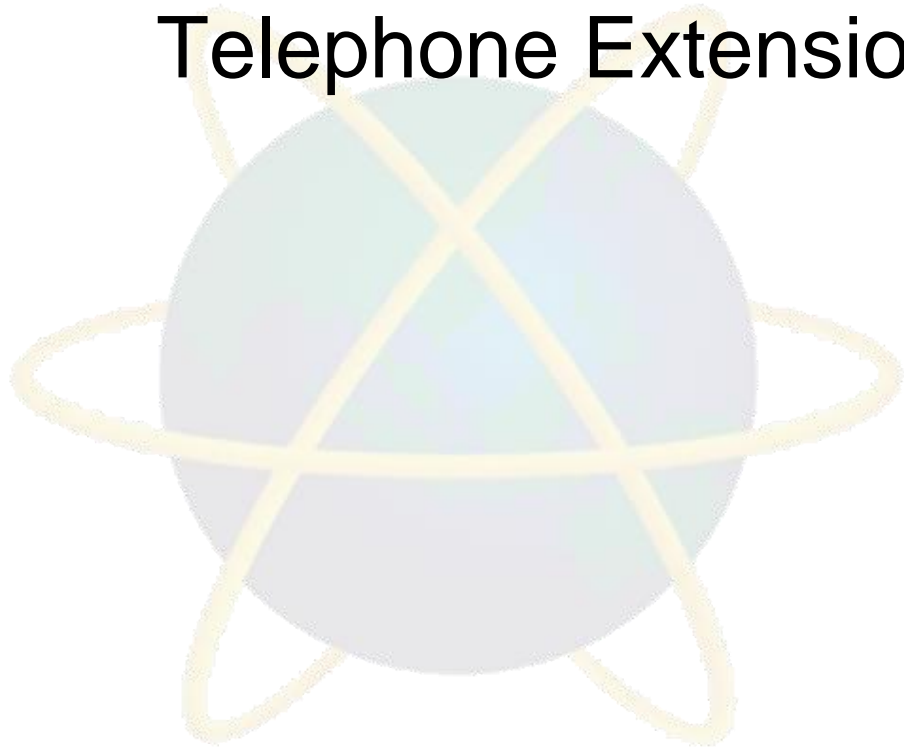## Introduction and Overview
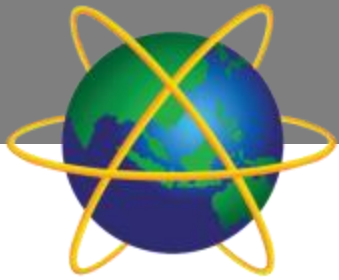
ASIA PACIFIC UNIVERSITY
OF TECHNOLOGY & INNOVATION

