

# MAT 201

## DIFFERENTIAL EQUATIONS

### Learning Outcomes

## MATHEMATICS DEPARTMENT

**Mat103-Mat103E-Mat101-Mat101E(Mathematics 1)**  
**Mat104-Mat102-Mat102E(Mathematics 2)**

**Mat 201-I (Differential Equations)**  
**Mat261 (Linear Algebra)**

Faculty	Program	1th Semester		2nd Semester		3rd Semester		4th Semester	
IS	END Industrial Eng.	103	261	104		201E			
	ISL Managment Science and Eng.	103		104		201E	261		
FE	BIO Molecular Biology and Genetics	103		104		201			261
	FIZ Physics Eng.	101	261	102		201			
	KIM Chemistry	103		104		201			
MD	JEF Geophysical Eng.	101	261	102		201			
	JEO Geological Eng.	101		102		201			
	PET Petroleum and Natural Gas Eng.	101		102		201			
	MAD Mining Eng.	101		102		261			201
	CHZ Mineral Processing Eng.	101		102		201			
INB	INS Civil Eng.	101E		102E		201			
	JDF Geodesy and Photogammetry Eng (GEO Geomatics Eng.)	101		102		201			
	CEV Environmental Eng.	103		104		201			
UU	UCK Aeronautical Eng.	101/103		102/104	261	201			
	UZB Astronautical Eng.	101/103		102/104	261	201			
	MTO Meteorological Eng.	101		102	261	201			
MK	MAK Mechanical Eng.	103		104	261	201			
	IML Manufacturing Eng.	103		104		201			261
EE	ELE Electronics Eng.	101E	281*	102E		201			
	TEL Telecommunication Eng.	101E	281*	102E		201			
	ELK Electrical Eng.	101E	281*	102E		201			
	KON Control Eng.	101E	281*	102E		201			
BB	BLG Computer Eng.	101E	281E*	102		201			
KM	KMM Chemical Eng.	103		104		201E			
	MET Meallurgical and Materials Eng.	103		104		201			
	GID Food Eng.	103		104		201E			
GD	GEM Naval Architecure and Marine Eng.	103	261	104		201E			
	DEN Ship Building and Ocean Eng.	103	261	104		201E			
MM	MIM Architecture	103E							
	SBP Urban and Regional Planning	103E							
	EUT Industrial Product Design	103E							
	ICM Interior Architecture	103E							
	PEM Landscape Architecture	103E							
TT	TEK Textile Eng.	103		104		261			201

**Mat281-Mat281E-(Linear Algebra and Applications)course given by the Faculty of Electrical and Electronic Eng**

**MAT-201**

**SPRING 2017**

I. Diferansiyel denklemleri belli özelliklerine göre sınıflandırma	I. Classify differential equations according to certain features
II. Birinci mertebeden lineer ve belirli tipte lineer olmayan diferansiyel denklemleri çözme ve çözümleri yorumlama	II. Solve first order linear equations and nonlinear equations of certain types and interpret the solutions
III. Lineer denklem çözümleri için varlık ve teklilik koşullarını anlama	III. Understand the conditions for the existence and uniqueness of solutions for linear differential equations
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V. İkinci mertebeden lineer denklemler için adi ve düzgün tekil noktalar etrafında seri çözümler bulma	V. To find series solutions about ordinary and regular singular points for second order linear differential equations
VI. Laplace dönüşümü kullanarak ilk değer problemleri çözme	VI. Solve initial value problems using the Laplace transform
VII. Lineer denklem sistemlerini lineer cebir metodlarıyla çözebilme becerilerini kazanma	VII. Solve systems of linear differential equations with methods from linear algebra.

MIDTERM			
Q-1	Q-2	Q-3	Q-4
25	25	25	25
✓			
	✓		
✓			
		✓	✓

FINAL			
Q-1	Q-2	Q-3	Q-4
25	25	25	25
✓	✓		
		✓	
			✓

<b>AVERAGE</b>
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<b>14.7</b>	<b>15.8</b>	<b>14.8</b>	<b>11.9</b>
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<b>20.8</b>	<b>20.0</b>	<b>18.6</b>	<b>19.2</b>
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<b>AVERAGE %</b>
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<b>59%</b>	<b>63%</b>	<b>59%</b>	<b>47%</b>
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<b>83%</b>	<b>80%</b>	<b>75%</b>	<b>77%</b>
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**MAT-201**

**FALL 2016**

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MIDTERM			
Q-1	Q-2	Q-3	Q-4
25	25	25	25
✓			
✓	✓		
		✓	✓

FINAL			
Q-1	Q-2	Q-3	Q-4
25	25	25	25
✓	✓		
		✓	
			✓

<b>AVERAGE</b>
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<b>AVERAGE %</b>
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<b>16.8</b>	<b>14.8</b>	<b>15.1</b>	<b>15.8</b>
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<b>67%</b>	<b>59%</b>	<b>61%</b>	<b>63%</b>
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<b>18.5</b>	<b>16.0</b>	<b>13.8</b>	<b>20.1</b>
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<b>74%</b>	<b>64%</b>	<b>55%</b>	<b>80%</b>
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**MAT-201**

**SUMMER 2016**

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MIDTERM			
Q-1	Q-2	Q-3	Q-4
25	25	25	25
✓			
			✓
	✓		
	✓	✓	

FINAL			
Q-1	Q-2	Q-3	Q-4
25	25	25	25
✓	✓		
		✓	
			✓

<b>AVERAGE</b>
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<b>21.8</b>	<b>15.7</b>	<b>13.9</b>	<b>15.8</b>
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<b>17.4</b>	<b>17.1</b>	<b>15.2</b>	<b>15.8</b>
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<b>AVERAGE %</b>
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<b>87%</b>	<b>63%</b>	<b>56%</b>	<b>63%</b>
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<b>69%</b>	<b>68%</b>	<b>61%</b>	<b>63%</b>
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**MAT-201**

