

| Time | Content | Lecturer | Classroom | Meeting ID |
|--------------------------|--|-------------|-----------|---------------------------------|
| August 8 8:00-9:35 | Introduction, course requirements and evaluation approach | N. ZHANG | J1-205 | #VooV Meeting: 724-5127-7575 |
| August 9 8:00-9:35 | Ch1 Tire characteristics, terminology and dynamics | N. ZHANG | J1-205 | #VooV Meeting: 724-5127-7575 |
| August 10 14:00-15:35 | Ch1 Tire parameters, modeling methods, linear model and Magic Formula tire model | N. ZHANG | J1-205 | #VooV Meeting: 591-2482-8952 |
| August 11 8:00-9:35 | Ch2 Wheel characteristics, dynamics and modeling, fundamentals of braking | N. ZHANG | J1-205 | #VooV Meeting: 724-5127-7575 |

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|-----------------------------|--|-------------|--------|-------------------------------------|
| August 15 8:00-9:35 | Ch3 Vertical dynamics, quarter car model | N. ZHANG | J1-205 | #VooV Meeting: 724- 5127-7575 |
| August 16 8:00-9:35 | Ch3 Vertical dynamics, comfort and fundamentals of NVH | N. ZHANG | J1-205 | #VooV Meeting: 724- 5127-7575 |
| August 17 14:00-15:35 | Ch4 Vertical dynamics, suspension characteristics and modeling of suspension components | N. ZHANG | J1-205 | #VooV Meeting: 591- 2482-8952 |
| August 18 8:00-9:35 | Ch5 Vertical dynamics, pitch motion, support angle for traction and braking | N. ZHANG | J1-205 | #VooV Meeting: 724- 5127-7575 |
| August 22 8:00-9:35 | Ch5 Vertical dynamics, roll motion, stabilizer anti-roll bar and wheel load transfer | N. ZHANG | J1-205 | #VooV Meeting: 724- 5127-7575 |
| August 23 8:00-9:35 | Ch6 Lateral dynamics, linearized single-track model | N. ZHANG | J1-205 | #VooV Meeting: 724- 5127-7575 |
| August 24 14:00-15:35 | Ch6 Lateral dynamics, understeer gradient, handling and stability related to self-steering characteristics | N. ZHANG | J1-205 | #VooV Meeting: 591- 2482-8952 |
| August 25 8:00-9:35 | Ch7 Longitudinal dynamics, engine characteristics, fuel consumption | N. ZHANG | J1-205 | #VooV Meeting: 724- 5127-7575 |
| August 29 8:00-9:35 | Ch7 Longitudinal dynamics, modeling of drive train | N. ZHANG | J1-205 | #VooV Meeting: 724- 5127-7575 |
| August 30 8:00-9:35 | Ch8 Aerodynamics, resistance forces and modeling | N. ZHANG | J1-205 | #VooV Meeting: 724- 5127-7575 |
| August 31 14:00-15:35 | Final review, fundamentals of articulated vehicle dynamics | N. ZHANG | J1-205 | #VooV Meeting: 591- 2482-8952 |
| September 1 8:00-9:35 | Final project | N. ZHANG | J1-205 | #VooV Meeting: 724- 5127-7575 |

Ning Zhang

2015

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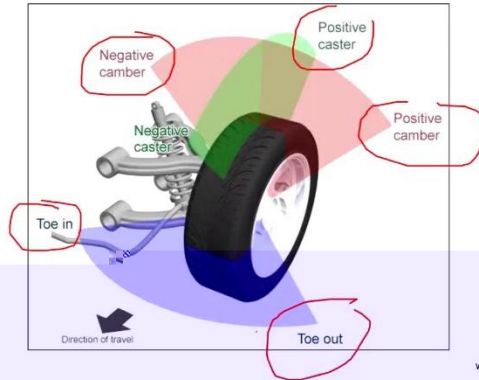
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Definitions



