<table>
<tr><td>1.</td><td colspan="5">Name of Course</td><td>Multimedia System and Network</td></tr>
<tr><td>2.</td><td colspan="5">Course Code</td><td>JMSN2043</td></tr>
<tr><td></td><td colspan="6">JMSN = the first alphabet identify the faculty within which the subject is offered., JMSN = the remaining three alphabets identify the course that offers the subject, 2043= the first digit identify level of study; in this case undergraduate level, 2043= the second and third digits identify subject identity and 2043 = the fourth digit identify credit value or credit hours</td></tr>
<tr><td>3.</td><td colspan="5">Name(s) of academic staff</td><td>To be Assigned</td></tr>
<tr><td>4.</td><td colspan="5">Rationale for the inclusion of the course/module in the programme</td><td>Knowledge of Multimedia System and Network is essential in electrical and electronic engineering. Moreover, acquiring knowledge in Multimedia System and Network enable engineer to communicate effectively with the modern world</td></tr>
<tr><td>5.</td><td colspan="5">Semester and Year offered</td><td>Year 2, Semester 2</td></tr>
<tr><td rowspan="3">6.</td><td>Total Student Learning Time (SLT)</td><td colspan="4">Face to Face</td><td>Total Guided and Independent Learning</td></tr>
<tr><td rowspan="2">L = Lecture T = Tutorial
P = Practical
IS= Independent Study</td><td>L</td><td>T</td><td>P</td><td>IS</td><td rowspan="2">Total Guided and Independent Learning = 120</td></tr>
<tr><td>42</td><td>7</td><td>6</td><td>65</td></tr>
<tr><td>7.</td><td colspan="5">Credit Value</td><td>3.0</td></tr>
<tr><td></td><td colspan="6">Lecture: 3 hours per week x 14 weeks
Tutorial: 1 hour per week x 7 weeks
Practical: 2 hours x 3 weeks</td></tr>
<tr><td>8.</td><td colspan="5">Prerequisite (if any)</td><td>None</td></tr>
<tr><td>9.</td><td colspan="6">Course Objectives
1. To expose the students to the multimedia system and networking.

Course Learning Outcomes (CLO)
At the end of the semester students should be able to:

CLO1: Analyze data compression algorithms ;
CLO2: Analyze various components of image, video, audio compression and analyze various packet recovery, adaptive play out, and congestion avoidance strategies ;
CLO3: Design a network to distribute multimedia data and Work as a team to analyze contemporary issues in multimedia systems ;</td></tr>
<tr><td>10.</td><td colspan="6">Transferable Skills:
This course is expected the development of the following transferable skills:
▪ An ability to manage time and task
▪ An ability to learn both independently and co—operatively;
▪ An ability to take responsibility and carry out laboratory test;
▪ An ability to take initiative and lead other;
▪ An ability to use software where relevant to the subject.</td></tr>
<tr><td>11.</td><td colspan="6">Teaching-learning and assessment strategy

A variety of learning strategies are used throughout the course, including the following
• Classroom Lesson; Lecturer and power point presentation
• Tutorial session</td></tr>
</table>

	• Student- lecturer Discussion • Collaborative and co-operative learn; • Independent study. **Assessment:** **Course works** **40%** Assignment 5% Tutorial 5% Quizzes 5% Laboratory works 10% Test 15% **Final Examination** **60%** **Total** **100%**
12.	**Synopsis:** This course is very important course in the field of electrical and electronics engineering. The objective of course is to introduce to the students and provide a fundamental of the multimedia system and networking.
13.	**Mode of Delivery:** Lectures; Tutorials; Laboratory works

14. **Assessment Methods and Types:**
Performance Criteria :

CLO-PLO	**Assessment Tool**	**1**	**2**	**3**	**4**	**5**
Marks		**0-39**	**40-49**	**50-59**	**60-74**	**75-100**
Grade		**(F)**	**(D,D+)**	**(C-,C,C+)**	**(B-,B,B+)**	**(A-,A,A+)**
CLO1: To analyze data compression algorithms;	**Assignment** **Tutorials quizzes** **Lab works** **Quizzes** **Test** **Examination**	**Fail To:** - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	**Poor To**: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	**Satisfactory To**: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	**Good To**: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	**Excellent To:** - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test
CLO2: To analyze various components of image, video, audio compression and analyze various packet recovery, adaptive play out, and congestion avoidance strategies;	**Assignment** **Tutorials quizzes** **Lab works** **Quizzes** **Test** **Examination**	**Fail To:** - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	**Poor To**: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	**Satisfactory To**: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	**Good To:** - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	**Excellent To:** - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test
CLO3: Design a network to distribute multimedia data and Work as a team to analyze contemporary issues in multimedia systems;	**Assignment** **Tutorials quizzes** **Lab works** **Quizzes** **Test** **Examination**	**Fail To:** - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	**Poor To**: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	**Satisfactory To**: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	**Good To**: - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test	**Excellent To:** - manage time and task - learn both independently and cooperatively - take responsibility and carry out laboratory test

