

SIDRA ACADEMIC PACKAGE (LH)

Introduction

Aim of this Package

This package is intended to be a part of a unit of study in an undergraduate course in Civil Engineering or similar discipline. Depending on the structure of the course, it will generally be included in a unit called Transport Engineering or Traffic Engineering.

The aim of the package is to teach the use of the SIDRA INTERSECTION software and the theoretical and empirical basis of the traffic models it employs. Through this, students will develop an understanding of the role of intersections in a road transport system and learn about the assessment of performance of intersections and networks of intersections, for the purposes of transport decision making, planning and design.

Unit Learning Outcomes

After successfully completing this package, students should be able to:

- Understand the basic parameters that govern the safety and traffic performance of intersections and road networks.
- Analyse and assess the performance of intersections through an understanding of traffic flow theories and the use of the SIDRA INTERSECTION software.
- Understand how intersections and road networks are modelled in analytical software tools such as SIDRA INTERSECTION.

Requirements

The SIDRA ACADEMIC PACKAGE is provided free of charge. This package is for use in conjunction with the SIDRA INTERSECTION software. Your institution must hold an EDUCATIONAL software licence and renew COVER (subscription) annually for continued use of the software.

How to Apply

For more information or to apply for this package visit:

sidrasolutions.com/academicpackage

Key Generic Skills

This package will also help students to develop generic skills and competencies that are often at the core of engineering undergraduate courses, such as:

- Scientific Method: Proficient application of concepts, theories and techniques of the physical sciences.
- Mathematics: Proficient use of mathematical techniques, application of formulae and calculations.
- Computers: Proficient use of relevant computer applications with advanced understanding of the underlying models.
- Problem Solving: Systematic use of engineering methods to solve complex problems.
- Design: Systematic use of engineering methods in design.
- Teamwork: Ability to work effectively within a team.

Integration into a Unit of Study

This package would constitute about one quarter to one third of a full semester unit of study.

Typically, it would be integrated into a unit that also covers topics such as:

- Transport system planning process, objectives and performance measures of the transport system.
- Transport integration and sustainability.
- Modes of transport, including walking and cycling.
- Traffic data and collection techniques.
- Traffic control devices.
- Intelligent transport systems (ITS).
- Traffic flow theories and models for uninterrupted flow.
- Principles of intersection and road geometric design.

Resources

Further information supporting this package can be found here:

- SIDRA INTERSECTION software - sidrasolutions.com/software/INTERSECTION
- Articles and reports - sidrasolutions.com/resources/articles
- Tutorial videos - youtube.com/sidrasolutions

Feedback

SIDRA SOLUTIONS welcomes any feedback you may have on this package. If you modify or add any material or create different assignments, your contributions would improve this package for all users through the world.

Send us feedback via the form located here support.sidrasolutions.com

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Contents

The SIDRA ACADEMIC PACKAGE consists of material in the form of Word, Excel, PowerPoint and SIDRA INTERSECTION Project files for three Lectures and three corresponding Tutorials. Material for three sample Student Assignments is also included. See the table below for documents included in the package.

This version of the package is for *left-hand traffic rule* (label **LH** included in all document names). SIDRA INTERSECTION Project files are based on the *SIDRA Standard Left software setup* with metric units.

Documents included in the package

Folder Name	Document Name	File Type
Introduction	Introduction for Lecturers	Word
	Introduction for Students	Word
Notes	Computer LAB Notes for Tutors	Word
	Computer LAB Example	Word
	Computer LAB Exercise	SIDRA Project
Lecture 1	Lecture 1 - Fundamentals and Sign Controlled	PowerPoint
	Tutorial 1 - Sign Controlled SLIDES	PowerPoint
	Tutorial 1 - Sign Controlled EXERCISES	Word
	Tutorial 1 - Sign Controlled SOLUTIONS	Excel
Lecture 2	Lecture 2 - Signalised	PowerPoint
	Tutorial 2 - Signalised SLIDES	PowerPoint
	Tutorial 2 - Signalised EXERCISES	Word
	Tutorial 2 - Signalised SOLUTIONS	Excel
Lecture 3	Lecture 3 - Roundabouts	PowerPoint
	Tutorial 3 - Roundabouts SLIDES	PowerPoint
	Tutorial 3 - Roundabouts EXERCISES	Word
	Tutorial 3 - Roundabouts SOLUTION	Excel
Assignments	Assignment 1 Intersection Analysis Exercises	Word
	Assignment 1 Exercises	SIDRA Project
	Assignment 2 Wellington Kelletts	Word
	Assignment 2 Wellington Kelletts Aerial Image	JPEG
	Assignment 2 Wellington Kelletts Previous Upgrade Image	JPEG
	Assignment 2 Wellington Kelletts Turning Movement Counts	Excel
	Assignment 2 Wellington Kelletts SOLUTION	SIDRA Project
	Assignment 3 Real Intersection	Word