#### F INDICATES COURSE IS OFFERED FALL SEMESTER

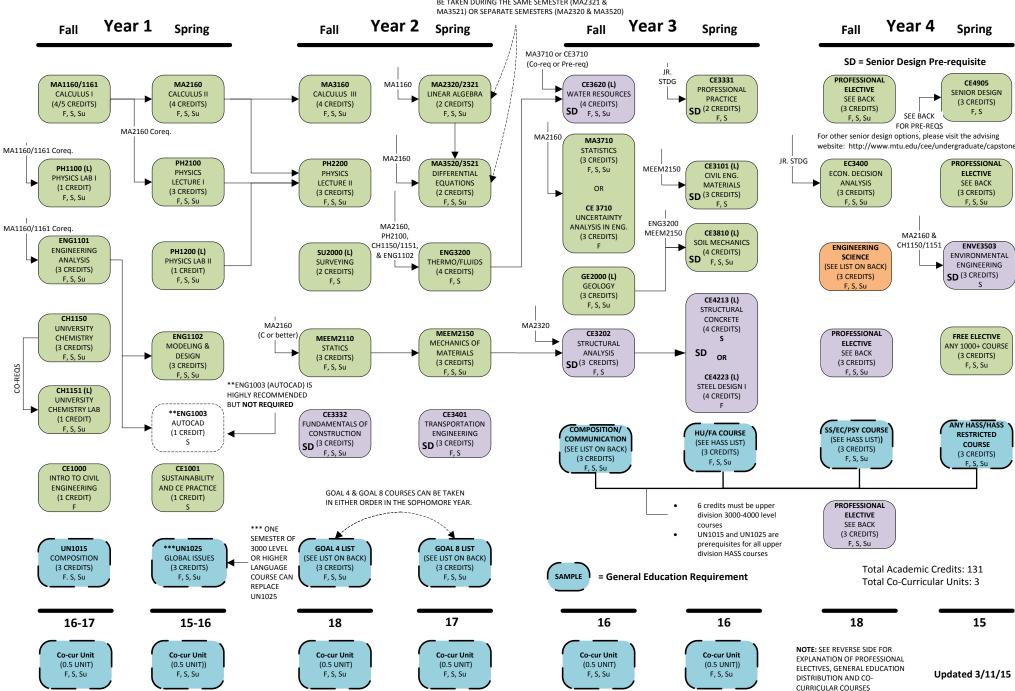
- S INDICATES COURSE IS OFFERED SPRING SEMESTER
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- (L) INDICATES A COURSE WHICH INCLUDES A LAB MUST BE SCHEDULED IN ADDITION TO THE LECTURE

## **CIVIL ENGINEERING FLOWCHART** General

## Academic Year 2015-16

NOTE: LINEAR ALGEBRA & DIFFERENTIAL EQUATIONS CAN BE TAKEN DURING THE SAME SEMESTER (MA2321 &

This is not an official list of degree requirements. Adjustments may be required due to curriculum changes. Year 4 **Spring** Fall SD = Senior Design Pre-requisite CE3331 CE4905 **ELECTIVE** SENIOR DESIGN SEE BACK (3 CREDITS) (3 CREDITS) F, S SEE BACK F, S, Su F, S FOR PRE-REQS For other senior design options, please visit the advising website: http://www.mtu.edu/cee/undergraduate/capstone/ JR. STDG EC3400 ECON DECISION FLECTIVE ANALYSIS SEE BACK (3 CREDITS) (3 CREDITS) F, S, Su F, S, Su MA2160 & CH1150/1151 ENVE3503 **ENGINEERING ENVIRONMENTAL** SCIENCE F, S, Su ENGINEERING (SEE LIST ON BACK) SD (3 CREDITS) (3 CREDITS) PROFESSIONAL FREE ELECTIVE ELECTIVE ANY 1000+ COURSE SEE BACK (3 CREDITS) (3 CREDITS) F, S, Su F, S, Su ANY HASS/HASS SS/EC/PSY COURSE RESTRICTED (SEE HASS LIST)) COURSE (3 CREDITS) (3 CREDITS) F, S, Su F, S, Su PROFESSIONAL **ELECTIVE** SEE BACK (3 CREDITS) F. S. Su Total Academic Credits: 131 Total Co-Curricular Units: 3 16 18 15