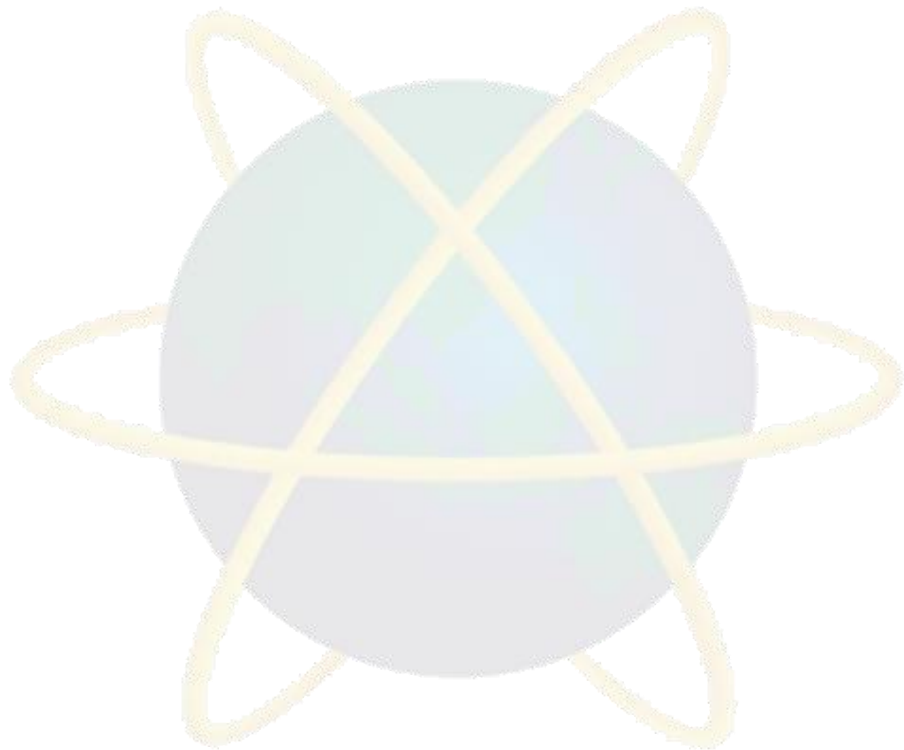# **Lecturer information**
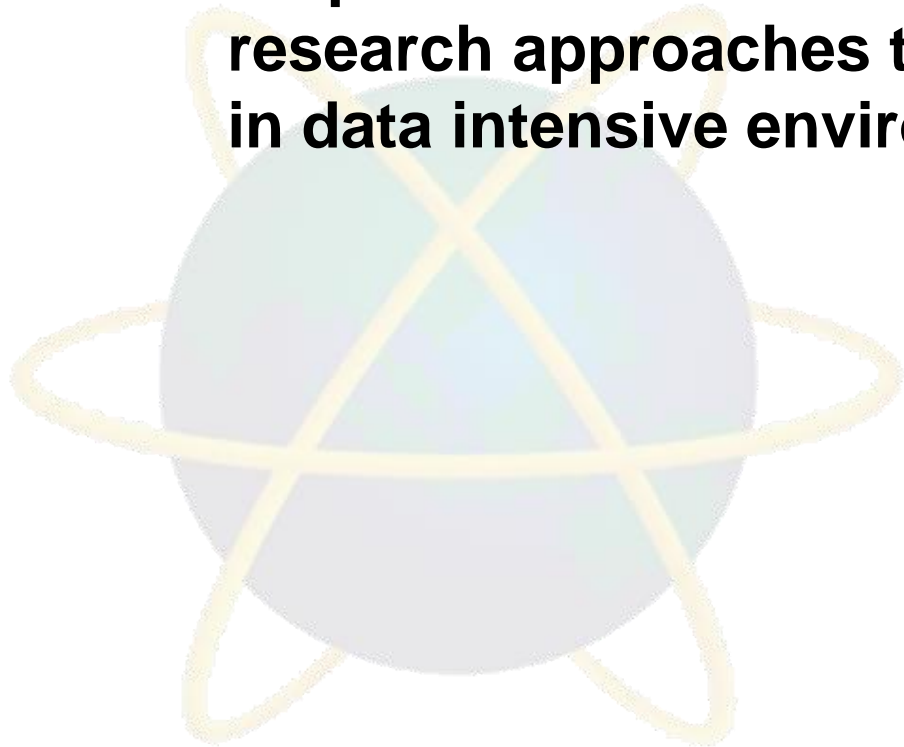
Lecturer Name:

Email:

Telephone Extension:

# **Prerequisites for this module**

None

Aims of this module

➢ **To introduce students to the operational research methodologies and their applications to real life problems.**

➢ **Emphasis will be on the use of operational research approaches to support decision making in data intensive environments.**

