

**PROGRESSIVE DEGREE PROGRAM
COURSE PLAN TEMPLATE**

USC SCHOOL	Viterbi School of Engineering
ACADEMIC DEPARTMENT	Mork Family Department
GRADUATE PROGRAM	Petroleum Engineering Digital Oilfield Technologies
POST CODE	1242
TERM EFFECTIVE DATE	Spring 2021

PROGRAM DESCRIPTION

A brief description of the graduate program.

The MS in Petroleum Engineering (Digital Oilfield Technologies) is a unique degree offered only through the USC Viterbi School of Engineering. This degree program was created based upon industry's request to train existing staff and new hires with skills related to the operation of digital fields.

COMMON BACHELOR DEGREE PROGRAM PATHWAYS

A list of common bachelor's degrees that undergraduate students pursue in advance of pursuing a progressive degree option with this graduate program. Some programs are restricted to certain majors while others are open to all students.

Petroleum Engineering	Chemical Engineering
Chemical Engineering (Petroleum Emphasis)	

PREPARATORY UNDERGRADUATE COURSES

A list of courses at the undergraduate level that prepare students for the graduate program. Required coursework is listed first, followed by recommended courses. If not applicable, this section will be blank.

Dept. Prefix - Course #	Course Title	Required or Recommended	Units
PTE 411	Introduction to Transprt Processes in Porous Media	Recommended	3
PTE 412	Petroleum Reservoir Engineering	Recommended	3
PTE 461	Formation Data Sensing with Well Logs	Recommended	3
PTE 466	Petroleum Geology	Recommended	3
PTE 500	Computational Reservoir Modeling	Recommended	3

UNDERGRADUATE COURSES USED TO REDUCE GRADUATE LEVEL UNITS

A list of undergraduate level courses that may be used to reduce the number of graduate level units required for the graduate program. If there are none, that is specified instead.

Dept. Prefix - Course #	Course Title	Units
	NONE	

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CORE GRADUATE PROGRAM REQUIREMENTS (32 units required)

A list of all required graduate courses for the graduate program. None of these courses may be used toward satisfying undergraduate degree requirements.

If special exceptions for any of these courses are made by the academic department, the course # is marked with an asterisk () and the exception is explained in the "Department Notes" section at the end of this course plan template.*

Dept. Prefix - Course #	Course Title	Units
PTE 507	Engineering and Economic Evaluation of Subsurface Reservoirs	3
PTE 508	Numerical Simulation of Subsurface Flow and Transport Processes	3
PTE 531	Enhanced Oil and Gas Recovery	4
PTE 555	Well Competition, Stimulation, and Damage Control	3
PTE 582	Fluid Flow and Transport Processes in Porous Media	3
PTE 586	Artificial Intelligence and Machine Learning in Oilfield Operations	4
PTE 588	Smart Oilfield Data Mining	3
PTE 587	Smart Completions, Oilfield Sensors, and Sensor Technology	3
PTE 589	Advanced Oilfield Operations with Remote Immersive Visualization and Control Units	3
PTE 519	Integrated Physical and Cyber Security for Oilfield Operations	3
PTE 599	Digital Transformation of the Petroleum Industry	3

PRE-APPROVED ELECTIVE COURSEWORK

Elective coursework is approved at the discretion of the academic department. Note the following details about the total number and units required of elective coursework.

4

TOTAL ELECTIVE UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE

4

TOTAL ELECTIVE UNITS REQUIRED FOR THE PROGRESSIVE GRADUATE DEGREE

TOTAL UNIT COUNTS AND REQUIRED GRADUATE UNITS

36

TOTAL UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE

0

TOTAL GRADUATE UNITS THAT MAY BE WAIVED (IF ANY)

36

MINIMUM NUMBER OF GRADUATE UNITS THAT MUST BE AT THE 500 LEVEL OR ABOVE

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NOTES FROM THE DEPARTMENT

This section highlights any unique considerations, exceptions, or requirements for the graduate program. If a program has specific restrictions (courses, majors, etc.), they are detailed below.

- The number of units required for both the graduate and PDP degrees are the same. Students are not eligible for course waivers for graduate requirements toward PDP unit total.
- Students are required to complete 26 units of core classes: PTE 507, 508, 531, 555, 582, 486 and 588. Then they choose two core classes from the following list: PTE 587, 589, 519 or 599.
- Students may choose 4 units from the following list of approved electives: PTE 502, 503, 504, 505, 506, 511, 512, 514, 515, 542, 545, 572L, 574, 578, 581, 590
- For the graduate program, *Up to 16 additional units min. of deficiency courses are required for students without a B.S. in Petroleum Engineering*

Kelly Goulis

Authorizing Dean's Name

April 7, 2021

Date Approved

Senior Associate Dean, Viterbi School of Engineering

Authorizing Dean's Title