## **Engineering Science Elective List (3 credits)**

CM2110 FUND. OF CHEM ENGRG 1 CM2200 INTRO TO MINERALS AND MATERIALS EE3010 CIRCUITS AND INSTRUMENTATION MY2100 INTRO TO MATERIALS SCI & ENGRG

**BIOMEDICAL SIGNALS & SYSTEMS** 

MEEM2201 **THERMODYNAMICS** 

MEEM2700 **DYNAMICS** 

BE2700

SSE3730 SYSTEMS DYNAMICS AND DESIGN

Senior Design (SD) Pre-regs (complete 7 of the following)

CE3101, CE3202, CE3331, CE3332, CE3401, CE3620, CE3810, ENVE3503, CE4213 or CE4223

UNDERGRADUATE CATALOG: http://www.mtu.edu/catalog/undergraduate/course-descriptions/ GENERAL EDUCATION: http://www.mtu.edu/provost/academic-policies/general-education/programs/ CO-CURRICULAR LIST: http://www.mtu.edu/registrar/faculty-staff/advisors/gen-ed/

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- ANY 3000 OR HIGHER LEVEL COURSE IN BUSINESS OR ECONOMICS. (ACC, BUS, EC, FIN, MGT, MIS, MKT)
- ANY 2000 OR HIGHER LEVEL COURSE IN SURVEYING

NOTE: OTHER COURSES MAY BE USED TO SATISFY THE PROFESSIONAL ELECTIVES REQUIREMENT IF APPROVED BY THE DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING ACADEMIC ADVISOR.

#### **GENERAL EDUCATION REQUIREMENTS**

#### A. CORE COURSES (12 CREDITS)

- 1. UN1015 (COMPOSITION)
- 2. UN1025 (GLOBAL ISSUES)
- 3. GOAL 4 (CRITICAL AND CREATIVE THINKING) \*
- 4. GOAL 8 (SOCIAL RESPONSIBILITY

AND ETHICAL REASONING) \*\*

*GOAL 4 LIST	**GOAL 8 LIST
FA2330	EC2001
FA2520	PSY2000
FA2720	SS2100
FA2820	SS2200
HU2130	SS2400
HU2503	SS2500
HU2504	SS2501
HU2538	SS2502
HU2700	SS2503
HU2820	SS2504
HU2910	SS2505
SS2300	SS2600
	SS2601
	\$\$2700

<b>B. HASS COURSES</b>	(12 CREDITS) (General Ed Website, I	eft)
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HASS COURSES (12 CREDITS) (General Ed Website, in     SECOND COURSE IN COMMUNICATION/COMP	ert
<del></del>	
2. HU OR FA COURSE (HASS LIST)	
3. SS OR EC OR PSY COURSE (HASS LIST)	

4. ANY HASS OR HASS RESTRICTED COURSE (HASS LIST)

6 credits must be upper division 3000-4000 level

No more than 3 credits from the HASS Restricted list can be used to satisfy HASS requirements.

Each course can satisfy only one requirement.

