

# ENGR 2017 PAVEMENT MATERIALS AND DESIGN (WSTC ASSOC D)

**Credit Points** 10

**Legacy Code** 700239

**Coordinator** Abbas Ranjbar ([https://directory.westernsydney.edu.au/search/name/Abbas Ranjbar/](https://directory.westernsydney.edu.au/search/name/Abbas%20Ranjbar/))

**Description** This unit will provide students with the basic knowledge and concepts on pavement materials and design. It will cover the common materials used in pavement construction such as aggregates, cement, asphalt and concrete. It will also cover the pavement design system, pavement construction, design of flexible pavements, design of rigid pavements and pavement maintenance. Offerings of alternate units are dependent on there being sufficient student enrolment numbers. If enrolments are low, the College may cancel delivery of the alternate unit.

**School** Eng, Design & Built Env

**Discipline** Other Engineering And Related Technologies

**Student Contribution Band** HECS Band 2 10cp

Check your HECS Band contribution amount via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 2 subject

**Pre-requisite(s)** ENGR 1009

**Equivalent Subjects** ENGR 2016 - Pavement Materials and Design

**Restrictions** Students must be enrolled at Western Sydney University, The College in 7022 Associate Degree in Engineering.

## Learning Outcomes

On successful completion of this subject, students should be able to:

1. Describe the properties and manufacture of pavement materials
2. Design asphalt mix and concrete mix
3. Evaluate and select the pavement materials for specific pavement construction
4. Explain the pavement design system
5. Apply the basic principles to the structural; design and construction of flexible and rigid pavements
6. Conduct pavement evaluation and describe the pavement maintenance practices

## Subject Content

1. Pavement materials and their selection
2. Granular materials: role and function, behaviour, production, properties and tests for quality
3. Asphalt: mix types, materials selection, mix design, manufacture and paving
4. Cement: composition, hydration and properties
5. Concrete: materials selection, mix design and steel reinforcement materials
6. Pavement design system
7. Design of flexible pavements
8. Design of rigid pavements

9. Pavement construction

10. Maintenance of pavement

## Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Item	Length	Percent	Threshold	Individual/ Group Task
Practical	4 hours	20	N	Both (Individual & Group)
Intra-session Exam	1 hour	20	N	Individual
Quiz	~0.5hr each	15	N	Individual
Final Exam	2 hours	45	N	Individual

Teaching Periods

## Quarter 2

### Nirimba Education Precinct

#### Composite

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View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=ENGR2017\\_22-Q2\\_BL\\_C#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR2017_22-Q2_BL_C#subjects))