Course Learning Outcomes, CLOs

- **At the end of this module, YOU should be able to:**
  - ➢ **Comprehend the fundamental of operational research models**
  - ➢ **Perform the operational research modeling using computer software**
  - ➢ **Interpret the output of operational research modeling in solving practical problems in industry**
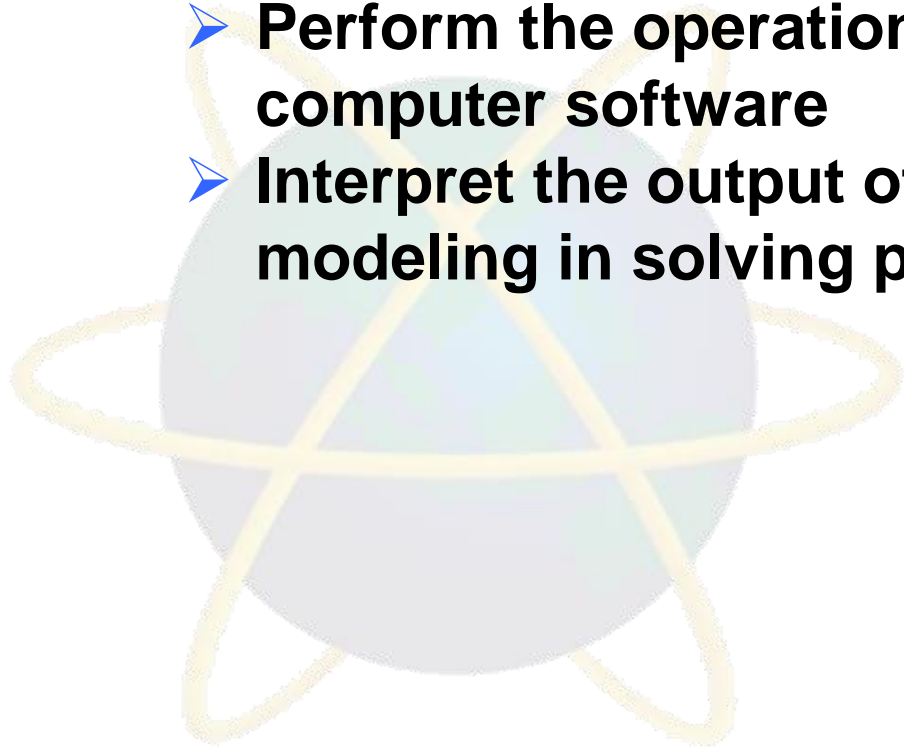
Mapping of CLOs with MOEs Domain