## C. CO-CURRICULAR ACTIVITIES (3 UNITS)

PE/FA/AR/AF
PE/FA/AR/AF
PE/FA/AR/AF

F INDICATES COURSE IS OFFERED FALL SEMESTER

## S INDICATES COURSE IS OFFERED SPRING SEMESTER

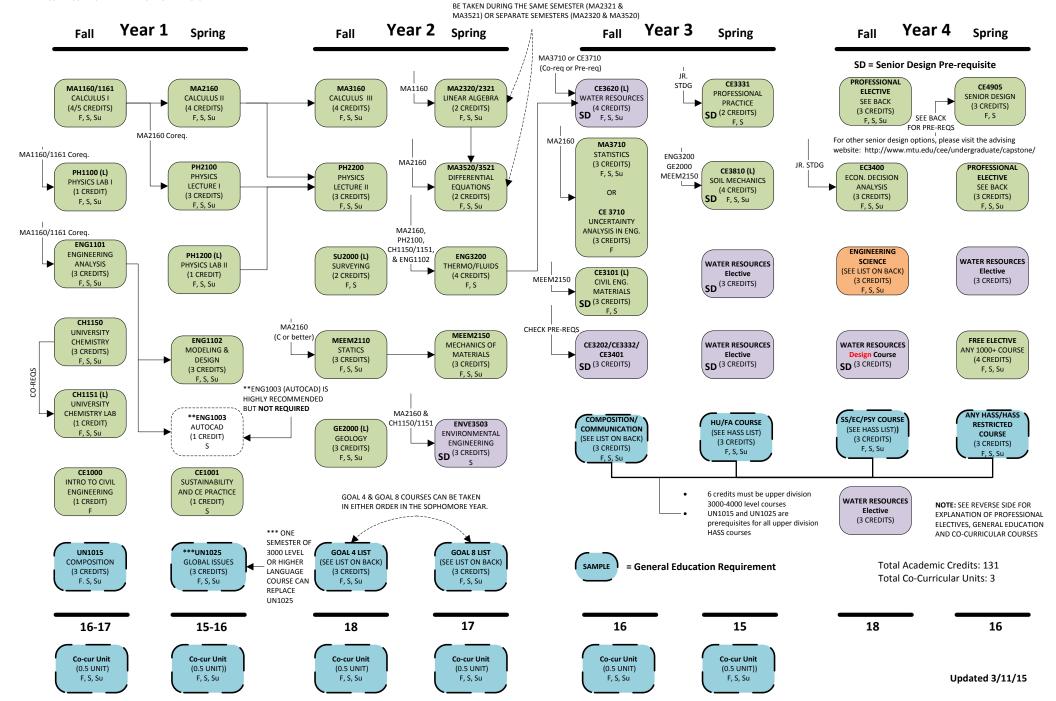
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# **CIVIL ENGINEERING FLOWCHART**

## **Water Resources**

Academic Year 2015-16 NOTE: LINEAR ALGEBRA & DIFFERENTIAL EQUATIONS CAN

This is not an official list of degree requirements. Adjustments may be required due to curriculum changes.



## **Water Resource Requirements**

Choose 1 course from the following

	_	
CE3202	STRUCTURAL ANALYSIS	3 credits
CE3332	FUND. OF CONSTRUCTION	3 credits
CE3401	TRANSPORTATION ENGRG	3 credits

#### WATER RESOURCES DESIGN COURSE (select 1)

CE4620	RIVER/FLOODPLAIN HYDRAULICS	3 credits
CE4640	STORMWATER MANAGE. & LID	3 credits
CE4665	STREAM RESTORATION	3 credits

## **WATER RESOURCES ELECTIVES** (select 4)

CE4620	RIVER/FLOODPLAIN HYDRAULICS	3 credits
CE4640	STORMWATER MANAGE. & LID	3 credits
CE4665	STREAM RESTORATION	3 credits
CE5620	STOCHASTIC HYDROLOGY	3 credits
CE5666	WR PLANNING & MANAGEMENT	3 credits
ENVE4502	WASTE TREATMENT	3 credits
ENVE4503	WATER TREATMENT	3 credits
ENVE4505	SURFACE WATER QUALITY	3 credits
ENVE4507	WATER DISTRIBUTION/COLLECT.	3 credits
GE3850	GEOHYDROLOGY	3 credits
GE4800	GROUNDWATER ENGRG	3 credits

Senior Design (SD) Pre-reqs (complete 7 of the following) CE3101, CE3331, (CE3202 or CE3332 or CE3401), CE3620, CE3810, ENVE3503, WATER RESOURCES DESIGN COURSE, & 2 WATER RESOURCES ELECTIVES

## **Engineering Science Elective List (3 credits)**

BIOMEDICAL SIGNALS & SYSTEMS
FUND. OF CHEM ENGRG 1
INTRO TO MINERALS & MATERIALS
CIRCUITS AND INSTRUMENTATION
INTRO TO MATERIALS SCI & ENGRG
THERMODYNAMICS
DYNAMICS
SYSTEMS DYNAMICS AND DESIGN

