

Syrian Arab Republic	 الجامعة الافتراضية السورية SYRIAN VIRTUAL UNIVERSITY	الجمهورية العربية السورية
Ministry of Higher Education		وزارة التعليم العالي
Syrian Virtual University		الجامعة الافتراضية السورية

## Course Description: **Course Name**

### 1- Basic Information:

Course Name	<b>Virtual Reality</b>
Course ID	<b>VR</b>
Contact Hours (Registered Sessions)	<b>16</b>
Contact Hours (Synchronized Sessions)	<b>16</b>
Mid Term Exam	-
Exam	<b>75 min</b>
Registered Sessions Work Load	<b>16</b>
Synchronized Session Work Load	<b>16</b>
Credit Hours	.....

### 2- Pre-Requisites:

Course	ID
None	

### 3- Course General Objectives:

Recent advances in real-time 3D technologies are allowing fully interactive virtual environments (VEs) to be created and displayed on common desktop and home gaming computers, instead of the expensive research machines of years past. As it becomes feasible for artists and designers to create these rich virtual environments, they need to be aware of both practical and aesthetic issues unique to interactive virtual worlds. It is this course's aim to present the techniques, experiences, and implications of VE development.

Students will be exposed to the state of the art virtual environment software and hardware. They will be given an overview of VE issues and implications. Students will learn to create and evaluate interactive virtual environments relevant to their discipline.

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#### 4- Intended Learning Outcomes (ILO):

Code	Intended Learning Outcomes
ILO1	What is VRML? <ul style="list-style-type: none"> <li>• Welcome</li> <li>• Schedule for the day</li> <li>• Seminar scope</li> </ul>
ILO2	Key Concepts <ul style="list-style-type: none"> <li>• What is VRML?</li> <li>• Writing and Viewing VRML Files</li> <li>• VRML File Structure               <ul style="list-style-type: none"> <li>○ Header</li> <li>○ Nodes and Fields</li> <li>○ DEF and USE</li> </ul> </li> <li>• Defining Names for Nodes</li> <li>• Example</li> <li>• Summary</li> </ul>
ILO3	<ul style="list-style-type: none"> <li>• Building Primitive Shapes               <ul style="list-style-type: none"> <li>○ Motivation</li> <li>○ Understanding Shapes</li> <li>○ Syntax                   <ul style="list-style-type: none"> <li>▪ Shape</li> <li>▪ Box</li> <li>▪ Cylinder</li> <li>▪ Cone</li> <li>▪ Sphere</li> </ul> </li> <li>○ Example</li> <li>○ Understanding Groups</li> <li>○ Syntax                   <ul style="list-style-type: none"> <li>▪ Group</li> </ul> </li> <li>○ Example</li> </ul> </li> </ul>

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	<ul style="list-style-type: none"> <li>○ Summary</li> </ul>
<b>ILO4</b>	<ul style="list-style-type: none"> <li>● Building Text Shapes           <ul style="list-style-type: none"> <li>○ Motivation</li> <li>○ Understanding Text</li> <li>○ Creating Text</li> <li>○ Syntax               <ul style="list-style-type: none"> <li>▪ Text</li> <li>▪ FontStyle</li> </ul> </li> <li>○ Example</li> <li>○ Summary</li> </ul> </li> </ul>
<b>ILO5</b>	<ul style="list-style-type: none"> <li>● Transforming Shapes           <ul style="list-style-type: none"> <li>○ Motivation</li> <li>○ Understanding Coordinate Systems</li> <li>○ Syntax               <ul style="list-style-type: none"> <li>▪ Transform</li> </ul> </li> <li>○ Translating a Coordinate System</li> <li>○ Rotating a Coordinate System</li> <li>○ Scaling a Coordinate System</li> <li>○ Combining Transforms</li> <li>○ Example</li> <li>○ Summary</li> </ul> </li> </ul>
<b>ILO6</b>	<ul style="list-style-type: none"> <li>● Animating Transforms           <ul style="list-style-type: none"> <li>○ Motivation</li> <li>○ Understanding Animation and Time</li> <li>○ Understanding Keyframe Animation</li> <li>○ Syntax               <ul style="list-style-type: none"> <li>▪ ROUTE</li> <li>▪ TimeSensor</li> <li>▪ PositionInterpolator</li> <li>▪ OrientationInterpolator</li> </ul> </li> <li>○ Example</li> </ul> </li> </ul>

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	<ul style="list-style-type: none"> <li>○ Summary</li> </ul>
ILO7	<ul style="list-style-type: none"> <li>• Sensing Viewer Actions           <ul style="list-style-type: none"> <li>○ Motivation</li> <li>○ Understanding Viewer Sensing               <ul style="list-style-type: none"> <li>▪ Sensing touch</li> <li>▪ Sensing motion</li> </ul> </li> <li>○ Syntax               <ul style="list-style-type: none"> <li>▪ TouchSensor</li> <li>▪ PlaneSensor</li> <li>▪ SphereSensor</li> <li>▪ CylinderSensor</li> </ul> </li> <li>○ Example</li> <li>○ Summary</li> </ul> </li> </ul>
ILO8	<ul style="list-style-type: none"> <li>• Controlling Appearance with Materials           <ul style="list-style-type: none"> <li>○ Motivation</li> <li>○ Understanding Shape Appearance</li> <li>○ Understanding Materials and Colors</li> <li>○ Syntax               <ul style="list-style-type: none"> <li>▪ Shape</li> <li>▪ Appearance</li> <li>▪ Material</li> </ul> </li> <li>○ Example</li> <li>○ summary</li> </ul> </li> <li>•</li> </ul>
ILO9	<ul style="list-style-type: none"> <li>• Grouping Nodes           <ul style="list-style-type: none"> <li>○ Motivation</li> <li>○ Understanding Grouping               <ul style="list-style-type: none"> <li>▪ Basic groups</li> <li>▪ Switch groups</li> <li>▪ Transform groups</li> <li>▪ Billboard groups</li> </ul> </li> <li>○ Syntax               <ul style="list-style-type: none"> <li>▪ Group</li> </ul> </li> </ul> </li> </ul>