	MOE 1	MOE 2	MOE 3	MOE 4	MOE 5	MOE 6	MOE 7	MOE 8	MOE 9	MOE 10	MOE 11
CLO1											
CLO2											
CLO3											

MQF and MOE Domains
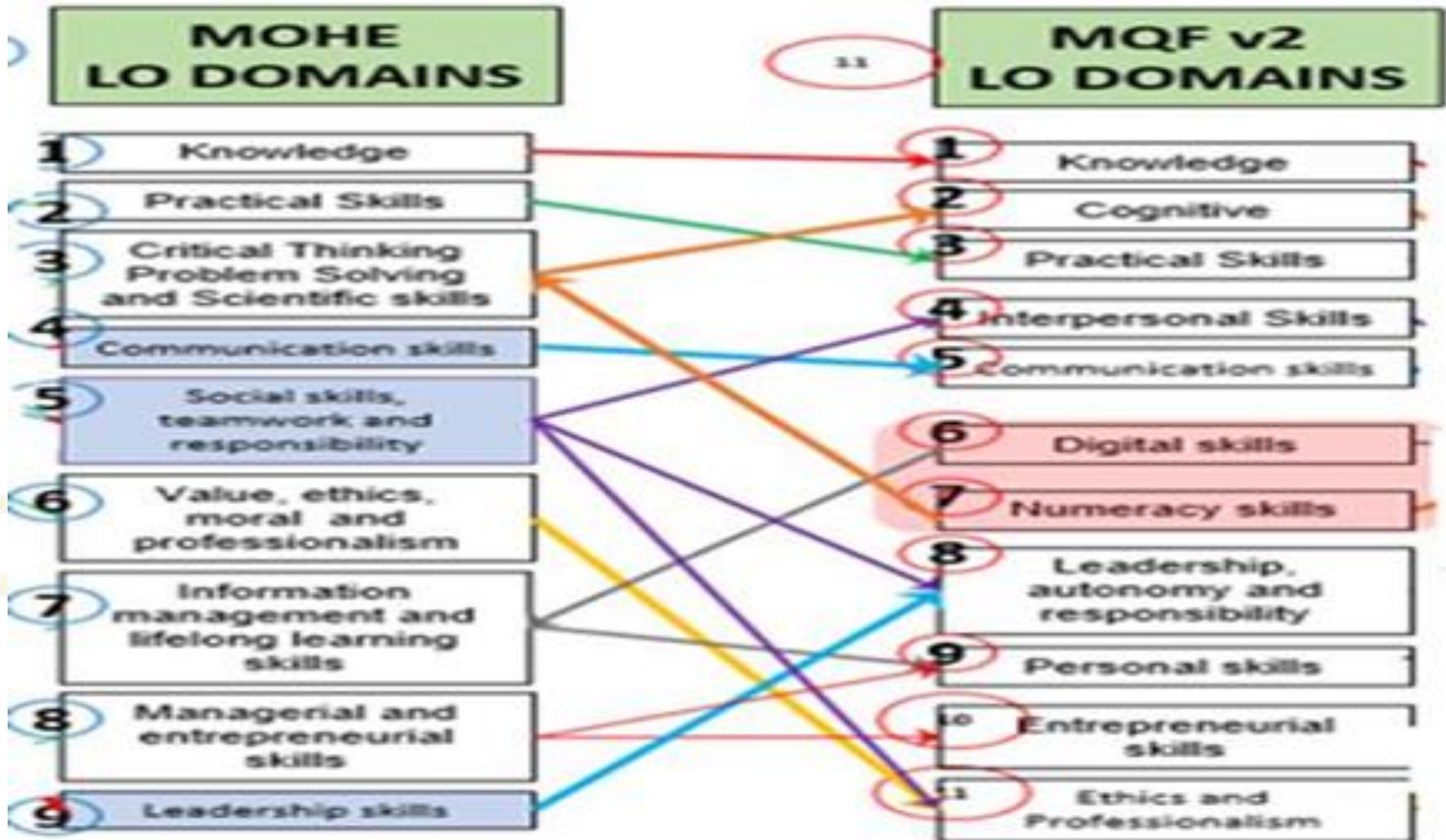
Teaching Strategies

Situation	Teaching Activities	Learning Activities
LECTURE	Talk, explain, clarify	Listen, take notes, accept, query, discuss with peers, one-minute paper
TUTORIAL	Set/answer questions, provide feedback	Pre-read, prepare questions, learn from peers, critique, analyse

Assessment Methods

- **Incourse Assessment** 100%
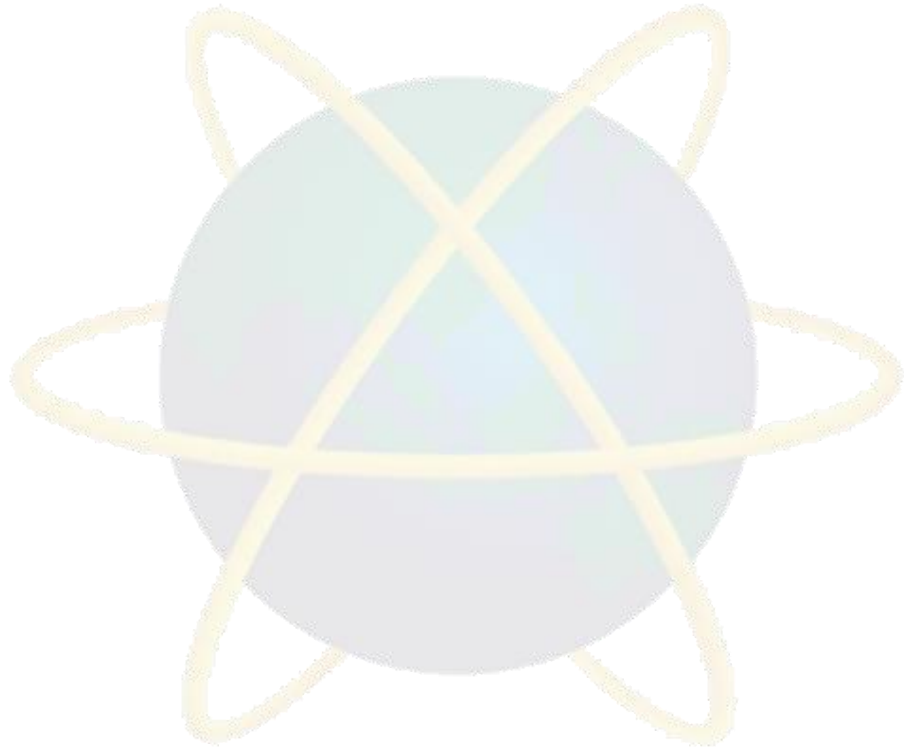 - Practical Test 40%
  - Project 60%
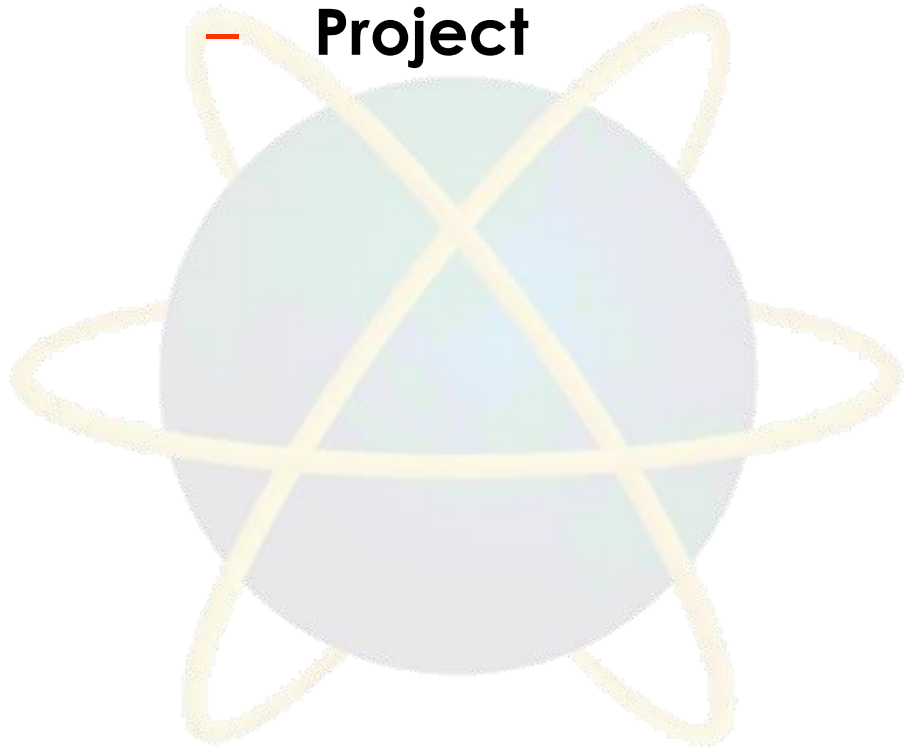
Student Learning Time (SLT)