**UNDERGRADUATE CATALOG:** http://www.mtu.edu/catalog/undergraduate/course-descriptions/

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## **Professional Electives**

## (UNDERGRADUATE CATALOG: http://www.mtu.edu/catalog/undergraduate/course-descriptions/)

- ANY 3000, 4000, OR 5000 LEVEL COURSE IN CIVIL AND ENVIRONMENTAL ENGINEERING.
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- ANY 2000 OR HIGHER LEVEL COURSE IN SURVEYING

NOTE: OTHER COURSES MAY BE USED TO SATISFY THE PROFESSIONAL ELECTIVES REQUIREMENT IF APPROVED BY THE DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING ACADEMIC ADVISOR.

#### **GENERAL EDUCATION REQUIREMENTS**

#### A. CORE COURSES (12 CREDITS)

- 1. UN1015 (COMPOSITION)
- 2. UN1025 (GLOBAL ISSUES)
- 3. GOAL 4 (CRITICAL AND CREATIVE THINKING) \*
- 4. GOAL 8 (SOCIAL RESPONSIBILITY

AND ETHICAL REASONING) \*\*

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FA2330	EC2001
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HU2538	SS2502
HU2700	SS2503
HU2820	SS2504
HU2910	SS2505
SS2300	SS2600
	SS2601
	SS2700

#### B. HASS COURSES (12 CREDITS) (General Ed Website, left)

2. HU OR FA COURSE (HASS LIST)

3. SS OR EC OR PSY COURSE (HASS LIST)

4. ANY HASS OR HASS RESTRICTED COURSE (HASS LIST)

6 credits must be upper division 3000-4000 level

- No more than 3 credits from the HASS Restricted list can be used to satisfy HASS requirements.
- Each course can satisfy only one requirement.

#### C. CO-CURRICULAR ACTIVITIES (3 UNITS)

PE/FA/AR/AF	PE/FA/AR/AF
PE/FA/AR/AF	PE/FA/AR/AF
PE/FA/AR/AF	PE/FA/AR/AF

#### F INDICATES COURSE IS OFFERED FALL SEMESTER

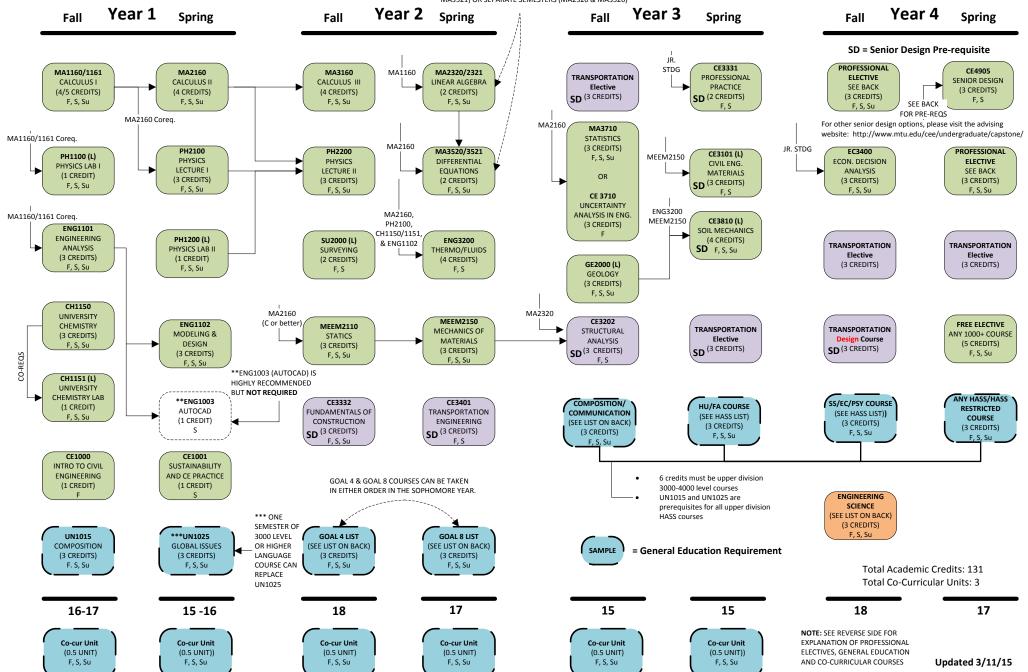
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- (L) INDICATES A COURSE WHICH INCLUDES A LAB
  MUST BE SCHEDULED IN ADDITION TO THE LECTURE