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| Time | Content | Lecturer | Classroom |
|--------------------------|------------------------------------|---------------|-----------|
| August 8 18:30-20:00 | The Introduction of Product Design | Wenyu Wu | J1-201 |
| August 10 14:00-16:30 | Product Design Process | Wenyu Wu | J1-201 |
| August 10 18:30-20:00 | Design Thinking and Methods | Wenyu Wu | J1-201 |
| August 11 18:30-20:00 | Product Producing and Market | Wenyu Wu | J1-201 |
| August 15 18:30-20:00 | About the sketching | Xiaozhou Zhou | J1-201 |
| August 17 14:00-16:30 | Perspective drawing | Xiaozhou Zhou | J1-201 |
| August 17 18:30-20:00 | Sketching Skill | Xiaozhou Zhou | J1-201 |
| August 18 18:30-20:00 | Color Material and Finishing | Xiaozhou Zhou | J1-201 |
| August 22 18:30-20:00 | The definition of human factors | Haiyan Wang | J1-201 |
| August 24 14:00-16:30 | Good Products | Haiyan Wang | J1-201 |
| August 24 18:30-20:00 | Information representation | Haiyan Wang | J1-201 |
| August 25 18:30-20:00 | Find way out | Haiyan Wang | J1-201 |



Xiaozhou Zhou

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Wenyu Wu

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Alex Brezing

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Alex

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你正在觀看 02020214 黃治黔 的螢幕



Aeroplane Seating

Speaker: 02020214 黃治黔

02020309 一乃永博

周小荷
wuwenyu
Alex Brezina

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周小荷
Alex Brezina
02020309 一乃永博
Heaven
Cathy Wang
02020108 周潤

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MATLAB

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| August 8 20:30-22:00 | Introduction | Chin-an Tan | #VooV Meeting: 532-7926-2248 |
| August 10 20:30-22:00 | Kinematics | Chin-an Tan | #VooV Meeting: 315-6214-0467 |
| August 13 9:30-12:00 | Tutorial on Matlab/Simulink | Chin-an Tan | #VooV Meeting: 555-8949-3299 |
| August 15 20:30-22:00 | Bicycle Model | Chin-an Tan | #VooV Meeting: 532-7926-2248 |
| August 17 20:30-22:00 | Three-dimension Dynamics | Chin-an Tan | #VooV Meeting: 315-6214-0467 |
| August 20 9:30-12:00 | Stability Analysis | Chin-an Tan | #VooV Meeting: 555-8949-3299 |
| August 22 20:30-22:00 | How to control a dynamic system | Chin-an Tan | #VooV Meeting: 532-7926-2248 |
| August 24 20:30-22:00 | Controllability and Observability | Chin-an Tan | #VooV Meeting: 315-6214-0467 |
| August 27 9:30-12:00 | Discussion on | Chin-an Tan | #VooV Meeting: 555-8949-3299 |
| August 29 20:30-22:00 | Discussion on ACC | Chin-an Tan | #VooV Meeting: 532-7926-2248 |
| August 31 20:30-22:00 | Project Update | Chin-an Tan | #VooV Meeting: 315-6214-0467 |
| September 3 9:30-12:00 | Discussion on LKA | Chin-an Tan | #VooV Meeting: 555-8949-3299 |



Chin-an Tan

Tan Chin-An
(Berkeley)
Institute of Technology)

(University of California at
(California

NVH

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(ASME)

ASME

ASME

(General Motors

Research Laboratory)

VehicleDynamicsMobility_00_Simulink... Search (Alt+Q) Chin-An Tan

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1.2 Examples

Example: outline

- The material of the example (MATLAB Codes & SIMULINK GUI)
- Example 1: Pendulum around equilibrium point
- Example 2: Three masses building structural vibration
- Example 3: Taper beam and pendulum (two mass element)
- Example 4: Stabilizing an inverted pendulum using a sliding gain

Example: Overview of the examples

4 Examples

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1.2.1 Example 1 - Simple pendulum

Example 1: Pendulum around equilibrium point

Pendulum

Modeling: To obtain the governing equation of motion, the governing equation of the pendulum using the physical approach is derived. The derivation starts with energy method or a particle motion approach.

$$T = \rho A g L (1 - \cos \theta)$$
where the term $\rho A g L$ is constant to be at the origin. Then, the governing equation is $\ddot{\theta} + \frac{g}{L} \sin \theta = 0$ where $\theta = 0$ is the equilibrium position of the pendulum.

Example 1: Pendulum around equilibrium point

State space equation: To convert the governing equation of motion into a form suitable for numerical simulation, the following state space equation is derived using the state space method.

$$\dot{\mathbf{x}} = \mathbf{A}\mathbf{x} + \mathbf{B}u$$

where the state variables are initially written in vector form.

Example 1: Pendulum around equilibrium point

Pendulum

Linearization of the nonlinear system: To obtain a set of three equations of motion of a nonlinear structure from the nonlinear system, the following equation is derived.