- **Course Credit Value: 3**
- **Total Learning Hours:**
  - ➢ Lecture: 22 hours
  - ➢ Tutorial: 8 hours
  - ➢ Practical: 12 hours
  - ➢ Independent Learning Time: 60

Methods of Delivery

Hence,

- We are now moving from the traditional topic based teaching to outcome-based education

Outcomes Based Education (OBE)

- OBE is education based on producing particular educational outcomes that:
  - ➢Focus on what students can actually do after they are taught
  - ➢Expect all learners / students to successfully achieve particular (sometimes minimum) level of knowledge and abilities.

So…What is OBE?

It's

NOT

What we want to teach,

It's

What You should learn

Course Content Outline

- **Linear programming**
- **Transportation model and its Variants**
- **Integer linear programming**
- **Goal programming**
- **Nonlinear programming**
- **Network models**
- **Decision analysis**
- **Markov Process**
- **Waiting Line models**
- **Simulation techniques**
- **Project Scheduling**

What is expected of you

- **You should abide by all the rules & regulations of APU**
  - ➤ **Proper attire**
  - ➤ **No speaking in languages other than English**
  - ➤ **Attendance is compulsory and valid medical certificates must support any absence from class.**
  - ➤ **Three cases of lateness will be equal to one absence**
 - ➤ **All hand phones should be turned off during lectures.**

What is expected of you

- **Students doing things not related to the current lecture will be asked to leave the room and disciplinary action will be taken in accordance with the Institute's rules and regulations.**
- **Students should not leave the room during a lecture except with the agreement of the lecturer**
- **Assignments should be submitted before 7.00p.m. on due date to the receptionist.**
- **Students have to submit the EC form for late assignment and missing from class test.**