# CIVIL ENGINEERING FLOWCHART

# Transportation Academic Year 2015-16

NOTE: LINEAR ALGEBRA & DIFFERENTIAL EQUATIONS CAN BE TAKEN DURING THE SAME SEMESTER (MA2321 & MA3521) OR SEPARATE SEMESTERS (MA2320 & MA3520) This is not an official list of degree requirements.

Adjustments may be required due to curriculum changes.



## **Transportation**

#### TRANSPORTATION DESIGN COURSE (Select 1)

CE4401 PAVEMENT DESIGN 3 credits
CE4407 TRANSPORTATION DESIGN 3 credits

#### **TRANSPORTATION ELECTIVES** (select 4)

CE4401	PAVEMENT DESIGN	3 credits
CE4402	TRAFFIC ENGINEERING	3 credits
CE4403	TRAFFIC SAFETY	3 credits
CE4404	RAILROAD ENGINEERING	3 credits
CE4406	AIRPORT DESIGN	3 credits
CE4407	TRANSPORTATION DESIGN	3 credits
CE4410	TRANSPORTATION PLANNING	3 credits

Senior Design (SD) Pre-reqs (complete 7 of the following)
CE3101, CE3202, CE3331, CE3332, CE3401, CE3810
TRANSPORTATION DESIGN COURSE, & 2
TRANSPORTATION ELECTIVES

## **Engineering Science Elective List (3 credits)**

BE2700	<b>BIOMEDICAL SIGNALS &amp; SYSTEMS</b>
CM2110	FUND. OF CHEM ENGRG 1
CM2200	INTRO TO MINERALS & MATERIALS
EE3010	CIRCUITS AND INSTRUMENTATION
MY2100	INTRO TO MATERIALS SCI & ENGRG
MEEM2201	THERMODYNAMICS
MEEM2700	DYNAMICS
SSE3730	SYSTEMS DYNAMICS AND DESIGN

UNDERGRADUATE CATALOG: http://www.mtu.edu/catalog/undergraduate/course-descriptions/

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## **Professional Electives**

#### (UNDERGRADUATE CATALOG: http://www.mtu.edu/catalog/undergraduate/course-descriptions/)

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- ANY 2000 OR HIGHER LEVEL COURSE IN SURVEYING

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HU2538	SS2502
HU2700	SS2503
HU2820	SS2504
HU2910	SS2505
SS2300	SS2600
	SS2601
	SS2700

#### B. HASS COURSES (12 CREDITS) (General Ed Website, left)

- 1. SECOND COURSE IN COMMUNICATION/COMP
- 2. HU OR FA COURSE (HASS LIST)
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\_\_\_\_

- 6 credits must be upper division 3000-4000 level courses
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#### C. CO-CURRICULAR ACTIVITIES (3 UNITS)