Using Taylor expansion theorem, we have

$$f(\theta) \approx f(\theta_0) + f'(\theta_0)(\theta - \theta_0) + \frac{1}{2} f''(\theta_0)(\theta - \theta_0)^2 + \dots$$

where $f'(\theta_0)$ is the higher-order terms are higher order than the linear term. The first-order expansion term is used to linearize the nonlinear system. The first-order expansion term is $f(\theta) \approx f(\theta_0) + f'(\theta_0)(\theta - \theta_0)$.

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(1) 学院国际暑期课程-组织管理 (针对学院组织方面)

| 选项 | 小计 | 比例 |
|-----------------|-----------|--------|
| 很不满意 | 1 | 2.17% |
| 不满意 | 0 | 0% |
| 一般 | 5 | 10.87% |
| 满意 | 18 | 39.13% |
| 很满意 | 22 | 47.83% |
| 本题有效填写人次 | 46 | |

| 选项 | 小计 | 比例 |
|-----------------|-----------|--------|
| 很不满意 | 5 | 10.87% |
| 不满意 | 4 | 8.7% |
| 一般 | 10 | 21.74% |
| 满意 | 11 | 23.91% |
| 很满意 | 16 | 34.78% |
| 本题有效填写人次 | 46 | |

第3题: 国际暑期课程对我英语交流能力锻炼是否有帮忙 [单选题]

| 选项 | 小计 | 比例 |
|-----------------|-----------|--------|
| 非常有 | 10 | 21.74% |
| 有 | 29 | 63.04% |
| 一般 | 7 | 15.22% |
| 没有 | 0 | 0% |
| 本题有效填写人次 | 46 | |

第4题: 国际暑期学校的英语课程是否能够帮助我建立国际视野? [单选题]

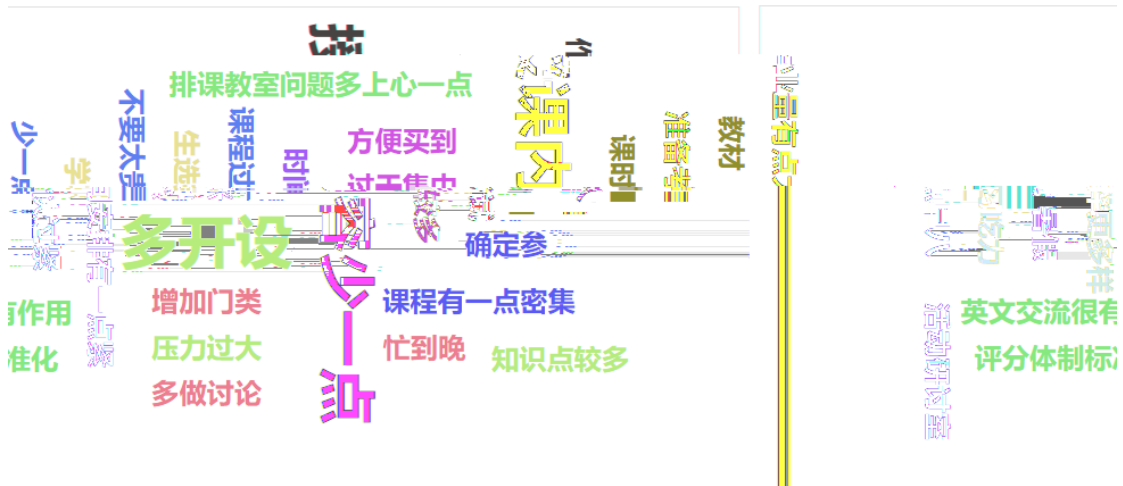
| 选项 | 小计 | 比例 |
|-----------------|-----------|--------|
| 非常有 | 12 | 26.09% |
| 有 | 27 | 58.7% |
| 一般 | 6 | 13.04% |
| 没有 | 1 | 2.17% |
| 本题有效填写人次 | 46 | |

第5题: 如果学院允许多选修几门国际暑期学校课程, 我会选择几门课程? [单选题]

| | 选项 | 小计 | 比例 |
|----|----------|----|------|
| 1% | 1 | 34 | 73.9 |
| 9% | 2 | 12 | 26.0 |
| | 3 | 0 | 0% |
| | 本题有效填写人次 | 46 | |

第6题: 针对学院组织国际暑期学校的建议 [填空题]

详细作答情况 观点分析 隐藏词云图



第7题: 针对所选修课程的建议 [填空题]

隐藏词云图

详细作答情况 观点分析

