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"courseNumber": "ENSF-409",

"courseName": "Principles of Software Development",

"courseDescription": "A survey of software design and development topics for Engineering students. Topics include: key features of an object-oriented programming language, especially inheritance and polymorphism; elements of object-oriented design; programming and application of common data structures; strategies and tools for testing and debugging.",

"academicCredit": 3,

"lectureHours": 3,

"labHours": 2,

"refUrl": "http://www.ucalgary.ca/pubs/calendar/current/software-engineering-for-engineers.html#38252",

"outcomes": [

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"oid": 1,

"description": "Have a deep understanding, and practical knowledge of object oriented analysis, design, and development.",

"graduateAttributes": [

{

"gid": "A1",

"description": "A knowledge base for engineering",

"instructionLevel": "Applied"

}

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"oid": 2,

"description": "Design and develop software programs in Java.",

"graduateAttributes": [

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"gid": "A4",

"description": "Design",

"instructionLevel": "Applied"

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"description": "Define the concepts of object-oriented design, such as inheritance and polymorphism.",

"graduateAttributes": [

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"gid": "A2",

"description": "Problem analysis",

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"description": "Apply miscellaneous programming concepts in Java, such as cloning, generic types, multi-threading, event-based programming, etc.",

"graduateAttributes": [

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"gid": "A5",

"description": "Use of engineering tools",

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"description": "Design and develop client-server applications.",

"graduateAttributes": [

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"description": "Design",

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"description": "Use databases to store and retrieve information.",

"graduateAttributes": [

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"description": "Investigation",

"instructionLevel": "Developed"

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"graduateAttributes": [

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"description": "Use of engineering tools",

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"description": "Define the concepts of object-oriented design, such as inheritance and polymorphism.",

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"description": "Problem analysis",

"instructionLevel": "Applied"

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"description": "Use of engineering tools",

"instructionLevel": "Applied"

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"description": "Design",

"instructionLevel": "Applied"

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"description": "Investigation",

"instructionLevel": "Developed"

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"graduateAttributes": [

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"gid": "A5",

"description": "Use of engineering tools",

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"lectureHours": 3,

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"graduateAttributes": [

{

"gid": "A1",

"description": "A knowledge base for engineering",

"instructionLevel": "Applied"

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"graduateAttributes": [

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"gid": "A4",

"description": "Design",

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"description": "Define the concepts of object-oriented design, such as inheritance and polymorphism.",

"graduateAttributes": [

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"gid": "A2",

"description": "Problem analysis",

"instructionLevel": "Applied"

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{

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"description": "Apply miscellaneous programming concepts in Java, such as cloning, generic types, multi-threading, event-based programming, etc.",

"graduateAttributes": [

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"gid": "A5",

"description": "Use of engineering tools",

"instructionLevel": "Applied"

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