What support is available for you

- **Consultation hours**
- **email**
- **Resources**
  - **Reference material**
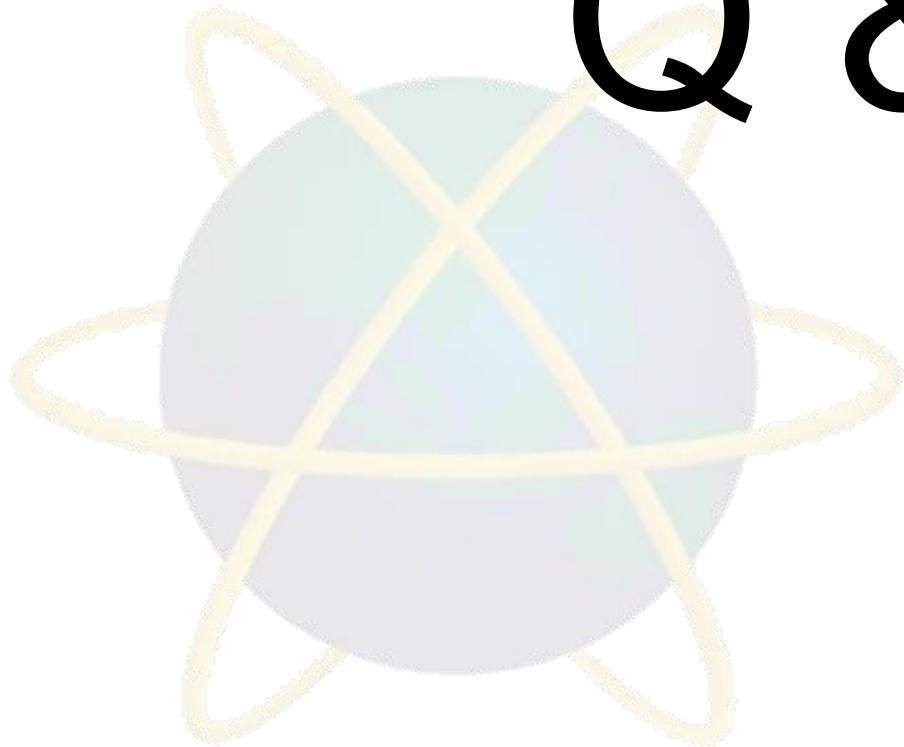 - **Internet resources**
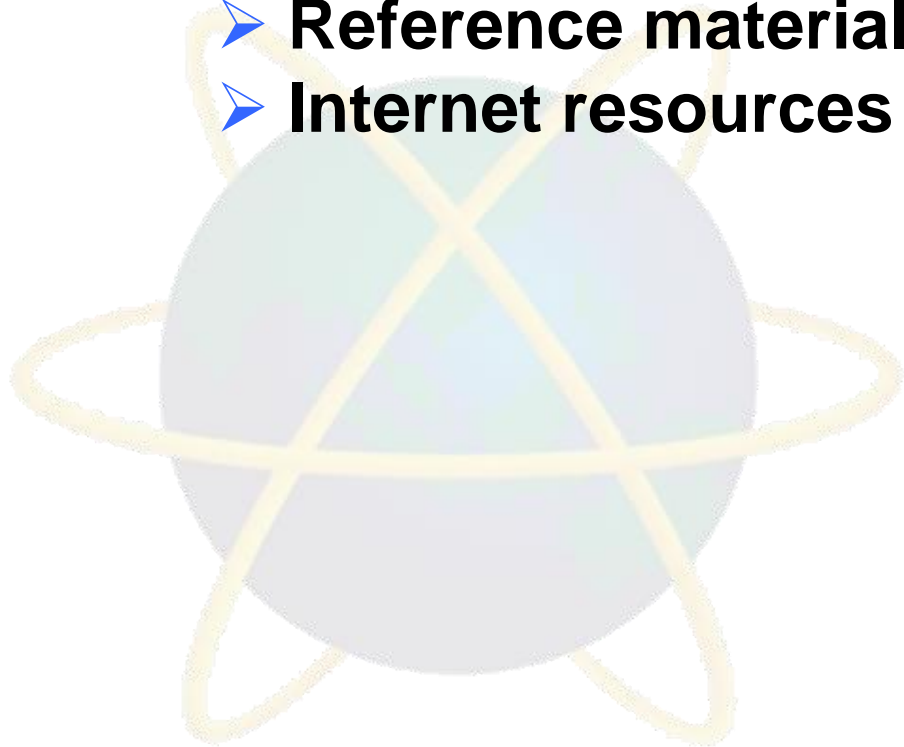
Achievement requirements

Undergraduate:

Marks	Alphabetical Grade	Grading Point	Classification
80-100	A+	4.0	Distinction
75-79	A	3.7	
70-74	B+	3.3	Credit
65-69	B	3.0	
60-64	C+	2.7	Pass
55-59	C	2.3	
50-54	C-	2.0	
40-49	D	1.7	Fail (marginal)
30-39	F+	1.3	Fail
20-29	F	1.0	Fail
0-19	F-	0	Fail

Question and Answer Session

Q & A

What we will cover next