 PE/FA/AR/AF\_\_\_\_\_
 PE/FA/AR/AF\_\_\_\_\_

 PE/FA/AR/AF\_\_\_\_\_
 PE/FA/AR/AF\_\_\_\_\_

 PE/FA/AR/AF\_\_\_\_\_
 PE/FA/AR/AF\_\_\_\_\_

F INDICATES COURSE IS OFFERED FALL SEMESTER
S INDICATES COURSE IS OFFERED SPRING SEMESTER

## **CIVIL ENGINEERING FLOWCHART**

## **Built Infrastructure**

## Academic Year 2015-16

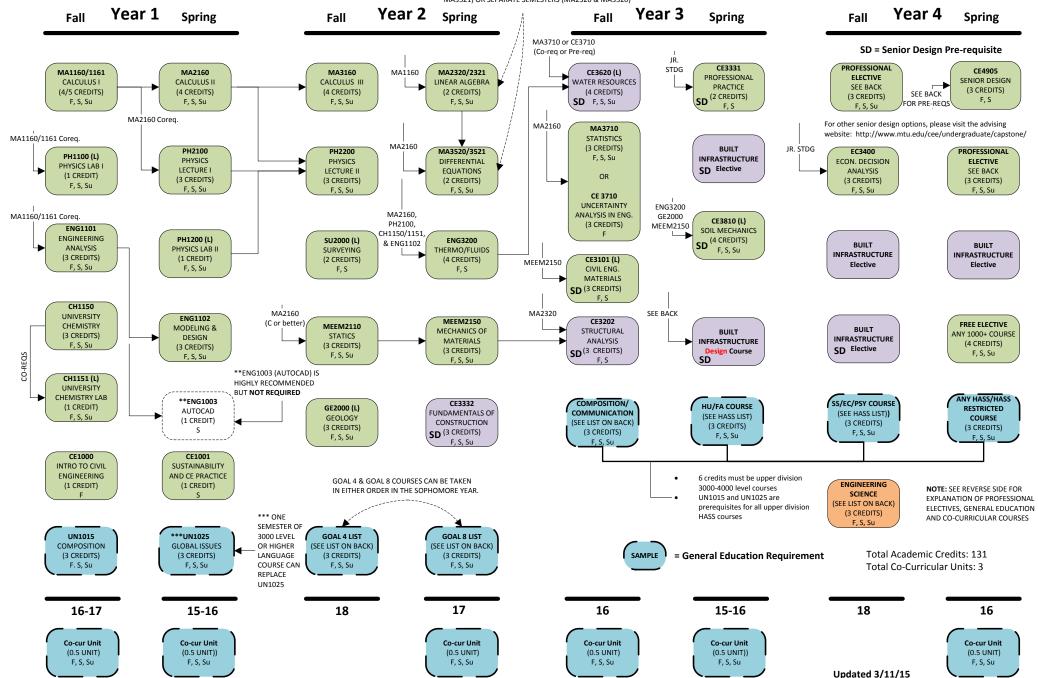
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## **BUILT INFRASTRUCTURE**

#### **BUILT INFRASTRUCTURE DESIGN COURSE (select 1)**

CE4213	STRUCTURAL CONCRETE DESIGN	4 credits
CE4223	STEEL DESIGN 1	4 credits
CE4820	FOUNDATION ENGINEERING	3 credits

#### **BUILT INFRASTRUCTURE ELECTIVES (select 4)**

CE4020	COMPUTER APPLICATIONS	3 credits
CE4201	MATRIX STRUCTURAL ANALYSIS	3 credits
CE4213	STRUCTURAL CONCRETE DESIGN	4 credits
CE4223	STEEL DESIGN 1	4 credits
CE4233	STRUCTURAL TIMBER DESIGN	3 credits
CE4333	ESTIMATING, PLANNING, CONST.	3 credits
CE4344	CONSTRUCTION SCHEDULING	3 credits
CE4820	FOUNDATION ENGINEERING	3 credits
CE4830	GEOSYNTHETICS	3 credits
CE4850	ROCK ENGINEERING	3 credits
CE5212	PRESTRESSED CONCRETE DESIGN	3 credits
CE5213	CONCRETE/MASONRY BLDG SYS	3 credits

Senior Design (SD) Pre-reqs (complete 7 of the following) CE3101, CE3331, CE3332, CE3202, CE3620, CE3810, BUILT INFRASTRUCTURE DESIGN COURSE, & 2 BUILT INFRASTRUCTURE ELECTIVES

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 PE/FA/AR/AF\_\_\_\_\_
 PE/FA/AR/AF\_\_\_\_\_

 PE/FA/AR/AF\_\_\_\_\_
 PE/FA/AR/AF\_\_\_\_\_