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	<ul style="list-style-type: none"> <li>▪ Switch</li> <li>▪ Transform</li> <li>▪ Billboard</li> <li>○ Example</li> <li>○ Summary</li> </ul>
	<ul style="list-style-type: none"> <li>• Inlining World Components           <ul style="list-style-type: none"> <li>○ Motivation</li> <li>○ Understanding Inlining</li> <li>○ Syntax               <ul style="list-style-type: none"> <li>▪ Inline</li> </ul> </li> <li>○ Example</li> <li>○ Summary</li> </ul> </li> <li>•</li> </ul>
	<ul style="list-style-type: none"> <li>• Adding Anchors to Your World           <ul style="list-style-type: none"> <li>○ Motivation</li> <li>○ Understanding Anchors</li> <li>○ Syntax               <ul style="list-style-type: none"> <li>▪ Anchor</li> </ul> </li> <li>○ Example</li> <li>○ Summary</li> </ul> </li> <li>•</li> </ul>
	<ul style="list-style-type: none"> <li>• Building Elevation Grids           <ul style="list-style-type: none"> <li>○ Motivation</li> <li>○ Understanding Elevation Grids</li> <li>○ Syntax               <ul style="list-style-type: none"> <li>▪ ElevationGrid</li> </ul> </li> <li>○ Example</li> <li>○ Summary</li> </ul> </li> <li>• Building Extruded Shapes           <ul style="list-style-type: none"> <li>○ Motivation</li> <li>○ Understanding Extrusion               <ul style="list-style-type: none"> <li>▪ Cross-section</li> <li>▪ Spine</li> <li>▪ Scaling and Rotating Cross-sections</li> </ul> </li> <li>○ Syntax</li> </ul> </li> </ul>

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	<ul style="list-style-type: none"> <li>▪ Extrusion           <ul style="list-style-type: none"> <li>○ Example</li> <li>○ Summary</li> </ul> </li> <li>• Binding Colors to Coordinate-based Geometry           <ul style="list-style-type: none"> <li>○ Motivation</li> <li>○ Understanding Color Binding</li> <li>○ Syntax               <ul style="list-style-type: none"> <li>▪ Color</li> <li>▪ PointSet</li> <li>▪ IndexedLineSet</li> <li>▪ IndexedFaceSet</li> <li>▪ ElevationGrid</li> </ul> </li> <li>○ Example</li> <li>○ Summary</li> </ul> </li> </ul>
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5- **Course Syllabus** (18 hours of total synchronized sessions; 18 hours of total Recorded Sessions)

- **RS:** Recorded Sessions; **SS:** Synchronized Sessions;

ILO	Course Syllabus	RS	SS	Type	Additional Notes
ILO1				<input type="checkbox"/> Exercises <input type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input type="checkbox"/> Practices <input type="checkbox"/> Others	
ILO2				<input type="checkbox"/> Exercises <input type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input type="checkbox"/> Practices <input type="checkbox"/> Others	
ILO3				<input type="checkbox"/> Exercises <input type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input type="checkbox"/> Practices <input type="checkbox"/> Others	

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ILO4				<input type="checkbox"/> Exercises <input type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input type="checkbox"/> Practices <input type="checkbox"/> Others	
ILO5				<input type="checkbox"/> Exercises <input type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input type="checkbox"/> Practices <input type="checkbox"/> Others	
ILO6				<input type="checkbox"/> Exercises <input type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input type="checkbox"/> Practices <input type="checkbox"/> Others	
ILO7				<input type="checkbox"/> Exercises <input type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input type="checkbox"/> Practices <input type="checkbox"/> Others	
ILO8				<input type="checkbox"/> Exercises <input type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input type="checkbox"/> Practices <input type="checkbox"/> Others	

## 6- Assessment Criteria (Related to ILOs)

ISC	Interactive Synchronized Collaboration	Ex	Exams	Rpt	Reports
PF2F	Presentations and Face-to-Face Assessments	PW	Practice Work		

ILO	ILO	Intended Results	Assessment Type
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Code			ISC	PW	Ex	PF2F	Rpt
ILO1			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
ILO2			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
ILO3			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
ILO4			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
ILO5			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
ILO6			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
ILO7			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
ILO8			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

### 7-Practice Tools:

Tool Name	Description
<b>Course Name</b>	

### 8-Main References

1. The VRML Source book. Ames, A. L., Nadeau, D. R., et Moreland, J. L. (1996b). Wiley, New York. URL: <http://www.wiley.com/Compbooks/vrmlsrbk/cover/cover.html>
2. The Annotated VRML 2.0 Reference Manual, Carey, R. et Bell, G. (1997). Addison-Wesley. URL: <http://www.awl.com/devpress/titles/41974.html>.
3. The VRML Handbook by Jed Hartman and Josie Wernecke (Addison-Wesley, 1996)
4. Teach Yourself VRML 2.0 in 21 Days by Chris Marrin and Bruce Campbell (Macmillan Computer Publishing, 1997)



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## 9-Additional References

1. <http://www.vrml.org/Specifications/VRML97/>
2. <http://www.wiley.com/compbooks/vrml2sbk/cover/cover.htm>
3. <http://www.parallelgraphics.com/products/cortona/html/>
4. <http://www.cai.com/cosmo/>
5. <http://www.blaxxun.com/>