15. **Mapping of the Programme Objectives to the Programme Learning Outcomes**

Programme Learning Outcomes (PLO) / Programme Objectives (PO)	**PLO1:** Ability to acquire and apply knowledge of science and engineering fundamentals.	**PLO2:** Acquired in-depth technical competence in electrical electronics engineering discipline.	**PLO3:** Ability to undertake problem identification, formulation and solution;	**PLO4:** Ability to utilise systems approach to design and evaluate operational performance.	**PLO5:** Understanding of the principles of design for sustainable development;	**PLO6:** Understanding of professional and ethical responsibilities and commitment to them.	**PLO7:** Ability to communicate effectively, not only with engineers but also with the community at large.	**PLO8:** Ability to function effectively as an individual and in a group with the capacity to be a leader or manager;	**PLO9:** Understanding of the social, cultural, global and environmental responsibilities of a professional engineer	**PLO10:** Recognising the need to undertake lifelong learning, and possessing/acquiring the capacity to do so	**PLO11**: Ability become entrepreneur
PEO1: To produce graduates with excellent knowledge and competency in Electrical and Electronic Engineering;	✓		✓			✓			✓		
PEO2: To produce graduates with professional, generic attributes to meet the present and future global demands.											
PEO3: To produce graduates with Islamic humanistic values and reinvention skills to meet the requirement of a dynamic environment. These skills include Civil Intelligence, Moral Intelligence, Self-Reliance and Communication Skills.											

16. **Mapping of the course Learning Outcome to the Programme Outcome**

Programme Learning Outcomes (PLO) / Course Learning Outcome (CLO)	**PLO1:** Ability to acquire and apply knowledge of science and engineering fundamentals.	**PLO2:** Acquired in-depth technical competence in electrical electronics engineering discipline.	**PLO3:** Ability to undertake problem identification, formulation and solution;	**PLO4:** Ability to utilise systems approach to design and evaluate operational performance.	**PLO5:** Understanding of the principles of design for sustainable development;	**PLO6:** Understanding of professional and ethical responsibilities and commitment to them.	**PLO7:** Ability to communicate effectively, not only with engineers but also with the community at large.	**PLO8:** Ability to function effectively as an individual and in a group with the capacity to be a leader or manager;	**PLO9:** Understanding of the social, cultural, global and environmental responsibilities of a professional engineer	**PLO10:** Recognising the need to undertake lifelong learning, and possessing/acquiring the capacity to do so	**PLO11**: Ability become entrepreneur
CLO1: Analyze data compression algorithms;	✓		✓			✓			✓		
CLO2: To Analyze various components of image, video, audio compression and analyze various packet recovery, adaptive play out, and congestion avoidance strategies;	✓		✓			✓			✓		
CLO3: To Design a network to distribute multimedia data and Work as a team to analyze contemporary issues in multimedia systems;	✓		✓			✓			✓		

17. **Content outline of the course/module and the SLT per topic**

Details		SLT (Hour)				
		L	**T**	**P**	**IS**	**Total**
Topic 1	**Introduction** Multimedia systems, components and technology, Multimedia software tools, Multimedia data representation (text, audio, image, video), Analog to Digital Conversion, Data storage and communication	6	1	-	10	**17**
Topic 2	**Image Representation** Bitmaps (digitization, pixel and resolution), Frequency in digital image, discrete cosine transform,, aliasing, color, vector graphics	6	-	-	10	**16**
Topic **3**	**Image Processing and Compression** Dithering, Channels, Layers, Mask, Blending mode, pixel point processing, spatial filtering, resampling and interpolation, LZW compression, Huffman coding, JPEG compression Digital audio, Audio CD, Audio compression principles, MP3	9	2	-	12	**23**
Topic 4	**Audio Representation** Audio waveform, PCM and audio digitization, Sampling rate and aliasing, quantization, frequency analysis, MIDI.	6	1	-	10	**17**
Topic 5	**Audio Processing and Video representation and Communication** Tools, Dynamic processing, Audio filters, Audio compression (perceptual encoding, MPEG compression)Video standard, video display, video camera, analog video resolution and bandwidth, digital video resolution and bandwidth, Media distribution, video production Video capture, composition, key frame, time code, video compression, MPEG standard	9	2	-	13	**24**
Topic 6	**Multimedia Network** TCP/IP protocol, multiplexing technologies, Quality of service, multimedia over IP network, media on demand	6	1	-	10	**17**
Practical	1. Image processing 2. Video streaming	-	-	6	-	**6**
Total SLT (Hour)		**42**	**7**	**6**	**65**	**120**

18.	**Main references supporting the course** 1. Li and Drew, “Fundamentals of Multimedia”, Prentice Hall, 2007 2. Jennifer Burg, Science of Digital Media, Prentice Hall 2009.
	Additional references supporting the course 1. Paul R. Gray, Robert G. Meyer," Analysis and Design of Analog Integrated Circuits", John Wiley & Sons, Inc latest ed.
19.	**Other additional information** All materials will be available to the students in the library.