**SPRING 2016**

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MIDTERM			
Q-1	Q-2	Q-3	Q-4
25	25	25	25
✓	✓		
		✓	✓

FINAL			
Q-1	Q-2	Q-3	Q-4
25	25	25	25
✓	✓		
		✓	
			✓

<b>AVERAGE</b>
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<b>12.6</b>	<b>16.7</b>	<b>12.8</b>	<b>16.3</b>
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<b>12.3</b>	<b>13.5</b>	<b>12.1</b>	<b>17.8</b>
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<b>AVERAGE %</b>
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<b>50%</b>	<b>67%</b>	<b>51%</b>	<b>65%</b>
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<b>49%</b>	<b>54%</b>	<b>48%</b>	<b>71%</b>
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**MAT-201**

**FALL 2015**

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MIDTERM			
Q-1	Q-2	Q-3	Q-4
25	25	25	25
✓	✓	✓	
	✓	✓	✓

FINAL			
Q-1	Q-2	Q-3	Q-4
25	25	25	25
✓	✓		
		✓	
			✓

<b>AVERAGE</b>
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<b>13.1</b>	<b>11.8</b>	<b>14.0</b>	<b>17.9</b>
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<b>16.7</b>	<b>15.7</b>	<b>18.1</b>	<b>21.5</b>
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<b>AVERAGE %</b>
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<b>53%</b>	<b>47%</b>	<b>56%</b>	<b>72%</b>
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<b>67%</b>	<b>63%</b>	<b>72%</b>	<b>86%</b>
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**MAT-201**

**SUMMER 2015**

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MIDTERM			
Q-1	Q-2	Q-3	Q-4
40	20	30	20
✓	✓		
		✓	✓

FINAL			
Q-1	Q-2	Q-3	Q-4
20	20	30	30
✓	✓		
		✓	
			✓

<b>AVERAGE</b>
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<b>16.7</b>	<b>14.1</b>	<b>14.0</b>	<b>14.1</b>
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<b>17.5</b>	<b>10.7</b>	<b>17.6</b>	<b>19.2</b>
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<b>AVERAGE %</b>
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<b>42%</b>	<b>71%</b>	<b>47%</b>	<b>70%</b>
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<b>87%</b>	<b>54%</b>	<b>59%</b>	<b>64%</b>
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**MAT-201**

**SPRING 2015**

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MIDTERM			
Q-1	Q-2	Q-3	Q-4
25	25	25	25
✓	✓		
	✓		
		✓	✓

FINAL			
Q-1	Q-2	Q-3	Q-4
25	25	25	25
✓	✓		
		✓	
			✓

<b>AVERAGE</b>
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<b>AVERAGE %</b>
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<b>14.9</b>	<b>14.3</b>	<b>13.4</b>	<b>14.3</b>
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<b>60%</b>	<b>57%</b>	<b>54%</b>	<b>57%</b>
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<b>18.8</b>	<b>17.2</b>	<b>12.9</b>	<b>16.3</b>
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<b>75%</b>	<b>69%</b>	<b>52%</b>	<b>65%</b>
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**MAT-201**

**FALL 2014**

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MIDTERM			
Q-1	Q-2	Q-3	Q-4
25	20	25	30
✓			
	✓	✓	
		✓	
✓			✓

FINAL			
Q-1	Q-2	Q-3	Q-4
25	25	25	25
✓	✓		
		✓	
			✓

<b>AVERAGE</b>
----------------

<b>12.0</b>	<b>12.7</b>	<b>15.1</b>	<b>16.5</b>
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<b>20.6</b>	<b>17.7</b>	<b>15.1</b>	<b>13.9</b>
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<b>AVERAGE %</b>
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<b>48%</b>	<b>63%</b>	<b>60%</b>	<b>55%</b>
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<b>82%</b>	<b>71%</b>	<b>61%</b>	<b>56%</b>
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**MAT-201**

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MIDTERM			
Q-1	Q-2	Q-3	Q-4
25	26	29	20
✓	✓		
✓			
	✓	✓	✓

FINAL			
Q-1	Q-2	Q-3	Q-4
25	25	25	25
✓	✓		
		✓	
			✓

<b>AVERAGE</b>
----------------

<b>13.0</b>	<b>13.3</b>	<b>14.2</b>	<b>11.8</b>
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<b>19.1</b>	<b>16.0</b>	<b>11.6</b>	<b>9.7</b>
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<b>AVERAGE %</b>
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<b>52%</b>	<b>51%</b>	<b>49%</b>	<b>59%</b>
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<b>76%</b>	<b>64%</b>	<b>46%</b>	<b>39%</b>
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**MAT-201**

**SPRING 2014**

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MIDTERM			
Q-1	Q-2	Q-3	Q-4
25	26	29	20
✓			
	✓		
		✓	
✓		✓	✓

FINAL			
Q-1	Q-2	Q-3	Q-4
25	25	25	25
✓	✓		
		✓	
			✓

<b>AVERAGE</b>
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<b>16.0</b>	<b>11.5</b>	<b>15.0</b>	<b>12.2</b>
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<b>17.1</b>	<b>13.7</b>	<b>14.1</b>	<b>18.1</b>
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<b>AVERAGE %</b>
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<b>64%</b>	<b>44%</b>	<b>52%</b>	<b>61%</b>
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<b>69%</b>	<b>55%</b>	<b>56%</b>	<b>72%</b>
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