

ENGR 2016 PAVEMENT MATERIALS AND DESIGN

Credit Points 10

Legacy Code 300984

Coordinator Qinghua Zeng ([https://directory.westernsydney.edu.au/search/name/Qinghua Zeng/](https://directory.westernsydney.edu.au/search/name/Qinghua%20Zeng/))

Description This unit will provide students 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.

School Eng, Design & Built Env

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/) page.

Level Undergraduate Level 2 subject

Pre-requisite(s) ENGR 1008

Equivalent Subjects ENGR 1007 - Engineering Geology and Concrete Materials ENGR 2017 - Pavement Materials and Design

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
Participation in Tutorials - Weekly Participation	1 Hour	5	N	Individual
Practicals - 2 x laboratory (participation and report)	2 hours	20	N	Individual
Two Mid-Term Quizzes - 2 x quiz	1 hour	40	N	Individual
Final Examination	2 hours	35	N	Individual

Teaching Periods

Sydney City Campus - Term 1 Sydney City

Day

Subject Contact Peter Lendrum ([https://directory.westernsydney.edu.au/search/name/Peter Lendrum/](https://directory.westernsydney.edu.au/search/name/Peter%20Lendrum/)) Ankit Agarwal ([https://directory.westernsydney.edu.au/search/name/Ankit Agarwal/](https://directory.westernsydney.edu.au/search/name/Ankit%20Agarwal/)) Ankit Agarwal ([https://directory.westernsydney.edu.au/search/name/Ankit Agarwal/](https://directory.westernsydney.edu.au/search/name/Ankit%20Agarwal/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR2016_22-SC1_SC_D#subjects)

Spring Penrith (Kingswood)

Day

Subject Contact Qinghua Zeng ([https://directory.westernsydney.edu.au/search/name/Qinghua Zeng/](https://directory.westernsydney.edu.au/search/name/Qinghua%20Zeng/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR2016_22-SPR_KW_D#subjects)

Parramatta - Victoria Rd

Day

Subject Contact Qinghua Zeng ([https://directory.westernsydney.edu.au/search/name/Qinghua Zeng/](https://directory.westernsydney.edu.au/search/name/Qinghua%20Zeng/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR2016_22-SPR_PS_D#subjects)

Sydney City Campus - Term 3 Sydney City

Day

Subject Contact Peter Lendrum ([https://directory.westernsydney.edu.au/search/name/Peter Lendrum/](https://directory.westernsydney.edu.au/search/name/Peter%20Lendrum/)) Ankit Agarwal ([https://directory.westernsydney.edu.au/search/name/Ankit Agarwal/](https://directory.westernsydney.edu.au/search/name/Ankit%20Agarwal/)) Ankit Agarwal ([https://directory.westernsydney.edu.au/search/name/Ankit Agarwal/](https://directory.westernsydney.edu.au/search/name/Ankit%20Agarwal/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=ENGR2016_22-SC3_SC_D#subjects)